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GENERIC PROTOCOL FOR CONDUCTING ENVIRONMENTAL AUDITS OF FEDERAL FACILITIES

Volume I: Phase 1; Auditing for Compliance

Prepared by the Members of the Interagency Environmental Audit Protocol Workgroup for the Federal Community

Generic Protocol for Conducting Environmental Audits of Federal Facilities

Volume I: Phase 1; Auditing for Compliance

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EPA

NOTICE

This document comprises the second revision to an earlier document, *Generic Protocol for Environmental Audits at Federal Facilities,* prepared in 1989 by EPA's Office of Federal Activities, and later in 1995, by EPA's Federal Facilities Enforcement Office. This 1996 revision includes a discussion and reference to EPA's new 1995 audit policy and also reorganizes the protocol into a two volume set. Both volumes contain the instructions for use of all three auditing sections or "phases." Volume I includes Phase 1 of the protocol, which provides a focus on compliance with federal environmental requirements. Volume II contains Phases 2 and 3 of the protocol, which details procedures for conducting environmental management system audits of both facility specific programs and the overall programs managed at the agency's headquarters.

This document has been developed to assist in conducting environmental audits and environmental management assessments. The use of this document should be restricted to environmental audits only. Areas such as safety, transportation, occupational health, and fire (to name a few) are mentioned solely for clarification purposes. It is a comprehensive look at environmental regulations only and is not intended to ensure compliance with all regulations.

This document is not designed to provide environmental auditors with detailed information on the administrative and management processes of auditing during the planning, on-site investigations, and post-audit periods. Rather, it is designed to primarily focus auditors on specific technical issues to determine 1) compliance with environmental requirements (both regulatory and otherwise), and 2) adherence to good management practices to assure sound environmental operations. To the extent practicable, management systems should be evaluated to prevent recurrence of individual environmental issues.

A companion document, *"Environmental Audit Program Design Guidelines for Federal Agencies,"* (EPA Document No. 300-B-96-011) has been revised and issued by EPA to focus on the development of strong environmental auditing programs and should be consulted in addition to using this document.

The U.S. Environmental Protection Agency does not make any guarantee or assume any liability with respect to the use of any information or recommendations contained in this document. Federal facilities requiring additional auditing information or advice should consult a qualified professional.

In addition, the information and recommendations set forth herein are intended as guidance to Government employees. It does not constitute rulemaking by the EPA, and may not be relied on to create a substantive or procedural right or benefit enforceable, at law or in equity, by any person The Government may take action at variance with this guidance and its internal procedures.

ACKNOWLEDGMENT

This manual was prepared and coordinated by the Federal Facilities Enforcement Office (FFEO), U.S. Environmental Protection Agency (EPA) for federal facilities to use as a guidance document to assist in the conduct of environmental auditing activities. Mr. Richard J. Satterfield of EPA served as director for this task. Arthur D. Little, Inc. assisted in the preparation of the manual.

EPA gratefully acknowledges the contributions of the U.S. Army Construction Engineering Research Laboratory (USACERL) which graciously provided the DoD "Environmental Audit ("Purple") Manual" as the model for Part 1 of this Manual and the Department of Energy (DOE) which provided the "Protocols for Conducting Environmental Management Assessments of DOE Organizations" (DOE/EH-0326), as the model for Parts 2 and 3 of this document.

To further assist both EPA and DOE in this effort, the Interagency Environmental Audit Protocol Workgroup was formed. The Workgroup, consisting of environmental auditing professionals and environmental compliance officers from other federal agencies provided advice and consultation to EPA and DOE for this effort in order to help ensure maximum quality and generic character to this document. It is a pleasure to acknowledge the assistance of the following Workgroup members and their respective agency/department who kindly provided consultation during this effort as well as technical review: Frank Russo and Richard Green, DOE; Dr. Diane Mann and Donna Schell, USACERL; Carolyn Macola, Will Garvey, Sally Dalzell, Melanie B. Garvey, James Bridges, Bob Carr, EPA; Gail Weston, US Navy; Bob Shakeshaft, US Army; Nancy Carper and Carol Ditmer, US Air Force; Ken Morin, Bureau of Land Management, DoI; Tami McVey, Maryalice Locke, Katherine Johnson, DoT; George Sunstrom, USDA; Bernie Denno, US Postal Service; Mike Green, NASA; Frank Covington and Jim Hatheway, National Enforcement Investigation Center; Jeffrey D. Williams and Kathy Hutson, NSA. The Workgroup was chaired by Richard Satterfield of FFEO, EPA.

The National Enforcement Investigation Center (NEIC) conducted an internal review of this document and suggested changes and enhancements to improve its quality. These changes have been incorporated into this final version.

Overall Introduction

A. Background

On October 13, 1978, President Carter signed Executive Order 12088 which ensures federal government compliance with applicable pollution control standards. The order conveys the responsibility for compliance to the head of each executive agency. The Executive Order requires federal agencies to comply with all substantive and procedural requirements of federal, state, and local environmental regulations. Agencies are encouraged to consult EPA, state, and local regulatory agencies in the prevention, control and abatement of environmental pollution. EPA in turn, is required by the Executive Order to provide technical advice and assistance to ensure compliance by federal agencies. In response to this mandate, EPA has committed to provide technical assistance to federal agencies to facilitate the development of environmental audit programs. This protocol manual is one form of that assistance.

Environmental auditing and EPA's policy providing encouragement and assistance on this matter are linked not only to Executive Order 12088, but also to public policies regarding its position on environmental audits. On July 9, 1986, EPA publicly addressed environmental auditing for the first time when the agency published it's environmental audit policy in the Federal Register (51 FR 25004). At that time, EPA encouraged regulated entities to initiate environmental audit programs that achieve and maintain compliance with environmental regulations. In the 1986 policy statement, EPA also encouraged federal agencies to develop audit programs and stated that EPA would provide assistance to help federal agencies establish such programs.

Over the years, EPA has initiated several efforts to encourage and assist federal agencies in designing and initiating environmental audit programs. These efforts have included:

- Conducting a survey of Audit Activities at Federal Agencies (1987);
- Sponsoring two nationwide environmental auditing conferences for federal agencies (1988 and 1995);
- Issuing guidelines to assist federal agencies in establishing audit programs ("*Environmental Audit Design Guidelines for Federal Agencies*") in 1989 and 1996 and;
- Issuing environmental audit protocols as guidance as guidance for federal agencies ("*Generic Protocol for Conducting Environmental Audits of Federal Facilities*") in 1988 and 1995.

EPA, through the Federal Facilities Enforcement Office (FFEO), will continue to provide sustained technical assistance to federal agencies to encourage the practice of environmental auditing.

B. EPA's 1986 and 1995 Environmental Audit Policies

The U.S. Environmental Protection Agency (EPA) recognizes that environmental auditing and sound environmental management, generally can provide potentially powerful tools toward protection of public health and the environment. In encouraging the use of these tools, EPA announced the "Environmental Auditing Policy Statement" on July 9, 1986 (51 FR 25004) (1986 audit policy) and the "Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations" on December 22, 1995 (60 FR 66706) (1995 or final audit or self -policing policy).

The 1986 audit policy states that "it is EPA policy to encourage the use of environmental auditing by regulated industries to help achieve and maintain compliance with environmental laws and regulation, as well as to help identify and correct unregulated environmental hazards." The policy also specifically endorses environmental auditing at federal facilities.

The 1995 audit policy offers major incentives for entities (including federal facilities) to discover, disclose and correct environmental violations. Under the 1995 policy, EPA will not seek gravity-based penalties or recommend that criminal charges be brought for violations that are discovered through an "environmental audit" (as defined in the 1986 audit policy) or a management system reflecting "due diligence" and that are promptly disclosed and corrected, provided that other important safeguards are met. These safeguards protect health and the environment by precluding policy relief for violations that cause serious environmental harm or may have presented an imminent and substantial endangerment, for example. The effective date

Audit Policy Provides Significant Incentives to Discover, Disclose and Correct Environmental Violations

Under the final Audit/Self Policing Policy, EPA will not seek gravity-based penalties and will not recommend criminal prosecution for companies that meet the requirements of the Policy. Gravity-based penalties represent the "seriousness" or "punitive" portion of penalties over and above the portion representing the economic gain from non-compliance The policy requires companies:

- to promptly disclose and correct violations,
- to prevent recurrence of the violation, and
- to remedy any environmental harm

The Policy excludes:

- repeated violations
- violations that result in serious actual harm, and
- violations that may present an imminent and substantial endangerment

Corporations remain criminally liable for violations resulting from conscious disregard of their legal duties, and individuals remain liable for criminal wrongdoing. EPA retains discretion to recover the economic benefit gained as a result of noncompliance, so that companies will not be able to obtain an economic advantage over their competitors by delaying investment in compliance. Companies that do not discover violations through an audit or CMS, yet meet all of the other Policy conditions, will receive 75% mitigation of gravity-based penalties.

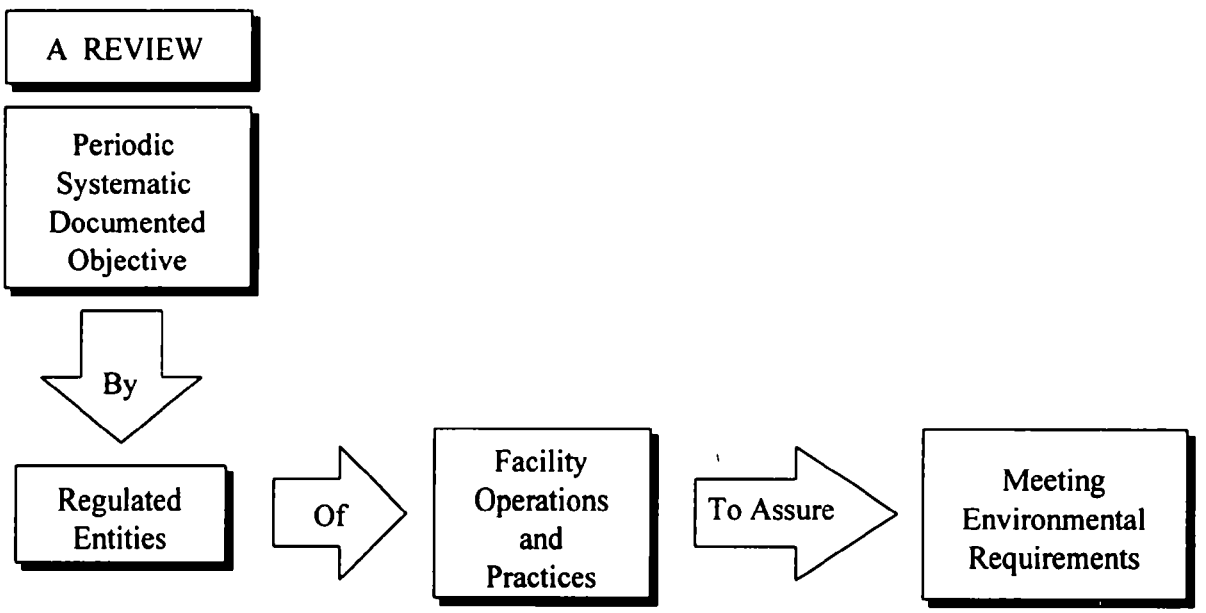
The Final Audit/Self-Policing Policy was published in the Federal Register on December 22, 1996, (60 FR 66706). It took effect on January 22, 1996. For further information, contact the Audit Policy Docket or call 202-564-4187.

of the policy is January 22, 1996. The 1986 and 1995 EPA audit policies are discussed in greater detail in EPA's "*Environmental Audit Program Design Guidelines for Federal Agencies*," which is a companion document to this protocol manual. Copies of both the 1986 and 1995 policy documents are contained in the Design Guidelines document.

In the 1986 policy, EPA defines environmental auditing as "a systematic, documented, periodic, and objective review of facility operations and practices related to meeting environmental requirements." **Figure 1** depicts EPA's definition of environmental auditing. The policy identifies several objectives for environmental audits:

- Verifying compliance with environmental requirements,
- Evaluating the effectiveness of in-place environmental management systems; and
- Assessing risks from regulated and unregulated materials and practices.

Figure 1: EPA Definition of Environmental Auditing



The EPA policy encouraged all federal agencies subject to environmental laws and regulations to develop environmental auditing programs to help ensure the adequacy of internal systems to achieve, maintain, and monitor compliance with environmental requirements. The policy also notes that federal agency auditing programs should be designed to identify environmental problems and develop schedules for remedial actions for audit findings.

C. Purpose

The purpose of this protocol manual is to provide the federal environmental auditing community with a set of protocols that can be used as a basis to implement, upgrade, or benchmark their environmental auditing activities. It can be regarded as a management tool for measuring environmental performance and provide management the opportunity of identifying not only the degree of its problems, but the nature of its problems and therefore may serve to facilitate the rethinking process for optimization of organizational environmental performance. The protocols, contained in this manual, can be used by auditors to assist them in the preparation for conducting environmental compliance audits and assessments of the environmental management systems developed to support compliance activities. In addition, this document can be used to assist federal agencies and facilities in outlining their approach to environmental management.

Many organizations have benefitted from the utilization of protocols in environmental audits and structural programs. For example, these programs have helped organizations:

- Pinpoint areas for immediate correction;
- Determine how successfully a facility is managing its environmental responsibilities;
- Compare between facilities;
- Make a "snapshot" of the operation and effectiveness of environmental management systems; and
- Decide whether or not environmental performance is improving year to year.

Environmental auditing has enabled many federal agencies to assess their environmental performance, correct deficiencies, and reduce their overall risk -- especially the risk of noncompliance with key government regulations.

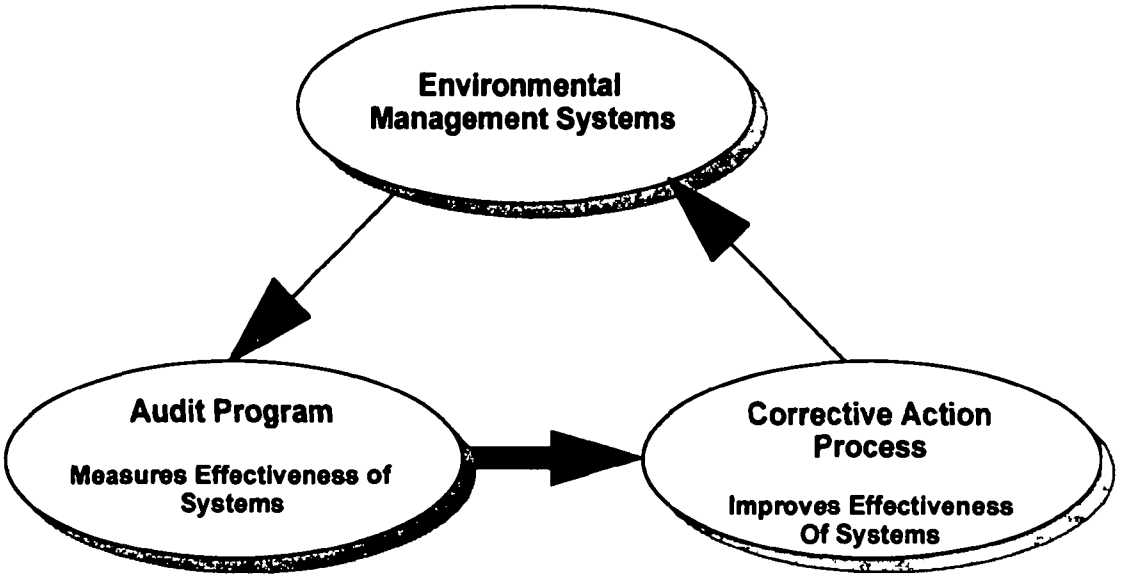
Despite enormous progress developing and implementing audit programs, many federal agency environmental management personnel are not yet comfortable with their answers to questions such as these:

- Do reaudits find the same, or similar, problems?
- Do similar problems show up again at the same facility? Do different facilities share common problems?
- Are a facility's corrective actions fixing only the symptoms, or are they also getting at the root causes behind recurring problems?
- Is senior management satisfied with its overall environmental record?

Recently when organizations began assessing their own audit programs and evaluating overall environmental performance, they began to sense some discomfort regarding these questions. A disconnection between the environmental audit program and continuing improvements in environmental management systems was apparent. Organizations that find their audit programs most valuable understand the key relationship between environmental audits and a successful corrective action process in improving environmental performance (**Figure 2**). In other words, an

environmental audit program is only as good as the organizations's success in identifying the root cause of each audit finding and then taking the "right" corrective action.

Figure 2: The Value of the Corrective Action Process



D. How to Use This Document

To help identify root causes to audit findings and select the most appropriate corrective actions, this set of protocols or manual is divided into three sections: (1) "Auditing for Compliance," (2) "Auditing for Effective Management of Specific Environmental Programs," and (3) "Conducting Environmental Management Assessments of Federal Agencies." As a convenience to the auditors using this manual, the protocols are organized into two volumes. Volume I (EPA Document No. 300-B-96-012A) contains Phase 1 which provides for a review of facility conditions in regard to specific media areas (e.g., air, water, and solid and hazardous waste) with a focus on compliance with federal environmental requirements. Volume II (EPA Document No. 300-B-96-012B) contains Phases 2 and 3. Phase 2 of the protocol examines cross-cutting issues and approaches such as pollution prevention and seven other organizational disciplines that help foster success in the technical management areas outlined in Phase 1. Phase 3 examines the management of <u>all</u> environmental programs at the facility and the parent agency to help establish compliance as the "starting point" rather than the goal of environmental performance.

E. Scope

This protocol manual is set up to support a wide range of environmental auditing programs from recently developed to mature audit programs. The sets of protocols have been created to support the stage of environmental auditing that best represents the status of the federal agency and/or facility under review. The protocols are designed to meet all the environmental review needs of the various facilities; therefore, some protocol areas may not be applicable in all facility circumstances and should be disregarded in such instances.

Phase 1 of the manual may be used to conduct a baseline compliance audit and/or as a starting point for agencies that have just begun new programs. Phases 2 and 3 of this manual are for federal agencies that have already developed a basic compliance program and desire to assess the management effectiveness of individual environmental programs or entire facilities or agencies. Phase 1, Auditing for Compliance, addresses the evaluation of compliance with environmental laws and regulations and their corresponding environmental practices. Phase 1 consists of 16 sections:

Section 1	Air Pollution Control
Section 2	Water Pollution Control
Section 3	Nonhazardous Waste Management
Section 4	Hazardous Waste Management
Section 5	CERCLA/SARA
Section 6	Spill Control and Response
Section 7	Management of Environmental Impacts (i.e., NEPA and NEPA components such as FONSI, EAs, EISs, etc.)
Section 8	Hazardous Materials Management
Section 9	Emergency Planning and Community Right to Know
Section 10	Cultural and Historic Resources Management
Section 11	Storage Tank Management
Section 12	Drinking Water Management
Section 13	PCB Management
Section 14	Pesticides Management
Section 15	Groundwater Protection
Section 16	Environmental Radiation

As Phase 1 of the protocol covers Management Practices (MPs), it must be understood that some management practices are non-environmental regulatory requirements/non-federal regulatory requirements or deal with programmatic aspects of environmental operations. Programmatic practices in Phase 2 address a comprehensive approach to the assessment of specific environmental programs that include MPs. Phase 1 does not take a comprehensive approach to consideration of MPs.

Phase 2, "Auditing for Effective Management of Specific Environmental Programs" (Section 17-32 in Volume II), targets the same 16 environmental areas but with the emphasis on evaluating the strengths and weaknesses of the environmental management systems established for assuring long-term compliance of these sixteen environmental program areas.

Phase 2 is designed for environmental auditors in specific technical disciplines to concentrate solely upon the management systems supporting a specific environmental program such as the hazardous waste management or the air pollution control program. Each Phase 2 section concentrates on a "programmatic evaluation" in which the auditor assesses the effectiveness of the management systems supporting the individual environmental program. As such, a single auditor could design an evaluation that takes either a representative or a comprehensive look at the management systems.

Each Phase 2 section can also be used in conjunction with the appropriate Phase 1 section to conduct a joint compliance and programmatic evaluation. Where appropriate, elements within each Phase 2 section contain specific examples to help guide the auditor in an evaluation of the specific environmental program.

Each of the sections in Phase 2 includes seven management systems plus an assessment of the pollution prevention initiatives for the applicable environmental discipline. The eight elements for Phase 2 include:

1. Organizational Structure
2. Environmental Commitment
3. Formality of Environmental Programs
4. Internal and External Communication Program
5. Staff, Resources, Training, and Development
6. Program Evaluation, Reporting, and Corrective Action
7. Environmental Planning and Risk Management
8. Pollution Prevention

For the purposes of this manual, these eight elements constitute one approach that can be used to establish an effective management system. However, variations may also serve to satisfy the needs of the individual federal organization.

Phase 3 is different from Phase 2 in that Phase 3 is designed for a team of auditors to take a comprehensive look at individual components of environmental management systems that apply to all environmental programs at a facility or throughout the entire federal agency. The elements or disciplines within Phase 3 are essentially the same as that of Phase 2, except that Phase 3 contains an element called Environmental Protection Program (EPP) and does not contain the Phase 2 element pollution prevention. In Phase 3 pollution prevention is rolled into the EPP discipline, whereas in Phase 2 it is a stand alone element. Within the EPP element, an auditor or team of auditors with an understanding of both the regulatory requirements and management systems performs a detailed evaluation of a representative number of environmental programs as opposed to the other auditors who take a detailed look at the management system component across the facility. The EPP discipline is used to evaluate the specific implementation of a representative number of environmental programs; their corresponding management system provides specific evidence supporting the degree of effectiveness of the larger environmental management systems. The EPP evaluation includes interviews and document reviews in addition to a limited amount of inspection.

Phase 3, "Conducting Environmental Management Assessments of Federal Agencies" evaluates the strengths and weaknesses of the management systems that have been developed to provide overall assurance that facility/agency-wide environmental management issues have been properly addressed with the right mix of resources, organization, policies and procedures, etc. Phase 3 reviews are designed to assure high-quality sustained management of environmental operations throughout entire facilities/agencies rather than focusing on any specific environmental programs (e.g., air quality, waste management, etc.).

Many federal facilities have tenant organizations, usually other federal agencies, but also state and local agencies and private parties. Although these tenant organizations may be responsible for environmental compliance of their activity, the facility owner may be ultimately held accountable by regulators should compliance problems persist or should future liabilities be discovered. The protocols in this manual can be used to address environmental compliance and management issues associated with tenant organizations. The agreements between the facility owner and the tenant organizations need to clearly establish environmental responsibilities of both the facility owner and tenant organization and the mechanisms that the facility owner will utilize to monitor compliance, including application of these protocols to the tenant organizations.

F. Approach

This protocol manual can be regarded as a tool box for conducting environmental auditing activities of federal organizations. The reviews may look at a single environmental program [e.g., RCRA compliance at a facility (Phase 1)]; or take a much broader look at the design and implementation of environmental management programs across the agency (Phase 3). Additionally, based on the specific audit objectives and scope, the audit team can pick and choose its tools from Phases 1, 2, or 3 or use a combination of the tools to meet its objective.

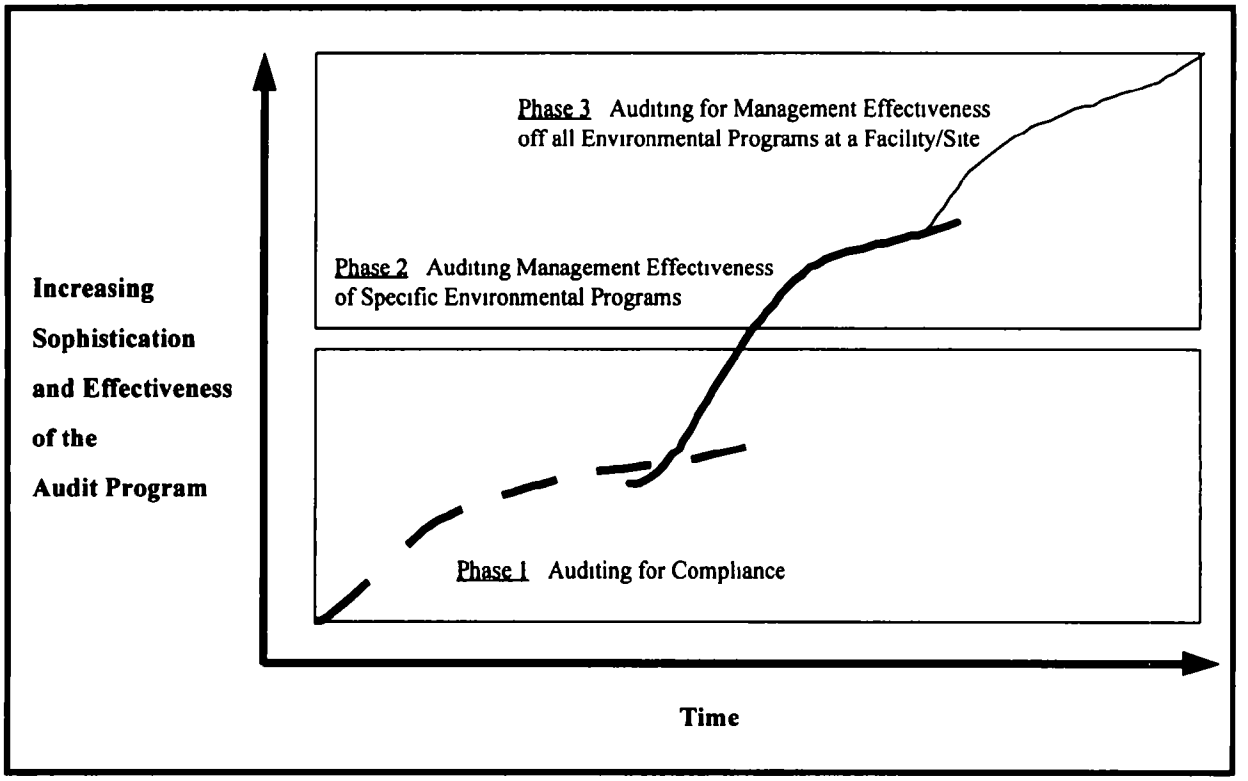
Stages of Environmental Auditing

Environmental audit programs can be thought of as having three phases of evolution as depicted in **Figure 3**, "Phases of Environmental Auditing," which illustrates how the three parts of auditing have been addressed in this protocol manual.

As agency environmental audit programs and overall environmental management systems mature, the focus of the audit program tends to shift. When an organization first establishes its environmental auditing program, it begins by auditing for compliance and subsequently identifying problems to be corrected (**Figure 3**). As the audit program evolves, the emphasis moves from identifying problems to determining compliance status, and then on to assessing the effectiveness of the environmental management control systems designed to prevent these problems. Thus, as an agency's environmental performance improves, the emphasis should shift from identifying problems to confirming the absence of problems -- a much more difficult task. The most significant benefits from a well-established audit program are successful environmental performance and a feeling of increased comfort and security that environmental risks are being managed.

A similar evolution should occur in how federal agencies act on the results of their audits. In the early stages of audit programs, immediate attention is given to fixing the problems identified.

Figure 3: Phases of Environmental Auditing

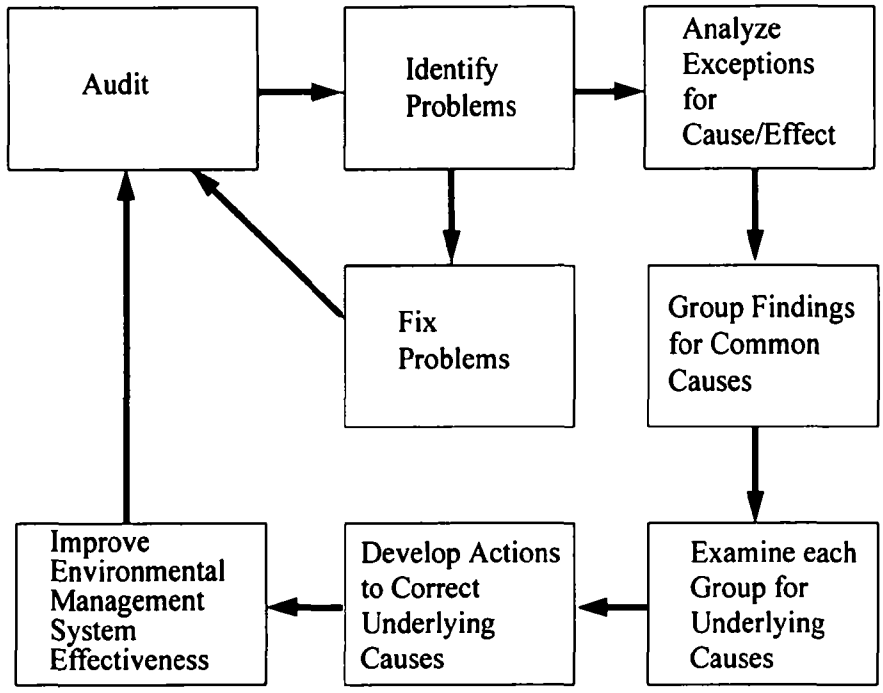


In some cases, agencies develop sophisticated tracking tools to ensure that such corrective actions do, in fact, occur. A more comprehensive approach, not yet taken by many agencies, is to analyze the problems identified during the audit for cause and effect and develop and implement appropriate corrective actions for those underlying causes. Those agencies that simply stick to fixing the problem may not achieve the performance desired and may even begin to consider their audit programs to be ineffective.

When performance improvements are not quickly forthcoming after implementation of an audit program, some agency managers blame the program itself for being ineffective. It may be, however, that blame should be directed at the corrective action process. Unfortunately, many agencies have little experience in analyzing the corrective action process or the effectiveness of the corrective actions implemented, despite their relative sophistication in gauging the audit program's ability to find the problems.

To successfully correct problems, keep the problems corrected, and head off finding the same problems in other facilities, the corrective action process needs to be expanded (**Figure 4**). In this expanded model for corrective action, audit findings are evaluated for underlying causes, and corrective actions involve developing management solutions to resolve root causes. Frequently, when findings are grouped, it is possible to identify common root causes. When the focus of corrective actions is on correcting common root causes, the effectiveness of the audit is increased tremendously.

Figure 4: The Expanded Corrective Action Process



The expanded corrective action process can be applied at any level -- facility, field division or bureau, or overall agency. Rarely does the root cause for serious facility problems stop at the facility gate; it usually extends upward into the division or parent agency.

There are many different ways to enhance the corrective action planning process. One method used successfully is to group audit findings into categories built on the following phases in a simple model for risk management:

- Identify hazards and evaluate risks;
- Develop control programs;
- Implement control programs; and
- Maintain and oversee programs.

By placing problems identified during an audit or audit program into such risk categories, it may be possible to see patterns in the findings, which can then help direct corrective actions. The results of such groupings can help to answer the following questions:

- Are facilities personnel aware of requirements?
- Are control programs missing important elements? If so, why?

- What prevents full implementation of control programs, even when the program itself seems sound?
- Do facilities have internal measurement processes to continually gauge the effectiveness of their programs?

Grouping findings into the four categories described above can provide one of the simplest methods for evaluating overall agency performance, making comparisons between facilities, and measuring facility improvement. Auditing program managers are always looking for ways to use audit results more broadly. It is not uncommon for senior management to fall into the trap of making year-to-year and facility-to-facility comparisons by counting the number of findings in an audit. Counting findings may not be appropriate, however, because no two findings typically carry the same risk. On the other hand, if most findings at a facility are weighted toward Phase 1 (identify and evaluate), it may say a lot about the facility's overall environmental risk management systems (no programs).

Relationship Between the Audit Phases

Phase 1 of environmental auditing will determine the areas in which compliance with environmental standards has not been achieved. These environmental standards can be either external to an organization (40 CFR) or internal (e.g., DoD Directives, DOE Orders, etc.). The protocols in Phase 1 can assist an organization in making a determination as to the compliance status of the entity under review, whether it be a facility or organization within the agency. Phase 1 typically reconciles environmental regulations promulgated by the EPA and state and local governments against facility conditions to establish the baseline of acceptable practice. Typically, environmental auditing programs focusing on Phase 1 activities are more reactive to environmental management and emphasize determining a facility's compliance with applicable regulations and standards so that actions can be taken to address individual deficiencies identified (**Figure 5**).

Phase 2 audit programs are designed to identify problems related to the management of environmental aspects of the organization, but do not stop there. In Phase 2, there is an added emphasis on confirming where the environmental programs are compliant and documenting why they are in compliance (i.e., how the management system works). By documenting why and how the program functions well, and sharing this with other facilities, a major benefit can be realized: this is the beginning of understanding and assessing the management systems that support the environmental program. Compliant programs typically have management systems in-place and functioning to ensure long-term compliance. By looking at the management systems in-place (e.g., organizational structure, environmental planning, policies and procedures), a judgment can be made as to whether the program is sound and can stay compliant. To do this, the reviewer needs to determine the who, what, when, where, how, and why of the program under review.

Take as an example the training of personnel to address the standards found in the hazardous waste management regulations (RCRA). Training must be given annually and within the first six months of taking on hazardous waste responsibilities. How would the auditor understand the training system?

Figure 5: Various Components of Audit Phases

PHASE 3 - AUDITING FOR MANAGEMENT EFFECTIVENESS OF ALL ENVIRONMENTAL PROGRAMS AT A FACILITY/SITE

ENVIRONMENTAL COMMITMENT	ORGANIZATIONAL STRUCTURE	ENVIRONMENTAL PROTECTION PROGRAMS	FORMALITY OF ENVIRONMENTAL PROGRAMS	COMMUNICATION	STAFF, RESOURCES, TRAINING	PROGRAM EVALUATION & REPORTING	ENVIRONMENTAL PLANNING & RISK MANAGEMENT

- SUSTAINED EXCELLENCE OF ENVIRONMENTAL PROGRAMS (ASSURANCE RATHER THAN COMPLIANCE)
- TYPICALLY A MANAGEMENT PRACTICE RATHER THAN A REQUIREMENT (E G , STAFFING FOR ALL ENVIRONMENTAL PROGRAMS AT A FACILITY, OR FORMAL DOCUMENTATION TO SUPPORT ENVIRONMENTAL PROGRAMS)
- PROACTIVE RATHER THAN REACTIVE
- *AUDITING PROGRAM AND FACILITY ENVIRONMENTAL MANAGEMENT MORE SOPHISTICATED*
- LOOKS AT ROOT CAUSES

PHASE 2 - AUDITING FOR EFFECTIVENESS OF SPECIFIC ENVIRONMENTAL PROGRAMS

MANAGEMENT OF AIR PROGRAM	MANAGEMENT OF WATER PROGRAM	MANAGEMENT OF NON-HAZARDOUS WASTE PROGRAM	MANAGEMENT OF HAZARDOUS WASTE PROGRAM	MANAGEMENT OF SPILL CONTROL AND RESPONSE PROGRAM	MANAGEMENT OF ENVIRONMENTAL IMPACT PROGRAM	MANAGEMENT OF HAZARDOUS MATERIALS PROGRAM	MANAGEMENT OF EMERGENCY PLANNING & COMMUNITY RIGHT TO KNOW PROGRAM (CERCLA/SARA)

- MANAGEMENT PRACTICE & TYPICALLY NOT REQUIRED (E G , STAFFING FOR WASTE MANAGEMENT PROGRAM)
- LOOKS AT CAUSAL FACTORS
- LOOKS AT COMPLIANCE TRENDS

PHASE 1 - AUDITING FOR COMPLIANCE

AIR POLLUTION CONTROL	WATER POLLUTION CONTROL	NON-HAZARDOUS WASTE (RCRA SUBTITLE D)	HAZARDOUS WASTE (RCRA SUBTITLE D)	SPILL CONTROL AND RESPONSE	ENVIRONMENTAL IMPACTS	HAZARDOUS MATERIALS	STORAGE TANKS	EMERGENCY PLANNING & COMMUNITY RIGHT TO KNOW (CERCLA/SARA)

- *MORE REACTIVE PROGRAM RATHER THAN PROACTIVE*
- TYPICALLY REQUIRED (REGULATORY OR INTRA AGENCY), MAY BE A MANAGEMENT PRACTICE (E G , RCRA TRAINING)
- PROGRAM SPECIFIC FOCUS RATHER SYSTEM WIDE FOCUS MORE LIKELY

In the case of this example, appropriate questions may include:

- Who is the trainer, and is he/she qualified?
- What type of training is given, and what is the curriculum?
- When is training provided to personnel?
- Where is training given?
- How often is training offered?
- How is training administered, and how does management/the trainer know that the trainees understand?
- Why are certain people selected to receive training?

If the training program is designed to ensure that compliance is achieved, compliance should be attained if the program is properly implemented. If the design of the program is flawed, the program will break down and compliance deficiencies may result. The Phase 2 protocols have been developed to assist the auditor in asking the right questions to be able to understand the structure of the management systems for specific environmental programs and to understand how they are designed to achieve compliance.

Phase 3 auditing concentrates on evaluating the macro level management systems that have been put into place to address all environmental programs at the facility or throughout the agency. Phase 3 looks at programs that have been designed to achieve compliance and those that go beyond compliance. The evaluation centers on the total environmental program design that has been put into place to effectively manage sustainable high-quality environmental operations Further, auditors evaluate overall management of the entire spectrum of environmental operations as well as benchmarking ideas, initiatives, and actions reaching toward good stewardship of the environment. The purpose of Phase 3 assessments is to review environmental management systems for all programs; there should be some investigation into specific program areas (e.g., air quality, waste management, etc.) to ensure that the program is being implemented as it was designed. This is known as taking a "vertical slice." The goal is to determine how the management system is implemented on a programmatic level. By conducting the "vertical slice", the auditor can verify that the program is implemented as it was designed. In fact, there are two levels of review: (1) an assessment of weaknesses of the management system, and (2) whether the program has been implemented. It is critical that auditors be able to determine whether the management system design can attain compliance if implemented and also to follow up with the verification of implementation to ensure that systems are functioning. Additional detail is provided in the introductions to each part of this manual.

G. Audit Procedures

Those agencies attempting to identify the areas in which compliance deficiencies are present should focus on Phase 1 auditing and use the Phase 1 protocols.

To conduct effective compliance-oriented audits, the audit team needs to possess sound working knowledge of the operations/processes to be reviewed, the regulations used as audit standards, and of good auditing practices. The Phase 1 audit protocols should be reviewed by the

auditor and used as a planning tool to assist the auditor in understanding the requirements for conducting a comprehensive audit. The federal, state and local environmental standards should be reviewed, and the Phase 1 protocols should be annotated, as required, to include other standards not present in the protocol.

The auditor should determine which regulatory agency has authority for executing an environmental program so that the proper set of regulations is consulted. For example, many states have been granted authority for carrying out the Hazardous Waste Management Program under the Resource Conservation and Recovery Act (RCRA). State programs that have authority for implementing federally mandated programs may have more stringent standards. This is especially true for air pollution control standards in major metropolitan areas. Use the protocol as an auditing tool, but not as a substitute for the applicable regulations.

Phase 2 of the protocol manual is designed to facilitate the assessment of management systems established for specific environmental programs. The emphasis here will be on understanding the regulatory standard of care and how it can best be achieved. Many environmental standards are performance-based standards that establish a minimum level of care that must be achieved. The agency has the obligation to establish programs for addressing how the standards will be attained. For example, understanding the hazardous waste standards will give great insights into what is required to achieve and maintain compliance. Therefore, assembling a team to assess the management systems of a specific environmental program will require regulatory knowledge, knowledge of the facility operation under review, and an understanding of the principles of management and organization. The team's purpose will be to gain an understanding of the design of the regulatory program and to have the skills to assess the strengths and weaknesses of the program to determine whether it can attain and maintain compliance.

Phase 3 focuses on the most sophisticated of environmental programs. These programs set in place the fundamental building blocks of the management systems for each environmental program as well as link these programs to an umbrella management system. These assessments center on management systems and not on the regulatory standards. The team makeup is quite different for these reviews, with the emphasis on management and organizational skills rather than on intimate knowledge of the regulatory standards. The review encompasses understanding, (1) what makes up the management system, (2) whether the umbrella management system can achieve compliance with all environmental programs, and (3) how the agency knows that it works. Verification of the system implementation is less than in Phase 2. The assessor completing the EPP discipline will verify that the programs address standards and meet requirements. This auditor is key to the overall success of the review because this is where theory of design meets actual implementation in the field. There are far fewer standards dictating what is to be done and even less on how to carry out Phase 3 programs, so the team must have management experience as well as strong interpersonal skills.

It is critical that the auditors conducting each type of review (Phase 1, 2, or 3) act as a team. There is far greater depth of knowledge as well as perspective in acting as a team. It is also suggested that auditors take detailed notes while conducting a review. It is simply impossible to remember who said what, what was observed, and which records were reviewed over the course of

an audit. Finally, audit protocols and notes are extremely useful resources in planning future audits. They can be used to highlight bottlenecks and breakdowns in the audit process that may be avoided by future audit teams and may be a source of reference to previous environmental management performance.

Phase 1

Auditing for Compliance

Phase 1
Auditing for Compliance
Table of Contents

Auditing for Compliance

Section 1	Air Pollution Control	1-1
Section 2	Water Pollution Control	2-1
Section 3	Nonhazardous Waste Management	3-1
Section 4	Hazardous Waste Management	4-1
Section 5	CERCLA/SARA	5-1
Section 6	Spill Control and Response	6-1
Section 7	Management of Environmental Impacts (i.e., NEPA and NEPA components such as FONSI, EAs, EISs, etc.)	7-1
Section 8	Hazardous Materials Management	8-1
Section 9	Emergency Planning and Community Right to Know	9-1
Section 10	Cultural and Historic Resources Management	10-1
Section 11	Storage Tank Management	11-1
Section 12	Drinking Water Management	12-1
Section 13	PCB Management	13-1
Section 14	Pesticides Management	14-1
Section 15	Groundwater Protection	15-1
Section 16	Environmental Radiation	16-1

Phase 1

Section 1

Air Pollution Control

Phase I
Section I
Table of Contents

Air Pollution Control

A. Applicability 1-1
B. Federal Legislation 1-1
C. State/Local Regulations 1-5
D. Key Compliance Requirements 1-6
E. Key Compliance Definitions 1-12
F. Records to Review 1-27
G. Physical Features to Inspect 1-28
H. Guidance for Checklist Users 1-30

Appendices

1-1. Reid Vapor Pressure for Installation Geographic Area A1-1
1-2. Emissions Limitations for Incinerators and Steam Generators A1-3
1-3. Formulas for Calculating Emissions Limitations A1-4
1-4. Particulate Emission Standards A1-6
1-5. Emissions Standards For NOx A1-7
1-6. Formula for Calculation SO_2 Emissions Limitations A1-8
1-7. NOx Emissions from Stationary Gas Turbines A1-9
1-8. Municipal Waste Combustor Operating Standards for CO A1-10
1-9. Lead Concentration in Sewage Sludge Fed to an Incinerator A1-11
1-10. Total Hydrocarbon Operational Standards A1-12
1-11. Frequency of Monitoring for Incineration A1-13
1-12. Compliance and Exemptions to CFR 63.320 through 63.325 Concerning Perchloroethylene Dry Cleaners A1-14
1-13. Controlled Substances and Ozone Depletion Weights A1-15
1-14. Acceptable Substitutes A1-18
1-15 Unacceptable CFC and Halon Substitutes A1-27
1-16 Required Levels of Evacuation for Appliances A1-33

A. Applicability

This section includes regulations, responsibilities, and compliance requirements associated with air pollution emissions from equipment and vehicles. The major types and sources of air emissions include:

- Particulates, SO_2, NO_x, and CO from fuel burning at steam and hot water generation plants and boilers;
- Particulates and toxic air emissions from the operation of hazardous waste, general waste, classified material, and medical, pathological, and/or infectious waste incinerators;
- Particulates, CO, metals, and toxic air pollutant emissions from open burning and open detonation operations;
- The emission of Volatile Organic Compound (VOC) vapors from the operation of degreasers and other processes (paint stripping and metal finishing) that use solvents;
- The emission of CO from vehicles and equipment operated on the facility;
- Fugitive particulate emissions from training activities and construction/demolition operations; and
- Asbestos emissions from building/equipment demolition/renovation operations.

Most facilities have air emissions sources in one or more of these categories. Therefore this section is applicable to some extent at all facilities.

Assessors are required to review the agency, Federal, state, and local regulations to perform a comprehensive assessment.

B. Federal Legislation

1. The Clean Air Act (CAA) of 1977

The purpose of the CAA (42 USCA 7401 et seq.) is to protect and enhance the quality of the nation's air. To achieve this objective, five regulatory programs and objectives were established by EPA:

- National Ambient Air Quality Standards (NAAQS);
- New Source Performance Standards (NSPS);
- National Emission Standards for Hazardous Air Pollutants (NESHAP);

- Federal permitting requirements (New Source Review (NSR) and Prevention of Significant Deterioration (PSD)); and

- State Implementation Plan (SIP) program (state plants to attain and maintain NAAQS).

2. The Clean Air Act Amendments (CAAA) of 1990

This Act, Public Law (PL) 101-549 (42 U.S. Code (USC) 7401-7671q), revised and added to the scope of the CAAA.

The purposes of the CAAA are to:

- Protect and enhance the quality of the nation's air resources so as to promote the public health and welfare and the productivity of its population;

- Initiate and accelerate a national research and development program to achieve the prevention and control of air pollution;

- Provide technical and financial assistance to state and local governments regarding the development and execution of their air pollution prevention and control efforts;

- Encourage and assist the development and operation of regional air pollution prevention and control programs (42 USC 7401(b));

- Achieve a substantial reduction in emission of hazardous air pollutants from area sources and an equivalent reduction in the public health risks associated with such sources including a reduction of not less than 75 percent in the incidence of cancer attributable to emissions from such sources (42 USC 7412(k)(1));

- Reduce the adverse effects of acid deposition through reductions in annual emissions of SO_2 from 1980 emission levels, and of NO_x emissions from 1980 emission levels, in the 48 contiguous states and the District of Columbia and to bring about such reductions by requiring affected sources to comply with prescribed emission limitations by specified deadlines. Limitations may be met through alternative methods of compliance provided by an emission allocation and transfer system; and

- Encourage energy conservation, use of renewable and clean alternative technologies, and pollution prevention as a long-range strategy, consistent with the provisions of this Act, for reducing air pollution and other adverse impacts of energy production and use (42 USC 7651(b)).

Each department, agency, and instrument of the executive, legislative, and judicial branches of the Federal government, and each officer, agent, or employee of such a unit, must comply with, all Federal, state, interstate, and local requirements, administrative authority, and process

and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernment entity. This applies to (42 USC 7418(a)):

- Any requirement whether substantive or procedural (including record keeping, reporting, and emission);
- Any requirement to pay a fee or charge imposed by any state or local agency to defray the costs of its air pollution regulatory program;
- The exercise of any Federal, state, or local administrative authority; and
- Any process and sanction, whether enforced in Federal, state, or local courts, or in any other manner.

Each department, agency, or instrument of the Federal government must not engage in support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan after it has been approved or passed under this Act. Any Federal agency may not approve, accept, or fund any transportation plan, program or project unless such plan, program, or project has been found to conform to any applicable implementation plan in effect (42 USC 7506(c)(1)(2)).

3. The Clean Water Act (CWA)

This Act governs the control of water pollution in the nation. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. This Act led to the promulgation of regulations concerning the incineration of sewage sludge.

4. The Toxic Substances Control Act (TSCA)

This Act, as last amended in 1986 (15 USC 2601-2671), is the Federal legislation that deals with the control of toxic substances. The Act consists of three subchapters; one regulates the control of toxic substances, another governs asbestos hazard emergency response, and another subchapter regulates indoor radon abatement. The policy developed in TSCA on chemical substances is as follows (15 USC 2601(b)):

a Adequate data should be developed with respect to the effect of chemical substances and mixtures on health and the environment and that the development of such data should be the responsibility of those who manufacture and those who process such chemical substances and mixtures;

b. Adequate authority should exist to regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment, and to take action regarding chemical substances and mixtures; and

c Authority over chemical substances and mixtures should be exercised in such a manner as not to impede unduly or create unnecessary economic barriers to technological

innovation while fulfilling the primary purpose of this Act to assure that such innovation and commerce in such chemical substances and mixtures do not present an unreasonable risk of injury to health or the environment.

Upon request by the EPA, each Federal department and agency is authorized to (15 USC 2625(a)):

a. Make its services, personnel, and facilities available (with or without reimbursement) to the EPA to assist the EPA in the administration of this Act; and

b. Furnish the EPA with information, data, estimates, and statistics, and allow the EPA access to all information in its possession as the EPA may reasonably determine to be necessary for the administration of this Act

Under TSCA, the national long-term goal of the United States with respect to radon levels in building is that the air within buildings in the United States should be as free of radon as the ambient air outside of buildings (15 USC 2661). The head of each Federal department or agency that owns a Federal building must conduct a study for the purpose of determining the extent of radon contamination in such buildings. Such study must include, in the case of a Federal building using a non-public water source (such as a well or other ground water), radon contamination of the water. Such a study must be based on design criteria specified by the EPA (15 USC 2669(a)(c)(e)).

5. The Asbestos Hazard Emergency Response Act (AHERA) of 1986

This Act, last amended in November 1990 (15 USC 2641-2656, et al, and 20 USC 4014, et al.), is the Federal legislation that governs the control and abatement of asbestos hazard present in school buildings. The purpose of this Act is (15 USC 2641(b)):

a. To provide for the establishment of Federal regulations that require inspection for asbestos- containing material and implementation of appropriate response actions with respect to asbestos-containing material in the nation's schools in a safe and complete manner;

b. To mandate safe and complete periodic reinspection of school buildings following response actions, where appropriate; and

c. To require the EPA to conduct a study to find out the extent of the danger to human health posed by asbestos in public and commercial buildings and the means to respond to any such danger.

6. The Hazardous Materials Transportation Act

This Act was amended in 1978 to regulate the transport of asbestos materials. The regulations are contained in 49 CFR 172-177. In particular 49 CFR 177 requires that asbestos must be loaded, handled, and unloaded in a manner that will minimize occupational exposure to

airborne asbestos. Asbestos wastes which are transported for disposal at a landfill or other disposal facility must meet all applicable requirements.

7. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

8. Executive Order (EO) 12873, Federal Acquisition, Recycling, and Waste Prevention

This EO, dated 20 October 1993, mandates waste prevention and recycling as part of an agency's daily operations. It requires each agency to set a goal for solid waste prevention and a goal for recycling to be achieved by the year 1995. Agencies are also required to set goals for increasing the procurement of recycled and other environmentally preferable products.

C. State/Local Regulations

The primary mechanisms regulating air pollutant emissions are the state or Air Quality Control Region (AQCR) regulations. These regulations will normally follow the Federal guidelines for state programs and will have many similar features. However, depending on the type and degree of air pollutant problems within the state/region, the individual regulations will vary. As an example, photochemical oxidant (ozone) problems are widespread in California and therefore the individual AQCRs in that state have stringent VOC emission requirements. The State of North Dakota has no such problem and therefore has fewer and less stringent VOC regulations.

New Source Performance Standards (NSPS) are established for particular pollutants in industrial categories based upon adequately demonstrated control technology. A permit is normally required for new, expanded, or modified sources of air pollutants.

Some state regulations apply directly to some facilities and operations without requiring a permit. At a minimum, state regulations should be reviewed for the following activities:

- Fugitive dust emissions;
- Control of particulate emissions from the transportation of refuse or materials in open vehicles;
- Certification requirements for boiler operators;

- Emissions and emission control requirements for the operation of existing fossil fuel-fired steam generators;
- Open burning;
- Vehicle exhaust emissions testing;
- Spray painting of vehicles, buildings, and/or furniture;
- Certification of vehicles transporting VOC liquids;
- Paving of roads and parking lots;
- Toxic air pollutants;
- Operation of cold cleaners, degreasers, and open top vapor degreasers;
- Vapor control requirements for fuel pumps; and
- Prescribed burning.

Many state and local governments have enacted standards more stringent than the Federal requirements concerning certification of asbestos workers and disposal of asbestos waste. If the facility is engaging in asbestos removal or disposal, contact the appropriate state and local agencies.

State and local governments may enact radon control standards.

D. Key Compliance Requirements

1. Steam Generating Units (greater than 29 MW (100 MBtu/h))

Steam generating units with capacity greater than 29 MW (100 Mbtu/h) that started construction or modification after 19 June 1984 are required to meet emissions limitations for particulates, SO_2, and NO_x The limit that applies is dependent on the type of fuel being burned. Records are required to be kept of the amounts of fuel combusted each day (40 CFR 60.40b through 60 49b)

2. Steam Generating Units (2.9 MW (10 Mbtu/h) - 29 MW (100 Mbtu/h))

Steam generating units that started construction, modification, or reconstruction after 3 June 1989 with a maximum design heat input capacity of greater than or equal to 2.9 MW (10 Mbtu/h) but equal to or less than 29 MW (100 Mbtu/h) are required to limit emissions of SO_2 and particulates. Discharge rates are to be monitored, and if there is no monitoring system, fuel is required to be sampled prior to combustion. Facilities are required to submit excess emissions

reports for any calendar quarter in which it exceeds opacity limits. If a facility does not exceed the limits in a given year, it is required to file semiannual reports confirming this fact. Facilities required to meet SO_2 emission limits are also required to submit quarterly reports (40 CFR 60.40c through 60 48c).

3. Fuel Burning Facilities (greater than 73 MW (250 Mbtu/h))

Fuel burning facilities constructed or modified after 17 August 1971 with greater than 73 MW (250 Mbtu/h) heat input are required to limit emissions of particulates, SO_2 and NO_x. Monitoring these substances and fuel analysis are also required to be done (40 CFR 60.44 and 60 45).

4. Stationary Gas Turbines

Stationary gas turbines with a heat input greater than or equal to 10.7 gJ/h (10.17 Mbtu/h) that were constructed or modified after 3 October 1977 are required to limit the amounts of NO_x and SO_2 emitted. In addition to the emissions, the sulfur and nitrogen content of the fuel being fired must also be monitored (40 CFR 60.330 through 60.335).

5. Municipal Waste Combustor

Municipal waste combustors with a capacity greater than 225 megagrams (Mg) (250 tons) per day that started construction or modification after 20 December 1989 are required to limit the amounts of dioxin/furan, SO_2, hydrogen chloride, CO, and NO_x emitted. The chief municipal waste combustor operator and shift supervisors are required to be certified to operate the combustor, and there must be an operating manual that is updated yearly (40 CFR 60.50a through 60.58a).

6. Incinerators

Incinerators with greater than 45 metric tons/day (50 tons/day) charging rate that started construction or modification after 17 August 1971 are required to meet emissions limitations for particulates and CO_2. Additionally, they are to maintain records of daily charging rates and hours of operation (40 CFR 60.50 through 60.54).

7. Sewage Sludge Incinerators

Sewage sludge incinerators that combust greater than 1000 kg/day (2205 lb/day) that were constructed or modified after 11 June 1973 are required to limit their emissions of particulates. Monitoring devices are required depending on what type of incinerator the facility operates (40 CFR 60.150 through 60 156)

8. Beryllium Incinerators

Incinerators for beryllium containing waste, beryllium, beryllium oxide, or beryllium alloys cannot emit more than 10 g (0.32 oz) of beryllium over a 24 hour period into the atmosphere. Records of emissions tests are required to be kept for two years (40 CFR 61.30 through 61 34).

9. Incineration of Sewage Sludge

Facilities with incinerators that fire sewage sludge must meet specific emissions standards for beryllium emissions, mercury emissions, and hydrocarbons. The incinerators are required to have continuous monitoring devices for hydrocarbons and oxygen in the exit gas and continuous monitoring for combustion temperature as specified by the permitting authority. Assorted reports are required to be submitted and records kept (40 CFR 503.40 through 503.48).

10. Gasoline Dispensing

Leaded gasoline shall not be introduced into any motor vehicle that is labeled UNLEADED GASOLINE ONLY, or that is equipped with a gasoline tank filler inlet designed for introduction of unleaded gasoline. Fuel pumps are required to display signs stating the type of fuel in each pump and that only unleaded gas can be introduced into labeled vehicles. The nozzles of the pumps are required to be properly sized. Depending on whether the oxygenated gas is still in the control period, or the area has an oxygenated gasoline program with a credit program, pumps dispensing oxygenated gasoline are required to be labeled. During 1992 and later, high-ozone seasons, and regulatory control periods, gasoline shall not be sold, offered for sale, imported, dispensed, supplied, or transported that exceeds Reid vapor pressure standards in Appendix 1-1. No diesel fuel shall be distributed, transported, offered for sale, or dispensed for use in motor vehicles unless it is free of the dye 1,4-dialkylamino-antraquinone and has an acetane index of at least 40, or a maximum aromatic content of 35 volume percent and a sulfur percentage of less than 0.05 percent (40 CFR 80.22(a), 80.22(d), 80.22(e), 80.24(a)(1), 80.27(a)(2), 80.35, 80.80(d), and 80.29(a)).

11. Rotogravure Printing Presses

Publication rotogravure printing presses, except for proof presses, that started construction or modification after 28 October, are required to ensure that gases are not being discharged containing VOC equal to more than 16 percent of the total mass of VOC solvent and water used at that press during any one performance averaging period (40 CFR 60.430 through 60.435).

12. Fugitive Emissions

The emission of Volatile Hazardous Air Pollutants (VHAP), vinyl chlorides, and benzene is required to be managed, monitored, and controlled according to specific requirements. These include taking certain actions when a leak is detected, ensuring that certain records are maintained, and ensuring that pumps and compressors meet certain standards and that pressure relief devices in gas/vapor service have no detectable emissions except during pressure releases. Valves and lines in VHAP service are required to be monitored monthly and repairs done within 15 days of leak detection. Systems and devices used to control VHAP emissions must recover vapors with 95 percent efficiency or greater. Enclosed combustion devices will be designed and operated to reduce VHAP and benzene emissions, and closed-vent systems will have no detectable emissions (40 CFR 61.240 through 61.242-10, 61.246, and 61.247).

13. Sulfuric and Nitric Acid Plants

These plants are required to limit their emissions and install continuous monitoring systems (40 CFR 60.70 through 60.85).

14. Chlorofluorocarbons (CFC) and Halons

To protect the ozone, no person repairing or servicing motor vehicles for payment can service a motor vehicle air conditioner in any way that affects the refrigerant unless they have been trained and certified and are using approved equipment. Additionally, persons who maintain, service, or repair appliance, except MVACs, and persons who dispose of appliances, except for small appliances, room air conditioners, Motor Vehicle Air Conditioners (MVAC), and MVAC-like appliances are required to be certified through an approved technician certification program. As of 15 November 1992, no Class I or Class II substances suitable for use in motor vehicles as a refrigerant can be sold or distributed in any container that is less than 20 lb (9.07 kg) to any person unless that person is trained and certified. Facilities that sell Class I or Class II substances suitable for use as a refrigerant in containers of less than 20 lb (9.07 kg) are required to display a sign with certain wording. The servicing of appliances containing CFCs and halons is required to be done in a manner to prevent emissions (40 CFR 82.34(a), 82.34(b), 82.42(a) through 82.42(c), and 80.150 through 80.166).

15. National Ambient Air Quality Standards (NAAQS)

The cornerstone of the Clean Air Act is the development and implementation of the National Ambient Air Quality Standards (NAAQS), as required in Title I, Section 109. States are required to develop and submit State Implementation Plans (SIPs) to the EPA for approval and delegation of authority. These SIPs are required to demonstrate how a State will control its current and future emissions sources such that the State's air quality levels will attain and maintain the NAAQS.

16. Criteria Pollutants

The Clean Air Act Amendments of 1977 established the basis that required EPA to develop a list of air pollutants originating from numerous or diverse mobile and stationary sources that may reasonably be anticipated to endanger public health or welfare. Criteria documents were developed by EPA for such pollutants, reflecting the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health and welfare that can be expected from the presence of the pollutants in the ambient air. Substances designated as criteria pollutants are sulfur dioxide, particulate matter (total suspended particulates prior to 1 July 1988, and PM-10 subsequently), carbon monoxide, ozone, nitrogen dioxide, and lead.

17. State Implementation Plan (SIP)

The Clean Air Act required each state to develop a SIP that would provide for implementation, maintenance, and enforcement of the primary and secondary ambient air quality standards. Title I of the 1990 Clean Air Act Amendments requires states to upgrade and submit modified SIPs particularly for ozone and PM_{10} nonattainment areas. Many states also included requirements directed at the Prevention of Significant Deterioration (PSD) of air quality in areas already meeting the air quality standards. States that did not develop their own more stringent PSD regulations are subject to the Federal program defined in 40 CFR 52.21. The individual states were provided an opportunity to establish air quality standards for the criteria pollutants that are more stringent than the Federal standards, and also to establish air quality standards for substances not listed as Federal criteria pollutants.

18. Standard of Performance for New Stationary Sources (NSPS)

In response to the Clean Air Act, the EPA has developed (and is continuing to develop) a specific list of sources, emission standards, notification and testing procedures, and monitoring and reporting requirements that apply to sources commencing construction or modification subsequent to proposal of a standard applicable to that facility. In many instances, authority has been delegated to individual states to carry out this regulatory process.

19. National Emission Standards for Hazardous Air Pollutants (NESHAP)

Prior to the 1990 amendments, the EPA established emission standards, monitoring and testing requirements, and reporting requirements for a relatively small group of sources that potentially emit the following carcinogenic or mutagenic substances: inorganic arsenic, asbestos, benzene, mercury, radionuclides, radon-222, and vinyl chloride. These regulations are found in 40 CFR 61.

Under Title III of the 1990 Amendments, the EPA modified the NESHAP's program to address a much larger population of sources with potential emissions of hazardous air pollutants. This modified program leaves the previous program intact and principally creates two new programs for the control of Hazardous Air Pollutants (HAPs) that separately address both chronic and accidental releases. The Federal programs under Title III were pre-empted in many states on the east and west coasts. The Federal program for the control of chronic releases is technology based for specific source categories; the program is defined in 40 CFR 63. It addresses both major and area sources of 189 hazardous air pollutants listed in the Title. Major sources are defined in Title III as having potential emissions of 10 Tons Per Year (TPY) or greater of a single listed HAP or 25 TPY in aggregate of listed HAPs. The EPA has the authority to redefine major source criteria and also regulate smaller sources as area sources. The chronic release control program regulations are to be promulgated for each source category by the year 2000. The accidental release program is currently in the regulatory proposal stage (40 CFR 68–58 FR 54190, 10/20/93 (proposed rule)).

It is important to note that a large number of states developed their own "air toxin's" control programs prior to the enactment of the new Federal HAP control program. These state programs typically have a control technology component and an acceptable ambient air concentration component. The ambient air concentration component is not part of the initial Federal control program, although after implementation of the control program under 40 CFR 63, the EPA is required to address residual risks of sources of HAPs.

20. Acid Rain Control

Some facilities may also be subject to some components of the acid rain control program mandated by Title IV of the Clean Air Act. This program mostly addresses utility emissions of sulfur dioxide and nitrogen dioxide through mandated emissions limits, tradeable emissions (e.g., allowances), and monitoring requirements. In addition, there are provisions for repowering of power plants with Clean Coal Technologies, sponsored by the Department of Energy (DOE) and other sources. Control programs are required to be implemented as early as 1995, with

deadlines for applications and allowance demonstrations that began in 1993. The Acid Rain provision core rules are codified in 40 CFR 72, 73, 75, and 77.

21. Federal Operating Permit Program

Under Title V of the Clean Air Act, states were required to submit to EPA by 15 November 1993 plans for developing operating permit programs. The operating permit program is required as specified in 40 CFR 70 for sources subject to NSPS, NESHAPS, the Acid Rain provisions, and other major sources. The first requirements of this program for stationary sources will be to develop and submit permit applications to either the EPA or the state as early as the fall of 1994 for some sources

The operating permit application will be used to develop a single comprehensive operating permit that encompasses all applicable air pollution control requirements for the source. In addition, the source will be required to submit periodic reports to the regulatory agencies regarding the source's performance relative to its permit requirements. These reports and the process in general will be open to the public.

22. Renovation and Demolition of Asbestos-Containing Structures

Facilities that demolish structures containing asbestos above certain limits must meet notification requirements, emission control requirements, and wetting requirements. This applies to facilities that demolish structures containing at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 m^2) of RACM on other components or at least 1 m^3 (35 ft^3) off facility components, and facilities renovating structures and stripping or removing at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15m ^{2} (160 m^2) of Regulated Asbestos-Containing Materials (RACM) of friable asbestos on other facility components and at least 1 m^3 (35 ft^3) off facility components. If the concentration of asbestos is less than this level, then the facility must submit notification of demolition. Facilities being demolished under state or local governmental agency orders shall have the portion of the facility containing friable asbestos adequately wetted during the wrecking operation. When a site is demolished by intentional burning, all regulated all RACM must be removed. No RACM shall be stripped, removed, or otherwise handled or distributed unless at least one onsite representative trained in asbestos removal is present. When air cleaning is used as a method of controlling emissions of asbestos to the outside air, the fabric filter collection systems are required to meet specific standards, unless alternative equipment is authorized for use by the EPA (40 CFR 61.145 and 61.152).

23. Asbestos Disposal

Asbestos-containing waste must be wetted or bagged to prevent emissions to the air. Asbestos waste has to be disposed of in landfills that have been approved for the acceptance of asbestos-containing waste (40 CFR 61.150, 61 151, and 61.154).

24. Asbestos in Schools

School buildings are required to be inspected for asbestos. An asbestos management plan is required and response action must be done in a timely manner. If there is friable asbestos in the school, there must be an O&M and repair program that limits the asbestos from becoming

airborne and from being exposed to personnel. Warning labels will be attached immediately adjacent to any friable and nonfriable Asbestos-Containing Building Material (ACBM) and suspected ACBM assumed to be Asbestos-Containing Material (ACM). Staff at the school must receive training on the hazards involved (40 CFR 763).

E. Key Compliance Definitions

(NOTE: In many cases, similar or identical terms have different meanings in different air pollution control regulations).

1. Active Waste Disposal Site

Any disposal site other than an inactive site (40 CFR 61.14).

2. Adequately Wetted

Sufficiently mixed or penetrated with liquid to prevent the release of particulates (40 CFR 61.14).

3. Air Pollution Control Device

One or more processes used to treat the exit gas from a sewage sludge incinerator stack (40 CFR 503.41(a)).

4. Ancillary Equipment

The equipment used with a dry cleaning machine in a dry cleaning system including, but not limited to, emission control devices, pumps, filters, muck cookers, stills, solvent tanks, solvent containers, water separators, exhaust dampers, diverter valves, interconnecting piping, hoses, and ducts (40 CFR 63.321).

5. Annual Capacity Factor

The ratio between the actual heat input to a steam generating unit from an individual fuel or combustion of fuels during a period of 12 consecutive calendar months and the potential heat input to the steam generating unit from all fuels, had the steam generating unit been operated for 8,700 hours during that 12 month period at the maximum design heat input capacity (40 CFR 60.41c).

6. Appliance

Any device that contains and uses a Class I or Class II substance as a refrigerant and that is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer (40 CFR 82.152(a)).

7. Approved Equipment Testing Organization

Any organization that has applied for and received approval from the administrator pursuant to 40 CFR 82.160 (40 CFR 82.152(b)).

8. Area Source

Any perchloroethylene dry cleaning facility that is not a major source (40 CFR 63.321).

9. Articles

Clothing, garments, textiles, fabrics, leather goods, and the like, that are dry cleaned (40 CFR 63.321)

10. Asbestos

Substances composed of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14)

11. Asbestos-Containing Waste Materials

Mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of 40 CFR 141 This term also includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. However, as applied to demolition and renovation operations, this term includes regulated ACM waste and materials contaminated with asbestos, including disposable equipment and clothing (40 CFR 61.141).

12. Asbestos Material

Asbestos or any material containing asbestos (40 CFR 61.141).

13. Asbestos Waste from Control Devices

Any waste material that contains asbestos and is collected by a pollution control device (40 CFR 61 141).

14. Auxiliary Fuel

Fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of sewage sludge and auxiliary fuel together) (40 CFR 503 41(b)).

15. Benzene Service

A piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 10 percent benzene by weight (40 CFR 61 111).

16. Bulk Gasoline Terminal

Any gasoline facility that receives gasoline by pipeline, ship, or barge, and has throughput greater than 75,000 L/day (19997.82 gal/day) (40 CFR 60.501).

17. Carbon Absorber

A bed of activated carbon into which an air-perchloroethylene gas-vapor stream is routed and that adsorbs the perchloroethylene on to the carbon (40 CFR 63.321).

18. Cartridge Filter

A discrete filter unit containing both filter paper and activated carbon that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in installing this device (40 CFR 60.621).

19. Category I Nonfriable Asbestos-Containing Material (ACM)

Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than one percent asbestos (40 CFR 61.141).

20. Category II Nonfriable ACM

Any material including Category I nonfriable ACM containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (40 CFR 61.141).

21. Certified Refrigerant Recovery or Recycling Equipment

Equipment certified by an approved equipment testing organization to meet the standards in 40 CFR 82.158(b) or (d), equipment certified pursuant to 40 CFR 82.36(a), or equipment manufactured before 15 November 1993, that meets the standards in 40 CFR 82.158(c), (e), or (g) (40 CFR 82.152(c)).

22. Closed-Vent System

A system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device (40 CFR 61.241).

23. Coal Refuse

Any waste products of coal mining, cleaning, and coal preparation operations (e.g., culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material (40 CFR 60.41a).

24. Co-fired Combustor

A unit burning municipal-type solid waste or refuse derived fuel with a nonmunicipal solid waste fuel that is subject to a Federally enforceable permit limiting the unit to combusting a fuel feed stream, 30 percent or less of the weight of which is comprised, in aggregate, of municipal-type solid waste or refuse-derived fuel as measured on a 24 hour basis (40 CFR 60.51a).

25. Cogeneration Steam Generating Unit

A steam generating unit that simultaneously produces both electrical (or mechanical) and thermal energy from the same primary energy source (40 CFR 60.41c).

26. Coin-Operated Dry Cleaning Machine

A dry cleaning machine that is operated by the customer (that is, the customer places articles into the machine, turns the machine on, and removes articles from the machine) (40 CFR 63.321).

27. Colorimetric Detector Tube

A glass tube (sealed prior to use) containing material impregnated with a chemical that is sensitive to perchloroethylene and is designed to measure the concentration of perchloroethylene in the air (40 CFR 63.321).

28. Commercial Asbestos

Any material containing asbestos that is extracted from ore and has value because of its asbestos content (40 CFR 61.141).

29. Commercial Refrigeration

For the purposes of 40 CFR 82.156(i), represents the refrigeration appliances utilized in the retail food and cold storage warehouse sectors. Retail food includes the refrigeration equipment found in supermarkets, convenience stores, restaurants and other food service establishments. Cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods. All of the equipment contains large refrigerant charges, typically over 75 lb (34.02 kg) (40 CFR 82.152(d)).

30. Commercial/Retail Waste

Material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities (40 CFR 60.51a).

31. Continuous Emissions Monitoring Systems (CEMS)

A monitoring system for continuously measuring the emissions of a pollutant from an affected facility (40 CFR 60.51a).

32. Control Efficiency

The mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator (40 CFR 503.41(c)).

33. Cutting

To penetrate with a sharp-edged instrument; includes sawing, but does not include shearing, slicing, or punching (40 CFR 61.141).

34. Demolition

The wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of a facility (40 CFR 61.141).

35. Designated Volatility Nonattainment Area

Any area designated as being in nonattainment with the NAAQS for ozone pursuant to rule making under Section 107(d)(4)(A)(ii) of the CAA (40 CFR 80.2).

36. Designated Volatility Attainment Area

An area not designated as being in nonattainment with the NAAQS for ozone (40 CFR 80.2).

37. Diesel Fuel

Any fuel sold in any state and suitable for use in diesel motor vehicles and diesel motor vehicle engines, and that is commonly or commercially known or sold as diesel fuel (40 CFR 80.2).

38. Dispersion Factor

The ratio of the increase in the ground level ambient air concentrations for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack (40 CFR 503.41(d)).

39. Disposal

The process leading to and including (40 CFR 82.152(e)):

a. The discharge, deposit, dumping, or placing of any discarded appliance into or on any land or water;

b. The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; and

c. The disassembly of an appliance for reuse of its component parts.

40. Diverter Valve

A flow control device that prevents room air from passing through a refrigerated condenser when the door of the dry cleaning machine is open (40 CFR 63.321).

41. Duct Burner

A device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit (40 CFR 60.41(c)).

42. Dry Cleaning Cycle

The washing and drying of articles in a dry-to-dry machine or transfer machine system (40 CFR 643.321).

43. Dry Cleaning Facility

An establishment with one or more dry cleaning systems (40 CFR 63.321).

44. Dry Cleaning Machine

A dry-to-dry machine or each machine of a transfer machine system (40 CFR 63.321).

45. Dry Cleaning Machine Drum

The perforated container inside the dry cleaning machine that holds the articles during dry cleaning (40 CFR 63.321).

46. Dry Cleaning Systems

A dry-to-dry machine and its ancillary equipment or a transfer machine system and its ancillary equipment (40 CFR 63.321).

47. Dryer

A machine used to remove petroleum solvent from articles of clothing or other textile or leather goods, after washing and removing excess petroleum solvent, together with the piping and ductwork used in the installation of this device (40 CFR 60.621).

48. Dryer

A machine used to remove perchloroethylene from articles by tumbling them in a heated air stream (40 CFR 63.321).

49. Dry-to-Dry Machine

A one-machine dry cleaning operation in which washing and drying are performed in the same machine (40 CFR 63.321).

50. Emergency Renovation Operation

A renovation operation that was not planned but results from a sudden, unexpected event that if not immediately attended to presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment (40 CFR 61.141).

51. Emerging Technology

Any SO_2 control system that is not defined as a conventional technology and for which the owner or operator of the affected facility has received approval from the administrator to operate as an emerging technology (40 CFR 60.41(c)).

52. Exhaust Damper

A flow control device that prevents the air-perchloroethylene gas-vapor stream from exiting the dry cleaning machine into a carbon adsorber before room air is drawn into the dry cleaning machine (40 CFR 63.321).

53. Facility Component

Any part of any facility, including equipment (40 CFR 61.141).

54. Federally Enforceable

All limitations and conditions enforceable by the administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable

state implementation plan, and any permit requirements established pursuant to 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24 (40 CFR 60.41(b)).

55. Fluidized Bed Incinerator

An enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles in the combustion chamber gas (40 CFR 503.41(e)).

56. Fossil Fuel

Natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat (40 CFR 60.41(a)).

57. Friable Asbestos Material

Any material that contains more than one percent asbestos by weight and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141).

58. Fuel Pretreatment

A process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit (40 CFR 60.41(c)).

59. Fugitive Emissions

Air pollutants entering into the atmosphere from other than a stack chimney, vent, or other functionally equivalent opening. Examples are vapors, dust, and fumes (40 CFR 51.301(j)).

60. Fugitive Source

Any source of emissions not controlled by an air pollution control device (40 CFR 61.141).

61. Gasoline Carrier

Any distributor who transports or stores, or causes the transportation or storage of gasoline or diesel fuel without taking title to or otherwise having any ownership of the gasoline, and without altering either the quality or quantity of the gasoline or diesel fuel (40 CFR 80.2).

62. Gasoline Distributor

Any person who transports or stores, or causes the transportation or storage of gasoline or diesel fuel at any point between any gasoline refinery or importer's facility and any retail outlet or wholesale purchaser consumer facility (40 CFR 80 2).

63. Glove Bag

A sealed compartment with attached inner gloves used for the handling of ACM (40 CFR 61.141).

64. Heat Input

Heat derived from combustion of fuel in a steam generating unit; does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (40 CFR 60.41(c)).

65. High-Pressure Appliance

An appliance that uses a refrigerant with a boiling point between -50 and 10°C (-58 and 50°F) at atmospheric pressure (29.9 in (75.946 cm) of mercury). This definition includes but is not limited to appliances using refrigerants -12, -22, -114, -500, or -502 (40 CFR 82.152(f)).

66. Hourly Average

The arithmetic mean of all measurements taken during one hour. At least two measurements must be taken during the hour (40 CFR 503.41(f)).

67. Household Waste

Includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing (40 CFR 60.51(a)).

68. In Poor Condition

The binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material (40 CFR 61.141).

69. Inactive Waste Disposal Site

Any disposal site (or portion of it) where additional asbestos-containing waste material will not be deposited and where the surface is not disturbed by vehicular traffic (40 CFR 61.141).

70. Incinerator

Any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter (40 CFR 60.51).

71. Industrial Process Refrigeration

For the purposes of 40 CFR 82.156(i), this represents complex customized appliances used in the chemical, pharmaceutical, petrochemical, and manufacturing industries. This sector also includes industrial ice machines and ice rinks (40 CFR 82.152(g)).

72. Institutional Waste

Includes materials discarded by hospitals, schools, nonmanufacturing activities at prisons, and government facilities (40 CFR 60.51(a)).

73. Large Municipal Waste Combustor (MWC)

An MWC plant with a capacity greater than 225 Mg/day (250 tons/day) of municipal solid waste (40 CFR 60.51(a)).

74. Lignite

Coal that is classified as lignite A or B according to the American Society for Testing and Materials (ASTM) Standards (40 CFR 60.41(a)).

75. Low-Loss Fitting

Any device that is intended to establish a connection between hoses, appliances, or recovery or recycling machines and that is designed to close automatically or to be closed manually when disconnected, minimizing the release of refrigerant from hoses, appliances, and recovery or recycling machines (40 CFR 82.152(h)).

76. Low-Pressure Appliance

An appliance that uses a refrigerant with a boiling point above 10°C (50°F) at atmospheric pressure (29.9 in (75.946 cm) of mercury). This definition includes but is not limited to equipment utilizing refrigerants -11, -113, and -123 (40 CFR 82.152(i)).

77. Major Maintenance, Service, or Repair

Any maintenance, service, or repair involving the removal of any or all of the following appliance components (40 CFR 82.152(j)):

a. Compressor;
b. Condenser;
c. Evaporator; and
d. Auxiliary heat exchanger coil.

78. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

79. Maximum Heat Input Capacity of a Steam Generating Unit

Is determined by operating the facility at maximum capacity for 24 hours and using the heat loss method described in Sections 5 and 7.3 of the American Society of Mechanical Engineers (ASME) Power Test Codes 4.1 (see 40 CFR 60.17(h)) no later than 180 days after initial startup of the facility and within 60 days after reaching maximum production rate at which the facility will be operated (40 CFR 60.51a).

80. Medical Waste

When defined as applicable to municipal waste combustors, it is any solid waste generated in the diagnosis, treatment, or immunization of human beings or animals; in research pertaining thereto; or in production or testing of biologicals. Medical waste does not include any hazardous waste identified under the Resource Conservation and Recovery Act (RCRA), Subtitle C, or any household waste as defined in RCRA Subtitle C (40 CFR 60.51(a)).

81. Modification

In relation to New Source Performance Standards (NSPS), any physical or operational change to an existing facility that results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies except (40 CFR 60.14):

a. Maintenance, repair, and replacement that the administrator determines to be routine for a source category;

b. An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility;

c. An increase in the hours of operation; and

d. Use of an alternate fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, the existing facility was designed to accommodate that alternate use. A facility will be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as assessed prior to the change.

82. Motor Vehicle Air Conditioner (MVAC)

Any appliance that is a motor vehicle air conditioner as defined in 40 CFR 82, subpart B (40 CFR 82.152(k)).

83. Muck Cooker

A device for heating perchloroethylene-laden waste material to volatilize and recover perchloroethylene (40 CFR 63.321).

84. Municipal-Type Solid Waste

Household, commercial/retail, and/or institutional waste Household, commercial/retail, and institutional wastes do not include sewage, wood pallets, construction and demolition wastes, or industrial process or manufacturing wastes. Municipal-type solid waste does include motor vehicle maintenance materials, limited to vehicle batteries, used motor oil, and tires. Municipal-type solid waste does not include wastes that are solely segregated medical wastes. However, any mixture of segregated medical wastes and other wastes that contains more than 30 percent medical waste is considered municipal-type solid waste (40 CFR 60.51(a)).

85. Municipal Waste Combustor (MWC)

Any device that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected incinerators, modular incinerators, boilers, furnaces, and gasification/combustion units. This does not include combustion units, engines, or other devices that combust landfill gases collected by landfill gas collection systems (40 CFR 60.51(a)).

86. MVAC-Like Appliance

Mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of a non-road motor vehicle. This includes the air conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC-22 refrigerant (40 CFR 82.152(l)).

87. Nitric Acid Production Unit

Any facility producing nitric acid that is 30 to 70 percent in strength by either the pressure or atmospheric pressure process (40 CFR 60.70).

88. Nonscheduled Renovation

A renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience but for which an exact date cannot be predicted (40 CFR 61.141).

89. Normally Containing a Quantity of Refrigerant

Containing the quantity of refrigerant within the appliance or appliance component when the appliance is operating with a full charge of refrigerant (40 CFR 82.152(m)).

90. Opacity

The degree to which emissions reduce the transmission of light and obscure view of an object in the background (40 CFR 60.2).

91. Opening an Appliance

Any service, maintenance, or repair on an appliance that could be reasonably expected to release refrigerant from the appliance to the atmosphere unless the refrigerant were previously recovered from the appliance (40 CFR 82.152(n)).

92. Outside Air

The air outside buildings and structures, including but not limited to, air under a bridge or an open ferry dock (40 CFR 61.141).

93. Particulate Asbestos Material

Finely divided particles of asbestos or material containing asbestos (40 CFR 61.141).

94. Particulate Matter Emissions

Any airborne, finely divided solid or liquid material except uncombined water that is emitted to the ambient air (40 CFR 60.2).

95. Perceptible Leaks

Any perchloroethylene vapor or liquid leaks that are obvious from (40 CFR 63.321):

a. The odor of perchloroethylene;
b. Visual observation, such as pools or droplets of liquid; and/or
c. The detection of gas flow by passing the fingers over the surface of the equipment.

96. Perchloroethylene Consumption

The total volume of perchloroethylene purchased based upon purchase receipts or other reliable measures (40 CFR 63.321).

97. Petroleum Dry Cleaner

A dry cleaning facility that uses petroleum solvent in a combination of washers, dryers, filters, stills, and settling tanks (40 CFR 60.621).

98. Planned Renovation Operations

A renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience (40 CFR 61.141).

99. PM_{10}

Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (40 CFR 58.1).

100. Process Sub

A length of tubing that provides access to the refrigerant inside a small appliance or room air conditioner and that can be resealed at the conclusion of repair or service (40 CFR 82.152(p)).

101. Publication Rotogravure Printing

Any number of rotogravure printing units capable of printing simultaneously on the same continuous web or substrate. Includes any associated device for continuous cutting and folding the printed web, where the following sellable paper products are printed: catalogues; direct mail advertisements; display advertisements; magazines; miscellaneous advertisements including brochures, pamphlets, catalogue sheets, circular folders, and announcements; newspapers; periodicals; and telephone and other directories (40 CFR 60.431).

102. Radon-222

A naturally occurring, inert radioactive gas that is formed from the radioactive decay of uranium.

103. Reclaim Refrigerant

To process refrigerant to at least the purity specified in the ARI Standard 700-1988, *Specifications for Fluorocarbon Refrigerants* (Appendix A to 40 CFR 82, Subpart F) and to verify this purity using the analytical methodology prescribed in the ARI Standard 700-1988. In general, reclamation involves the use of processes or procedures available only at a reprocessing or manufacturing facility (40 CFR 182.52(q)).

104. Reclaimer

A machine used to remove perchloroethylene from articles by tumbling them in a heated air stream (40 CFR 63.321).

105. Reconstruction

In relation to perchloroethylene dry cleaners, it means replacement of a washer, dryer, or reclaimer or replacement of any components of a dry cleaning system to such an extent that the

fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source (40 CFR 63.321).

106. Recover Refrigerant

To remove refrigerant in any condition from an appliance without necessarily testing or processing it in any way (40 CFR 182.52(r)).

107. Recovery Efficiency

The percentage of an appliance that is recovered by a piece of recycling or recovery equipment (40 CFR 82.152(s)).

108. Recycle Refrigerant

To extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site (40 CFR 82.152(t)).

109. Refrigerated Condenser

A vapor recovery system into which an air-perchloroethylene gas-vapor stream is routed and the perchloroethylene is condensed by cooling the gas-vapor stream (40 CFR 63.321).

110. Refuse Derived Fuel

Combustible or organic portion of municipal waste that has been separated out and processed for use as fuel (40 CFR 60.51(a)).

111. Regulated Asbestos-Containing Material (RACM)

Includes friable asbestos material; Category I nonfriable asbestos-containing material that has become friable; Category I nonfriable asbestos-containing material that has been subjected to grinding, casting, cutting, or abrading; and Category II nonfriable asbestos-containing material that has a high probability of becoming crumbled, crushed, or pulverized (40 CFR 61.141).

112. Remove

To take out RACM from any structure (40 CFR 61.141).

113. Renovation

Altering in any way one or more structure components. Operations in which load-supporting structural members are wrecked or taken out are excluded (40 CFR 61.141).

114. Risk Specific Concentration

The allowable increase in the average daily ground level ambient air concentrations for a pollutant from the incineration of sewage sludge at or beyond the property line of the site where the sewage sludge.incinerator is located (40 CFR 503.41(i)).

115. Room Enclosure

A stationary structure that encloses a transfer machine system and that is vented to a carbon adsorber or an equivalent control device during operation of the transfer machine system (40 CFR 63.321).

116. Self-Contained Recovery Equipment

Refrigerant recovery or recycling equipment capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance (40 CFR 82.152(u)).

117. Sewage Sludge Feed Rate

Either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the numbers of days in a 365-day period that each sewage sludge incinerator operates, or the site where the sewage sludge incinerators are located (40 CFR 503.41(j)).

118. Sewage Sludge Incinerator

An enclosed device in which only sewage sludge and auxiliary fuel are fired (40 CFR 503.41(k)).

119. Small Appliance

Any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with 5 lb (11.02 kg) or less of refrigerant (40 CFR 82.152(v)):

a. Refrigerators designed for home use;
b. Freezers designed for home use;
c. Room air conditioners (including window air conditioners and packaged terminal air conditioners);
d. Packaged terminal heat pumps;
e. Dehumidifiers;
f. Under-the-counter ice makers;
g. Vending machines; and
h. Drinking water coolers.

120. Stationary Gas Turbines

Any simple cycle gas turbine, regenerative cycle gas turbine, or any gas turbine portion of a combined cycle steam/electric generating system that is not selfpropelled. It may be mounted on a vehicle for portability (40 CFR 60.331).

121. Steam Generating Unit

Any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil fuel-fired steam generators associated with combined cycle gas turbines). Nuclear steam generators are not included (40 CFR 60.41(a)).

122. Strip

To take off RACM from any part of a facility (40 CFR 61.141).

123. Structural Member

Any load-supporting member of a structure, such as beams and load-supporting walls, or any nonload-supporting member, such as ceilings and nonload-supporting walls (40 CFR 61.141).

124. Sulfuric Acid Production Unit

Any facility producing sulfuric acids by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge; does not include facilities where conversion to sulfuric acid is used primarily as a means of preventing emissions to the atmosphere of SO_2 or other sulfur compounds (40 CFR 60.81).

125. System-Dependent Recovery Equipment

Refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance (40 CFR 82.152(w)).

126. Technician

Any person who performs maintenance, service, or repair that could reasonably be expected to release Class I or Class II substances from appliances into the atmosphere, including but not limited to, installers, contractor employees, in-house service personnel, and, in some cases, owners. Technician also means any person disposing of an appliance except for small appliances (40 CFR 82.152(x)).

127. Transfer Machine System

A multiple-machine dry cleaning operation in which washing and drying are performed in different machines. Examples include but are not limited to (40 CFR 63.321):

a. A washer and dryer;
b. A washer and reclaimer; and
c. A dry-to-dry machine and reclaimer.

128. Very High-Pressure Appliance

An appliance that uses a refrigerant with a boiling point below -50°C (-58°F) at atmospheric pressure (29.9 in (75.95 cm) of mercury). This definition includes but is not limited to equipment utilizing refrigerants -13 and -503 (40 CFR 82.152(y)).

129. Very Low Sulfur Oil

An oil that contains no more than 0.5 weight percent sulfur or that, when combusted without SO_2 emission control, has a SO_2 emission rate equal to or less than 215 ng/J (0.5 lb/ MBtu) heat input (40 CFR 60.41(b)).

130. VHAP Service

A piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a Volatile Hazardous Air Pollutant (VHAP) (40 CFR 61.241).

131. Visible Emissions

Any emissions that are visually detectable without the aid of instruments, and that are derived from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed water vapor (40 CFR 61.141).

132. VOC Service

In relationship to fugitive emissions, this is when a piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight (40 CFR 61.241).

133. Volatile Hazardous Air Pollutants (VHAPs)

A substance regulated under 40 CFR 61, Subpart V, for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene and vinyl chloride are VHAPs (40 CFR 61.241).

134. Volatile Organic Compounds (VOCs)

Any compound of carbon (excluding CO, CO_2, carbonic acid, metallic carbides, carbonates, and ammonium carbonate) that participates in atmospheric photochemical reactions (40 CFR 51.100).

135. Washer

A machine used to clean articles by immersing them in perchloroethylene. This includes a dry-to-dry machine when used with a reclaimer (40 CFR 63.321).

136. Water Separator

Any device used to recover perchloroethylene from a water-perchloroethylene mixture (40 CFR 63.321).

137. Wholesale Purchaser-Consumer

Any organization that is an ultimate consumer of gasoline or diesel fuel, and that purchases or obtains gasoline or diesel fuel from a supplier for use in motor vehicles, and that receives delivery of that product into a storage tank of at least 550 gal (2081.98 L) capacity substantially under the control of that organization (40 CFR 80.2).

F. Records to Review

- State and local air pollution control regulations
- Emissions inventory
- All air pollution source permits

- Plans and procedures applicable to air pollution control
- Emission monitoring records
- Opacity records
- Notices of Violations (NOVs) from regulatory authorities
- Instrument calibration and maintenance records
- Reports/complaints concerning air quality
- Air Emergency Episode Plan
- State and/or Federal regulatory inspections
- Regulatory inspection reports
- Documentation of preventive measures or actions
- Results of air sampling at the conclusion of response action
- Asbestos management plan and operating plan
- Notification to regulators concerning asbestos disposal
- Records of onsite disposal and transportation and offsite disposal of asbestos
- Regulatory inspection reports
- Documentation of asbestos sampling and analytical results
- Documentation of preventive measures or actions
- Results of air sampling at the conclusion of response action
- Records of asbestos training program
- List of buildings insulated with asbestos or housing ACM
- Record of demolition or renovation projects in the past five years that involved friable asbestos
- Decision documents/records of decision
- Administrative record
- Facility Master Plan Document
- Training and certification records for Federal employees who reclaim or recycle refrigerants
- Site plans and drawings.

G. Physical Features to Inspect

- All air pollution sources (fuel burners, incinerators, VOC sources, etc.) (see Table 1)
- Air pollution monitoring, control devices, and locations
- Air emission stacks
- Air intake vents
- Pipe, spray-on, duct, and troweled cementitious insulation and boiler lagging
- Ceiling and floor tiles.

Table 1

Potential Air Pollution Sources Found at Federal Facilities

Heat/Steam/Energy Production
Coal-fired power plants
Package boilers
Diesel generators
Emergency generators
Peak shaving generators
Turbines

Petroleum Product Storage and Transport
Tank farms
Gasoline service stations
Loading racks
Tanker transfer
Underground storage tanks
Aboveground storage tanks

Graphic Arts
Letterpress
Rotogravure
Offset lithography
Silkscreening

Degreasing Operations
Vapor degreasers
Cold solvent cleaning
Solvent dip tanks

Surface Coating Operations
Paint booths
Metal parts coating lines
Furniture refinishing
Architectural coatings
Traffic striping

Additional Sources
Paint stripping operations
Drycleaning operations
Photoprocessing operations
Training Aid Support Centers (TASC)
Chemical recycling and recovery

Waste Disposal
Incineration of medical/pathological or hazardous waste
Open burning/open detonation
Landfills
Surface impoundment
Landfarms/bioremediation

Firing Ranges
Artillery
Small caliber weapons

Additional Sources
Air-conditioning/refrigeration shops
Pesticide/herbicide applications
Asphalt production
Wastewater treatment plants
Controlled forest and agricultural burning
Firefighter training burns
Smoke generators
Engine test cells/dynamometers
Ethylene oxide sterilizers
Laboratory hood vents
Sandblasting operations
Woodworking operations
Quarries
Plastics production
Explosive and munitions production
Acid production
Forging and annealing operation
Metal treatment and plating
Waferboard manufacturing
Foam packing operations
Unpaved roads
Storage piles
Storage silos
Prescribed burns and trash burning

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	A.1 through A.2 A 3	1-32 1-33
New Source Performance Standards (NSPS)		
General	A.4 through A 5 A.6 through A.7	1-34 1-35
Steam Generators	A.8 A 9 through A 10 A 11 A 12 A 13	1-35 1-36 1-37 1-39 1-40
Gas Turbines	A.14 through A 15	1-41
Municipal Waste Combustors	A 16 A.17	1-42 1-43
Incinerators	A 18 A 19 A.20	1-44 1-45 1-46
Printing Presses	A 21	1-47
Acid Production Units	A 22 A.23 through A.24	1-47 1-47
Sewage Sludge Incinerators	A. 25 A 26 through A 29 A.30 A 31 A 32	1-47 1-48 1-49 1-50 1-51
Thermal Processing Facilities	A 33	1-56
Gasoline	A 34 through A 35 A.36 through A 38 A.39	1-51 1-52 1-53
National Emission Standards for Hazardous Air Pollutants (NESHAP)		
General	A 40	1-53
Fugitive Emissions	A 41 A 42 through A 43 A 44 throught A 45 A 46 A.47	1-53 1-54 1-55 1-56 1-57

	Refer To	
	Checklist Items	Page Numbers
Dry Cleaning Operations		
Petroleum Solvent Dry Cleaning	A 48	1-57
Perchloroethylene Dry Cleaning	A 49	1-58
	A 50 through A 52	1-59
	A 53 through A 55	1-60
	A 56 through A 58	1-61
	A 59 through A 60	1-62
CFCs and Halons		
Purchasing/Procurement	A 1	1-62
Repair/Recycling	A 62 through A 64	1-63
	A 65	1-63
	A 66 through A 70	1-64
	A 71 through A 74	1-65
	A 75 through A 77	1-66
	A 78 through A 81	1-67
	A 82 through A 85	1-68
	A 86 through A 87	1-69
	A 88 through A 90	1-70
	A 91	1-71
Recordkeeping	A 92 through A 96	1-72
	A.97 through A.100	1-73
	A 101 through A.104	1-74
	A 105 through A.106	1-75
Air Pollution Alert and Emergency Plan	A 107	1-75

	Refer To	
	Checklist Items	Page Numbers
Asbestos Management		
All Facilities	A-108	1-75
Renovation and Demolition of	A.109 through A.110	1-76
Asbestos-Containing Structures	A 111	1-76
	A.112 through A.113	1-77
	A.114 through A.116	1-78
	A.117 through A.119	1-79
Asbestos Personnel Training	A.120	1-79
Asbestos Disposal	A.121 through A.122	1-80
	A.123 through A.124	1-81
Asbestos in Schools	A.125 through A.126	1-82
	A.127	1-83
	A.128 through A.129	1-84
	A.130 through A.133	1-85
	A.134	1-86
Radon Management	A.135 through A.137	1-86

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
All Facilities	
A 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation.)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements, or equivalent state enforcement actions. For these open items, indicate what corrective action is planned and milestones established to correct problems
A 2. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.)	Determine if any new regulations concerning air quality have been issued since the finalization of the manual. If so, annote checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 3 Facilities are required to comply with state and local air quality regulations (42 USC 7418(a)).	Verify that the facility is complying with state and local air quality requirements. Verify that the facility is operating according to permits issued by the state or local agencies. (NOTE· Issues typically regulated by state and local agencies include - Air pollution episode standby plans - Permits for construction and operation of sources of emissions - Placement of control devices on fuel burning sources - Incinerators with less than 45 metric tons/day (50 tons/day) heat input - Incineration of medical, pathological, and infectious waste - Open burning and detonation - Firefighting training - Motor vehicle emissions and inspections - Use of vapor control systems at gas dispensing facilities - Transfer of fuel in tank trucks - Solvent metal cleaners such as degreasers and cold cleaners - Fugitive dust emissions from sources such as roads, quarries, sand and gravel pits, and construction activities - Control of particulate emissions from woodworking shops - Transportation of refuse or materials in open vehicles - Emissions and emission control requirements for the operation of existing fossil fuel-fired steam generators - The spray painting of vehicles, buildings, and/or furniture - Certification of vehicles transporting VOC liquids - Certification for operators of boilers - Paving of roads and parking lots - Toxic air pollutants - Indoor air pollution) (NOTE Under 42 USC 7418(c) and 7418(d) each department, agency, and instrumentality of executive, legislative, and judicial branches of the Federal government are required to comply with valid vehicle inspection and maintenance programs except for vehicles that are considered military tactical vehicles. Also, all employees operating vehicles on a property or an facility over which the Federal government has jurisdiction are required to furnish proof of compliance with applicable requirements of any valid vehicle inspection and maintenance programs.)
New Source Performance Standards (NSPS)	
(NOTE· EPA requires new stationary sources constructed, reconstructed, or modified within a specified time frame to meet source-specific standards for emissions, testing, monitoring and sampling, reporting, etc The auditor must determine the applicability of NSPS categories (see 40 CFR 60) Steps A 4 through A 7 are general NSPS provisions Some specific NSPS categories are included in A.8 through A.25)	

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
General	
A 4 Notifications to EPA must be provided prior to commencing construction, performance testing, and startup (40 CFR 60 7)	Confirm that the appropriate notifications regarding new source performance have been made (e.g , construction date, performance testing, etc.) by interviewing facility personnel and reviewing facility records to confirm that the facility submitted the appropriate written notifications to EPA in a timely manner) In particular, look for the following: - Notification of the date of commencement of construction or reconstruction of an affected facility was filed within 30 days after such date. - Notification of the anticipated date of initial startup of an affected facility was filed between 30 and 60 days before such date - Notification of the actual date of initial startup was filed within 15 days after such date - Notification of any physical or operational changes to an existing facility which may increase the emission rate of any air pollutant was filed 60 days (or as soon as practicable) before the change was commenced - Notification of the date upon which demonstration of the performance of the continuous monitoring system commenced was filed at least 30 days prior to such date. - Notification of the anticipated date for conducting opacity observations was filed at least 30 days prior to such date - Notification that continuous opacity monitoring system data results will be used to determine compliance with the applicable opacity standard during a performance test was filed at least 30 days prior to the date of the performance test - Verify that the facility has a program to review its operations for NSPS applicability, specifically air sources that may undergo modification or reconstruction
A 5 Certain NSPS standards require continuous emissions monitoring (40 CFR 60 8, 60 13)	Review documentation to verify conformance with monitoring equipment and performance testing requirements by performing the following - Confirm that continuous monitoring equipment is available and functioning if required by the particular NSPS. The review should include at least the following· (NOTE· Monitoring systems and devices should have been installed and operational prior to conducting performance tests) -- evaluate the adequacy of any alternative monitoring requirements used in the absence of a continuous monitoring system; -- confirm that performance specifications for Continuous Emission Monitoring systems (CEMs) noted in 40 CFR 60 Appendix B, if conducted, are met, -- confirm that the facility conducted performance tests according to approved methods by interviewing facility personnel and reviewing facility records; and -- determine that the manufacturer's written requirements or recommendations for checking the operation or calibration of the devices were carried out - Interview facility personnel and review facility records to verify that performance tests were conducted within 180 days after the startup of the facility

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 6 Each NSPS standard specifies emission limitations and monitoring and reporting requirements for regulated sources (see individual NSPS standards)	Review the applicable NSPS provisions and develop a list of monitoring and reporting requirements (e g , frequency, limitations, etc) Review a representative sample of monitoring data to determine whether all applicable standards and limitations are being met for regulated emissions for all sources If the facility is required to install a continuous monitoring system, review the facility's semiannual or periodic reports submitted to the EPA Administrator regarding continuous emissions monitoring Verify that these reports are accurate by comparing them to the monitoring data reviewed For any permit or regulatory deviations, equipment malfunctions, and emission complaints noted, review internal records for proposed and completed corrective actions Note and investigate any instances where corrective actions were not taken
A 7 NSPS documentation must be maintained for at least two years (40 CFR 60 7(d))	Determine whether the facility has maintained a file of all measurements, evaluations, calibration checks, adjustments, and maintenance on continuous monitoring systems or devices (if such are required), for at least two years following the dates of such measurements, maintenance, reports, and records
Steam Generators	
A 8 Each fossil fuel fired steam generating unit of more than 73 MW (250 MBtu/h) heat input rate and each fossil fuel and wood-residue fired steam generating unit capable of firing fossil fuel at a heat input rate of more than 73 MW (250 MBtu/h) heat input rate that started construction or modification after 17 August 1971 is required to meet specific emission standards (40 CFR 60 40 and 60 42 through 60 44)	Verify that - Particulate emissions are not in excess of 0 10 lb/MBtu - SO_2 emissions do not exceed levels outlined in Appendix 1-2 - NO_x emissions do not exceed levels outlines in Appendix 1-2 Verify that the individual conducting opacity monitoring is certified by the state (NOTE Any change to an existing fossil fuel fired steam generating unit to accommodate the use of combustible materials does not bring that unit under the applicability of these requirements) Opacity emissions are less than 20 percent except one 6 minute period/h of no greater than 27 percent opacity

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 9 Each fossil fuel fired steam generating unit of more than 73 MW/h (250 million Btu/h) heat input rate and each fossil fuel and wood-residue fired steam generating unit capable of firing fossil fuel at a heat input rate of more than 73 MW (250 MBtu/h) heat input rate that started construction or modification after 17 August 1971 is required to have specific types of monitoring instruments installed (40 CFR 60 40 and 60 45)	Verify that the following monitors are in place - NO_2 continuous monitor - Opacity monitor (except in gaseous fuel burners) - SO_2 monitor (except for fossil fuel-fired steam generators not using a fuel gas desulfurization device and gaseous fuel burners) - Fuel sampling monitor when SO_2 monitor is not required - CO_2 or O_2 monitors (except when continuous monitoring systems are not required to be installed for SO_x or NO_x)
A 10 Lignite fired steam generating units that started construction or modification after 22 December 1976 are required to meet specific emissions limitation for NO_x (40 CFR 60 40(d), 60 44(a)(4), 60 44(a)(5))	Verify that NO_x are not emitted in excess of 260 ng/J (0 60 lb/MBtu) heat input except for lignite mined in North Dakota, South Dakota or Montana which is burned in a cyclone fired unit which is allowed an emission rate of 340 ng/J (0 80 lb /MBtu) heat input

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 11 Steam generating units that started construction, modification, or reconstruction after 19 June 1984 with a heat input capacity of greater than 29 MW (100 MBtu/h) shall meet specific emissions limitations for particulates and SO_2 (40 CFR 60.40b through 60 43b, 60 45b through 60 49b)	Determine if the steam generating unit burns coal, oil, wood, or a combination of fuels Determine what percentage of the fuel mix each fuel type represents. Verify that units combusting coal or oil are not discharging gases into the atmosphere if the gases contain SO_2 in excess of 10 percent of the potential SO_2 emission rate (90 percent reduction) and that contain SO_2 in excess of the emission limit determined according to the formula in Appendix 1-3 unless - The unit combusts coal refuse alone in a fluidized bed combustion steam generating unit whereby an 80 percent reduction is required - The unit combusts coal and oil, either alone or in combination with any other fuel and uses emerging technology for SO_2 emissions control whereby gases shall not be discharged that contain in excess of 50 percent of the potential SO_2 emission rate and that contain SO_2 in excess of the emission limit determined according to the formula in Appendix 1-3 - They are in the following list whereby they cannot emit gases that contain SO_2 in excess of 520 ng/J (1 2 MBtu) heat input if the unit combusts coal or 215 ng/J (0 5 lb/MBtu) heat input if the affected unit combusts oil -- units that have an annual capacity factor for coal or oil of 30 percent or less and are subject to a Federally enforceable permit limiting the operation of the unit to an annual capacity factor of 30 percent or less -- units located in noncontinental areas -- affected units combusting coal or oil, alone or in combination with any other fuel, in a duct burner as a part of a combined cycle system where 30 percent or less of the heat input to the steam generating unit is from combustion of coal and oil in the duct burner and 70 percent or more of the heat input to the steam generating unit if from the exhaust gases entering the duct burner (NOTE Typically, state regulations or state-issued permits set an emission limit for SO_2.) Verify that the particulate matter standards outlined in Appendix 1-4 are being met (NOTE These particulate standards also apply to - Coal-fired units with a heat input capacity 29 MW (100 MBtu/h) and 73 MW (250 MBtu/h) that were constructed, modified, or reconstructed after 19 June 1984 but before 19 June 1986 - Coal-fired units with a heat input capacity greater than 73 MW (250 MBtu/h) that started construction, modification, or reconstruction between 19 June 1984 and 19 June 1986 - Incinerators over 45 metric tons/day (50 tons/day) charging rate)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 11 (continued)	Verify that units that combust only coal, oil, or natural gas meet the NO_x standards outlined in Appendix 1-5 unless the unit simultaneously combusts coal or oil in a mixture with natural gas, and wood, municipal solid waste, or any other fuel and has an annual capacity factor for coal or oil or a mixture of these fuels with natural gas of 10 percent or less, or the unit has a heat input capacity of 73 MW (250 MBtu/h) heat input or less that. - Only fires natural gas, distillate oil, or residual oil with a maximum nitrogen content of 0 30 weight percent - Has a combined annual capacity factor of 10 percent or less for natural gas, distillate oil, and residual oil with a nitrogen content of 0 30 weight percent or less, - Are subject to a Federally enforceable requirement limiting operation of the unit to the firing of natural gas, distillate oil, and/or residual oil with a nitrogen content of 0.30 weight percent and limiting the operation to a combined annual capacity of 10 percent or less for natural gas, distillate oil, and residual oil and a nitrogen content of 0.30 weight percent Verify that units that simultaneously combust mixtures of coal, oil, or natural gas do not discharge NO_x in excess of the limit determined by using the formula found in Appendix 1-3 unless the unit combusts simultaneously coal or oil, or a mixture of theses fuels with natural gas, and wood, municipal solid waste, or any other fuel and has an annual capacity factor for coal or oil, or mixture of these fuels with natural gas of 10 percent or less Verify that NO_x are not discharged in excess of 130 ng/J (0 30 lb/MBtu) heat input if the unit simultaneously combusts natural gas with wood, municipal solid waste, or other solid fuel, except coal Exempted are units that have an annual capacity factor for natural gas of 10 percent or less and are subject to a Federally enforceable requirements that limits operation of the affected unit to an annual capacity factor of 10 percent or less for natural gas Verify that units that simultaneously combust coal, oil, or natural gas with by-product/waste do not discharge NO_x in excess of the limit determined by using the formula in Appendix 1-3 unless the unit has an annual capacity factor for coal, oil, and natural gas of 10 percent or less and is subject to a Federally enforceable requirement that limits the operation of the unit to an annual capacity factor of 10 percent or less

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 12 Steam generating units which started construction, modification, or reconstruction after 9 June 1989 with a maximum design heat input capacity of greater than or equal to 2 9 MW (10 MBtu/h) but less than 29 MW (100 MBtu/h) are required to meet specific standards for emissions of SO_2 (40 CFR 60 40c and 60 42c)	Determine if the facility operates steam generating units which started construction, modification, or reconstruction after 9 June 1989 with a maximum heat input capacity of greater than or equal to 2 9 MW (10 MBtu/h) but less than 29 MW (100 MBtu/h) Verify that units which combust only coal do not discharge - Into the atmosphere gases containing SO_2 in excess of 10 percent of the potential SO_2 emission rate (a 90 percent reduction) - Gases containing SO_2 in excess of 520 ng/J (1 2 lb/MBtu) heat input Verify that units which combust coal and use an emerging technology do not discharge· - Into the atmosphere gases containing SO_2 in excess of 50 percent of the potential SO_2 emission rate (a 50 percent reduction) - Gases that contain SO_2 in excess of 260 ng/J (0 60 lb/MBtu) heat input Verify that units which combust coal in combination with other fuels do not discharge - Into the atmosphere gases containing SO_2 in excess of 10 percent of the potential SO_2 emission rate (a 90 percent reduction) - Gases containing SO_2 in excess of the emissions limit determined by the formula outlined in Appendix 1-6 Verify that units which combust coal in combination with other fuels and use emerging technology do not discharge gases containing SO_2 in excess of: - 50 percent of the potential SO_2 emission rate (a 50 percent reduction) - The emission limit determined by the formula outlined in Appendix 1-6 Verify that units which combust coal refuse alone or in a fluidized bed combustion steam generating unit do not discharge gases containing SO_2 in excess of. - 20 percent of the potential SO_2 rate (an 80 percent reduction) - 520 n/J (1 2 lb/MBtu) heat input (NOTE· If the unit combusts coal with coal refuse, the standards for units combusting coal are required to be met) Verify that units which fire oil, or any fuel other than coal, with coal refuse do not discharge. - Into the atmosphere gases containing SO_2 in excess of 10 percent of the potential SO_2 emission rate (a 90 percent reduction) - Gases containing SO_2 in excess of the emissions limit determined by the formula in Appendix 1-6

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 12 (continued)	Verify that a unit which meets one of the following criteria, and combusts coal alone or in combination with any other fuel, does not discharge SO_2 in excess of the emissions limit determined by the formula in Appendix 1-6 - Units with a heat input capacity of 22 MW (75 MBtu/h) or less - Units that have an annual capacity for coal of 55 percent or less - Units located in noncontinental areas - Units that combust coal in a duct burner as a part of a combined cycle system where 30 percent or less of the heat entering the steam generating unit is from combustion of coal in the duct burner and 70 percent or more is from exhaust gases Verify that units which combust oil meet one of the following - Gases are not discharged that contain SO_2 in excess of 215 ng/J (0 50 lb/MBtu) heat input - No oil is combusted which contains greater than 0 5 weight percent sulfur
A 13 Steam generating units which started construction, modification, or reconstruction after 9 June 1989 with a maximum design heat input capacity of greater than or equal to 2.9 MW (10 MBtu/h), but less than 29 MW (100 MBtu/h), are required to meet specific standards for emissions of particulates (40 CFR 60 40c and 60 43c)	Verify that units which combust coal or mixtures of coal with other fuels and have a heat input capacity of 8 7 MW (30 MBtu/h) or greater do not discharge particulate matter in excess of the following - 22 ng/J (0 05 lb/MBtu) heat input if the unit combusts only coal or coal with other fuels and has an annual capacity factor for the other fuels of 10 percent - 43 ng/J (0 10 lb/MBtu) heat input if the unit combusts coal with other fuels, has an annual capacity factor greater than 10 percent for the other fuels. Verify that units which combust wood or mixtures of wood with other fuels, except coal, and have a heat input capacity of 30 MBtu/h or greater do not discharge particulate matter in excess of the following - 43 ng/J (0 10 lb/MBtu heat input if the units has an annual capacity factor for wood greater than 30 percent - 130 ng/J (0.30 lb/MBtu heat input if the unit has an annual capacity factor for wood of 30 percent or less Verify that units that combust coal, wood, or oil with a heat input capacity of greater than 8 7 MW (30 MBtu/h) do not discharge gases with greater than 20 percent opacity (6 min average), except for one 6 min period per hour of not more than 27 percent opacity (NOTE Particulate matter and opacity standards apply at all times except during periods of startup, shutdown, or malfunction)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 14 Steam generating units which started construction, modification, or reconstruction after 9 June 1989 with a maximum design heat input capacity of greater than or equal to 2 9 MW (10 MBtu/h), but less than 29 MW (100 MBtu/h), are required to meet specific monitoring standards for SO_2 and particulate matter (40 CFR 60 46c and 60 47c)	Verify that continuous emissions monitoring systems are installed, calibrated, maintained, and operated for measuring SO_2 concentrations and either oxygen or CO_2 concentrations at the outlet of the SO_2 control device or the outlet of the steam generating unit if no control device is used Verify that if continuous emissions monitoring systems for SO_2 are not used, the fuel is sampled prior to combustion Verify that a continuous monitoring system is installed, calibrated, maintained, and operated for measuring opacity
A 15. Steam generating units which started construction, modification, or reconstruction after 9 June 1989 with a maximum design heat input capacity of greater than or equal to 2 9 MW (10 MBtu/h), but less than 29 MW (100 MBtu/h), are required to meet specific reporting requirements (40 CFR 60 48c)	Verify that the facility submits excess emissions reports for any calendar quarter in which opacity limits are exceeded Verify that if there has been no excess opacity emissions, a semiannual report has been submitted stating there were no excess emissions Verify that units subject to the SO_2 emissions limits submit quarterly reports including - Calendar dates covered in the report - Each 30-day average SO_2 emission rate or 30-day average sulfur content - Reasons for noncompliance - Descriptions of any correction actions taken

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
Gas Turbines	
A 16 Stationary gas turbines with a heat input at peak load equal to or greater than 10 7 gJ/h (10 MBtu/h) based on the lower heat value of the fuel fired, which started construction, modification, or reconstruction after 3 October 1977 are required to meet specific operations standards (40 CFR 60 330 through 60 335)	Verify that gases that contain NO_x are not emitted in excess of the amount calculated using Formula A in Appendix 1-7 from electric utility stationary gas turbines with a heat input at peak load greater than 107 2 gJ/h (100 MBtu/h) heat input based on the lower heating value of the fuel fired Verify that gases that contain NO_x are not emitted in excess of the amount calculated using Formula B in Appendix 1-7 from - Stationary gas turbines with a heat input at peak load equal to or greater than 10 7 gJ/h (10 MBtu/h) heat input but less than or equal to 107 2 gJ/h (100 MBtu/h) based on the lower heating value of the fuel fired except those with greater than 10.7 gJ/h (10 MBtu/h) heat input that are fired with natural gas and are being fired in an emergency - Stationary gas turbines with a manufacturer's rated base load at ISO conditions of 30 MW (102 36 Mbtu/h) or less Verify that gases are not discharged containing SO_2 in excess of 0.15 percent by volume at 15 percent oxygen and on a dry basis (NOTE. The following sources are exempt from meeting the NO_x emissions limitations - Stationary gas turbines with a heat input at peak load greater than 2 9 MW (10 MBtu/h) heat input but less than or equal to 29 MW (100 MBtu/h) based on the lower heating value of the fuel fired and that started construction before 3 October 1982 - Stationary gas turbines using water or steam injection for control of NO_x when ice fog is deemed a traffic hazard - Emergency gas turbines, military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and firefighting gas turbines - Regenerative cycle gas turbines with a heat input less than or equal to 29 MW (100 MBtu/h) - Stationary gas turbines, except electric utility stationary gas turbines, with a heat input at peak load of greater than 107 2 gJ/h (100 MBtu/h) that started construction, modification, or reconstruction between 3 October 1977 and 27 January 1982) Verify that fuel stationary gas turbines using water injection to control NO_x emissions have installed and are operating a continuous monitoring system to monitor and record fuel consumption and the ratio of water to fuel being fired in the turbine Verify that the sulfur content and nitrogen content of the fuel being fired is being monitored

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
Municipal Waste Combustors	
A 17 Municipal waste combustors with a capacity greater than 225 Mg/day (250 tons/day) of municipal solid waste or refuse-derived fuel which started construction or modification after 20 December 1989 are required to meet specific operational standards (40 CFR 60 50a through 60 58a)	Verify that gases are not discharged that contain the following constituents in excess of the least stringent amount listed - Dioxin/furan in excess of 30 ng/dscm (12 grains/billion dscf), corrected to seven percent oxygen (dry basis) - SO_2 in excess of 20 percent of the potential SO_2 emission rate or 30 ppm by volume, corrected to seven percent oxygen - Hydrogen chloride in excess of five percent of the potential hydrogen chloride emission rate (95 percent reduction by weight or volume), or 25 ppm by volume, corrected to seven percent oxygen (dry basis) - NO_x emissions in excess of 180 ppm by volume corrected to seven percent oxygen (dry basis) - 34 mg/dscm (0 015 gr/dscf), corrected to seven percent oxygen (dry basis) Verify that municipal waste combustors meet the operating standards for CO emissions outlined in Appendix 1-8 Verify that the following operating practices are implemented - Combustors do not operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load - Combustors do not operate at a temperature exceeding 17 C (30°F) above the maximum demonstrated particulate matter control device temperature Verify that actions are being taken to ensure that by 11 February 1993 or within 24 months after the start-up of operation (whichever is later) each chief municipal waste combustor operator and shift supervisor is certified (NOTE. Exempted from these requirements are - Affected combustors that combust tires or fuel derived solely from tires and do not combust any other municipal solid waste or refuse derived fuel - Cofired combustors - Cofired combustors that are subject to a federally enforceable permit limiting the operation of the combustor to no more than 225 Mg/day (250 tons) of municipal solid waste or refuse derived fuel - Municipal waste combustors only combusting medical waste)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 18 Municipal waste combustors with a capacity greater than 225 Mg/day (250 tons/day) of municipal solid waste or refuse-derived fuel which started construction or modification after 20 December 1989 are required to meet specific notification and record keeping requirements (40 CFR 60 50a through 60 59a)	Verify that an operating manual is at the municipal waste combustor which is updated yearly and indicates - Applicable standards - Procedures for receiving, handling, and feeding municipal solid waste - Start-up, shutdown, and malfunction procedures - Operational provisions for meeting emission standards - Response procedures for emergency situations - Monitoring procedures - Procedures for handling ash - Reporting and record keeping requirements Verify that if a new municipal waste combustor is starting to operate a notice to construct, planned start-up date, and fuels to be used at the combustor was provided to the EPA This notification requirement also applies to cofired combustors and municipal waste combustors which burn tires only Verify that the following reports are submitted to the EPA Administrator - Quarterly compliance reports - Quarterly excess emissions reports - Annual performance tests results - Quarterly reports of the daily weights of municipal solid waste and each other fuel fired when records of this information is required to be kept (NOTE Exempted from these requirements are - Affected combustors that combust tires or fuel derived solely from tires and do not combust any other municipal solid waste or refuse derived fuel - Cofired combustors - Cofired combustors that are subject to a federally enforceable permit limiting the operation of the combustor to no more than 225 Mg/day (250 tons) of municipal solid waste or refuse derived fuel - Municipal waste combustors only combusting medical waste) Verify that the following records are maintained for two years - Emissions rates - Dates when excess emissions were identified and reason for excess emissions - Operating days when the minimum numbers of hours of SO_2 or NO_x emissions or operational data have not been obtained and the reasons - Identification of the times when SO_2 or NO_x emissions or operational data have been excluded from the calculation of average emission rates or parameters and the reason for exclusion - Results of daily SO_2, NO_x, and CO continuous emission monitoring systems drift tests and accuracy assessments - Results of all annual performance tests - Continuous emissions monitoring data for opacity, SO_2, NO_x, and CO, load level data, and particulate matter control device temperature data - Names of the persons who have completed the review of the operating manual

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.18 Continued	- Weights of municipal solid waste and other fuel combusted when being used in a cofired combustor with a municipal waste capacity greater than 225 Mg/day (250 tons) - The amount of nonmedical and medical waste combusted on a daily basis for combustors firing both medical waste and other municipal solid waste unless it is assumed that the total heat input to the combustor is from municipal solid waste with a design heating value of 10,500 kJ/ kg (4500 Btu/lb)
Incinerators	
A 19 Incinerators over 45 metric tons/day (50 tons/day) charging rate that started construction or modification after 17 August 1971 are required to meet specific emission limitations (40 CFR 60 50 through 60.54)	Verify that the limitations outlined in Appendix 1-2 are met

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 20 Incinerators that started construction or modification after 11 June 1973 that combust waste containing more than 10 percent sewage sludge (dry basis) produced by municipal sewage treatment plants, or those that started construction or modification after 11 June 1973 which charge more than 1000 kg (2205 lb) per day municipal sewage sludge (dry basis) are required to meet specific emission standards (40 CFR 60 150 through 60 156)	Verify that particulate matter is not discharged in excess of 0 65 g/kg dry sludge input (1 30 lb/ton dry sludge input) Verify that the opacity of emissions does not exceed 20 percent Verify that, except on multiple hearth, fluidized bed, or electric sludge incinerators with a particulate emission rate less than or equal to 0 38 g/kg of dry sludge input (0 75 lb/ton), a continuously operating flow measuring device to determine either the mass or volume of sludge charged to the incinerator is in place, maintained, and properly calibrated Verify that a weighing device is available to determine the mass of any municipal solid waste charged to the incinerator when sewage sludge and municipal solid waste are incinerated together Verify that multiple hearth fluidized bed or electric sludge incinerators equipped with a wet scrubbing device have a continuously operating monitoring device that is calibrated annually to measure and record the pressure drop of the gas flow through the wet scrubbing device Verify that a monitoring device, which is calibrated at least once every 24 hours, is in place and continuously measures and records the oxygen content of the multiple hearth fluidized bed or electric sludge incinerator exhaust gas Verify that at least one continuously operating temperature measuring device is installed on every hearth in the cooling and drying zones of multiple hearth furnaces and two thermocouples are installed in each hearth in the combustion zone Verify that at least one continuously operating temperature measuring device is installed in the drying zone and one on the cooling zone, and a minimum of two in the combustion zones of electric furnaces Verify that a continuously operating fuel flow measuring device is operating on multiple hearth fluidized bed or electric sludge incinerators Verify that for multiple hearth, fluidized bed, or electric sludge incinerators except those that emit particulates less than 0 38 g/kg of dry sludge input (0 75 lb/ton), a grab sample of the sludge is collected and analyzed every day for the dry sludge content and the volatile solids content Verify that for multiple hearth, fluidized bed, or electric sludge incinerators, except for those that emit particulates less than 0 38 g/kg of dry sludge input (0 75 lb/ton), records are kept for two years of the following - The measured oxygen content of the exhaust gas - The rate of sludge charged, the temperatures, fuel flow, and total solids and volatile solids - The measured pressure drop of the gas flow through the wet scrubbing device Verify that the operator of any multiple hearth, fluidized bed, or electric sludge incinerator submits a report semiannually detailing the operations of the incinerator

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 21 Incinerators that process beryllium-containing waste, beryllium, beryllium oxide, or beryllium alloys are required to meet specific standards (40 CFR 61.30 through 61 34).	Verify that emissions to the atmosphere do not exceed 10 g (0 32 troy ounces) of beryllium over a 24-hour period unless approval has been received for a larger quantity of emissions. Verify that emissions testing is done within 90 days of the startup of a new source. Verify that monitoring sites are operated continuously Verify that records of the emissions testing results are kept and made available for two years
Printing Presses	
A 22. Publication rotogravure printing presses, except for proof presses, that started construction, modification, or reconstruction after 28 October 1980 are required to meet specific standards concerning VOC emissions (40 CFR 60.430 through 60.435)	Determine if the facility operates any publication rotogravure printing presses Verify that gases are not being discharged containing VOC equal to more than 16 percent of the total mass of VOC solvent and water used at that press during any one performance averaging period. (NOTE Each performance averaging period is 30 consecutive calendar days.) Verify that presses using waterborne ink systems or solvent-borne ink systems with solvent recovery systems record the amount of solvent and water used, solvent recovered, and estimated emission percentage for each calendar month Verify that these records have been maintained for two years
Acid Production Units	
A 23 Nitric acid production units that started construction or modification after 17 August 1971 are required to meet specific standards (40 CFR 60.70 through 60 74)	Verify that gases are not discharged that contain NO_x in excess of 1.5 kg per metric ton of acid produced (3 lb/ton) when the production is expressed as 100 percent nitric acid. Determine if a continuous monitoring system for the measurement of NO_x is in place.
A 24. Sulfuric acid production units which started construction or modification after 17 August 1971 are required to meet specific standards (40 CFR 60.80 through 60 85)	Verify that these units do not emit gases that contain SO_2 in excess of 2 kg per metric ton of acid produced (4 lb/ton) when the production is expressed as percent H_2SO_4 Verify that the gases emitted do not exhibit 10 percent opacity or greater and they do not contain sulfuric acid mist, expressed as H_2SO_4, in excess of 0.075 kg per metric ton of acid produced (0 15 lb/ton) when the production is expressed as 100 percent H_2SO_4. Determine if a continuous monitoring system is in place for the measurement of SO_2
Sewage Sludge Incinerators	

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 25 Facility with incinerators that fire sewage sludge must meet specific emissions standards (40 CFR 503 43(a) and 503 43(b))	Verify that incinerators that fire sewage sludge meet the requirements on beryllium and mercury emissions outlined in 40 CFR 61 30 through 61 34 and 61.50 through 61 56 (see checklist item A.22)
A 26 Sewage sludge being fed to an incinerator is required to meet specific concentration limitations for lead, arsenic, cadmium, and nickel (40 CFR 503 43(c) and 503 43(d))	Verify that the daily concentration of lead in sewage sludge fed to a sewage sludge incinerator does not exceed the concentration calculated using Formula 1 in Appendix 1-9 Verify that the daily concentration of arsenic, cadmium, chromium, and nickel do not exceed the concentrations calculated using Formula 2 in Appendix 1-9
A 27 The concentration of total hydro-carbons in the exit gas from a sewage sludge incinerator must meet specific limits (40 CFR 503 44)	Verify that the monthly average concentration for total hydrocarbons in the exit gas, corrected to zero percent moisture using the correction factor from Formula 1 of Appendix 1-10 and to seven percent oxygen using the correction factor from Formula 2 of Appendix 1-10 does not exceed 100 ppm on a volumetric basis
A 28 Sewage sludge incinerators are required to have continuous monitoring devices for hydrocarbons and oxygen in the exit gas, and a continuous monitoring for combustion temperature, as specified by the permitting authority (40 CFR 503 45(a) through 503 45(f)).	Determine what the permitting authority has specified in terms of continuous monitors for combustion temperature, and hydrocarbons and oxygen in the exit gas Verify that the required monitors are in place and operational (NOTE. - The requirement for continuous monitors for hydrocarbons is effective 19 February 1994 unless construction of new pollution control facilities is required, in which case the compliance date is 19 February 1995.) - The requirements for monitoring for total hydrocarbons does not apply if the following conditions are met· - the exit gas from a sewage sludge incinerator stack is monitored continuously for CO - the monthly average concentration of CO in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 ppm on a volumetric basis - the person who fires the sewage sludge incinerator retains the following information for five years - the CO concentrations in the exit gas - a calibration and maintenance log for the instrument used to measure the CO concentration - Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1,000,000 gal per day, and POTWs that serve a population of 10,000 people or greater submit the monthly average CO concentrations in the exit gas to the permitting authority on February 19 of each year
A 29 As of 19 February 1994, sewage sludge must not be fired in a sewage sludge incinerator if it is likely to affect a threatened or endangered species (40 CFR 503 45(g)).	Determine if the facility has any endangered or threatened species which might be affected by the firing of the incinerator

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 30 Monitoring for arsenic, chromium, lead, and nickel shall be done at the frequency outlined in Appendix 1-11 (40 CFR 503 46)	Verify that monitoring is done at the frequency outlined in Appendix 1-11 (NOTE. - After two years of monitoring the permitting authority might reduce the required frequency. - Beryllium, mercury, and air pollution control device operating parameters will be monitored at the frequency designated by the permitting authority) - The requirements for monitoring for total hydrocarbons does not apply if the following conditions are met - the exit gas from a sewage sludge incinerator stack is monitored continuously for CO - the monthly average concentration of CO in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 ppm on a volumetric basis - the person who fires the sewage sludge incinerator retains the following information for five years - the CO concentrations in the exit gas - a calibration and maintenance log for the instrument used to measure the CO concentration - Class I sludge management facilities, POTWs with a design flow rate equal to or greater than one million gal per day, and POTWs that serve a population of 10,000 people or greater submit the monthly average CO concentrations in the exit gas to the permitting authority on February 19 of each year)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 31. Individuals who fire sewage sludge in an incinerator are required to keep specific information on file for five years (40 CFR 503 47).	Verify that the following information is kept on file for five years· - The concentration of lead, arsenic, cadmium, chromium, and nickel in the sewage sludge fed to the incinerator - The total hydrocarbons concentration in the exit gas from the sewage sludge incinerator stack - Information that indicates the National Emissions Standards for beryllium and mercury are met - The combustion temperatures, including the maximum combustion temperature for the incinerator - Values for the air pollution control device operating parameters - The oxygen concentrations and information used to measure moisture content in the exit gas from the sewage sludge incinerator stack - The sewage sludge feed rate - The stack height for the incinerator - The dispersion factor for the site where the incinerator is located - The control efficiency for lead, arsenic, cadmium, chromium, and nickel for each incinerator - The risk specific concentrations for chromium - A calibration and maintenance log for the instruments used to measure the total hydrocarbons and oxygen content in the exit gas and the combustion temperature (NOTE The requirements for recordkeeping for total hydrocarbons does not apply if the following conditions are met - The exit gas from a sewage sludge incinerator stack is monitored continuously for CO - The monthly average concentration of CO in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 ppm on a volumetric basis - The person who fires the sewage sludge incinerator retains the following information for five years - The CO concentrations in the exit gas - A calibration and maintenance log for the instrument used to measure the CO concentration - Class I sludge management facilities, POTWs with a design flow rate equal to or greater than one million gal per day, and POTWs that serve a population of 10,000 people or greater submit the monthly average CO concentrations in the exit gas to the permitting authority on February 19 of each year)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 32 Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1,000,000 gal/day (3,785,412 L/day), and POTWs that serve 10,000 people or more are required to submit specific information to the permitting authority (40 CFR 503 46)	Verify that the following information pertaining to incinerators is submitted to the permitting authority by 19 February of each year - The concentration of lead, arsenic, cadmium, chromium, and nickel in the sewage sludge fed to the incinerator - The total hydrocarbons concentration in the exit gas from the sewage sludge incinerator stack - Information that indicates the National Emissions Standards for beryllium and mercury are met - The combustion temperatures, including the maximum combustion temperature for the incinerator - Values for the air pollution control device operating parameters - The oxygen concentrations and information used to measure moisture content in the exit gas from the sewage sludge incinerator stack - The sewage sludge feed rate - The stack height for the incinerator - The dispersion factor for the site where the incinerator is located - The control efficiency for lead, arsenic, cadmium, chromium, and nickel for each incinerator - The risk specific concentrations for chromium - A calibration and maintenance log for the instruments used to measure the total hydrocarbons and oxygen content in the exit gas and the combustion temperature
Thermal Processing Facilities	
A 33 Facilities with thermal processing facilities designed to process or which are processing 50 tons (50 80 metric tons) or more per day of municipal solid wastes are required to operate in a manner which protect air quality (40 CFR 240 100(a) and 240 205)	(NOTE This does not apply to hazardous, agricultural, or mining wastes) Verify that emissions do not exceed applicable existing emission standards Verify that all emissions, including dust from vents, are controlled Verify that when monitoring instrumentation indicates excessive emissions, appropriate adjustments are made to lower the emission to acceptable levels
Gasoline	
A 34 Leaded gasoline shall not be introduced into any motor vehicle that is labeled unleaded gasoline only, or that is equipped with a gasoline tank filler inlet designed for introduction of unleaded gasoline (40 CFR 80.22(a))	Determine what grades of gasoline are used, where they are dispensed, and what controls are in place to ensure proper fueling of vehicles by interviewing personnel
A 35 Fuel pumps are required to display specific signs (40 CFR 80 22(d) and 80 22(e))	Inspect the facility gas stations to ensure that - Signs stating the only unleaded gas should be introduced into labeled vehicles are displayed at each pump stand - Nozzles are properly sized - Each fuel pump is labeled indicating the type of fuel, e.g, UNLEADED GASOLINE or CONTAINS LEAD ANTI-KNOCK COMPOUNDS.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 36 Gasoline pumps dispensing oxygenated gasoline are required to meet specific labeling requirements (40 CFR 80 35)	Determine if the facility is located in an area with an oxygenated gasoline program with a minimum oxygen content per 1 gal (3 79 L) or minimum oxygen content requirements in conjunction with a credit program Verify that if the facility is located in such an area, each gasoline pump dispensing oxygenated gasoline at a retail outlet has a label attached during the control period that states "The gasoline dispensed from this pump is oxygenated and will reduce CO pollution from motor vehicles " Verify that if the facility is located in an area with an oxygenated gasoline program with a credit program and no minimum oxygen content requirement, the fuel pump at a retail outlet in the control area has the following label The fuel dispensed from this pump meets the requirements of the Clean Air Act as part of a program to reduce CO pollution from motor vehicles (NOTE Consult with state and local authorities concerning control areas and control periods)
A 37 During 1992 and later high ozone seasons and regulatory control periods gasoline shall not be sold, offered for sale, imported, dispensed, supplied, or transported that exceeds specific Reid vapor pressure standards (40 CFR 80 27(a)(2) and 80 80(d))	Verify that facilities are monitored as indicated - Retailers and wholesale purchaser-consumers during the high ozone season (1 June to 15 September of any year) - Importers, distributors, resellers, or carriers during the regulatory control period (1 May to 15 September of any year) Verify that a standard of 9 0 psi (62 05 kPa) is not exceeded for all designated volatility attainment areas Verify that the standards outlined in Appendix 1-1 are met for any designated volatility nonattainment areas (see 40 CFR 81) (NOTE Gasoline which contains denatured, anhydrous ethanol of at least nine percent and no more than 10 percent may exceed the Reid vapor pressure standards outlined in Appendix 1-1 by 1 0 psi (6 89 kPa))
A 38 As of 1 October 1993 no diesel fuel shall be distributed, transported, offered for sale, or dispensed for use in motor vehicles unless it is free of the dye 1,4- dialkylaminoanthr-aquinone and has an octane index of at least 40 or a maximum aromatic content of 35 volume percent and a sulfur percentage less than 0 05 percent (40 CFR 80 24(a)(1) and 80 29(a))	Verify that the dye, which is blue green, is not used in the fuel

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 39. After 1 January 1996 retailers and wholesale purchaser-consumers (see definitions) handling over 10,000 gal/mo (37,854.12 L/mo) of fuel are required to provide specific equipment on dispensing pumps (40 CFR 80 22(j)).	Determine if the facility handles over 10,000 gal/mo (37,854.12 L/mo) of fuel. Verify that each pump from which gasoline or methanol is introduced into motor vehicles is equipped with a nozzle that dispenses fuel at a flow rate not exceeding 10 gal/min (37.85 L). (NOTE: - After 1 January 1998 this requirements applies to every retailer and wholesale purchaser-consumer regardless of size - This requirement does not apply to pumps that are shown to be dedicated to heavy-duty vehicles.)
National Emission Standards for Hazardous Air Pollutants (NESHAP)	
(NOTE Where facility operations are such that they emit or have the potential to emit a regulated hazardous air pollutant, the facility must meet the applicable emission standard (NESHAP) for that hazardous air pollutant. The auditor must determine the applicability of NESHAP categories (see 40 CFR 61). Step A.41 provides general NESHAP provisions. Steps A.42 through A 48 cover some specific NESHAP categories.)	
General	
A.40 Documentation relating to the construction modification, and operation of NESHAP sources must be maintained (40 CFR 61 11, 61 12-61 14)	Review documents applicable to the construction, modification, or operation of any stationary sources which emit hazardous air pollutants. Check the following - Completeness and accuracy of the information forwarded to regulatory agencies (e.g., emission test results, monitoring data, etc), - Approvals and/or subsequent correspondence from regulators (e g , waiver of compliance).
Fugitive Emissions	
A 41. The emission of VHAPs, which includes vinyl chlorides and benzene, from pumps, compressors, pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service, are required to be managed according to specific requirements (40 CFR 61 240 through 61 242-1, 61 242-10, 61 246, and 61 247)	Determine where the facility operates sources in VHAP service. Verify that when a leak is detected - A weatherproof and readily visible identification marked with the equipment identification number is attached to the leaking equipment - The identification is removed only after no leak has been detected for two months or the leak is repaired - Leaks detected for pumps, compressors, pressure-relief devices in liquid service, and flanges are recorded in a log and maintained for two years at a readily accessible location. Verify that the following records are maintained. - A list of identification numbers of all equipment to which a standard applies - A list of equipment designated for no detectable emissions - Dates of compliance tests - A list of identification numbers for equipment in vacuum service - Information and data used to demonstrate that a piece of equipment is not in VHAP service. Verify that a semiannual report listing the number of leaks identified, items which were not repaired, explanation of repair delays or infeasibility of a shutdown, dates of shutdowns, and revisions to previous reports is submitted to the EPA Administrator.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 42 The emission of VHAPs, which includes vinyl chlorides and benzene, from pumps in VHAP service are required to be monitored and controlled (40 CFR 61 240 through 61 242-2)	Determine where the facility operates pumps in VHAP service Verify that pumps meet the following standards - They are visually inspected weekly for leaks - They are monitored monthly using standard test methods for leaks - Leaks are repaired within 15 days with a first attempt within 5 days (NOTE: Exemptions include - Pumps equipped with properly operating dual mechanical seal systems are exempt from the monitoring requirements - Pumps designated for no detectable emissions, as indicated by a reading of less than 500 ppm above background, only have to comply with the repair requirements if there is no externally actuated shaft penetrating the pump house and it is tested as having no detectable emissions - Pumps equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device are exempt from all standards - Pumps in unmanned plant sites are exempt from weekly inspection requirements if each pump is visually inspected as often as possible and at least monthly)
A 43 The emission of VHAPs, which includes vinyl chlorides and benzene, from compressors in VHAP service are required to be monitored and controlled (40 CFR 61 240 through 61 242-1, and 61 242-3)	Determine if the facility operates compressors in VHAP service Verify that compressors meet the following - They are equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluids and one of the following - Operate with the barrier fluid at a pressure greater than the compressor stuffing box pressure - They are equipped with a barrier fluid system that is connected by a closed-vent system to a control device - They are equipped with a system that purges the barrier fluid into a process stream with zero VHAP emissions - The barrier fluid is not in VHAP service - Barrier fluid systems are equipped with a sensor to detect the failure of the seal system, barrier fluid system, or both, and sensors are checked daily or have an audible alarm unless the compressor is located within the boundary of an unmanned plant site - Leaks are repaired within 15 days with a first attempt within five days (NOTE Exemptions include - Compressors equipped with closed vent systems for capturing and transporting leakage into a control device are exempt from seal system requirements - Compressors designated for no detectable emissions are exempt form all requirements if it is demonstrated to be operating with an instrument reading of less than 500 ppm above background and is tested for compliance annually)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 44 The emission of VHAPs, which includes vinyl chlorides and benzene, from pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service are required to be monitored and controlled (40 CFR 61 240 through 242-1, 61 242-4, 61 242-5,61 242-8, and 61 242-9)	Determine where the facility operates sources in VHAP service. Verify the pressure relief devices in gas/vapor service meet the following, except during pressure releases - They are operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background - After a pressure release the device is returned to a state of no detectable emissions within five days (NOTE Pressure relief devices equipped with a closed-vent system capable of capturing and transporting leakage to a control device are exempted from the listed requirements) Verify that sampling connectors are equipped with a closed-purge system or closed vent system that does one of the following - Returns the purged process fluid directly to the process line - Collects and recycles the purged process fluid - Is designed and operated to capture and transport all purged process fluid to a control device (NOTE· In situ sampling systems are exempt from the requirements for sampling connectors.) Verify that pressure relief devices in liquid service and flanges and other connectors are monitored within five days if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method, and repair is done within 15 days. Verify that product accumulator vessels are equipped with a closed-vent system capable of capturing and transporting any leakage from the vessel to a control device.
A 45 The emission of VHAPs, which includes vinyl chlorides and benzene, from pumps, compressors, pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service, are required to be managed according to specific requirements (40 CFR 61.240 through 61.242-1, 61.242-10, 61.246, and 61.247)	Determine where the facility operates sources in VHAP service. Verify that when a leak is detected: - A weatherproof and readily visible identification tag marked with the equipment identification number is attached to the leaking equipment - The identification tag is removed only after no leak has been detected for two months or the leak is repaired - Leaks detected for pumps, compressors, pressure-relief devices in liquid service, and flanges are recorded in a log and maintained for two years at a readily accessible location. Verify that the following records are maintained - A list of identification numbers of all equipment to which a standard applies - A list of equipment designated for no detectable emissions - Dates of compliance tests - A list of identification numbers for equipment in vacuum service - Information and data used to demonstrate that a piece of equipment is not in VHAP service Verify that a semiannual report listing the number of leaks identified, items which were not repaired, explanation of repair delays or infeasibility of a shutdown, dates of shutdowns, and revisions to previous reports submitted to the EPA Administrator.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 46. Valves and lines in VHAP service, this includes vinyl chlorides and benzene, are required to be properly operating and monitored (40 CFR 61 242-6, 61 242-7, 61.243-1, 61 246, and 61 247)	Determine what valves and lines at the facility are in VHAP service Verify that open-ended valves or lines are equipped with a cap, blind flange, or second valve that seals the open end at all times except during operations requiring process fluid flow through the valve or line Verify that open-ended valves or lines with a second valve are operated so that the valve on the process fluid end is closed before the second valve is closed Verify that valves are properly operated and monitored· - Valves are monitored monthly except that valves for which a leak has not been detected for two successive months may be monitored quarterly until a leak is detected - After notifying the EPA Administrator the following practices may be used - after two consecutive quarterly leak detection periods where the percentage of valves leaking is equal to or less than 2 0, the operator may begin to skip one of the quarterly leak detection periods - after five consecutive quarterly leak detection periods where the percentage of the valves leaking is equal to or less than 2 0, the operator may begin to skip three quarterly leak detection periods - repair is done within 15 days of leak detection (NOTE The following valves are exempted from the identified requirements - Valves designated for no detectable emissions are exempt from the monthly monitoring requirements if there is no external actuating mechanism in contact with the process fluid and the valve is tested for compliance annually - Valves designated as unsafe-to-monitor are exempt from the monthly monitoring requirements if it is demonstrated that the valve is unsafe to monitor and there is a written plan requiring monitoring of the valve during safe-to-monitor times - Valves designated as difficult to monitor are exempt from the monthly monitoring requirements if it is demonstrated that the valve cannot be monitored without elevating the monitoring personnel more than 2 m (6 56 ft) above a support surface and a written plan is followed that requires monitoring of the valve at least once a year.) (NOTE· Repair may be delayed if the repair is technically infeasible or if the equipment is isolated) Verify that when a leak is detected· - A weatherproof and readily visible identification tag marked with the equipment identification number is attached to the leaking equipment - The identification tag is removed only after no leak has been detected for two months or the leak is repaired Verify that the following records are maintained: - A list of identification numbers of all equipments to which a standard applies - A list of equipment designated for no detectable emissions - Dates of compliance tests - A list of identification numbers for equipment in vacuum service - Information and data used to demonstrate that a piece of equipment is not in VHAP service Verify that a semiannual report listing the number of leaks identified, items which were not repaired, explanation of repair delays or infeasibility of a shutdown, dates of shutdowns, and revisions to previous reports is submitted to the EPA Administrator.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 47 Systems and devices used to control VHAP emissions, including benzene and vinyl chloride emissions, shall be properly operated (40 CFR 61 242-11, 61.246, and 61 247)	Verify that closed-vent systems and control devices used to control VHAP emissions meet the following: - Vapor recovery systems are designed and operated to recover the organic vapors vented to them with 95 percent efficiency or greater - Enclosed combustion devices are designed and operated to reduce the VHAP and benzene emissions vented to them with an efficiency of 95 percent or greater or provide a minimum residence time of 0 50 sec at a minimum temperature of 760°C (1400° F) - Closed-vent systems have no detectable emissions and are monitored annually and leaks repaired within 15 days with a first attempt within five days - These systems are operated at all time when emissions may be vented to them. Verify that for closed vent system and control devices the following records are kept in a readily accessible location: - Detailed schematics - Dates and descriptions of any changes to the system - Periods when they are not operating - Dates of startups and shutdowns.
Dry Cleaning Operations	
Petroleum Solvent Dry Cleaning	
A 48. Petroleum solvent dry cleaning dryers, washers, filters, stills, and settling tanks at petroleum dry cleaning plants are required to meet specific standards of operation (40 CFR 60 620 through 60 625)	(NOTE. These requirements apply to petroleum dry cleaning plants with a total manufacturers' rated dryer capacity equal to or greater than 38 kg (84 lb) that started construction or modification after 14 December 1982, except for dryers installed between 14 December 1982 and 21 September 1984 in a plant with an annual solvent consumption level less than 4,700 gal (17,7391 44 L)) Verify that dryers are solvent recovery dryers Verify that the petroleum solvent filters are cartridge filters that are drained in their sealed housing for at least eight hours before their removal. Determine if the facility has been granted approval from the EPA to use alternate equipment or procedures to reduce VOC emissions
Perchloroethylene Dry Cleaning	

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 49 Existing dry cleaning systems that use perchloroethylene are required to use specific emissions control devices (40 CFR 63 322(a), 63 322(e), 63 322(f), 63 322(h), 63 323(a), and 63 323(b))	(NOTE: See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that the dry cleaning facilities provide one of the following - The air-perchloroethylene gas-vapor stream contained in each dry cleaning machine is routed through a refrigerated condenser or an equivalent control device - The air-perchloroethylene gas-vapor stream contained within each dry cleaning machine is routed through a carbon adsorber installed on the dry-cleaning machine installed prior to 22 September 1993 Verify that if a refrigerated condenser is used to achieve compliance, temperature measurements are made weekly and - For a refrigerated condenser on a dry-to-dry machine or a reclaimer the temperature of the air-perchloroethylene gas-vapor stream on the outlet side is equal to or less than 7 2 °C (45° F) - For a refrigerated condenser on a washer the difference in the temperatures of the air-perchloroethylene gas-vapor stream entering the refrigerated condenser and the air-perchloroethylene gas-vapor stream exiting the condenser is greater than or equal to 11.1 °C (51 98 °F). Verify that if a refrigerated condenser is installed on a dry-to-dry machine, dryer, or reclaimer to achieve compliance, it is operated. - So that the air-perchloroethylene gas-vapor stream contained within the dry cleaning machine is not released or vented to the atmosphere while the dry cleaning machine drum is rotating - *With a diverter valve to prevent air drawn into the dry cleaning machine when* the door of the machine is open from passing through the refrigerated condenser Verify that if the dry cleaning machine is a transfer machine system located at a major source it is contained inside a room enclosure that is - Constructed of materials impermeable to perchloroethylene - Designed and operated to maintain a negative pressure at each opening at all times that the machine is operating - Operated to vent all air from the room enclosure through a carbon adsorber or an equivalent control device - Equipped with a separate carbon adsorber Verify that if a carbon adsorber is used for a transfer machine located at a major source contained inside a room enclosure, the concentration of the perchloroethylene in the exhaust is measured weekly and is less than or equal to 100 ppm by volume

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 50 New dry cleaning systems that use perchloroethylene are required to use specific emission control devices (40 CFR 63 322(b), 63 322(e), and 63 323(a)(1))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that the air-perchloroethylene gas-vapor stream contained within each dry cleaning machine is routed through a refrigerated condenser or an equivalent control device Verify that emissions of perchloroethylene during the transfer of articles between the washer and dryer is eliminated Verify that the air-perchloroethylene gas-vapor stream from inside the dry cleaning machine drum is passed through a carbon adsorber, or equivalent control device, immediately before or as the door of the dry cleaning machine is opened if the dry cleaning machine is located at a major source. Verify that if a refrigerated condenser is used to achieve compliance on a dry-to-dry machine or a reclaimer, temperature measurements are made weekly and the temperature of the air-perchloroethylene gas-vapor stream on the outlet side is equal to or less than 7.2 °C (45 °F) Verify that if a refrigerated condenser is installed on a dry-to-dry machine, dryer, or reclaimer to achieve compliance, it is operated - So that the air-perchloroethylene gas-vapor stream contained within the dry cleaning machine is not released or vented to the atmosphere while the dry cleaning machine drum is rotating - With a diverter valve to prevent air drawn into the dry cleaning machine from passing through the refrigerated condenser when the door of the machine is open
A 51 Perchloroethylene dry cleaning systems are required to be operated according to specific standards (40 CFR 63 322(c) and 63 322(d))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that the door of each dry cleaning machine is closed immediately after transferring articles to or from the machine and the door is kept closed at all times Verify that the dry cleaning systems are operated and maintained according to manufacturers specifications and recommendations
A 52 Carbon absorbers that are used as a method of emissions control at perchloroethylene dry cleaners are required to meet specific parameters (40 CFR 63 322(g), 63 323(b), and 663 323(c))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards.) Verify that carbon absorbers are not bypassed to vent or release any air-perchloroethylene gas-vapor stream to the atmosphere at any time Verify that the carbon adsorber is monitored weekly to determine that the perchloroethylene concentration in the exhaust is equal to or less than 100 ppm by volume

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 53 Perchloroethylene dry cleaners are required to drain all cartridge filters and handle the waste according to specific procedures (40 CFR 63 322(i) and 63 322(j))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that all cartridge filters are drained in their housing, or other sealed container, for a minimum of 24 hours or treated in an equivalent manner before removal from the dry cleaning facility Verify that all perchloroethylene and wastes that contain perchloroethylene in solvent tanks or solvent containers with no perceptible leaks
A 54 Perchloroethylene dry cleaning systems are required to be inspected for perceptible leaks (40 CFR 63 322(k) and 63 322(l))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that the following components are inspected weekly for perceptible leaks while the dry cleaning system is operating - Hose and pipe connections, fittings, couplings, and valves - Door gaskets and seatings - Filter gaskets and seatings - Pumps - Solvent tanks and containers - Water separators - Muck cookers - Stills - Exhaust dampers - Diverter valves - Cartridge filter housings (NOTE When total dry cleaning facility consumption is less than the following, inspections can be done biweekly - A total perchloroethylene consumption of the dry cleaning facility is less than 530 L/yr (140 gal/yr) for existing dry-to-dry machines and ancillary equipment located in a dry cleaning facility that includes only dry-to-dry machines and each existing transfer machine system and its ancillary equipment, as well as each existing dry-to-dry machine and its ancillary equipment, located in a dry cleaning facility that includes both transfer machine systems and dry-to-dry machines - A perchloroethylene consumption of the dry cleaning facility of less than 760 L/yr (200 gal/yr)r for each existing transfer machine system and its ancillary equipment located in a dry cleaning facility that includes only transfer machine systems.)
A 55 All perceptible leaks and temperature violations are required to be repaired within 24 h unless parts must be ordered (40 CFR 63 322(m) and 63 322(n))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that unless parts need to be ordered, repairs are made within 24 hours of discovery of a leak Verify that parts are ordered within two working days of leak detection Verify that parts are installed within five working days after receipt

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 56 Receipts of perchloroethylene purchases and a log of detailing volume calculations and monitoring results is required to be kept at perchloroethylene dry cleaning facilities for five years (40 CFR 63.324(d)).	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that receipts for the purchase of perchloroethylene are kept at the facility Verify that the log contains the following information: - The volume of perchloroethylene purchased per month - The calculation and result of yearly perchloroethylene consumption that is determined on the first of each month - The dates when system components are inspected for leaks and the name or location where leaks are identified - The dates of repair and records of written or verbal orders for repair parts - The date and temperature sensor monitoring results - The date and colorimetric detector tube monitoring results if a refrigerated condenser is used to achieve compliance.
A 57. A copy of the design specifications and the operating manual is required to be on site for each perchloroethylene dry cleaning system and each emission control device (40 CFR 63 324(e))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that there is a copy of the operating manual and design specifications for each dry cleaning system and each emission control device at the facility
A.58. A notification on the types of machines and the yearly of consumption of perchloroethylene and the types of control devices used must have been submitted to the EPA Administrator or delegated State authority by 18 June 1994 (40 CFR 63 324(a))	(NOTE: See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that the dry cleaning facility submitted an initial report signed by a responsible official and certified by a public notary that includes the following information - Name and address of the owner/operator of the dry cleaning facility - The address of the dry cleaning facility - A brief description of each type of machine at the dry cleaning facility - Documentation of the yearly perchloroethylene consumption at the dry cleaning facility for the previous year or an estimate of the perchloroethylene consumption - A description of the types of emission control devices and whether the control device is currently in use or will be purchased - Documentation that room enclosures are in compliance

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 59 Specific types of perchloroethylene facilities are required to submit a statement of perchloroethylene consumption and compliance to the EPA Administrator or delegated State authority (40 CFR 63 324(b))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that dry cleaning systems that started construction or reconstruction on or after 9 December 1991, except for systems complying with Section 112(i)(2) of the CAA submit this statement by 22 October 1993 to the EPA Administrator or delegated State authority Verify that dry cleaning systems that started construction or reconstruction before 9 December 1991 submit this statement by 20 January 1994 to the EPA Administrator or delegated State authority (NOTE Dry cleaning facilities that do not fall into either of these two categories are required to submit notification by 18 June 1994) Verify that the statement is signed by a responsible individual and certified by a notary public and contains the following: - The yearly perchloroethylene solvent consumption limit based on the yearly solvent consumption - Whether or not they are in compliance with 40 CFR 63 322. (NOTE When these certified solvent consumption limits are exceeded a new statement must be submitted)
A 60 Perchloroethylene dry cleaning facilities that exceed their reported solvent consumption are required to submit a statement compliance status to the EPA Administrator or delegated State authority (40 CFR 63 324(c))	(NOTE See Appendix 1-12 for a table outlining which dry cleaning facilities are required to comply with these standards) Verify that the statement is submitted by 23 September 1996 for the following - Each existing dry-to-dry machine and its ancillary equipment located in a dry cleaning facility that includes only dry-to-dry machines - Each existing transfer machine and its ancillary equipment, as well as each existing dry-to-dry machine and its ancillary equipment, located in a dry cleaning facility that includes both transfer machine systems and dry-to-dry machines - Each existing transfer machine and its ancillary equipment located in a dry cleaning facility that includes only transfer machine systems
CFCs and Halons	
Purchasing/Procurement	
A 61 Facilities which sell Class I or Class II substances suitable for use as a refrigerant in containers of less than 20 lb (9 07 kg) are required to display a specific sign (40 CFR 82 42(c))	Verify that a sign is displayed stating the following *It is a violation of Federal laws to sell containers of Class I and Class II refrigerant of less than 20 lb of such refrigerant to anyone who is not properly trained and certified to operate approved refrigerant recycling equipment* (NOTE See Appendix 1-13 for a list of Class I and Class II substances)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.62. Facilities are required to comply with restrictions concerning the use of CFC and halon substitutes (40 CFR 82 174(b) through 82.174(d))	Verify that no personnel at the facility uses a substitute which they know, or have reason to know was manufactured, processed, or imported in violation of Federal regulations Verify that when a substitute is used, it is an acceptable substitute and is used according to the use restriction outlined in Appendix 1-14 Verify that unacceptable substitutes are not used (see Appendix 1-15)
A 63 As of 1 January 2015 the use of Class II substances (see Appendix 1-13) is forbidden except in certain situations (42 USC 7671d(a)).	Verify that a program is underway to eliminate the use of Class II substances unless. - The substance has been reused or recycled - It is used and entirely consumed (except for trace quantities) in the production of other chemicals - It is used as a refrigerant in appliances manufactured prior to 1 January 2020.
A 64. No Class I or Class II substances suitable for use in motor vehicles as a refrigerant (see Appendix 1-13) can be sold or distributed in any container that is less than 20 lb (9.07 kg) to any person unless that person is trained and certified (40 CFR 82.34(b) and 82 42(b)(3))	Determine if the facility carries any of the Class I or Class II substances listed in Appendix 1-13 Verify these substances are only sold or distributed to certified individual by reviewing records of sales and distribution. Verify that distribution and sales records for these substances are kept for three years. (NOTE· Sales of these substances can be made to an uncertified individual if the purchaser is purchasing small containers for resale only)
Repair/Recycling	
A 65 In order to protect the ozone, no person repairing or servicing motor vehicles for payment can service a MVAC in any way that affects the refrigerant unless they have been trained and certified and are using approved equipment (40 CFR 82.34(a), 82.42(a), 82.42(b)(1), 82.42(b)(2), and 82.42(b)(4)).	Determine if the facility services MVAC for payment. Verify that the individual who does the repair is certified and that the equipment being used is approved by the EPA Verify that the EPA Administration has been notified that there is an individual on site who has been trained and certified that is performing MVAC repair. Verify that the facility keeps records of where the refrigerant is sent and personnel certification for three years. (NOTE: - These restrictions do not become effective until 1 January 1993 when less than 100 MVAC were serviced or repaired in calendar year 1990 and the EPA Administrator was notified of the number of vehicles serviced by 13 August 1992. - Certifications are not transferable)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 66 Persons who maintain, service, or repair appliance, except MVACs, and persons who dispose of appliances, except for small appliances, room air conditioners, MVACs and MVAC-like appliances are required to be certified through an approved technician certification program (40 CFR 82 161)	Verify that personnel have received technician certification (NOTE· Apprentices are exempt from this requirement if the apprentice is closely and continually supervised by a certified technician while performing any maintenances, service, repair, or disposal that could reasonably be expected to release refrigerant from appliances into the environment)
A 67 No person maintaining, servicing, repairing, or disposing of appliances can knowingly vent or release to the environment any Class I or Class II substance used as a refrigerant (40 CFR 82.150 and 82 154(a))	Determine if the facility is maintaining, servicing, repairing, or disposing of appliances containing refrigerants Verify that Class I or II substances are not being vented to the atmosphere (NOTE. - De minimis releases that are associated with good faith attempts to recycle or recover refrigerants are not considered a violation) - These requirements apply to the following - any person servicing, maintaining, or repairing appliances except for MVACs - persons disposing of appliances, including MVAC - refrigerant reclaimers, appliance owners, recycling and recovery equipment)
A 68 No person can open appliances, except MVACs, for maintenance, service, or repair, and no person can dispose of appliances, except for small appliances, MVAC, and MVAC-like appliances unless specific requirements are met (40 CFR 82 154(b), 82 156 (a)(5)))	Verify that the required practices outline in 40 CFR 82.156 (see checklist items A 71 through A.80) are met. Verify that equipment is used that is certified for the appliance in question
A 69 Facilities maintaining, servicing, or repairing appliances, except for MVACs, and facilities disposing of appliances, except for small appliances and MVACs, are required to submit certification to the EPA (40 CFR 82.162(a)).	Verify that the facility has submitted certification to the EPA that it has acquired certified recovery or recycling equipment and is in compliance with applicable requirements

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.70. Facilities which sell Class I or Class II substances suitable for use as a refrigerant in containers of less than 20 lb (9 07 kg) are required to display a specific sign (40 CFR 82 42(c))	Verify that a sign is displayed stating the following It is a violation of Federal laws to sell containers of Class I and Class II refrigerant of less than 20 lb of such refrigerant to anyone who is not properly trained and certified to operate approved refrigerant recycling equipment. (NOTE· See Appendix 1-13 for a list of Class I and Class II substances)
A 71. Facilities are required to comply with restrictions concerning the use of CFC and halon substitutes (40 CFR 82 174(b) through 82.174 (d))	Verify that no personnel at the facility uses a substitute which they know, or have reason to know was manufactured, processed, or imported in violation of Federal regulations. Verify that when a substitute is used, it is an acceptable substitute and is used according to the use restriction outlined in Appendix 1-14. Verify that unacceptable substitutes are not used (see Appendix 1-15)
A 72. As of 1 January 2015 the use of Class II substances (see Appendix 1-13) is forbidden except in certain situations (42 USC 7671d(a)).	Verify that a program is underway to eliminate the use of Class II substances unless. - The substance has been reused or recycled - It is used and entirely consumed (except for trace quantities) in the production of the chemicals - It is used as a refrigerant in appliances manufactured prior to 1 January 2020.
A 73 No Class I or Class II substances suitable for use in motor vehicles as a refrigerant (see Appendix 1-13) can be sold or distributed in any container that is less than 20 lb (9 07 kg) to any person unless that person is trained and certified (40 CFR 82 34(b) and 82 42 (b)(3))	Determine if the facility carries any of the Class I or Class II substances listed in Appendix 1-13 Verify these substances are only sold or distributed to certified individual by reviewing records of sales and distribution. Verify that distribution and sales records for these substances are kept for three years (NOTE Sales of these substances can be made to an uncertified individual if the purchaser is purchasing small containers for resale only)
A 74 Facilities which sell or offer for sale used refrigerants are required to meet specific parameters (40 CFR 82 154(g) and 82 154(h))	(NOTE· These requirements apply from 18 October 1994 to 15 May 1995) Verify that no Class I or Class II substances is sold or offered for sale as a refrigerant that consists wholly or in part of used refrigerant unless - The substance has been correctly reclaimed - The substance was used only in a MVAC or MVAC like appliance or it is contained in an appliance that is sold or offered for sale together with the substance

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 75 In order to protect the ozone, no person repairing or servicing motor vehicles for payment can service a MVAC in any way that affects the refrigerant unless they have been trained and certified and are using approved equipment (40 CFR 82 34(a), 82 42(a), 82 42(b)(1), 82 42(b)(2), and 82 42(b)(4))	Determine if the facility services MVAC for payment Verify that the individual who does the repair is certified and that the equipment being used is approved by the EPA Verify that the EPA Administration has been notified that there is an individual onsite who has been trained and certified that is performing MVAC repair. Verify that the facility keeps records of where the refrigerant is sent and personnel certification for three years (NOTE Certifications are not transferable) (NOTE The term "for payment" is not clearly defined For agency facilities the interpretation will be that if the personnel repairing or servicing MVACs is a paid employee of the facility, they must be trained and certified)
A 76 Recycling and recovery equipment for use in the maintenance, service, or repair of appliances, except MVACs and MVAC-like appliances, or during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances is required to be certified by an approved equipment testing organization (40 CFR 82 158(a))	Verify that the equipment which is used is certified.
A 77 Persons who maintain, service, or repair appliance, except MVACs, and persons who dispose of appliances, except for small appliances, room air conditioners, MVACs and MVAC like appliances are required to be certified through an approved technician certification program (40 CFR 82 161)	Verify that personnel have received technician certification. (NOTE Apprentices are exempt from this requirement if the apprentice is closely and continually supervised by a certified technician while performing any maintenances, service, repair, or disposal that could reasonably be expected to release refrigerant from appliances into the environment)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 78 No person maintaining, servicing, repairing, or disposing of appliances can knowingly vent or release to the environment any Class I or Class II substance used as a refrigerant (40 CFR 82 150 and 82 154(a))	Determine if the facility is maintaining, servicing, repairing, or disposing of appliances containing refrigerants Verify that Class I or II substances are not being vented to the atmosphere (NOTE De minimis releases that are associated with good faith attempts to recycle or recover refrigerants are not considered a violation.) (NOTE These requirements apply to the following - Any person servicing, maintaining, or repairing appliances except for MVACs - Persons disposing of appliances, including MVAC - Refrigerant reclaimers, appliance owners, recycling and recovery equipment)
A 79 No person can open appliances, except MVACs, for maintenance, service, or repair, and no person can dispose of appliances, except for small appliances, MVAC, and MVAC-like appliances unless specific requirements are met (40 CFR 82 154(b), 82 156 (a)(5))	Verify that the required practices outline in 40 CFR 82 156 (see checklist items A 78 through A 87) are met Verify that equipment is used that is certified for the appliance in question
A 80 Facilities maintaining, servicing, or repairing appliances, except for MVACs, and facilities disposing of appliances, except for small appliances and MVACs, are required to submit certification to the EPA (40 CFR 82 162(a)	Verify that the facility has submitted certification to the EPA that it has acquired certified recovery or recycling equipment and is in compliance with applicable requirements (NOTE Submission of certification is required no later than 12 August 1993 or 20 days after starting business)
A 81 Facilities recovering refrigerant from small appliances, MVACs, and MVAC-like appliances for the purpose of disposal of these appliances are required to certify to the EPA that appropriate recovery equipment has been acquired (40 CFR 82 162(c))	Verify that the facility has submitted certification to the EPA that it has acquired appropriate recovery equipment

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 82 Facilities opening appliances, except for small appliances and MVACs for maintenance, service, or repair and all persons disposing of appliances other than small appliances, MVACs, and MVAC-like appliances must have at least one piece of certified, self-contained recovery equipment available (40 CFR 82 156(b) and 82 156(e))	Verify that the facility has at least one available piece of equipment (NOTE· Refrigerant may be returned to the appliance from which it is recovered or to another appliance without being recycled or reclaimed, unless the appliance is a MVAC or MVAC-like appliance) (NOTE Facilities that maintain, service, repair, or dispose of only appliances that they own and contain pump out units are exempt from this requirement, but not from other requirements of 40 CFR 82 156)
A 83 System dependent equipment must not be used with appliances normally containing more than 15 lb (6 80 kg) of refrigerant (40 CFR 82 156(c))	Verify that system dependent equipment is not used with appliances normally containing more than 15 lb (6 80 kg) of refrigerant unless the system dependent equipment is permanently attached to the appliance as a pump out unit
A 84 When appliances are opened for service, maintenance or repair, except for MVACs, the refrigerant must be evacuated in either the entire unit or the part to be serviced, if the part can be isolated, to a system receiver or a certified recovery or recycling machine (40 CFR 82 150 and 82 156(a))	Verify that refrigerant is evacuated to either a system receiver or certified recovery or recycling machine Verify that a certified technician ensures that the applicable level of evacuation has been reached in the appliance or the part before it is opened
A 85 When appliances, except for small appliances, MVAC and MVAC-like appliance are disposed of, the refrigerant must be evacuated from the entire unit to a certified recovery or recycling machine (40 CFR 82 150 and 82 156(a))	Verify that if disposal is occurring, the refrigerant is being evacuated to a certified recovery or recycling machine

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 86 When appliances, except for small appliance, MVAC, and MVAC-like appliances, are opened for maintenance, service or repair, they must be evacuated to specific levels before the appliance is opened (40 CFR 82 150 and 82 156(a)(1) and 82 156 (a)(2))	Verify that evacuation is done to the levels in Appendix 1-16 prior to opening the appliance unless one of the following is met· - Evacuation of the appliance is not to be done after completion of the maintenance service or repair, and the maintenance service or repair is not major - The evacuation limits in Appendix 1-16 are not possible because of leaks in the equipment, or the refrigerant being recovered would be substantially contaminated - The recycling or recovery equipment is certified Verify that if evacuation is not to be done after completion of the maintenance, service, or repair and the maintenance, service, or repair is not major, the appliance is - Evacuated to a pressure no higher than zero psig before it is opened if it is a high or very high-pressure appliance - Pressurized to zero psig before it is opened if it is a low pressure appliance (NOTE Persons pressurizing low pressure appliances that use refrigerants with boiling points at or below 85° F at 29.9 in. Hg (e g , CFC-11 or HCFC-123) must not use methods, such as nitrogen, that require subsequent purging Persons pressurizing low-pressure appliances that use refrigerants with boiling points above 85° F at 29 9 in Hg (e g. CFC 113) must use heat to raise the internal pressure, but may use nitrogen to raise the internal pressure of the appliance from the level attainable through use of heat to atmospheric pressure) Verify that if the evacuation limits in Appendix 1-16 are not possible because of leaks in the equipment or the refrigerant being recovered would be substantially contaminated, the person opening the appliance - Isolates leaking from non-leaking components whenever possible - Evacuates leaking components to be opened to the lowest level that can be attained without substantially contaminating the refrigerant, in no case exceeding zero psig Verify that if the recycling or recovery equipment is certified, the technicians follow the manufacturer's directions for achieving required recovery efficiency
A.87 Appliances, except for small appliances, MVACs, and MVAC-like appliances, that are being disposed of must be evacuated to the levels in Appendix 1-16 (40 CFR 82.150 and 82 156(a)(3))	Verify that appliances are evacuated to the levels listed in Appendix 1-16 prior to disposal unless leaks in the appliance do not allow for the attainment of Appendix 1-16 or would substantially contaminate the refrigerant being recovered Verify that if Appendix 1-16 levels are not attainable, persons disposing of appliances - Isolate leaking from non-leaking components whenever possible - Evacuate leaking components to the lowest level that can be attained without substantially contaminating the refrigerant (not to exceed zero psig)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 88 Specific evacuation limits must be met when opening small appliances for maintenance, service, or repair (40 CFR 82 150 and 82 156(a)(4))	Verify that when recycling and recovery equipment manufactured prior to 15 November 1993 is used, 80 percent of the refrigerant is recovered or the small appliance is evacuated to four in. of Hg vacuum (13 55 kPa) Verify that when recycling and recovery equipment manufactured on or after 15 November 1993 is used, 90 percent of the refrigerant in the appliance is recovered when the compressor in the appliance is operating, or 80 percent of the refrigerant when the compressor is not operating or the small appliance is evacuated to 4 in (10 16 cm) of mercury vacuum
A 89 Facilities which take the final step in the disposal process of a small appliance, room air conditioning, MVACs, or MVAC-like appliances must meet specific standards (40 CFR 82 156(f), 82 166(i) and 82 166(m))	(NOTE This includes but is not limited to scrap recyclers and landfill operators) Verify that facilities - Recovers any remaining refrigerant from the appliance - Checks that the refrigerant has been evacuated from the appliance or shipment of appliances by reviewing a signed statement from the person from whom the appliance or shipment of appliances is obtained that all refrigerant has been recovered Verify that copies of signed statements are retained for three years
A 90 Facilities recovering refrigerant for the purpose of disposal must meet specific standards (40 CFR 82 156(g) and 82 156(h))	Verify that if the facility recovers refrigerant from MVACs and MVAC-like appliances for the purpose of disposal of the appliance, the system pressure is reduced to or below 102 mm of Hg (13.60 kPa) vacuum Verify that the facility recovering refrigerant from small appliances for the purpose of disposal of the appliance does one of the following. - Recover 90 percent of the refrigerant when the compressor in the appliance is operating - Recover 80 percent of the refrigerant in the appliance when the compressor in the appliance is not operating - Evacuate the small appliance to four in of Hg (13 55 kPa) vacuum

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 91. Leaking appliances must be repaired when specific limits are exceeded (40 CFR 82 156 (i))	Verify that if the facility owns commercial and industrial process refrigeration equipment normally containing more than 50 lbs or refrigerant, all leaks are repaired if the equipment is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-month period. Verify that other appliances normally containing more than 50 lb (22 68 kg) of refrigerant are repaired if the appliance is leaking at a rate such that the loss of refrigerant will exceed 15 percent of the total charge during a 12-month period. (NOTE· Leaks are not required to be repaired if, within 30 days, the facility has developed a one-year retrofit or retirement plan for the leaking equipment The plan, or a legible copy, must be kept at the site of the equipment) Verify that leaks have been repaired within 30 days of discovery or within 30 days of when the leak should have been discovered, if the facility intentionally shielded themselves from information which would have revealed a leak.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
Recordkeeping	
A 92 Facilities that sell or distribute any Class I or Class II substance for use as a refrigerant are required to retain invoices (40 CFR 82 166(a) and 82 166(m))	Verify that facilities that sell or distribute any Class I or Class II substance for use as a refrigerant retain invoices indicating the name of the purchaser, the date of sale, and the quantity or refrigerant purchased Verify that records are retained for three years
A 93 Facilities servicing appliances normally containing 50 lb (22 68 kg) or more of refrigerant are required to supply the owner of the appliance with documentation as to how much refrigerant was added and the owner of the appliance must retain the servicing records (40 CFR 82 166(j), 82 166 (k), and 82 166(m))	Verify that documentation of servicing and amounts of refrigerant added is provided to the appliance owner and retained for three years
A 94 Facilities recovering refrigerant from small appliances, MVACs, and MVAC-like appliances for the purpose of disposal of these appliances are required to certify to the EPA that appropriate recovery equipment has been acquired (40 CFR 82 162(c)).	Verify that the facility has submitted certification to the EPA that it has acquired appropriate recovery equipment
A 95 Facilities opening appliances, except for small appliances and MVACs for maintenance, service, or repair and all persons disposing of appliances other than small appliances, must have at least one piece of certified, self-contained recovery equipment available (40 CFR 82 156(b) and 82 156(e))	Verify that the facility has at least one available piece of equipment (NOTE Refrigerant may be returned to the appliance from which it is recovered or to another appliance without being recycled or reclaimed, unless the appliance is a MVAC-like appliance)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 96 System dependent equipment must not be used with appliances normally containing more than 15 lb (6 80 kg) of refrigerant (40 CFR 82 156(c)).	Verify that system dependent equipment is not used with appliances normally containing more than 15 lb (6 80 kg) of refrigerant
A 97. When appliances are opened for service, maintenance or repair, except for MVACs, the refrigerant must be evacuated in either the entire unit or the part to be serviced, if the part can be isolated, to a system receiver or a certified recovery or recycling machine (40 CFR 82 150 and 82 156(a))	Verify that refrigerant is evacuated to either a system receiver or certified recovery or recycling machine
A.98 When appliances, except for small appliances, MVAC and MVAC-like appliance are disposed of, the refrigerant must be evacuated from the entire unit to a certified recovery or recycling machine (40 CFR 82 150 and 82 156(a))	Verify that if disposal is occurring, the refrigerant is being evacuated to a certified recovery or recycling machine.
A 99. When appliances, except for small appliance, MVAC, and MVAC-like appliances, are opened for maintenance, service or repair, they must be evacuated to specific levels before the appliance is opened (40 CFR 82.150 and 82 156(a)(1) and 82 156 (a)(2)).	Verify that evacuation is done to the levels in Appendix 1-16 prior to opening the appliance unless one of the following is met. - Evacuation of the appliance is not to be done after completion of the maintenance service or repair, and the maintenance service or repair is not major - The evacuation limits in Appendix 1-16 are not possible because of leaks in the equipment, or the refrigerant being recovered would be substantially contaminated Verify that if evacuation is not to be done after completion of the maintenance, service, or repair and the maintenance, service, or repair is not major, the appliance is - Evacuated to a pressure no higher than zero psig before it is opened if it is a high or very high-pressure appliance - Pressurized to zero psig before it is opened if it is a low pressure appliance without using methods, such as nitrogen, that require subsequent purging Verify that if the evacuation limits in Appendix 1-16 are not possible because of leaks in the equipment or the refrigerant being recovered would be substantially contaminated, the person opening the appliance. - Isolates leaking from non-leaking components whenever possible - Evacuates leaking components to be opened to the lowest level that can be attained without substantially contaminating the refrigerant, in no case exceeding zero psig

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 100 Appliances, except for small appliances, MVACs, and MVAC-like appliances, that are being disposed of must be evacuated to the levels in Appendix 1-16 (40 CFR 82 150 and 82 156(a)(3))	Verify that appliances are evacuated to the levels listed in Appendix 1-16 prior to disposal.
A 101 Specific evacuation limits must be met when opening small appliances for maintenance, service, or repair (40 CFR 82 150 and 82 156(a)(4)).	Verify that when recycling and recovery equipment manufactured prior to 15 November 1993 is used, 80 percent of the refrigerant is recovered or the small appliance is evacuated to four in of Hg vacuum (13 55 kPa) Verify that when recycling and recovery equipment manufactured on or after 15 November 1993 is used, 90 percent of the refrigerant in the appliance is recovered when the compressor in the appliance is operating, or 80 percent of the refrigerant when the compressor is not operating or the small appliance is evacuated to four in (10 16 cm) of mercury vacuum
A 102 Facilities which take the final step in the disposal process of a small appliance, room air conditioning, MVACs, or MVAC- like appliances must meet specific standards (40 CFR 82 156(f), 82 166(i) and 82 166(m))	(NOTE This includes but is not limited to scrap recyclers and landfill operators) Verify that facilities - Recover any remaining refrigerant from the appliance - Check that the refrigerant has been evacuated from the appliance or shipment of appliances by reviewing a signed statement from the person from whom the appliance or shipment of appliances is obtained that all refrigerant has been recovered Verify that copies of signed statements are retained for three years
A 103 Facilities recovering refrigerant for the purpose of disposal must meet specific standards (40 CFR 82 156(g) and 82 156(h))	Verify that if the facility recovers refrigerant from MVACs and MVAC-like appliances for the purpose of disposal of the appliance, the system pressure is reduced to or below 102 mm of Hg (13 60 kPa) vacuum Verify that the facility recovering refrigerant from small appliances for the purpose of disposal of the appliance does one of the following - Recovers 90 percent of the refrigerant when the compressor in the appliance is operating - Recovers 80 percent of the refrigerant in the appliance when the compressor in the appliance is not operating - Evacuates the small appliance to four in of Hg (13 55 kPa) vacuum

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.104 Leaking appliances must be repaired when specific limits are exceeded (40 CFR 82 156(i)).	Verify that if the facility owns commercial and industrial process refrigeration equipment, all leaks are repaired if the equipment is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-month period Verify that other appliances normally containing more than 50 lb (22 68 kg) of refrigerant are repaired if the appliance is leaking at a rate such that the loss of refrigerant will exceed 15 percent of the total charge during a 12-month period (NOTE Leaks are not required to be repaired if, within 30 days, the facility has developed a one-year retrofit or retirement plan for the leaking equipment The plan, or a legible copy, must be kept at the site of the equipment) Verify that leaks have been repaired within 30 days of discovery or within 30 days of when the leak should have been discovered, if the facility intentionally shielded themselves from information which would have revealed a leak
A 105 Facilities that sell or distribute any Class I or Class II substance for use as a refrigerant are required to retain invoices (40 CFR 82 166(a) and 82 166(m))	Verify that facilities that sell or distribute any Class I or Class II substance for use as a refrigerant retains invoices indicating the name of the purchaser, the date of sale, and the quantity or refrigerant purchased Verify that records are retained for three years
A.106. Facilities servicing appliances normally containing 50 lb (22 68 kg) or more of refrigerant are required to supply the owner of the appliance with documentation as to how much refrigerant was added and the owner of the appliance must retain the servicing records (40 CFR 82 166(j) and 82 166(k))	Verify that documentation of servicing and amounts of refrigerant added is provided to the appliance owner and retained for three years
Air Pollution Alert and Emergency Plans	
A 107 States may require certain facilities to prepare and implement air episode plans for the reduction of emissions in the event of an air pollution alert or emergency (see state regulations)	If an air or emergency plan is required by the state regulations, review the facility's plan to verify that it conforms with regulatory requirements. If a review of good management practices with respect to air toxics is included in the scope of the review, complete the following - Review the facility's procedures for evaluating potential releases of toxics to the atmosphere - For areas where it has been determined that potential toxic emissions may be a problem, review plans to reduce or eliminate those emissions - Review the facility's plan for responding to toxic air releases and verify that the plan is being implemented
Asbestos Management	
All Facilities	

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 108 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent State enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
A 109 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
A 110 Facilities are required to comply with state and local regulations concerning asbestos management (EO 12088, Sect 1-1)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Certification of individuals sampling and/or working with asbestos - Renovation and demolition procedures - Asbestos handling and disposal procedures)
Renovation and Demolition of Asbestos-Containing Structures	

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.111 Facilities that demolish structures must meet certain notification requirements (40 CFR 61 145(a)(1), 61 145(a)(3), 61.145(b))	(NOTE. This applies to facilities that demolish structures containing at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 ft^2) of RACM on other components or at least 1 m^3 (35 ft^3) off facility components, and facilities renovating structures and stripping or removing at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 ft^2) of friable asbestos on other facility components and at least 1 m^3 (35 ft^3) off facility components) Determine if the EPA has been provided with written notice of intent to demolish or renovate at least 10 working days before demolition begins and as early as possible before renovation begins. Verify that the written notice contains the following information - Name and address of facility - Description of facility being renovated or demolished (size, age, prior use) - Estimates of approximate amount (linear ft or surface area) of asbestos present in the structure - Location of the structure - Scheduled start and completion dates of renovation or demolition - Nature of planned demolition or renovation methods to be used - Procedures for asbestos emissions control - Name and location of waste disposal site where asbestos will be disposed - Whether or not it is a revised notification - Certification that at least one trained person will supervise - Name of the facility owner/operator and telephone number (NOTE· Facilities are also required to submit notifications following these guidelines for facilities being demolished under an order of a state or local governmental agency because the facility is structurally unsound and in danger of imminent collapse)
A.112 Facilities demolishing a facility with RACM of less than 80 linear m (260 linear ft) on pipes and less than 15 m^2 (160 ft^2) on other facility components and less than 1 m^3 (35 ft^3) off facility components are required to submit notification of demolition (40 CFR 61 145(a)(2), 61.145(b))	Verify that a written notice of intent to demolish has been submitted to the Administrator at least 10 working days before demolition and includes· - The name and address of owner and operator - Description of the facility being demolished including the size, age, and prior use - Estimate of the approximate amount of friable asbestos present - Location of the facility - Schedule - Procedures to be used

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 113 Facilities that demolish or remove structures must meet certain emission control requirements (40 CFR 61 145(a)(1) through 61 145(a)(3), 61 145(c)(1) through 61 145(c)(3))	(NOTE This requirements applies to Facilities that demolish structures which contain at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 ft^2) of RACM on other facility components and facilities renovating structures and stripping or removing at least 80 linear m (260 linear ft) of friable asbestos on pipes, or at least 15 m^2 (160 ft^2) of friable asbestos on other facility components or 1 m^3 (35 ft^3) or more off facility components) Verify that all RACM are removed from facilities being demolished or renovated before any wrecking or dismantling unless - It is a Category I nonfriable ACM that is not in poor condition and is not friable - The RACM is on a facility component that is encased in concrete or other similar material and is adequately wetted whenever exposed during demolition - It was not accessible for testing and is not discovered until after demolition began and, as a result of demolition, the materials cannot be safely removed - It is Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder, during demolition Verify that when a facility component that contains or is covered or coated with RACM is being taken out of the facility in units or sections - They are adequately wetted when RACM is exposed during cutting and disjointing operations - The units or sections are carefully lowered to ground level Verify that RACM is adequately wetted when it is being stripped from facility components while it remains in place in the facility except in renovation operation where wetting would unavoidably damage equipment and the facility - Requests a determination from the Administrator as to whether unavoidable damage would occur and supply Administrator with the information needed to make the decision - Uses one of the following emission control methods -- a local exhaust ventilation and collection system -- a glove bag system -- leaktight wrapping to contain all RACM.
A 114 Emissions from facility components that have been taken out in units or in sections from facilities being demolished under state or local orders or facilities being demolished or renovated with at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 ft^2) of RACM on other facility components or at least 1 m^3 (35 ft^3) off facility components must be controlled (40 CFR 61 145(c)(4) and 61 145(c)(5))	Verify that facility components are either stripped or contained in leaktight wrappings. Verify that facility components removed from facility as units or in sections for stripping meet the following - RACM is adequately wet during stripping operations - A local exhaust ventilation and collection system designed and operated to capture emissions is in use - The exhaust system exhibits no visible emissions to outside air Verify that when wetting operations are stopped because of the temperature, a record of the temperature is made and kept on file for two years (NOTE For large facility components such as reactor vessels, large tanks, and steam generators, but not beams, stripping is not required if the following are met - The component is removed, transported, stored, disposed of, or reused without disturbing the RACM - The component is encased in leaktight wrapping and labelled)

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 115. Emissions from RACM that has been removed or stripped from facilities being demolished under state or local orders or facilities being demolished or renovated with at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 ft^2) of RACM on other facility components or 1 m^3 (35 ft^3) or greater off facility components must be controlled (40 CFR 61 145(c)(6))	Verify that asbestos materials that have been removed or stripped meet the following - Materials are adequately wet, and remain wet until collected for disposal - Materials are carefully lowered to the ground or lower floor (not dropped or thrown) - Materials not removed as units or in sections are transported to the ground via dust-tight chutes or containers if they are removed more than 50 feet above ground level.
A 116 When the temperature at the point of wetting is below 0°C (32°F) and facilities are being demolished under state or local orders or facilities with at least 80 linear m (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 ft^2) of RACM other facility components or at least 1 m^3 (35 ft^3) off facility components are being demolished or renovated, specific exemptions and requirements apply (40 CFR 61 145(c)(7))	Verify that facility components coated or covered with RACM materials are removed as units or in sections to the maximum extent possible. (NOTE Wetting is not required at this temperature) Verify that when wetting operations are stopped because of freezing temperatures, the temperature is recorded in the areas containing the facility components at the beginning, middle, and end of each work day. Verify that the temperature records are kept for two years.
A 117. Facilities being demolished under state or local governmental agency orders shall have the portion of the facility containing friable asbestos adequately wetted during the wrecking operation (40 CFR 61 145(c)(9))	Verify that in facilities being demolished under state or local governmental agency orders the portion of the facility that contains friable asbestos materials is adequately wetted during the wrecking operation.
A 118 When a structure is demolished by intentional burning, all RACM, including Category I and II nonfriable ACM, must be removed (40 CFR 61 145(c)(10))	Verify that complex removal is done before burning.

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 119 When air cleaning is used as a method for controlling emissions of asbestos to the outside air, the fabric filter collection systems are required to meet specific standards unless alternative equipment is authorized for use by the EPA (40 CFR 61 152)	Verify that fabric filter collection systems meet the following requirements - Airflow permeability does not exceed 9 $m^3/min/m^2$ (30 $ft^3/min/ft^2$) for woven fabrics or 11 $m^3/min/m^2$ (35 $ft^3/min/ft^2$) for felted fabrics - The felted fabric weighs at least 475 g/m^2 (14 oz/yd^2) and is at least 1 6 mm (1/16 in.) thick throughout - The use of synthetic fabrics containing fill yarn other than that which is spun is avoided
Asbestos Personnel Training	
A 120 No RACM shall be stripped, removed, or otherwise handled or distributed unless at least one onsite representative trained in asbestos removal is present (40 CFR 61 145(c)(8))	Verify that trained person is present Verify that the individual receives refresher training every two years
Asbestos Disposal	
A 121 Asbestos-containing waste materials are required to be disposed of properly (40 CFR 61 150(a) through 61 150(b)).	(NOTE. These requirements do not apply to Categories I or II nonfriable ACM that did not become crumbled, pulverized, or reduced to powder.) Verify that no visible emissions are discharged to the outside air during the collection, processing, packaging, transporting, or depositing of asbestos-containing waste material, or that the facility uses one of the following methods - The asbestos-containing waste is adequately wetted - The asbestos-containing waste is processed into nonfriable forms - An alternative method approved by the EPA Verify that if the waste is wetted - Asbestos waste from control devices is mixed with water to form a slurry and the other materials are adequately wetted - No visible emissions are discharged or air cleaning is used to control the emissions - The wetted materials are sealed in leaktight containers while wet and labeled with the phrase CAUTION, Contains Asbestos Avoid Opening or Breaking Container, Breathing Asbestos is Hazardous to Your Health or a label approved by OSHA - Materials that don't fit in containers are put into leaktight wrapping Verify that the waste generator deposits all ACM as soon as practical at one of the following - A properly operated waste disposal site - An EPA approved site that converts RACM and asbestos-containing waste material into asbestos-free material

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 122 Asbestos-containing waste must be transported according to specific parameters (40 CFR 61 150(c) through 61.150(e)).	Verify that vehicles used to transport asbestos-containing waste material are marked indicating an asbestos dust hazard Verify that for all ACM transported off the facility, waste shipment records are maintained for at least two years and a copy is provided to the waste disposal site Verify that a procedure is in place to notify the local, state, or EPA regional office if a copy of the waste shipment record is not returned to the waste generator within 45 days after the waste was accepted by the initial transporter
A 123 Active waste disposal sites where ACM is being disposed are required to meet specific standards (40 CFR 61 154(a) through 61 154(e) and 61 154(i) through 61 154(j))	Determine if the facility is operating a landfill where asbestos is being disposed Verify that there are no visible emissions from active asbestos-containing waste disposal sites, or that one of the following is done - At the end of each operating day, or once in a 24 hour period, the waste material is covered with either at least 15 cm (6 in.) of compacted nonasbestos-containing material - A resinous or petroleum based dust suppression agent is applied, waste crankcase oil is not suitable for this purpose - An alternative method of control approved by the EPA is used Verify that unless a natural barrier exists deterring access by the general public, either the waste is properly covered by non-ACM daily or proper warning signs and fences are installed and maintained as follows - Warning signs are displayed at all entrances at intervals of 100 m (330 ft) or less along the property line of the site or the perimeter of the section of the site where ACM is disposed and state that the site contains asbestos and warns against creating dust - The area is adequately fenced Verify that a copy of waste shipment records are maintained for two years Verify that until closure, a record is kept of the location, depth, and area of asbestos-containing waste on a map or diagram of the disposal area Verify that upon closure, the administration receives a copy of all records Verify that a procedure is in place to notify the administration in at least 45 days prior to excavating or disturbing deposited asbestos-containing waste material

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.124 Inactive waste disposal sites are required to meet specific standards (40 CFR 61 154(f) through 61 154(h) and 61 151).	Verify that inactive waste disposal sites meet one of the following - No visible emissions are discharged - Asbestos-containing waste material is covered with at least 15 cm (6 in.) of compacted non-ACM, and a vegetation cover is grown and maintained (In desert areas where vegetation is difficult to maintain at least 8 cm (3 in) additional of well-graded nonasbestos-containing crushed rock may be used instead) - Cover the asbestos-containing waste material with at least 60 cm (2 ft) of nonACM and maintain the cover to prevent exposure Verify that unless a natural barrier exists, warning signs and a fence are installed to deter public access Verify that warning signs are displayed at all entrances and at intervals of 100 m (328 ft) or less and are easily read indicating the area is an asbestos waste disposal site Verify that a procedure is in place to notify the administrator in writing at least 45 days prior to excavating or disturbing any asbestos-contaminated waste material at an inactive waste disposal site
Asbestos in Schools	
A 125 Each building that is leased, owned, or otherwise used as a school building is required to be inspected for asbestos and a report of the inspection generated (40 CFR 763 85)	Determine which buildings at the installation are used as school buildings. Verify that the buildings have been inspected for asbestos, including sampling, by an accredited inspector Verify that reinspection of all friable and nonfriable unknown or assumed ACBM occurs every three years after a management plan is in place Verify that each inspection and reinspection is documented in a report that is included in the management plan (NOTE Any building that is leased or acquired on or after 12 October 1988 that is to be used as a school building must be inspected prior to use as a school building If emergency use of a building is required, inspection will occur within 30 days.)
A 126 Each inspection or reinspection is required to result in a written assessment of all friable known or assumed ACBM in the school building (40 CFR 763 88(a) through 763 88(c))	Verify that the assessment classifies the ACBM and suspected ACBM assumed to be ACM into one of the following categories· - Damaged or significantly damaged thermal system insulation ACM - Damaged friable surfacing ACM - Significantly damaged friable surfacing ACM - Damaged or significantly damaged friable miscellaneous ACM - ACBM with potential for damage - ACBM with potential for significant damage - Any remaining friable ACBM or friable suspected ACBM Verify that the designated person reviews the results of the inspections, reinspections, and assessments and recommend a course of action to the local education agency

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 127. An asbestos management plan is required for each school building and submitted to the agency designated by the governor of the state (40 CFR 763 93)	Determine if there is a plan Verify that plans have been submitted. Verify that the plan is kept current and up-to-date with on-going operational and maintenance activities Verify that the plan was developed by an accredited management planner and includes: - A list of the names and addresses of each school building and whether the building contains friable ACBM, nonfriable ACBM, and friable and nonfriable suspected ACBM assumed to be ACM - Dates of inspections - A blueprint, diagram or written description of the school building identifying where samples were taken - A description of sampling methodologies - Analysis results - Descriptions of any assessments made - Name, address, and telephone number of the designated asbestos manager - A detailed description of preventative measures and response actions taken - Statements of accreditation - A description in the form of a blueprint, diagram, or writing of any ACBM or suspected ACBM assumed to be ACM which remains in the school after response actions are taken - A plan for reinspection - A description of the steps taken to inform workers, building occupants, and/or their legal occupants about asbestos related activities - An evaluation of the resources needed to complete response actions and carry out reinspection, operations and maintenance activities, periodic surveillance and training activities Verify that a copy of the plan is on file in the school administrative office and available to workers before work beginning in any area of the building Verify that a copy of the plan is available for inspection by representatives of the EPA, the state, and the public within five working days after receiving a request for inspection

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 128 Response actions are required to be selected and implemented in a timely manner and according to specific guidelines (40 CFR 763 90(a) through 763 90(f))	Verify that if damaged or significantly damaged thermal system insulation ACM is present in the building, the facility will: - At least repair the damaged area - Remove the damaged material if it is not feasible, due to technological difficulties, to repair the damage - Maintain all thermal system insulation ACM and its coverings in an intact state and undamaged condition Verify that if damaged friable surfacing ACM or damaged friable miscellaneous ACM is present, the facility uses one of the following response actions - Encapsulation - Enclosure - Removal - Repair Verify that if significantly damaged friable surfacing ACM or significantly damaged friable miscellaneous ACM is present in a building, the facility - Immediately isolates the functional space and restricts access unless isolation is not needed to protect human health - Removes the material in the functional space or, depending on whether enclosure or encapsulation is sufficient to protect human health and the environment, enclose or encapsulate Verify that if any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for damage is present in the building, an appropriate operations and maintenance (O&M) program is implemented Verify that if any friable surfacing ACM, thermal insulation ACM, or friable miscellaneous ACM that has potential for significant damage is present, the facility - Implements an appropriate O&M program - Institutes preventative measures to eliminate the reasonable likelihood that the ACM will become significantly damaged, deteriorated, or delaminated - Removes the material as soon as possible if appropriate preventative measures cannot be implemented
A 129 An accredited person must be designated by the local education agency to perform specific tasks and functions (40 CFR 763 84(g), 763 88(d))	Verify that the person designated to ensure that requirements concerning asbestos in school are implemented correctly is trained in the following - Health effects of asbestos - Detection, identification, and assessment of ACM - Options for controlling ACM - Asbestos management programs - Relevant state and Federal regulations

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A.130 An operations, maintenance and repair program is required to be developed whenever any friable ACBM is present or assumed to be present in a building that is used as a school building (40 CFR 763 91(a) through 763 9(e)).	(NOTE: Any material identified as nonfriable ACBM or nonfriable-assumed ACBM must be treated as friable ACBM when the material is about to become friable as a result of activities performed in the school building.) Verify that the following actions are taken during small scale, short duration O&M operations: - Entry is restricted into the area by persons other than those needed to perform the maintenance project (this can be done by isolating the area or by scheduling) - Signs are posted to prevent entry by unauthorized persons - Air-handling systems are shutoff or temporarily modified and other sources of air movement are restricted - Whatever work practices are required to prohibit the spread of any released fibers are used - All fixtures or other components are cleaned in the immediate work area - The asbestos debris and other cleaning materials are placed in a sealed, leaktight container. Verify that response actions for any maintenance activities disturbing friable ACBM, other than small-scale, short-duration maintenance are designed by persons accredited to design response actions and conducted by persons accredited to conduct response actions.
A.131 Warning labels are required to be attached immediately adjacent to any friable and nonfriable ACBM and suspected ACBM assumed to be ACM located in routine maintenance areas (such as boiler rooms) at each school building (40 CFR 763 95)	Verify that label are in place in the following areas - Where friable ACBM was responded to by any means other than removal - Where there is ACBM for which no response action was carried out Verify that labels are displayed in highly visible places and remain posted until the ACBM that is labeled is removed Verify that the label reads CAUTION ASBESTOS HAZARDOUS. DO NOT DISTURB WITHOUT PROPER TRAINING AND EQUIPMENT.
A 132 All members of the school maintenance and custodial staff who might work in a building that contains ACBM are required to receive at least two hours of awareness training whether or not they are required to work with ACBM (40 CFR 763 92(a)(1))	Verify that the school maintenance and custodial staff has been trained. Verify that new personnel are trained within 60 days after start of employment Verify that the training has included - Information regarding asbestos and the various uses and forms - Information on the health effects associated with asbestos exposure - Locations of all ACBM identified throughout each school building in which they work - Recognition of damaged, deterioration, and location of the management plan - Name and telephone number of the person designated to carry out responsibilities for asbestos management.
A 133 School maintenance and custodial staff that conduct any activities that will result in the disturbance of ACBM are required to received an additional 14 hours of training (40 CFR 763.92(a)(2))	Verify that staff has received additional training that includes - Descriptions of the proper methods of handling ACBM - Information on the use of respiratory protection and other personal protective measures - The requirements found in 40 CFR 763 - Hands-on training in the use of respiratory protection, other personal protection measures, and good work practices

Compliance Category: Air Pollution Control	
Regulatory Requirements	**Reviewer Checks:**
A 134 Records pertaining to asbestos in schools are required to be maintained in a central location in the administrative office of the school (40 CFR 763 94)	Verify that records concerning removal of ACBM are retained for three years after the next reinspection Verify that records for the following are retained - Preventive measures and response actions - Personnel training - O&M activities - Fiber release episodes
Radon Management	
A 135 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent State enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems.
A 136 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide. If so, annote checklist to include new standards. Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
A 137 Facilities are required to comply with state and local regulations concerning radon management (EO 12088, Sect 1-1)	Verify that the facility is abiding by state and local requirements. Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Testing requirements - Mitigation requirements.)

Section 1

Air Pollution Control

Appendices

Appendix 1-1
Reid Vapor Pressure* for Installation Geographic Area
(40 CFR 80.27)

State	May	June	July	August	September
Alabama	9 0	7.8	7 8	7 8	7 8
Arizona	9 0	7.8	7 8	7 8	7 8
Arkansas	9 0	7.8	7 8	7.8	7 8
California	9 0	7 8	7 8	7 8	7 8
Colorado**	9 0	7 8	7 8	7 8	7 8
Connecticut	9 0	9 0	9 0	9 0	9 0
Delaware	9.0	9.0	9.0	9 0	9 0
District of Columbia	9 0	7.8	7 8	7 8	7 8
Florida	9.0	7.8	7.8	7 8	7 8
Georgia	9 0	7.8	7.8	7 8	7 8
Idaho	9.0	9.0	9.0	9 0	9 0
Illinois	9 0	9 0	9 0	9 0	9 0
Indiana	9 0	9 0	9 0	9 0	9 0
Iowa	9 0	9 0	9 0	9 0	9 0
Kansas	9.0	7 8	7 8	7 8	7 8
Kentucky	9.0	9 0	9 0	9 0	9 0
Louisiana	9 0	7.8	7 8	7 8	7 8
Maine	9.0	9 0	9 0	9 0	9 0
Maryland	9 0	7 8	7 8	7 8	7 8
Massachusetts	9 0	9 0	9 0	9 0	9 0
Michigan	9.0	9.0	9.0	9.0	9 0
Minnesota	9 0	9 0	9 0	9 0	9 0
Mississippi	9 0	7 8	7 8	7 8	7 8
Missouri	9 0	7 8	7 8	7 8	7 8
Montana	9.0	9.0	9 0	9 0	9 0
Nebraska	9.0	9.0	9 0	9 0	9 0
Nevada	9 0	7.8	7 8	7 8	7 8
New Hampshire	9.0	9.0	9.0	9.0	9 0
New Jersey	9.0	9.0	9.0	9 0	9 0

Appendix 1-1 (continued)
Reid Vapor Pressure for Installation Geographic Area
(40 CFR 80.27)

State	May	June	July	August	September
New Mexico	9.0	7 8	7 8	7 8	7 8
New York	9 0	9 0	9 0	9 0	9 0
North Carolina	9.0	7 8	7 8	7 8	7 8
North Dakota	9.0	9 0	9 0	9 0	9 0
Ohio	9.0	9 0	9 0	9 0	9 0
Oklahoma	9 0	7 8	7 8	7 8	7.8
Oregon	9 0	7 8	7 8	7 8	7 8
Pennsylvania	9 0	9 0	9 0	9 0	9.0
Rhode Island	9 0	9.0	9.0	9.0	9 0
South Carolina	9 0	7 8	7 8	7 8	7 8
South Dakota	9.0	9 0	9 0	9 0	9 0
Tennessee					
Knox County	9 0	9 0	9 0	9 0	9 0
All other volatility nonattainment areas	9 0	7 8	7 8	7 8	7 8
Texas	9.0	7 8	7.8	7 8	7 8
Utah	9 0	7 8	7 8	7 8	7 8
Vermont	9.0	9 0	9 0	9 0	9 0
Virginia	9 0	7.8	7.8	7 8	7 8
Washington	9 0	9.0	9 0	9 0	9 0
West Virginia	9.0	9.0	9 0	9 0	9 0
Wisconsin	9 0	9 0	9 0	9 0	9.0
Wyoming	9 0	9 0	9 0	9 0	9 0

* Standards are expressed in psi
**The standard for 1992 and 1995 in the Denver-Boulder nonattainment area will be 9.0 for 1 June through 15 September.

Appendix 1-2
Emissions Limitations for Incinerators and Steam Generators of 73 MW (250 Mbtu/h) or Greater

Source category	Fuel Type	Pollutant	Emission Level	Monitoring Requirement
40 CFR 60 40 through 60.44				
Steam generators > 73 MW (250 MBtu/h) constructed or modified after 17 August 1971	Solid Fossil Fuel	Particulate	43 ng/J (0 10 lb/MBtu)	None
		Opacity	20%, 27% 6 min/h	Continuous
		SO_2	ng/J (1 2 lb/MBtu)520	Continuous
		NO_x (except lignite and coal refuse)	300 ng/J (0 70 lb/MBtu)	Continuous
	Liquid Fossil Fuel	SO_2	340 ng/J (0 80 lb/MBtu)	Continuous
	NO_x	129 ng/J (0 30 lb/MBtu)	Continuous	
	Gaseous Fossil Fuel	NO_x	86 ng/J (0 20 lb/MBtu)	Continuous
	Lignite	NO_x	260 ng/J (0 60 lb/MBtu)	Continuous
	Lignite mined in ND, SD, or MT burned in a cyclone fired unit	NO_x	340 ng/J (0.80 lb/MBtu)	Continuous
40 CFR 60 50 through 60 54				
Incinerators > 45 metric tons (50 tons/day) constructed or modified after 17 August 1971	Incinerators	Particulate	0 18 g per dry standard cubic meter (dscm) (0 08 g per dry standard cubic foot (dscf) corrected to 12 percent CO_2	Record of daily charging rates and hours of operation

Appendix 1-3
Formulas for Calculating Emissions Limitations
(40 CFR 60.42b and 60.44b)

Steam generating units that started construction, modification, or reconstruction after 19 June 1984 with a heat input capacity of greater than 29 MW (100 MBtu/h).

1. **SO_2 From Facilities Combusting Coal or Oil**

$$E = \frac{(K_a H_a + K_b H_b)}{(H_a + H_b)}$$

where:

E = the SO_2 emission limit
K_a = 520 ng/J (1.2 lb/MBtu)
K_b = 340 ng/J (0.80 lb/MBtu)
H_a = the heat input from the combustion of coal
H_b = the heat input from the combustion of oil.

2. **SO_2 From Facilities Combusting Coal or Oil Alone or With Other Fuel While Using Emerging Technology**

$$E_s = \frac{(K_c H_c + K_d H_d)}{(H_c + H_d)}$$

where·

E_s = the SO_2 emission limit (expressed in NO_2), ng/J (lb/MBtu) heat input
K_c = 260 ng/J (0.60 lb/MBtu)
K_d = 170 ng/J (0.40 lb/MBtu)
H_c = the heat input from the combustion of coal, J (MBtu)
H_d = the heat input from the combustion of oil, J (MBtu).

3. **NOx Emissions From Facilities Simultaneously Combusting Coal, Oil, or Natural Gas With By-products/Waste**

$$E_n = \frac{[(EL_{go}H_{go}) + (EL_{ro}H_{ro}) + (EL_c H_c)]}{(H_{go} + H_{ro} + H_c)}$$

where:

E_n = the NOx emission limit (expressed as NO_2), ng/ (lb /MBtu)
EL_{go} = the appropriate emission limit from paragraph (a)(1) for combustion of natural gas or distillate oil, ng/J (lb/MBtu)
H_{go} = the heat input from combustion of natural gas or distillate oil and gaseous by-product/waste, ng/J (lb/MBtu)

EL_{ro}	=	the appropriate emission limit from paragraph (a)(2) for combustion of residual oil, ng/J (lb/MBtu)
H_{ro}	=	the heat input from combustion of residual oil and/or liquid by-product/waste
$E_L c$	=	the appropriate emission limit from paragraph (a)(3) for combustion of coal
H_c	=	the heat input from combustion of coal

4. NOx Emissions From Facilities Simultaneously Combusting Mixtures of Coal, Oil, or Natural Gas

$$E_n = \frac{[(EL_{go}H_{go}) + (EL_{ro}H_{ro}) + (EL_cH_c)]}{(H_{go} + H_{ro} + H_c)}$$

where

E_n	=	the NOx emission limit (expressed as NO_2), ng/J (lb/MBtu)
EL_{go}	=	the appropriate emission limit from paragraph (a)(1) for combustion of natural gas or distillate oil, ng/J (lb/MBtu)
H_{go}	=	the heat input from combustion of natural gas or distillate oil
EL_{ro}	=	the appropriate emission limit from paragraph (a)(2) for combustion of residual oil
H_{ro}	=	the heat input from combustion of residual oil
EL_c	=	the appropriate emission limit from paragraph (a)(3) for combustion of coal
H_c	=	the heat input from combustion of coal.

Appendix 1-4
Particulate Emission Standards
(40 CFR 60.43b)

Steam generating units with a heat input capacity of greater than 29 MW (100 MBtu/h) that started construction, modification, or reconstruction after 19 June 1984

Facility Type	Particulate Emissions
Combusts only coal or coal and other fuels with an annual capacity factor for the other fuels of 10 percent or less.	22 ng/J (0 05 lb/MBtu) heat input
Combusts coal and other fuels and has an annual capacity factor greater than 10 percent and is subject to federally enforceable requirements limiting operations to an annual capacity factor greater than 10 percent for fuels other than coal	43 ng/J (0.10 lb/MBtu) heat input
Combusts coal or coal and other fuels, was constructed after 19 June 1984 but before 25 November 1986 and has. a. an annual capacity factor for coal, and coal and other fuels, of 30 percent or less b has a maximum heat input capacity of 73 MW (250 MBtu/h) c has a federally enforceable requirement limiting operation of affected facility to an annual capacity factor of 30 percent or less for coal or coal and other solid fuels	86 ng/J (0.20 lb/MBtu) heat input
Combusts oil or mixture of oil and uses a conventional or emerging technology to reduce SO_2 emissions.	43 ng/J (0 10 lb/MBtu) heat input
Combusts wood or wood with other fuels except coal and has an annual capacity factor greater than 30 percent for wood	43 ng/J (0 10 lb/MBtu) heat input
Combusts wood or wood with other fuels, except coal, with a maximum heat input capacity of 73 MW (250 MBtu/h) and has an annual capacity factor of 30 percent or less for wood and is subject to a federally enforceable requirement limiting operation to an annual capacity factor of 30 percent or less.	86 ng/J (0 20 lb/MBtu) heat input
Combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels with an annual capacity factor of 10 percent or less for other fuels.	43 ng/J (0.10 lb/MBtu) heat input
Combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels with an annual capacity factor of 30 percent or less for other fuels and has a maximum heat input capacity of 73 MW (250 MBtu/h) or less, constructed between 19 June 1984 and 25 November 1986, with federally enforceable requirements limiting operating to an annual capacity factor of 30 percent	86 ng/J (0 20 lb/MBtu) heat input

Appendix 1-5
Emissions Standards For NOx
(40 CFR 60.44b)

Fuel burning sources greater than 29 MW (100 MBtu/h) heat input that started construction, modification, or reconstruction after 19 June 1984

Nitrogen Oxide Emission Limit ng/J (lb/MBtu) (Expressed As NO_2)	
Fuel/Steam Generating Unit Type	**Heat Input**
1 Natural gas and distillate oil except for	
low heat release rate	43 (0 10)
high heat release rate	86 (0 20)
2 Residual oil	
low heat release rate	130 (0 30)
high heat release rate	170 (0 40)
3 Coal	
mass feed stoker	210 (0 50)
spreader-stoker and fluid bed combustion	260 (0 60)
pulverized coal	300 (0 70)
lignite	260 (0.60)
lignite mined in ND, SD, or MT, and combusted in a slag tap furnace	340 (0.80)
coal derived synthetic fuels	210 (0 50)
4 Duct burner used in combined cycle system	
natural gas and distillate oil	86 (0.20)
residual oil	170 (0.40)

Appendix 1-6
Formula for Calculating SO_2 Emissions Limitations
(40 CFR 60.42c(e)(2))

The following applies to steam generating units for which construction, modification, or reconstruction started after 9 June 1989 with a maximum design heat input capacity of 29 MW (100 MBtu/h) or less, but greater than or equal to 2 9 MW (10 Mbtu/h).

$$E = \frac{(K_a H_a + K_b H_b + K_c H_c)}{(H_a + H_b + H_c)}$$

where:

E =	the SO_2 emission limit expressed in ng/J or lb/MBtu heat input
K_a =	520 ng/J (1.2 lb/MBtu)
K_b =	260 ng/J (0 60 lb/MBtu)
K_c =	215 ng/J (0.50 lb/MBtu)
H_a =	the heat input from the combustion of coal, except coal combusted in a facility that combusts only coal and uses emerging technology, in Joules (J) (MBtu)
H_b =	the heat input from the combustion of coal, except coal combusted in a facility that combusts only coal and uses emerging technology, in J (MBtu)
H_c =	the heat input from the combustion of oil, in J (MBtu).

Appendix 1-7
NOx Emissions from Stationary Gas Turbines
(40 CFR 60.332)

Formula A:

$$STD = 0.0075 \; x \; \frac{14\ 4}{Y} + F$$

Formula B:

$$STD = 0\ 0150 \; x \; \frac{14\ 4}{Y} + F$$

where

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis)

Y = manufacturer's rated heat rate at manufacturer's rated load or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kJ/watt hour

F = NO_x emission allowance for fuel-bound nitrogen, defined as follows·

Fuel-Bound Nitrogen (percent by weight)	F
N < 0.015	0
0.015 < N < 0.1	0 04(N)
0 1 < N < 0.25	0 004 + 0 0067(N - 0 1)
N > 0 25	0 0025

N is the nitrogen content of the fuel (percent by weight)

Appendix 1-8
Municipal Waste Combustor Operating Standards for CO
(40 CFR 60.54a, Table I)

Municipal Waste Combustor Technology	CO Emission Limit (ppm by volume)
Mass burn waterwall	100
Mass burn refractory	100
Mass burn rotary waterwall	100
Modular starved air	50
Modular excess air	50
RDF stoker	150
Bubbling fluidized bed combustor	100
Circulating fluidized bed combustor	100
Coal/RDF mixed fuel fired combustor	150

Appendix 1-9
Lead Concentration in Sewage Sludge Fed to an Incinerator
(40 CFR 503.43)

Formula 1:

$$C = \frac{0.1 * NAAQS * 86{,}400}{DF * (1 - CE) * SF}$$

where:

C = Daily concentration of lead in sewage sludge in mg/kg of total solids (dry weight basis)
NAAQS = National Ambient Air Quality Standards for lead in micrometer/m^3
DF = Dispersion factor in micrometer/m^3/g/s
CW = Sewage sludge incinerator control efficiency for lead in hundreths
SF = Sewage sludge feed rate in metric tons per day (dry weight basis)

Formula 2:

$$C = \frac{RSC * 86{,}400}{DF * (1 - CE) * SF}$$

where:

C = Daily concentrations of arsenic, cadmium, chromium, or nickel in sewage sludge in mg/kg of total solids (dry weights basis)
CE = Sewage sludge incinerator control efficiency for arsenic, cadmium, chromium, or nickel in hundreths
DF = Dispersion factor in micrometer/m^3/g/s
RSC = Risk specific concentration in micrometer/$m^{3\text{-}S}$
F = Sewage sludge feed rate in metric tons per day (dry weight basis)

Appendix 1-10
Total Hydrocarbon Operational Standards
(40 CFR 503.44)

Formula 1:

$$\textit{Correction Factor (percent moisture)} = \frac{1}{(1-X)}$$

where:

X = decimal fraction of the percent moisture in the sewage sludge incinerator exit gas in hundreths

Formula 2:

$$\textit{Correction Factor (oxygen)} = \frac{14}{(21-Y)}$$

where:

Y = Percent oxygen concentration in the sewage sludge incinerator stack exit gas (dry volume/dry volume)

Appendix 1-11
Frequency of Monitoring for Incineration
(40 CFR 503.16, Table 1, 503.26, Table 1, 503.46, Table 1)

Amount of Sewage Sludge* (metric tons/365 day period) (long tons/365 days)	Frequency
Greater than zero but less than 290 (285 42)	Once per year
Equal to or greater than 290 (285 42) but less than 1500 (1476 31)	Once per quarter (four times per year)
Equal to or greater than 1500 (1476 31) but less than 15,000 (14,763.1)	Once per 60 days (six times less per year)
Equal to or greater than 15,000 (14,763 1)	Once per month

* Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis)

Appendix 1-12
Compliance and Exemptions to 40 CFR 63.320 through 63.325
Concerning Perchloroethylene Dry Cleaners

Facility Type	Applicable Citation	Checklist Item Numbers	Date
Coin-operated dry cleaners	None	None	None
Dry cleaning systems that started construction or reconstruction on or after 9 December 1991, except for systems complying with Section 112(i)(2) of the Clean Air Act	63 320 through 63 325	A 50 through A.61	22 September 1993
Dry cleaning systems that started construction or reconstruction before 9 December 1991	63.322(c), (d), (i), (j), (k), (l), (m), 63 323(d) and 63 324(a), (b), (d)(1), (d)(2), (d)(3), (d)(4), and (e)	A.52, A 54, A.55, A.56, A.57, A.58, A.59, A.60	20 December 1993
	All other Citations	A 50, A 51, A 53, A.61	23 September 1996
Existing dry-to-dry machines and ancillary equipment located in a dry cleaning facility that includes only a dry-to-dry machines and each existing transfer machine system and its ancillary equipment, as well as each existing dry-to-dry machine and its ancillary equipment, located in a dry cleaning facility that includes both transfer machines systems and dry-to-dry machines with a total perchloroethylene consumption of less than 530 L/yr (140 gal/yr)	63 322(c),(d), (i), (j), (k), (l), (m), 63.323(d), and 63.324(a), (b), (d)(1), (d)(2), (d)(3), (d)(4), (e)	A.52, A.54, A.55, A 56, A 57, A 58, A 59, A 60	22 September 1993
Existing transfer machine systems and ancillary equipment located in a dry cleaning facility that includes only transfer machine systems with perchloroethylene consumption at the facility of less than 760 L/yr (200 gal/yr)	63.322(c), (d), (i), (j), (k), (l) (m), 63.323(d) and 63 324(a), (b), (d)(1), (d)(2), (d)(3), (d)(4), and (e)	A.52, A 54, A.55, A.56, A.57, A 58, A 59, A 60	22 September 1993

(NOTE If the total yearly consumption of perchloroethylene at a dry cleaning facility is initially less than the amounts stipulated above, butd to comply within 180 days of the date that the facility determined it exceeded the baseline amounts or by 23 September 1996, whichever is later)

Appendix 1-13
Controlled Substances and Ozone Depletion Weights
(40 CFR 82, Appendix A and Appendix B)

Controlled Substance	Ozone Depletion Weight
Class I	
Group I	
$CFC\text{-}Cl_3$ - Trichlorofluoromethane (CFC-11)	1 0
CF_2Cl_2 - Dichlorodifluoromethane (CFC-12)	1 0
$C_2F_3Cl_3$ - Trichlorotrifluoroethane (CFC-113)	0 8
$C_2F_4CL_2$ - Dichlorotetrafluoroethane (CFC-114)	1.0
$C_2F_5Cl_1$ - (Mono)chloropenthafluoroethane (CFC-115)	0 6
All isomers of the above chemicals	
Group II	
CF_2ClBr - Bromochlorodifluoromethane (Halon 1211)	3 0
CF_3Br - Bromotrifluoromethane (Halon 1301)	10 0
$C_2F_4Br_2$ - Dibromotetrafluoroethane (Halon 2402)	6 0
All isomers of the above chemicals	
Group III	
CF_3Cl - Chlorotrifluoromethane (CFC-13)	1 0
C_2FCl_5 - (CFC-111)	1 0
$C_2F_2Cl_4$ - (CFC-112)	1 0
C_3FCl_7 - (CFC-211)	1 0
$C_3F_2Cl_6$ - (CFC-212)	1.0
$C_3F_3Cl_5$ - (CFC-213)	1 0
$C_3F_4Cl_4$ - (CFC-214)	1 0
C_3F5Cl_3 - (CFC-215)	1 0
$C_3F_6Cl_2$ - (CFC-216)	1 0
C_3F_7Cl - (CFC-217)	1 0
All isomers of the above chemicals	
Group IV	
CCl_4 - Carbon tetrachloride	1 1
Group V	
$C_2H_3Cl_3$-1,1,1-Trichloroethane (methyl chloroform)	0 1
All isomers of the above chemicals	
Group VI	
CH_3Br - Bromomethane (methyl bromide)	0 7

Appendix 1-13 (continued)
Controlled Substances and Ozone Depletion Weights
(40 CFR 82, Appendix A and Appendix B)

Controlled Substance	Ozone Depletion Weight
Group VII	
$CHFBr_2$	1 00
CHF_2Br (HBFC-22B1)	0 74
CH_2FBr	0.73
C_2HFBr_4	0 3 - 0.8
$C_2HF_2Br_3$	0 5 - 1.8
$C_2HF_3Br_2$	0 4 - 1 6
C_2HF_4Br	0 7 - 1.2
$C_2H_2FBr_3$	0 1 - 1 1
$C_2H_2F_2Br_2$	0 2 - 1 5
$C_2H_2F_3Br$	0 7 - 1.6
$C_2H_3FBr_2$	0 1 - 1 7
$C_2H_3F_2Br$	0 2 - 1 1
C_2H_4FBr	0 07 - 0 1
C_3HFBr_6	0 3 - 1 5
$C_3HF_2Br_5$	0 2 - 1 9
$C_3HF_3Br_4$	0 3 - 1 8
$C_3HF_4Br_3$	0.5 - 2 2
$C_3HF_5Br_2$	0 9 - 2 0
C_2HF_6Br	0 7 - 3 3
$C_3H_2FBr_5$	0 1 - 1 9
$C_3H_2F_2Br_4$	0.2 - 2 1
$C_3H_2F_3Br_3$	0 2 - 5 6
$C_3H_2F_4Br_2$	0 3 - 7 5
$C_3H_2F_5Br$	0.9 - 1 4
$C_3H_3FBr_4$	0 06 - 1 9
$C_3H_3F_2Br_3$	0 1 - 3 1
$C_3H_3F_3Br_2$	0 1 - 2 5
$C_3H_3F_4Br$	0 3 - 4 4
$C_3H_4FBr_3$	0 03 - 0 3
$C_3H_4F_2Br_2$	0.1 - 1 0
$C_3H_4F_3Br$	0 07 - 0 8
$C_3H_5FBr_2$	0.04 - 0.4
$C_3H_5F_2Br$	0 07 - 0 8
C_3H_6FBr	0 02 - 0.7

Appendix 1-13 (continued)
Controlled Substances and Ozone Depletion Weights
(40 CFR 82, Appendix A and Appendix B)

Controlled Substance	Ozone Depletion Weight
Class II	
$CHFCl_2$ - Dichlorofluoromethane (HCFC-21)	*(res)
CHF_2Cl - Chlorodifluoromethane (HCFC-22)	0 05
CH_2FCl - Chlorofluoromethane (HCFC-31)	(res)
C_2HFCl_4 - (HCFC-121)	(res)
$C_2HFCl_2Cl_3$ - (HCFC-122)	(res)
C_2HF_3Cl2 - (HCFC-123)	0 02
C_2HF4Cl - (HCFC-124)	0 02
$C_2H_2FCl_3$ - (HCFC-131)	(res)
$C_2H_2F_2Cl_2$ - (HCFC-132b)	(res)
$C_2H_2F_2Cl$ - (HCFC-133a)	(res)
$C_2H_3FCl_2$ - (HCFC-141b)	0 12
C_2H_3F2Cl - (HCFC-142b)	0 06
C_3HFCl_6 - (HCFC-221)	(res)
$C_3HF_2Cl_5$ - (HCFC-222)	(res)
$C_3HF_3Cl_4$ - (HCFC-223)	(res)
$C_3HF_4Cl_3$ - (HCFC-224)	(res)
$C_3HF_5Cl_2$ - (HCFC-225ca)	(res)
C_3HF_5Cl2 (HCFC-225cb)	(res)
C_3HF_6Cl - (HCFC-226)	(res.)
C_3H_2FCl5 - (HCFC-231)	(res)
$C_3H_2F2Cl_4$ - (HCFC-232)	(res)
$C_3H_2F_3Cl_3$ - (HCFC-233)	(res)
$C_3H_2F_4Cl_2$ - (HCFC-234)	(res)
$C_3H_2F_5Cl$ - (HCFC-235)	(res)
$C_3H_3FCl_4$ - (HCFC-241)	(res)
$C_3H_3F2Cl_3$ - (HCFC-242)	(res)
$C_3H_3F_3Cl_2$ - (HCFC-243)	(res)
$C_3H_3F_4Cl$ - (HCFC-244)	(res)
$C_3H_4FCl_3$ - (HCFC-251)	(res)
$C_3H_4F2Cl_2$ - (HCFC-252)	(res)
$C_3H_4F_3Cl$ - (HCFC-253)	(res)
$C_3H_5FCl_2$ - (HCFC-261)	(res)
$C_3H_5F_2Cl$ - (HCFC-262)	(res)
C_3H_6FCl - (HCFC-271)	(res)
All isomers of the above chemicals	(res)

*(res) means reserve It designates that the ozone depletion weight number has been reserved for a future rating

Appendix 1-14
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
Substitutes Acceptable Subject To Narrowed Use Limits				
Electronics cleaning w/CFC-113, MCF	Perfluoro-carbons (C_5F_{12}, C_6F_{12}, C_6F_{14}, C_7F_{16}, C_8F_{18}, $C_5F_{11}NO$, $C_6F_{13}NO$, $C_7F_{15}NO$, and C_8F_{16})	Acceptable for high-performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements		The principle environmental characteristic of concern for Perfluorocarbons (PFCs) is that they have long atmospheric lifetimes and high global warming potentials Although actual contributions to global warming depend upon the quantities of PFCs emitted, the effects are for practical purposes irreversible Users must observe this limitation on PFC acceptability by conducting a reasonable evaluation of other substitutes to determine that PFC use is necessary to meet performance or safety requirements Documentation of this evaluation must be kept on file For additional guidance regarding applications in which PFCs may be appropriate, users should consult the Preamble for this rulemaking
Precision cleaning w/CFC-113, MCF	Perfluoro-carbons (C_5F_{12}, C_6F_{12}, C_6F_{14}, C_7F_{16}, C_8F_{18}, $C_5F_{11}NO$, $C_6F_{13}NO$, $C_7F_{15}NO$, and C_8F_{16})	Acceptable for high-performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements		The principle environmental characteristic of concern for PFCs is that they have long atmospheric lifetimes and high global warming potentials Although actual contributions to global warming depend upon the quantities of PFCs emitted, the effects are for practical purposes irreversible Users must observe this limitation on PFC acceptability by conducting a reasonable evaluation of other substitutes to determine that PFC use is necessary to meet performance or safety requirements Documentation of this evaluation must be kept on file For additional guidance regarding applications in which PFCs may be appropriate, users should consult the Preamble for this rulemaking

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-Use	Substitute	Decision	Conditions	Comments
Fire Suppression And Explosion Protection Streaming Agents				
Halon 1211 Streaming Agents	(CFC Blend)	Acceptable in nonresidential uses only		Use of CFCs are controlled under CAA section 610 which bans use of CFCs in pressurized dispensers, and therefore are not permitted for use in portable for extinguishers EPA will list this agent as proposed unacceptable in the next significant new alternatives policy (SNAP) proposed rulemaking Because CFCs are a Class I substance, production will be phased out by 1 January 1996 See additional comments 1,2
	HBFC-22B1		Acceptable in nonresidential uses only	Proper procedures regarding the operation of the extinguisher and ventilation following dispensing the extinguishant is recommended Worker exposure may be a concern in small office areas HBFC-22B1 is considered an interim substitute for Halon 1211 Because the HBFC-22B1 has an ozone depleting potential (ODP) of 0 74, production will be phased out (except for essential uses on 1 January 1996) This agent was submitted to the Agency as a Premanufacture Notice (PMN) and is presently subject to requirements contained in a Toxic Substance Control Act (TSCA) Consent Order See additional comments 1,2

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
	C_6F_{14}	Acceptable for nonresidential uses where other alternatives are not technically feasible due to performance or safety requirements a Due to the physical or chemical properties of the agent, or b Where human exposure to the extinguishing agent may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions		Users must observe the limitations on PFC acceptability by making reasonable effort to undertake the following measures • Conduct an evaluation of foreseeable conditions of end use • Determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use, and • Determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions Documentation of such measures must be available for review upon request The principal environmental characteristic of concern for PFCs is that they have high Global Warming Potential (GWP) and long atmospheric lifetimes Actual contributions to global warming depend upon the quantities of PFCs emitted For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the preamble to this rulemaking See additional comments 1, 2

Additional Comments
1 Discharge testing and training should be strictly limited only to that which is essential to meet safety or performance requirements
2 The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
Fire Suppression And Explosion Protection Total Flooding Agents				
Halon 1301 Total Flooding Agents	HBFC-22B1	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 0 3 percent Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 1 0 percent HBFC-22B1 concentrations greater than 1 0 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge	The comparative design concentration based on cup burner values is approximately 5 3 percent, While its cardiotoxic LOAEL is 1 percent Thus, it is unlikely that this agent will be used in normally occupied areas HBFC-22B1 can be considered only an interim substitute for Halon 1301 HBFC-22B1 has an ODP of 0 74,thus, production will be phased out 1 January 1996 This agent was submitted to the Agency as a Premanufacture Notice (PMN) and is presently subject to requirements contained in a Toxic Substance Control Act (TSCA) Consent Order See additional comments 1,2,3,4
	HCFC-22	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 2 5 percent Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 5 0 percent HCFC-22 concentrations greater than 5 0 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge	The comparative design concentration based on cup burner values is approximately 13 9 percent while its cardiotoxic LOAEL is 5 0 percent Thus, it is unlikely that this agent will be used in normally occupied areas See additional comments 1,2,3,4

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
	HCFC-124	Acceptable		Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 1 0 percent Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL OF 2 5 percent HCFC-123 concentrations greater than 2 5 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge The comparative design concentration based on cup burner values is approximately 8 4 percent while its cardiotoxic LOAEL is 2 5 percent Thus, it is unlikely that this agent will be used in normally occupied areas See additional comments 1,2,3,4
	(HCFC BLEND) A	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use (HCFC Blend) A in concentrations exceeding its cardiotoxic NOAEL of 10 0 percent Where egress takes greater than 30 seconds but less than one minute, the employer shall not use (HCFC Blend) A in a concentration greater than its cardiotoxic LOAEL of 10 0 percent (HCFC Blend) A concentrations greater than 10 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge	The comparative design concentration based on full-scale testing is approximately 8 6 percent The agent should be recovered from the fire protection system in conjunction with testing or servicing, and should be recycled for later use or destroyed See additional comments 1,2,3,4

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

Industrie	Substitute	Decision	Conditions	Comments
	HFC-23	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use HFC-23 in concentrations exceeding 30 percent Where egress takes greater than 30 seconds but less than one minute, the employer shall not use HFC-23 in a concentration greater than 50 0 percent HFC-23 concentrations greater than 50 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge The design concentration must result in an oxygen level of at least 16 percent	The comparative design concentration based on cup burner values is approximately 14 4 percent while data indicates that its cardiotoxicity NOAEL is 30 percent without added oxygen and 50 percent with added oxygen Its LOAEL is likely to exceed 50 percent See additional comments 1, 2, 3, 4
	HFC-125	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 7 5 percent Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cadiotoxic LOAEL of 10 0 percent HFC-125 concentrations greater than 10 0 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge	The comparative design concentration based on cup burner values is approximately 11 3 percent while its cardiotoxic LOAEL is 10 0 percent Thus, it is unlikely that this agent will be used in normally occupied areas See additional comments 1, 2, 3, 4

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
	HFC-134a	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 4 0 percent Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 8 0 percent HFC-134a concentrations greater than 8 0 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge	The comparative design concentration based on cup burner values is approximately 12 6 percent while its cardiotoxic LOAEL is 8 0 percent Thus, it is unlikely that this agent will be used in normally occupied areas See additional comments 1, 2, 3, 4
	HFC-227ea	Acceptable	Until OSHA establishes applicable workplace requirements Where egress from an area cannot be accomplished within one minute, the employer shall not use HFC-227ea in concentrations exceeding its cardiotoxic NOAEL of 9 0 percent Where egress takes longer than 30 seconds but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 10 5 percent HFC-227ea concentrations greater than 10 5 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 seconds The employer shall assure that no unprotected employees enter the area during agent discharge	The comparative design concentration based on cup burner values is approximately 7 0 percent while data indicate that its cardiotoxicity LOAEL is probably greater than 10 5 percent EPA is accepting 10 5 percent as its LOAEL This agent was submitted to the Agency as a Premanufacture Notice (PMN) agent and is presently subject to requirements contained in a Toxic Substances Control Act (TSCA) Significant New Use Rule (SNUR) See additional comments 1, 2, 3, 4

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
	C_4F_{10}	Acceptable Where other alternatives are not technically feasible due to performance or safety requirements a Due to their physical or chemical properties, or b Where human exposure to the extinguishing agents may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions	Until OSHA establishes applicable workplace requirements For occupied areas from which personnel cannot be evacuated in one minute, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 40 percent Although no LOAEL has been established for this product, standard OSHA requirements apply, i e , for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 seconds, use is permitted up to a concentration not exceeding the LOAEL All personnel must be evacuated before concentration of C4F10 exceeds 40 percent Design concentration must result in oxygen levels of at least 16 percent Documentation of such measures must be available for review upon request	The comparative design concentration based on cup burner values is approximately 6 6 percent Users must observe the limitations on PFC acceptability by making reasonable efforts to undertake the following measures • Conduct an evaluation of foreseeable conditions of end use, • Determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions, and • Determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes Actual contributions to global warming depend upon the quantities of PFCs emitted For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in this rulemaking See additional comments 1, 2, 3, 4
	(IG-541)	Acceptable	Until OSHA establishes applicable workplace requirements The design concentration must result in at least 10 percent oxygen and no more than 5 percent CO_2 If the oxygen concentration of the atmosphere falls below 10 percent, personnel must be evacuated and egress must occur within 30 seconds	Studies have shown that healthy, young individuals can remain in a 10 percent to 12 percent oxygen atmosphere for 30 to 40 minutes without impairment However, in a fire emergency, the oxygen level may be reduced below safe levels, and the combustion products formed by the fire are likely to cause harm Thus, the Agency does not contemplate personnel remaining in the space after system discharge during a fire without Self Contained Breathing Apparatus (SCBA) as required by OSHA See additional comments 1, 2

Appendix 1-14 (continued)
Acceptable Substitutes
(40 CFR 82.170 through 82.194)

End-use	Substitute	Decision	Conditions	Comments
Fire Suppression And Explosion Protection Total Flooding Agents Substitutes Acceptable Subject to Narrowed Use Limits				
Halon 1301 Total Flooding Agents	C_4F_{10}	Acceptable where other alternatives are not technically feasible due to performance or safety requirements a Due to their physical or chemical properties, or b Where human exposure to the extinguishing agents may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions	Until OSHA establishes applicable workplace requirement For occupied areas from which personnel cannot be evacuated in one minuted, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 40 percent Although no LOAEL has been established for this product, standard OSHA requirements apply, i e for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 seconds, use is permitted up to a concentration not exceeding the LOAEL All personnel must be evacuated before concentration of C_4F_{10} exceeds 40 percent Design concentration must result in oxygen levels of at least 16 percent	The comparative design concentration based on cup burner values is approximately 6 6 percent Users must observe the limitations on PFC approval by undertaking the following measures • Conduct an evaluation of foreseeable conditions of end use, • Determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions, and • Determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use Documentation of such measures must be available for review upon request The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes Actual contributions to global warming depend upon the quantities of PFCs emitted For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the preamble to this rulemaking See additional comments 1, 2, 3, 4

Additional Comments
1 Must conform with OSHA 29 CFR 1910 Subpart L Section 1910 160 of the U S Code
2 Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must reenter the area
3 Discharge testing should be strictly limited only to that which is essential to meet safety or performance requirements
4 The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed

Appendix 1-15
Unacceptable CFC and Halon Substitutes
(40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
Metals cleaning w/CFC-113	HCFC 141b and its blends	Unacceptable	High ODP, other alternatives exist Effective date As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date), as of 1 January 1996 for uses in existing equipment EPA will grant, if necessary, narrowed use acceptability listings for CFC-113 past the effective date of the prohibition
Metals cleaning w/MCF	HCFC 141b and its blends	Unacceptable	High ODP, other alternatives exist Effective date As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date), as of 1 January 1996 for uses in existing equipment
Electronics cleaning w/CFC-113	HCFC 141b and its blends	Unacceptable	High ODP, other alternatives exist Effective date As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date), as of 1 January 1996 for uses in existing equipment EPA will grant, if necessary, narrowed use acceptability listings for CFC-113 past the effective date of the prohibition
Electronics cleaning w/MCF	HCFC 141b and its blends	Unacceptable	High ODP, other alternatives exist Effective date As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date), as of 1 January 1996 for uses in existing equipment
Precision Cleaning w/CFC-113	HCFC 141b and its blends	Unacceptable	High ODP, other alternatives exist Effective date As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date), as of 1 January 1996 for uses in existing equipment. EPA will grant, if necessary, narrowed use acceptability listings for CFC-113 past the effective date of the prohibition
Precision Cleaning w/MCF	HCFC 141b and its blends	Unacceptable	High ODP, other alternatives exist Effective date As of 30 days after final rule for uses in new equipment (including retrofits made after the effective date), as of 1 January 1996 for uses in existing equipment
Refrigerants			
CFC-11 centrifugal chillers (retrofit)	HCFC-141b	Unacceptable	Has a high ODP relative to other alternatives

Appendix 1-15 (continued)
Unacceptable CFC and Halon Substitutes
(40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
CFC-12 centrifugal chillers (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-11, CFC-12, CFC-113, CFC-114, R-500 centrifugal chillers (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use.
	HCFC-141b	Unacceptable	Has a high ODP relative to other alternatives.
CFC-12 reciprocating chillers (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 reciprocating chillers (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-11,CFC-12, R-502 industrial process refrigeration (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
CFC-11,CFC-12, R-502 industrial process refrigeration (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances

Appendix 1-15 (continued)
Unacceptable CFC and Halon Substitutes
(40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
CFC-12, R-502 ice skating rinks (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-502 ice skating rinks (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-502 cold storage warehouses (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 cold storage warehouses (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-500,R-502 refrigerated transport (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-500,R-502 refrigerated transport (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-502 retail food refrigeration (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use

Appendix 1-15 (continued)
Unacceptable CFC and Halon Substitutes
(40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
CFC-12, R-502 retail food refrigeration (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-502 commercial ice machines (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 commercial ice machines (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 vending machines (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 vending machines (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use

Appendix 1-15 (continued)
Unacceptable CFC and Halon Substitutes
(40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
CFC-12 water coolers (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 water coolers (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 household refrigerators (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 household refrigerators (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-502 household freezers (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-502 household freezers (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12, R-500 residential dehumidifiers (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use

Appendix 1-15 (continued)
Unacceptable CFC and Halon Substitutes
(40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
CFC-12, R-500 residential dehumidifiers (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 motor vehicle air conditioners (retrofit)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
CFC-12 motor vehicle air conditioners (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern Data have not been submitted to demonstrate it can be used safely in this end-use
Foams			
CFC-11 Polyolefin	HCFC-141b (or blends thereof)	Unacceptable	HCFC-141b has an ODP of 0.11, almost equivalent to that of methyl chloroform, a Class I substance The Agency believes that non-ODP alternatives are sufficiently available to render the use of HCFC-141b unnecessary in polyolefin foams
Fire Suppression and Explosion Protection Streaming Agents			
Halon 1211 Streaming Agents	(CFC-11)	Unacceptable	This agent has been suggested for use on large outdoor fires for which non-ozone depleting alternatives are currently used.

Appendix 1-16
Required Levels of Evacuation for Appliances
(Except for small appliances, MVACS, and MVAC-like appliances)
(40 CFR 82.156, Table 1)

Inches of Hg Vacuum (Relative to Standard and Atmospheric Pressure of 29.9 in. Hg)		
Type of Appliance	Using recovery or recycling equipment manufactured or imported before 15 November 1993	Using recovery or recycling equipment manufactured or imported on or after 15 November 1993
HCFC-22 appliance, or isolated component of such appliance, normally containing less than 200 lb of refrigerant	0	0
HCFC-22 appliance, or isolated component of such appliance, normally containing less than 200 lb of refrigerant	0	0
HCFC-22 appliance, or isolated component of such appliance, normally containing 200 lb or more of refrigerant	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing less than 200 lb of refrigerant	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing 200 lb or more of refrigerant	4	15
Very high-pressure appliance	0	0
Low-pressure appliance	25	25 in Hg absolute

Phase 1

Section 2

Water Pollution Control

Phase 1
Section 2
Table of Contents

Water Pollution Control

A. Applicability 2-1
B Federal Legislation 2-1
C State/Local Regulations 2-2
D. Key Compliance Requirements 2-2
E Key Compliance Definitions 2-4
F. Records to Review 2-21
G. Physical Features to Inspect 2-21
H Guidance For Checklist Users 2-23

Appendices

A2-1. Steam Electric Power Generating Point Sources A2-1
A2-2 Operations Excepted from Electroplating Point Source Effluent Limitations A2-4
A2-3 Metal Finishing Point Sources A2-6
A2-4. Effluent Standards for Hospitals and Photographic Point Sources A2-8
A2-5 Relevant Dates for the Sewage Sludge Program A2-9
A2-6 Cumulative Pollutant Loading Rates for Sludge A2-10
A2-7. Ceiling Concentrations for Sludge A2-11
A2-8 Pollutant Concentrations for Sludge A2-12
A2-9 Annual Pollutant Loading Rates A2-13
A2-10 Frequency of Monitoring - Land Application and Surface Disposal A2-14
A2-11 Pollutant Concentrations for an Active Sewage Unit A2-15
A2-12 Effluent Guidelines and Pretreatment Standards Categories A2-16

A. Applicability

This section includes regulations, responsibilities,and compliance requirements associated with wastewater discharge at facilities. Wastewater discharge can include any of the following:

- Sanitary wastewater discharge directly to a receiving stream
- Sanitary or industrial wastewater discharge to a Publicly Owned Treatment Works (POTW) or other treatment facilities
- Stormwater runoff from operational areas of the facility to a receiving stream or water body
- Industrial or storm wastewater drained to an industrial waste reservoir.

Most facilities have wastewater discharge of one kind or another, and therefore this section will be applicable to most facilities.

Assessors are required to review state and local regulations to perform a comprehensive assessment.

B. Federal Legislation

1. The Federal Water Pollution Control Act

This Act, commonly known as the Clean Water Act (CWA), as amended 4 February 1987 (33 USC 1251-1387; PL 100-4), governs the control of water pollution in the nation. The objective of the act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Federal agencies are required to comply with all Federal, state, interstate, and local water pollution control requirements both substantively and procedurally (33 USC 1323(a)).

2. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Regulations

States normally have wastewater discharge legislation and regulations that require permitting procedures similar to the National Pollution Discharge Elimination System (NPDES) program. The state is often delegated authority to administer the NPDES permits for discharges in their state. These permits are often joint permits issued pursuant to both Federal and state legislation. In some cases, the state will not administer the NPDES program and will issue a state permit even though a NPDES permit has been issued by the EPA. The states and the EPA normally cooperate in the permit issuance process to ensure that the two permits are consistent, but there may be differences in monitoring requirements and the number of pollutants limited. These requirements normally do not conflict, but may require additional sampling and dual reporting.

States also have more stringent requirements than EPA for wastewater treatment plant operations. Many states have Wastewater Treatment Plant (WWTP) operator licensing and certification programs that require operators to pass an exam and have a required amount of experience.

Local entities (counties, cities) may also have enforceable wastewater discharge limitations that regulate discharges to a POTW. Local limitations often include Ph, temperature, and concentrations of various organic and inorganic compounds. Major industrial operations that discharge to an off-site POTW will be subjected to pretreatment permits issued by the POTW, state, or EPA as appropriate.

D. Key Compliance Requirements

1. NPDES Permits

Facilities with point source discharges and/or treatment works treating domestic wastewater are required to have a Federal NPDES permit if located in states without an EPA-approved NPDES permit program. Facilities that are dischargers of stormwater associated with an industrial activity are required to apply for an individual permit, apply for a permit through a group application, or seek coverage under a promulgated stormwater general permit. Facilities must meet the sampling requirements stipulated by NPDES permits (40 CFR 122.1(b)(3) and 122.26(c)).

2. Treatment Works

Facilities must not discharge into a treatment works any pollutant that would cause pass through or interference. Facilities shall not introduce into a treatment works pollutants that create a fire or explosion hazard, cause corrosive structural damage, have a pH below 5.0, or are solid or viscous enough to cause obstructions. Facilities are required to notify the treatment works immediately of any discharge, including any slug loadings, that could cause problems to the treatment works (40 CFR 403.5 and 403.12(f)).

3. Operation and Maintenance of a Treatment Works

Treatment plant supervisors are required to maintain operating logs and records that are posted daily and are neat and legible. Treatment plants are required to be operated in accordance with all design parameters (40 CFR 403.12(f)).

4. Effluent Limitations for Steam Electric Power Generating Sources

Facilities that have steam electric power generating sources must meet point source effluent limitations. Of special concern is the discharge of free available chlorine and total residual chlorine. Additionally there must be no discharge of Polychlorinated Biphenyls (PCBs). There are additional standards depending on if the source is a new or an existing source (40 CFR 423).

5. Effluent Limits for Electroplating Point Sources

Facilities that have existing electroplating operations that introduce pollutants into a POTW resulting from the electroplating of common metals are subject to pretreatment standards, which vary depending upon the level of discharge and the nature of the metals used (40 CFR 413).

6. Effluent Limitation for Metal Finishing Point Sources

Facilities that have shops performing electroplating, electroless plating, anodizing, coating, chemical etching and milling, and printed circuit board manufacturing are subject to certain Best Available Technology (BAT) point source effluent limitations, that include the self-monitoring of cyanide. Facilities that introduce pollutants from existing metal finishing point sources into POTWs are subject to certain pretreatment standards. Facilities that introduce pollutants from new metal finishing point sources into POTWs are subject to certain performance and pretreatment standards (40 CFR 433).

7. Discharge Limits for Hospitals

Hospitals are required to limit the quantity and quality of their discharges. The following are restricted· BOD5, TSS, and pH (40 CFR 460).

8. Discharge Limits for Photo Labs

Photo labs that process more than 150 m^2 per day of film must limit their discharges for silver, CN, and pH (40 CFR 459).

9. Land Application of Sludge

40 CFR 503 details the pollutant concentrations, cumulative loading rates, and other restrictions pertinent to the land application of sludge that is generated during the treatment of domestic sludge in a treatment works.

10. Surface Disposal of Sewage Sludge

The operation, management, monitoring, and closure requirements for units used for the surface disposal of sewage sludge are outlined in 40 CFR 503.20 through 503.28.

E. Key Compliance Definitions

1. Active Sewage Sludge Unit

A sewage sludge unit that has not closed (40 CFR 503.21(a)).

2. Aerobic Digestion

The biochemical decomposition of organic matter in sewage sludge into CO_2 and water by microorganisms in the presence of air (40 CFR 503.31(a)).

3. Agricultural Land

Land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture (40 CFR 503.11(a)).

4. Agronomic Rate

The whole sludge application rate (dry weight basis) designed (40 CFR 503.11(b)):

- To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

- To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the groundwater.

5. Anaerobic Digestion

The biochemical decomposition of organic matter in sewage sludge into methane gas and CO^2 by microorganisms in the absence of air (40 CFR 503.31(b))

6. Annual Pollutant Loading Rate

The maximum amount of a pollutant that can be applied to a unit area of land during a 365-day period (40 CFR 503.11(c)).

7. Annual Whole Sludge Application Rate

The maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365-day period (40 CFR 503.11(d)).

8. Apply Sewage Sludge or Sewage Sludge Applied To The Land

Means land application of sewage sludge (40 CFR 503.9(a)).

9. Aquifer

A geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding groundwater to wells or springs (40 CFR 503.21(b)).

10. Base Flood

A flood that has a one percent chance of occurring in any given year (i.e., a flood with a magnitude equalled once in 100 years) (40 CFR 503.9(b)).

11. Blowdown

The minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentrations in amounts exceeding limits established by best engineering practice (40 CFR 401.11(p)).

12. Bulk Sewage Sludge

Sewage sludge that is not sold or given away in a bag or other container for application to the land (40 CFR 503.11(e)).

13. Chemical Metal Cleaning Waste

Any wastewater resulting from the cleaning of any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning (40 CFR 423.11).

14. Class 1 Sludge Management Facility

Any POTW, as defined in 40 CFR 501.2, required to have an approved pretreatment program under 40 CFR 403.8(a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR 403.10(e)) and any treatment works treating domestic sewage, as defined in 40 CFR 122.2, classified as a Class 1 sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely. (Under 40 CFR 403.8(a), a POTW or combination of POTWs with a total design flow greater than 5 million gal/day will be required to establish a POTW treatment program if they are receiving from industrial users pollutants that pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards. A program may also be desired at the discretion of the regulator.)

15. Class A Sludge

When one of the following methods is used, sludge is considered Class A with respect to pathogens:

a. Alternative 1. Either the density of fecal coliform in the sewage sludge shall be less than 1,000 Most Probable Number/gram (MPN/g) total solids (dry weight basis), or the density of *Salmonella sp* bacteria in the sewage sludge shall be less than 3 MPN/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time. When the percent solids of the sewage sludge is 7 percent or

higher, the temperature of the sewage sludge shall be 50 °C (122 °F) or higher; the time period shall be 20 min or longer; and the temperature and time period shall be determined using the following equation, except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

Eq. (1)

$$D = \frac{131,700,000}{10^{0.1400t}}$$

Where D = time in days, t = temperature in °C.

When the percent solids of the sewage sludge is 7 percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 50 °C (122 °F) or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using the above equation (Eq. (1)).

When the percent solids of the sewage sludge is less than 7 percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using the above equation (Eq. (1)).

When the percent solids of the sewage sludge is less than 7 percent; the temperature of the sewage sludge is 50 °C (122 °F) or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using Equation (2).

Eq (2)

$$D = \frac{50,070,000}{10^{0.1400t}}$$

Where D = time in days, t = temperature in °C.

b. Alternative 2. Either the density of fecal coliform in the sewage sludge is less than 1,000 MPN/g total solids (dry weight basis), or the density of *Salmonella sp* bacteria in the sewage sludge shall is less than 3 MPN/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f). The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours

The temperature of the sewage sludge shall be above 52 °C (125.6 °F) for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

c. Alternative 3. Either the density of fecal coliform in the sewage sludge is less than 1,000 MPN/g total solids (dry weight basis), or the density of *Salmonella sp* bacteria in sewage sludge shall be less than 3 MPN/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed, at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.

When the density of enteric viruses in the sewage sludge prior to pathogen treatment is less than one Plaque-forming Unit/4 g total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses until the next monitoring episode for the sewage sludge.

When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one Plaque-forming Unit/4 g total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge after pathogen treatment is less than one Plaque-forming Unit/4 g total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the enteric virus density requirement are documented.

After the enteric virus reduction is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented.

The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is less than 1/4 g total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova until the next monitoring episode for the sewage sludge.

When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is equal to or greater than 1/4 g total solids (dry weight basis), the sewage sludge is Class A with

respect to viable helminth ova when the density of viable helminth ova in the sewage sludge after pathogen treatment is less than 1/4 g total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the viable helminth ova density requirement are documented.

After the viable helminth ova reduction is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented.

d. Alternative 4. Either the density of fecal coliform in the sewage sludge is less than 1,000 MPN/g total solids (dry weight basis), or the density of *Salmonella sp.* bacteria in the sewage sludge is less than 3 MPN/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The density of enteric viruses in the sewage sludge is less than 1 Plaque-forming Unit/ 4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f), unless otherwise specified by the permitting authority.

The density of viable helminth ova in the sewage sludge is less than 1/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f), unless otherwise specified by the permitting authority.

e. Alternative 5. Either the density of fecal coliform in the sewage sludge is less than 1,000 MPN/g total solids (dry weight basis), or the density of *Salmonella sp* bacteria in the sewage sludge is less than 3 MPN/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

Sewage sludge that is used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in Appendix B of 40 CFR 503.

f. Alternative 6. Either the density of fecal coliform in the sewage sludge is less than 1,000 MPN/g total solids (dry weight basis), or the density of *Salmonella sp* bacteria in the sewage sludge is less than 3 MPN/4 g total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the permitting authority.

Class B Sludge is considered Class A with respect to pathogens when one of the following methods is used:

g. Alternative 1. Seven samples of the sewage sludge is collected at the time the sewage sludge is used or disposed. The geometric mean of the density of fecal coliform in the samples must be less than either 2,000,000 MPN/g total solids (dry weight basis) or 2,000,000 Colony Forming Units/g (CFU/g) total solids (dry weight basis).

h. Alternative 2. Sewage sludge that is used or disposed shall be treated in one of the processes designed to significantly reduce pathogens as described in Appendix B of 40 CFR 503.

I. Alternative 3. Sewage sludge that is used or disposed is to be treated in a process that is equivalent to a process to significantly reduce pathogens, as determined by the permitting authority.

16. CN,A

Cyanide amenable to chlorination (40 CFR 413.02).

17. CN,T

Cyanide, total (40 CFR 413.02).

18. Contaminate an Aquifer

To introduce a substance that causes the Maximum Contaminant Level (MCL) for nitrate in 40 CFR 141.11 to be exceeded in groundwater; or to introduce a substance that causes the existing concentration of nitrate in groundwater to increase when the existing concentration of nitrate in the groundwater exceeds the maximum contaminant label for nitrate in 40 CFR 141.11 (40 CFR 503.21(c)).

19. Continuous Discharge

A discharge that occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities (40 CFR 123.3).

20. Cover

Soil or other material used to cover sewage sludge placed on an active sewage sludge unit (40 CFR 503.21(d)).

21. Cover Crop

A small grain crop, such as oats, wheat, or barley, not grown for harvest (40 CFR 503.9(d)).

22. Cumulative Pollutant Loading Rate

The maximum amount of an inorganic pollutant that can be applied to an area of land (40 CFR 503.11(f)).

23. Daily Discharge

The discharge of a pollutant measured during a calendar day or any 24-hour period which reasonably represents the calendar day for purposes of sampling (40 CFR 122.2).

24. Density of Microorganisms

The number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge (40 CFR 503.31(c)).

25. Direct Discharge

The discharge of a pollutant (40 CFR 122.2).

26. Discharge of Pollutant

The addition of any pollutant to navigable waters from any point source and any addition of any pollutant to the waters of the contiguous zone or the ocean zone or the ocean from any point source, other than from a vessel or other floating craft (40 CFR 401.11(h)).

27. Displacement

The relative movement of any two sides of a fault measured in any direction (40 CFR 503.21(e)).

28. Domestic Septage

Either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receive either commercial wastewater or industrial wastewater; it also does not include grease removed from a grease trap at a restaurant (40 CFR 257.2).

29. Domestic Sewage

Waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works (40 CFR 503.9(g)).

30. Effluent Limitations

Any restriction established by the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents that are discharged from point sources, other than new sources, into navigable waters, the waters of the contiguous zone, or the ocean (40 CFR 401.11(i)).

31. Environmentally Sensitive Area

An area of environmental importance that is in or adjacent to navigable waters (49 CFR 194.5).

32. Excluded Sludge

The following are types of sludge and activities are exempted from meeting the requirements outlined in 40 CFR 503:

- Processes used to treat domestic sewage or processes used to treat sewage sludge prior to final use except for the standards on pathogen and vector reduction in 40 CFR 503.32 and 503.33;

- Sewage sludge cofired in an incinerator with other wastes or the incinerator in which sewage sludge and other wastes are cofired;

- Sludge generated at an industrial facility during the treatment of industrial wastewater, including sewage sludge generated during the treatment of industrial wastewater combined with domestic sewage;

- Sewage sludge determined to be hazardous;

- Sewage sludge with a concentration of PCBs equal to or greater than 50 mg/kg total solids (dry weight basis);

- Ash generated during the firing of sewage sludge in a sewage sludge incinerator;

- Grit (i.e., sand, gravel, cinders, or other material with high specific gravity) or screenings (e.g , relatively large materials such as rags) generated during preliminary treatment of domestic sewage in a treatment works;

- Sludge generated during the treatment of either surface water or groundwater used for drinking water; and

- Commercial septage, industrial septage, a mixture of domestic septage and commercial septage, or a mixture of domestic septage and industrial septage (40 CFR 503.6).

33. Fault

A fracture or zone of fractures in any materials along which strata on one side are displaced with respect to strata on the other side (40 CFR 503.21(f)).

34. Feed Crops

Crops produced primarily for consumption by animals (40 CFR 503.9(j)).

35. Feedlot

A concentrated, confined animal or poultry growing operation for meat, milk, or egg production; or stabling in pens or houses wherein the animals or poultry are fed at the place of confinement and crop or forage growth or production is not sustained in the area of confinement (40 CFR 412.11(b)).

36. Fiber Crops

Crops such as flax and cotton (40 CFR 503.9(k)).

37. Final Cover

The last layer of soil or other material placed on a sewage sludge unit at closure (40 CFR 503.21(g)).

38. Forest

A tract of land thick with trees and underbrush (40 CFR 503.11(g)).

39. Holocene Time

The most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present (40 CFR 503.21(h)).

40. Indirect Discharge

The introduction of pollutants into a POTW from any nondomestic source regulated under section 307(b), (c), or (d) of the Act (40 CFR 403.3(g)).

41. Industrial Activities

In relation to stormwater runoff, industrial activities include (40 CFR 122.26(b)(14)(i) through 122.26(b)(14)(xi)):

- Facilities subject to storm water effluent limitations guidelines and new source performance standards under 40 CFR Subchapter N;

- Facilities classified as Standard Industrial Classification (SIC) 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 311, 32 (except 323) 35, 344 and 373;

- Facilities classified as SICs 10 through 14 (mineral industry) including active or inactive mining operations and oil and gas explorations; production, processing, or treatment operations; or transmission facilities that discharge stormwater contaminated

by contact with or that has come into contact with, any overburden, raw material, intermediate product, finished products, byproducts, or waste products located on the site of such operations;

- Hazardous waste Treatment, Storage, or Disposal Facilities (TSDF), including those which are operating under interim status or a permit under the Resource Conservation and Recovery Act (RCRA), Subpart C;

- Landfills, land application sites, and open dumps that receive or have received industrial wastes, including those sites that are subject to Federal regulation;

- Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but not limited to those classified as SICs 5015 and 5093;

- Steam electric power generating facilities, including coal handling sites,

- Transportation facilities classified as SICs 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 that have vehicle maintenance shops, equipment cleaning operations, or airport de-icing operations;

- Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludges that are located within the confines of the facility with a design flow of 1 0 mgd or more, or required to have an approved pretreatment program. Not included are farmlands, domestic gardens, or lands used for sludge management where sludge is beneficially reused; areas that are not physically located within the confines of the facility; or areas that are in compliance with section 405 of the CWA;

- Construction activity including clearing, grading, and excavation activities except operations that result in the disturbance of land comprising less than five acres of the total land area that is not part of a larger common plan of development or sale;

- Facilities under SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39 and 4221-25 (and that are not otherwise included in categories 1-10).

42. Industrial User
A source of indirect discharge (40 CFR 403.3(h))

43. Industrial Wastewater
Wastewater generated in a commercial or industrial process (40 CFR 503.9(n)).

44. Integrated Facility

A facility that performs electroplating as only one of several operations necessary for the manufacture of a product at a single physical location and that also has significant quantities of process wastewater from nonelectroplating sources (40 CFR 413.02).

45. Interference

A discharge which, alone or in conjunction with one or more discharges from other sources, inhibits or disrupts the POTW and causes a violation of any requirement of the POTW's NPDES permit (40 CFR 403.3(i)).

46. Job Shop

A facility that owns not more than 50 percent (annual area basis) of the materials undergoing metal finishing (40 CFR 433.11).

47. Land Application

The spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil (40 CFR 503.11(h)).

48. Land With a High Potential for Public Exposure

Land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g., a construction site located in a city) (40 CFR 503.31(d)).

49. Land With a Low Potential for Public Exposure

Land the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area) (40 CFR 503.31(e))

50. Leachate Collection System

A system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit (40 CFR 503.21(i)).

51. Liner

Soil or synthetic material which has a hydraulic conductivity of 3×10^{-8} in/s (3 x 10-8 in./s) or less (40 CFR 503.21(j)).

52. Lower Explosive Limit for Methane Gas

The lowest percentage of methane gas in air, by volume, that propagates a flame at 25 °C (77°F) and atmospheric pressure (40 CFR 503.21(k)).

53. Management Practices(MPs)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

54. Metal Cleaning Wastes

Any wastewater resulting from cleaning (with or without chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning (40 CFR 423.11).

55. Municipality

A city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities created by or under state law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended). The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use, or disposal of sewage sludge (40 CFR 503.9(o)).

56. National Pretreatment Standard

Any regulation containing pollutant discharge limits promulgated by the EPA (40 CFR 403.3(j)) (see Appendix 2-12 of this manual for a listing of pretreatment categories).

57. Navigable Waters

All navigable waters of the United States; tributaries of navigable waters of the United States; interstate waters, intrastate lakes, rivers, and streams that are utilized by interstate travelers for rivers; and streams that are utilized by interstate travelers for recreational or other purposes; intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce; and intrastate lakes, rivers, and streams that are utilized for industrial purposes by industries in interstate commerce. Navigable waterways do not include prior converted cropland (40 CFR 401.11(l)).

58. New Source

In relation to NPDES permits, any building, structure, facility, or installation from which there is or may be a discharge of pollutants the construction of which commenced:

- After promulgation of standards of performance under section 306 of CWA that are applicable to such sources, or

- After proposal of standards of performance in accordance with section 306 of CWA that are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

The following are the criteria for new source determination:

- It is constructed at a site at which no other source is located, or
- It totally replaces the process or production equipment that causes the discharge of pollutants at an existing sources, or
- Its processes are substantially independent of an existing source at the same site (40 CFR 122.2 and 122.29(b)).

59. New Source

Any building, structure, facility, or installation from where there is or may be the discharge of pollutants, the construction of which is commenced after the publication of proposed regulations prescribing a standards of performance under section 306 of the CWA, that will be applicable to such source as such standards is thereafter promulgated in accordance with section 306 of the CWA (40 CFR 401.11(e)).

60. Noncontact Cooling Water

Water used for cooling that does not come into direct contact with any raw materials, intermediate product, waste product, or finished product (40 CFR 401.11(o)).

61. NPDES Permit

A permit granted by EPA to a direct discharger that permits wastewater discharge to a watercourse in accordance with the conditions of the permit (40 CFR 403.3(l)).

62. Open Lot

Pens or similar confinement areas with dirt, concrete, paved, or hard surface wherein animals or poultry are substantially or entirely exposed to the outside environment except for possible small portions affording some protection by windbreaks or small shed-type shade areas (40 CFR 412.11(f)).

63. Other Container

Either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of 1 metric ton (1.1 short tons) or less (40 CFR 503.11(j)).

64. pH

The logarithm of the reciprocal of the hydrogen ion concentration (40 CFR 503.31(g)).

65. Pass Through

A discharge that exits the POTW into waters in quantities or concentrations which, alone or in conjunction with one or more discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (40 CFR 403.3(n)).

66. Pasture

Land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover (40 CFR 503.11(k)).

67. Pathogenic Organisms

Disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova (40 CFR 503.31(f)).

68. Person

An individual, association, partnership, corporation, municipality, state or Federal agency, or an agent or employee thereof (40 CFR 503.9(q)).

69. Person Who Prepares Sewage Sludge

Either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge (40 CFR 503.9(r))

70. Place Sewage Sludge or Sewage Sludge Placed

Disposal of sewage sludge on a surface disposal site (40 CFR 503.9(s)).

71. Point Source

Any discernible confined and discrete conveyance including, but not limited to, a pipe, ditch, channel, or conduit from which pollutants are or may be discharged (40 CFR 401.11(d)).

72. Pretreatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW (40 CFR 403.3(q)).

73. Process Generated Wastewater

In relation to feedlots, water directly or indirectly used in the operation of a feedlot for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other feedlot facilities; direct contact swimming, washing, or spray cooling or animals; and dust control (40 CFR 412.11(d)).

74. Process Wastewater

Any water that, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, or waste product (40 CFR 401.11(q)).

75. Process Wastewater for Feedlots

Any process-generated wastewater and any precipitation (rain or snow) that comes into contact with any manure, litter, or bedding, or any other raw material or intermediate or final material or product used in or resulting from the production of animals or poultry or direct production (40 CFR 412.11(c)).

76. Public Contact Site

Land with a high potential for contact by the public This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses (40 CFR 503.11(l)).

77. Publicly Owned Treatment Works (POTW)

A treatment works that is owned by the state or a municipality. This includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey waste to a POTW (40 CFR 403.3(o)).

78. Qualified Groundwater Scientist

An individual with a baccalaureate or postgraduate degree in the natural sciences or engineering who has sufficient training and experience in groundwater hydrology and related fields, as may be demonstrated by state registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding groundwater monitoring, pollutant fate and transport, and corrective action (40 CFR 503.21(l)).

79. Range Land

Open land with indigenous vegetation (40 CFR 503.11(m)).

80. Reclamation Site

Drastically disturbed land that is reclaimed using sewage sludge This includes, but is not limited to, strip mines and construction sites (40 CFR 503.11(n)).

81. Runoff

Rainwater, leachate, or other liquid that drains over land on any part of a land surface and runs off of the land surface (40 CFR 503.9(v)).

82. Seismic Impact Zone

An area that has a 10 percent or greater probability that the horizontal ground level acceleration of the rock in the area exceeds 0.10 gravity once in 250 years (40 CFR 503.21(m)).

83. Sewage Sludge

Solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage, scum, or solids removed in primary, secondary, or advanced wastewater treatment processes; and material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludges in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewerage in a treatment works (40 CFR 257.2).

84. Sewage Sludge Unit

Land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR 122.2 (40 CFR 503.21(n)).

85. Sewage Sludge Unit Boundary

The outermost perimeter of an active sewage sludge unit (40 CFR 503.21(o)).

86. Specific Oxygen Uptake Rate (SOUR)

The mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the sewage sludge (40 CFR 503.31(h)).

87. Store or Storage of Sewage Sludge

The placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment (40 CFR 503.9(y)).

88. Stormwater Discharge Associated with an Industrial Activity

The discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing, or raw materials storage areas at any industrial plant. This does not include discharges from facilities excluded from the NPDES program. For the categories of industries identified in the definition for Industrial Activities, the items lettered A through K, the term includes, but is not limited to, stormwater discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material or byproducts used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste wastes; sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage or disposal; shipping and receiving areas, manufacturing buildings, storage areas (including tank farms) for raw materials and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. For item Number l in the definition for Industrial Activities, the term only includes only storm water discharges from all the areas (except access roads and rail lines) that are listed in the previous sentence where materials handling equipment or activities, raw materials, intermediate products, final products, waste materials, byproducts, or industrial machinery are exposed to stormwater (40 CFR 122.26(b)(14)).

89. Strong Chelating Agents

All compounds that, by virtue of their chemical structure and amount present, form soluble metal complexes that are not removed by subsequent metals control techniques, such as pH adjustment followed by clarification or filtration (40 CFR 413.02).

90. Surface Disposal Site

An area of land that contains one or more active sewage sludge units (40 CFR 503.21(p)).

91. TTO

Total toxic organics (40 CFR 413.02).

92. Total Hydrocarbons

The organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane (40 CFR 503.41(m)).

93. Total Metal

The sum of the concentrations of mass of copper, nickel, chromium, and zinc (40 CFR 413.02).

94. Total Solids

The materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 °C (217.4 to 221 °F) (40 CFR 503.31(i)).

95. Treat or Treatment of Sewage Sludge

The preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge (40 CFR 503.9(z)).

96. Treatment Works

Either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature (40 CFR 503.9(aa)).

97. Unstabilized Solids

Organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process (40 CFR 503.31(j)).

98. Unstable Area

Land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement (40 CFR 503.21(q)).

99. Vector Attraction

The characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents (40 CFR 503.31(k)).

100. Volatile Solids

The amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 °C (1,022 °F) in the presence of excess air (40 CFR 503.31(l)).

101. Wetlands

Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration to support, and that, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 503 9(bb)).

F. Records to Review

- NPDES Permits
- NPDES Permit renewal applications (if expire within 180 days)
- Discharge monitoring reports for the past year
- Laboratory records and procedures and EPA QA results
- Monthly operating reports for wastewater treatment facilities
- Flow monitoring calibration certification and supporting records
- Ash pond volume certification and supporting records
- Red water inspection records
- Special reports, certifications, etc., required by NPDES permit
- Spill Prevention Control and Countermeasure (SPCC) Plan
- All records required by SPCC Plan
- All notices of non-compliance
- All notices of violations
- NPDES state or Federal inspection reports
- Wastewater treatment plant operator certification
- Administrative Orders
- Sewer and storm drain layout
- Local sewer ordinance
- Local service use permit
- Notification to local POTW
- Old Spill Reports
- Repair/Maintenance records for the wastewater treatment system
- As Built Drawings
- Federal Facility Compliance Agreements
- Stormwater pollution prevention plan
- Pretreatment Permits
- Fact Sheet
- Pretreatment monitoring records
- Sludge handling permits

G. Physical Features to Inspect

- Discharge outfall pipes
- Wastewater treatment facilities

- Industrial treatment facilities
- Streams, rivers, open waterways
- Floor and sink drains (especially in industrial areas)
- Stormwater collection points (especially in industrial areas)
- Oil storage tanks
- Oil/water separators
- Wastewater generation points
- Sludge storage areas and land application sites

H. Guidance For Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	WP.1 through WP 3	2-25
NPDES Permits	WP 4 through WP 6	2-26
	WP 7	2-27
Stormwater	WP 8 through WP 9	2-28
	WP 10 through WP 13	2-29
Discharges to POTWs/FOTWs	WP 14 through WP 15	2-30
	WP 16 through WP 18	2-31
	WP 19 through WP 21	2-32
Effluent Limitations for Steam Electric Power Generating Sources		
General	WP 22	2-32
	WP 23 through WP 25	2-33
	WP 26 through WP 28	2-34
New Sources	WP 29 through WP 30	2-35
	WP.31 through WP.33	2-36
Existing Sources	WP 34	2-36
Effluent Limitations for Electroplating Point Sources	WP.35 through WP 37	2-37
	WP 38 through WP 40	2-38
	WP 41	2-39
Effluent Limitations for Metal Finishing Point Sources		
General	WP 42 through WP 43	2-39
	WP 44	2-40
Existing Sources	WP 45	2-40
New Sources	WP 46	2-40
	WP 47	2-41
Effluent Limitations for Hospitals	WP 48	2-41
Effluent Limitations for Photo Labs	WP 49	2-41
Effluent Limitations for Feedlots	WP 50	2-42

	Refer To	
	Checklist Items	**Page Numbers**
Land Application of Sludge		
General	WP.51	2-43
	WP.52	2-44
	WP 53	2-45
	WP 54	2-46
	WP 55 through WP 56	2-47
	WP 57	2-48
Vectors and Pathogens	WP 58	2-48
	WP.59	2-49
	WP 60	2-50
	WP 61	2-51
	WP.62	2-52
Notifications	WP 63 through WP 64	2-53
	WP 65 through WP 66	2-54
	WP 67	2-55
Monitoring	WP 68	2-55
	WP 69	2-56
Recordkeeping and Reporting	WP.70	2-56
	WP.71	2-57
	WP 72	2-58
	WP 73 through WP 74	2-59
	WP 75 through WP 77	2-60
Surface Disposal of Sludge		
General	WP.78 through WP 81	2-61
	WP 82	2-62
	WP 83 through WP.84	2-63
Monitoring and Documentation	WP 85 through WP 87	2-64
	WP 88 through WP.90	2-65

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
WP 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation.)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones accomplished to correct problems
WP 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if the facility has activities or facilities that are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
WP 3 Facilities are required to abide by state and local wastewater regulations (EO 12088, Sect 1-1)	Verify that the facility is abiding by state and local water quality requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Nonpoint sources - NPDES permits - Wastewater - Monitoring and recordkeeping for NPDES permitted sources - Certification requirements for laboratories analyzing samples - Wastewater treatment plant operator certification - Sludge disposal - Pretreatment standards - Discharges to sewage treatment facilities - Industrial wastewater - Septic tanks - Stormwater pollution prevention plan - Stormwater discharges)
NPDES Permits	

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP.4 Facilities with point source discharges and/or treatment works treating domestic sewage are required to have a Federal NPDES permit if located in states without an EPA-approved NPDES permit program (40 CFR 122 1(b)(3)).	Determine if the facility is located in a state with an EPA-approved NPDES permit program. Verify the facility has obtained the proper permits for point source discharges and/or treatment works treating domestic sewage Verify that the facility is operating according to permit requirements such as - Monitoring/sampling - Concentrations of discharge constituents - Recordkeeping - Reports (NOTE The Regional Administrator may require the facility to have a permit for the use/disposal of sewage sludge as necessary to protect public health) (NOTE Stormwater runoff may be addressed in the NPDES permit.) (NOTE Look for oil/water separators and washracks that discharge directly to the environment)
WP 5 Samples must be collected in accordance with proper collection, testing, preservation, and shipping procedures in Standard Methods for Water Analysis (40 CFR 136 1 through 136 4)	Verify that - Proper sample containers are used - Samples are refrigerated to 4°C during compositing - Proper preservation techniques are used - Flow-proportioned samples are obtained where required by permit - Sample holding times prior to analyses conform with requirements - The chain of custody is maintained from sampling point through analytic testing to results (essential if litigation occurs) Verify that results are reported in the facility's self-monitoring report
WP 6 Analytical testing must be done in accordance with EPA-approved analytical procedures (40 CFR 136 3).	Determine if - An EPA-approved analytical testing lab was used - Proper approval was obtained from state/EPA if alternate analytical procedures are used - Parameters other than those required by the permit are analyzed - Satisfactory calibration and maintenance of instruments and equipment is done - Quality control procedures are used - Duplicate samples are analyzed - Spiked samples are used - A commercial laboratory is used - The commercial laboratory is state certified (states with formal certification program).

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 7 Facilities with NPDES permits are required to meet specific reporting requirements (40 CFR 122 41(l))	Verify that the facility gives notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility when: - The alteration or addition might meet one of the criteria for determining if the facility is a new source (see definitions) - The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged (this applies to pollutants that are not subject to requirements in the permit or other notifications) - The alteration or addition results in a significant change in the installations sludge use or disposal practices Verify that the facility notifies the Director of any planned changes at the permitted facility or activity that may result in noncompliance with permit requirements Verify that monitoring is reported as required in the permit Determine if the facility is monitoring more frequently than required Verify that if the facility is monitoring more frequently than required by permit these results are also being reported Verify that reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule on the permit are submitted no later than 14 days following each specified date Verify that noncompliance that might endanger health or the environment is reported as follows: - Orally within 24 hours from the time the facility becomes aware of noncompliance - In writing within five days of the time the facility becomes aware of noncompliance
Stormwater	
(NOTE An industrial facility whose stormwater discharges are: (1) associated with industrial activity, and (2) are channeled directly into surface waters, into a separate municipal storm sewer, or into a federally or privately owned separate sewer system must apply for, obtain, and comply with an NPDES permit covering the facility's stormwater discharges (40 CFR 122 26(a)) An industrial facility may apply for NPDES permit coverage for stormwater discharges by one of three permitting mechanisms: submitting an individual application by 1 October 1992, participating in a group application by submitting Part 1 of the group application by 30 September 1991, or submitting a "notice of intent" to be covered by a baseline general permit promulgated by EPA or a delegated NPDES state, where applicable (40 CFR 122 26(e)) Facilities with existing NPDES permits for stormwater discharges associated with industrial activity shall maintain existing permits. New applications are to be submitted in accordance with the requirements of 40 CFR 122 21 and 122 26(c) 180 days before the expiration of such permits Facilities with expired permits or permits due to expire before 18 May 1992 shall submit applications in accordance with the deadlines set forth under 40 CFR 122 26(e)(1) In addition to the NPDES permit requirements, an owner of a stormwater discharge associated with industrial activity that discharges through a large or medium municipal separate storm sewer system must submit to the owner of the municipal separate storm sewer system receiving the discharge, no later than 15 May 1991 (or 180 days prior to commencing such discharge) the name of the facility, a contact person and phone number, the location of the discharge, a description, including the SIC code that best reflects the principal products or services provided by the facility, and any existing NPDES permit numbers (40 CFR 122 26 (55 FR 47990, 16 November 1990))) (NOTE On 19 November 1993 (57 FR 41235), EPA proposed a Multi-Sector Stormwater General Permit that was formerly referred to as a group permit. The proposed permit is intended to cover discharges from 29 industrial sectors and may include additional requirements for certain industries)	

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 8 Facilities that are dischargers of stormwater associated with an industrial activity (see definitions) are required to apply for an individual permit, apply for a permit through a group application, or seek coverage under a promulgated stormwater general permit (40 CFR 122.26(c))	Determine if the facility is discharging stormwater associated with an industrial activity Verify that an application has been submitted for a permit
WP.9. As part of the facility's stormwater management program, the facility must prepare a Stormwater Pollution Prevention Plan (SWPPP) (40 CFR 122.26)	Obtain a copy of the facility's Stormwater Pollution Prevention Plan (SWPPP) and determine if the SWPPP adequately addresses each of the required components· - Identification of the pollution prevention team and their responsibilities for developing the pollution prevention plan and assisting in its implementation, maintenance, and revision - A description of potential pollutant sources that specifically includes the following -- A site map that completely illustrates site features (e g , outfalls, drainage patterns and directions, structural control measures, surface water bodies) -- A complete inventory of the types of materials handled at the facility that potentially may be exposed to precipitation -- A list of all significant spills and significant leaks of toxic or hazardous pollutants which drained to a stormwater conveyance and that occurred at the facility in the three years prior to the effective date of the permit -- A summary of existing stormwater discharge sampling data -- Non-stormwater (e g , direct process water, non-contact cooling water, sanitary wastes) discharge assessment. -- A site evaluation summary that provides a narrative description of activities with a high potential to contaminate stormwater and any pollutants of concern that may be associated with such activities - A description of facility stormwater management controls that specifically includes the following· -- Good housekeeping practices that are designed to maintain a clean and orderly work environment -- A preventative maintenance program -- Spill prevention and response procedures -- Visual inspection plan including follow-up procedures and records of inspections -- Employee training program for personnel responsible for implementing activities in the SWPPP or whose job could possibly impact stormwater discharges. -- Sediment and erosion control plan. -- Runoff management procedures -- Recordkeeping and internal reporting procedures - A signed, comprehensive annual site compliance evaluation by a qualified person that includes inspections of the stormwater discharges and evaluation of the stormwater management systems Verify that the SWPPP is signed by an "authorized representative" who is a person near the top of the facility's management chain (the president, vice president, or a production manager) who has been delegated the authority to sign and certify this type of document

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 10 The SWPPP must be modified within 14 days on a spill of a hazardous substance (equal to or exceeding a reportable quantity) to stormwater (40 CFR 122 26)	Verify that if any spill of a hazardous substance in an amount equal to or in excess of a reportable quantity (established in 40 CFR 117 or 40 CFR 302) occurs to a stormwater discharge, the SWPPP is modified within 14 calendar days to include a description of the release, the circumstances of the release, and the date of release
WP.11 Semiannual monitoring is required if stormwater comes into contact with any Section 313 water priority chemical or any area used for lead acid battery reclamation (40 CFR 122 26)	Determine if stormwater comes into contact with any equipment, tank, container or other vessel or area used for storage of a Section 313 water priority chemical or any area used for lead acid battery reclamation If so, verify that semiannual monitoring is conducted (NOTE See Addendum B, 57 FR 41235, dated 9 September 1992, for a listing of the Section 313 water priority chemicals)
WP 12 Salt storage piles used for de-icing or other purposes must be kept covered (40 CFR 122 26)	Determine if storage piles of salt used for deicing or other commercial or industrial purposes generate a stormwater discharge associated with industrial activity If so, verify that they are covered to prevent exposure to precipitation, except for exposure resulting from adding or removing materials from the pile
WP 13 Even where not covered by NPDES permits, stormwater discharge on the facility should be uncontaminated and periodic surveillance of these discharges should be completed (MP)	Determine which drains at the facility are connected to the storm sewer and the location of all outfalls and discharge points Determine if there is evidence of contamination (oil sheen, discoloration, etc) by physical review of stormwater discharge sites Verify that oil/water separators connected to the storm sewer on the facility are operating properly and correctly maintained Determine if there is evidence of contaminated waste streams discharging to floor drains connected to the stormwater discharge system by checking major industrial shops or industrial areas physically, including - Battery shop - Corrosion control - Engine shop - Motor pool - Paint shop - Plating shop - Pesticide shop - Petroleum, Oils, and Lubricants (POL) area
Discharges to POTWs/FOTWs	

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 14 Facilities must not discharge into a POTW/FOTW any pollutant that would cause pass through or interference (40 CFR 403 5(a) and 403 5(c)(2))	Determine the following: - What point source discharges are at the facility? - What drains in the facility lead to the treatment works? - What do personnel pour down the drains leading to the treatment works? - What types of materials are located in areas where spills may reach the drains to the treatment works? Determine which drains are connected to the sanitary sewer draining to a POTW/FOTW and possible pollutants entering these drains Verify that the facility is not discharging to a POTW/FOTW pollutants that would cause a pass through or interference (see definitions) Determine if the POTW/FOTW has imposed any pretreatment standards or reporting requirements on the facility and verify that they are being met.
WP 15 Facilities that are regulated by a specific national pretreatment standard must comply with applicable quantities or pollutant properties for new and existing sources (40 CFR 403 6)	Determine if the facility is subject to any national pretreatment standard (see Appendix 2-12 for a listing of the categories)

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 16 Facilities shall not introduce specific pollutants into a POTW/FOTW (40 CFR 403 5(b))	Verify that pollutants that create a fire or explosion hazard in the POTW/FOTW, including but not limited to waste streams with a closed cup flashpoint of less than 140 °F (60 °C), are not being discharged from the facility to a POTW/FOTW Verify that pollutants that will cause corrosive structural damage to the POTW/FOTW are not being discharged from the facility to a POTW/FOTW Verify that in no case are discharges with a pH below 5 0 released Verify that solid or viscous pollutants in amounts that will cause obstruction to the flow are not being discharged to the POTW/FOTW Examples are - Fish cleaning stations - Pieces of metals, rubber, and wood from shops - Sand and sediment Verify that no pollutants, including oxygen demand pollutants, are released at a flow rate or concentration that will cause interference with the POTW/FOTW Verify that heat in amounts that would inhibit biological activity at the POTW/FOTW resulting in interference is not discharged, including - Scrubber water - Boiler blow down (NOTE In no case will the temperature of discharges result in a temperature at the POTW/FOTW of greater than 40 °C (104 °F)) Verify that petroleum, oil, nonbiodegradable cutting oil, or products of mineral oil origin are not discharged in amounts that would result in a pass through or interference (specifically check maintenance areas and oil/water separators) Verify that pollutants that would result in the presence of toxic gases, vapors, or fumes within the POTW/FOTW in quantities that would cause acute worker health and safety problems are not discharged Verify that no trucked or hauled pollutants are discharged except at discharge points designated by the POTW/FOTW Determine if the facility has been granted any exemptions or variances concerning its discharges
WP 17 Facilities are required to notify the POTW/FOTW immediately of any discharge, including slug loading, that could cause problems to the POTW/FOTW (40 CFR 403 12(f))	Verify that personnel at the facility are aware of the need to notify the POTW/FOTW of any discharge that would cause problems
WP 18 Industrial users that are not required to meet a categorical pretreatment standard are required to submit specific reports (40 CFR 403 12(h))	Verify that if the facility is a significant noncategorical industrial user, it submits a description of the nature, concentration, and flow of pollutants to the Control Authority (NOTE. The Control Authority is (1) The POTW/FOTW if the POTW's/FOTW's submission for its pretreatment program has been approved, or (2) The Approval Authority if the submission has not been approved)

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 19. Industrial users are required to notify the POTW/FOTW, the Regional Waste Management Division Director, and state hazardous waste authorities in writing of any discharges into the POTW/FOTW of a substance that would be a hazardous waste (40 CFR 403.12(p)).	Determine if the facility is discharging any substance to a POTW/FOTW that would be classified as a hazardous waste if disposed of in any other manner Verify that if they are discharging a hazardous waste to the POTW/FOTW, the correct people have been notified of the following - The name of the waste - The type of discharge (batch, continuous, or other) Verify that if the discharge is more than 100 kg/month, the following information is also included to the extent that it is known and readily available. - Identification of the hazardous constituents - An estimate of the mass and concentrations of the constituents in the waste discharges during the calendar month.
WP 20 All industrial users are required to notify the POTW/FOTW in advance of any substantial change in the volume or character of pollutants in their discharge (40 CFR 403 12(j)).	Verify that the sources of industrial discharge on the facility notify the POTW/FOTW in advance of any substantial changes in the volume or character of pollutants in their discharge, including the listed or characteristic hazardous wastes
WP 21. Industrial users and POTWs/FOTWs are required to keep specific reports (40 CFR 403 12(o))	Verify that the facility and the POTW/FOTW keep records of all information resulting from monitoring activities. Verify that the records include for all samples the following information - The date, exact place, methods, and time of sampling and the names of the person or persons taking the samples - The dates analyses were performed - Who performed analyses - The analytical techniques and methods used - The results of the analyses Verify that records are kept for 3 years
Effluent Limitations for Steam Electric Power Generating Sources	
General	
WP 22. Facilities that have steam electric power generating point sources are subject to certain point source effluent limitations (40 CFR 423 12(b)(1) through 423 12(b)(2), and 423 12(b)(12))	Determine if the facility engages in the generation of electricity using fossil fuel sources and employing the steam water system as the thermodynamic medium. Verify that the following limitations for steam generation point source effluent are met: - pH of all discharges, except once-through cooling water, is in the range of 6 0-9.0 - There is no discharge of PCB compounds (NOTE: If waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property attributable to each contributing waste source are subject to the limitations listed here.) (NOTE This applies to electricity power generating facilities utilizing fossil-type fuel or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium)

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 23 Facilities that have steam electric power generating point sources are subject to certain point source effluent limitations (40 CFR 423 12(b)(3) through 423.12(b)(7) and 423 12(b)(12))	Verify that the quantity of pollutant discharged from low volume waste sources and in fly ash and bottom ash transport water do not exceed the quantity determined by multiplying the flow of either source times the concentration listed in Chart 1 of Appendix 2-1 Verify that the quantity of pollutants discharged in metal cleaning wastes do not exceed the quantity determined by multiplying the flow of metal cleaning wastes times the concentration listed in Chart 2 of Appendix 2-1 Verify that the quantity of free available chlorine discharged in once-through cooling water or in cooling tower blow down does not exceed the quantity determined by multiplying the flow of either source times the concentration listed below - Maximum Concentration (mg/L) = 0 5 - Average Concentration (mg/L) = 0 2 (NOTE If waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property attributable to each contributing waste source are subject to the limitations listed here) (NOTE This applies to electricity power generating facilities utilizing fossil-type fuel or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium)
WP 24 Facilities discharging free available chlorine and total residual chlorine are subject to certain point source effluent limitations (40 CFR 423 12(b)(8) and 423 12(b)(12))	Verify that neither free available chlorine nor total residual chlorine are discharged from any unit for more than 2 hours per day and not more than one unit in any plant discharges at a time unless permission to do so has been granted by the appropriate authority (NOTE If waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property attributable to each contributing waste source are subject to the limitations listed here)
WP 25 Facilities discharging coal pile runoff are subject to certain point source effluent limitations (40 CFR 423 12(b)(9) through 423 12(b)(11), and 423 12(b)(12))	Determine if the facility is discharging coal pile runoff. Verify that the maximum concentration for any time of TSS does not exceed 50 mg/L (NOTE: If waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property attributable to each contributing waste source are subject to the limitations listed here)

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 26. Facilities that have steam electric power generating point sources are subject to certain BAT point source effluent limitations (40 CFR 423 13(a), 423 13(d), 423 13(e), and 423 13(h))	Determine if the facility has steam electric power generating point sources. Verify that there is no discharge of PCB compounds Verify that the quantity of pollutants discharged in cooling tower blow down do not exceed the quantity determined by multiplying the flow of cooling tower blow down times the concentrations listed in Chart 3 of Appendix 2-1 Verify that neither free available chlorine nor total residual chlorine is discharged from any unit for more than 2 hours in any 1 day and not more than one unit at a time in any plant discharges these compounds, unless the utility has a permit to do so from the appropriate authority. Verify that the quantity of pollutants discharged in chemical metal cleaning wastes does not exceed the quantity determined by multiplying the flow of chemical metal cleaning wastes times the concentration lists in Chart 4 of Appendix 2-1 (NOTE If waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property attributable to each contributing waste source are subject to the effluent limitations listed here)
WP 27 Facilities that have steam electric power generator facilities rated at a capacity of 25 or more MW are subject to certain point source effluent limitations (40 CFR 423 13(b))	Determine if the facility has steam electric power generators rated at a capacity of 25 or more MW Verify that the quantity of total residual chlorine discharged in once-through cooling water from each discharge point does not exceed the quantity determined by multiplying the flow of once-through cooling water from each discharge point times a maximum concentration (mg/L) of 0.20. Verify that total residual chlorine is not discharged from any single generating unit for more than 2 hours per day, unless permits to do so have been obtained from the appropriate authority.
WP 28 Facilities that have steam electric power generator facilities rated at a capacity of 25 or fewer MW are subject to certain point source effluent limitations (40 CFR 423 13(c))	Determine if the facility has steam electric power generators rated at a capacity of 25 or fewer MW. Verify that the quantity of free available chlorine discharged in once-through cooling water does not exceed the quantity determined by multiplying the flow of once-through cooling water sources times the concentration listed. - Maximum concentration (mg/L) = 0.5 - Average concentration (mg/L) = 0 2. Verify that neither free available chlorine nor total residual chlorine is discharged from any unit for more than 2 hours in any one day and not more than one unit at a time in any plant discharges these compounds, unless the utility has a permit to do so from the appropriate authority

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
Effluent Limitations for Steam Electric Power Generating Sources	
New Sources	
WP 29 Facilities that have new steam electric power generator point sources are subject to New Source Performance Standards (NSPS) (40 CFR 423 15(a) through 423 15(d), 423 15(f), 423 15(j), and 423 15(n))	Determine if the facility has any new steam electric power generator point sources Verify that the quantity of pollutants discharged from low volume waste sources and bottom ash transport water do not exceed the quantity determined by multiplying the flow of these sources times the concentration listed in Chart 1 of Appendix 2-1 Verify that the quantity of pollutant discharged in chemical metal cleaning wastes does not exceed the quantity determined by multiplying the flow of chemical metal cleaning wastes times the concentration listed in Chart 5 in Appendix 2-1 Verify that the quantity of free available chlorine discharged in cooling tower blow down does not exceed the quantity determined by multiplying the flow of cooling tower blow down times the concentration listed below - Maximum concentration (mg/L) = 0 5 - Average concentration (mg/L) = 0 2 Verify that there is no discharge of waste water pollutants from fly ash transport water Verify that the quantity of pollutants discharged in cooling tower blow down does not exceed the quantity determined by multiplying the flow of cooling tower blow down times the concentration listed in Chart 3 of Appendix 2-1 (NOTE. If waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property attributable to each contributing waste source are subject to the limitations listed here) Verify that the pH of all discharges, except once-through cooling water, is within the range of 6 0 to 9 0 Verify that there is no discharge of PCBs
WP 30 Facilities that introduce pollutants from new sources into a POTW/FOTW are subject to certain pretreatment standards (40 CFR 423 17)	Determine if the facility introduces pollutants from new sources into a treatment works Verify that there is no discharge of PCB compounds from new sources into POTWs/FOTWs Verify that discharge of copper (total) in chemical metal cleaning wastes from new sources into POTWs/FOTWs does not exceed the maximum concentration for one day of 1.0 mg/L Verify that pollutants discharge in cooling tower blow down from new sources does not exceed the concentration listed in Chart 7 of Appendix 2-1 Verify that there is no discharge of wastewater pollutants from fly ash transport water from new sources into POTWs/FOTWs

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP.31 Facilities that have new steam electric power generator facilities having a total rated electric generating capacity of 25 or more MW are subject to certain point source effluent limitations (40 CFR 423 15(h))	Determine if the facility has new steam electric power generator facilities having a total rated electric generating capacity of 25 or more MW Verify that the quantity of total residual chlorine discharged in once-through cooling water from each discharge point does not exceed the quantity determined by multiplying the flow of once-through cooling water from each discharge point times 0 20 mg/L Verify that total residual chlorine is not discharged from any single generating unit for more than 2 hours per day, unless permitted to do so by the appropriate authority (NOTE Simultaneous multi-unit chlorination is permitted)
WP 32 Facilities that have new steam electric power generator facilities having a total rated electric generating capacity of 25 or fewer MW are subject to certain point source effluent limitations (40 CFR 423 15(i))	Determine if the facility has steam electric power generator facilities having a total rated electric generating capacity of 25 or fewer MW. Verify that the quantity of free available chlorine discharge in once-through cooling water does not exceed the quantity determined by multiplying the flow of once-through cooling water sources times the concentration listed - Maximum concentration (mg/L) = 0 5 - Average concentration (mg/L) = 0 2 Verify that neither free available chlorine nor total residual chlorine is discharged at any one time, unless the utility has been permitted to do so by the appropriate authority
WP 33 Facilities discharging coal pile runoff are subject to certain point source effluent limitations (40 CFR 423 15(k) and 423 15(n))	Determine if the facility has coal pile storage areas Verify that the quantity of TSS discharge in coal pile runoff does not exceed 50 mg/L (NOTE Any untreated overflow from areas designed, constructed, and operated to treat the coal pile runoff resulting from a 10-year, 24-hour rainfall event is not subject to this limitation)
Existing Sources	
WP 34 Facilities that introduce pollutants from existing sources into a POTW/FOTW are subject to certain pretreatment standards (40 CFR 423 16)	Determine if the facility introduced pollutants from existing sources into a POTW/FOTW Verify that there is no discharge of PCB compounds from existing sources into a POTW/FOTW Verify that copper (total) discharged in chemical metal cleaning wastes from existing sources into a POTW/FOTW does not exceed the maximum for any 1 day of 1 0 mg/L Verify that the pollutants discharged in cooling tower blow down from existing sources into a POTW/FOTW does not exceed the concentration listed in Chart 6 of Appendix 2-1
Effluent Limitations for Electroplating Point Sources	

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP.35 Facilities that have electroplating operations are subject to certain point source effluent limitations (40 CFR 413 01(a) through 413 01(c), and 413 04)	Determine if the facility has electroplating operations. (NOTE See Appendix 2-2 for similar but excepted operations) Verify that pretreated pollutant standards are measured by determining the relevant subcategory from the corresponding daily and four-day average values listed in Chart 1 in Appendix 2-2 Verify that where electroplating process wastewaters are combined with regulated wastewaters that have 30-day average standards, the corresponding 30-day average standard for electroplating is used
WP 36 Facilities that have existing sources that introduce pollutants into a POTW/FOTW that discharge less than 38,000 L (10,000 gal) per calendar day of pollutants in process wastewaters resulting from the electroplating of common metals, are subject to certain pretreatment standards (40 CFR 413 10, 413 14(a), 413 14(b), and 413 14(f))	(NOTE Electroplating of common metals refers to electroplating with copper, nickel, chromium, zinc, tin, lead, cadmium, iron, aluminum, or any combination of these) Determine if the facility has existing sources that introduce pollutants into a POTW/FOTW that discharges less than 38,000 L (10,000 gal) per calendar day of process wastewaters resulting from the electroplating of common metals Verify that the source's wastewater meets the limitations listed in Chart 2 of Appendix 2-2 Verify that the facility does not augment the use of process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that the source's wastewater TTO is limited to 4 57 mg/L maximum for any one day
WP 37 Facilities that have existing sources that introduce pollutants into a POTW/FOTW that discharge 38,000 L (10,000 gal) or more per calendar day of pollutants in process wastewaters resulting from the electroplating of common metals, are subject to certain pretreatment standards (40 CFR 413 10, 413 14(a), 413 14(c) through 413 14(e), and 413 14(g))	(NOTE Electroplating of common metals refers to electroplating with copper, nickel, chromium, zinc, tin, lead, cadmium, iron, aluminum, or any combination of these) Determine if the facility has existing sources that introduces pollutants into a POTW/FOTW that discharges 38,000 L (10,000 gal) or more per calendar day of process wastewaters resulting from the electroplating of common metals Verify that the source's wastewater meets the limitations listed in Chart 3 of Appendix 2-2 (NOTE Mass-based standards are equivalent to and may be applied in place of those listed in Chart 3 upon prior agreement between the facility and the treatment works receiving the wastes) Verify that the facility does not augment the use of process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that if there is an absence of chelating agents in the pretreatment process, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide) the limitations listed in Chart 4 of Appendix 2-2 are met Verify that the source's wastewater TTO is limited to 2 13 mg/L maximum for any one day

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 38 Facilities that have existing sources that introduce pollutants into a POTW/FOTW that discharge less than 38,000 L (10,000 gal) per calendar day of pollutants in process wastewaters resulting from chromating, phosphating, or immersion plating on ferrous or nonferrous materials, are subject to certain pretreatment standards (40 CFR 413 50, 413 54(a), 413 54(b), and 413 54(f))	Determine if the facility has existing sources that introduce pollutants into a POTW/FOTW that discharges less than 38,000 L (10,000 gal) per calendar day of process wastewaters resulting from chromating, phosphating, or immersion plating on ferrous or nonferrous materials Verify that the source's wastewater meets the limitations listed in Chart 2 of Appendix 2-2 Verify that the facility does not augment the use of process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that the source's wastewater TTO is limited to 4 57 mg/L maximum
WP 39. Facilities that have existing sources that introduce pollutants into a POTW/FOTW that discharge 38,000 L (10,000 gal) or more per calendar day of pollutants in process wastewaters resulting from chromating, phosphating or immersion plating on ferrous or nonferrous materials, are subject to certain pretreatment standards (40 CFR 413 50, 413 54(a), 413 54(c) through 413.54(e), and 413 54(g))	Determine if the facility has existing sources that introduce pollutants into a POTW/FOTW that discharges 38,000 L (10,000 gal) or more per calendar day of process wastewaters resulting from chromating, phosphating or immersion plating Verify that the source's wastewater meets the limitations listed in Chart 3 of Appendix 2-2 (NOTE Mass-based standards are equivalent to and may be applied in place of those listed in Chart 3 upon prior agreement between the facility and the treatment works receiving the wastes) Verify that the facility does not augment the use of process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that if there is an absence of chelating agents in the pretreatment process, after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide), the limitations listed in Chart 4 of Appendix 2-2 are met Verify that the source's wastewater TTO is limited to 2 13 mg/L maximum for any one day
WP.40 Facilities that have existing sources that introduce pollutants into a POTW/FOTW that discharge less than 38,000 L (10,000 gal) per calendar day of pollutants in process wastewaters resulting from electroless plating, are subject to certain pretreatment standards (40 CFR 413 70, 413 74(a), 413 74(b), and 413 74(f))	(NOTE Electroless plating refers to electroless plating of a metallic layer on a metallic or nonmetallic substrate) Determine if the facility has existing sources that introduce pollutants into a POTW/FOTW that discharges less than 38,000 L (10,000 gal) per calendar day of process wastewaters resulting from the electroless plating Verify that the source's wastewater meets the limitations listed in Chart 2 of Appendix 2-2 Verify that the facility does not augment the use of process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that the source's wastewater TTO is limited to 4 57 mg/L maximum

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 41 Facilities that have existing sources that discharge pollutants into a POTW/FOTW that discharge 38,000 L (10,000 gal) or more per calendar day of pollutants in process wastewaters resulting from electroless plating, are subject to certain pretreatment standards (40 CFR 413 70, 413 74(a), 413 74(c) through 413 74(e), and 413 74(g))	(NOTE Electroless plating refers to electroless plating of a metallic layer on a metallic or nonmetallic substrate) Determine if the facility has existing sources that introduce pollutants into a POTW/FOTW that discharges 38,000 L (10,000 gal) or more per calendar day of process wastewaters resulting from electroless plating Verify that the source's wastewater meets the limitations listed in Chart 3 of Appendix 2-2 (NOTE· Mass-based standards are equivalent to and may be applied in place of those listed in Chart 3 upon prior agreement between the facility and the treatment works receiving the wastes) Verify that the facility does not augment the use of process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that if there is an absence of chelating agents in the pretreatment process after reduction of hexavalent chromium wastes, and after neutralization using calcium oxide (or hydroxide), the limitations listed in Chart 4 of Appendix 2-2 are met Verify that the source's wastewater TTO is limited to 2 13 mg/L maximum for any one day
Effluent Limitations for Metal Finishing Point Sources	
General	
WP 42 Facilities that have shops performing electroplating, electroless plating, anodizing, coating (chromating, phosphating and coloring), chemical etching and milling, and printed circuit board manufacture are subject to certain point source effluent limitation (40 CFR 433 10 through 433 12(c))	Determine if the facility has shops performing electroplating, electroless plating, anodizing, coating (chromating, phosphating and coloring), chemical etching and milling, and printed circuit board manufacture (NOTE If any of the listed processes are performed, then refer to Appendix 2-3 for an additional listing of process operations subject to limitations under this regulation) Verify that self-monitoring of cyanide is conducted after cyanide treatment and before dilution with other streams
WP 43 Facilities that have shops performing electroplating, electroless plating, anodizing, coating (chromating, phosphating and coloring), chemical etching and milling, and printed circuit board manufacture are subject to certain BPT point source effluent limitation (40 CFR 433 13)	Verify that the pollutants discharged from metal finishing point sources meets the limitations listed in Chart 1 of Appendix 2-3 Verify that oil and grease does not exceed the following - Maximum for any one day of 52 mg/L - Monthly average of 26 mg/L Verify that TSS does not exceed the following· - Maximum for any one day of 60 mg/L - Monthly average of 31 mg/L Verify that the facility does not augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 44 Facilities that have shops performing electroplating, electroless plating, anodizing, coating (chromating, phosphating and coloring), chemical etching and milling, and printed circuit board manufacture are subject to certain BAT point source effluent limitation (40 CFR 433.14)	Determine if the facility has shops performing electroplating, electroless plating, anodizing, coating (chromating, phosphating and coloring), chemical etching and milling, and printed circuit board manufacture Verify that the pollutants in discharge from metal finishing point sources meet the limitations listed in Chart 1 of Appendix 2-3 (NOTE· Alternately, if the facility does cyanide treatment and if permitted by the appropriate authority, the following amenable limits may apply for cyanide - Maximum for any 1 day = 0 86 mg/L, - Maximum monthly average = 0 32 mg/L.) Verify that the facility does not augment the use of metal finishing process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations
Effluent Limitations for Metal Finishing Point Sources	
Existing Sources	
WP 45 Facilities that introduce pollutants from existing metal finishing point sources into a POTW/FOTW are subject to certain pretreatment standards (40 CFR 433 15)	Determine if the facility introduces pollutants from existing metal finishing point sources into a POTW/FOTW Verify that pollutants introduced from existing metal finishing point sources (except from job shops and independent printed circuit board manufacturers) into a POTW/FOTW meet the standards listed in Chart 1 of Appendix 2-3. (NOTE Alternately, if the facility does cyanide treatment and if permitted by the appropriate authority, the following amenable limits may apply for cyanide· - Maximum for any 1 day = 0 86 mg/L - Maximum monthly average = 0 32 mg/L) Verify that the facility does not augment the use of metal finishing process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations Verify that any existing source subject to the criteria listed here meets the daily maximum pretreatment standard for TTO of 4 57 mg/L
New Sources	
WP 46 Facilities that introduce pollutants from new metal finishing point sources into a POTW/FOTW are subject to certain performance standards (40 CFR 433 16)	Determine if the facility introduces pollutants from new metal finishing point sources into a POTW/FOTW Verify that pollutants introduced from new metal finishing point sources into a POTW/FOTW meet the standards listed in Chart 2 of Appendix 2-3. (NOTE Alternately, if the facility does cyanide treatment and if permitted by the appropriate authority, the following amenable limits may apply for cyanide. - Maximum for any 1 day = 0 86 mg/L - Maximum monthly average = 0 32 mg/L) Verify that the facility does not augment the use of metal finishing process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations.

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 47 Facilities that introduce pollutants from new metal finishing point sources into a POTW/FOTW are subject to certain pretreatment standards (40 CFR 433 17)	Determine if the facility introduces pretreated pollutants from new metal finishing point sources into a POTW/FOTW Verify that the pretreated pollutants introduced from new metal finishing point sources into POTWs meet the standards listed in Chart 3 of Appendix 2-3 (NOTE Alternately, if the facility does cyanide treatment and if permitted by the appropriate authority, the following amenable limits may apply for cyanide: - Maximum for any 1 day = 0 86 mg/L - Maximum monthly average = 0 32 mg/L) Verify that the facility does not augment the use of metal finishing process wastewater or otherwise dilute it as a partial or total substitute for adequate treatment to achieve compliance with the limitations
Effluent Limitations for Hospitals	
WP 48 Facilities that have hospital point source effluents are subject to certain discharge standards (40 CFR 460 10)	Determine if the facility has a hospital point source Verify that the hospital point source effluent is limited in the quality or quantity of pollutants discharged as described in Appendix 2-4 NOTE The standards apply to discharges after application of BAT.)
Effluent Limitations for Photo Labs	
WP 49 Facilities that have point source discharges resulting from the development or printing of paper prints, slides, negatives, enlargements, movie film, and other sensitized materials are subject to certain limitations (40 CFR 459 10 and 459.12).	Determine if the facility has point source discharges resulting from the development or printing of paper prints, slides, negatives, enlargements, movie film, and other sensitized materials Verify that the photographic processing point source effluent is limited according to the specifications in Appendix 2-4 (NOTE Photo labs processing 150 m^2 (16,000 ft^2) per day or less are not covered)
Effluent Limitations for Feedlots	

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 50 Feedlots, except those for ducks, are required to meet specific effluent limitation standards (40 CFR 412 12 through 412 16).	Determine if the facility operates a feedlot Verify that there is no discharge of process wastewater pollutants to navigable waters (NOTE. For existing sources, when best practicable control technology (BPT) currently available is used, process waste pollutants may be discharged to navigable waters whenever rainfall events, either chronic or catastrophic, cause an overflow of process wastewater from a facility designed, constructed, and operated to contain all process generated wastewaters plus the runoff from a 10-year, 24-hour rainfall event for the location of the point source If the best available technology economically achievable is used, it is a 25-year, 24-hour rainfall event) (NOTE. For new sources, process waste pollutants may be discharged to navigable waters whenever rainfall events, either chronic or catastrophic, cause an overflow of process wastewater from a facility designed, constructed, and operated to contain all process generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event for the location of the point source) Verify that for existing sources the following pretreatment standard is met for discharge to a POTW· - Fecal coliform· no irritation - BOD5· no irritation

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
Land Application of Sludge	
General	
WP 51 Representative samples of sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator are required to be collected and analyzed (40 CFR 503 8)	(NOTE Checklist items WP 51 through WP 57 apply only to sludge generated during the treatment of domestic sewage in a treatment works For exclusions see the definitions of the term Excluded Sludge A summary of the important compliance dates is found in Appendix 2-5) Verify that the following types of facilities meet the standards outlined in 40 CFR 503 - The treatment works treats only domestic sewage - The treatment works is designed for domestic sewage treatment but also treats some industrial wastewaters - The treatment works is designed for industrial wastewater treatment and it only treats domestic sewage at any one time during operations and then the resulting sewage sludge has to meet 40 CFR 503 - The treatment works generates domestic septage only - The installation further changes the quality or treats (e g , composting of sewage sludge) the sewage sludge of domestic septage received from a generator of sewage sludge /domestic septage for land application and is therefore a preparer of sewage sludge (NOTE If the facility treatment works meets any of the following, the requirements in 40 CFR 503 do not apply - It treats industrial wastewaters only - It is an industrial wastewater treatment plant that also treats domestic sewage along with the industrial wastewater - It generates a combination of -- domestic septage and commercial septage (i e , grease from grease traps) -- domestic septage and industrial septage -- commercial septage and industrial septage) Determine if the facility applies sewage sludge to the land, places it on a surface disposal site, or fires it in a sewage sludge incinerator Verify that the sludge is analyzed prior to application, placement, or firing for the following - Enteric viruses - Fecal coliforms - Helminth ova - Inorganic pollutants - Salmonella bacteria - SOUR - Total, fixed, and volatile solids

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 52 Depending on when the last time bulk sewage sludge subject to the cumulative loading rates in Appendix 2-6 was last applied to a site (40 CFR 503)	Verify that personnel contacted the permitting authority in the State to determine if bulk sewage sludge that has to meet the standards in Appendix 2-6 has been applied to the site since 20 July 1993 (NOTE If sludge subject to these standards has not been applied to the site since 20 July 1993, the cumulative amount for each pollutant in Appendix 2-6 may be applied) Verify that if bulk sewage sludge subject to these standards has been applied since 20 July 1993 and the cumulative amount of each pollutant applied to the site is known, the known cumulative amount is used to determine the additional amount of each pollutant that can be applied (NOTE If the cumulative amount is not known, there shall be no further application to the site)

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 53 Bulk sewage sludge or sewage sludge sold or given away in a bag or other container must meet specific standards (40 CFR 503 10(e), 503 10(f), 503 13(a)(1), 503 13(a)(4), and 503 14(e))	Verify that if the facility gives or sells bulk sewage sludge or sewage sludge in a bag or other container, it meets the pollutant concentration limits in Appendix 2-7 Verify that if the facility gives or sells bulk sewage sludge in a bag or other container it meets one of the following - Pollutant concentrations do not exceed Appendix 2-8 - The product of the concentration of each pollutant in the sewage sludge and the annual whole sludge application rate for the sewage sludge does not cause the annual pollutant loading rates in Appendix 2-9 to be exceeded Verify that a label is affixed to the bag or container or an information sheet provided to the person who receives the sewage sludge Verify that the label or information sheet states - The name and address of the person who prepared the sewage sludge - A statement that the application to land is prohibited except in accordance with the instructions on the label or information sheet - The annual whole sludge application rate for the sewage sludge that does not cause any exceedence of the annual pollutant loading rates in Appendix 2-9 (NOTE When sewage sludge or material derived from sewage sludge is sold or given away in a bag or other container and meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and vector attraction reduction requirements as follows, it is exempt from the labeling requirements - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH or higher for two hours and then at pH 11 5 or higher for an additional 22 hours) - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials)

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 54 The application of bulk sewage sludge is not permitted in specific circumstances (40 CFR 503 14(a) through 503 14(c))	Verify that bulk sewage sludge is not applied to the land if it is likely to adversely threaten an endangered species or its designated critical habitat Verify that bulk sewage sludge is not applied to agricultural land, forest, a public contact site, or reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the United States Verify that bulk sewage sludge is not applied to agricultural land, forest, or a reclamation site that is 10 m (32 81 ft) or less from waters of the United States unless allowed by the permitting authority (NOTE. When bulk sewage sludge or bulk material derived from sewage sludge is applied to the land that meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and vector attraction reduction requirements as follows, it is exempt from these requirements - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F). When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials)

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 55 Bulk sewage sludge applied to agricultural land, forest, a public contact site, or a reclamation site must meet specific standards (40 CFR 503.12(b), 503.13(a)(2) and 503 14(d))	Verify that the cumulative loading rate for each pollutant does not exceed the limits outlined in Appendix 2-6 Verify that the concentration of each pollutant in the sewerage sludge does not exceed the concentration for the pollutant in Appendix 2-8 Verify that bulk sewage sludge is applied at a whole sludge application rate that is equal to or less than the agronomic rate for the bulk sewage sludge unless otherwise specified by a permitting authority (NOTE When bulk sewage sludge is applied to the land that meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and vector attraction reduction requirements as follows, it is exempt from the requirements concerning Appendix 2-6 and the agronomic rate application· - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials)
WP 56. Bulk sewage sludge applied to a lawn or home garden must not contain pollutants in excess of the limits in Appendix 2-8 (40 CFR 503 13(a)(3))	Verify that if bulk sewage sludge is applied to a lawn or home garden, it does not contain pollutants in excess of the limits in Appendix 2-8

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 57. The annual application rate for domestic septage applied to agricultural land, forest or a reclamation site must not exceed specific limits (40 CFR 503 12(c) and 503 13(c)).	Verify that the annual application rate for domestic septage applied to agricultural lands, forest or a reclamation site do not exceed the annual application rate calculated using the following equation $$AAR = \frac{N}{0.0026}$$ AAR = Annual application rate in gallons per acre per 365-day period N = amount of nitrogen in pounds per acre per 365-day period needed by the crop or vegetation grown on the land
Land Application of Sludge	
Vectors and Pathogens	
WP 58 Bulk sewage sludge applied to agricultural land, forest, a public contact site or a reclamation site is required to meet specific standards for pathogens (40 CFR 503 15(a)(1), 503 32(a), and 503 32(b))	Verify that the sewage sludge meets the Class A or the Class B pathogen requirements (see definitions) and the following site restrictions: - Food crops with harvested parts that touch the sewage sludge soil mixture and are totally above the land surface are not harvested for 14 months after application of sewage sludge - Food crops with harvested parts below the surface of the land are not harvested for 20 months after the application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil - Food crops with harvested parts below the surface of the land are not harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil - Food crops, feed crops, and fiber crops are not harvested for 30 days after application of the sewage sludge - Animals are not allowed to graze for 30 days after application - Turf grown on land where sewage sludge is applied is not harvested for one year after application of sewage sludge when the turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority - Public access to land with a high potential for public exposure is restricted for one year after application - Public access to land with a low potential for public exposure is restricted for 30 days after application

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 59 Bulk sewage sludge applied to agricultural land, forest, a public contact site or a reclamation site is required to meet specific standards for vector attraction reduction (40 CFR 503 15(c)(1) and 503 33 (b)(1) through 503 33(b)(10))	Verify that one of the following vector reduction requirements are met· - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of four days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F). When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials - Sewage sludge is injected below the surface of the land -- no significant amount of the sewage sludge is present on the land surface within 1 hour after injection -- when the sludge that is injected in Class A with respect to pathogens, the sludge is injected below the land surface within eight hours after being discharged from the pathogen treatment process - Sewage sludge applied to a land surface or placed on a surface disposal site is incorporated into the soil within six hours after application to or placement on the land When sludge incorporated into the soil is Class A, the sewage sludge is applied to or placed on the land within eight hours after being discharged from the pathogen treatment process

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 60 Bulk sewage sludge applied to a lawn or home garden must meet the Class A pathogen requirements and specific vector reduction requirements (40 CFR 503 15(a)(2), 503 32(a), and 503 33(b)(1) through 503 33(b)(8))	Verify that for bulk sewage sludge the Class A pathogen requirements (see definitions) are met Verify that one of the following vector reduction requirements are met - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent if this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 61 Sewage sludge that is sold or given away in a bag or container must meet Class A pathogen requirements and specific vector reduction requirements (40 CFR 503 15(a)(3), 503 32(a), and 503.33(b)(1) through 503 33(b)(8))	Verify that for sewage sludge that is sold or given away in a bag or container, it meets the Class A pathogen requirements (see Definitions) Verify that one of the following vector reduction requirements are met - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent - A 17 percent reduction of volatile solids when the 38 percent volatile solids reduction requirements cannot be met for an anaerobically digested sewage sludge and the vector reduction attraction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) - A 15 percent reduction of volatile solids when the 38 percent volatile solids reduction requirements cannot be met for an aerobically digested sewage sludge and the vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 °C (68 °F) - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer and the temperature is higher than 40 °C (104 °F) and the average temperature of the sewage sludge is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition and, without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11.5 or higher for an additional 22 hours - The percent solids of sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 62 Domestic septage that is applied to agricultural land, forest, or a reclamation site must meet specific pathogen requirements and vector reduction requirements (40 CFR 503 15(b), 503 15(d), 503 32(c)(1), 503 32(c)(2), 503.33(b)(9), 503 33(b)(10), and 503 33(b)(12))	Verify that one of the following requirements is met for pathogen control - The pH of the domestic septage is raised to 12 or higher by alkali addition, remaining at pH 12 or higher for 30 minutes, and the following land restrictions are met -- food crops with harvested parts that touch the sewage sludge soil mixture and are totally above the land surface are not harvested for 14 months after application of sewage sludge -- food crops with harvested parts below the surface of the land are not harvested for 20 months after the application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil -- food crops with harvested parts below the surface of the land are not harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil -- food crops, feed crops, and fiber crops are not harvested for 30 days after application of the sewage sludge - Site restrictions are followed -- food crops with harvested parts that touch the sewage sludge soil mixture and are totally above the land surface are not harvested for 14 months after application of sewage sludge -- food crops with harvested parts below the surface of the land are not harvested for 20 months after the application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil -- food crops with harvested parts below the surface of the land are not harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil -- food crops, feed crops, and fiber crops are not harvested for 30 days after application of the sewage sludge -- animals are not allowed to graze for 30 days after application -- turf grown on land where sewage sludge is applied is not harvested for one year after application of sewage sludge when the turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority -- public access to land with a high potential for public exposure is restricted for one year after application -- public access to land with a low potential for public exposure is restricted for 30 days after application Verify that one of the following vector attraction reduction requirements is met - Sewage sludge is injected below the surface of the land -- no significant amount of the sewage sludge is present on the land surface within 1 hour after injection -- when the sludge that is injected in Class A with respect to pathogens, the sludge is injected below the land surface within eight hours after being discharged from the pathogen treatment process - Sewage sludge applied to a land surface or placed on a surface disposal site is incorporated into the soil within six hours after application to or placement on the land When sludge incorporated into the soil is Class A, the sewage sludge is applied to or placed on the land within eight hours after being discharged from the pathogen treatment process - The pH of domestic septage is raised to pH 12 or higher by alkali addition and, without the addition of more alkali, remains at pH 12 or higher for 30 minutes
Notifications	

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 63 Persons who prepare bulk sewage sludge are required to provide specific notifications (40 CFR 503 10(b), 503 12(f), and 503 12(g))	Verify that if the facility prepare bulk sewage sludge, it provides the person applying the bulk sewage sludge the notices and necessary information needed to comply with the land application regulations (NOTE When bulk sewage sludge or bulk material derived from sewage sludge is applied to the land that meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and vector attraction reduction requirements as follows, it is exempt from these requirements - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials)
WP.64 Persons who prepare bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site are required to provide users written notification of the total nitrogen on a dry weight basis (40 CFR 503 12(d))	Determine if the facility prepares sewage sludge for application to agricultural land, forest, a public contact site, or a reclamation site Verify that the facility provides users with written notification of the total nitrogen on a dry weight basis

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP.65 Persons who apply bulk sewage sludge to the land are required to provide notice to the land owner or lease holder (40 CFR 503.10(b), 503 10(c), and 503 12(h))	Verify that notice is given that includes the information needed to verify compliance with the land application regulations. (NOTE When bulk sewage sludge or bulk material derived from sewage sludge is applied to the land that meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and vector attraction reduction requirements as follows, it is exempt from these requirements. - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent. If this cannot be done. -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F). When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials)
WP 66 Facilities that prepare bulk sewage sludge that is used in a different state are required to provide written notice (40 CFR 503 12(i))	Determine if the facility prepares sewage sludge for land application that is used in another state Verify that written notification is prepared and provided to the permitting authority in the state of application that includes the following - The location of each land application site - The approximate time period bulk sewage sludge will be applied to the site - The name, address, telephone number, and NPDES permit number (if appropriate) for the facility preparing the sludge - The name, address, telephone number, and NPDES permit number (if appropriate) for the facility applying the sludge.

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 67 Facilities that apply bulk sewage sludge subject to the cumulative loading rates in Appendix 2-6 are required to provide written notice prior to the initial application of the sludge (40 CFR 503 10(b), 503 10(c), and 503 12(j))	Verify that prior to the initial application of bulk sewage sludge that is subject to the cumulative loading rates in Appendix 2-6, notice is provided to the permitting authority for the state that includes· - The location of the land application site - The name, address, telephone number, NPDES permit number (if appropriate) of the facility applying the sludge (NOTE When bulk sewage sludge or bulk material derived from sewage sludge is applied to the land that meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and vector attraction reduction requirements as follows, it is exempt from these requirements - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent if this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials)
Monitoring	
WP 68 Monitoring for the limitations in Appendices 2-6 through 2-9, pathogen density in Class A and Class B pathogens, and vector attraction reduction requirements must be done according to the frequency in Appendix 2-10 (40 CFR 503 16(a))	Verify that monitoring for the limitations in Appendices 2-6 through 2-9, pathogen density in Class A and Class B pathogens, and vector attraction reduction requirements is done according to the frequency in Appendix 2-10 (NOTE After the sewage sludge has been monitored for two years, the permitting authority may reduce the frequency of monitoring.)

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 69. In specific instances, when domestic sewage is applied to agricultural land, forest, or a reclamation site, each container of domestic septage applied to the land is required to be monitored for compliance (40 CFR 503.16(b)).	Verify that each container of domestic septage is monitored if the pH has been raised to 12 or higher by alkali addition, and kept there for 30 minutes
Recordkeeping and Reporting	
WP.70 When bulk sewage sludge is applied to the land or sold in a bag or container and it meets the requirements in Appendix 2-8, Class A pathogen requirements, and vector attraction reduction requirements, specific recordkeeping requirements must be met (40 CFR 503 17(a)(1)).	Determine if the facility applies bulk sewage sludge or sells or gives it away in a bag or container Verify that it meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions) and one of the following vector attraction reduction requirements. - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98.6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (86 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (86 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11.5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials. Verify that the following information is retained for 5 years - The concentration of each pollutant listed in Appendix 2-8 - A statement certifying which form of vector attraction reduction is being used and that Class A pathogen requirements are being met - A description of how the Class A pathogen requirements are being met - A description of how the vector attraction reduction is being met.

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 71 When the facility derives material from sewage sludge for application and/or to sell or give away in a bag or container and it meets the requirements in Appendix 2-8, Class A pathogen requirements, and vector attraction reduction requirements, specific record keeping requirements must be met (40 CFR 503 17(a)(2))	Determine if the facility derives material from bulk sewage sludge or sells or gives away material derived from sewage sludge in a bag or container Verify that it meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions), and one of the following vector attraction reduction requirements - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (86 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1.5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (86 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials Verify that the following information is retained for 5 years - The concentration of each pollutant listed in Appendix 2-8 - A statement certifying which vector attraction reduction is being used and that Class A pathogen requirements are being met - A description of how the Class A pathogen requirements are being met - A description of how the vector attraction reduction is being met.

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 72 When the bulk sewage sludge meets the limitations in Appendix 2-8, the requirements concerning Class A pathogens, the vector attraction reduction requirements and is applied to agricultural land, forest, a public contact site, or reclamation site specific reporting requirements must be met (40 CFR 503 17(a)(3))	Determine if the facility applies bulk sewage sludge to agricultural land, forest, a public contact site or reclamation site Verify that it meets the requirements in Appendix 2-8, Class A pathogen requirements (see definitions) and one of the following vector attraction reduction requirements. - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of 2twopercent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (68 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (68 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11.5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials Verify that the following information is retained for five years by the person who prepares the sludge - The concentration of each pollutant listed in Appendix 2-8 - A statement certifying which vector attraction reduction is being used and that Class A pathogen requirements are being met - A description of how the Class A pathogen requirements are being met - A description of how the vector attraction reduction is being met Verify that the following information is retained for five years by the person who applies the sludge. - A statement certifying that appropriate management practices and application procedures are being used - A description of how required management practices are implemented - A description of how the vector reduction requirements are met

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 73 When the bulk sewage sludge meets the limitations in Appendix 2-8, the requirements concerning Class B pathogens, and is applied to agricultural land, forest, a public contact site, or reclamation site, specific reporting requirements must be met (40 CFR 503 17(a)(4))	Determine if the facility applies bulk sewage sludge to agricultural land, forest, a public contact site, or reclamation site Verify that it meets the requirements in Appendix 2-8 and Class B pathogen requirements (see definitions) Verify that the following information is retained for five years by the person who prepares the sludge: - The concentration of each pollutant listed in Appendix 2-8 - A statement certifying which form of vector attraction reduction is being used and that Class A pathogen requirements are being met - A description of how the Class B pathogen requirements are being met - A description of how the vector attraction reduction is being met when it is used Verify that the following information is retained for five years by the person who applies the sludge - A statement certifying that appropriate management practices and application procedures are being used - A description of how required management practices are implemented - A description of how site restrictions are being met - A description of how the vector reduction requirements are met when they are used
WP 74 When bulk sewage sludge that meets the limitations in Appendix 2-6, is applied to agricultural land, forest, a public contact site, or reclamation site, specific reporting requirements must be met (40 CFR 503 17(a)(5))	Determine if the facility applies bulk sewage sludge to agricultural land, forest, a public contact site, or reclamation site Verify that it meets the requirements in Appendix 2-6 Verify that the following information is retained for five years by the person who prepares the sludge: - The concentration of each pollutant listed in Appendix 2-6 - A statement certifying which form of vector attraction reduction is being used and that pathogen requirements are being met - A description of how the pathogen requirements are being met - A description of how the vector attraction reduction is being met when used. Verify that the following information is retained indefinitely by the person who applies the sludge - The concentration of each pollutant listed in Appendix 2-6 - The number of hectares in each site upon which bulk sewage sludge is applied - The date and time bulk sewage sludge is applied to each site - The cumulative amount of each pollutant from Appendix 2-6 in the bulk sewage sludge applied to each site - Amount applied to each site - A certification statement indicating that required information for each site has been obtained - A description of how the requirements to obtain information were met Verify that the following information is retained for five years by the person applying the sludge: - A statement certifying that appropriate management practices and application procedures are being used - A description of how required management practices are implemented - A certification statement that Class B pathogen requirements are being met - A description of how site restrictions are being met - A certification statement that vector reduction requirements are met - A description of how vector reduction requirements are being met

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 75 When bulk sewage sludge is given away or sold in a bag or container and it meets the requirements in Appendix 2-9, specific record keeping requirements must be met (40 CFR 503 17(a)(6))	Determine if the facility sells or gives bulk sewage sludge away in a bag or container Verify that it meets the requirements in Appendix 2-9 Verify that the following information is retained for 5 years by the person who prepares the sludge: - The annual whole sludge application rate for the sewage sludge that does not cause the annual pollutant rates in Appendix 2-9 to be exceeded - The concentration of each pollutant listed in Appendix 2-9 - A statement certifying which vector attraction reduction is being used and that Class A pathogen requirements are being met - A description of how the Class A pathogen requirements are being met - A description of how the vector attraction reduction is being met
WP 76 When domestic septage is applied to agricultural land, forest, or a reclamation site, specific reporting requirements must be met (40 CFR 503 17(b))	Determine if the facility applies domestic septage to agricultural land, forest, a public contact site, or reclamation site Verify that the following information is retained for five years by the person who applies the domestic septage - The location of each site on which domestic septage is applied - The number of acres in each site on which domestic septage is applied - The date and time of application at each site - The nitrogen requirements for the crop or vegetation grown on each site during a 365-day period - The rate in gal/acre per 365-day period at which domestic septage is applied to each site - A statement certifying which vector attraction reduction is being used and that pathogen requirements are being met - A description of how the pathogen requirements are being met - A description of how the vector attraction reduction is being met
WP 77 Class I sludge management facilities, POTW/FOTWs with a design flow rate equal to or greater than one million gal/day (3,785,412 L/day), and POTW/FOTWs that serve 10,000 people or more are required to submit specific information to the permitting authority (40 CFR 503.18).	Verify that the following information is submitted to the permitting authority by 19 February of each year - The concentration of each pollutant listed in Appendix 2-8 - A statement certifying which form of vector attraction reduction is being used and that Class A pathogen requirements are being met - A description of how the Class A pathogen requirements are being met - A description of how the vector attraction reduction is being met Verify that the following information is submitted on 19 February of each year when 90 percent or more of any of the cumulative loading rates in Appendix 2-6 are met: - The concentration of each pollutant listed in Appendix 2-6 - The number of hectares in each site upon which bulk sewage sludge is applied - The date and time bulk sewage sludge is applied to each sites - The cumulative amount of each pollutant from Appendix 2-6 in the bulk sewage sludge applied to each site - Amount applied to each site - A certification statement indicating that required information for each site has been obtained - A description of how the requirements to obtain information were met.

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
Surface Disposal of Sludge	
General (NOTE The requirements concerning surface disposal of sludge do not apply to sewage sludge stored on the land or to the land on which sewage sludge is stored It also does not apply to sewage sludge that remains on the land for longer than 2 years when the facility that prepares the sewage sludge demonstrates that the land on which the sewage sludge remains is not an active sewage sludge unit It also does not apply to sewage treated on the land or to the land on which the sewage sludge is treated (40 CFR 503 20(b) and 503 20(c))	
WP 78 An active sewage sludge unit that is located within 60 m (196 85 ft) of a fault that has displacement in Holocene time, is located in an unstable area, or located in a wetland is required to close by 19 February 1994 (40 CFR 503 22(b))	Determine if the facility has a sewage sludge unit that is located within 60 m (196 85 ft) of a fault that has displacement in Holocene time, is located in an unstable area, or is located in a wetland Verify that the unit was closed by 19 February 1994 unless otherwise stipulated by the permitting authority
WP 79 The facility is required to submit a written closure and post-closure plan that meets specific requirements to the permitting authority 180 days prior to the date of closure (40 CFR 503 22(c))	Determine if the facility is planning on closing an active sewage sludge unit or has recently closed a sewage sludge unit Verify that the closure and post-closure plan was submitted to the permitting authority at least 180 days in advance of closure and the plan contained the following - A discussion of how the leachate collection system will be operated and maintained for 3 years after closure if the unit has a liner and leachate collection system - A description of the system used to monitor for methane gas in the air in any structure within the surface disposal site and in the air at the property line - A discussion of how public access will be restricted for three years after closure Verify that if there are plans to turn the surface disposal site over to another owner, the facility notifies the subsequent owner that sewage sludge was placed on the land
WP 80 Active sewage sludge units without a liner and leachate collection system are required to met specific standards (40 CFR 503 23(a)(1) and 503 23(b))	Verify that following concentrations are not exceeded in sewage sludge placed on an active sewage sludge unit - Arsenic 73 mg/kg - Chromium 600 mg/kg - Nickel 420 mg/kg (NOTE Amounts are based on a dry weight basis)
WP 81 Active sewage sludge units without a liner and leachate collection system with a boundary less than 150 m (492 13 ft) from the property line of the surface disposal site are required to meet specific requirements (40 CFR 503 23(a)(2) and 503 23(b))	Verify that the concentration of each pollutant listed in Appendix 2-11 is not exceeded in relation to the listed distances (NOTE At the time of the permit application, the owner/operator of the site may ask for site-specific pollutant limits)

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 82. Sewage sludge units are required to be operated according to specific operation and management standards (40 CFR 503 24)	Verify that sewage sludge is not placed in an active sewage sludge unit if it is likely to adversely affect a threatened or endangered species or its critical habitat Verify that active sewage sludge units - Do not restrict the flow of a base flood - Are located 60 m (196 85 ft) or more from a fault that has displacement in Holocene time, unless otherwise specified by the permitting authority - Are not located in an unstable area - Will not contaminate an aquifer - Are not located in a wetland unless by permit (NOTE· The results of a groundwater monitoring program developed by a qualified groundwater scientist or a certification by a qualified groundwater scientist will be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer) Verify that when a surface disposal site is located in a seismic impact zone, the unit is designed to withstand the maximum recorded horizontal ground level acceleration Verify that for runoff the following occurs - The runoff is collected and disposed of in accordance with an NPDES permit - The runoff collection system has the capacity to handle runoff from a 24-hour, 25-year storm event. Verify that leachate is handled so that - The leachate collection system for an active sewage sludge unit that has a liner and leachate collection system is operated and maintained during the period the sewage sludge unit is active and for three years thereafter - Leachate from an active sewage sludge unit that has a liner and a leachate collection system is collected and disposed of in accordance with the applicable requirements from when the unit is active and for three years thereafter Verify that the following occurs when a cover is placed on a sewage sludge unit - The concentration of methane gas in the air in any structure within the surface disposal site of an active unit does not exceed 25 percent of the lower explosive limit for methane gas during the period that the unit is active and the concentration of the methane gas in air at the property line of the surface disposal site does not exceed the lower explosive limit for methane gas during the period that the sewage sludge unit is active - The concentration of methane gas at closure when the final cover is placed in air in any structure within any structure within the surface disposal site does not exceed 25 percent of the lower explosive limit for methane gas for three years after the unit closes and the concentration of methane gas in air at the property line of the unit does not exceed the lower explosive limit for methane gas three years after closure unless otherwise specified by the permitting authority Verify that a food or feed crop or a fiber crop is not grown on an active sewage sludge unit unless it has been demonstrated to the permitting authority that through management practices, public health and the environment are protected from any reasonably anticipated adverse effects Verify that animals do not graze on an active sewage sludge unit unless it has been demonstrated to the permitting authority that through management practices, public health and the environment are protected from any reasonably anticipated adverse effects. Verify that public access is restricted for the period that the surface disposal site contains an active unit, and for 3 years after the last active sewage sludge unit in the surface disposal site closes.

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 83 Class A or one of the Class B pathogen requirements (see definitions) must be met when placing sewage sludge on an active sewage sludge unit unless it is covered with soil or other material at the end of each operating day (40 CFR 503 25(a))	Determine if the sewage sludge meets Class A or one of the Class B pathogen requirements Verify that if the sludge does not meet pathogen requirements, it is covered with soil or other material at the end of each operating day
WP 84 Vector attraction reduction must be done when sewage sludge or domestic septage is placed on an active sewage sludge unit (40 CFR 503 25(b) and 503 25(c))	Verify that when sewage sludge is placed on an active sewage sludge unit, one of the following vector attraction reduction requirements is done - The mass of volatile solids in the sewage sludge is reduced by a minimum of 38 percent If this cannot be done -- for an anaerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C (86 and 98 6 °F) When at the end of 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved -- for an aerobically digested sewage sludge, vector attraction reduction is demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent or less aerobically in the laboratory in a bench scale unit for 30 additional days at 20 °C (86 °F) When at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of the period is reduced by less than 15 percent, vector attraction reduction is achieved - The SOUR for sewage sludge treated in an aerobic process is equal to or less than 1 5 mg oxygen/h/g total solids (dry weight basis) at a temperature of 20 °C (86 °F) - Sewage sludge is treated in an aerobic process for 14 days or longer, during which time the temperature of the sewage sludge is higher than 40 °C (104 °F) and the average temperature is higher than 45 °C (113 °F) - The pH of the sewage sludge is raised to pH 12 or higher by alkali addition, and without the addition of more alkali, remains at pH 12 or higher for two hours and then at pH 11 5 or higher for an additional 22 hours - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 based on the moisture content and total solids prior to mixing with other materials - The percent solids of sewage sludge that contains unstablized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials - Sewage sludge is injected below the surface of the land -- no significant amount of the sewage sludge is present on the land surface within one hour after injection -- when the sludge that is injected in Class A with respect to pathogens, the sludge is injected below the land surface within eight hours after being discharged from the pathogen treatment process -- sewage sludge applied to a land surface or placed on a surface disposal site is incorporated into the soil within six hours after application to or placement on the land When sludge incorporated into the soil is Class A, the sewage sludge is applied to or placed on the land within eight hours after being discharged from the pathogen treatment process - The sewage sludge placed on an active sewage sludge unit is covered with soil or other material at the end of each operating day

Compliance Category: **Water Pollution Control**	
Regulatory Requirements:	**Reviewer Checks:**
WP 84 Continued	Verify that when domestic septage is placed on an active sewage sludge unit, one of the following vector attraction reduction requirements is done - Sewage sludge is injected below the surface of the land such that: -- no significant amount of the sewage sludge is present on the land surface within one hour after injection -- when the sludge that is injected in Class A with respect to pathogens, the sludge is injected below the land surface within eight hours after being discharged from the pathogen treatment process - Sewage sludge applied to a land surface or placed on a surface disposal site is incorporated into the soil within six hours after application to or placement on the land. When sludge incorporated into the soil is Class A, the sewage sludge is applied to or placed on the land within eight hours after being discharged from the pathogen treatment process - The sewage sludge placed on an active sewage sludge unit is covered with soil or other material at the end of each operating day - The pH of the domestic septage is raised to pH 12 or higher by alkali addition and, without the addition of more alkali, remains at pH 12 or higher for 30 min
Monitoring and Documentation	
WP 85 Monitoring for pollutants, pathogens, and vector attraction reduction requirements for sewage sludge placed on an active sewage sludge unit must be done according to the frequency in Appendix 2-10 (40 CFR 503.26(a)).	Verify that monitoring for pollutants, pathogens, and vector attraction reduction requirements for sewage sludge placed on an active sewage sludge unit is done according to the frequency in Appendix 2-10 (NOTE The permitting authority may reduce the frequency of monitoring)
WP 86 If, when domestic septage is placed on an active sewage sludge unit, the pH of the septage is raised to 12 or higher by alkali addition and remains at 12 or higher without alkali addition for 30 min, each container of domestic septage must be monitored (40 CFR 503 26(b))	Verify that when domestic septage is placed on an active sewage sludge unit, the pH of the septage is raised to pH 12 or higher by alkali addition and remains at pH 12 or higher without alkali addition for 30 min each container of domestic septage is monitored
WP.87. In specific circumstances, air in structures within a surface disposal site and at property lines of the surface disposal site are required to be monitored continuously for methane gas (40 CFR 503 26(c))	Verify that continuous monitoring occurs during the period that the surface disposal site contains an active sewage sludge unit on which the sewage sludge is covered and for three years after a unit closes when a final cover is placed on the sewage sludge.

Compliance Category: Water Pollution Control	
Regulatory Requirements:	**Reviewer Checks:**
WP 88 Specific recordkeeping requirements must be met when sewage sludge, other than domestic septage, is placed on an active sewage sludge unit (40 CFR 503 27(a))	Verify that the person who prepares sewage sludge retains the following information for five years - The concentration of arsenic, chromium, and nickel in the sludge - A statement certifying that pathogen and vector attraction reduction requirements are being met - A description of how the pathogen requirements are being met when done - A description of how the vector attraction reduction requirements are being met when done Verify that the operator of the surface disposal site retains the following for five years: - The concentrations of the pollutants listed in Appendix 2-11 - A statement certifying that management practices and vector attraction reduction requirement are being met - A description of how the management practices are being met - A description of how the vector attraction reduction requirements are being met when they are done
WP 89. Specific recordkeeping requirements must be met when domestic septage is placed on an active sewage sludge unit (40 CFR 503 27(b))	Verify that the person who applies domestic septage with a pH of greater than 12 retains the following information for five years - A statement certifying that vector attraction reduction requirements are being met - A description of how the vector attraction reduction requirements are being met when done. Verify that the operator of the surface disposal site retains the following for five years. - A statement certifying that management practices and vector attraction reduction requirement are being met - A description of how the management practices are being met - A description of how the vector attraction reduction requirements are being met when they are done
WP 90. Class I sludge management facilities, POTWs/FOTWs with a design flow rate equal to or greater than 1,000,000 gal/day (3,785,412 L/day), and POTW/FOTWs that serve 10,000 people or more are required to submit specific information to the permitting authority on 19 February of each year (40 CFR 503 28).	Verify that the following information is submitted to the permitting authority on 19 February of each year - The concentration of arsenic, chromium and nickel in the sludge - A statement certifying that management practices and pathogen and vector attraction reduction requirements are being met - A description of how the pathogen requirements are being met when done - A description of how the vector attraction reduction requirements are being met when done - The concentrations of the pollutants listed in Appendix 2-11 - A description of how the management practices are being met

Section 2

Water Pollution Control

Appendices

Appendix 2-1
Steam Electric Power Generating Point Sources
(40 CFR 423)

Chart 1

Pollutant or Pollutant Property	BPT and NSPS Effluent Limitations	
	Maximum for any 1 day (mg/L)	Maximum average values for 30 consecutive days (mg/L)
TSS	100 0	30 0
Oil and Grease	20 0	15 0
From 40 CFR 423 12(b)(3), 423 12(b)(4), 423 15(c), and 423 15(f)		

Chart 2

Pollutant or Pollutant Property	BPT Effluent Limitations	
	Maximum for any 1 day (mg/L)	Maximum average values for 30 consecutive days (mg/L)
TSS	100 00	20 0
Oil and Grease	20 0	15 0
Copper, total	1 0	1 0
Iron, total	1 0	1 0
From 40 CFR 423 12(b)(5) and 423 12(b)(6)		

Chart 3

Pollutant or Pollutant Property	BAT and NSPS Effluent Limitations	
	Maximum for any 1 day (mg/L)	Maximum average values for 30 consecutive days (mg/L)
The 126 priority pollutants (see page A2-4) contained in chemicals added for cooling tower maintenance, except	(1)	(1)
Chromium, total	0 2	0 2
Zinc, total	1 0	1 0
(1) No detectable amount		
Form 40 CFR 423 13(d)(1) and 423 16(j)(1)		

Chart 4

Pollutant or Pollutant Property	BAT Effluent Limitations	
	Maximum for any 1 day (mg/L)	Maximum average values for 30 consecutive days (mg/L)
Copper, total	1 0	1 0
Iron, total	1 0	1 0
From 40 CFR 423 13(e)		

Appendix 2-1 (continued)
Steam Electric Power Generating Point Sources
(40 CFR 423)

Chart 5

Pollutant or Pollutant Property	NSPS Effluent Limitations	
	Maximum for any 1 day (mg/L)	Maximum average values for 30 consecutive days (mg/L)
TSS	100 0	30 0
Oil and Grease	20 0	15 0
Copper, total	1 0	1 0
Iron, total	1 0	1 0
From 40 CFR 423 12(b)(3) and 423 12(b)(4)		

Chart 6

Pollutant or Pollutant Property	PSES Effluent Limitations Maximum for any time (mg/L)
The 126 priority pollutants (see page A2-4) contained in chemicals added for cooling tower maintenance, except	(1)
Chromium, total	0 2
Zinc, total	1 0
(1) No detectable amount	
From 40 CFR 423 16(d)(1)	

Chart 7

Pollutant or Pollutant Property	PSES Effluent Limitations Maximum for any time (mg/L)
The 126 priority pollutants (see page A2-4) contained in chemicals added for cooling tower maintenance, except	(1)
Chromium, total	0 2
Zinc, total	1 0
(1) No detectable amount	
From 40 CFR 423 17(d)(1)	

Appendix 2-1 (continued)
Steam Electric Power Generating Point Sources
(40 CFR 423)

The 126 Priority Pollutants

Acenaphthene
Acrolein
Acrylonitrile
Benzene
Benzidine
Carbon tetrachloride (tetrachloromethane)
Chlorobenzene
1,2,4-Trichlorobenzene
Hexachlorobenzene
1,2-Dichloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
Chloroethane
Bis (2-chloroethyl)ether
2-Chloroethyl vinyl ether (mixed)
2-Chloronaphthalene
2,4,6-Trichlorophenol
Parachlormeta-cresol
Chloroform (trichloromethane)
2-Chlorophenol
1,2-Dichlorobenzene
1,3-Dichlorobensens
1,4-Dichlorobenzene
3,3-Dichlorobenzidine
1,1-Dichloroethylene
1,2-Trans-dichlorothylene
2,3-Dichlorophenol
1,2-Dichloropropane
1,3-Dichloropropylene (1,3-dichloropropene)
2,4-Dimethylphenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
1,2-Diphenylhydrazine
Ethylbenzene
Fluoranthene
4-Chlorophenyl phenyl ether
4-Bromophenyl phenyl ether
Bis (2-chloroisopropyl) ether
Bis (2-chloroethoxy) methane
Methylene chloride (dychloromethane
Methyl chloride (dichloromethane)
Methyl bromide (bromomethane)
Bromoform (tribromomethane)
Dichlorobromomethane
Chlorodibromomethane
Hexachlorobetadiene
Hexachlorocyclo-entadiene
Isophorone
Naphthalene
Nitrobenzene
2-Nitrophenol
4-Nitrophenol
2,4-Dinitrophenol
4,6-Dinitro-o-cresol
N-nitrosodimethylamine
N-nitrosodiphenylamine
N-nitrosodi-n-propulamine
Pentachlorophenol
Phenol
Bis (2-ethylhexyl) phthalate
Butyl benzyl phthalate
Di-n-butyl phthalate
Di-n-octyl phthlate
Diethyl phthlate
Dimethyl phthlate
1,2-Benzanthracene (benzo(a)anthracene)
Benzo(a)pyrene (3,4-benzopyrene)
3,4-Benzofluoranthene (benzo(b)fluoranthene)
11,12-Benzofluoroanthene (benzo(k)fluoranthene)
Chrysens
Acenaphthylene
Anthracene
1,12-Benzoperylene (benzo(gh)perylene)
Fluorene
Phenanthrene
1,2,5,6-Dibenzanthracene (dibenso(a,h)anthracene)
Indeno(1,2,3-cd) pyrene (2,3-o-phenlene pyrene)
Pyrene
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl chloride (chloroethylene)
Aldrin
Dieldrin
Chlordane (technical mixture and metabolites)
4,4-DDT
4,4-DDE (p,p-DDX)
4,4-DDD (p,p-TDE)
Alpha-endosulfa
Beta-endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide (BHC-hexachloro-cyclohexane)
Alpha-BHC
Beta-BHC
Gamma-BHC
Delta-BHC
PCB-polychlorinated biphenyls
PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB 1248 (Srochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
Toxaphene
Antimony
Arsenic
Asbestos
Beryllium
Cadmium
Chromium
Copper
Cyanide, total
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Zinc
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)

Appendix 2-2
Operations Excepted from Electroplating Point Source Effluent Limitations
(40 CFR 413)

Operations similar to electroplating but which are specifically excepted include

1 Electrowinning and electrorefining conducted as part of nonferrous metal smelting and refining
2 Metal surface preparation and conversion coating conducted as part of coil coating
3 Metal surface preparation and immersion plating or electroless plating conducted as part of porcelain enameling
4 Electrodeposition of active electrode materials, electroimpregnation, and electroforming conducted as a part of battery manufacturing
5. Metallic platemaking and gravure cylinder preparation conducted with or for printing and publishing facilities, and continuous strip electroplating conducted within iron and steel manufacturing facilities that introduce pollutants into a publicly owned treatment works

Chart 1

If the maximum for any one day is	And the 4-day average is	Then the 30-day average is
0 6	0 4	0 3
1 2	7	.5
1 9	1	.55
4 1	2 6	1 8
4 2	2 6	1 8
4 2	2 6	1 8
4 5	2 7	1 8
5 0	2 7	1 5
7 0	4	2 5
10 5	6 8	5
20 0	13 4	10
23	16	12
47	29	20
53	36	27
74	39	21
107	65	45
169	89	49
160	100	70
164	102	70
176	105	70
273	156	98
365	229	160
374	232	160
401	241	160
410	267	195
623	257	223
935	609	445From 40 CFR 413 04

Appendix 2-2 (continued)
Operations Excepted from Electroplating Point Source Effluent Limitations
(40 CFR 413)

Chart 2
All subcategory facilities discharging less than 38,000 L (10,000 gal) per day PSES limitations (mg/L)

If the maximum for any one day is	And the 4-day average is	Then the 30 day average is
CN,A	5 0	2 7
Pb	0 6	0 4
Cd	1 2	0 7
From 40 CFR 413 14(b), 413 54(b), and 413 74(b)		

Chart 3
All subcategory facilities discharging 38,000 L (10,000 gal) or more per day limitations (mg/L)

If the maximum for any one day is	And the 4-day average is	Then the 30 day average is
CN,T	1 9	1 0
Cu	4 5	2 7
Ni	4 1	2 6
Cr	7 0	4 0
Zn	4 2	2 6
Pb	0 6	0 4
Cd	1 2	0 7
Total metals	10 5	6 8
From 40 CFR 413 14(c), 413 54(c), and 413 74(c)		

Chart 4
All subcategory facilities discharging 38,000 L (10,000 gal) or more ter day PSES limitations (mg/L)

If the maximum for any one day is	And the 4-day average is	Then the 30 day average is
CN,T	1 9	1 0
Pb	0 6	0 4
Cd	1 2	0 7
TSS	20 0	13 4
pH	*	*
*Within the range 7.5 to 10 0 From 40 CFR 413 14(e), 413 54(e), and 413 74(e)		

Appendix 2-3
Metal Finishing Point Sources
(40 CFR 433)

Process Operations with Point Source Effluent Limitations	
Nonferrous metal smelting and refining	Aluminum forming
Coil coating	Copper forming
Porcelain enameling	Plastic molding and forming
Battery manufacturing	Nonferrous forming
Iron and steel	Electrical and electronic components
Metal casting foundries	

Chart 1
BAT

Pollutant or Pollutant Property	Maximum for any 1 day	Maximum Monthly Average
	(mg/L)	
Cadmium (T)	0 69	0 26
Chromium (T)	2 77	1 71
Copper (T)	3 38	2 07
Lead (T)	0 69	0 43
Nickel (T)	3 98	2 38
Silver (T)	0 43	0 24
Zinc (T)	2 61	1 48
Cyanide (T)	1 20	0 65
TTO	2 13	---
From 40 CFR 433 14(a) and 40 CFR 433 14(a)		

Chart 2
NSPS

Pollutant or Pollutant Property	Maximum for any 1 day	Maximum Monthly Average
	(mg/L)	
Cadmium (T)	0 11	0 07
Chromium (T)	2 77	1 71
Copper (T)	3 38	2 07
Lead (T)	0 69	0 43
Nickel (T)	3 98	2 38
Silver (T)	0 43	0 24
Zinc (T)	2 61	1 48
Cyanide (T)	1 20	0 65
TTO	2 13	---
Oil and Grease	52.00	26 00
TSS	60 00	31 00
pH	*	*
*Within 6 0-9 0 From 40 CFR 433 16(a)		

Appendix 2-3 (continued)
Metal Finishing Point Sources
(40 CFR 433)

Chart 3
PSNS

Pollutant or Pollutant Property	Maximum for any 1 day	Maximum Monthly Average
	(mg/L)	
Cadmium (T)	0 11	0 07
Chromium (T)	2 77	1 71
Copper (T)	3 38	2 07
Lead (T)	0 69	0 43
Nickel (T)	3 98	2 38
Silver (T)	0 43	0 24
Zinc (T)	2 61	1 48
Cyanide (T)	1 20	0 65
TTO	2 13	---
From 40 CFR 433 17(a)		

Appendix 2-4
Effluent Standards for Hospitals and Photographic Point Sources
(40 CFR 459.12 and 460.10)

Chart 1
Effluent Standards for Hospitals

Effluent Characteristic	Effluent Limitations Maximum for any 1 day	Maximum average values for 30 consecutive days
	Metric units (kg/1000 occupied beds)	
BOD5 TSS pH	41 0 55 6 *	33 6 33 8 *
	English units (lb/1000 occupied beds)	
BOD5 TSS pH	90 4 122 4 *	74 0 74 5 *
*Within the range 6 0-9 0 From 40 CFR 460 10		

Chart 2
Effluent Limitations for Photographic Point Sources

Effluent Characteristic	Effluent Limitations Maximum for any 1 day	Maximum average values for 30 consecutive days
	Metric units (kg/1000 m^2 of product)	
Ag CN pH	0 14 0 18 *	0 07 0 09 *
	English units (lb/1000 ft^2 of product)	
Ag CN pH	0 030 0 038 *	0 015 0 109 *
*Within the range 6 0-9 0 From 40 CFR 459 12		

Appendix 2-5
Relevant Dates for the Sewage Sludge Program

Sewage Sludge Program	Date
Publication of Part 503 in 58 FR 9248	19 February 1993
Publication of amendments to Sewage Sludge Permit Program regulations in 58 FR 9404	19 February 1993
Effective date of Part 503	22 March 1993
Requirements for monitoring and recordkeeping under Part 503 become effective (except for THC)	20 July 1993
Permit applications due from facilities required to have (or requesting) site-specific limits	18 August 1993
Compliance date for part 503 requirements other than monitoring, recordkeeping and reporting (where construction is not required)	19 February 1993
Requirements for monitoring, recordkeeping and reporting for THC under Part 503 become effective (where construction is not required)	19 February 1993
Requirements for reporting under Part 503 become effective	19 February 1993
Limited permit application information due from sludge-only facilities (not needing site-specific limits)	19 February 1993
Due for closure of active sewage sludge units • Located within 60 m of a fault that has displacement in Holocene time (unless authorized by the permitting authority) • Located in a wetland (unless authorized under an NPDES permit) • Located in an unstable area	22 March 1993
Compliance date for Part 503 requirements other than monitoring, recordkeeping, and reporting (where construction is required)	19 February 1993
Requirements for monitoring, recordkeeping, and reporting for THC under Part 503 become effective (where construction is required)	19 February 1993
Date when active sewage sludge unit owners/operators must submit closure plans	180 days prior to the date the unit closes
Permit application information due from facilities with NPDES permits (not needing site-specific limits)	At the time of the next NPDES permit renewal
Permit application information due from facilities who commence operations after 19 February 1993	180 days prior to the date proposed for commencing operation

Appendix 2-6
Cumulative Pollutant Loading Rates for Sludge
(40 CFR 503.13(b)(2))

Pollutant	Cumulative Pollutant Loading Rate (kg/hectare)
Arsenic	41
Cadmium	39
Chromium	3000
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2600

Appendix 2-7
Ceiling Concentrations for Sludge
(40 CFR 503.13(b)(1))

Pollutant	Ceiling Concentration (mg/kg, dry weight basis)
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	640
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

Appendix 2-8
Pollutant Concentrations for Sludge
(40 CFR 503.13(b)(3))

Pollutant	Monthly Average Concentrations (mg/kg, dry weight basis)
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

Appendix 2-9
Annual Pollutant Loading Rates
(40 CFR 503.13(b)(2))

Pollutant	Annual Pollutant Loading Rates (kg/hectare/365 day period)
Arsenic	2 0
Cadmium	1 0
Chromium	150
Copper	75
Lead	15
Mercury	0 85
Nickel	21
Selenium	5 0
Zinc	140

Appendix 2-10
Frequency of Monitoring - Land Application and Surface Disposal
(40 CFR 503.16 Table 1, 503.26 Table 1, 503.46 Table 1)

Amount of Sewage Sludge* (metric tons/365 day period) (long ton/365 days)	Frequency
Greater than zero but less than 290 (285 42)	Once per year
Equal to or greater than 290 (285 42) but less than 1500 (1476 31)	Once per quarter (four times per year)
Equal to or greater than 1500 (1476 31) but less than 15,000 (14,763 1)	Once per 60 days (six times per year)
Equal to or greater than 15,000 (14,763 1)	Once per month

***Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).**

Appendix 2-11
Pollutant Concentrations for an Active Sewage Sludge Unit
(40 CFR 503.23, Table 1)

Unit Boundary to Property Site	Pollutant Concentration[1]		
Distance (meters)	Arsenic mg/kg	Chromium mg/kg	Nickel mg/kg
0 to less than 25	30	200	210
25 to less than 50	34	220	240
50 to less than 75	39	260	270
75 to less than 100	46	300	320
100 to less than 125	53	360	390
125 to less than 150	62	450	420

(1) Dry weight basis

Appendix 2-12
Effluent Guidelines and Pretreatment Standards Categories

40 CFR 401	General provisions
40 CFR 403	General pretreatment regulations for existing and new sources of pollution
40 CFR 405	Dairy products processing point source category
40 CFR 406	Grain mills point source category
40 CFR 407	Canned and preserved fruits and vegetables processing point source category
40 CFR 408	Canned and preserved seafood processing point source category
40 CFR 409	Sugar processing point source category
40 CFR 410	Textile mills point source category
40 CFR 411	Cement manufacturing point source category
40 CFR 412	Feedlots point source category
40 CFR 413	Electroplating point source category
40 CFR 414	Organic chemicals, plastics, and synthetic fibers
40 CFR 415	Inorganic chemicals manufacturing point source category
40 CFR 416	[Reserved]
40 CFR 417	Soap and detergent manufacturing point source category
40 CFR 418	Fertilizer manufacturing point source category
40 CFR 419	Petroleum refining point source category
40 CFR 420	Iron and steel manufacturing point source category
40 CFR 421	Nonferrous metals manufacturing point source category
40 CFR 422	Phosphate manufacturing point source category
40 CFR 423	Steam electric power generating point source category
40 CFR 424	Ferroalloy manufacturing point source category
40 CFR 425	Leather tanning and finishing point source category
40 CFR 426	Glass manufacturing point source category
40 CFR 427	Asbestos manufacturing point source category
40 CFR 428	Rubber manufacturing point source category
40 CFR 429	Timber products processing point source category
40 CFR 430	Pulp, paper, and paperboard point source category
40 CFR 431	The builders' paper and board mills point source category

Appendix 2-12 (continued)
Effluent Guidelines and Pretreatment Standards Categories

40 CFR 432	Meat products point source category
40 CFR 433	Metal finishing point source category
40 CFR 434	Coal mining point source category, BPT, BAT, BCT limitations and new source performance standards
40 CFR 435	Oil and gas extraction point source category
40 CFR 436	Mineral mining and processing point source category
40 CFR 439	Pharmaceutical manufacturing point source category
40 CFR 440	Ore mining and dressing point source category
40 CFR 443	Effluent limitations guidelines for existing sources and standards for performance and pretreatment standards for new sources for the paving and roofing materials (tars and asphalt) point source category
40 CFR 446	Paint formulating point source category
40 CFR 447	Ink formulating point source category
40 CFR 454	Gum and wood chemicals manufacturing point source category
40 CFR 455	Pesticide chemicals
40 CFR 457	Explosives manufacturing point source category
40 CFR 458	Carbon black manufacturing point source category
40 CFR 459	Photographic point source category
40 CFR 460	Hospital point source category
40 CFR 461	Battery manufacturing point source category
40 CFR 463	Plastics molding and forming point source category
40 CFR 464	Metal molding and casting point source category
40 CFR 465	Coil coating point source category
40 CFR 466	Porcelain enameling point source category
40 CFR 467	Aluminum forming point source category
40 CFR 468	Copper forming point source category
40 CFR 469	Electrical and electronic components point source category
40 CFR 471	Nonferrous metals forming and metal powders point source category

Phase 1

Section 3

Nonhazardous Waste Management

Phase 1
Section 3
Table of Contents

Nonhazardous Waste Management

A. Applicability 3-1
B. Federal Legislation 3-1
C. State/Local Regulations 3-2
D. Key Compliance Requirements 3-2
E. Key Compliance Definitions 3-5
F. Records to Review 3-13
G. Physical Features to Inspect 3-13
H. Guidance for Checklist Users 3-14

Appendices

A3-1. Compliance Dates for MSWLFs and 40 CFR 258 ..... A3-1
A3-2. MSWLF Units Exempt from Compliance with 40 CFR 258 ..... A3-2
A3-3. Constituents for Detection Monitoring A3-3
A3-4. List of Hazardous Inorganic Constituents A3-6
A3-5. Design Criteria Concentration Values A3-22

A. Applicability

This section addresses the collection, storage,and disposal of solid waste at facilities. Solid waste is considered to be non-hazardous trash, rubbish, garbage, bulky wastes, liquids,or sludges. The handling and disposal of asbestos waste materials are addressed in the Air Pollution Control protocol.

Recycling and resource recovery activities are also included in this section because they are considered a form of solid waste management.

Assessors are required to review agency, Federal, state,and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. Resource Conservation and Recovery Act (RCRA) of 1976

This is the Federal law which governs the disposal of solid waste. Subtitle D of this Act, as last amended in November 1984 (Public Law (P.L.) 98-616; 42 U.S. Code (USC) 6941-6949a), establishes Federal standards and requirements for state and regional authorities respecting solid waste disposal. The objectives of this subtitle are to assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources recoverable from solid waste. The objectives are to be achieved through Federal, technical, and financial assistance to states and regional authorities for comprehensive planning (42 USC 6941)

2. The Solid Waste Disposal Act of 1965, as amended

This Act requires that Federal facilities comply with all Federal, state, interstate, and local requirements concerning the disposal and management of solid wastes. These requirements include permitting, licensing, and reporting.

3. The Occupational Safety and Health Act (OSHA)

The general purpose of this Act is to assure, as much as possible, that every individual working in the United States has safe and healthful working conditions. The control of medical waste is one aspect of assuring safe and healthy working conditions.

4. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

5. EO 12873, Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy

This EO, dated 31 October 1991, requires Federal agencies to promote cost-effective waste reduction and recycling of reusable materials from wastes generated at their activities. Federal agencies are required to initiate a program to promote cost-effective waste reduction through: (1) practices that reduce waste generation and (2) the recycling of materials such as paper, plastic metals, glass, used oil, lead acid batteries, and tires and the composting of organic materials such as yard waste.

C. State/Local Regulations

The Federal government sets minimum national standards for municipal solid waste landfilling in 40 CFR Part 258, but state and local governments are responsible for implementing and enforcing waste programs. States are required to develop their own programs based on the Federal regulations. Most states and municipalities have already developed their own regulations governing the permitting, licensing, and operations of landfills, incinerators, and source separation/recycling programs.

States are required to incorporate revised criteria for Municipal Solid Waste Landfills (MSWLF) into their permit programs and gain approval from EPA. States that apply for and receive EPA approval of their programs have the opportunity to provide a lot of flexibility in implementing the regulations. This flexibility allows states to take local conditions into account and gives them the authority to alter some of the requirements. Evaluators will need to determine if a state has been granted approval for the 40 CFR Part 258 Program in order to accurately assess compliance with the criteria. Many states have also instigated categories of special wastes which cannot be placed in landfills or dumps, or may only be disposed of under specific circumstances.

D. Key Compliance Requirements

1. Storage/Collection

Facilities are required to store all solid wastes and materials separated for recycling so that it does not cause a fire, safety, or health hazard. All facilities are required to operate their collection systems in a manner to protect the health and safety of personnel associated with the operation. All collection equipment is required to have a suitable cover to prevent spillage; and the equipment is required to be constructed, operated, and maintained adequately. All facilities are required to collect solid wastes or materials separated for recycling, according to a certain schedule, and in a safe efficient manner (40 CFR 243.200-1, 243.201-1, 243.202-1(a) through 243.202-1(c), 243.203-1, 243.204-1).

2. Solid Waste Containers

Facility personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP).

3. Recycling

Facilities should establish a program to implement state or local recycling requirements and reduce the volume of solid waste materials at the source whenever practical. Facilities with offices of over 100 office workers are required to recover high-grade paper. Facilities at which more than 500 families reside are required to recycle newspapers. Any facility generating 10 tons (10,160.5 kg) or more of waste corrugated containers per month is required to segregate or collect them separately for recycling or alternate energy use (40 CFR 246.200-1 and 246.202-1).

4. Specific Wastes

Bulky wastes must be disposed of according to certain methods which differ depending on the variety of waste (i.e., automobile bodies, furniture and appliances) are required to be salvaged or crushed and pushed onto the working face near the bottom of the cell. Water treatment plant sludges containing no free moisture and digested or heat treated wastewater treatment plant sludges, must be disposed of by covering them with soil or municipal solid wastes. Incinerator and air pollution control residues must be disposed of by covering them as necessary to prevent their becoming airborne (40 CFR 241.200-3).

5. Land Disposal Site Operations other than a MSWLF

Facilities are required to place cover material over landfilled waste at the end of each operating day. Land disposal sites that accept special wastes must have approval from the responsible agency. Facilities that operate land disposal sites are required to provide a list of excluded materials to regular users, to operate the sites in a manner that will protect water quality and air quality, and control decomposition gases and vectors. Land disposal sites are required to be designed and operated in an aesthetically acceptable manner, and to be designed, constructed, and operated to protect the health and safety of personnel. Land disposal site cover material is required to minimize fire hazards, infiltration of precipitation, odors and litter, control gas venting and vectors, discourage scavenging, and provide a pleasing appearance. Municipal solid waste and cover material must be compacted to the smallest practicable volume. The operators of land disposal sites are required to maintain records and monitoring data (40 CFR 241.200-3(a), 241.201-2, 241.201-3, 241.204-3, 241.205-3 241 206-241 211, and 241 212-3(a))

6. Land Disposal Site Closure other than a MSWLF

Upon closure of a site, a detailed description is required to be recorded with the area's land recording authority (40 CFR 241.212-3(b)).

7. New Landfills other than MSWLFs

New landfills are required to meet certain location and design criteria, which include evaluation of hydrogeology and onsite soil characteristics and verification of easy access to

vehicles. Plans for the design, construction, and operation of new sites or modification to existing sites are required to be prepared or approved by a professional engineer (40 CFR 241.202-2 and 40 CFR 241.203-1).

8. Municipal Solid Waste Landfills (MSWLF)

MSWLFs must meet restrictions for location, the types of waste to be placed in them, and the types of monitoring required. Limitations, design criteria, and closure requirements vary depending on whether it is a new or existing MSWLF (40 CFR 258).

9. Thermal Processing Facilities

Facilities that are designed to process or are processing 50 tons (45,359.24 kg) or more per day of municipal solid wastes must be operated in a manner that prevents water and/or air contamination. Additionally there must be an operating plan that specifies procedures and precautions to be taken if unacceptable wastes are delivered to or left at the thermal processing facility. The residue and solid waste resulting from the thermal processing must be disposed of in a manner that prevents environmental damage (40 CFR 240).

10. Resource Recovery Facilities

Resource recovery facilities have to be designed to process at least 65 percent by wet weight of the input solid waste to recycled material, fuel, or energy (40 CFR 245).

11. Medical Waste

Contaminated reusable sharps and other regulated wastes are required to be placed in puncture resistant, color coded, leakproof containers as soon as possible after use until properly reprocessed. Specimens of blood or other potentially infectious material are required to be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping and specific labeling and handling requirements are to be followed (29 CFR 1910.1030(d)).

12. Medical Waste Containers

All bins, cans, and other receptacles intended for reuse that have the likelihood of becoming contaminated with blood or other potentially infectious materials are required to be inspected and decontaminated on a regularly scheduled basis. Labels affixed to containers of regulated wastes, refrigerators and freezers containing blood, and other containers used to store, transport, or ship blood or other potentially infectious materials must meet specific standards, which include the biohazard symbol, and being colored a fluorescent orange with contrasting-colored lettering and symbols (29 CFR 1910.1030(d)(4)(ii)(c) and 1910.1030(g)(1)(i)).

E. Key Compliance Definitions

1. Active Life

The period of operation beginning with the initial receipt of solid waste and ending with the completion of closure activities (40 CFR 258.2).

2. Active Portion

That part of a facility or unit that has received or is receiving wastes and has not been closed (40 CFR 258.2).

3. Aquifer

A geological formation, group of formations, or a portion of a formation capable of yielding significant quantities of groundwater to wells or springs (40 CFR 258.2).

4. Blood

Human blood, human blood components, and products made from human blood (29 CFR 1910.1030(a))

5. Bottom Ash

The solid material that remains on a hearth or falls off the grate after thermal processing is complete (40 CFR 240 101(b)).

6. Bulky Wastes

Large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize wastes which large size precludes or complicates their handling by normal solid waste collection, processing, or disposal methods (40 CFR 243.101)

7. Cell

Compacted solid wastes that are enclosed by natural soil or cover material in a land disposal site (40 CFR 241.101).

8. Collection

The act of removing solid waste (or materials which have been separated for the purpose of recycling) from a central storage point (40 CFR 243.101).

9. Commercial Solid Waste

All types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential, and industrial wastes (40 CFR 243.101).

10. Construction and Demolition Wastes

The waste building materials, packaging, and rubble resulting from the construction, renovation, repair, and demolition operation on pavements, houses, commercial buildings, and other structures (40 CFR 243.101).

11. Contaminated

The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface (29 CFR 1910.1030(a)).

12. Contaminated Sharps

Any contaminated object that can penetrate the skin, including but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires (29 CFR 1910.1030(a)).

13. Corrugated Container Waste

Discarded corrugated boxes (40 CFR 246.101).

14. Cover Material

Soil or other suitable material that is used to cover compacted solid wastes in a land disposal site (40 CFR 241.101).

15. Daily Cover

Cover material that is spread and compacted on the top and side slopes of compacted solid wastes at least at the end of each operating day in order to control vectors, fire, moisture, and erosion and to assure an aesthetic appearance (40 CFR 241.101).

16. Decontamination

The use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface of item is rendered safe for handling, use, or disposal (29 CFR 1910.1030(a)).

17. Design Capacity

The weight of solid waste of a specified gross caloric value that a thermal processing facility is designed to process in 24 hours of continuous operation (40 CFR 240.101(d)).

18. Existing MSWLF Unit

Any MSWLF unit that is receiving solid waste as of the appropriate dates specified in (40 CFR 258.1(e) see Appendix 3-1). Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management (40 CFR 258.2).

19. Facility

All contiguous land and structures, other appurtenances and improvements on the land use for the disposal of solid waste (40 CFR 258.2).

20. Final Cover

Cover materials that serve the same function as daily cover but, in addition, may be permanently exposed on the surface (40 CFR 241.101).

21. Fly Ash

Suspended particles, charred paper, dust, soot, and other partially oxidized matter carried in the products of combustion (40 CFR 240.101).

22. Food Waste

The organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage (40 CFR 243.101).

23. Garbage

In relation to solid waste coming from outside the continental United States, it is all waste material derived in whole or in part from fruits, vegetables, meats, or other plant or animal material, and other refuse of any character whatsoever that has been associated with any such material on board any means of conveyance including: food scraps, table refuse, galley refuse, food wrappers, or packaging materials, and other water materials from stores, food preparation areas, passengers; or crews quarters, dining rooms, or any other areas or means of conveyance. It also means meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed (7 CFR 330.400(b)).

24. Groundwater

Water present in the unsaturated zone of an aquifer (40 CFR 241.101).

25. High-grade Paper

Letterhead, dry copy papers, miscellaneous business forms, stationary, typing paper, tablet sheets, and computer printout paper and cards commonly sold as "white ledger", "computer printout," and "tab card" grade by the wastepaper industry (40 CFR 246.101).

26. Household Waste

Any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use-recreation areas) (40 CFR 258.2).

27. Indian Lands of Indian Country

This means (40 CFR 258.2):

a. All land within the limits of any Indian reservation under the jurisdiction of the U.S. Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation;

b All dependent Indian communities within the borders of the U. S. whether within the original or subsequently acquired territory thereof, and whether within or without the limits of the state; and

c. All Indian allotments, the Indian titles to which have not been extinguished, including rights of way running through the same.

28. Indian Tribe

Any Indian tribe, band, nation, or community recognized by the Secretary of the Interior (SOI) and exercising substantial governmental duties and powers on Indian lands (40 CFR 258.2).

29. Industrial Solid Waste

The solid waste generated by industrial processes and manufacturing that is not a hazardous waste (40 CFR 243.101).

30. Industrial Solid Waste

In relation to MSWLF, solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/byproducts; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste (40 CFR 258.2).

31. Infectious Waste

This includes (40 CFR 240.101):

a. Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies;

b. Laboratory wastes such as pathological specimens and disposable fomites (any substance that may harbor or transmit pathological organisms);

c. Surgical operating room pathological specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

32. Institutional Solid Waste

Solid wastes generated by educational, health care, correctional, and other institutional facilities (40 CFR 243.101).

33. Intermediate Cover

Cover material that serves the same function as daily cover but must resist erosion for a longer period of time, because it is applied in areas where additional cells are not to be constructed for extended periods of time (40 CFR 241.101).

34. Lateral Expansion

A horizontal expansion of the waste boundaries of an existing municipal solid waste landfill unit (40 CFR 258.2).

35. Leachate

Liquid that has percolated through solid waste and has extracted, dissolved, or suspended materials from it (40 CFR 241.101).

36. Leachate

In relation to MSWLFs, this is a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste (40 CFR 258.2).

37. Management Practice (MP)

Practices that although not mandated by law, are encouraged to promote responsible operating procedures.

38. Medical/Pathological Wastes

Any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. This does not include hazardous waste or household waste (40 CFR 259 10).

39. Municipal Solid Waste

Residential and commercial solid wastes generated within a community (40 CFR 240.101).

40. Municipal Solid Waste Landfill (MSWLF) Unit

A discrete area of land or an excavation that received household waste and that is not a land application unit, surface impoundment, injection well, or waste pile. It may also receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit, or a lateral expansion (40 CFR 258 2).

41. New MSWLF Unit

Any MSWLF unit that has not received wastes prior to 9 October 1993 or prior to 9 October 1995 if the MSWLF unit disposes of less than 20 tons (18,143,699 kg) of municipal solid waste daily based on an annual average and the MSWLF unit serves either (40 CFR 258.2):

a. A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility; or

b. A community that has no practicable waste management alternative and the landfill is located in an areas that annually receives less than or equal to 25 in (62.5 cm) of precipitation.

42. Open Burning

In relation to MSWLFs, the combustion of solid waste without (40 CFR 258.2):

a. Control of combustion air to maintain adequate temperature for efficient combustion;

b. Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

c. Control of the emission of the combustion products.

43. Open Burning

Burning of solid wastes in the open (such as in an open dump) (40 CFR 240.101(r)).

44. Open Dump

A land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers (40 CFR 240.101).

45. Recoverable Resource

Materials that still have useful physical, chemical, or biological properties after serving their original purpose and can, therefore, be reused or recycled for the same or other purposes (40 CFR 245.101).

46. Recycled Material

A material that is utilized in place of a primary, raw, or virgin material in manufacturing a product (40 CFR 245.101).

47. Recycling

The process by which recovered materials are transformed into new products (40 CFR 245.101).

48. Regulated Wastes

Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated sharps, and

pathological and microbiological wastes containing blood or other potentially infectious materials (29 CFR 1910.1030(a)).

49. Residential Solid Waste

The wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes (40 CFR 243.101).

50. Resource Recovery Facility

Any physical plant that processes residential, commercial, or institutional solid waste biologically, chemically, or physically, and recovers useful products (40 CFR 245.101).

51. Runoff

The portion of precipitation that drains from an area as surface flow (40 CFR 241.101).

52. Runoff

In relation to MSWLF, any rainwater, leachate, or other liquid that drains over land from any part of a facility (40 CFR 258.2).

53. Runon

Any rainwater, leachate, or other liquid that drains over land onto any part of a facility (40 CFR 258.2).

54. Sanitary Landfill

A land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers; compacting the solid wastes to the smallest practical volume; and applying and compacting cover material at the end of each operating day (40 CFR 240 101).

55. Separate Collection

Collection of recyclable materials which have been separated at the point of generation and keeping those materials separated from other collected solid waste in separate compartments of a single collection vehicle or through the use of separate collection vehicles (40 CFR 246.101).

56. Sludge

The accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins (40 CFR 240.101).

57. Sludge

In relation to MSWLF, any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant (40 CFR 258 2)

58. Solid Waste

In relation to MSWLF, any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 USC 1342, or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 932) (40 CFR 258.2).

59. Solid Waste

Garbage, refuse, sludge, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources (40 CFR 240.101)

60. Source Separation

The setting aside of recyclable materials at their point of generation by the generator (40 CFR 246.101).

61. Special Wastes

Nonhazardous solid wastes requiring handling other than that normally used for municipal solid wastes (40 CFR 240.101).

62. Thermal Processing

Processing of waste material by means of heat (40 CFR 240 101).

63. Transfer Station

A station at which solid wastes are concentrated for transport to a processing facility or land disposal site. A transfer station may be fixed or mobile (40 CFR 243.101).

64. Universal Precautions

An approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens (29 CFR 1910.1030(a)).

65. Uppermost Aquifer

The geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary (40 CFR 258.2).

66. Vector

A carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another (40 CFR 240.202).

67. Waste Management Unit Boundary

A vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer (40 CFR 258.2).

68. Working Face

That portion of the land disposal site where solid wastes are discharged and are spread and compacted prior to the placement of cover material (40 CFR 241.101).

F. Records to Review

- Inventory of solid waste streams generated;
- Record of current non-hazardous solid waste management practices;
- Documentation of locations (map) and descriptions of all nonhazardous waste storage, and disposal sites;
- Records of operational history of all active and inactive disposal sites;
- State and Federal inspection reports;
- Environmental monitoring procedures or plans;
- Records of resource recovery practices, including the sale of materials for the purpose of recycling;
- Solid waste removal contracts and inspection records;
- Operating record for onsite MSWLFs;
- Facility procedures for quantifying and classifying generation of solid wastes;
- Facility procedures for determining whether solid wastes are hazardous or nonhazardous;
- Procedures to ensure that only allowable wastes are accepted at nonhazardous waste; treatment and disposal facilities; and
- Site plans and drawings.

G. Physical Features to Inspect

- Resource recovery facilities;
- Incineration and land disposal sites (active and inactive);
- Areas where nonhazardous waste is collected;
- Construction debris areas;
- Waste receptacles,
- Solid waste vehicle storage and washing areas;
- Compost facilities;
- Transfer stations,
- Recycling centers, and
- Solid waste collection vehicles and trailer.

H. Guidance For Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	SW 1 through SW 3	3-16
Storage/Collection of Solid Waste	SW 4 through SW.6 SW.7 through SW 11 SW.12	3-17 3-18 3-29
Recycling	SW 13 through SW 16 SW 17	3-19 3-20
Land Disposal		
Specific Wastes	SW 18 through SW 21	3-20
Operations	SW 22	3-20
	SW 23 through SW 25	3-21
	SW.26 through SW.30	3-22
	SW 31 through SW 33	3-23
	SW 34 through SW 36	3-24
	SW. 37 through SW 39	3-25
	SW 40	3-26
Closure	SW 41	3-26
Site Criteria For New Landfills Other Than MSWLFs	SW 42 through SW 43 SW 44	3-26 3-27
Municipal Solid Waste Landfills		
Location Restrictions	SW 45 through SW.46	3-27
	SW 47 through SW 49	3-28
	SW 50	3-29
Operating Criteria	SW 51 through SW 52	3-29
	SW 53 through SW.57	2-30
	SW 58 through SW 61	3-31
Groundwater Monitoring Criteria	SW.62	3-32
	SW 63 through SW 64	3-33
	SW.65	3-34
	SW 66 through SW 67	3-35
	SW.68 through SW 69	3-36
	SW 71	3-37
	SW 72 throught SW.73	3-38
	SW 74	3-39
Closure Criteria	SW 75 through SW 78	3-40
	SW 79	3-41
Post-closure Care Requirements	SW 79 through SW 81	3-41
Design Criteria	SW 83 through SW 84	3-42

	Refer To	
	Checklist Items	**Page Numbers**
Thermal Processing Facilities	SW 85 through SW 86 SW 87 through SW 89 SW 90 through SW 93 SW 94 through SW 96 SW.97 SW 98	3-42 3-43 3-44 3-45 3-46 3-47
Resource Recovery Facilities	SW 99 and SW 100	3-48
Disposal of Refuse From Outside the United States	SW 101	3-49
Medical Waste	SW.102 through SW 103 SW 104 through SW 106 SW 107	3-49 3-50 3-51

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
SW 1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation.)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions If there are open items, document what corrective action is planned and review progress on the plan to ensure that it is being implemented
SW 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.)	Determine if any new regulations have been issued since the finalization of the guide. Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations.
SW 3 Facilities are required to comply with state and local solid waste regulations concerning solid waste management (EO 12088, Sect. 1-1)	Verify that the facility is abiding by state and local solid waste requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE: Issues typically regulated by state and local agencies include - License or permit requirements for existing onsite landfills - Requirements for filing a closure plan for onsite landfills specifying monitoring and inspection procedures - Design and operation specifications for solid waste receptacles - Disposal of solid waste off-site only at licensed or permitted facilities - Design and operating requirements for thermal processing of solid waste - Characterization of ash residues and sludge from air pollution control devices at coal-fired facility heating plant operations and waste combustion facilities before sale or disposal - Handling and disposal of medical, pathological, and infectious waste - Recycling requirements - Disposal of household wastes - Yard waste - Disposal of used tires, sludge, construction and demolition waste, and other special wastes - Prescribed burning.)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
Storage/Collection of Solid Waste	
SW 4 Facilities are required to store all solid wastes and all materials separated for recycling according to specific guidelines (40 CFR 243 200-1)	(NOTE Federal agencies that have decided not to adopt the requirements contained in 40 CFR 243 are required to provide a report of the analysis and rationale used) Verify that all solid wastes are stored so as not cause a fire, health or safety hazard or provide a harbor for vectors Verify that all solid waste containing food wastes are stored in covered or closed containers which are nonabsorbent, leakproof, durable, easily cleaned, and designed for safe handling Verify that waste is contained or bundled so as to not result in spillage Verify that solid waste containers are of an adequate size and number to contain all waste generated between collections Verify that bulky wastes are stored so as not to create a nuisance and to avoid the accumulation of solid waste and water in and around the bulky items Verify that reusable containers are capable of being serviced without the collector coming into contact with the waste
SW 5 All facilities are required to operate their collection systems in a manner to protect the health and safety of personnel associated with the operation (40 CFR 243 201-1)	Verify that the collection system is operated safely
SW 6 Facilities are required to maintain collection equipment according to certain standards if such equipment is considered to be operating in interstate or foreign commerce (40 CFR 243 202-1(a))	Verify that all vehicles used by the Federal agency for the collection and transportation of solid waste meet all applicable standards established by the Federal Government including - Motor Carrier Safety Standards (49 CFR Parts 390 through 396) - Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce (40 CFR Part 202) - Federal Motor Vehicle Safety Standards (49 CFR Parts 500 through 580) federally owned collection equipment only)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW.7. All collection equipment is required to meet specific criteria (40 CFR 243 202-1(b) and 243 202-1(d))	Verify that all vehicles used for collection and transportation of solid wastes or materials separated for recycling are enclosed or have other provisions to prevent spillage. Verify that equipment used in the compaction, collection, and transportation of solid waste or materials separated for recycling are constructed, operated, and maintained adequately Verify that the following types of equipment meet the standards established by the American National Standards Institute (ANSI): - Rear-loading compaction equipment - Side-loading compaction equipment - Front-loading compaction equipment - Tilt-frame equipment - Hoist-type equipment - Satellite vehicles - Special collection compaction equipment - Stationary compaction equipment
SW.8 All facilities are required to collect solid wastes or materials separated for recycling according to a certain schedule (40 CFR 243.203-1)	Verify that solid wastes which contain food wastes are collected at a minimum of once during each week Verify that bulky wastes are collected at a minimum of once every 3 months Verify that all wastes are collected with sufficient frequency to inhibit the propagation or attraction of vectors and the creation of nuisances
SW 9 Facilities are required to collect solid wastes in a safe, efficient manner (40 CFR 243 204-1)	Verify that solid wastes or materials separated for recycling are collected in a safe efficient manner Verify that the collection vehicle operator immediately cleans up any spillage caused by his operations
SW 10. As a management practice, facility industrial shop waste receptacles should be inspected quarterly to verify that hazardous wastes and recyclables are not being deposited (MP)	Verify that receptacles were inspected by reviewing records and interviewing personnel Verify that corrective actions were taken where indicated Verify that hazardous waste is not present in the solid waste receptacles at shops by a visual check
SW.11 Facility personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP).	Verify that a program exists at the facility to keep personnel informed about proper waste disposal practices

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 12 Solid waste storage should meet certain design criteria to discourage litter, leachate discharge, and odors	Verify that waste containers are leakproof Verify that containers are stored on a firm, level, well drained surface Verify that single use bags containing food waste are stored within the confines of a building or container Verify that waste does not remain in collection vehicles for over 24 hours
Recycling	
SW 13 Facilities should participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical (state and local regulations)	Verify that a solid waste reduction program exists Verify that records or solid waste generation, reduction, and recycling are maintained Verify that recycling programs are in compliance with applicable state or local requirements Verify that reusable or marketable materials are collected at regular intervals
SW 14 Facilities with office facilities of over 100 office workers are required to recover high grade paper (40 CFR 246 200-1)	Determine if the facility has over 100 office workers Verify that highgrade paper is separated at the source of generation Verify that highgrade paper is separately collected Verify that highgrade paper is sold for recycling
SW 15 Commercial facilities should collect and recycle newspapers (MP)	Verify that used newspapers are separated at the source of generation Verify that used newspapers are separately collected Verify that used newspapers are sold for recycling
SW 16 Facilities should maximize recycling plan (MP)	Verify that facilities with less than 100 office workers recover high grade paper; with less than 500 families on-site recovery newspapers, and that generate less than 10 tons per month of corrugated containers have a corrugated recycling program Verify that the facility has performed an analysis to determine the feasibility of recycling specific solid waste streams (e g , aluminum, plastics, glass, etc)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 17 Facilities generating 10 tons (10,160 47 kg) or more of waste corrugated containers per month are required to segregate/separately collect for recycling or alternative energy use (40 CFR 246 202-1)	Determine if the facility generates 10 tons (10,160 47 kg) or more of waste corrugated containers per month Verify that waste corrugated containers are collected separately Verify that waste corrugated containers are recycled or used as an alternative energy resource
Land Disposal Facilities other than a MSWLF	
Specific Wastes	
SW 18 Facilities will identify what wastes can and cannot be accepted at the disposal facility in conjunction with the responsible agency (40 CFR 241.200-1)	Verify that the facility has specifically identified what wastes can and cannot be accepted for disposal at the site
SW 19. Bulky wastes should be disposed of according to certain methods (MP)	Verify that automobile bodies, furniture, appliances and other bulky wastes are either salvaged or crushed (NOTE This MP is based on recommendations found in 40 CFR 241-200-3(b))
SW 20 Water treatment plant sludges containing no free moisture and digested or heat treated wastewater treatment plant sludges should be disposed of according to certain methods (MP)	Verify that water treatment plant sludges containing no free liquids and digested or heat treated wastewater treatment plant sludges are covered with soil or municipal solid wastes (NOTE This MP is based on recommendations found in 40 CFR 241 200-3(d))
SW 21 Incinerator and air pollution control residues should be disposed of according to certain methods (MP)	Verify that incinerator residues contain no free moisture and are covered as necessary to prevent them from becoming airborne (NOTE: This MP is based on recommendations found in 40 CFR 241 200-3(e).)
Operations	
SW.22 Facilities should place cover material on waste at the end of each operating day (MP)	Verify that daily cover material is put in place by arriving at the site before it opens or after it closes (NOTE This MP is based on recommendations in 40 CFR 241 200-3(a))

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 23 Using information from the generation sources on the facility, the disposal site operator and the responsible agency are required to determine specific wastes that are excluded from disposal and identify them in plans (40 CFR 241.201-1)	Verify that the disposal site has designated what wastes are excluded from disposal at the site Verify that the list of excluded wastes is documented in a plan
SW 24 Facilities which operate land disposal facilities should provide a list of excluded materials to regular users (MP).	Verify that a list of excluded materials is displayed prominently at the site entrance Verify that a list of excluded materials is given to all regular users of the site (NOTE This MP is based on recommendations found in 40 CFR 241.201-3)
SW 25 The location, construction, and design of land disposal sites are required to meet the most stringent of applicable water quality standards and/or be constructed, located, designed, and operated in a manner to provide adequate protection to ground and surface waters used as drinking water supplies (40 CFR 241 204-1).	Verify that applicable water quality standards are met and ground and surface water used as drinking water supplies are protected Verify that the land disposal site is linked with a clay or artificial liner and that groundwater and surface waters are periodically monitored for contaminants

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 26 Land disposal sites should be operated in a manner which will protect water quality (MP)	Verify that surface water is diverted from the land disposal site Verify that the land disposal site is constructed and graded to promote rapid surface water runoff without excessive erosion Verify that regrading is done as necessary to avoid ponding of precipitation and to maintain cover material integrity Verify that siltation or retention basins or other approved methods of retarding runoff are used where necessary to avoid stream siltation or flooding problems. Verify that leachate collection and treatment systems are used where necessary to protect groundwater and surface water resources Verify that municipal solid wastes and leachate are not in contact with groundwater or surface water (NOTE. This MP is based on recommendations found in 40 CFR 241.204-3.)
SW 27. Land disposal sites should operate in a manner which will protect air quality (MP)	Verify that there is no open burning of municipal solid wastes. Verify that dust control measures are initiated as necessary. NOTE This MP is based on recommendations found in (40 CFR 241.205-3.)
SW 28. Land disposal sites are required to control decomposition gases as necessary to avoid posing a hazard to occupants of adjacent property (40 CFR 241 206-1)	Verify that land disposal sites are controlling decomposition gases
SW 29 Land disposal sites should control decomposition gases according to the following recommended procedures (MP)	Verify that decomposition gases are not allowed to migrate laterally from the land disposal site. Verify that decomposition gases do not pose an explosion or toxicity hazard (NOTE: This MP is based on recommendations found in 40 CFR 241 206-3)
SW 30 Land disposal facilities are required to control vectors (40 CFR 241.207-1)	Verify that conditions are maintained that are unfavorable for the harboring, feeding, and breeding of vectors

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 31 Land disposal facilities are required to be designed and operated in an aesthetically acceptable manner (40 CFR 241 208-1).	Verify that the disposal facility is designed and operated in an aesthetically acceptable manner.
SW 32 For the land disposal facility to be aesthetically acceptable, specific practices should be followed (MP)	Verify that the facility has a litter control program Verify that blowing litter is controlled through portable litter fences or other devices Verify that wastes that are easily moved by wind are covered as necessary to prevent their becoming airborne Verify that onsite vegetation is cleared only as necessary Verify that natural windbreaks are maintained Verify that buffer strips and/or berms are used to screen the site from nearby residences and major roadways Verify that salvage material is removed from the site frequently (NOTE This MP is based on recommendations found in 40 CFR 208-3)
SW 33 Land disposal facility cover material must meet certain criteria (40 CFR 241 205-1)	Verify that cover material is applied as necessary to. - Minimize fire hazards - Minimize infiltration of precipitation - Minimize odors - Minimize blowing litter - Control gas venting - Control vectors - Discourage scavenging - Provide a pleasing appearance

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 34 Cover material should be applied according to specific recommendations (MP)	Verify that plans specify (1) cover material sources and soil classification, (2) surface grades and sideslopes needed to promote maximum runoff, (3) procedures to promote negative growth, and (4) procedures to maintain cover material integrity Verify that cover material is applied daily regardless of weather Verify that the thickness of the compacted daily cover is no less than 6 inches (15 24 cm) Verify that intermediate cover is applied on areas where additional cells are not to be constructed for extended periods of time (between one week and one year). Verify that final cover is applied on each area as it is completed or if the area is to remain idle for over one year Verify that the surface grade promotes surface water runoff without erosion to minimize infiltration Verify that intermediate cover is at least 1 ft (0 30 m) thick and final cover is at least 2 ft (0 61 m) thick (NOTE This MP is based on recommendations found in 40 CFR 205-3.)
SW.35 Municipal solid waste and cover material must be compacted to the smallest practicable volume (40 CFR 241.210-1).	Verify that the solid waste and cover material is compacted to the smallest practicable volume
SW 36 Compaction of wastes and cover materials should be done according to recommended procedures (MP).	Verify that on an operating day municipal solid waste handling equipment is capable of performing the following functions - Spread solid waste in layers no more than 2 ft (0 61 m) thick while confining it to the smallest practicable area - Compact the spread solid wastes to the smallest practicable volume - Place, spread, and compact the cover material daily Verify that procedures have been established to provide substitute equipment, maintenance facilities, and equipment Verify that compacting equipment is subject to a preventative maintenance program. (NOTE. This MP is based on recommendations found in 40 CFR 214.210-2.)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 37 Land disposal facilities are required to be designed, constructed, and operated to protect the health and safety of personnel (40 CFR 241 211-1)	Verify that the health and safety of personnel are a consideration in the design, construction and operation of the site
SW 38 Specific health and safety procedures should be followed in order to protect personnel at land disposal sites (MP)	Verify that a safety manual is available to employees. Verify that personal safety devices such as hearing and eye protection, are provided to facility employees Verify that equipment is provided with safety devices Verify that provisions to extinguish fires exist Verify that communications equipment is available onsite Verify that scavenging is prohibited Verify that access to the site is controlled Verify that traffic signs or markers are provided to promote an orderly traffic pattern to and from the discharge area (NOTE This MP is based on recommendations found in 40 CFR 241 211-2 and 241 211-3)
SW 39 Operators of land disposal sites are required to maintain records and monitoring data to be provided, upon request, to the responsible agency (40 CFR 241 212)	Verify that required records are available NOTE Recommended records and monitoring data include - Records of major operational problems, complaints, or difficulties - Qualitative and quantitative evaluations of the environmental impact of the land disposal site - Vector control efforts - Dust and litter control efforts - Quantitative measurements of the solid wastes handled - Descriptions of the solid waste materials received, identified by source of materials - List monitoring data

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 40 Records being maintained at land disposal site should cover specific topics (MP)	Verify that records are maintained and cover at least - Major operational problems, complaints, or difficulties - Results of leachate sampling and analyses - Results of gas sampling and analyses - Results of groundwater and surface water quality sampling and analyses upstream and downstream of the site - Vector control efforts - Dust and litter control efforts - Source and quantity of the solid wastes handled (NOTE This MP is based on recommendations found in 40 CFR 241 212-3(a))
Closure	
SW 41 Upon closure of a site, a detailed description should be recorded with the area's land recording authority (MP)	Verify that upon closure of a site a detailed description is recorded with the area's land recording authority (NOTE This MP is based on recommendations found in 40 CFR 241 212-3(b))
Site Criteria For New Landfills Other than MSWLFS	
SW 42 Site selection and utilization are required to be consistent with public health and welfare, and air and water quality standards and adaptable to appropriate land-use plan (40 CFR 241 202-1)	Verify that the site and utilization are consistent with public health and welfare and other necessary environmental standards
SW 43. New landfills should meet certain location and design criteria (MP)	Verify that the hydrogeology of the site has been evaluated Verify that onsite soil characteristics have been evaluated Verify that environmental factors, climatological conditions, and socioeconomic factors have been considered in site selection Verify that the site is easily accessible to vehicles Verify that the site location will not attract birds and pose a hazard to low-flying aircraft (NOTE. This MP is based on recommendations found in 40 CFR 241 202-2)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 44 Plans for the design, construction, and operation of new sites or modifications to existing sites are required to be prepared or approved by a professional engineer (40 CFR 241 203-1)	Verify that plans have been prepared or approved by a professional engineer
Municipal Solid Waste Landfills (MSWLF)	
Location Restrictions (NOTE See Appendix 3-2 for a list of MSWLFs that are exempt from meeting the standards found in 40 CFR 258, except for the standards for final cover in 40 CFR 258 60(a) See Appendix 3-1 for a list of compliance dates for non-exempt MSWLFs)	
SW 45 Facilities are subject to limitations regarding the location of new, existing, or lateral expansions of MSWLFs within 10,000 ft (3048 m) of any airport runway end used by turbojet aircraft or within 5000 ft (1524 m) of any airport runway end used by only pistontype aircraft (40 CFR 258 10(a) through 258 10(c), and 258 16)	Verify that the facility has demonstrated that the MSWLF is designed and operated so as to not pose a bird hazard to aircraft. Verify that the facility has notified the Federal Aviation Administration (FAA) and the affected airport as to presence of the MSWLF Verify that the demonstration has been placed in the operating record and the state Director has been notified that it has been placed in the operating record Verify that existing MSWLF units that cannot make this demonstration, are closed by 9 October 1996, unless a delay is approved by the Director
SW 46. Facilities are subject to limitations regarding the location of new, existing, and lateral expansions of MSWLFs in 100 yr floodplains (40 CFR 258 11(a) and 258 16)	Verify that the facility has demonstrated that the MSWLF will not restrict the flow of the 100 year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste. Verify that existing MSWLF units that cannot make this demonstration, are closed by 9 October 1996, unless a delay is approved by the Director.

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW.47 Facilities are required to comply with limitations regarding the location of new MSWLFs and lateral expansions in wetland (40 CFR 258 12(a)(1) through 258.12(a)(3), and 258 16)	Verify that if the facility is planning to place a MSWLF or a lateral expansion in a wetlands, it has demonstrated to the Director that the construction of the MSWLF will not - Cause or contribute to violations of any applicable state water quality standard - Violate any applicable toxic effluent standard or prohibition - Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical protected habitat - Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1973 - Cause or contribute to significant degradation of wetlands Verify that the facility has demonstrated the integrity of the MSWLF and its ability to protect ecological resources by addressing the following factors - Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the MSWLF unit - Erosion, stability, and migration potential of dredged and fill materials used to support the MSWLF unit - The volume and chemical nature of the wastes managed in the MSWLF - Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste - The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment - Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.
SW 48 Facilities are subject to limitations regarding the location of new NSWLFs and lateral expansions in fault areas that have had displacement in Holocene time (40 CFR 258 12(a) and 258 16)	Verify that if the facility is planning to construct a MSWLF or lateral expansions within 200 ft (60 m) of a fault, it has demonstrated to the Director that an alternative setback distance of less than 200 ft (60 m) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment
SW.49 Facilities are subject to limitations regarding the placement of new MSWLFs and lateral expansions in seismic impact zones (40 CFR 258 14(a) and 258 16)	Verify that if the facility is planning to construct a MSWLF or lateral expansion in a seismic impact zone, it has demonstrated to the Director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. Verify that the demonstration has been placed in the operating record and the state Director has been notified that it has been placed in the operating record

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 50 Facilities are subject to limitations regarding the location of new, existing, or lateral expansion of MSWLFs in unstable areas (40 CFR 258 15(a) and 258 16)	Verify that if the facility has or is planning to construct a MSWLF or lateral expansion in an unstable area, it has demonstrated to the Director that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components will not be disrupted Verify that the following criteria, at a minimum, are considered in judging whether or not an area is unstable· - Onsite or local soil conditions that may result in significant differential settling - Onsite or local geologic or geomorphic features - Onsite or local human-made features or event (both surface and subsurface) Verify that the demonstration has been placed in the operating record and the state Director has been notified that it has been placed in the operating record Verify that existing MSWLF units that cannot make this demonstration are closed by 9 October 1996, unless a delay is approved by the Director
Operating Criteria	
SW.51 MSWLFs are subject to requirements pertaining to procedures for excluding hazardous wastes from the landfills (40 CFR 258 20(a))	Verify that the MSWLF has a program for detecting and preventing the disposal of regulated hazardous wastes, as defined in 40 CFR 261, and Polychlorinated Biphenyls (PCB) wastes that includes the following. - Random inspections of incoming loads, unless other steps are taken to ensure incoming loads do not contain hazardous wastes or PCBs wastes - Records of any inspections - Training of facility personnel to recognize hazardous wastes and PCB wastes - Notification of State Director of authorized states or the EPA Regional Administrator if a regulated hazardous waste or PCB waste is discovered at the facility
SW 52 MSWLFs are subject to requirements pertaining to cover materials (40 CFR 258 21)	Verify that all MSWLF units have solid waste covered with 6 in (15.24 cm) of earthen material, or another approved material at an alternative thickness, at the end of each operating day or more frequently, if necessary, in order to control disease vectors, fires, odors, blowing litter, and scavenging (NOTE. Alternative cover material and thickness must be approved by the appropriate authority and a temporary waiver may be granted by the appropriate authority under particular extreme climatic conditions)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW.53 MSWLFs are subject to requirements pertaining to the control of disease vectors (40 CFR 258 22(a)).	Verify that at the MSWLF there is prevention or control of onsite populations of disease vectors using techniques appropriate for the protection of human health and the environment List examples of vector population controls
SW 54. MSWLFs are subject to specific requirements pertaining to the production and monitoring of methane gases (40 CFR 258 23(a) and 258 23(b))	Verify that at the MSWLF the concentration of methane gas generated by the MSWLF does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components) Verify the concentration of methane gas at the MSWLF property boundary does not exceed the lower explosive limit for methane Verify that the MSWLF implements a routine methane monitoring program of a type and frequency that is based on the following factors· - Soil conditions - Hydrogeological conditions surrounding the MSWLF - Hydraulic conditions surrounding the MSWLF - Locations of MSWLF structures and property boundaries Verify that monitoring occurs quarterly at a minimum
SW 55 MSWLFs are subject to notification criteria pertaining to excessive methane gas releases (40 CFR 258 23(c))	Verify that if methane gas monitoring detects levels of gas exceeding the allowed limits, the following measures are taken. - All necessary steps are taken to ensure protection of human health - The Director is notified, of the protective measures - Within seven days of detection, the level of methane gas detected and the steps taken to protect human health is noted in the operating record - Within 60 days of detection, a remediation plan for the methane gas release is placed in the operating record and the Director is notified that the plan has been implemented (NOTE The Director of an approved state may establish alternative schedules for demonstrating compliance with these requirements)
SW.56. MSWLFs are required to control emissions (40 CFR 258 24)	Verify that there is no open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup
SW 57 MSWLFs are subject to access limitations (40 CFR 258 25)	Verify that the facility controls public access to the MSWLF and prevents unauthorized vehicular traffic and illegal dumping of wastes through the use of artificial barriers, natural barriers, or both

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 58 MSWLFs are subject to surface water control requirements (40 CFR 258 27)	Verify that the MSWLF does not cause a discharge of pollutants into waters of the United states, including wetlands, that causes noncompliance with the CWA or NPDES requirements (NOTE This includes discharges of a nonpoint source of pollution that violates any approved area-wide or state-wide water quality management plan)
SW 59 The disposal of liquids at MSWLFs is restricted (40 CFR 258 28)	Verify that bulk or non-containerized liquid waste is not placed in MSWLF unless. - The waste is household waste other than septic waste - The liquid waste is in a small container similar in size to that normally found in household waste - The container holding the waste is designed to hold liquids for use other than storage - The waste is leachate or gas condensate derived from the MSWLF (as long as the MSWLF is designed with a composite liner and leachate collection system). Verify that if the waste is leachate or gas condensate derived from a MSWLF designed with composite liner and leachate collection system, the facility demonstrates to the Director that the MSWLF is of such a design and the demonstration is recorded in the operating record
SW 60 MSWLFs are required to maintain records (40 CFR 258 29(a) and 258 29(c))	Verify that the following records are retained in an operating record near the MSWLF or at an approved alternate location - Any location restriction demonstration - Inspection records, training procedures, and notification procedures - Gas monitoring results from monitoring and any remediation plans - Any MSWLF unit design documentation for placement of leachate or gas condensate in MSWLF - Any demonstration, certification, finding, monitoring, testing, or related analytical data - Closure and post-closure care plans and any monitoring, testing, or related analytical data - Any information demonstrating compliance with small community exemption Verify that the facility notifies the Director when the above listed documents have been placed in or added to the operating record (NOTE The Director of an approved state can set alternative schedules for recordkeeping and notification requirements)
SW 61 MSWLF records are subject to inspection by certain authorities (40 CFR 258 29(b))	Verify that all information in the operating record is furnished upon request from the Director and is available at all times for inspection by the Director

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Groundwater Monitoring Criteria	
SW 62. MSWLFs are required to comply with groundwater monitoring schedules (40 CFR 258 50(c) and 258 50(e)).	Verify that groundwater monitoring complies with the following schedule - Existing MSWLFs and lateral expansions less than one mile (1 61 km) from a drinking water intake (surface or subsurface) must be in compliance with these requirements by 9 October 1996 - Existing MSWLFs and lateral expansions greater than one mile (1 61 km) but less than two miles (3 22 km) from a drinking water intake (surface or subsurface) must be in compliance with these groundwater monitoring requirements by 9 October 1995 - Existing MSWLFs and lateral expansions greater than two miles (3 22 km) from a drinking water intake (surface or subsurface) must be in compliance with these groundwater monitoring requirements by 9 October 1996 - New MSWLFs must be in compliance with the groundwater monitoring requirements before waste can be place in the unit (NOTE· The Director of an approved state may approve of alternate schedules.) Verify that new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons (18,143 69 kg) of municipal solid waste daily, based on annual average as long as there is no evidence of groundwater contamination from the MSWLF unit and the MSWLF unit serves either of the following and are less than two miles (3 22 km) from a drinking water intake (surface or subsurface) comply with groundwater monitoring requirements by 9 October 1995· - A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility - A community that has no practicable waste management alternative and the landfill is located in an areas that annually receives less than or equal to 25 inches (62 5 cm) of precipitation. Verify that new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons (18,143 69 kg) of municipal solid waste daily, based on annual average as long as there is no evidence of groundwater contamination from the MSWLF unit and the MSWLF unit serves either of the following and are more than two miles (3.22 km) from a drinking water intake (surface or subsurface) comply with groundwater monitoring requirements by 9 October 1996 - A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility - A community that has no practicable waste management alternative and the landfill is located in an areas that annually receives less than or equal to 25 inches. (62.5 cm) of precipitation

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 63 MSWLFs that are exempted from groundwater monitoring are required to document the reasons for exemption in the operating record and notify the State Director if contamination does occur (40 CFR 258 1(f))	(NOTE A MSWLF exempted from groundwater monitoring is any new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons (18,143 69 kg) of municipal solid waste daily, based on annual average as long as there is no evidence of groundwater contamination from the MSWLF unit and the MSWLF unit serves either - A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility - A community that has no practicable waste management alternative and the landfill is located in an areas that annually receives less than or equal to 25 inches of precipitation)
	Verify that the operating record indicates the reason for exemption Verify that the owner or operator of the MSWLF exempt from groundwater monitoring notifies the State Director if they become aware of groundwater contamination and starts a groundwater monitoring program
SW 64 Groundwater monitoring systems at MSWLFs are subject to requirements (40 CFR 258 51(a), 258 51(c), and 258 51(d)(2)).	Verify that the groundwater monitoring system complies with the following requirements - It consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer - It represents the quality of background groundwater that has not been affected by leakage from a MSWLF - It represents the quality of groundwater passing the relevant point of compliance specified by the Director or at the waste management unit boundary - Monitoring wells are cased in a manner that maintains the integrity of the monitoring well bore hole - It is certified by a qualified groundwater scientist or approved by the Director (within 14 days of this certification, the owner or operator has notified the Director that certification has been placed in the operating record). (NOTE· When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing units, the downgradient monitoring system may be installed at the closest practicable distance hydraulically downgradient from the relevant point of compliance specified by the Director)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 65 Groundwater sampling and analysis at MSWLFs is subject to requirements (40 CFR 258 53(a), and 258.53(c) through 258 53(g))	Verify that groundwater monitoring sampling and analysis procedures are designed to ensure monitoring results provide an accurate representation of groundwater quality at the background and downgradient well Verify that the sampling procedures and frequency are protective of human health and the environment Verify that groundwater elevations are measured in each well immediately prior to purging, and that the facility has determined the rate and direction of groundwater flow each time groundwater is sampled Verify that groundwater elevations in wells which monitor the same waste management area are measured within a period of time short enough to avoid temporal variation in groundwater flow that could preclude accurate determination of groundwater flow rate and direction Verify that the facility has established a background groundwater quality in a hydraulically upgradient or background well for each of the monitoring parameters or constituents required by its monitoring program Verify that the number of samples collected to establish groundwater quality data is consistent with the approved statistical procedures Verify that the facility specifies in the operating plan one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. - An analysis of variance - A tolerance or prediction interval procedure - A control chart approach - An equivalent statistical test method.

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 66 Detection monitoring at MSWLFs is subject to specific requirements (40 CFR 258 54(a) and 258 54(b))	Verify that, at a minimum, a detection monitoring program includes the constituents listed in Appendix 3-3 Verify that monitoring occurs at least semiannually during the active life of the MSWLF (including closure) and during the post-closure period Verify that a minimum of four independent samples (from each well background and downgradient) are collected and analyzed for the constituents listed in Appendix 3-3 during the first semiannual sampling event. Verify that at least one sample (from each well background and downgradient) is collected and analyzed during subsequent semiannual sampling events (NOTE The Director of an approved state may delete some constituents and establish an alternate test)
SW 67 MSWLFs are subject to requirements pertaining to the detection of groundwater contamination (40 CFR 258 54(c))	Verify that in the event that there is a statistically significant increase over background for one or more of the constituents listed in Appendix 3-3, the following steps are taken - Within 14 days of the finding, the facility places a notice in the operating record indicating which constituents have shown statistically significant changes from background levels - The Director is notified that the finding has been placed in the operating record - Within 90 days an assessment monitoring program is established (NOTE The facility may demonstrate that a source other than the MSWLF caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality This demonstration report must be certified by a qualified groundwater scientist or approved by the Director and be placed in the operating record)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 68 MSWLFs are subject to requirements pertaining to assessment monitoring programs (40 CFR 258.55(a) through 258 55(c))	Verify that an assessment monitoring program is established whenever a statistically significant increase over background has been detected for one or more of the constituents listed in Appendix 3-3. Verify that within 90 days of establishing an assessment monitoring program, and annually thereafter, the facility samples and analyzes the groundwater for all constituents identified in Appendix 3-4. Verify that a minimum of one sample from each downgradient well is collected and analyzed during each sampling event Verify that for any constituent detected in the downgradient wells as a result of the complete Appendix 3-4 analysis, a minimum of four independent samples (from each well background and downgradient) is collected and analyzed to establish background for the constituents (NOTE: The Director of an approved state may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of constituents during the active life (including closure) and post closure care of the unit.)
SW 69. MSWLFs are subject to notification requirements pertaining to assessment monitoring (40 CFR 258.55(d) and 258 55(e))	Verify that after obtaining the results from the initial or subsequent sampling events required, the following steps are taken - Within 14 days a notice is placed in the operating record identifying the Appendix 3-4 constituents that have been detected - The Director is notified that the notice has been placed in the record - Within 90 days, and on at least a semiannual basis thereafter, the background and downgradient monitoring wells are resampled and analyses conducted for all constituents in Appendix 3-3 and for those constituents in Appendix 3-4 that are detected in the assessment monitoring program - The results of these analyses are placed in the operating record - At least one sample (from each well background and downgradient) is collected and analyzed during these sampling events. (NOTE The Director of an approved state may specify an alternate monitoring frequency) Verify that if the concentrations of all Appendix 3-4 constituents are shown to be at or below background values, using an approved statistical procedure, for two consecutive sampling events, the facility notifies the Director of the finding and returns to detection monitoring

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 70 MSWLFs are subject to notification requirements pertaining to noncompliance with the groundwater protection standard (40 CFR 258 55(g))	Verify that if during detection monitoring one or more Appendix 3-4 constituents are detected at statistically significant levels above the groundwater protection standards specified according to the following, the Director and all appropriate local government officials are notified and a notice is placed in the operating record - For constituents that have a Maximum Contamination Level (MCL) listed in the Safe Drinking Water Act (SDWA), use the MCL for that constituent - For constituents that are not included in the SDWA, use the background level established for that constituent in the detection monitoring program - For constituents for which the background level is higher than the MCL identified in the SWDA, use the background concentration Verify that the facility also takes the following steps - The nature and extent of the release is investigated by the installation of additional monitoring wells - At least one additional monitoring well is installed at the MSWLF boundary in the direction of contamination migration - Notification of all persons who own land or reside on land that directly overlies any part of the plume of contamination that has migrated offsite - Initiation of an assessment of corrective measures within 90 days (NOTE The facility may demonstrate that a source other than the MSWLF caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality This demonstration report must be certified by a qualified groundwater scientist or approved by the Director and be placed in the operating record.)
SW 71 MSWLFs are subject to criteria for assessing potential groundwater remediation actions (40 CFR 258 56)	Verify that within 90 days of finding Appendix 3-4 constituents at significant levels exceeding the groundwater protection standards, an assessment of potential remedial actions is made and includes the following - Analysis of effectiveness of potential corrective measures in meeting all the requirements and objectives of the remedy, such as -- the performance, reliability, ease of implementation, and potential impacts of potential remedies -- the time required to begin and complete the remedy -- the cost of the remedy implementation -- State and local requirements affecting remediation - Discussion of corrective measures with the public or interested parties

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 72 The selection of remedial measures for groundwater contamination is subject to specific criteria (40 CFR 258.57(a) through 258 57(c))	Verify that corrective measures are selected according to the following criteria - Are protective of human health and the environment - Attain the groundwater protection standard - Control the source(s) of releases so as to reduce or eliminate further release of Appendix 3-4 constituents into the environment - Comply with standards for management of wastes and the following evaluation factors are considered: -- long and short-term practicability, effectiveness, protectiveness, and reliability -- magnitude of reduction of existing risks -- magnitude of residual risks in terms of further releases of wastes following remediation -- type and degree of long-term management (including monitoring, operation, and maintenance) -- short-term risks to community, workers, or the environment during implementation -- time period until full remediation. Verify that the facility has notified the Director within 14 days of selecting a remedy, and that the selection and the reason for its selection are noted in the operating record. Verify that remedial activities take place within a reasonable period of time.
SW.73. Groundwater remediation activities are required to meet specific scheduling requirements (40 CFR 258.57(d))	Verify that the initiation of remedial activities occurs within a reasonable period of time depending on. - Extent and nature of contamination - Practical capabilities of remedial technologies - Availability of treatment or disposal capacity for wastes managed during the implementation period - Desirability of utilizing technologies not currently available, but that may offer significant advantages over existing methods - Potential risks to human health and the environment - Resource value of the aquifer involved - Practicable capability of the MSWLF - Other relevant factors.

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 74 Facilities are required to implement corrective action programs according to specific parameters (40 CFR 258 58(a) through 258 58(d)).	Verify that, based on the established schedule for initiation and completion of activities, the facility - Establishes and implements a corrective action groundwater monitoring program that: -- at a minimum meets the assessment monitoring requirements of 40 CFR 258.55 (see checklist items SW.68 through SW 70) -- indicates the effectiveness of the selected corrective action remedy -- demonstrates compliance with groundwater protection standards - Implements to selected corrective action program - Takes any interim measure necessary to ensure the protection of human health and the environment. Verify that if the facility determines that compliance is not being achieved with the selected remedy, it selects another method or technique that can practicably achieve compliance Verify that if compliance cannot be practicably achieved with currently available methods, the facility. - Obtains certification of a qualified groundwater scientist or approval of a Director of an approved state substantiating this claim - Implements alternate measures to control exposure of humans or the environment to residual contamination as necessary to protect human health and the environment - Implements alternate measures for control of the sources of contamination, or for removal of decontamination of equipment, units, devices, or structures that are: -- technically practicable -- consistent with the overall objective of the remedy - Notifies the State Director within 14 days that a report justifying the alternative measures prior to implementation has been placed in the operating record Verify that all solid wastes managed in relation to a remedy or an interim measure are managed as follows. - In a manner that is protective of human health and the environment - In a manner that complies with applicable RCRA requirements

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Closure Criteria	
SW.75. MSWLFs are subject to specific final cover design requirements (40 CFR 258.60(a) and 258 60(b))	Determine if the facility has plans to close a MSWLF Verify that the final cover is designed to minimize infiltration and erosion according to the following criteria - It has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater then 1 x 10^{-4} cm/sec, whichever is less - It minimizes infiltrations through the closed MSWLF by use of an infiltration layer that contains a minimum 18 inches (45 cm) of earthen material - It minimizes erosion of the final cover by the use of an erosion layer that contains a minimum 6 inches (15 cm) of earthen material that is capable of sustaining native plant growth (NOTE: The Director of an approved state may approve alternate final cover design)
SW 76 MSWLFs are subject to specific closure plan requirements (40 CFR 258 60(c)).	Verify that the facility has prepared a written closure plan that includes the following information. - A description of the final cover and methods and procedures to be used to install the cover - An estimate of the largest area of the MSWLF unit ever requiring a final cover any time during its active life - An estimate of the maximum inventory of wastes ever onsite over its active life - A schedule for completing all activities necessary to satisfy closure requirements
SW 77 MSWLFs are subject to specific closure notification requirements (40 CFR 258 60(d))	Verify that the facility has notified the Director of the intent to close the MSWLF. Verify that the notice of intent to close has been placed in the operating record
SW 78 MSWLFs are subject to specific closure criteria (40 CFR 258 60(f) and 258.60(g)).	Verify that the facility begins closure activities no later than 30 days after the date the MSWLF receives the final receipt of waste, or no later than one year after the most recent receipt of waste if the unit has remaining capacity Verify that the facility completes closure activities of each MSWLF unit within 180 days following the beginning of closure.

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 79 MSWLFs are subject to specific post-closure notification requirements (40 CFR 258 60(h))	Verify that the facility notifies the Director that a certification signed by an independent registered professional engineer has been completed and placed in the operating record Verify that the facility records a notation on the deed to the landfill facility property, (or equivalent instrument examined in a title search), that the property has been used as a landfill, and its use is restricted Verify that the notation is placed in the operating record, and the Director is notified of its placement
Post-Closure Care Requirements	
SW 80 MSWLFs are subject to specific post-closure care requirements (40 CFR 258 61(a))	Verify that the facility conducts post-closure care of its MSWLF in the following manner for 30 years - Maintains the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and to prevent runon and runoff from eroding or otherwise damaging the final cover - Maintains and operates the leachate collection system - Monitors the groundwater and maintains the groundwater monitoring system - Maintains and operates the gas monitoring system
SW 81 MSWLFs are subject to specific post-closure plan criteria (40 CFR 258 61(c) and 258 61(d)).	Verify that the facility has prepared a post-closure plan that includes the following information - A description of the monitoring and maintenance activities - The name, address, and telephone number of the person or office to contact about the facility during the post-closure period - A description of the planned uses of the property during the post-closure period Verify that the post-closure plan has been placed in the operating record and the Director has been notified of its placement
SW 82 MSWLFs are subject to specific post-closure certification requirements (40 CFR 258 61(e))	Verify that following completion of the post-closure care period, a certification signed by an independent registered professional engineer is completed, placed in the operating record, and the Director is notified of its placement
Design Criteria	

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 83 New MSWLFs and lateral expansions are required to meet specific design criteria (40 CFR 258 40(a))	Verify that the MSWLF is of an approved design that ensures that the concentration values listed in Appendix 3-5 are not exceeded in the uppermost aquifer at the relevant point of compliance Verify that the MSWLF has a composite liner and a leachate collection system that is designed and constructed to maintain less than a 30 cm depth of leachate over the liner
SW 84 Runon/runoff control systems at MSWLFs are required to meet specific design requirements (40 CFR 258 26)	Verify that the runon control system is designed and maintained to prevent flow onto the active portion of the landfill during the peak discharge from a 25 year storm. Verify that the runoff control system from the active portion of the landfill is designed and maintained to collect and control at least the water volume resulting from a 24 hour, 25 year storm Verify the runoff does not cause a discharge of pollutants into waters of the United States, including wetlands, that causes noncompliance with the CWA or NPDES requirements
Thermal Processing Facilities	
SW.85. Facilities with thermal processing facilities designed to process or are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to provide special areas for special wastes while they await processing (40 CFR 240 100(a), 240 200-2(b), 240 200-3(a))	Verify that storage areas for bulky wastes, digested and dewatered sludges from waste water treatment facilities, raw sewage sludges, and septic tank pumpings are clearly marked (NOTE. This does not apply to hazardous, agricultural, or mining wastes)
SW 86 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359.24 kg) or more per day of municipal solid wastes are required to train personnel in any unusual handling required by acceptance of special wastes (40 CFR 240 100(a), 240 200-3(b))	Verify that personnel are thoroughly trained to handle bulky wastes, digested and dewatered sludges from waste water treatment facilities, raw sewage sludges, and septic tank pumpings (NOTE This does not apply to hazardous, agricultural, or mining wastes)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 87 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to inform regular users about materials which are excluded (40 CFR 240 100(a), 240 201-3(a))	Verify that regular users are given a list of excluded materials Verify that a list of excluded materials is posted prominently at the thermal processing facility (NOTE: This does not apply to hazardous, agricultural, or mining wastes)
SW 88 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to have certain procedures and precautions to deal with unacceptable wastes which are delivered to or left at the facility (40 CFR 240 100(a), 240 201-3(b))	Verify that there is an operating plan which specifies procedures and precautions to be taken if unacceptable wastes are delivered to or left at the thermal processing facility Verify that operating personnel are thoroughly trained in such procedures (NOTE This does not apply to hazardous, agricultural, or mining wastes)
SW 89 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to meet certain site selection criteria (40 CFR 240 100(a), 240 202(a), 240 202(b))	Verify that the thermal processing facility is located in an area zoned for industrial use and has adequate utilities to serve it Verify that the site is accessible by permanent roads leading from the public road system (NOTE This does not apply to hazardous, agricultural, or mining wastes)

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW.90 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to have plans for the design of new facilities or modifications to existing facilities prepared or approved by a professional engineer (40 CFR 240 100(a), 240 203-1)	Verify that plans for the design of new thermal processing facilities or modifications to existing thermal processing facilities are prepared or approved by a professional engineer Verify that the plan has been approved by the responsible regulatory authorities and that construction was not initiated until approval was received (NOTE This does not apply to hazardous, agricultural, or mining wastes)
SW 91 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to operate in a manner which will protect water quality (40 CFR 240 100(a), and 240 204)	Verify that all waters discharged from the thermal processing facility are treated to meet the most stringent of applicable water quality standards. Verify that when monitoring instrumentation indicates excessive discharge contamination, appropriate adjustments are made to lower the concentrations to acceptable levels Verify that in the event of an accidental spill, the local regulatory agency is notified immediately (NOTE· This does not apply to hazardous, agricultural, or mining wastes)
SW 92 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to operate in a manner which protect air quality (40 CFR 240 100(a) and 240 205)	Verify that emissions do not exceed applicable existing emission standards Verify that all emissions, including dust from vents, are controlled Verify that when monitoring instrumentation indicates excessive emissions, appropriate adjustments are made to lower the emission to acceptable levels (NOTE This does not apply to hazardous, agricultural, or mining wastes.)
SW 93. Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to control vectors (40 CFR 240 100(a) and 240 206)	Verify that a housekeeping schedule is established and maintained Verify that solid wastes and residues do not accumulate at the thermal processing facility for more than one week (NOTE This does not apply to hazardous, agricultural, or mining wastes)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 94 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to operate in an aesthetically acceptable manner (40 CFR 240 100(a) and 240 207)	Verify that a routine housekeeping and litter removal schedule is established and implemented Verify that solid wastes which cannot be processed by the thermal processing facility are removed on a weekly basis (NOTE This does not apply to hazardous, agricultural, or mining wastes)
SW 95 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to dispose of residue and other solid waste products resulting from the thermal process in an environmentally acceptable manner (40 CFR 240 100(a) and 240 208)	Verify that the furnace operator records the estimated percentage of unburned combustibles in a log Verify that if residue or fly ash is collected in a wet condition it is drained of free moisture Verify that residue and fly ash are transported by means that prevent the loads from shifting, falling, or blowing from the container (NOTE This does not apply to hazardous, agricultural, or mining wastes)
SW 96 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to be designed, operated, and maintained in a manner to protect the health and safety of personnel (40 CFR 240 100(a) and 240 209)	Verify that procedures are developed for operation in emergency situations Verify that approved respirators or self-contained breathing apparatus is available at convenient locations Verify that training in first aid practices and emergency procedures is given to all personnel Verify that personal safety devices are provided to all personnel Verify that any regular user or employee that poses a safety hazard is barred from the thermal processing facility and reported to the responsible agency (NOTE This does not apply to hazardous, agricultural, or mining wastes)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 97 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to follow certain general operation criteria (40 CFR 240.100(a) and 240 210).	Verify that the thermal processing facility supervisor is experienced in the operation of the type of facility designed Verify that alternate and standby disposal and operating procedures are established for implementation during emergencies, air pollution episodes, and shutdown periods. Verify that a routine maintenance schedule is established. Verify that engineering drawings are updated as the thermal processing facility is modified Verify that key operational procedures are prominently posted. Verify that equipment manuals, catalogs, spare parts lists, and spare parts are readily available at the thermal processing facility. Verify that training opportunities are available for personnel (NOTE· This does not apply to hazardous, agricultural, or mining wastes)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 98 Facilities with thermal processing facilities designed to process or which are processing 50 tons (45,359 24 kg) or more per day of municipal solid wastes are required to provide records and monitoring data (40 CFR 240 100(a) and 240 211)	Verify that extensive monitoring and recordkeeping is practiced during - The first 12 to 18 months of operation of a new or renovated thermal processing facility - Periods of high air pollution - Periods of upset conditions at the thermal processing facility Verify that operating records are kept in a daily log and include as a minimum - The total weight and volume of solid waste received during each shift, including the number of loads received, the ownership or specific identity of delivery vehicles, the source and nature of the solid wastes accepted - Furnace and combustion chamber temperatures recorded at least every 60 minutes and as changes are made, including explanations for abnormally high and low temperatures - Rate of operation, such as grate speed - Overfire and underfire air volumes and pressure and distribution recorded at least every 60 minutes and as changes are made - Weights of bottom ash, grate siftings, and fly ash, individually or combined, recorded at intervals appropriate to normal facility operation - Estimated percentages of unburned material in the bottom ash - Water used on each shift for bottom ash quenching and scrubber operation - Power produced and utilized each shift - If steam is produced quality production totals and consumption rates should be recorded - Auxiliary fuel used each shift - Gross calorific value of daily representative samples of bottom ash, grate siftings, and fly ash - Required emission measurements and laboratory analyses - Complete records of monitoring instruments - Problems encountered and methods of solution (NOTE: Representative samples of process waters should be collected and analyzed as recommended by the responsible agency) (NOTE· Sampling time should be varied so that all shifts are monitored on a weekly basis)

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 98.*(continued)*	Verify that an annual report is prepared and it includes the following information. - Minimum, average, and maximum daily volume and weight of waste received and processed, summarized on a monthly basis - A summary of the laboratory analyses including at least monthly averages - Number and qualifications of personnel in each job category - Total man hours per week - Number of state certified or licensed personnel - Staffing deficiencies - Serious injuries, their cause, and preventive measures instituted - An identification and brief discussion of major operational problems and solutions - Adequacy of operation and performance with regard to environmental requirements, the general level of housekeeping and maintenance, testing and reporting proficiency, and recommendations for corrective actions - A copy of all significant correspondence, reports, inspection reports, and any other communications from enforcement agencies Verify that a methodology for evaluating the thermal processing facility's performance has been developed (NOTE: This does not apply to hazardous, agricultural, or mining wastes)
Resource Recovery Facilities	
SW 99 Facilities are required to establish or utilize resource recovery facilities (40 CFR 245 200-1).	Verify that a resource recovery facility has been established or utilized unless the facility has made a determination not to utilize or establish a resource recovery facility (NOTE Federal agencies that make the determination not to establish or utilize a resource recovery facility must make a report to the Administrator fully explaining that determination)
SW.100 Facilities which establish or utilize a resource recovery facility are required to design such facilities to process a standard amount of solid waste (40 CFR 245 200-1(e))	Verify that the resource recovery facility is designed to process at least 65 percent by wet weight of the input solid waste into recycled material, fuel, or energy.
Disposal of Refuse from Outside the United States	

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 101 Garbage from outside the United States which is on or unloaded from vessels or aircraft arriving in the United States and certain territories and possessions is subject to inspection and disposal requirements to prevent dissemination of pests and diseases (7 CFR 330 400(d) and 330 400(g)(1) and 300 400(g)(2))	Verify that garbage on or unloaded from vessels or aircraft arriving in the places listed below complies with inspection and disposal requirements - The United States from any place outside of the United States - The continental United States from Hawaii or any territory or possession - Any territory or possession from any other territory or possession or Hawaii - Hawaii from any territory or possession Verify that in arriving vessels and aircraft - The garbage is contained in tight leakproof covered receptacles inside guard rails on vessels - The garbage is removed in tight, leakproof covered containers under direction of U S Department of Agriculture (USDA) inspector to an approved facility for incineration, sterilization, or grinding into an approved sewage system, or - The garbage is removed for other handling and under supervision approved by the USDA Verify that the facility has received approval from Administrator, Animal and Plant Health Inspection Service, USDA for use of sewage system for disposal.
Medical Waste	
SW 102 Contaminated reusable sharps are required to be placed in containers which meet specific requirements as soon as possible after use until properly reprocessed (29 CFR 1910 1030d)(2)(viii) and 1910 1030(d)(4)(ii)(E))	Verify that contaminated reusable sharps are placed in containers that are - Puncture resistant - Labeled or color coded - Leakproof on the sides and bottom Verify that reusable sharps that are contaminated with blood or other potentially infectious materials are not stored or processed in a manner that requires employees to reach by hand into the containers
SW 103 Specimens of blood or other potentially infectious material are required to be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping and specific labeling and handling requirements followed (29 CFR 1910 1030(d)(2)(xiii))	Verify that containers are - Labeled and color coded - Closed prior to being stored, transported or shipped (NOTE When the facility utilizes Universal Precautions in the handling of all specimens, the labeling/color coding of specimens is not necessary if the containers are recognizable as containing specimens) Verify that if outside contamination of the primary container occurs it is placed in a second container Verify that if the specimens could puncture the primary container, the primary container is placed in a secondary container which is puncture resistant.

Compliance Category: **Nonhazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
SW 104 Contaminated sharps are to be discarded immediately in containers meeting specific requirements (29 CFR 1910 1030d)(4)(iii)(A))	Verify that contaminated sharps are placed in containers that are - Closable - Puncture resistant - Leakproof on sides and bottoms - Labeled or color-coded Verify that during use, containers for contaminated sharps are. - Easily accessible - Maintained upright throughout use - Replaced routinely and not be allowed to overfill. Verify that when the containers of contaminated sharps are being moved from the area of use, the containers. - Are closed - Placed in a secondary container if leakage is possible Verify that reusable containers are not opened, emptied, or cleaned manually or handled in any other manner that would expose employees to risk.
SW 105 Regulated wastes (see definitions) are required to be handled and placed in containers that meet specific standards (29 CFR 1910.1030(d)(4)(iii)(B))	Verify that regulated wastes are placed in containers that are - Closable - Constructed to contain all contents and prevent leakage of fluids - Labeled or color-coded - Closed prior to removal (NOTE Regulated wastes which have been decontaminated need not be labeled or color-coded) Verify that if outside contamination of the regulated waste occurs, it is placed in a second container
SW 106 All bins, pails, cans, and similar receptacles intended for reuse, that have the likelihood of becoming contaminated with blood or other potentially infectious materials are required to be inspected and decontaminated on a regularly scheduled basis (2 9 C F R 1910.1030d)(4)(ii)(C))	Verify that receptacles with the potential for contamination are regularly inspected and decontaminated.

Compliance Category: Nonhazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
SW 107 Labels affixed to containers of regulated wastes, refrigerators and freezers containing blood or other potentially infectious materials, and other containers used to store, transport, or ship blood or other potentially infectious materials must meet specific standards (29 CFR 1910 1030(g)(1)(i))	Verify that the labels - Include the biohazard symbol - Are fluorescent orange or orange-red or predominantly so, with lettering and symbols in contrasting color - Are affixed as closely as possible to the container to prevent loss or removal (NOTE Red bags or containers may be used as a substitute for labels) (NOTE The following are exempt from labeling requirements - Containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use - Individual containers of blood or other potentially infectious materials that is placed in a labeled container during storage, transport, shipment, or disposal.) (NOTE Regulated waste that has been decontaminated need not be labeled and color-coded)

Section 3

Nonhazardous Waste Management

Appendices

Appendix 3-1
Compliance Dates for MSWLFs and 40 CFR 258
(40 CFR 258.1(e))

In general, compliance with 40 CFR 258 was required by 9 October 1993. The following is a list of MSWLFs which have had their compliance deadline with 40 CFR 258 extended.

1. 9 April 1994 for existing MSWLF units or a lateral expansion of an existing MSWLF that meets the following conditions:
   a. The MSWLF unit disposed of 100 tons per day or less of solid waste during a representative period prior to 9 October 1993;
   b. The unit does not dispose of more than an average of 100 TPD of solid waste each month between 9 October 1993 and 9 April 1994;
   c The MSWLF is located in a state that has submitted an application for permit program approved by the USEPA by 9 October 1993, is located in the state of Iowa, or is located on Indian Lands or Indian Country, and
   d. The MSWLF is not on the National Priorities List (NPL).

2. The compliance date has been extended for existing MSWLF unit or lateral expansion if an existing MSWLF units receiving flood-related waste from the federally-designated areas within the major disasters declared for the states of Iowa, Illinois, Minnesota, Wisconsin, Missouri, Nebraska, Kansas, North Dakota, and South Dakota by the President during the summer of 1993:
   a. Until 9 April 1994 if the state in which the MSWLF is located has determined that the MSWLF unit is needed to receive flood-related wastes from a federally designated disaster area.
   b. Until 9 October 1994 if the state in which the MSWLF is located has determined that the MSWLF unit is needed to receive flood-related wastes from a federally designated disaster area.

3. 9 October 1995 for new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average.

Appendix 3-2
MSWLF Units Exempt From Compliance With 40 CFR 258
(40 CFR 258.1(c) and 258.1(d))

1. MSWLFs that did not receive waste after 9 October 1991
2. Existing MSWLF units or a lateral expansion of an existing MSWLF that received waste after 9 October 1991 but stop receiving waste before 9 April 1994 that meet the following conditions:
   a. The MSWLF unit disposed of 100 tons per day or less of solid waste during a representative period prior to 9 October 1993;
   b. The unit does not dispose of more than an average of 100 TPD of solid waste each month between 9 October 1993 and 9 April 1994;
   c. The MSWLF is located in a state that has submitted an application for permit program approved by the USEPA by 9 October 1993, is located in the state of Iowa, or is located on Indian Lands or Indian Country; and
   d. The MSWLF is not on the National Priorities List (NPL).

(NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) by 9 October 1994, the unit is required to meet all the requirements found in 40 CFR 258.)

3. Existing MSWLF units or lateral expansions if an existing MSWLF unit is receiving flood-related waste from the federally-designated areas within the major disasters declared for the states of Iowa, Illinois, Minnesota, Wisconsin, Missouri, Nebraska, Kansas, North Dakota, and South Dakota by the President during the summer of 1993 and receive waste after 9 October 1991 but stops receiving waste before the date designated by the state

(NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) within one year of the date designated by the state, the unit is required to meet all the requirements in 40 CFR 258.)

4. New MSWLF units, existing MSWLF units and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average that receive waste after 9 October 1991 but stopped receiving waste before 9 October 1995.

(NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) by 9 October 1996, the unit is required to meet all the requirements of 40 CFR 258.)

5. MSWLF units that receive waste after 9 October 1991 but stop receiving wastes before 9 October 1993.

(NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) by 9 October 1994, the unit is required to meet all the requirements of 40 CFR 258.)

Appendix 3-3
Constituents for Detection Monitoring[1]
(40 CFR 258, Appendix I)

Common Name[2]	CAS RN[3]
Inorganic Constituents	
(1) Antimony	(Total)
(2) Arsenic	(Total)
(3) Barium	(Total)
(4) Beryllium	(Total)
(5) Cadmium	(Total)
(6) Chromium	(Total)
(7) Cobalt	(Total)
(8) Copper	(Total)
(9) Lead	(Total)
(10) Nickel	(Total)
(11) Selenium	(Total)
(12) Silver	(Total)
(13) Thallium	(Total)
(14) Vanadium	(Total)
(15) Zinc	(Total)
Organic Constituents	
(16) Acetone	67-64-4
(17) Acrylonitrile	107-13-1
(18) Benzene	71-43-1
(19) Bromochloromethane	74-97-5
(20) Bromodichloromethane	75-27-4
(21) Bromoform, Tribromomethane	75-25-2
(22) Carbon disulfide	75-15-0
(23) Carbon tetrachloride	56-23-5
(24) Chlorobenzene	108-90-7
(25) Chloroethane, Ethyl chloride	75-00-3
(26) Chloroform, Trichloromethane	67-66-3

Appendix 3-3 ***(continued)***
Constituents for Detection Monitoring1
(40 CFR 258, Appendix I)

Common Name[2]	CAS RN[3]
(27) Dibromochloromethane, Chlorodibromomethane	124-48-1
(28) 1;2-Dibromo-3-chlorpropane, DBCP	96-12-8
(29) 1,2-Dibromoethane; Ethylene dibromide;	106-93-4
EDB	
(30) o-Dichlorobenzene, 1,2-Dichlorobenzene	95-50-1
(31) p-Dichlorobenzene, 1,4-Dichlorobenzene	106-46-7
(32) trans-1,4-Dichloro-2-butene	110-57-6
(33) 1,1-Dichloroethane, Ethylidene chloride	75-34-3
(34) 1,2-Dichloroethane; Ethlyene dichloride	107-06-2
(35) 1,1-Dichloroethylene; 1-1-Dichloroethene; Vinylidene chloride	75-35-4
(36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2
(37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
(38) 1,2-Dichlorpropane, Propylene dichloride	78-87-5
(39) cis-1,3-Dichlorpropene	10061-01-5
(40) trans-1,3-Dichlorpropene	10061-02-6
(41) Ethylbenzene	100-41-4
(42) 2-hexanone; Methyl butyl ketone	591-78-6
(43) Methyl bromide; Bromomethane	74-83-9
(44) Methyl chloride, Chloromethane	74-87-3
(45) Methylene bromide Dibromomethane	74-95-3
(46) Methylene chloride; Dichloromethane	75-09-2
(47) Methyl ethyl ketone; MEK, 2-Butanone	74-93-3
(48) Methyl iodide, Iodomethane	74-88-4
(49) 4-Methyl-2-pentanone; Methyl isobutyl isobutyl ketone	108-10-1
(50) Styrene	100-42-5
(51) 1,1,1,2-Tetrachloroethane	630-20-6
(52) 1,1,2,2-Tetrachloroethane	79-34-5

Appendix 3-3 *(continued)*
Constituents for Detection Monitoring1
(40 CFR 258, Appendix I)

Common Name[2]	CAS RN[3]
(53) Tetrachloroethylene, Tetracholorethene, Perchloroethylene	127-18-4
(54) Toluene	108-88-3
(55) 1,1,1-Trochlorethane, Methylchloroform	71-55-6
(56) 1,1,2-Trichloroethane	79-00-5
(57) Trichloroethylene; Trichlorethene	79-01-6
(58) Trichlorofluoromethane; CFC-11	75-69-4
(59) 1,2,3-Trichloropropane	96-18-4
(60) Vinyl acetate	108-05-4
(61) Vinyl chloride	75-01-4
(62) Xylenes	1330-20-7

[1] This list contains 47 volatile organics for which possible analytical procedures provided in USEPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, November 1986, as revised December 1987, includes Method 8260, and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods

[2] Common names are those widely used in government regulations, scientific publications, and commerce, synonyms exist for many chemicals.

[3] Chemical Abstracts Service registry number Where "Total" is entered, all species in the groundwater that contain this element are included

Appendix 3-4
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
Acenaphthene	83-32-9	8100	200
		8270	10
Acenaphthylene	208-96-8	8100	200
		8270	10
Acetone	67-64-1	8260	100
Acetonitrile; Methyl cyanide	75-05-8	8015	100
Acetophenone	98-86-2	8270	10
2-Acetylaminofluorene; 2-AAF	53-96-3	8270	20
Acrolein	107-02-8	8030	5
		8260	200
Aldrin	309-00-2	8080	0.05
		8270	10
Allyl chloride	107-05-1	8010	5
		8260	10
4-Aminobiphenyl	92-67-1	8270	20
Anthracene	120-12-7	8100	200
		8270	10
Antimony	(Total)	6010	300
		7040	2000
		7041	30
Barium	(Total)	6010	20
		7080	1000
Benzene	71-43-2	8020	2
		8021	0 1
		8260	5
Benzo[a]anthracene, Benzanthracene	56-55-3	8100	200
		8270	10
Benzo[b]fluoranthene	205-99-2	8100	200

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
		8270	10
Benzo[k]fluoranthene	207-08-9	8100	200
		8270	10
Benzo[ghi]perylene	191-24-2	8100	200
		8270	10
Benzo[a]pyrene	50-32-8	8100	200
		8270	10
Benyl alcohol	100-51-5	8270	20
Beryllium	(Total)	6010	3
		7090	50
		7091	2
alpha-BHC	319-84-6	8080	0.05
		8270	10
beta-BHC	319-85-7	8080	0 05
		8270	20
delta-BHC	319-86-8	8080	0 1
		8270	20
gamma-BHC, Lindane	58-89-9	8080	0.05
		8270	20
Bis(2-chloroethoxy)methane	111-91-1	8110	5
		8270	10
Bis(2-chloroethyl)ether; Dichloroethyl ether	111-44-4	8110	3
		8270	10
Bis-(2-chlror-1-methyl) ether, 2,2-Dichloro- diisopropyl ether, DCIP, See note 7	108-60-1	8110	10
		8270	10
Bis(2-ethylhexyl) phthalate	117-81-7	8060	20
Bromochloromethane, Chlorobromomethane	74-97-5	8021	0 1

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
		8260	5
Bromodichloromethane, Dibromochloromethane	75-27-4	8010	1
		8021	0 2
		8260	5
Bromoform, Tribromomethane	75-25-2	8010	2
		8021	15
		8260	5
4-Bromophenyl phenyl ether	101-55-3	8110	25
		8270	10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	8060	5
		8270	10
Cadmium	(Total)	6010	40
		7130	50
		7131	1
Carbon disulfide	75-15-0	8260	100
Carbon tetrachloride	56-23-5	8010	1
		8021	0.1
		8260	10
Chlordane	See NOTE 8	8080	0.1
		8270	50
p-Chloroaniline	106-47-8	8270	20
Chlorobenzene	108-90-7	8010	2
		8020	2
		8021	0 1
		8260	5
Chlorobenzilate	510-15-6	8270	10
p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7	8040	5

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
		8270	20
Chloroethane; Ethyl chloride	75-00-3	8010	5
		8021	1
		8260	5
Chloroform, Trichloromethane	67-66-3	8010	0 5
		8021	0 2
		8260	5
2-Chloronaphthalene	91-58-7	8120	10
		8270	10
2-Chlorophenol	95-57-8	8040	5
		8720	10
4-Chlorophenyl phenyl ether	7005-72-3	8110	40
		8270	10
Chloroprene	126-99-8	8010	50
		8260	20
Chromium	(Total)	6010	70
		7190	500
		7191	10
Chrysene	8100	200	
		8270	10
Cobalt	218-01-9	8100	200
		7200	500
		7201	10
Copper	(Total)	6010	60
		7210	200
		7211	10
m-Cresol; 3-methylphenol	108-39-4	8270	10
o-Cresol, 2-methlphenol	95-48-7	8270	10
p-Cresol, 4-methylphenol	106-44-5	8270	10

Appendix 3-4 ***(continued)***
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
Cyanide	57-12-5	9010	200
2,4-D; 2,4-Dıchlorophenoxyacetic acid	94-75-7	8150	10
4,4-DDD	72-54-8	8080	0 1
		8270	10
4,4-DDE	72-55-9	8080	0 05
		8270	10
4,4-DDT	50-29-3	8080	0 1
		8270	10
Diallate	2303-16-4	8270	10
aDıbenz[a,h]anthracene	53-70-3	8100	200
		8270	10
Dibenzofuran	132-64-9	8270	10
Dibromochloromethane, Chlorodibromomethane	124-48-1	8010	1
		8021	0.3
		8260	5
1,2-Dıbromo-30chloropropane, DBCP	96-12-8	8011	0.1
		8021	30
		8260	25
1,2-Dibromoethane; Ethylene dibromide, EDB	106-93-4	8011	0 1
		8021	10
		8260	5
Di-n-butyl phthalate	84-74-2	8060	5
		8270	10
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	8010	2
		8020	5
		8021	0 5
		8120	10
		8260	5

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
		8270	10
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	8010	5
		8020	5
		8021	0.2
		8120	10
		8120	10
		8260	5
p-Dichlorobenzene, 1,4-Dichlorobenzene	106-46-7	8010	2
		8020	5
		8021	0 1
		8120	15
		8260	5
		8270	10
3,3-Dichlorobenzidine	91-94-1	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	8260	100
Dichlorodifluoromethane, CFC 12;	75-71-8	8021	0 5
		8260	5
1,1-Dichloroethane chloride	75-34-3	8010	1
		8021	0 5
		8260	5
1,2-Dichloroethane, Ethylene dichloride	107-06-2	8010	0 5
		8021	0 3
		8260	5
1,1-Dichloroethylene, 1,1-Dichloroethane, Vinylidene chloride	75-35-4	8010	1
		8021	0.5
		8260	5
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2	8021	0 2
		8260	5

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
trans-1,2-Dichloroethylene trans-1,2-Dichloroethene	156-60-5	8010	1
		8021	0.5
		0260	5
2,4-Dichlorophenol	120-83-2	8040	5
		8270	10
2,6-Dichlorophenol	120-83-2	8040	5
1,2-Dichloropropane; Propylene dichloride	78-87-5	8010	
		8021	0.05
		8260	5
1,3-Dichloropropane; Isopropylidene chloride	594-20-7	8021	0 3
		8260	5
2,2-Dichloropropane, Isopropylidene chloride	594-20-7	8021	0 5
		8260	15
1,1-Dichloropropene	563-58-6	8021	0.2
		8260	5
cis-1,3-Dichloropropene	10061-01-5	8010	5
		8260	10
trans-1,3-Dichloropropene	10061-02-6	8010	5
		8260	10
Dieldrin	60-57-1	8080	0.05
		8270	10
Diethyl phthalate	84-66-2	8060	5
		8270	20
0,0-Diethyl 0-2-pyrazinyl phosphorothioate, Thionazin	297-97-2	8141	5
		8270	20
Dimethoate	60-51-5	8141	3
		8270	20

Appendix 3-4 ***(continued)***
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
p-(Dimethylamino)azobenzene	60-11-7	8270	10
7,12-Dimethylbenxz[a]anthracene	57-97-6	8270	10
3,3-Dimethylbenzidine	119-93-7	8270	10
2,4-Dimethlphenol, m-Xylenol	105-87-9	5	
		8040	5
Dimethyl phthalate	131-11-3	8060	10
		8270	10
m-Dinitrobenzene	99-65-0	8270	20
4,6-Dinitro-o-cresol 4,6-Dinitro-2-methylphenol	534-52-1	8040	150
		8270	50
2,4-Dinitrophenol	51-28-54	8040	150
		8270	50
2,4-Dinitrotoluene	121-14-2	8090	0.2
		8270	10
2,6-Dinitrotoluene	606-20-2	8090	0 1
		8270	10
Dinoseb, DNBP, 2-sec-Butyl-4,6-dinitrophenol	88-85-7	8150	1
		8270	20
Di-n-octyl phthalate	117-84-0	8060	30
		8270	10
Diphenylamine	122-39-4	8270	10
Disulfoton	298-04-4	8140	2
		8141	0 5
		8270	10
Endosulfan I	959-98-8	8080	0 1
		8270	20
Endosulfan II	33213-65-9	8080	0.05
		8270	20

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
Endodulfan sulfate	1031-07-8	8080	0.5
		8270	10
Endrin	72-20-8	8080	0.1
		8270	20
Endrin aldehyde	7421-93-4	8080	0.2
		8270	10
Ethylbenzene	100-41-4	8020	2
		8221	0.05
		8260	5
Ethyl methacrylate	97-63-2	8015	5
		8260	10
		8270	10
Ethyl methanesulfonate	62-50-0	8270	20
Famphur	52-85-7	8270	20
Fluoranthene	206-44-0	8100	200
		8270	10
Fluorene	86-73-7	8100	200
		8270	10
Heptachlor	76-44-8	8080	0 05
		8270	10
Heptachlor epoxide	1024-57-3	8080	1
		8270	10
Hexachlorobenzene	118-74-1	8120	0.5
		8270	10
Hexachlorobutadiene	87-68-3	8120	0.5
		8120	5
		8260	10
		8270	10
Hexachlorocyclopentadiene	77-47-4	8120	5

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
		8270	10
Hexachloroethane	67-72-1	8120	0 5
		8260	10
		8270	10
Hexachloropropene	188-71-7	8270	10
2-Hexanone, Methyl butyl ketone	591-78-6	8260	50
Indenol(1,2,3-cd)pyrene	193-39-5	8100	200
		8270	10
Isopbutyl alcohol	78-83-1	8015	50
		8240	100
Isodrın	465-73-6	8270	20
		8260	10
Isophorone	78-59-1	8090	60
		8270	10
Isosafrole	78-59-1	8090	60
		8270	10
Isosafrole	120-58-1	8270	10
Kepone	143-50-0	8270	20
Lead	(Total)	6010	400
		7420	1000
		7421	10
Mercury	(Total)	7470	2
Methacrylonıtrıle	126-98-7	8015	5
		8260	100
Methapyrılene	91-80-5	8270	100
Methoxychlor	72-43-5	8080	2
		8270	10
Methyl bromıde, Bromomethane	74-83-9	8010	20
		8021	10

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
Methyl chloride, Chloromethane	74-87-3	8010	20
		8021	0.3
3-Methylcholanthrene	56-49-5	8270	10
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	8015	10
		8260	100
Methyl iodide, Iodomethane	74-88-4	8010	40
		8260	10
Methyl methacrylate	80-62-6	8015	2
		8260	30
Methyl methanesulfonate	66-27-3	8270	10
2-Methylnaphthalene	91-57-6	8270	10
Methyl parathion; Parathion methyl	298-00-0	8140	0.5
		8141	1
		8270	10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	8015	5
		8260	100
Methylene bromide; Dibromomethane	74-95-3	8010	15
		8021	20
		8260	10
Methylene chloride, Dichloromethane	75-09-2	8010	5
		8021	0.2
		8260	10
Naphthalene	91-20-3	8021	0.5
		8100	200
		8260	5
		8270	10
1,4-Naphthoquinone	130-15-4	8270	10
1-Naphthylamine	134-32-7	8270	10

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
2-Naphthylamine	91-59-8	8270	10
Nickel	(Total)	6010	150
		7520	400
o-Nitroaniline, 2-Nitroaniline	88-74-4	8270	50
m-Nitroaniline, 3-Nitroanile	99-09-2	8270	50
p-Nitroaniline; 4-Nitroaniline	100-01-6	8270	20
Nitrobenzene	98-95-3	8090	40
		8270	10
o-Nitrophenol; 2-Nitrophenol	88-75-5	8040	5
		8270	10
p-Nitrophenol, 4-Nitrophenol	100-02-7	8040	10
		8270	50
N-Nitrosodi-n-butylamine	924-16-3	8270	10
N-Nitrosodiethylamine	55-18-5	8270	20
N-Nitrosodimethylamine	62-75-9	8070	2
N-Nitrosodiphenylamine	86-30-6	8070	5
N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine;			
Di-n-propylnitrosamine	86-30-6	8070	10
N-Nitrosomethylethalamine	10595-95-6	8070	10
N-Nitrosopiperidine	100-75-4	8270	20
N-Nitrosopyrrolidine	930-55-8	8270	40
5-Nitro-o-toluidine	99-55-8	8270	10
Parathion	56-38-2	8141	0 5
		8270	10
Pentachlorobenzene	608-93-5	8270	10
Pentachloronitrobenzene	82-68-8	8270	20
Pentachlorophenol	87-86-5	8040	5
		8270	50

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
Phenacetin	62-44-2	8270	20
Phenanthrene	85-01-8	8100	200
		8270	10
Phenol	108-95-2	8040	1
p-Phenylenediamine	106-50-3	8270	10
Phorate	298-02-2	8140	2
		8141	0.5
		8270	10
Polychlorinated biphenyls (PCBs); Aroclors	see NOTE 9	8080	50
		8270	200
Pronamide	23950-58-5	8270	10
Propionitrile, Ethyl cyanide	107-12-0	8015	60
		8260	150
Pyrene	129-00-0	8100	200
		8270	10
Safrole	94-59-1	8270	10
Selenium	(Total)	6010	750
		7740	20
		7741	20
Silver	(Total)	6010	70
		7760	100
		7761	10
Silvex; 2,4,5-TP	93-72-1	8150	2
Styrene	100-42-5	8020	1
		8021	0 1
		8260	10
Sulfide	18496-25-8	9030	4000
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	8150	2
1,2,4,5-Tetrachlorobenzene	95-94-3	8270	10

Appendix 3-4 ***(continued)***
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
1,1,1,2-Tetrachloroethane	630-20-6	8010	5
.		8021	0 05
		8260	5
1,1,2,2-Tetrachloroethane	79-34-5	8010	0 5
		8021	0.5
		8260	5
Tetrachloroethylene, Tetrachloroethene, Perchloroethylene	127-18-8	8010	0 5
		8021	0 5
		8260	5
2,3,4,6-Tetrachlorophenol	58-90-2	8270	10
Thallium	(Total)	6010	40
		7840	1000
		7841	10
Tin	(Total)	6010	40
Toluene	108-88-3	8020	2
		8021	0 1
		8260	5
o-Toluidine	95-53-4	8270	10
Toxaphene	See NOTE 10	8080	2
1,2,4-Trichlorobenzene	120-82-1	8021	0 3
		8120	0 5
		8260	10
		8270	10
1,1,1-Trichloroethane, Methylchloroform	71-55-6	8010	0.3
		8021	0 3
		8260	5
1,1,2-Trichloroethane	79-00-5	8010	0 3
		8260	5

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

Common Name	CAS RN	Suggested Methods	PQL (mg/L)
Trichloroethylene, Trichloroethene	79-01-6	8010	1
		8021	0 2
		8260	5
Trichlorrofluoromethane, CFC-11	75-69-4	8010	10
		8021	0 3
		8260	5
2,4,5-Trichlorophenol	95-95-4	8270	10
2,4,6-Trichlorophenol	88-06-2	8040	5
		8270	10
1,2,3-Trichloropropane	96-18-4	8010	10
		8021	5
		8260	15
0,0,0-Triethyl phosphorothioate	126-68-1	8270	10
sym-Trinitrobenzene	99-35-4	8270	10
Vanadium	(Total)	6010	80
		7910	2000
		7911	40
Vinyl acetate	106-05-4	8260	50
Vinyl chloride, Chloroethene	75-01-4	8010	2
		8021	0 4
		8260	10
Xylene (total)	See NOTE 11	8020	5
		8021	0.2
		8260	5
Zinc	(Total)	6010	20
		7950	50
		7951	0 5

NOTES

1 The regulatory requirements pertain only to the list of substances, the right hand columns (Methods and Practical Quantitation Limits (PQL)) are given for informational purposes only See also footnotes 5 and 6

Appendix 3-4 *(continued)*
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

2 Common names are those widely used in government regulations, scientific publications, and commerce, synonyms exist for many chemicals

3 Chemical Abstracts Service registry number Where "Total" is entered, all species in the ground water that contain this element are included

4 CAS index are those used in the 9th Collective Index

5 Suggested Methods refer to analytical procedure numbers used in USEPA Report SW-846 Test Methods for Evaluating Solid Waste, Third edition, November 1986, as revised, December 1987 Analytical details can be found in SW-846 and in documentation on file at the agency CAUTION The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations

6 PQLs are the lowest concentrations of analytes in ground waters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions The PQLs listed are generally stated to one significant figure PQLs are based on 5 mL samples for volatile organics and 1 L samples for semivolatile organics CAUTION The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds, PQLs are not a part of the regulation

7 This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2-chloro-(CAS RN 39638-32-9)

8 Chlordane This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6) PQL shown is for technical chlordane PQLs of specific isomers are about 20 mg/L by method 8270

9 Polychlorinated biphenyls (CAS RN 1336-36-3) This category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Arooclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5) The PQL shown is an average value for PCB congeners

10 Toxaphene This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i e , chlorinated camphene

11 Xylene (total) This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7) PQLs for method 8021 are 0 2 for o-xylene and 0 1 for m- or p-xylene The PQL for m-xylene is 2 0 mg/L by method 8020 or 8260

Appendix 3-5
Design Criteria Concentration Values
(40 CFR 258.40)

Chemical	MCL (mg/L)
Arsenic	0.50
Barium	1.0
Benzene	0 005
Cadmium	0.01
Carbon tetrachloride	0 005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0 1
1,4-Dichlorobenzene	0 075
1,2-Dichloroethand	0 005
1,1-Dichloroethylene	0 007
Endrin	0.0002
Fluoride	4.0
Lindane	0 004
Lead	0 05
Mercury	0 002
Methoxychlor	0 1
Nitrate	10 0
Selenium	0 01
Silver	0 05
Toxaphene	0 005
1,1,1-Trichloromethane	0.2
Thrichloroethylene	0 005
2,4,5-Trichlorophenoxy acetic acid	0 01
Vinyl Chloride	0 002

Phase 1

Section 4

Hazardous Waste Management

Phase 1
Section 4
Table of Contents

Hazardous Waste Management

A. Applicability 4-1
B. Federal Legislation 4-1
C. State/Local Regulations 4-2
D. Key Compliance Requirements 4-2
E Key Compliance Definitions 4-5
F Records to Review 4-19
G. Physical Features to Inspect 4-20
H. Guidance for Checklist Users 4-21

Appendices

A4-1. Identification and Listing of Hazardous Waste A4-1
A4-2. Commercial Chemical Products or Manufacturing Chemical Intermediates Identified as Toxic Wastes A4-8
A4-3. Toxicity Characteristics Constituents and Regulatory Levels A4-24
A4-4. Identification of Hazardous Waste Hazardous Constituents A4-26
A4-5. Commercial Chemical Products or Manufacturing Chemical Intermediates Identified as Acute Hazardous Waste A4-42
A4-6. Potentially Incompatible Hazardous Wastes A4-49
A4-7. Land Disposal Restricted Wastes and Their Effective Dates A4-51
A4-8. Constituent Concentrations in Waste Extract A4-70
A4-9. Treatment Methods Expressed as Specific Technologies A4-76
A4-10. Constituent Concentrations in Wastes A4-99
A4-11. Maximum Concentrations of Constiuents for Graoundwater Protection A4-132
A4-12. Used Oil Classifications A4-133

A. Applicability

This section applies to facilities that generate, store, transport, treat, or dispose of hazardous waste. This section and its associated checklists are more complex than other sections in this volume Not all checklist items will be applicable to a facility Guidance is provided on the checklists to direct the assessor to the regulations concerning the type of hazardous waste activities/facilities on the facility Information on hazardous waste storage tanks is in the section titled Storage Tank Management.

Assessors are required to review agency, Federal, state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. The Resource Conservation and Recovery Act (RCRA), Subtitle C, (1976).

Public Law (PL) 98616; 42 USC 6921-6939b, establishes standards and procedures for the handling,. storage, treatment, and disposal of hazardous waste. Specifically, RCRA prohibits the placement of bulk or noncontainerized liquid hazardous waste or free liquids containing hazardous waste into a landfill. It also prohibits the land disposal of specified wastes and disposal of hazardous waste through underground injection within 1/4 mi (0.40 km) of an underground source of drinking water.

The law also provides for the management of used oil Under RCRA, used oil is not a listed hazardous waste, but regulations promulgated under RCRA (40 CFR 279) establish management standards for used oil generators, collection center aggregation points, transporters, transporter facilities, used oil processors, rerefinerys, used oil burners who burn off-specification used oil for energy recovery, used oil fuel marketers, and for use and disposal of used oil used as a dust suppressant

2. The Federal Facility Compliance Act (FFCA) of 1992.

This act provides for a waiver of sovereign immunity with respect to Federal, state, and local procedural and substantive requirements relating to RCRA solid and hazardous waste laws and regulations. Additionally, it defines hazardous waste in relation to public vessels, expands the definition of mixed waste, addresses the issue of munitions, and discusses waste discharges to Federally Owned Treatment Works (FOTWs).

3. Executive Order (EO) 12088, Federal Compliance with Pollution Standards.

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements and for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental

compliance are included in the agency budget.

C. State/Local Regulations

Many states have met the EPA requirements in 40 CFR 271 and have been authorized to manage their own state programs. RCRA encourages states to develop their own hazardous waste statutes and to operate regulatory programs. Many states have adopted the EPA regulations by reference or have promulgated regulations that are identical to the EPA regulations, while other states have promulgated regulations more stringent than the Federal RCRA. These differences between individual state regulations and the Federal program require that assessors check the status of the state's authorization and then determine which regulations apply. For example, some states have listed additional waste as hazardous waste (used oil, PCBs, asbestos). Since the section checklists are based exclusively on the requirements of the Federal RCRA/EPA program, it is necessary to determine in what ways the applicable state program differs from the RCRA/EPA program.

D. Key Compliance Requirements

1. Generator Requirements

Responsibilities of facilities are based on the amount of waste being generated in one month. Typical wastes include solvents, paint, contaminated antifreeze or oil, and sludges. In some states, waste oil and other substances have been classified as a hazardous waste and therefore need to be included in the total amount of waste being generated. Within Federal regulations there are three classifications:

a A Conditionally Exempt Small Quantity Generator (CESQG) produces no more than 100 kg (220.46 lb) of hazardous waste or 1 kg (2.20 lb) of acutely hazardous waste in a one month period. They also do not accumulate onsite more than 1,000 kg (2204.62 lb) of waste at any one time. When either the volume of waste produced in one month exceeds 100 kg (220.46 lb) or more than 1,000 kg (2204.62 lb) of waste has accumulated onsite, the facility is required to comply with the more stringent standards applicable to a Small Quantity Generator (SQG);

b. A SQG produces between 100 (220.46 lb) and 1,000 kg (2204.62 lb) of hazardous waste in a month. The waste cannot accumulate onsite for more than 180 days unless the waste is transported more than 200 mi (321.87 km) to a Treatment, Storage, and Disposal Facility (TSDF). In that situation, the waste can accumulate for 270 days. But at no time is there to be more than 6,000 kg (13,227.73 lb) of waste accumulated at the facility. When the volume of waste generated in one month exceeds 1,000 kg (2204.62 lb) of hazardous waste or 1 kg (2.20 lb) of acutely hazardous waste or the accumulation time limit is exceeded, the facility is required to comply with the standards for a Generator. When more than 6,000 kg (13,227 73 lb) of waste is stored onsite, the SQG is required to obtain a permit and comply with the requirements of 40 CFR 264 and 40 CFR 265;

c A Generator produces more than 1,000 kg (2204.62 lb) of hazardous waste in a month. (NOTE: Using water, which weighs approximately 8 lbs/gal (3 63 kg/gal) as a basis of measurement, 100 kg (220.46 lb) would equal about 28 gal (105.99 L) (one-half of a 55 gal (208.20 L) drum), 1,000 kg (2204.62 lb) would equal about 273 gal (1036.15 L) (almost five 55 gal drums)

Whether the facility is a CESQG, SQG, or a Generator determines recordkeeping requirements and design standards for storage areas. Storage areas connected with generation points are often referred to as accumulation points. Regardless of the amount of hazardous waste generated, every facility is required to test or use knowledge of materials or processes used to determine if it is a listed hazardous waste or has hazardous characteristics

Comparison of RCRA Generator Requirements

Requirement	CESQG	SQG	Generator
Identify HW	Yes	Yes	Yes
Quantity Limits	≤100 kg/mo (220 46 lb/m)	100 kg/mo (220 46 lb) 1,000 kg/mo (2204 62 lb)	>1,000 kg/mo (2204 62 lb/ mo)
Acute Waste Limits	≤1 kg/mo (2 20 lb/mo)	≤1 kg/mo (2 20 lb/mo)	None
Facility Receiving Waste	State approved or RCRA permitted	RCRA permitted facility	RCRA permitted facility
EPA ID Number	Not Required	Required	Required
RCRA Personnel Training	Not Required	Basic Training Required	Required
DOT Training	Required	Required	Required
Exception Report	Not Required	Required >60 days	Required >45 days
Biennial Report	Not Required	Not Required	Required
Onsite Accumulation Limits (without permit)	1,000 kg (2204 62 lb)	6,000 kg (13,227 73 lb)	Any quantity
Accumulation Time Limits (without permit)	None	180 days or 270 days (>200 mi (321 87 km))	90 days + 30 days granted by EPA
Storage Requirements	None	Basic requirements with technical standards for containers or tanks	Full compliance with management of containers or tanks
Use Manifests	No	Yes*	Yes*

*Unless the waste is reclaimed under contractual agreement and properly marked and labeled

2. Transport Requirements

Containers of hazardous waste shipped offsite must be labeled to identify the waste and its hazard class.

3. Accumulation Point Management

An accumulation point is an area in or near the workplace where hazardous waste is accumulated or stored before being turned in for disposal. Storage in these areas is temporary and the permissible length of time for accumulation depends on what size generator the facility is.

4. Satellite Accumulation Point Management

A satellite accumulation point is an area where no more than 55 gal (208.20 L) of a hazardous waste or 1 qt (0.95 L) of acute hazardous waste is accumulated at or near the point of generation. The satellite accumulation point is under the control of one operator. When the 55 gal (208.20 L) limit is reached the operator has 3 days to move the waste to a 90 day storage area or a permitted TSDF. These standards only apply to a SQG or a Generator.

5. Permitted TSDF Requirements

The operation of a TSDF is subject to regulation and permitting under Federal and state regulations These regulations are both administrative as well as technical in nature. The administrative standards require that various plans be developed to ensure that emergencies can be dealt with, waste received is properly identified, and operating personnel are adequately trained to operate the TSDF and respond to emergencies. These administrative standards also include requirements that the TSDF be inspected routinely, records of operations are compiled and maintained, and reports of both routine and contingency operations are made to the applicable regulatory agency. The administrative standards also require that a plan for ceasing operations and closing the TSDF be developed, kept on-hand, and updated frequently.

The technical standards which are applicable to TSDFs fall into two classes: general standards which apply to all TSDFs and specific standards which apply to various types of facilities, e.g , container storage areas, tanks, containment buildings, surface impoundments, waste piles, land treatment facilities, incinerators, landfills, thermal treatment facilities, and chemical, physical, biological treatment facilities.

Administrative and technical standards are applied to a particular facility through a RCRA permit issued to a facility. Existing TSDFs which have applied for a permit but not yet been issued a RCRA permit are considered to be in interim status if they applied for a part A and part B permit and can continue to operate if they comply with the RCRA mandated Interim Status Standards (ISS) of 40 CFR 265.

6. Waste Minimization/Pollution Prevention

Waste minimization and pollution prevention programs are being increasingly discussed and implemented by both environmental managers and environmental policy makers. Usually

defined as a reduction in the volume and toxicity of waste, waste minimization often pays for itself through reduced environmental costs, operating costs, and liability. While these cost savings are often enough to justify a program, there are an increasing number of voluntary and mandatory programs that drive waste minimization/pollution prevention

Under RCRA, large quantity generators are required to sign a certification on each manifest stating that they have a program in place to reduce waste to the degree that is economically feasible and select a disposal method that minimizes threats to human health and the environment. Small quantity generators must show a "good faith effort" to minimize waste and to select the best waste management method available.

EPA has also developed nonbinding guidelines on a waste minimization program for generators. Issued in 58 FR 31114 on May 28, 1993, the *Interim Final Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program* is intended to provide nonbinding, and nonenforceable guidance to generators of regulated hazardous wastes. The program includes:

- Provisions for top management assurance that waste minimization is a company-wide effort;
- Characterization of waste generation and waste management costs;
- Periodic waste minimization assessments;
- A cost allocation system;
- Promotion of technology transfer; and
- Procedures for program implementation and evaluation.

7. Ordnance

Under the provisions of 40 CFR 261.23(a)(6) through 261.23(a)(8) ordnance is classified as a reactive hazardous waste. The open burning and detonation (OB/OD) of waste explosives is allowed at interim status TSDFs as long as a minimum distance is kept from the property line of the property of others. The length of this distance is based on the amount of explosive being OB/OD. For permitted TSDFs, OB/OD activities are regulated by permit to operate a miscellaneous unit. This is often referred to as a Subpart X permit.

E. Key Compliance Definitions

1. Active Life

The period from the initial receipt of hazardous waste at the facility until the Regional Administrator receives certification of final closure (40 CFR 260.10).

2. Active Portion

That portion of a facility where treatment, storage, or disposal operations are being or have been conducted and which is not a closed portion (40 CFR 260.10).

3. Acute Hazardous Waste

Any waste listed under 40 CFR 261.31 through 261.33(c) with a hazard code of H. These include EPA Hazardous waste numbers: F020, F021, F022, F023, F026, and F027 (if 40 CFR 261.31 and the P listed wastes in 40 CFR 261.33(e)).

4. Aquifer

A geologic formation or group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs (40 CFR 260.10).

5. Boiler

An enclosed device using controlled flame combustion and having the following characteristics (40 CFR 260.10):

a. The unit has physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases;

b. The unit's combustion chamber and primary energy recovery section(s) must be of integral design;

c. While in operation the unit maintains a thermal energy recovery efficiency of at least 60 percent; and

d. The unit has been approved by the EPA's Administrator.

6. Certification

A statement of professional opinion based upon knowledge and belief (40 CFR 260.10).

7. Characteristics of Hazardous Waste

The characteristics of ignitibility, corrosivity, reactivity, and toxicity which identify hazardous waste (40 CFR 261.20 through 261.24).

8. Closed Portion

The portion of a facility which has been closed in accordance with the approved closure plan and all applicable closure requirements (40 CFR 260.10).

9. Consignee

The ultimate treatment, storage, or disposal facility in a receiving country to which the hazardous waste will be sent (40 CFR 262.51).

10. Container

Any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled (40 CFR 260.10).

11. Containment Building

A hazardous waste management unit that is used to store or treat hazardous waste under 40 CFR 264.1100 through 264.1103 and 40 CFR 265.1100 through 265.1103 (40 CFR 260.10).

12. Contingency Plan

A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (40 CFR 260.10).

13. Corrective Action Management Unit (CAMU)

An area within a facility that is designated by the Regional Administrator under 40 CFR 264 Subpart S, for the purpose of implementing corrective action requirements under 264.101 and RCRA section 3008(h). A CAMU shall only be used for the management of remediation wastes pursuant to implementing such corrective action requirements at the facility (40 CFR 264.10)

14. Debris

Solid material exceeding a 60 mm particle size that is intended for disposal and that is: a manufactured object; or plant or animal matter; or natural geologic material. The following materials are not debris: any material for which a specific treatment standard is provided, process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emissions residues; and intact containers of hazardous waste that are not ruptured and retain at least 75 percent of their original volume (40 CFR 268.2).

15. Designated Facility

A hazardous waste TSDF that is identified on a manifest as the destination of a hazardous waste shipment. The facility must have an appropriate permit, interim status, or be regulated under specific recycling requirements (40 CFR 260.10).

16. Detonation

An explosion in which chemical transformation passes through the material faster than the speed of sound (0 33 km/sec at sea level) (40 CFR 265.382).

17. Dike

An embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials (40 CFR 260.10).

18. Discharge or Hazardous Waste Discharge

The accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water (40 CFR 260.10).

19. Disposal

The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters (40 CFR 260.10)

20. Do-it-Yourselfer (DIY) Used Oil Collection Center

Any site or facility that accepts/aggregates and stores used oil collected only from household do-it-yourselfers.

21. Elementary Neutralization Unit

A device used for neutralizing only those hazardous wastes that exhibit corrosivity (as defined in 40 CFR 261.22) or are listed in Subpart D of 40 CFR 261 only because of corrosivity and meet the definition of tank, tank system container, transport vehicle, or vessel in 40 CFR 261.10 (40 CFR 260.10).

22. EPA Acknowledgement of Consent

The cable sent to the EPA from the U.S. Embassy in a receiving country that acknowledges the written consent of the receiving country to accept the hazardous waste and describes the terms and conditions of the receiving country's consent to the shipment (40 CFR 262.51).

23. EPA Hazardous Waste Number

The number assigned by EPA to each hazardous waste listed in Part 261, Subpart D and to each characteristic identified in Part 261, Subpart C (40 CFR 260.10).

24. EPA Identification Number

The number assigned by EPA to each generator, transporter, and treatment, storage, or disposal facility (40 CFR 260.10).

25. Existing Hazardous Waste Management Facility or Existing Facility

A facility which was in operation or for which construction commenced on or before 19 November 1980 (40 CFR 260.10).

26. Existing Portion

The land surface area of an existing waste management unit, included in the original Part A permit application, on which wastes have been placed prior to the issuance of a permit (40 CFR 260.10).

27. Facility

All contiguous land and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several

treatment, storage, or disposal operational units (e.g. one or more landfills, surface impoundments, or combination of them) (40 CFR 260.10).

28. Final Closure

The closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under 40 CFR Parts 264 and 265 are no longer conducted at the facility unless subject to the provisions of 262.34 (40 CFR 260.10).

29. Food-Chain Crops

Tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans (40 CFR 260.10).

30. Free Liquids

Liquids which readily separate from the solid portion of a waste under ambient temperature and pressure (40 CFR 260.10).

31. Generator

Any person, by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261, or whose act first causes a hazardous waste to become subject to regulation (40 CFR 260.10). (NOTE: This typically is used to refer to a facility producing hazardous waste in quantities greater than 1,000 kg/mo (2204.62 lb/mo)).

32. Groundwater

Water below the land surface in a zone of saturation (40 CFR 260.10).

33. Halogenated Organic Compounds (HOC)

Those compounds having a carbon-halogen bond which are listed in Appendix 4-1 (40 CFR 268.2).

34. Hazardous Debris

Debris that contains a hazardous waste or that exhibits a characteristic of hazardous waste (40 CFR 268.2)

35. Hazardous Waste

A solid waste identified as a characteristic or listed hazardous waste in 40 CFR 261.3 (40 CFR 260.10).

36. Hazardous Waste Constituent

A constituent that caused the hazardous waste to be listed in 40 CFR Part 261, Subpart D (lists of hazardous wastes from non-specific and specific sources, and listed hazardous wastes), or a constituent listed in the table of maximum concentrations of contaminants for the toxicity characteristic) (40 CFR 260.10).

37. Hazardous Waste Management Unit

A contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples are a surface impoundment, a waste pile, a treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system, and a container storage area. A container alone does not constitute a unit, the unit includes containers and the land or pad upon which they are placed (40 CFR 260.10).

38. Incinerator

An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace (40 CFR 260.10).

39. Incompatible Waste

A hazardous waste that is unsuitable for (40 CFR 160.10)·

a. Placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container liners or tank walls); or

b. Commingling with another waste or material under uncontrolled conditions because the commingling conditions produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mist, fumes, or gases, or flammable fumes or gases.

40. Individual Generation Site

The contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of hazardous waste, but is considered a single or individual generation site if the site or property is contiguous (40 CFR 260.10).

41. Industrial Furnace

Any of the following enclosed devices that are integral components of manufacturing processes and that use controlled flame devices to accomplish recovery of materials or energy; cement kilns, lime kilns, aggregate kilns, phosphate kilns, coke ovens, blast furnaces, smelting, melting and refining furnaces, titanium dioxide chloride process oxidation reactors, methane reforming furnaces, pulping liquor recovery furnaces, combustion devices used in the recovery of sulfur values from spent sulfuric acid, halogen acid furnaces, and other devices designated by the Administrator (40 CFR 260.10)

42. Injection Wells

A well into which fluids are injected (40 CFR 260.10).

43. Inner Liner

A continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste (40 CFR 260.10).

44. International Shipment

The transportation of hazardous waste into or out of the jurisdiction of the United States (40 CFR 260.10).

45. Land Disposal

Includes, but is not limited to, any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes (40 CFR 268 2)

46. Land Treatment Facility

A facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface, such facilities are disposal facilities if the waste will remain after closure (40 CFR 260.10).

47. Landfill

A disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, an underground injection well, a salt bed formation, an underground mine, or a cave (40 CFR 260.10).

48. Landfill Cell

A discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples are trenches and pits (40 CFR 260.10).

49. Large Quantity Generator

See Generator.

50. Leachate

Any liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste (40 CFR 260.10)

51. Leak Detection System

A system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary structure. Such a system must employ operational controls (e.g., daily visible containment for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring devise designed to detect continuously and automatically

the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure (40 CFR 260.10).

52. Liner

A continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR 260.10).

53. Management or Hazardous Waste Management

The systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste (40 CFR 260.10).

54. Management Practice (MP)

Practices which, although not mandated by law, are encouraged to promote safe operating procedures.

55. Manifest

The shipping document originated and signed by the generator containing the information required by 40 CFR 262, Subpart B (40 CFR 260.10).

56. Manifest Document Number

The EPA 12-digit number assigned to the generator plus a unique five digit number assigned to the manifest by the generator for recording and reporting purposes (40 CFR 260.10).

57. Miscellaneous Unit

A hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR 146, containment building, or unit eligible for a research development and demonstration permit under 40 CFR 270.65 (40 CFR 260.10

58. Movement

That hazardous waste transported to a facility in an individual vehicle (40 CFR 260.10).

59. New Hazardous Waste Management Facility

A facility which began operation, or for which construction commenced after 21 October 1976 (40 CFR 260.10).

60. Nonwastewaters

Wastes that do not meet the criteria for wastewaters (40 CFR 268.2).

61. Onsite

The same or geographically continuous property which may be divided by a public right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection and access is obtained by crossing rather than going along the right-of-way (40 CFR 260.10).

62. Open Burning

The combustion of any material without the following characteristics (40 CFR 260.10):

a. Control of combustion air to maintain adequate temperature for efficient combustion,

b. Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion,

c Control of emission of the gaseous combustion products

63. Ordnance

See Waste Explosives

64. Partial Closure

The closure of a hazardous waste management unit in accordance with the applicable closure requirements of 40 CFR 264 and 265 at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems) while other units of the same facility continue to operate (40 CFR 260.10).

65. Pile

Any non-containerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage that is not a containment building (40 CFR 260.10).

66. Point Source

Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture (40 CFR 260 10).

67. Pollution Prevention

The term includes: equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training or inventory control as defined in the Pollution Prevention Act.

68. Primary Exporter

Any person who is required to originate the manifest for a shipment of hazardous waste in accordance with 40 CFR 262, Subpart B or an equivalent state provision, that specifies treatment, storage, or disposal facility in a receiving country as the facility to which the hazardous waste will be sent and any intermediary arranging for the export (40 CFR 262.51).

69. Processing

Chemical or physical operations designed to produce from used oil, or to make used oil more amenable for production of, fuel oils, lubricants, or other used oil-derived product. Processing includes, but is not limited to: blending used oil with virgin petroleum products, blending used oils too meet the fuel specification, filtration, simple distillation, chemical or physical separation and re-refining.

70. Publicly Owned Treatment Works (POTW)

Any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a state or municipality (as defined by section 502(4) of the CWA). This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment (40CFR 260.10).

71. Pump Operating Level

A liquid level proposed by the owner or operator and approved the Regional Administrator based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump (40 CFR 264.226(d)(3)).

72. Qualified Groundwater Scientist

A scientist or engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in ground water hydrology and related fields as may be demonstrated by state registration, professional certification, or completion of accredited university courses that enable that individual to make sound professional judgements regarding groundwater monitoring and contaminant fate and transport (40 CFR 260.10).

73. Receiving Country

A foreign country to which a hazardous waste is sent for the purpose of treatment, storage, or disposal (except short-term storage incidental to transportation) (40 CFR 262.51).

74. Replacement Unit

A landfill, surface impoundment or waste pile unit (40 CFR 260.10):

a. From which all or substantially all of the waste is removed, and

b. That is subsequently reused to treat, store, or dispose of hazardous waste. This does not apply to a unit from which waste is removed during closure, if the subsequent reuse solely involves the disposal of waste from that unit and other closing units or corrective action areas at the facility, in accordance with an approved closure plan or EPA or state approved corrective action

75. Representative Sample

A sample of a universe or whole (e g , waste pile, lagoon, groundwater) which can be expected to exhibit the average properties of the universe or whole (40 CFR 260.10).

76. Re-Refining Distillation Bottoms

The heavy fraction produced by vacuum distillation of filtered and dehydrated used oil. The composition of still bottoms varies with column operation and feedstock.

77. Restricted Wastes

Those categories of hazardous wastes that are prohibited from land disposal the dates established in RCRA Section 3004 (40 CFR 268).

78. Runoff

Any rainwater, leachate, or other liquid that drains over land from any part of a facility (40 CFR 260.10).

79. Runon

Any rainwater, leachate, or other liquid that drains over land onto any part of a facility (40 CFR 260.10).

80. Sludge

Any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant (40 CFR 260.10).

81. Small Quantity Generator

A generator who generates less than 1,000 kg (2204.62 lb) of hazardous waste in a calendar month but more than 100 kg (220.46 lb)(40 CFR 260 10)

82. Storage

The holding of hazardous wastes for a temporary period, at the end of which the hazardous wastes are treated, disposed of, or stored elsewhere (40 CFR 260.10).

83. Sump

Any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste TSDF except that as used in the landfill, surface impoundment, and waste pile rules. Sump means any lined pit or

reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system (40 CFR 260.10).

84. Surface Impoundment

A facility or part of a facility that is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials designed to hold an accumulation of liquid wastes or wastes containing free liquids and which is not an injection well (40 CFR 260.10).

85. Thermal Treatment

The treatment of hazardous waste in a device that uses elevated temperature as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste (40 CFR 260.10).

86. Transfer Facility

Any transportation related facility including loading docks, parking areas, storage areas and other similar areas where shipments of hazardous wastes are held during the normal course of transportation (40 CFR 260.10).

87. Transit Country

Any foreign country, other than a receiving country, through which a hazardous waste is transported (40 CFR 260.10).

88. Transport Vehicle

A motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, railroad freight car, etc.) is a separate transport vehicle (40 CFR 260.10).

89. Transporter

A person engaged in the offsite transportation of hazardous wastes by air, rail, highway, or water (40 CFR 260.10).

90. Treatability Study

A study in which a hazardous waste is subjected to a treatment process to determine (40 CFR 260.10):

a. Whether the waste is amenable to the treatment process,
b. What pretreatment (if any) is required,
c. The optimal process conditions needed to achieve the desired treatment,
d. The efficiency of a treatment process for a specific waste or wastes, or
e. The characteristics and volumes of residuals from a particular treatment process.

Also included in this definition for the purpose of the 40 CFR 261.4(e) and (f) exemptions are liner compatibility, corrosion, and other material compatibility studies and toxicological and health effects studies. A treatability study is not a means to commercially treat or dispose of hazardous waste.

91. Treatment

Any method, technique, or process, including neutralization, designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume (40 CFR 260.10).

92. Treatment Zone

A soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed, or immobilized (40 CFR 260.10).

93. Underground Injection

The subsurface emplacement of fluids through a bored, drilled or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension (40 CFR 260 10).

94. Unsaturated Zone or Zone of Aeration

The zone between the land surface and the water table (40 CFR 260.10).

95. United States

The 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the US Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (40 CFR 260.10).

96. Uppermost Aquifer

The geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary (40 CFR 260.10).

97. Used Oil

Any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities (40 CFR 279.1)

Although used oil has not been declared a hazardous waste at the Federal level, it does need to be stored, handled, and documented according to specific requirements depending on whether the facility is a used oil generator, a used oil collection center and aggregation point, a used oil transporter, a used oil burner, or a used oil marketer.

98. Used Oil Aggregation Point

Any site or facility that accepts, aggregates, and/or stores used oil collected only from other used oil generation sites owned or operated by the owner or operator of the aggregation point, from which used oil is transported to the aggregation point in shipments of no more than 55 gal (208.20 L). Used oil aggregation points may also accept used oil from household DIYs (40 CFR 279.1)

99. Used Oil Burner

A facility where used oil not meeting the specification requirements is burned for energy recovery (40 CFR 279.1).

100. Used Oil Collection Center

Any site or facility that is registered, licensed, permitted, or recognized by a state, county, or municipal government to manage used oil and accepts or aggregates and stores used oil collected from used oil generators who bring used oil to the collection centers in shipments of no more than 55 gal (208.20 L). Used oil collection centers may accept used oil from household DIYs (40 CFR 279.1).

101. Used Oil Fuel Marketer

Any person who conducts either of the following activities (40 CFR 279.1):

a. Directs a shipment of off-specification used oil from their facility to a used oil burner, or
b First claims that used oil that is to be burned for energy recovery meets used oil fuel specifications.

102. Used Oil Generator

Any person, by site, whose act or process produces used oil or whose act first causes used oil to become subject to regulation (40 CFR 279.1).

103. Used Oil Processor/Re-refiner

A facility that processes used oil (40 CFR 279.1).

104. Used Oil Transfer Facility

Any transportation related facility, including loading docks, parking areas, storage areas, and other areas where shipments of used oil are held for more than 24 hours during the normal course of transportation and not longer than 35 days (40 CFR 279.2).

105. Used Oil Transporter

Any person who transports used oil, any person who collects used oil from more than one generator and transports the collected oil, and owners and operators of used oil transfer facilities. Used oil transporters may consolidate or aggregate loads of used oil for purposes of transportation, but with the following exception, may not process used oil. Transporters may

conduct incidental processing operations that occur in the normal course of used oil transportation (e.g., settling and water separation), but that are not designed to produce or make more amenable for production used oil derived products or used oil fuel (40 CFR 279.1).

106. Waste Explosives

This includes waste which has the potential to detonate and bulk military propellants which cannot be safely disposed of through other modes of treatment (40 CFR 265.382).

107. Wastewater Treatment Unit

A device that is part of a wastewater treatment facility subject to regulation under section 402 or 307 of the CWA and receives and treats or stores an influent wastewater that is a hazardous waste (as defined in 40 CFR 261 3) or that generates and accumulates a wastewater treatment sludge that is a hazardous waste, or treats or stores a wastewater treatment sludge and meets the definition of tank or tank system (40 CFR 260.10).

108. Wastewaters

Wastes that contain less than one percent by weight total organic compounds (40 CFR 268 2)

109. Zone of Engineering Control

An area under the control of the owner/operator that upon detection of a hazardous waste release, can be readily cleaned up before the release of hazardous waste or hazardous constituents to groundwater or surface water (40 CFR 260 10)

110. Section 6002

a. Application of Section. Except as provided in subsection

b. A procuring agency shall comply with the requirements set forth in this section and any regulations issued under this section, with respect to any purchase or acquisition of a procurement item where the purchase price of the item exceeds $10,000 or where the quantity of such items or of functionally equivalent items purchased or acquired in the course of the preceding fiscal year was $10,000 or more. (42 USC 6962)

F. Records to Review

Generator (including TSDFs if they are also generators):

- Notification of Hazardous Waste Activity (EPA ID No.),
- Hazardous waste manifests;

- Manifest exception reports;
- Biennial reports;
- Inspection Logs;
- Delistings;
- Speculative accumulation records;
- Land disposal restriction certifications;
- Employee training documentation;
- Contingency plan; and
- Notifications of hazardous waste oil fuel marketing or blending activity.

In addition to the above, TSDFs would require:

- Permits, if issued, otherwise Part A Application;
- Unmanifested waste reports;
- TSDF audit reports (Inspection log);
- Waste analysis plan(s);
- Operating record;
- Groundwater monitoring records and annual reports (where required);
- Biennial reports Closure/Post Closure Plans Closure/Post Closure Notices (where applicable); and
- Other documents as required by the Permit.

G. Physical Features to Inspect

- Disposal sites;
- Accumulations points;
- Incinerators;
- Vehicles used for transport;
- Storage facilities (including drums);
- Surface impoundments;
- OB/OD sites;
- Used oil storage sites;
- Marshaling facilities; and
- Generation points.

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	**Page Numbers**
All Facilities	HW 1 through HW 2 HW 3 through HW 4	4-25 4-26
All Sizes of Generators	HW.5 HW 6 through HW 7	4-27 4-28
Conditionally Exempt Small Quantity Generators (CESQG)	HW 8 HW 9 through HW 10 HW 11 through HW 13	4-29 4-30 4-31
Small Quantity Generators (SQG)		
General	HW 14 through HW 16 HW 17 through HW 19	4-32 4-33
Personnel Training	HW 20 through HW 21	4-34
Containers	HW 22 through HW 23 HW 24 through HW 27	4-34 4-35
Satellite Accumulation Points	HW 28	4-36
Container Storage Areas	HW 29 HW 30 through HW 31	4-36 4-37
Disposal of Restricted Wastes	HW 32 HW 33 HW 34 through HW 35 HW 36	4-38 4-38 4-39 4-40

	Refer To	
	Checklist Items	**Page Numbers**
Generators		
General	HW.37	4-40
	HW 38 through HW 42	4-41
	HW 43	4-42
Personnel Training	HW 44 and HW.45	4-43
Contingency Plans and Emergency Coordinators	HW 46 through HW 47	4-44
Containers	HW.48 through HW.49	4-45
	HW.50 through HW.53	4-46
	HW 54 through HW 55	4-47
Satellite Accumulation Points	HW.56	4-48
Container Storage Areas	HW 57 through HW .59	4-48
Containment Buildings	HW.60	4-49
	HW.61	4-50
	HW 62 through HW 63	4-51
	HW.64 through HW.66	4-52
	HW 67	4-52
Disposal of Restricted Waste	HW.68 through HW 69	4-53
	HW.70 through HW 72	4-54
Transportation of Hazardous Waste	HW.73 through HW 74	4-55
	HW.76 through HW.77	4-56

	Refer To	
	Checklist Items	**Page Numbers**
TSDFs		
General	HW 78 through HW 79	4-56
	HW 80 through HW 81	4-57
	HW 82 through HW 84	4-58
	HW 85 through HW 87	4-59
Personnel Training	HW 88 through HW 89	4-60
Containers	HW.90 through HW 93	4-61
	HW 94 through HW 95	4-62
Container Storage Areas	HW 96 through HW.98	4-62
Containment Buildings	HW 99	4-63
	HW 100	4-64
	HW 101	4-65
	HW.102 through HW 105	4-66
Restricted Wastes	HW 106 through HW 107	4-67
	HW.108 through HW 109	4-68
	HW 110 through HW.111	4-69
Emissions from Process Vents	HW 112 through HW 113	4-70
	HW 114	4-71
Air Emissions Standards for	HW 115	4-72
Equipment Leaks	HW.116	4-73
	HW 117 through HW 118	4-74
	HW.119	4-75
	HW 120	4-76
	HW 121 through HW 122	4-77
Documentation Requirements	HW 123 through HW 124	4-78
	HW 125 through HW 126	4-79
	HW 127	4-80
	HW.128 through HW 130	4-81
	HW 131 through HW.133	4-82
	HW 134	4-83
Surface Impoundments	HW 135	4-83
Waste Piles	HW.136	4-84
Land Treatment Units	HW 137	4-85
Hazardous Waste Landfills	HW 138	4-85
Closure	HW 139 through HW 143	4-86

	Refer To	
	Checklist Items	Page Numbers
Additional Requirements for Permitted TSDFs		
General	HW 144	4-86
	HW 145 through HW 148	4-87
	HW 149 through HW 150	4-88
	HW 152 through HW 156	4-89
Surface Impoundments	HW 157	4-90
	HW 158 through HW 159	4-91
	HW 160 through HW.165	4-92
	HW 166	4-93
Waste Piles	HW 167	4-93
	HW.168	4-94
	HW.169 through HW 171	4-95
Land Treatment Units	HW 172 through HW.174	4-96
	HW.175 through HW 176	4-97
	HW 177 through HW 178	4-98
Hazardous Waste Landfills	HW.179	4-99
	HW 180	4-100
	HW 181 through HW 182	4-101
Incinerators	HW 183 through HW 185	4-102
	HW 186	4-103
Miscellaneous Units	HW 187	4-103
	HW 188 through HW 189	4-104
Additional Requirements for Interim Status TSDFs		
General	HW 190 through HW 191	4-110
	HW 192 through HW 194	4-111
	HW 195 through HW 198	4-112
Surface Impoundments	HW 199	4-113
	HW 200 through HW 202	4-114
Waste Piles	HW.203	4-115
	HW 204 through HW 205	4-116
	HW 206	4-117
Land Treatment Units	HW.207	4-117
	HW 208 through HW 210	4-118
Hazardous Waste Landfills	HW 211	4-119
Incinerators	HW 212 through HW.213	4-120
	HW.214 through HW.216	4-121
Thermal Treatment	HW 217 through HW 218	4-122
	HW.219	4-123
Chemical/Physical/Biological	HW 220	4-123
Treatment	HW 221 through HW.222	4-124

	Refer To	
	Checklist Items	**Page Numbers**
Export/Import of Hazardous Waste	HW 223 HW 224 through HW 227 HW 228 through HW 230	4-124 4-125 4-126
Used Oil		
General	HW 231	4-127
Used Oil Generators	HW 232 through HW 233	4-127
	HW 234 through HW 238	4-128
Used Oil Collection Centers and Aggregation Points	HW 239 through HW 241	4-129
Used Oil Transportation	HW 242	4-129
	HW 243 through HW 247	4-130
	HW 248 through HW 250	4-131
Used Oil Burners	HW 251 through HW 253	4-132
	HW 254 through HW 256	4-133
	HW 257	4-134
Used Oil Marketing	HW 258 through HW 260	4-134
	HW 261 through HW 263	4-135
Waste Minimization/Pollution Prevention	HW 264	4-136

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
HW 1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent State enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems.
HW 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 3 Facilities are required to comply with state and local regulations concerning hazardous waste management (EO 12088, Sect 1-1, Federal Facilities Compliance Act, Section 102)	Verify that the facility is abiding by state and local hazardous waste requirements Verify that the facility is operating according to permits issued by the state or local agencies where approved (NOTE Issues typically regulated by state and local agencies include - Additional manifesting requirements - More frequent reporting requirements - Transportation - Identification of special waste or waste categories - Regulation of specific substances as hazardous waste such as medical, pathological, and infectious waste, used oil, explosives, used batteries - Small and very small quantity generator requirements - RCRA permitting of oil/water separators - Disposal requirements - Construction and operation of storage and disposal facilities - Satellite accumulation point requirements - Container marking and labeling requirements) Verify that the actions detailed in compliance agreements are being taken according to the schedule established in the agreements
HW 4 Specific persons should be designated responsible for hazardous waste storage areas, and the precise nature of their responsibilities should be specified (MP)	Verify that specific individuals have been designated responsible for hazardous waste storage areas Verify that the individuals designated responsible for hazardous waste storage areas are aware of the precise nature of their responsibilities Verify that required hazardous waste handling training is in personnel file
All Sizes of Generators	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 5 Facilities that generate solid wastes must determine if the wastes are hazardous wastes (40 CFR 261 3, 261 4(b), 261 24, 262 11)	Determination of whether or not a waste is a hazardous waste can be done through one of the following - Knowledge of all the constituents of the waste (MSDSs) - Laboratory analysis - Knowledge of processes used - A sample which is collected for the sole purpose of testing to determine characteristics or composition (SW 846)) (NOTE Determination of whether or not a waste is a hazardous waste can be done through one of the following - Knowledge of all the constituents of the waste (MSDSs) and whether it is listed in 40 CFR 261 - Laboratory analysis - Knowledge of processes and/or materials used) (NOTE Unidentified waste materials and spilled hazardous materials may have to be disposed of as hazardous waste depending on their constituents or characteristics.) Discuss with staff how wastes generated on the facility were identified and classified Determine if the facility followed EPA criteria for identifying the characteristics of hazardous waste and EPA's listed wastes in 40 CFR 261 (see Appendices 4-1, 4-2, 4-3, and 4-4) Determine whether the facility generates, transports, treats, stores, or disposes of any hazardous waste (see Appendices 4-1, 4-2, 4-3, and 4-4 for guidance) and the quantity Waste documentation must be in facility records (NOTE. The following solid wastes are not considered to be hazardous wastes - Household waste - Fly ash waste, bottom ash waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels except for facilities that burn hazardous waste - Drilling fluids, produced waters and other wastes affiliated with the explorations, development, or production of crude oil, natural gas, or geothermal energy - Solid waste which consists of discarded arsenical-treated wood or wood products which fail the test for Toxicity Characteristics for arsenic and which is not a hazardous waste for any other reason if the waste is generated by persons who utilize the arsenical treated wood and wood products for those materials intended end use - Petroleum contaminated media and debris that fail the test for Toxicity Characteristic (Hazardous Waste Codes D018 through D043 only) and are required to meet the corrective action regulations under 40 CFR part 280 (see the Section titled Storage Tank Management)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 5 Continued	- Used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air conditioning systems, mobile refrigeration and commercial and industrial air conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided that the refrigerant is reclaimed for further use - Non-tern plated used oil filters that are not mixed with a listed hazardous waste if these oil filters have been gravity hot-drained using one of the following methods -- puncturing the filter anti-drain back valve or the filter dome end and hot-draining -- hot-draining and crushing -- dismantling and hot-draining -- any other equivalent hot-draining method which will remove used oil) Verify that listed wastes are tested for reactivity, corrosivity, ignitibility, and toxicity characteristics Determine if wastes contain contaminants in greater concentrations than the toxicity characteristics listed in Appendix 4-3 Verify that all data used for determination, including quality assurance data, is maintained and kept available for reference or inspection
HW 6 Facilities which claim that a particular material is not a solid waste or is conditionally exempt from regulation as a hazardous waste are required to provide specific documentation (40 CFR 261 2(f))	Determine if the facility has any wastes that are typically handled as hazardous wastes that it claims are exempt Verify that for these wastes, the facility can demonstrate that there is a known market or distribution for the material and that they meet the terms of the exclusion or exemption Verify that documentation is provided that indicates the material is not a waste, or is exempt from regulation (NOTE One example of documentation are contracts showing that a second person uses the material as an ingredient in a production process.) Verify that if the facility is claiming to recycle material, the equipment for the recycling is actually at the facility and in working order
HW 7 Areas where containers of hazardous waste are stored should have secondary containment (MP)	Verify that the areas where containers of hazardous waste are stored have secondary containment

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Conditionally Exempt Small Quantity Generators (CESQG)	
HW 8 Generators of no more that 100 kg/mo (220 46 lb/mo) of hazardous waste may qualify as CESQGs when they meet specific requirements (40 CFR 261 5)	Verify that the following quantity and storage limitations are met. - No more than 100 kg (220 46 lb) of hazardous waste is generated in a calendar month - Total onsite accumulation does not exceed more than 1000 kg (2204 62 lb) of hazardous waste - No more than 1 kg (2.2 lb) of acute hazardous waste (see Appendix 4-5) is generated in a calendar month - No more than a total of 100 kg (220 46 lb) of any residue or contaminated soil, waste, or other debris resulting from the cleanup of any acute wastes in a calendar month is generated Verify that wastes are either treated or disposed of in an onsite facility or delivered to an offsite TSDF, either of which are one of the following: - Permitted - In interim status - Authorized to manage hazardous waste by a State with an approved hazardous waste management program - Permitted, licensed, or registered by a state to manage municipal or industrial solid waste - A facility which does one of the following -- beneficially uses or reuses, or legitimately recycles or reclaims its waste -- treats it waste prior to beneficial use or reuse, or legitimate recycling or reclamation (NOTE If a hazardous waste generator meets the requirements for being a CESQG, they are not required to meet any of the standards outlined in 40 CFR Parts 262 through 266, (except 262 11), 268, 270) (NOTE If an facility mixes its waste with used oil, the mixture is subject to the requirements in Subpart G of 40 CFR Part 279 if it is destined to be burned for energy recovery.) (NOTE Quantities of acute hazardous waste greater than listed amounts are required to be handled according to the standards in 40 CFR Parts 262 through 266, 268, and Parts 270 and 124) (NOTE. Even though a CESQG is not legally required to use a manifest or obtain a hazardous waste identification number, many hazardous waste haulers will not transport hazardous waste from a facility without a manifest or ID number)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 9 CESQG personnel who handle hazardous waste should meet certain training requirements (MP)	Verify that the training program is directed by a person trained in hazardous waste management procedures Verify that the training program includes the following - Contingency plan implementation (emergency procedures, equipment, and systems) - Key parameters for automatic waste feed cut-off system - Procedures for using, inspecting, and repairing emergency and monitoring equipment - Operation of communications and alarm systems - Response to fire or explosion - Response to leaks or spills - Waste turn in procedures - Identification of hazardous wastes - Container use, marking, labeling, and on-base transportation - Manifesting and off-base transportation - Accumulation point management - Personnel health and safety and fire safety - Shutdown procedures Verify that new employee training is completed within six months of employment Verify that an annual review of initial training is provided Verify that employees do not work unsupervised until training is completed Verify specifically that accumulation point managers and hazardous waste handlers have been trained
HW 10 Training records must be maintained for all CESQG staff who manage hazardous waste (MP)	Examine training records and verify they include the following - Job title and description for each employee by name - Written description of how much training each position will obtain - Documentation of training received by name Determine if training records are retained for three years after employment at the facility

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 11 Empty containers at CESQGs previously holding hazardous wastes must meet the regulatory definition of empty before they are exempted from hazardous waste requirements (40 CFR 261 7)	Verify that for containers or inner liners holding hazardous wastes· - Wastes are removed that can be removed using common practices - No more than 2 5 cm (1 in) of residue remains - If the container is less than or equal to 110 gal (416 40 L), no more than 3 percent by weight of total container capacity remains - When the container is greater than 110 gal (416 40 L), no more than 0 3 percent by weight of the total container capacity remains Verify that for containers that hold a compressed gas, the pressure in the container approaches atmosphere Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5, that one of the following is done - It is triple rinsed - It is cleaned by another method identified through the literature or testing as achieving equivalent removal - The inner liner is removed
HW 12 Containers at CESQGs should be managed in accordance with specific management practices (MP)	Verify the following by inspecting storage areas - Containers are not stored more than two high and have pallets between them - Containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - At least 3 ft (0 91 m) of aisle space is provided between rows of containers
HW.13 Containers of hazardous waste should be kept in designated storage areas at CESQGs (MP)	Verify that all hazardous waste containers are identified and stored in appropriate areas (NOTE Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply)
Small Quantity Generators (SQGs)	
General	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 14 Generators of more than 100 kg (220 46 lb) but less than 1000 kg (2204 62 lb) of hazardous waste per month may qualify as a SQG which can accumulate hazardous waste onsite for 180 days without a permit if specific conditions are met (40 CFR 262 34(d)(1), 262 34(d)(4), 262 34(e) and 262 34(f))	Inspect containers, storage, and records Verify that no more than 1000 kg (2204 62 lb) of hazardous waste is generated in any month Verify that the onsite accumulation time does not exceed 180 days (NOTE For a SQG the accumulation start date begins when the first waste is poured/placed into the waste container, except for at satellite accumulation points) (NOTE The 180 day time period is extended to 270 days if the waste must be transported more than 200 miles to a TSDF This extension does not apply if a TSDF is available within 200 miles and the facility chooses to transport the waste to a farther away TSDF) Verify that no more than 6000 kg (13,227 73 lb) is allowed to accumulate at the facility Verify that containers are marked with the date accumulation began and the words HAZARDOUS WASTE Verify that the containers and the areas where containers are stored meet the requirements outlined in the subsections pertaining to SQG (NOTE. When a SQG exceeds the quantity generation or amount accumulation it becomes subject to either Generator or TSDF requirements When a SQG exceeds the storage time limitation, the SQG becomes subject to all storage facility and permitting requirements)
HW 15 SQGs that generate, transport, or handle hazardous wastes must obtain an EPA identification number (40 CFR 262 12(a) and 262 12(b); 40 CFR 265 11)	Examine documentation from EPA for the facility's generator identification number Verify that correct identification number is used on all appropriate documentation (i e , manifests)
HW 16 A SQG must not offer its hazardous waste to transporters or to TSDFs that have not received an EPA identification number (40 CFR 262 12(c))	Verify that all transporters of hazardous waste of TSDFs have an EPA identification number by examining records pertaining to disposal contract awards

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 17 SQGs of hazardous waste are required to use manifests and keep records of hazardous waste activity (40 CFR 262 20, 262 42(b) and 262 44)	Verify that signed copies of returned manifests are kept for three years Verify that exception reports were submitted to the EPA Regional Administrator when a signed manifest copy was not received within 60 days of the waste being accepted by the initial transporter. Verify that exception reports are kept for at least three years Verify that records of test results, waste analyses, and determinations are kept for 3 yr (NOTE The requirement to prepare a manifest does not apply if - The waste is reclaimed under contractual agreement and - The type of waste and frequency of shipments are specified in the agreement - The vehicle used to transport the waste to the recycling facility and to deliver regenerated material back to the generator is owned and operated by the reclaimer - The generator maintains a copy of the reclamation agreement for at least three years after termination of the agreement) (NOTE· Period of retention of records is extended automatically during the course of any unresolved enforcement action or as requested by the EPA Administrator)
HW 18 SQGs are required to keep records of waste analyses, tests, and waste determinations (40 CFR 262 40(c))	Verify that appropriate records are kept for at least three years from the date the waste was last sent to an onsite or offsite TSDF (NOTE Period of retention of records is extended automatically during the course of any unresolved enforcement action or as requested by the EPA Administrator)
HW 19 SQGs are required to have an emergency coordinator and emergency response planning (40 CFR 262 34(d)(5))	Verify that the facility has an emergency coordinator Verify that the following emergency information is posted next to the telephone - Name and telephone number of emergency coordinator - Location of fire extinguishers and spill control materials - Location of fire alarms (if present) - Telephone number of fire department Verify that waste handlers are familiar with waste handling and emergency procedures.
Personnel Training	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 20 SQG personnel are required to be thoroughly familiar with proper waste handling and emergency procedures (40 CFR 234(d)(5)(iii))	Verify that personnel are thoroughly familiar with waste handling and emergency procedures relevant to their responsibilities during normal facility operation and emergencies
HW 21 Training records must be maintained for all SQG staff who manage hazardous waste (MP)	Examine training records and verify they include the following - Job title and description for each employee by name - Written description of how much training each position will obtain - Documentation of training received by name Determine if training records are retained for three years after employment at the facility
Containers	
HW 22 Empty containers at SQGs previously holding hazardous wastes must meet the regulatory definition of empty before they are exempted from hazardous waste requirements (40 CFR 261 7)	Verify that for containers or inner liners holding hazardous waste. - Wastes are removed that can be removed using common practices - No more than 2 5 cm (1 in) of residue remains - If the container is less than or equal to 110 gal (416 40 L), no more than 3 percent by weight of total container capacity remains - When the container is greater than 110 gal (416 40 L), no more than 0 3 percent by weight of the total container capacity remains Verify that for containers that held a compressed gas, the pressure in the container approaches atmosphere Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5, one of the following is done - It is triple rinsed - It is cleaned by another method identified through the literature or testing as achieving equivalent removal - The inner liner is removed
HW 23 Containers used to store hazardous waste at SQGs must be in good condition and not leaking (40 CFR 262 34 (d)(2) and 40 CFR 265 171)	Verify that containers are not leaking, bulging, rusting, damaged or dented Verify that waste is transferred to a new container or managed in another appropriate manner when necessary

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 24 Containers used at SQGs must be made of or lined with materials compatible with the waste stored in them (40 CFR 262 34(d)(2) and 40 CFR 265 172)	Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums
HW 25 Containers of hazardous waste at SQGs must be closed during storage and handled in a safe manner (40 CFR 262 34(d)(2) and 40 CFR 265 173)	Verify that containers are closed except when it is necessary to add or remove waste (check bungs on drums, look for funnels) Verify that handling and storage practices do not cause damage to the containers or cause them to leak
HW 26 The handling of incompatible wastes, or incompatible wastes and materials in containers at SQGs must comply with safe management practices (40 CFR 262 34(d)(2) and 40 CFR 265 177)	Verify that incompatible wastes or incompatible wastes and materials are not placed in the same containers unless it is done so that it does not - Generate extreme heat or pressure, fire, or explosion, or violent reaction - Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - Damage the structural integrity of the device or facility - By any other like means threaten human health (NOTE Incompatible wastes as listed in Appendix 4-6 should not be placed in the same drum) Verify that hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material Verify that containers holding hazardous wastes incompatible with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall or other device
HW.27 Containers of hazardous waste at SQGs should be managed in accordance with specific management practices (MP)	Determine the following by inspecting containers and storage areas - Containers are not stored more than 2 high and have pallets between them - Containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - At least 3 ft (0 91 m) of aisle space is provided between rows of containers
Satellite Accumulation Points	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 28 All SQGs may accumulate as much as 55 gal of hazardous waste or 1 qt of acutely hazardous waste in containers at or near any point of initial generation without complying with the requirements for onsite storage if specific standards are met (40 CFR 262 34(c))	(NOTE This type of storage is often referred to as a satellite accumulation point) Verify that the satellite accumulation point is at or near the point of generation and is under the control of the operator of the waste generating process Verify that the containers are in good condition and are compatible with the waste stored in them and that the containers are kept closed except when waste is being added or removed Verify that the containers are marked HAZARDOUS WASTE or other appropriate identification (NOTE· See Appendices 4-1, 4-2, 4-3, 4-4, and 4-5 for a guidance list of hazardous and acute wastes) Verify that when waste is accumulated in excess of quantity limitations the following actions are taken by interviewing the shop managers - The excess container is marked with the date the excess amount began accumulating - The waste is transferred to a 90 day or permitted storage area within three days
Container Storage Areas	
HW 29. Containers of hazardous waste at SQGs should be kept in storage areas designated in the management plan (MP)	Verify that all containers are identified and stored in appropriate areas (NOTE Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.30 SQG storage areas must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 262 34(d)(4) and 40 CFR 265 30 through 265 37)	Determine if the following required equipment is easily accessible and in working condition by inspecting the SQG storage areas. - Internal communications or alarm system capable of providing immediate emergency instruction to facility personnel - A telephone or hand-held two way radio - Portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - Spill control equipment - Decontamination equipment - Fire hydrants or other source of water (reservoir, storage tank, etc) with adequate volume and pressure, foam producing equipment, or automatic sprinklers, or water spray systems. Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the operation Verify that police, fire departments, and emergency response teams are familiar with the layout of the facility, properties of the waste being handled, and general operations as appropriate for the type of waste and potential need for such services Verify that the hospital is familiar with the site and the types of injuries that could result in an emergency as appropriate for the type of waste and potential need for such services
HW.31 SQGs must conduct weekly inspections of container storage areas (40 CFR 262.34(d)(2) and 265 174).	Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers
Disposal of Restricted Wastes	
HW 32 SQGs must test their wastes or use process knowledge to determine if they are restricted from land disposal (40 CFR 268 7)	Determine whether the generator tests for restricted wastes Determine if the facility generates restricted wastes by reviewing test results (see Appendix 4-7)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 33. When a SQG is managing a restricted waste a notice must be issued to the TSDF in writing of the appropriate treatment standards and prohibition levels (40 CFR 268 7(a)(1) through 268 7(a)(3), 268 7(a)(10))	Verify that for restricted waste that does not meet the applicable treatment standards or exceeds the applicable prohibition levels, the notice is issued and includes - The EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment - For hazardous debris, the contaminants subject to treatment and the following statement "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268 45" - The waste analysis data, when available Verify that for restricted waste that can be land disposed without further treatment (this does not include debris that does not contain hazardous waste) the notice includes - The EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment - The waste analysis data, when available - The signature of an authorized representative certifying that the waste complies with the treatment standards of 40 CFR 268 Verify that for restricted waste that is subject to an exemption from a prohibition of the type of land disposal used, the notice states that the waste is not prohibited from land disposal and includes - The EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment - The waste analysis data, when available - For hazardous debris, the contaminant subject to treatment - The date the waste is subject to prohibitions (NOTE SQGs with tolling agreements are required to comply with notification and certification requirements for the initial shipment of waste subject to the agreement)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 34 SQGs that are managing prohibited wastes in tanks, containers, or containment buildings and treating the waste to meet applicable treatment standards, must develop and follow a written waste analysis plan (40 CFR 268 7(a)(4) and 268 7(a)(10))	Verify that the plan describes the procedures that the generator will carry out to comply with treatment standards (NOTE· SQGs treating hazardous debris under the alternative treatment standards are not required to conduct waste analysis) Verify that the plan is kept onsite and - The plan is based on a detailed chemical and physical analysis of representative sample of the prohibited waste being treated - The plan is filed with the EPA Regional Administrator or State authorized official at least 30 days prior to the treatment activity, with delivery verified (NOTE SQGs with tolling agreements are required to comply with notification and certification requirements for the initial shipment of waste subject to the agreement)
HW 35. SQGs are required to keep specific documents pertaining to restricted wastes onsite (40 CFR 268 7(a)(5) through 268 7(a)(7) and 268 7(a)(10))	Verify that if the facility is using generator knowledge to determine whether a waste meets land disposal restriction requirements, the supporting data used in making this determination is retained in the facility operating record Verify that if the facility has determined whether a waste is restricted using appropriate test methods, the waste analysis data is retained Verify that if the facility has determined that they are managing a restricted waste that is excluded from the definition of a hazardous waste or solid waste or exempt from RCRA Subtitle C, a one-time notice is placed in the facilities files stating that the generated waste is excluded. Verify that a copy of all notices, certifications, demonstrations, waste analysis data and other documentation is kept for at least five years from the date that the waste was last sent to onsite or offsite treatment, storage, or disposal Verify that SQGs with tolling agreement retain the agreement and copies of notification and certification for at least three years after the agreement expires

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 36 The storage of hazardous waste that is restricted from land disposal is not allowed unless specific conditions are met (40 CFR 268 50)	Verify that land disposal restricted waste is not stored at the facility unless the SQG is storing the wastes in tanks, containers, or containment buildings onsite only for the purpose of accumulating enough quantity of hazardous waste to facilitate proper recovery, treatment, or disposal and all appropriate standards for containers, tanks, and containment buildings are met Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days (NOTE The prohibition on storage does not apply to hazardous wastes that have met treatment standards) Verify that liquid hazardous wastes containing PCBs at concentrations greater than 50 ppm are stored at a site that meets the requirements of 40 CFR 761 65(b) (see the section titled Toxic Substances Management) and is removed from storage within one year of the date it was first placed into storage
Generators	
General	
HW 37 Generators may accumulate hazardous waste onsite for 90 days or less without a permit or interim status provided they meet certain conditions (40 CFR 262 34(a)(2), 262 34(a)(3) and 262 34(b))	Inspect each accumulation point and interview the accumulation point manager Verify that - The recorded start date indicates no container or tank has been accumulating a hazardous waste longer than 90 days (unless granted a 30 day extension) - Each container and tank is labeled or marked clearly with the words HAZARDOUS WASTE (NOTE For a generator the accumulation start date begins when the first waste is poured/placed into the waste container, except for at satellite accumulation points) (NOTE A generator who meets these standards is exempt from meeting the closure requirements outlined in 40 CFR 265 110 through 265 156, except for 265 111 and 265 114) (NOTE A generator who accumulates hazardous waste for more than 90 days (without an extension), is subject to all TSDF and permitting requirements)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.38. A generator that generates, transports, or handles hazardous wastes must obtain an EPA identification number (40 CFR 262 12(a) and 262 12(b), 40 CFR 264 11, 40 CFR 265 11)	Examine documentation from EPA for the facility's generator identification number Verify that the correct identification number is used on all appropriate documentation (i e., manifests)
HW.39. Generators must not offer their waste to transporters or TSDFs that have not received an EPA identification number (40 CFR 262 12(c))	Verify that all transporters of hazardous wastes or TSDFs used by the generator have an EPA identification number by examining records pertaining to disposal contract awards
HW 40 Generators of hazardous waste must submit a biennial report to the Regional Administrator by 1 March of even numbered years (40 CFR 262 40(b) and 262 41(a))	Verify that the biennial report (EPA Form 8700-13A) is complete and was submitted in a timely manner Verify that copies are kept for three years (NOTE Reporting for exports of hazardous waste is not required) (NOTE This does not apply if an annual report was submitted to the state) (NOTE Periods of retention of records may be extended automatically during the course of any unresolved enforcement action or at the request of the EPA Administrator)
HW 41 Generators are required to use manifests, file manifest exception reports, and maintain records (40 CFR 262 40(b), 262 40(d), 262 42(a))	Verify that manifests are used when shipping the waste offsite Verify that exception reports are filed with the EPA Regional Administrator if a copy of the manifest is not received within 45 days of after the waste is accepted by the initial transporter Verify that manifests and exception reports are kept for three years (NOTE Periods of retention for reports may be extended automatically during the course of any unresolved enforcement action)
HW 42 Generators are required to keep records of waste analyses, tests, and waste determinations (40 CFR 262 40(c))	Verify that the appropriate records are kept for three years from the date the waste was last sent to the onsite or offsite TSDF (NOTE Periods of retention for reports may be extended automatically during the course of any unresolved enforcement action or at the request of the EPA Administrator)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 43. Generator storage areas must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 262 34(a)(4) and 40 CFR 265 30 through 265 37)	Determine if the following required equipment is easily accessible and in working condition at the storage area· - Internal communications or alarm system capable of providing immediate emergency instruction to facility personnel - A telephone or hand-held two way radio - Portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - Spill control equipment - Decontamination equipment - Fire hydrants or other source of water (reservoir, storage tank, etc) with adequate volume and pressure, foam producing equipment, or automatic sprinklers, or water spray systems Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the operation Verify that police, fire departments, emergency response teams are familiar with the layout of the facility, properties of the waste being handled, and general operations as appropriate for the type of waste and potential need for such services Verify that the hospital is familiar with the site and the types of injuries that could result in an emergency as appropriate for the type of waste and potential need for such services
Personnel Training	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.44 All facility personnel who handle hazardous waste must meet certain training requirements (40 CFR 262 34(a)(4), 40 CFR 265 16(a) through 265 16 (c))	Verify that the training program is directed by a person trained in hazardous waste management procedures Verify that the training program includes the following - Contingency plan implementation (emergency procedures, equipment, and systems) - Key parameters for automatic waste feed cut-off system - Procedures for using, inspecting, and repairing emergency and monitoring equipment - Operation of communications and alarm systems - Response to fire or explosion - Response to leaks or spills - Waste turn in procedures - Identification of hazardous wastes - Container use, marking, labeling, and on-base transportation - Manifesting and off-base transportation - Accumulation point management - Personnel health and safety and fire safety - Shutdown procedures Verify that new employee training is completed within six months of employment/assignment Verify that an annual review of initial training is provided Verify that employees do not work unsupervised until training is completed Verify specifically that accumulation point managers and hazardous waste handlers have been trained
HW 45 Training records must be maintained for all facility staff who manage hazardous waste (40 CFR 262.34(a)(4), 40 CFR 265.16(d) and 265 16(e))	Verify that training records include the following by examination: - Job title and description for each employee by name - Written description of how much training each position will obtain - Documentation of training received by name Determine if training records are retained for three years after employment at the facility.
Contingency Plans and Emergency Coordinators	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 46 Generators must have a contingency plan (40 CFR 262 34(a)(4) and 40 CFR 265 50 through 265 54)	(NOTE Generating activities may be addressed in the facility's SPCC plan or other emergency plan, or if none exists, in a separate contingency plan) Verify that the contingency plan is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents Verify that the plan includes the following - A description of actions to be taken during an emergency - A description of arrangements made with local police departments, fire departments, hospitals, contractors, and State and local emergency response teams as appropriate - Names, addresses, and phone numbers of all persons qualified to act as emergency coordinator - A list of all emergency equipment at the facility and where this equipment is required, located, and what it looks like - An evacuation plan for facility personnel where there is a possibility evacuation would be needed Verify that copies of the contingency plan are maintained at the generation sites and storage areas and also have been submitted to organizations which may be called upon to provide emergency services Verify that the contingency plan is routinely reviewed and updated, especially when the facility is issued a new permit, the plan fails in an emergency, the emergency coordinators change, the waste being handled changes, and/or the list of emergency equipment changes
HW 47 Each generator must have an emergency coordinator on the facility premises or on call at all times (40 CFR 262 34(a)(4) and 40 CFR 265 55)	Verify that, at all times, there is at least one employee at the facility or on call with responsibility for coordinating all emergency response measures Verify that the emergency coordinator is thoroughly familiar with the facility, the characteristics of the waste handled, and the provisions of the contingency plan In addition, verify the emergency coordinator has the authority to commit the resources needed to carry out the contingency plan

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.48 Emergency coordinators at generators must follow certain emergency procedures whenever there is an imminent or actual emergency situation (40 CFR 262 34(a)(4) and 40 CFR 265.56(a) through 265 56(i))	Verify that the emergency coordinator is required to follow these emergency procedures· - Immediately activate installations/CW facility alarms or communication systems and notify appropriate base, state, and local response parties - Identify the character, exact source, amount, and a real extent of any released materials - Assess possible hazards to human health or the environment, including direct and indirect effects (e g , release of gases, surface runoff from water or chemicals used to control fire or explosions, etc.) - Stop processes and operations at the facility when necessary to prevent fires. explosions, or further releases - Collect and contain the released waste - Remove or isolate containers when necessary - Monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment whenever appropriate - Provide for treatment, storage, or disposal of recovered waste, contaminated soil, or surface water, or other material - Ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup is completed - Ensure that all emergency equipment is cleaned and fit for its intended use before operations are resumed - Notify EPA, and appropriate state and local authorities when cleanup is complete and operation resumes
HW 49 Generator operators must record the time, date, and details of any incident that requires implementing the contingency plan (40 CFR 262 34(a)(4) and 40 CFR 265 56(j))	Determine if incidents have been recorded and corrective actions taken through a review of the facility operating records Verify that written reports have been submitted to the EPA Regional Administrator within 15 days after the incident
Containers	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 50 Empty containers at generators previously holding hazardous wastes must meet the regulatory definition of empty before they are exempted from hazardous waste requirements (40 CFR 261 7)	Verify that for containers or inner liners holding hazardous wastes - Wastes are removed that can be removed using common practices - No more than 2 5 cm (1 in) of residue remains - If the container is less than or equal to 110 gal (416 40 L), no more than 3 percent by weight of total container capacity remains - When the container is greater than 110 gal (416 40 L), no more than 0.3 percent by weight of the total container capacity remains Verify that for containers that held a compressed gas, the pressure in the container approaches atmosphere Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5 that one of the following is done - It is triple rinsed - It is cleaned by another method identified through the literature or testing as achieving equivalent removal - The inner liner is removed Verify that the rinse water has been tested
HW.51 Containers used to store hazardous waste at generators must be in good condition and not leaking (40 CFR 262.34(a)(1)(i) and 265 171).	Verify that containers are not leaking, bulging, rusting, damaged or dented Verify that waste is transferred to a new container or managed in another appropriate manner when necessary
HW 52 Containers used at generators must be made of or lined with materials compatible with the waste stored in them (40 CFR 262 34(a)(1)(i) and 265 172)	Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums
HW 53 Containers must be closed during storage and handled in a safe manner at generators (40 CFR 262 34(a)(1)(i) and 265 173)	Verify that containers are closed except when it is necessary to add or remove waste (check bungs on drums, look for funnels) Verify that handling and storage practices do not cause damage to the containers or cause them to leak

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 54 The handling of incompatible wastes, or incompatible wastes and materials in containers at generators must comply with safe management practices (40 CFR 262 34(a)(1)(i) and 265 177)	Verify that incompatible wastes or incompatible wastes and materials are not placed in the same containers unless it is done so that it does not: - Generate extreme heat or pressure, fire, or explosion, or violent reaction - Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - Damage the structural integrity of the device or facility - By any other like means threaten human health or the environment (NOTE Incompatible wastes as listed in Appendix 4-6 should not be placed in the same drum) Verify that hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material Verify that containers holding hazardous wastes incompatible with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall, or other device
HW.55 Containers used to store hazardous waste at generators should be managed in accordance with specific management practices (MP)	Verify the following by inspecting container storage areas - Containers are not stored more than 2 high and have pallets between them - Containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - At least 3 ft (0 91 m) of aisle space is provided between rows of containers
Satellite Accumulation Points	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 56 Generators may accumulate as much as 55 gal of hazardous waste or 1 qt of acutely hazardous waste in containers at or near any point of initial generation without complying with the requirements for onsite storage if specific standards are met (40 CFR 262 34(c))	(NOTE· This type of storage is often referred to as a satellite accumulation point) Verify that the satellite accumulation point is at or near the point of generation and is under the control of the operator of the waste generating process Verify that the containers are in good condition and are compatible with the waste stored in them and the containers are kept closed except when waste is being added or removed. Verify that the containers are marked HAZARDOUS WASTE or other appropriate identification (NOTE See Appendices 4-1, 4-2, 4-3, 4-4, and 4-5 for a guidance list of hazardous and acute hazardous wastes) Verify by interviewing the shop managers that when waste is accumulated in excess of quantity limitations, the following actions are taken - The excess container is marked with the date the excess amount began accumulating - The waste is transferred to a 90 day or permitted storage area within three days.
Container Storage Areas	
HW 57 At generators, containers of hazardous waste should be kept in designated storage areas (MP)	Verify that all containers are identified and stored in appropriate areas (NOTE. Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply)
HW 58 Containers holding ignitable or reactive waste must be located 15 m (50 ft) from the property line of the facility (40 CFR 262 34(a)(1)(i) and 265 176)	Determine the distance from storage containers holding ignitable or reactive waste to the property line
HW 59 Generator personnel must conduct weekly inspections of container storage areas (40 CFR 262 34(a)(1)(i) and 265 174)	Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Containment Buildings	
(NOTE According to the `Background Information` published on page 37221 of the 18 August 1992 edition of the Federal Register, a hazardous waste containment building involves "the management of a hazardous waste inside a unit designed and operated to contain the hazardous waste within the unit" This is not a building that holds drums or tanks filled with hazardous waste, but a building that holds the hazardous waste itself)	
HW 60 Generators with containment buildings that are in compliance are not subject to the definition of land disposal if specific requirements are met (40 CFR 262 34(a)(1)(iv), 40 CFR 264 1100, 40 CFR 265 1100)	Verify that the containment building meets the following - It is a completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit - It is designed to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes, climatic conditions, and the stress of daily operations - It has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling of equipment within the unit - If the unit is used to manage liquids -- there is a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier -- there is a liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier -- there is a secondary containment system designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time - It has controls sufficient to prevent fugitive dust emissions - It is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel and equipment

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 61 Containment buildings are required to be designed according to specific standards (40 CFR 262 34(a)(1)(iv), 40 CFR 264 1101(a)(1) through 264 1101(a)(2), 264 1101(b), 40 CFR 265 1101(a)(1) through 265 1101(a)(2), and 265 1101(b))	Verify that containment buildings meet the following design standards - It is completely enclosed with a floor, walls, and a roof to prevent exposure to the elements and to assure containment of wastes - The floor and containment walls, including any required secondary containment system, are designed and constructed of man-made materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit - It is designed to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes, climatic conditions, and the stress of daily operations - It has sufficient structural strength to prevent collapse or other failure - All surfaces in contact with hazardous wastes are compatible with the wastes - It has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling of equipment within the unit and is appropriate for the chemical and physical characteristics of the waste Verify that if the containment building is going to manage hazardous wastes with free liquids or treated with free liquids, the following design requirements are also met - There is a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier (e g , a geomembrane covered by a concrete wear surface) - There is a liquid collection and removal system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier - The primary barrier is sloped to drain liquids to the associated collection system - Liquids and wastes are collected and removed to minimized hydraulic head on the containment system at the earliest practicable time - There is a secondary containment system, including a secondary barrier, designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time - The leak detection component of the secondary containment system meets the following -- it is constructed with a bottom slope of 1 percent or more -- it is constructed of a granular drainage materials with a hydraulic conductivity of 1×10^{-2} cm/sec or more and a thickness of 12 inches (30 5 cm) or more, or constructed of synthetic or geonet drainage materials with a transmissivity of 3×10^{-5} m^2/sec or more - If treatment is to be conducted in the building, the treatment area is designed to prevent the release of liquids, wet materials, or liquid aerosols to other portions of the building - The secondary containment system is constructed of materials that are chemically resistant to the waste and liquids managed in the building and of sufficient strength and thickness to prevent collapse under pressure exerted by overlaying materials and by any equipment used

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 61 Continued	(NOTE. An exception to the structural strength requirement may be made for lightweight doors and windows based on the nature of the waste management operations if the following criteria are met - The doors and windows provide an effective barrier again fugitive dust emissions - The unit is designed and operated in a manner that ensures that the waste will not come in contact with the doors or windows) (NOTE. A containment building can serve as secondary containment systems for tanks)
HW 62. Containment buildings are required to be operated according to specific standards (40 CFR 262 34(a)(1)(iv); 40 CFR 264 1101(a)(3), 264 1101(c)(1), 264 1101(c)(4), 40 CFR 265 1101 (a)(3), 265 1101(c)(1), and 265 1101(c)(4))	Verify that incompatible wastes or treatment reagents are not placed in the building or its secondary containment system if they could cause the unit or the secondary containment system to leak, corrode, or otherwise fail Verify that the following operational procedures are done - Controls and practices are used to ensure the containment of the waste within the building - The primary barrier is maintained so that it is free of significant cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the primary barrier - The level of the stored/treated hazardous waste is maintained so that the height of any containment wall is not exceeded - Measures are implemented to prevent the tracking of hazardous waste out of the unit by personnel or equipment used in the handling of the waste - There is a designated area for the decontamination of equipment and collection of rinsate - Any collected rinsate is managed as needed according to its constituents - Measures are implemented to control fugitive dust emissions so that no openings exhibit visible emissions - Particulate collection devices are maintained and operated according to sound air pollution control practices Verify that data is gathered from monitoring equipment and leak detection equipment and the site is inspected at least once every seven days and the results recorded in the operating record Verify that there is a written description of procedures to ensure that waste does not remain in the building for more than 90 days Verify that there is documentation that the waste does not remain for more than 90 days
HW 63. Containment buildings are required to be certified by a registered professional engineer (40 CFR 262.34(a)(1)(iv); 40 CFR 264 1101(c)(2); 40 CFR 265.1101(c)(2))	Verify by reviewing the documentation that the building has been certified

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 64 Leaks in containment buildings must be repaired and reported (40 CFR 262 34(a)(1)(iv), 40 CFR 264 1101(c)(3), 40 CFR 265 1101(c)(3))	Verify that if a condition is detected that could lead to a leak or has already caused a leak, it is repaired promptly Verify that when a leak is discovered - The discovery is recorded in the facility operating record - The portion of the containment building that is affected is removed from service - A cleanup and repair schedule is established - Within 7 days the Regional Administrator is notified and within 14 working days written notice is provided to the Regional Administrator - The Regional Administrator is notified upon the completion of all repairs and certification from a registered professional engineer is also submitted
HW 65 Containment buildings that contain both areas with and without secondary containment must meet specific requirements (40 CFR 262 34(a)(1)(iv), 40 CFR 264 1101(d), 40 CFR 265 1101(d))	Verify that each area is designed and operated according to the appropriate requirements Verify that measures are taken to prevent the release of liquids or wet materials into areas without secondary containment. Verify that a written description is maintained in the facilities operating log of operating procedures used to maintain the integrity of areas without secondary containment
HW 66 When a containment building is closed specific requirements must be met (40 CFR 262 34(a)(1)(iv), 40 CFR 264 1102, 40 CFR 265 1102)	Determine if the facility has closed a containment building recently Verify that at closure, all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate were removed or decontaminated Verify that the containment building is closed in accordance with closure and post-closure requirements for TSDFs as outlined in the subsections pertaining to all TSDFs titled Documentation Requirements and Closure Verify that if it is found that not all contaminated subsoils can be practicably removed or decontaminated, the site is closed and landfill post-closure requirements are implemented
Disposal of Restricted Waste	
HW 67 Facilities that generate hazardous wastes must test their wastes or use process knowledge to determine if they are restricted from land disposal (40 CFR 268 7)	Determine whether the generator tests for restricted wastes Determine if the facility generates restricted wastes by reviewing test results (see Appendix 4-7)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 68 When a generator is managing a restricted waste, a notice must be issued to the TSDF in writing of the appropriate treatment standards and prohibition levels (40 CFR 268 7(a)(1) through 268.7(a)(3), 268.7(a)(10)).	Verify that for restricted waste that does not meet the applicable treatment standards or exceeds the applicable prohibition levels the notice is issued and includes. - The EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment - For hazardous debris, the contaminants subject to treatment and the following statement "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268 45" - The waste analysis data, when available. Verify that for restricted waste that can be land disposed without further treatment (this does not include debris that does not contain hazardous waste) the notice includes - The EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment - The waste analysis data, when available - The signature of an authorized representative certifying that the waste complies with the treatment standards of 40 CFR 268 Verify that, for restricted waste that is subject to an exemption from a prohibition of the type of land disposal used, the notice states that the waste is not prohibited from land disposal and includes: - The EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment - The waste analysis data, when available - For hazardous debris, the contaminant subject to treatment - The date the waste is subject to prohibitions
HW 69 Generators that are managing prohibited wastes in tanks, containers, or containment buildings and treating the waste to meet applicable treatment standards, must develop and follow a written waste analysis plan (40 CFR 268.7(a)(4) and 268 7(a)(10))	Verify that the plan describes the procedures that the generator will carry out to comply with treatment standards (NOTE Generators treating hazardous debris under the alternative treatment standards are not required to conduct waste analysis) Verify that the plan is kept onsite and - The plan is based on a detailed chemical and physical analysis of representative sample of the prohibited waste being treated - The plan is filed with the EPA Regional Administrator or State authorized official at least 30 days prior to the treatment activity, with delivery verified

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 70 Generators are required to keep specific documents pertaining to restricted wastes onsite (40 CFR 268 7(a)(5) through 268.7(a)(7) and 268.7(a)(10)).	Verify that if the facility is using generator knowledge to determine whether a waste meets land disposal restriction requirements, the supporting data used in making this determination is retained in the facility operating record Verify that if the facility has determined whether a waste is restricted using appropriate test methods, the waste analysis data is retained Verify that if the facility has determined that they are managing a restricted waste that is excluded from the definition of a hazardous waste or solid waste or exempt from RCRA Subtitle C, a one-time notice is placed in the facility's files stating that the generated waste is excluded Verify that a copy of all notices, certifications, demonstrations, waste analysis data and other documentation is kept for at least five years from the date that the waste was last sent to an onsite or offsite TSDF
HW 71 Generators who first claim that hazardous debris is excluded from the definition of hazardous waste are required to meet specific notification and certification requirements (40 CFR 268 7(d))	Verify that a one-time notification is submitted to the Director or authorized State including the following - The name and address of the facility receiving the treated waste - A description of the hazardous debris as initially generated, including the applicable EPA Hazardous Waste Number - For excluded debris, the technology used to treat the debris Verify that the notification is updated if the debris is shipped to a different facility Verify that for debris that is excluded, if a different type of debris is treated or if a different technology is used to treat the debris the notification is updated
HW 72 The storage of hazardous waste that is restricted from land disposal is not allowed unless specific conditions are met (40 CFR 268 50).	Verify that land disposal restricted waste is not stored at the facility unless the generator is storing the wastes in tanks, containers, or containment buildings onsite only for the purpose of accumulating enough quantity of hazardous waste to facilitate proper recovery, treatment, or disposal and all appropriate standards for containers, tanks, and containment buildings are met. (NOTE· If the 90 day storage period is exceeded, the generator is required to be permitted as a TSDF) Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days (NOTE The prohibition on storage does not apply to hazardous wastes that have met treatment standards.) Verify that liquid hazardous wastes containing PCBs at concentrations greater than 50 ppm are stored at a site that meets the requirements of 40 CFR 761.65(b) (see the section titled Toxic Substances Management) and is removed from storage within one year of the date it was first placed into storage
Transportation of Hazardous Waste	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 73 Transporters of hazardous waste that is required to be manifested must have an EPA identification number and must comply with manifest management requirements (40 CFR 263 10(a), 263 10(b), 263 11, 263 20(a) through 263 20(d), 263 21 and 263 22(a))	(NOTE: These requirements do not apply to the onsite transportation of hazardous waste Nor do they apply to CESQGs) Determine if the facility transports hazardous waste offsite using their own vehicles or a contractor. Verify that the transporter has a EPA identification number Verify that all waste accepted, transported, or offered for transport is accompanied by a manifest. Verify that prior to transport, the transporter signs and dates the manifest and returns a copy to the generator prior to leaving the facility Verify that the transporter retains a copy of the manifest after delivery. Verify that manifests are kept on file for three years. (NOTE· Special issues involved in the transportation of hazardous waste by air, rail or water are not addressed in this guide)
HW 74 Before transporting hazardous waste or offering hazardous waste for transportation offsite in the United States, the facility must package and label the waste in accordance with DOT regulations contained in 49 CFR 172, 173, 178, and 179 (40 CFR 262 30 through 262 33)	Determine what pretransport procedures for hazardous waste are used Verify that containers are properly constructed and contain no leaks, corrosion, or bulges by inspecting a sample of containers awaiting transport. Examine end-seams for minor weeping that indicates drum failure. Verify that labeling and marking on each container is compatible with the manifests. Verify that the following information is displayed on a random sample of containers of 110 gal (416.40 L) or less in accordance with 49 CFR 172 304. HAZARDOUS WASTE Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U S Environmental Protection Agency. - Generator's name and address - Manifest Document Number____ Verify that proper DOT placarding is available for the transporter.
HW.75 Transporters of waste offsite must take immediate notification and clean-up action if a discharge occurs during transport (40 CFR 263 30 and 263 31).	Verify that transport operators have instructions to notify local authorities and take clean-up action so that the discharge does not present a hazard. Verify that transporters give notice to the NRC and report in writing as required by 49 CFR 171.15 and 49 CFR 171 16

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 76 The facility should ensure that transportation of hazardous wastes between buildings is accomplished in accordance with good management practices to help prevent spills, releases, and accidents (MP)	Determine if procedures exist to manage movement of hazardous wastes throughout the facility Determine if drivers are trained in spill control procedures Determine if provisions have been made for securing wastes in vehicles during transport
HW 77 Transporters must not store manifested shipments in containers meeting DOT packaging requirements for more than 10 days at a transfer facility (40 CFR 263 12)	Determine if the facility has a transfer facility Verify the following - Transfer facility storage is for 10 days or less - DOT packaging requirements are met - Shipments are manifested and manifests accompany shipments - Storage is consistent with good management practices (NOTE Storage for more than 10 days will require a TSDF permit)
TSDFs	
General	
HW 78 All permitted TSDFs are required to meet the hazardous waste management requirements outlined in their permit (40 CFR 270 10, and 270 30 through 270 33)	Determine if the facility is operating a TSDF Verify that the TSDF is not treating, storing, or disposing of waste other than those listed in their Part A Application, Part A permit, or Part B Permit Verify that the TSDF is meeting the requirements outlined in the permit for the following - Reporting and recordkeeping - Compliance schedules - Allowable wastes - Allowable activities
HW 79 All TSDFs which have Interim Status are required to meet the hazardous waste management requirements of 40 CFR 265 and apply for a Part B permit (40 CFR 270 71 and 279 73(g))	Determine if the TSDF is an Interim Status TSDF Verify that the TSDF is only treating, storing, or disposing of wastes listed in their Part A application Verify that the TSDF is meeting all the requirements for Interim Status TSDFs outlined in 40 CFR 265 Verify that the TSDF has submitted a Part B permit application

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.80 All TSDFs that store, treat, transport, or handle hazardous wastes must obtain an EPA identification number (40 CFR 264 11, 40 CFR 265.11).	Examine documentation from EPA for the facility's generator, transporter, or TSDF identification number Verify that the correct identification number is used on all appropriate documentation (i.e., manifests)
HW 81 Facilities with TSDFs must control entry to the active portion of each TSDF (40 CFR 264 14 and 40 CFR 265 14)	Inspect each TSDF on the facility. Verify that unless the TSDF can demonstrate that physical contact with the waste, structures, and equipment within the active portion of the TSDF will not injure unknowing or unauthorized person or livestock, and that the waste would not be disturbed, the following items are in place at the TSDF: - A 24-hour surveillance system (e g , television monitors, surveillance by guards) - A fence or natural barrier, controlled entry is provided (an attendant, television monitors, locked entrances controlled roadway access) - Signs with the wording "Danger Unauthorized Personnel Keep Out," are posted at each entrance and other locations as appropriate - Signs are legible from 25 ft (7 62 m) (NOTE These requirements are satisfied if the site in which the active portion is located has a surveillance system, or a barrier and means to control entry)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 82 All TSDFs must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 264 30 through 264 37 40 CFR 265 30 through 265 37)	Determine if the following required equipment is easily accessible and in working condition by inspecting the TSDF - An internal communications or alarm system capable of providing immediate emergency instruction to TSDF personnel - A telephone or hand-held two way radio - Portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - Spill control equipment - Decontamination equipment - Fire hydrants or other source of water (reservoir, storage tank, etc) with adequate volume and pressure, foam producing equipment, or automatic sprinklers, or water spray systems Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the operation Verify that police, fire departments, and emergency response teams are familiar with the layout of the TSDF, properties of the waste being handled, and general operations unless they have declined such an arrangement Verify that the hospital is familiar with the properties of hazardous waste handled and the types of injuries that could result in an emergency (NOTE When state or local police, fire departments, emergency response teams, or hospitals decline to enter into arrangements, than the refusal must be documented)
HW 83 All TSDFs must take precautions to prevent accidental ignition or reaction of ignitable or reactive wastes (40 CFR 264 17(a) and 40 CFR 265 17(a))	Verify from the operating record and/or observation that the following safe management practices are used - Wastes are separated and protected from sources of ignition or reaction - Smoking and open flame is confined to specially designated locations when ignitable or reactive wastes is handled - NO SMOKING signs are used when necessary
HW 84 When TSDFs are required by specific treatment, storage, or disposal sections to prevent reactions from ignitable, reactive, or incompatible wastes, specific standards must be met (40 CFR 264 17(b) and 40 CFR 265 17(b))	Verify from the operating record and/or observation that during treatment, storage, or disposal of ignitable or reactive wastes, or during mixing of incompatible wastes and other materials, precautions are taken to prevent the following reactions· - Generation of extreme heat or pressure, fire or explosions, or violent reactions - Production of uncontrolled toxic mists, fumes, dusts, or gases sufficient to threaten human health or the environment - Production of uncontrolled flammable fumes or gases sufficient to pose a risk of fire or explosions - Damage the structural integrity of the device or facility - Threats to human health or the environment through other like means

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 85 A detailed chemical and physical analysis of a representative sample, as specified in the waste analysis plan, of the hazardous waste must be obtained prior to treatment, storage or disposal (40 CFR 264 13(a) and 40 CFR 265 13(a))	Verify that a detailed physical and chemical analysis is done of a representative sample of the wastes prior to treatment, storage, or disposal (NOTE Prior studies, published information may be included as a part of the analysis) Verify that the analysis is repeated as necessary to ensure that it is accurate and up to date, specifically when the process or operation generating the waste has changed
HW 86 Each TSDF must have an emergency coordinator on the TSDF premises or on call at all times (40 CFR 264 55 and 40 CFR 265 55)	Verify that, at all times, there is at least one employee at the TSDF or on call with responsibility for coordinating all emergency response measures Verify that the emergency coordinator is thoroughly familiar with the TSDF, the characteristics of the waste handled, and the provisions of the contingency plan In addition, verify the emergency coordinator has the authority to commit the resources needed to carry out the contingency plan
HW 87 TSDF emergency coordinators must follow certain emergency procedures whenever there is an imminent or actual emergency situation (40 CFR 264 56(a) through 264 56(i), 40 CFR 265 56(a) through 265 56(i))	Review the contingency plan for the TSDF Verify that the emergency coordinator is required to follow these emergency procedures - Immediately activate TSDF alarms or communication systems and notify appropriate facility, state, and local response parties - Identify the character, exact source, amount, and real extent of any released materials - Assess possible hazards to human health or the environment, including direct and indirect effects (e g., release of gases, surface runoff from water or chemicals used to control fire or explosions, etc) - Stop processes and operations at the TSDF when necessary to prevent fires explosions, or further releases - Collect and contain the released waste - Remove or isolate containers when necessary - Monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment whenever appropriate - Provide for treatment, storage, or disposal of recovered waste, contaminated soil, or surface water, or other material - Ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup is completed - Ensure that all emergency equipment is cleaned and fit for its intended use before operations are resumed - Notify the EPA, and appropriate state and local authorities when cleanup is complete and operation resumes.
Personnel Training	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 88 All TSDF personnel who handle hazardous waste must meet certain training requirements (40 CFR 264.16(a) through 264 16(c) and 265 16(a) through 265 16(c))	Verify that the training program is directed by a person trained in hazardous waste management procedures Verify that the training program includes the following - Contingency plan implementation (emergency procedures, equipment, and systems) - Key parameters for automatic waste feed cut-off system - Procedures for using, inspecting, and repairing emergency and monitoring equipment - Operation of communications and alarm systems - Response to fire or explosion - Response to leaks or spills - Waste turn in procedures - Identification of hazardous wastes - Container use, marking, labeling, and onsite transportation - Manifesting and offsite transportation - Accumulation point management - Personnel health and safety and fire safety - TSDF shutdown procedures Verify that new employee training is completed within six months of employment Verify that an annual review of initial training is provided Verify that employees do not work unsupervised until training is completed Verify specifically that accumulation point managers and hazardous waste handlers have been trained
HW 89 Training records must be maintained for all TSDF staff who manage hazardous waste (40 CFR 264 16(d) and 264 16(e), 40 CFR 265 16(d) and 265 16(e))	Verify through examination that training records include the following - Job title and description for each employee by name - Written description of how much training each position will obtain - Documentation of training received by name Determine if training records are retained for three years after employment at the TSDF
Containers	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 90 Empty containers at TSDFs previously holding hazardous wastes must meet the regulatory definition of empty before they are exempted from hazardous waste requirements (40 CFR 261 7)	Verify that for containers or inner liners holding hazardous wastes· - Wastes are removed that can be removed using common practices - No more than 2 5 cm (1 in) of residue remains - If the container is less than or equal to 110 gal (416 40 L), no more than 3 percent by weight of total container capacity remains - When the container is greater than 110 gal (416 40 L), no more than 0 3 percent by weight of the total container capacity remains. Verify that for containers that held a compressed gas, the pressure in the container approaches atmospheric. Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5 that one of the following is done - It is triple rinsed - It is cleaned by another method identified through the literature or testing as achieving equivalent removal - The inner liner is removed - Rinsate management
HW 91 Containers used to store hazardous waste at TSDFs must be in good condition and not leaking (40 CFR 264 171 and 40 CFR 265 171)	Verify that containers are not leaking, bulging, rusting, damaged or dented. Verify that waste is transferred to a new container or managed in another appropriate manner when necessary
HW 92 Containers used at TSDFs must be made of or lined with materials compatible with the waste stored in them (40 CFR 264 172 and 40 CFR 265 172)	Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums
HW.93. Containers at TSDFs must be closed during storage and handled in a safe manner (40 CFR 264 173 and 40 CFR 265.173).	Verify that containers are closed except when it is necessary to add or remove waste (check bungs and look for open funnels). Verify that handling and storage practices do not cause damage to the containers or cause them to leak

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 94 The handling of incompatible wastes, or incompatible wastes and materials in containers at TSDFs must comply with safe management practices (40 CFR 264 17(b) and 264 177, 40 CFR 265 17(b) and 265 177)	Verify that incompatible wastes or incompatible wastes and materials are not placed in the same containers unless it is done so that it does not - Generate extreme heat or pressure, fire, or explosion, or violent reaction - Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - Damage the structural integrity of the device or TSDF or by any other like means threaten human health (NOTE Incompatible wastes as listed in Appendix 4-6 should not be placed in the same containers) Verify that hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material Verify that containers holding hazardous wastes incompatible with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall or other device
HW 95 Containers of hazardous waste at TSDFs should be managed in accordance with specific management practices (MP)	Verify the following by inspecting the container storage areas - Containers are not stored more than two high and have pallets between them - Containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - At least 3 ft (0 91 m) of aisle space is provided between rows of containers
Container Storage Areas	
HW 96 Containers at TSDFs should be kept in storage areas designated in the management plan and identified by signs (MP)	Verify that all containers are identified and stored in appropriate areas (NOTE Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply)
HW 97 Containers holding ignitable or reactive waste must be located 15 m (50 ft) from the property line of a TSDF (40 CFR 264 176 and 40 CFR 265.176)	Determine the distance from any storage containers to the property line (NOTE This restriction does not apply to SQGs)
HW 98 TSDF personnel must conduct weekly inspections of container storage areas (40 CFR 264 174 and 40 CFR 265 174)	Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Containment Buildings	
(NOTE According to the 'Background Information published on page 37221 of the 18 August 1992 edition of the Federal Register, a hazardous waste containment building involves "the management of a hazardous waste inside a unit designed and operated to contain the hazardous waste within the unit" This is not a building that holds drums or tanks filled with hazardous waste, but a building that holds the hazardous waste itself)	
HW 99. TSDFs with containment buildings that are in compliance are not subject to the definition of land disposal if specific requirements are met (40 CFR 264.1100 and 40 CFR 265.1100)	Verify that the containment building meets the following - It is a completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit - It is designed to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes, climatic conditions, and the stress of daily operations - It has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling of equipment within the unit - If the unit is used to manage liquids. -- there is a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier -- there is a liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier -- there is a secondary containment system designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time - It has controls sufficient to prevent fugitive dust emissions - It is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel and equipment

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 100 Containment buildings are required to be designed according to specific standards (40 CFR 264 1101(a)(1) through 264 1101(a)(2), 264 1101(b), 40 CFR 265 1101(a)(1) through 265 1101(a)(2), and 265 1101(b))	Verify that containment buildings meet the following design standards - It is completely enclosed with a floor, walls, and a roof to prevent exposure to the elements and to assure containment of wastes - The floor and containment walls, including any required secondary containment system, are designed and constructed of man-made materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit - It is designed to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes, climatic conditions, and the stress of daily operations - It has sufficient structural strength to prevent collapse or other failure - All surfaces in contact with hazardous wastes are compatible with the wastes - It has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling of equipment within the unit and is appropriate for the chemical and physical characteristics of the waste Verify that if the containment building is going to manage hazardous wastes with free liquids or treated with free liquids the following design requirements are also met - There is a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier (e g , a geomembrane covered by a concrete wear surface) - There is a liquid collection and removal system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier· - The primary barrier is sloped to drain liquids to the associated collection system - Liquids and wastes are collected and removed to minimized hydraulic head on the containment system at the earliest practicable time - There is a secondary containment system, including a secondary barrier, designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time - The leak detection component of the secondary containment system meets the following -- it is constructed with a bottom slope of one percent or more -- it is constructed of a granular drainage materials with a hydraulic conductivity of 1×10^{-2} cm/sec or more and a thickness of 12 in (30 5 cm) or more, or constructed of synthetic or geonet drainage materials with a transmissivity of 3×10^{-5} m^2/sec or more

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 100. Continued	- If treatment is to be conducted in the building, the treatment area is designed to prevent the release of liquids, wet materials, or liquid aerosols to other portions of the building - The secondary containment system is constructed of materials that are chemically resistant to the waste and liquids managed in the building and of sufficient strength and thickness to prevent collapse under pressure exerted by overlaying materials and by any equipment used. (NOTE An exception to the structural strength requirement may be made for lightweight doors and windows based on the nature of the waste management operations if the following criteria are met - The doors and windows provide an effective barrier again fugitive dust emissions - The unit is designed and operated in a manner that ensures that the waste will not come in contact with the doors or windows) (NOTE A containment building can serve as secondary containment systems for tanks within the building if - It meets the requirements of 264 193(d) (see Storage Tank Management) - It meets the requirements of 264 193(b) and 264 193(c)(12) (see Storage Tank Management)
HW 101 Containment buildings are required to be operated according to specific standards (40 CFR 264 1101(a)(3), 264 1101(c)(1), 264 1101(c)(4), 40 CFR 265.1101(a)(3), 265.1101(c)(1), and 265 1101(c)(4))	Verify that incompatible wastes or treatment reagents are not placed in the building or its secondary containment system if they could cause the unit or the secondary containment system to leak, corrode, or otherwise fail Verify that the following operational procedures are done - Controls and practices are used to ensure the containment of the waste within the building - The primary barrier is maintained so that it is free of significant cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the primary barrier - The level of the stored/treated hazardous waste is maintained so that the height of any containment wall is not exceeded - Measures are implemented to prevent the tracking of hazardous waste out of the unit by personnel or equipment used in the handling of the waste - There is a designated area for the decontamination of equipment and collection of rinsate - Any collected rinsate is managed as needed according to its constituents - Measures are implemented to control fugitive dust emissions so that no openings exhibit visible emissions - Particulate collection devices are maintained and operated according to sound air pollution control practices Verify that data is gathered from monitoring equipment and leak detection equipment and the site is inspected at least once every seven days and the results recorded in the operating record

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 102 Containment buildings are required to be certified by a registered professional engineer (40 CFR 264 1101(c) (2) and 40 CFR 265 1101(c)(2))	Verify that the building has been certified
HW 103 Leaks in containment buildings must be repaired and reported (40 CFR 264 1101(c)(3) and 40 CFR 265 1101(c)(3))	Verify that if a condition is detected that could lead to a leak or has already caused a leak, it is repaired promptly Verify that when a leak is discovered - The discovery is recorded in the TSDF operating record - The portion of the containment building that is affected is removed from service - A cleanup and repair schedule is established - Within seven days the Regional Administrator is notified and within 14 working days written notice is provided to the Regional Administrator - The Regional Administrator is notified upon the completion of all repairs and certification from a registered professional engineer is also submitted
HW 104 Containment buildings that contain both areas with and without secondary containment must meet specific requirements (40 CFR 264 1101(d) and 40 CFR 265 1101(d))	Verify that each area is designed and operated according to the appropriate requirements Verify that measures are taken to prevent the release of liquids or wet materials into areas without secondary containment Verify that a written description is maintained in the TSDF operating log of operating procedures used to maintain the integrity of areas without secondary containment
HW 105 When a containment building is closed specific requirements must be met (40 CFR 264 1102 and 40 CFR 265 1102)	Determine if the TSDF has closed a containment building recently Verify that at closure, all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate were removed or decontaminated Verify that the containment building is closed in accordance with closure and post-closure requirements for TSDFs as outlined in the subsections pertaining to all TSDFs titled Documentation Requirements and Closure Verify that if it is found that not all contaminated subsoils can be practicably removed or decontaminated, the site is closed and landfill post-closure requirements are implemented
Restricted Wastes	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 106 TSDFs must not dispose of the wastes listed in Appendix 4-7 on land unless specific parameters are met (40 CFR 268 1, 268 4, and Appendix VII)	Verify that the wastes listed in Appendix 4-7 are not land disposed after the indicated dates in the Appendix unless - The TSDF was granted an extension - The waste is hazardous only because it exhibits a hazardous characteristic, and is otherwise prohibited from land disposal, but -- is disposed of into a nonhazardous or hazardous injection well -- does not exhibit any prohibited characteristic of a hazardous waste at the point of injection - Disposal is done in a surface impoundment and treatment of the wastes occurs at the impoundment - Sampling, testing, and removal procedures and design requirements outlined in 40 CFR 268.4 are followed - The waste is treated (NOTE The following are exempted from all of the requirements concerning restricted wastes found in 40 CFR 268 - Waste generated by a SQG of less than 100 kg (220 46 lb) of hazardous waste or less than 1 kg of acute hazardous waste per month - Waste pesticides that a farmer disposes of - Wastes identified or listed as hazardous after 8 November 1984 for which EPA has not promulgated land disposal prohibitions or treatment standards - De minimis losses to wastewater treatment systems of commercial chemical product or chemical intermediates that are ignitable (D001) or corrosive (D002) and that contain underlying hazardous constituents - Laboratory wastes displaying the characteristic of ignitibility (D001), or corrosivity (D002), that are commingled with other plant wastewaters under designated circumstances - Laboratory wastes that are ignitable and corrosive containing underlying hazardous constituents from laboratory operations that are mixed with other plant wastewaters at TSDFs whose ultimate discharge is subject to CWA regulations if the annualized flow of laboratory wastewater into the facility's headwork does not exceed one percent or the laboratory wastes combined annualized sewage concentration does not exceed one ppm in the facility's headwork) (NOTE. As of 8 May 1993 debris that is contaminated with the wastes listed in Appendix 4-7 and debris that is contaminated with any characteristic waste for which there are treatment standards are prohibited from land disposal)
HW.107 Wastes that are restricted from land disposal or the residual from the treatment of a waste restricted from land disposal shall not be diluted as a substitute for adequate treatment (40 CFR 268 3)	Verify that restricted wastes or the residual from the treatment of restricted wastes are not diluted unless they are hazardous only because they exhibit a characteristic in a treatment system which treats wastes that are then discharged into a water of the United States by permit or which treats wastes for the purpose of pre-treatment or unless the waste is a D003 reactive cyanide wastewater or nonwastewater.

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 108. A restricted waste may be land disposed only if the constituent concentrations in the waste or waste treatment residue meet applicable treatment standards, or if the waste is treated using a specified treatment technology or equivalent treatment method (40 CFR 268 40 through 268 43)	Verify that for restricted wastes identified in Appendix 4-8 that are land disposed, the associated constituent concentrations in the extract of the waste or waste treatment residual do not exceed the values shown in Appendix 4-8 Verify that for restricted wastes listed in Appendix 4-9 that are land disposed, the waste is treated using the treatment technology specified in Appendix 4-9 or an equivalent treatment method approved by the Administrator Verify that for restricted wastes identified in Appendix 4-10 that are land disposed, the associated constituent concentrations in the waste or waste treatment residue do not exceed the values shown in Appendix 4-10 (NOTE As used in Appendices 4-9, and 4-10, the term wastewater has the following meaning wastes that contain less than 1 percent by weight Total Organic Carbon (TOC) and less than 1 percent by weight total suspended solids (TSS), with the following exceptions - F001, F002, F003, F004, F005 wastewaters are solvent-water mixtures that contain less than 1 percent by weight TOC or less than 1 percent by weight total F001, F002, F003, F004, F005 solvent constituents listed in Appendix 4-8 - K011, K013, K014 wastewaters contain less than 5 percent by weight TOC and less than 1 percent by weight TSS, as generated - K103 and K104 wastewaters contain less than 4 percent by weight TOC and less than 1 percent by weight TSS - Waste analysis plan compliance)
HW 109 Treatment facilities are required to follow specific procedures for restricted wastes (40 CFR 268 7(b))	Verify that treatment facilities are testing their waste according to the procedures outlined in their waste analysis plan Verify that the treatment facility sends a notice with each waste shipment going to a land disposal facility, except for debris excluded from the definitions of hazardous waste, that includes the following - EPA hazardous waste number - Treatment standards - The manifest number associated with the shipment of waste - Waste analysis data, where available Verify that the treatment facility submits a certification with each shipment of waste or treatment residue of a restricted waste, except for debris excluded from the definitions of a hazardous waste, to the land disposal facility stating that the waste has been treated in compliance with applicable standards (NOTE: If waste or treatment residues will be further managed at a different treatment or storage facility, the TSDF sending the waste or treatment residue offsite must comply with notice and certification requirements) (NOTE. Where the wastes are recyclable materials used in a manner constituting disposal, the treatment facility is not required to notify the receiving facility)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 110 Land disposal facilities for restricted wastes are required to maintain copies of notices and certifications and test the waste except when disposing of waste that is recycled material used in a manner constituting disposal (40 CFR 268 7(c))	Verify that copies of the certifications and notification are kept on hand Verify that the facility is testing waste as specified in the facilities waste analysis plan.
HW 111. The storage of hazardous waste that is restricted from land disposal is not allowed unless specific conditions are met (40 CFR 268 50)	Verify that land disposal restricted waste is not stored at the TSDF unless the TSDF is storing the wastes in tanks, containers, or containment buildings in order to accumulate the necessary quantities for proper recovery, treatment or disposal and - Each container is marked to identify contents and the date accumulation began - Each tank is clearly marked with a description of the contents, the quantity of each hazardous waste received, and the start date of accumulation or a record of such information is maintained Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days (NOTE A TSDF may store the land disposal restricted wastes for up to one year if they can prove that the reason for storage is to accumulate such quantities of hazardous waste as are necessary to facilitate proper treatment and disposal.) (NOTE. The prohibition on storage does not apply to hazardous wastes that have met treatment standards) Verify that liquid hazardous wastes containing PCBs at concentrations greater than 50 ppm are stored at a site that meets the requirements of 40 CFR 761 65(b) (see PCB Management) and is removed from storage within one year of the date it was first placed into storage.
Emissions from Process Vents	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 112 TSDFs with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppmw are required to meet specific standards (40 CFR 264 1030(b) and 264 1032, 40 CFR 265 1030(b) and 265 1032)	Verify that one of the following is met - Total organic emissions from the process vents do not exceed 1 4 kg/h (3 lb/h) and 2 8 Mg/yr (3 1 tons/yr) - Total organic emissions are reduced by use of a control device from all process vents by 95 weight percent (NOTE These standards apply to - TSDFs that are required to have a permit - Hazardous waste recycling units that are located on a hazardous waste management facility that is required to have a permit)
HW 113 When a TSDF uses a closed vent system and control device to meet the standards for total organic emissions, the closed vent system and control device must meet certain minimum requirements (40 CFR 264.1033 and 265 1033)	Verify that control devices involving vapor recovery are designed and operated to recovery the organic vapors vented to the air with an efficiency of 95 weight percent or greater unless the total organic emission limit can be attained at an efficiency of less than 95 weight percent Verify that if an enclosed combustion device is used (i e. vapor incinerator, boiler, or process heater), it is designed and operated to reduce the organic emissions vented to it by 95 weight percent or greater, to achieve a total organic compound concentration of 20 ppmv or to provide a minimum residence time of 0 50 seconds at a minimum temperature of 760°C Verify that if a boiler or process heater is used as the control device, the vent stream is introduced into the flame zone of the boiler or process heater Verify that if flares are used - They are designed and operated with no visible emissions except for periods not in excess of five minutes during any two consecutive hours - It is operated with a flame present at all times - It is used only if the net heating value of the gas being combusted is 11 2 MJ/scm (300 Btu/scf) or greater if the flare is steam assisted or air-assisted - That are nonassisted, the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater - That are nonassisted or steam assisted, they have an exit velocity less than 18 3 m/s (60 ft/s) except· - When the net heating value of the gas being combusted is greater than 37 3 MJ/scm (1000 Btu/scf) and the exit velocity is equal to or greater than 18 3 m/s (60 ft/s) but less than 122 m/s (400 ft/s) Verify that each monitor and control device is inspected on a routine basis

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 114 TSDFs are required to maintain specific records pertaining to process vent emissions (40 CFR 264.1035 and 265 1035)	Verify that the following information is kept in the operating record - An implementation schedule - Up-to-date documentation of compliance - The test plan if test data is used to determine the organic removal efficiency or total organic compound concentration achieved by a control device - Design documentation - Monitoring and inspection results - Notations of exceedences Verify that records of monitoring operations and inspection information are kept for three years
Air Emission Standards for Equipment Leaks	

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 115 TSDFs with pumps in light liquid service that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 264 1050(b) and 264 1052, 265 1050(b) and 265 1052)	Verify that pumps in light liquid service are monitored monthly according to designated reference methods and inspected visually weekly (NOTE A leak is detected if there is an instrument reading of 10,000 ppm or greater or if there is an indication of liquid dripping from the pump seal) Verify that when a leak is detected, the first attempt at repair is made within five calendar days and repair is completed within 15 calendar days (NOTE Pumps equipped with dual mechanical seal systems and pumps designated for no detectable emissions that meet standards outlined below do not have to be monitored monthly or visually checked weekly) Verify that pumps equipped with a dual mechanical seal system meet the following design and operation requirements - The dual mechanical seal system is operated with barrier fluid at a pressure that is at all times greater than the pump stuffing box or equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device or equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emission to the atmosphere - The barrier fluid system has no hazardous waste with organic concentrations 10 percent or greater by weight - The barrier fluid system is equipped with a sensor that will detect failure if the seal is broken - Pumps are checked by visual inspection weekly - Sensors are checked daily or equipped with an audible alarm that is checked monthly Verify that pumps that are designated for no detectable emissions as indicated by an instrument reading of 500 ppm above background or less meet the following· - They are operated with no detectable emissions - They are tested for compliance initially upon designation, annually, and at other times as requested by the Regional Administrator (NOTE Any pump that is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device is exempt from these requirements) (NOTE These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.116 TSDFs with compressors that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 264 1050(b) and 264 1053, 40 CFR 265 1050(b) and 265 1053)	Verify that each compressor is equipped with a seal system that includes a barrier fluid system and that prevents leakage of total organic emissions to the atmosphere except if - It is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device - It is designated for no detectable emission and - It operates at an instrument reading of less than 500 ppm above background - It is tested for compliance initially upon designation, annually, and at times as requested by the Regional Administrator Verify that compressor seal systems meet one of the following: - It is operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure - It is equipped with a barrier fluid system that is connected to a closed-vent system to a control device - It is equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere Verify that the barrier fluid is not a hazardous waste with organic concentrations 10 percent or greater by weight Verify that each barrier fluid system is equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both. Verify that each sensor is checked daily or it is equipped with an audible alarm that is checked monthly (NOTE Sensors on compressors located within the boundary of an unmanned site must be checked daily) Verify that when a leak is detected, the first attempt at repair is made within five calendar days and the repair is made within 15 calendar days (NOTE These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 117 TSDFs with pressure relief devices in gas/vapor service that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 264 1050(b) and 264 1054, 40 CFR 265 1050(b) and 265 1054)	Verify that except during pressure releases, each pressure relief device in gas/vapor service is operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background Verify that if there is a pressure release, the device is returned to a no detectable emission status Verify that each sampling connection system is equipped with a closed purge system or closed-vent system (NOTE Any pressure relief device that equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device is exempt from these requirements) (NOTE These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit)
HW 118 TSDFs with sampling connecting systems that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 264 1050(b) and 264 1055, 40 CFR 265 1050(b) and 265 1055)	Verify that each sampling connection system is equipped with a closed purge system or closed-vent system Verify that each closed purge system or closed-vent system does one of the following - Returns the purged hazardous waste stream directly to the hazardous waste management process line with no detectable emissions to atmosphere - Collects and recycles the purged hazardous waste stream with no detectable emissions to the atmosphere - Is designed and operated to capture and transport all the purged hazardous waste stream to a control device (NOTE In-situ sampling systems are exempt from these requirements) (NOTE These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 119 TSDFs with open-ended valves or lines that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific operation standards (40 CFR 264.1050(b) and 264 1056, 40 CFR 265 1050(b) and 265 1056)	Verify that each open-ended valve or line is equipped with a cap, blind flange, plug, or a second valve Verify that the cap, blind flange, plug, or second valve seals the open end at all times except during operations requiring hazardous waste stream flow through the openended valve of line. Verify that each open-ended valve of line equipped with a second valve is operated so that the valve on the hazardous waste stream end is closed before the second valve is closed Verify that when a double block and bleed system is being used, the bleed valve is shut or plugged except during operations that require venting the line between the block valves (NOTE These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit.)

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 120 TSDFs with valves in gas/vapor service or light liquid service that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific monitoring and repair standards (40 CFR 264 1050(b), 264 1057, 264 1061, 40 CFR 265 1050(b), 265 1057, 265 1061)	Verify that valves in gas/vapor service or light liquid service are monitored monthly to detect leaks (NOTE A leak is detected if an instrument reading of 10,000 ppm or greater is measured But, if a leak is not detected for two consecutive months, monitoring may be cut back to quarterly until a leak is detected.) Verify that the first attempt at repairing a leak is done with 5 calendar days after detection and leak repair is completed within 15 days after detection (NOTE Valves that are designated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, do not have to be monitored monthly if - The valve has no external actuating mechanism on contact with the hazardous waste stream - The valve is operated with emission less than 500 ppm above background - The valve is tested initially upon designation, annual, and at the request of the Regional Administrator) (NOTE Valves that are designated as unsafe-to-monitor are exempt from the requirement for monthly monitoring if. - The valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger - A written monitoring plan is followed that requires monitoring as often as is reasonably practicable during safe-to-monitor times) (NOTE Valves that are designated as difficult-to-monitor are exempt from monthly monitoring requirements if· - The valve cannot be monitored without elevating the monitoring personnel more than 2 m above a support surface - The hazardous waste management unit within which the valve is located was in operation before 21 June 1990 - A written monitoring plan is followed that requires the monitoring of the valve at least once per calendar year) (NOTE. The TSDF may elect to have all valves within a hazardous waste management unit comply with an alternative standard of no greater than 2 percent of the valves to leak) (NOTE. These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 121 TSDFs with pumps and valves in heavy liquid service, pressure relief devices in light liquid service or heavy liquid service, and other connectors that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific monitoring and repair standards (40 CFR 264 1050(b) and 264 1058, 40 CFR 265 1050(b) and 265 1058).	Verify that pumps and valves in heavy liquid service, pressure relief devices in light liquid service or heavy liquid service and other connectors are required to be monitored within five days if evidence of a potential leak is found by visual, olfactory, audible, or other detection method. (NOTE A leak is detected if an instrument reading of 10,000 ppm or greater is measured) Verify that when a leak is detected the first attempt at repair occurs within five days and repair is done within 15 days after discovery. (NOTE These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit)
HW 122 TSDFs are required to keep specific records pertaining to the valves. pumps pressure relief devices, and connecting systems being monitored for leaks and submit certain reports (40 CFR 264.1050(b), 264 1064, 264 1065; 40 CFR 265 1050(b), 265 1064)	Verify that the following information is maintained in the TSDF operating record· - Equipment identification number and hazardous management unit identification - Approximate locations - Type of equipment - Percent-by-weight total organics in the hazardous waste stream at the equipment - Hazardous waste state at the equipment (gas, liquid, vapor) - Method of compliance - Implementation schedule if needed - A performance plan for control devices as needed - Documentation of compliance - Documentation of repair Verify that permitted TSDFs submit a semiannual report indicating leaks and repairs to the Regional Administrator. (NOTE If repairs are made and the control device does not exceed or operate outside of the design specifications for more than 24 hours, a report to the Regional Administrator is not required.) (NOTE· These standards apply to TSDFs that are required to have a permit and hazardous waste recycling units that are located on hazardous waste management facilities that are required to have a permit.)
Documentation Requirements	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 123 TSDFs that treat, store, or dispose of hazardous wastes must develop and follow a written waste analysis plan (40 CFR 264 13(b), 264 13(c), 40 CFR 265 13(b), and 265.13(c))	Determine if the TSDF treats, stores, or disposes of hazardous waste Verify that the TSDF has a waste analysis plan Verify that the TSDF is following the waste analysis plan by comparing the plan to records of actual procedures Verify that the waste analysis plan contains the following - Testing parameters for which each hazardous waste will be analyzed - Test methods - Sampling methods used to obtain a representative sample - Frequency in which the analysis will be reviewed or repeated to ensure that the analysis is up-to-date and accurate - Waste analysis supplied by offsite generators - Methods used to meet the additional analysis requirements for management of ignitable, reactive, or incompatible materials, bulk and containerized liquids, and incineration are stated (if applicable) - Additional information as follows for offsite facilities - Specific procedures to inspect (and analyze if necessary) each movement of hazardous waste received to ensure that it matches the identity of the waste designated in the manifest - The method of sampling used to obtain a representative sample (if the identification method includes sampling) - The procedures that an offsite landfill receiving containerized hazardous waste will use to determine if a hazardous waste generator or treater has added a biodegradable sorbent to the waste in the container
HW 124. TSDFs on the facility must have a formal written inspection schedule and a log of inspection results (40 CFR 264 15 and 40 CFR 265 15)	Verify that the TSDF has a formal written inspection schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are important to preventing, detecting, or responding to environmental or human health hazards Verify that the schedule is kept at the TSDF and lists types of problems to be looked for at the TSDF Verify that areas subject to spills, such as loading and unloading areas, are inspected daily when in use Verify that logs, or records, of the inspections are kept for three years and include the following: - The date and time of the inspection - The name of the inspector - A notation of the observations made - The date and nature of any repairs or other remedial actions.

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 125 Facilities with TSDFs must have a contingency plan (40 CFR 264.50 through 264 54, 40 CFR 265 50 through 265 54)	(NOTE TSDFs may be addressed in the facility's SPCC plan or other emergency plan, or if none exists, in a separate contingency plan) Verify that the contingency plan is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents Verify that the plan includes the following - A description of actions to be taken during an emergency - A description of arrangements, as appropriate, agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams - Names, addresses, and phone numbers of all persons qualified to act as emergency coordinator - A list of all emergency equipment at the TSDF and where this equipment is required, located, and what it looks like an evacuation plan for TSDF personnel where there is a possibility evacuation would be needed Verify that copies of the contingency plan are maintained at the TSDF and also have been submitted to organizations which may be called upon to provide emergency services Verify that the contingency plan is routinely reviewed and updated, especially when the TSDF is issued a new permit, the plan fails in an emergency, the emergency coordinators change, the waste being handled changes, and/or the list of emergency equipment changes.
HW 126 TSDF operators must record the time, date, and details of any incident that requires implementing the contingency plan (40 CFR 264 56(j) and 265 56(j))	Determine if incidents have been recorded and corrective actions taken through a review of TSDF operating records Verify that written reports have been submitted to the EPA Regional Administrator within 15 days after the incident

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 127 TSDF operators must keep written operating records at the facility (40 CFR 264 73 through 264.74, 40 CFR 265 73 through 265 74)	Verify that the TSDF has a written operating record Determine if the operating record includes - A description and quantity of each hazardous waste received at the TSDF and the method(s) and date(s) of treatment, storage, or disposal of each waste received at the TSDF - The location of each hazardous waste within the TSDF (cross-referenced to specific manifest document numbers and the quantity at each location) - For disposal facilities, the location and quantity is recorded on a map or diagram of each cell or disposal area - Records and results of waste analyses - Reports of all the incidents that required the implementation of the contingency plan - Records and results of inspections (only a 3 year retention period) - Monitoring, testing, and analytical data (where required) - For offsite facilities, notices to the generator - Annual certification that the TSDF has a program in place to reduce the volume and toxicity of hazardous waste, and that the proposed method of treatment, storage, or disposal minimizes the present and future threat to human health and the environment - The record of the quantities and date of placement for each shipment of hazardous waste placed in land disposal units under an extension granted by 40 CFR 268.5, a petition granted under 40 CFR 268.6, or a certification granted under 40 CFR 268 8 - A copy of the applicable notice, demonstration, and certification required for any restricted hazardous wastes - Certifications and demonstrations provided to generators or received from generators (NOTE. This information must be recorded and maintained in the operating record until closure of the TSDF) (NOTE· The retention period for all records is extended automatically during the course of any unresolved enforcement action or as required by the EPA Administrator.)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 128 Facilities with TSDFs must prepare and submit a single copy of a biennial report to the EPA Regional Administrator by March 1 of each even numbered year (40 CFR 264.75 and 40 CFR 265 75)	Obtain a copy of the biennial report (EPA Form 8700-13D or applicable state form) Verify that biennial reports are prepared and submitted and contain the following information - EPA identification number - TSDF name and address - Calendar year covered by report - Description and quantity of each waste received - Method of treatment, storage, or disposal for each waste - Certification signed by owner or operator of the TSDF - Offsite facilities must also report EPA identification number for each hazardous waste generator from which waste was received - Description of efforts undertaken during the year to reduce the volume and toxicity of waste generated - Description of changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent that information is available for the years prior to 1984 (NOTE This is not required if annual or biennial reports are submitted to the state)
HW 129 Facilities with TSDFs must have a written closure plan for each TSDF (40 CFR 264 110, 264.112(a), and 264 112(b), 40 CFR 265 110, 265 112(a), and 265 112(b))	Determine if the TSDF has a written closure plan Determine, by review, if the closure plan addresses - How the TSDF will be closed - Estimates of the maximum amount of wastes in storage and in treatment during the life of the TSDF - Description of decontamination procedures to be used during closure - Schedule for closure of each unit
HW 130. TSDFs with hazardous waste disposal units are required to have a written post-closure plan (40 CFR 264 118 and 40 CFR 265 118(a) through 265 118(d)).	Verify that the plan includes the following information - Identifies the activities that will be carried on after closure of each disposal unit and the frequency of these activities - Name address and phone number of the person or office to contact during post-closure care Verify that the plan is amended if there is a change in the expected year of final closure, events occur during the life of the TSDF that impact closure care, or a change in TSDF design

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 131 Facilities that have TSDFs that receive waste from offsite sources must comply with manifest requirements (40 CFR 264 70 and 264 71, 40 CFR 265 70 and 265 71)	Determine if the TSDF receives waste from offsite sources and if their permit allows for the receipt of offsite waste Determine if manifests contain the following by reviewing a random number of manifests - Proper signature - Date of receipt - Wastes received are listed on permit Verify that a copy was sent to the generator within 30 days of receipt of waste Verify that copies are retained at the TSDF for three years Verify that exclusion certification from CESQGs are kept on file Verify that wastes received by the TSDF are included in their permit (NOTE Periods of retention of records are extended automatically during the course of any unresolved enforcement action or as requested by the EPA Administrator)
HW 132 TSDFs receiving hazardous waste from a foreign source must notify the Regional Administrator (40 CFR 264 12(a) and 40 CFR 265 12(a))	Verify that notification is sent in writing at least four weeks before delivery is expected
HW 133 Facilities with TSDFs which receive waste form offsite sources are required to attempt to resolve manifest discrepancies when they occur (40 CFR 264 72 and 40 CFR 265 72)	Determine if significant discrepancies existed between the quantity or type of waste designated on the manifest or shipping paper, and the quantity or type of waste the TSDF received Verify that on discovery of a significant discrepancy, an attempt was made to reconcile the discrepancy with the generator and/or the transporter Verify that if the discrepancy could not be resolved within 15 days after receipt of the waste, the Regional Administrator was notified by mail and the following was included - A letter describing the discrepancy and the attempts to reconcile it - Copy of the manifest or shipping paper at issue (NOTE For bulk waste, variations greater than 10 percent in weight, and for batch waste, any variation in piece count is a significant discrepancy Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper These discrepancies may only be discovered after waste analysis)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 134 Reports must be submitted to the EPA when a TSDF accepts an unmanifested waste shipment (40 CFR 264 76 and 40 CFR 265.76)	Determine if unmanifested shipments have been accepted Verify that reports (Form 8700-13B) are submitted within 15 days (NOTE When small quantities (i e , waste from CESQGs) are received without certification that the waste is excluded from manifest requirements, an unmanifested waste report is required to be filed)
Surface Impoundments	
HW 135. TSDFs must follow specific restrictions concerning the types of wastes placed in any surface impoundment (40 CFR 264 229, 264 230, 40 CFR 265 229 and 265 230)	Verify that incompatible wastes or incompatible wastes and materials are not placed in the same surface impoundment unless precautions are taken to prevent. - Generation of extreme heat or pressure, fire or explosions, or violent reactions - Production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would Threaten human health or the environment - Production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion - Damage to structural integrity of the device or TSDF - Threats to human health or the environment through other means Verify that ignitable or reactive wastes are not placed in surface impoundments unless the wastes and impoundments satisfy the restrictions in 40 CFR 268 (see checklist items HW 105 through HW 110) and they are treated, rendered or mixed so that it is no longer ignitable or reactive Verify that and one of the following conditions is met for the surface impoundment. - Precautions are taken so that the following are prevented - Generation of extreme heat or pressure, fire or explosions, or violent reactions - Production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment - Production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion - Gamage to structural integrity of the device or TSDF - Threats to human health or the environment through other means - The waste is managed so that it is protected from any materials or conditions which may cause it to ignite or react - The surface impoundment is used only for emergencies

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Waste Piles	
HW 136 All waste piles containing ignitable or incompatible wastes must follow certain requirements (40 CFR 264 256 and 264 257)	Verify that ignitable wastes are not placed into piles unless the following are met - The waste is treated or rendered, or mixed before or immediately after placement in the pile so that -- the waste or mixture no longer meeting the definition of ignitable or reactive waste -- there is no generation of extreme heat or pressure, fire or explosions, or violent reactions -- there is no production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment -- there is no production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion -- there is no damage to structural integrity of the device or TSDF -- there is no threat to human health or the environment through other means - The waste is managed in such a way that it is protected from any material or conditions that may cause it to ignite or react Verify that incompatible wastes are not placed in the same pile and hazardous waste is not piled on the same base where incompatible wastes or materials were previously piled unless the base has been decontaminated and the following are avoided - Generation of extreme heat or pressure, fire or explosions, or violent reactions - Production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment - Production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion - Damage to structural integrity of the device or TSDF - Threats to human health or the environment through other means Verify that piles of hazardous waste that are incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments are separated from the other materials, or protected from them by means of a dike, berm, wall, or other device
Land Treatment Units	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.137 All land treatment facilities must follow specific guidelines for ignitable or reactive wastes and incompatible wastes (40 CFR 264.281 and 264 282, 40 CFR 265 281 and 265 282)	Determine if the land treatment facility handles any ignitable or incompatible waste Verify that ignitable or reactive waste are not land treated unless - The waste is immediately incorporated into the soil so that the resulting mixture no longer meets the definition of ignitable or reactive waste - The following are prevented -- generation of extreme heat or pressure, fire or explosions, or violent reactions -- production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment -- production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion -- damage to structural integrity of the device or facility -- threats to human health or the environment through other means - The waste is managed in such a way that it is protected from any materials that may cause it to react
Hazardous Waste Landfills	
HW.138 All hazardous waste landfills are required to have a runon control system, a runoff management system and control the wind dispersal of particulate matter (40 CFR 264 301(g) through 264.301(k), 40 CFR 265.301(f) through 265 301(i))	Verify that - The runon control system has the capacity to prevent flow onto the active portion of the landfill during peak discharge of 25 year storm - The runoff management system has adequate capacity to collect and control water from a 24 hour, 25 year storm and the contents tested to determine correct disposal methodology - Collection and holding tanks or basins for runon and runoff control systems are emptied expeditiously after storms - There are analyses of runon/off to determine required treatment, if any - There is adequate control of wind dispersal and no blowing debris - There is adequate cover of waste material (NOTE. For permitted TSDFs, the permit will specify all design and operating practices necessary to ensure compliance.)
Closure	
HW 139. TSDFs must comlply with certian closure schedules (40 CFR 264 113(a) through 264 113(d), and 264 114, 40 CFR 113(d), and 265.114)	Verify that within 90 days after receiving final volume of waste, all hazardous waste has been treated and removed or disposed of onsite in accordance with the closure plan Verify that partial and final closure activities are completed in accordance with approved closure plan within 180 days after receiving the final volume of waste. (NOTE. The Regional Administrator may grant variances on the time period) (NOTE During partial and final closure periods all contaminated equipment, structures and soils must be properly disposed of By removing any hazardous wastes or constituents during closure, the TSDF becomes a hazardous waste generator and is subject to the requirements of 40 CFR 262)

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 140 All TSDFs are required to follow certain notification procedures for partial and final closure (40 CFR 264 112(d)(1) and 40 CFR 265 112(d)(1))	Verify that TSDFs with surface impoundments, waste piles, land treatment or landfill units notify the Regional Administrator - 180 days prior to expected date of beginning closure of the first unit for interim status TSDFs without an approved closure plan, 60 days with an approved closure plan - 60 days prior to expected date of beginning closure for all permitted TSDFs Verify that TSDFs with only tanks, containers, or incinerator units notify the Regional Administrator within 45 days prior to the date of beginning final closure
HW 141 Within 60 days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit facilities must submit a certification of closure to the Regional Administrator (40 CFR 264 115 and 40 CFR 265 115)	Verify that a certification of closure was sent to the Regional Administrator by registered mail
HW 142 By the time that certification of closure has been submitted, TSDFs are required to submit a survey plat indicating the location and dimensions of landfill cells in relationship to permanently surveyed landmarks to specific authorities (40 CFR 264 116 and 40 CFR 265 116)	Verify that a survey plat was submitted to the local zoning authorities or the authority with jurisdiction over local land use, and the Regional Administrator
HW 143 Post-closure care of hazardous waste management units must meet specific requirements (40 CFR 264 117 and 40 CFR 265 117)	Verify that post-closure care last for 30 years after closure and consists of the following: - Monitoring and reporting as required in other sections - Maintenance of waste containment systems - Use of the property is not allowed to disturb the integrity of the final cover, liner, or any other components
Additional Requirements for Permitted TSDFs	
General	
HW.144. Permitted TSDFs that receive hazardous waste from offsite sources must inform the generator in writing that the TSDF has the appropriate permit and will accept the waste (40 CFR 264 12(b))	Verify that notification is sent and a copy is kept in the operating record

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.145. Permitted TSDFs that treat, store, or dispose of hazardous waste with solid waste management units are required to institute corrective actions as outlined in the permit to protect human health and the environment from releases (40 CFR 264.90(a) and 264 101)	(NOTE: This applies regardless of when the waste was placed in solid waste management units) Verify that corrective actions required by the permit are being done (NOTE The Regional Administrator may identify the unit as not having to comply with this requirement.)
HW 146 Container storage areas at TSDFs must have a containment system that meets specific standards (40 CFR 264 175(a) and 264.175(b))	Verify that all container storage areas meet the following criteria - Containers are stored on a base that is free from cracks or gaps and is impervious so that leaks, spills, and precipitation are contained - The base is sloped (or otherwise designed) to drain and remove liquids resulting from leaks, spills, or precipitation unless the containers are elevated - Spilled or leaked waste and accumulated precipitation is removed in a timely manner - The containment system has adequate capacity to contain 10 percent of the volume of the containers or the volume of the largest container whichever is greater - Runon into the containment system is prevented unless the system has sufficient capacity to contain any runon that might enter the system in addition to the already required capacity (NOTE: If the collected material is a hazardous waste, it must be handled accordingly. If it is discharged through a point source, it is subject to the Clean Water requirements.)
HW 147 Containment at permitted TSDFs for containers holding wastes that do not contain free liquids must meet specific criteria which is lesser than that for general containment areas (40 CFR 264 175(c))	Verify that one of the following storage area criteria is met. - The area is sloped or able to drain and remove liquid resulting from precipitation - Containers are elevated or protected from contact with accumulated liquid. (NOTE. Storage areas must have complete containment systems when the containers holding F020, F022, F023, F026, and F027 do not contain free liquids)
HW.148 When container storage areas are closed at permitted TSDFs, specific conditions must be met (40 CFR 264 178)	Verify that closure criteria were met - All hazardous waste and residues were removed from the containment system - Remaining containers, liners, bases, and soils (containing or contaminated with hazardous waste or hazardous waste residues) were decontaminated or removed - All hazardous wastes (including materials removed from the containment system) were managed appropriately.

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 149 TSDFs with permitted surface impoundments, waste piles, and land treatment units or landfills that received hazardous waste after 26 July 1982 are required to conduct monitoring and response program under specific circumstances (40 CFR 264 90(a)(2) and 264 91)	Verify that whenever hazardous constituents specified in the permit by the Regional Administrator are detected at designated compliance points, a compliance monitoring program is started Verify that whenever groundwater protection limits are exceeded, a corrective action program is initiated Verify that whenever hazardous constituents specified in the permit by the Regional Administrator exceed concentration limits under 40 CFR 264 94 (see Appendix 4-11) in groundwater between a designated compliance point and the downgradient property boundary, a corrective action program or a detection monitoring program is started at the TSDF Verify that the TSDF is meeting the elements of the monitoring and response program specified by the Regional Administrator in the permit
HW 150 TSDFs with permitted surface impoundments, waste piles, and land treatment units or landfills that received hazardous waste after 26 July 1982 are required to comply with specific concentration limits in the groundwater for hazardous constituents as designated by the Regional Administrator in the permit (40 CFR 264 94)	Verify that the concentration of hazardous constituents - Do not exceed the background level of that constituent in the groundwater at the time that limit is specified in the permit - Do not exceed the limits outlined in Appendix 4-11 - Do not exceed an alternate limit set by the Regional Administrator
HW 151 TSDFs with permitted surface impoundments, waste piles, and land treatment units or landfills that received hazardous waste after 26 July 1982 and that detect statistically significant evidence of contamination for chemical parameters or hazardous constituents designated in the permit must meet specific requirements (40 CFR 264 98(g))	Verify that the following steps are taken if there is significant evidence of contamination - The Regional Administrator is notified in writing within seven days - The groundwater in all monitoring wells is immediately sampled and analyzed for constituents in Appendix IX of 40 CFR Part 264 - Sampling is repeated after one month for any compounds detected that are listed in Appendix IX of 40 CFR Part 264 - Within 90 days an application for a permit modification is submitted to the Regional Administrator to establish a compliance monitoring program

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 152. If during a compliance monitoring program the TSDF determines that the concentration limits listed in 40 CFR 264 94 are being exceeded at any monitoring well at the point of compliance, specific actions are required (40 CFR 264 99(h))	Verify that the following actions are taken when concentration are exceeded - The Regional Administrator is notified in writing within seven days - An application for a permit modification to establish a corrective action program is submitted within 180 days
HW.153 TSDFs operating corrective actions programs are required to report semi-annually to the Regional Administrator on their effectiveness (40 CFR 264 100(g)).	Determine if the TSDF operates a corrective action program Verify that a semi-annual progress report is sent to the Regional Administrator
HW 154. TSDFs that are seeking a permit for the treatment, storage, or disposal of hazardous waste must initiate the corrective actions needed to protect human health and the environment from all releases of hazardous waste of constituents from any solid waste management unit, regardless of when the waste was placed in the unit (40 CFR 264 101)	Verify that the corrective actions specified in the permit are being done and the compliance schedule is being met (NOTE As a part of the corrective action program the Regional Administrator may designate an area of the TSDF as a Corrective Action Management Unit (CAMU) or a Temporary Unit (TU))
HW 155. All permitted TSDFs are required to document compliance with ignitable, reactive, or incompatible waste management requirements (40 CFR 264 17(c))	Verify that compliance documentation is maintained at the TSDF, and that it is based on published scientific or engineering literature, data from field tests, or the results of the treatment of similar wastes by similar treatment processes or similar operating conditions
HW 156. Permitted TSDFs with process vents associated with distillation, fractionation, thinfilm evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppmw are required to submit a semi-annual report concerning process vent emissions (40 CFR 264 1036)	Verify that a semi-annual report is submitted to the Regional Administrator and that it includes the following - The EPA identification number, name, and address of the TSDF - Dates when the control device exceeded or operated outside of design specification and the exceedences were not corrected within 24 hours - Dates when a flare operated with visible emissions - The duration and cause of exceedences and corrective measures taken (NOTE If there are no exceedences a report is not required)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Surface Impoundments	
HW 157 Permitted surface impoundments must be designed according to specific parameters (40 CFR 264 221(a), 264 221(g) through 264 221(i))	Determine if the TSDF has a permitted surface impoundment Verify that surface impoundments have a liner for all portions of the impoundment Verify that the impoundment is designed, constructed, maintained, and operated to prevent overtopping, overfilling, wind and wave action, rainfall, runon, malfunctions of level controllers, alarms and other equipment, and human error Verify that the impoundment has dikes that are designed and constructed and maintained to prevent massive failure of the dikes (NOTE The Regional Administrator will specify in the permit all design and operating practices that are necessary)

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 158 New permitted surface impoundments that started construction after 29 January 1992, lateral expansions of permitted surface impoundments which started construction after 29 July 1992, and replacements of existing surface impoundments where reuse started after 29 July 1992 are required to meet specific design and operating criteria (40 CFR 264 19, 264 221(c) through 264 221(f), 264 222, 264 223, and 264 226(d))	Verify that the impoundment has two or more liners and a leachate collection and removal system between liners, or the double liner requirement has been waived by the EPA Regional Administrator Verify that the liner meets the specifications stated in 40 CFR 264 221(c) Verify that the TSDF has a Construction Quality Assurance (CQA) program to ensure that constructed units meet or exceed all design criteria and specifications in the permit Verify that the designated CQA officer is a registered professional engineer. Verify that the TSDF has a written CQA plan that addresses the following - Identification of applicable units and a description of how they will be constructed - Identification of key personnel - A description of sampling and inspection activities Verify that waste is not received in a unit until an approved CQA plan has been submitted to the Regional Administrator Verify that these surface impoundments comply with the action leakage rate assigned by the Regional Administrator Verify that the surface impoundment facility has an approved response action plan prior to the receipt of waste Verify that the amount of liquid removed from each leak detection system sump is recorded at least once a week during the active life and closure period Verify that after a final cover is installed, the amount of liquids removed from each leak detection system sump is recorded at least monthly or - If the liquid level in the sump stays below the pump operating level of two consecutive months, then the liquid amounts may be recorded quarterly - If the liquid level in the sump stays below the pump operating level for two consecutive quarters, then the liquid amounts may be recorded semiannually (NOTE TSDFs with replacement surface impoundments may be exempt from these requirements if the existing unit was constructed in compliance with the design standards of sections 3004(o)(1)(A)(i) and (o)(5) of RCRA and there is no reason to believe the liner is not functioning as designed)
HW 159 Permitted TSDFs must inspect liners and cover systems during construction and installation of liners (40 CFR 264 226(a))	(NOTE This excludes existing portions of surface impoundments exempt from 264 221(a)) Verify that liners and covers are inspected for uniformity, damage, and imperfections

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 160 TSDFs must conduct inspections while surface impoundments are in operation (40 CFR 264 226(b))	Verify that inspections are conducted at least weekly and after storms to detect evidence of the following - Deterioration, malfunctions, or improper operation of overtop piping control systems - Sudden drops in the level of the impoundment contents - Severe erosion or other signs of deterioration in dikes or other containment devices
HW 161 Prior to the issuance of a permit and/ or after any period of greater than six months of disuse, the TSDF must obtain certification from a qualified engineer that surface impoundment dikes have structural integrity (40 CFR 264 226(c))	Determine if the TSDF is permitted or if any impoundment has been out of service for six months or more Verify that the certification of structural integrity includes - Verification that the impoundment can withstand the amounts and types of waste it will contain - That without dependence on any liner system the impoundment will not fail due to scouring or piping
HW 162 TSDFs must follow specific restrictions concerning the types of wastes placed in permitted surface impoundments (40 CFR 264 231)	Verify that hazardous waste F020, F021, F022, F023, F026, and F027 are not placed in the impoundment unless it is done according to a management plan approved by the Regional Administrator
HW 163 Permitted surface impoundments are required to be removed from service under specific circumstances (40 CFR 264 227(a))	Verify that surface impoundments have been removed from service if any of the following circumstances exist. - The level of liquid suddenly drops and the drop is not known to be cause by changes in flow - The dike leaks
HW 164 In order to remove a permitted surface impoundment from service, specific parameters have to be met (40 CFR 264 227(b), 264 227(c), and 264 227(e))	Verify that when a surface impoundment is removed from service the following requirements are met - The flow or addition of waste is immediately shut off or stopped - Surface leakage is immediately contained - Leaks are stopped or empty the impoundment - The Regional Administrator is notified within seven days of problems Verify that the contingency plan specifies a procedure for taking a surface impoundment out of service Verify that if a surface impoundment is removed from service and it is not being repaired, it is closed
HW 165 Surface impoundments may not be restored to service unless specific standards are met (40 CFR 264 227(d))	Verify that prior to being returned to service the following is done· - The portion of the impoundment that was failing is repaired - The dike is recertified if the reason for removal from service was faulty dike integrity - Liners are correctly installed and operating.

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 166 TSDFs that have surface impoundments must follow certain closure and post-closure requirements (40 CFR 264 228(a) and 264 228(b))	Determine if the TSDF has closed or plans to close any surface impoundments Verify that at closure the TSDF does one of the following - Removes or decontaminates all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate and manages them as hazardous waste - Eliminates the free liquids by removing liquid wastes or solidifying the remaining wastes and water residue and stabilizes remaining wastes to a bearing capacity sufficient to support final cover and cover the surface impoundment with a final cover designed and constructed to: -- provide long-term minimization of the migration of liquids -- function with minimum maintenance -- promote drainage and minimized erosion or abrasion of the final cover -- accommodate settling and subsidence so that the cover's integrity is maintained -- have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present Verify that if waste residues or contaminated materials are left in place, the TSDF meets post-closure requirements outlined in 40 CFR 264 117 through 264 120 and - Maintains the integrity and effectiveness of the final cover - Maintains and monitors the leak detection system - Maintains and monitors the groundwater monitoring system - Prevents runon and runoff from eroding or otherwise damaging the final cover.
Waste Piles	
HW.167. Permitted TSDFs that store or treat hazardous waste in waste piles must meet specific design and operating standards (40 CFR 264 250 and 264.251(a), 264 251(b), and 264 251(g) through 264.251(k)).	(NOTE. Waste piles closed with wastes left in place are regulated as landfills Waste piles inside or under a protective structure are exempt from the standards in 40 CFR 264.250 through 264 259 if they contain no liquids, are protected from runon, are designed and operated to control dispersal of waste by wind, and do not generate leachate through decomposition or other reactions.) Determine if the TSDF treats or stores hazardous waste in waste piles. Verify that the following standards are met for each waste pile· - The pile has a liner and is located on a foundation that provides support - The liner is installed to cover all surrounding earth likely to be in contact with the waste or leachate - A leachate collection and removal system is located immediately above the liner - Leachate depth over the liner does not exceed 30 cm (1 ft) - Protection from wind and runon is provided - A runoff management system is in place and in operating condition - Tanks and basins associated with the runon and runoff control systems are emptied. (NOTE The permit will designate all design and operating practices necessary to ensure that the requirements are satisfied)

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 168 Permitted waste piles constructed after 29 January 1992, lateral expansions that started after 29 July 1992, and replacement of existing waste piles where reuse started after 29 July 1992 are required to meet specific design and operating requirements (40 CFR 264 19, 264 251(c) through 264 251(f), 264 252, 264 253)	Verify that the described waste piles have two or more liners and a leachate collection and removal system above and between the liners Verify that the liner is designed and constructed of materials to prevent the migration of hazardous constituents into the liner during the active life and post-closure care period (NOTE See 40 CFR 264 251(c)(1) and 264 251(c)(2) for details on the design of the liner and the leachate collection system) Verify that the TSDF has a CQA program to ensure that constructed units meet or exceed all design criteria and specifications in the permit Verify that the designated CQA officer is a registered professional engineer Verify that the TSDF has a written CQA plan that addresses the following - Identification of applicable units and a description of how they will be constructed - Identification of key personnel - A description of sampling and inspection activities Verify that waste is not received in a unit until an approved CQA plan has been submitted to the Regional Administrator Verify that the pumpable liquids in the leak detection sumps are removed to minimize the head on the bottom liner Verify that the TSDF is complying with the action leakage rate assigned by the Regional Administrator Verify that the TSDF has an approved response action plan prior to the receipt of waste (NOTE The Regional Administrator may approve alternative designs or grant a waiver)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 169. TSDFs must conduct inspections of permitted waste piles during construction and while they are in operation (40 CFR 264 254).	Verify that if construction of a waste pile is occurring at the TSDF the following are taking place: - Liners and cover systems are inspected for uniformity, damage, and imperfection - Synthetic liners and covers are inspected for tight seams and joints immediately after construction - Soil based and admixed liners and covers are inspected for imperfections Verify that the waste pile is inspected at least weekly and after storms to detect evidence of the following - Deterioration, malfunctions, or improper operation in runon and runoff systems - Proper functioning of wind dispersal control system - Presence of leachate in, and proper functioning of leachate control system Verify that the amount of liquids removed from each leak detection system is record at least once a week during the active life and closure period
HW 170 TSDFs that treat F020, F021, F022, F023, F026, and/or F027 in permitted waste piles are required to follow specific operating procedures (40 CFR 264 259)	Determine if the TSDF treats F020-F023, F026, or F027 Verify that these wastes are kept in enclosed piles unless the owner/operator has a management plan approved by the Regional Administrator
HW 171 TSDFs that operate permitted waste piles must follow specific requirements for closure and post-closure care (40 CFR 264 258)	Verify that at the time of closure all waste residues, contaminated containment system components, subsoils, and structures and equipment contaminated with hazardous waste have been removed or decontaminated. Verify that if all contaminated subsoils cannot be removed or decontaminated practicably the site is closed and managed according to closure and post-closure care requirements for a landfill Verify that if the TSDF has a waste pile that does not comply with the liner requirement, and is not exempted from this requirement, they comply with the following - The written closure plan addresses the removal of all contaminated substances and a contingency plan if all contamination cannot be removed from the pile - A contingency post-closure plan is prepared for the waste pile and be submitted to the appropriate agency within 90 days after determining the waste pile must be closed
Land Treatment Units	

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 172 TSDFs with permitted hazardous waste land treatment units must meet certain standards (40 CFR 264 270 through 264 273(f))	Determine if the TSDF operates a land treatment facility Verify that the following standards are met at each permitted hazardous waste land treatment unit - The treatment zone is no more than 1 5 m (5 ft) from the initial soil surface - The treatment zone is more than 1 m (3 ft) above the seasonal high water table - Only wastes with hazardous constituents that can be degraded, transformed, or immobilized are placed in the treatment zone - Runon control systems are operated to prevent flow onto the treatment zone during peak discharge from at least a 25 year storm - Tanks and basins associated with the runon and runoff control systems are emptied or otherwise managed after storms - Wind dispersal is controlled (NOTE The Regional Administrator will specify in a permit the exact elements of the treatment program)
HW 173 TSDFs must conduct inspections while land treatment facilities are in operation (40 CFR 264 273(g))	Verify that the land treatment system is inspected weekly and after storms to detect evidence of - Deterioration, malfunctions, or improper operation of runon and runoff control systems - Improper functioning of wind dispersal control measures
HW 174 TSDFs with food chain crops grown in or on the treatment zone are required to meet specific operational standards (40 CFR 264 276)	Determine if food chain crops are grown in or on the treatment zone Verify that if food chain crops are grown, only those specified in the permit by the Regional Administrator are being grown Verify that if cadmium containing wastes are applied to food chain crops in or on treatment zones, the following are met - The pH of the waste and soil mixture is 6 5 or greater at the time of application except in cases where the waste contains cadmium at concentrations of 2 mg/kg or less - The annual application of cadmium from waste does not exceed 0 5 kg/ha on land used for production of tobacco, leafy vegetables, or root crops grown for human consumption For other food chain crops the annual cadmium does not exceed 0 5 kg/ha - The cumulative application of cadmium from waste does not exceed 5 kg/ha if the waste and soil mixture has a pH less than 6 5 - If the waste and soil mixture has a pH of 6 5 or greater or is maintained at a pH of 6 5 or greater during crop growth and one of the following is met - The cumulative application of cadmium from waste does not exceed 5 kg/ ha if soil cation exchange capacity is less than 5 meq/100g - The cumulative application of cadmium from waste does not exceed 10 kg/ ha if soil cation exchange capacity is 5 to 15 meq/100 g - The cumulative application of cadmium from waste does not exceed 20 kg/ ha if soil cation exchange capacity is greater than 15 meq/100 g - Animal feed is the only food chain crop produced

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 175 Permitted land treatment units must have an unsaturated zone monitoring program (40 CFR 264 278).	Verify that the unsaturated zone monitoring program meets the following - The soil and soil-pore liquid are monitored to determine if hazardous constituents migrate out of the treatment zone - A system is installed that includes soil monitoring using soil cores and soil-pore liquid monitoring using devices such as lysimeters - A background value has been established for each hazardous constituent to be monitored (see permit) - The soil monitoring and soil-pore liquid monitoring is done immediately below the treatment zone - Consistent sampling and monitoring procedures are used Verify that the contaminants listed in the permit are being monitored Verify that when it is found that there is a statistically significant increase of hazardous constituents below the treatment zone the following steps are taken - The Regional Administrator is notified within seven days in writing - Within 90 days a permit application is submitted to the Regional Administrator for a permit modification to modify the operating practices
HW 176 Land treatment facilities must keep an operating record that includes dates and rates of application (40 CFR 265 279).	Verify that the operating record contains the dates and rates of applications

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 177 All land treatment facilities are required to meet specific closure and post-closure plans (40 CFR 264 280)	Verify That during the closure period the following requirements are met - All operations are continued as necessary to maximize degradation, transformation, or immobilization of hazardous constituents in the treatment zone - Runoff is minimized - Runon and runoff management systems are maintained - Wind dispersal of hazardous waste is controlled - Compliance with food chain crop prohibitions is continued - Unsaturated zone monitoring is continued except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone - A vegetative cover is established on the portion of the land treatment facility being closed when the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents Verify that when closure is completed, certification by an independent qualified soil scientist or independent registered professional engineer was submitted to the Regional Administrator that the facility has been closed according to the specifications of an approved closure plan Verify that during the post-closure period - Operations are continued to enhance degradation, transformation, and sustain immobilization of hazardous constituents in the treatment zone - A vegetative cover is maintained - Runon control systems are maintained - Runoff management systems are maintained - Wind dispersal of hazardous waste is controlled - Food chain crop prohibitions are met - Unsaturated zone monitoring is continued except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone (NOTE The TSDF may not be required to establish a vegetative cover or meet post-closure requirements if the Regional Administrator finds that the level of hazardous waste constituents in the treatment soil zone does not exceed the background value of those constituents by an amount that is statistically significant)
HW 178 Hazardous wastes F020 through F023, F026, and F027 must not be placed in a land treatment facility unless it is done according to an approved management plan for these wastes (40 CFR 264 283)	Verify that these wastes are only place in a land treatment unit according to the requirements of the approved waste management plan

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
Hazardous Waste Landfills	
HW 179. Permitted hazardous waste landfills are required to have a liner and a leachate collection and removal system (40 CFR 264.301(a) through 264 301(b))	Determine if the TSDF disposes of hazardous wastes in an onsite landfill Verify that the landfill liner is: - Designed, constructed, and installed to prevent any migration of waste out of the landfill - Placed on a properly supported base or foundation - Installed to cover all surrounding earth likely to be in contact with the waste Verify that the leachate collection and removal system is immediately above the liner and will operate to remove leachate from the landfill Verify that collected leachage is tested to determine correct disposal methodology. (NOTE The permit will contain specific design and operating conditions)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 180. New landfills on which construction started after 29 January 1992, lateral expansions which started construction after 29 July 1992, and each replacement of an existing landfill that will start reuse after 29 July 1992 are required meet specific design and operating standards (40 CFR 264 19, 264 301(c) through 264.301(f), 264 302, 264 304)	Determine if the TSDF has any landfills meeting the stated criteria Verify that the landfill has two or more liners and a leachate collection and removal system above and between the liners or a waiver of double liner requirement has been obtained from the EPA Regional Administrator Verify that the TSDF has a CQA program to ensure that constructed units meet or exceed all design criteria and specifications in the permit Verify that the designated CQA officer is a registered professional engineer Verify that the TSDF has a written CQA plan that addresses the following - Identification of applicable units and a description of how they will be constructed - Identification of key personnel - A description of sampling and inspection activities Verify that waste is not received in a unit until an approved CQA plan has been submitted to the Regional Administrator Verify that the pumpable liquids in the leak detection system sumps are collected and removed to minimize the head on the bottom liner Verify that surface impoundments subject to these requirements meet the action leakage rate set by the Regional Administrator Verify that the TSDF has an approved response action plan before the receipt of waste. Verify that if the flow rate into the leak detection system exceeds the action leakage rate for any sump: - The Regional Administrator is notified within seven days - A written notification is submitted within 14 days - To the extent practicable, the location, size and cause of any leak is determined - A determination is made as to whether waste receipt should be stopped or restricted - The Regional Administrator is notified of actions taken and actions to be taken within 30 days after discovery - A monthly report is submitted to the Regional Administrator as long as the flow rate in the leak detection systems exceeds the action leakage rate (NOTE These restrictions do not apply if the existing unit was constructed in accordance with the design standards of section 3004(o)(1)(A)(i) and (o)(5) of RCRA and there is no reason to believe that the liner is not functioning as designed)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 181. Hazardous waste landfills are required to be inspected (40 CFR 264 303)	Verify that liners were inspected during construction for overall integrity Verify that immediately after construction was completed, the following inspections were performed: - Synthetic liners and covers to ensure tight seams and joints and absence of tears - Soil-based and admixed liners for imperfections that may increase impermeability (e.g , cracks and root-holes) Verify that while a landfill is in operation it is inspected weekly and after storms to detect evidence of the following - Deterioration, malfunctions, or improper operations of runon and runoff control systems - Proper functioning of wind dispersal control systems where present - The presence of leachate in and proper functioning of the leachate collection system Verify that the amount of liquid removed from each leak detection sump is recorded at least once a week during the active life of the landfill and closure period Verify that after a final cover is installed, the amount of liquids removed from each leak detection system sump is recorded at least monthly or: - If the liquid level in the sump stays below the pump operating level for two consecutive months, the liquid amounts are recorded quarterly - If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the liquid amounts are recorded semi-annually
HW 182 TSDFs with permitted hazardous waste landfills are required to meet specific standards for hazardous wastes F020, F021, F022, F023, F026, and F027 (40 CFR 264 317)	Determine whether or not these wastes are landfilled at the TSDF Verify that if they are landfilled, the TSDF has a management plan for their disposal that is approved by the Regional Administrator.
Incinerators	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 183 TSDFs with permitted hazardous waste incinerators must comply with certain operating requirements (40 CFR 264 340 (a) through 264 340(c) and 264 341 through 264 344(a), 264 345, 264 346)	Determine if the TSDF incinerates hazardous waste Determine if specific wastes (Principal Organic Hazardous Constituents (POHC)) are specified in the permit Verify that only the wastes listed in the permit are burned, and only under the operating conditions set forth in the permit Verify that sufficient waste analyses are conducted throughout normal operations to ensure that waste feed is within the limits specified in the permit Verify that for each waste specified in the permit, the incinerator achieves a Destruction and Removal Efficiency (DRE) of 99 99 percent Verify that the DRE for all wastes incinerated is determined by the following equation $(W_{in} - W_{out})$ DRE = ---------- * 100 percent W_{in} = mass feed rate of one POHC in the waste stream feeding the incinerator W_{out} = mass emissions rate of the same POHC present in the exhaust emissions) Verify that when EPA Hazardous Waste Numbers F020 through F023, F026, or F027 are incinerated a DRE of 99 9999 percent is achieved and the Regional Administrator is notified of the intent to burn
HW 184 Permitted hazardous waste incinerators are required to meet specific emission standards (40 CFR 264 343(b) and 264.343(c))	Determine if the incinerator produces stack emissions of hydrogen chloride (HCL) Verify that if HCL emissions exceed 1 8 kg/hr (4 lb/h), the emissions are controlled so that the rate of emission is no greater than the larger of either 1 8 kg/hr (4 lb/h) or 1 percent HCL in the stack gas prior to entering any pollution control equipment Verify that particulate matter no greater than 180 mg/dscm is emitted
HW.185. Operators of incinerators must conduct monitoring while incinerating hazardous waste (40 CFR 264 347)	Verify that the operator monitors, at a minimum, the following at the indicated intervals. - Waste feed rate, combustion temperature, combustion gas velocity, CO (prior to release) continuously - The incinerator and associated equipment for leaks, spills etc daily - The emergency waste feed cutoff system and associated emergency cutoff alarms· weekly Verify that monitoring and inspection data is recorded and the records placed in the operating log

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 186 When permitted hazardous waste incinerators are closed all hazardous waste and hazardous waste residues must be removed (40 CFR 264 351)	Verify that all hazardous wastes and hazardous waste residues, including ash, scrubber waters, and scrubber sludges, are removed from the incinerator site.
Miscellaneous Units	
(NOTE The Open Burning/Open Detonation (OB/OD) of waste explosives at permitted TSDFs is done under the classification of miscellaneous unit. This is also sometimes referred to as a Subpart X Permit)	
HW 187 TSDFs that treat, store, or dispose of hazardous wastes in permitted miscellaneous units must comply with specific environmental performance standard requirements (40 CFR 264 601)	Determine whether the TSDF treats, stores, or disposes of any hazardous waste in miscellaneous units Verify that miscellaneous units are located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment, including - Prevention of any release due to migration in the surface water, wetlands, or the soil surface, taking in to consideration -- volume and physical and chemical characteristics of the waste in the unit -- the effectiveness of containing, confining, and collection systems and structures in preventing migration -- the hydrologic characteristics of the unit and surrounding area, including the topography of the land around the unit -- regional patterns of precipitation -- existing quality, quantity, and direction of groundwater flow -- the proximity of the unit to surface waters -- the current and potential uses of nearby surface waters and any water quality standards established for those surface waters -- the existing quality of surface waters and surface soils including other sources of contamination and their cumulative impact -- regional pattern of land use -- potential health risks caused by human exposure to the waste -- potential for damage from exposure to domestic animals, wildlife, crops, vegetation, and physical structures - Prevention of any release that may have adverse affects on human health or the environment due to migration of waste constituents in the groundwater or subsurface environment, taking in to consideration -- volume, physical, and chemical characteristics of waste including its potential for migration through soil, liners, or other containing structures -- the hydrological and geological characteristics of the unit and surrounding area -- existing quality of groundwater including other sources of contamination and their cumulative impact on the groundwater -- the quantity and direction of groundwater flow -- proximity to and withdrawal rates of current and potential groundwater users -- regional pattern of land use -- potential for deposition or migration of waste into subsurface physical structures, and the root zone of food-chain crops and other vegetation -- potential health risks caused by human exposure to the waste -- potential for damage from exposure to domestic animals, wildlife, crops, vegetation, and physical structures Verify that miscellaneous units are designed and operated according to their permit restrictions

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 188. TSDFs that treat, store, or dispose of hazardous wastes in permitted miscellaneous units must comply with monitoring, analysis, inspection, responses, reporting, and corrective action regulations (40 CFR 264 602)	Determine if the TSDF - Follows the general inspection requirements of 40 CFR 264 15 - Tests and maintains equipment in compliance with 40 CFR 264 33 - Prepares a biennial report as specified in 40 CFR 264 75 - Prepares unmanifested waste reports and additional reports, if applicable, as required in 40 CFR 264.76 through 264 77 - Takes corrective action to prevent releases as defined in 40 CFR 264 101
HW 189 A permitted miscellaneous unit that is a disposal unit must be maintained according to the permit requirements during the post-closure period (40 CFR 264 603)	Determine if the TSDF has a closed miscellaneous unit Verify that the post-closure requirements specified in the permit are being carried out
Additional Requirements for Interim Status TSDFs	
General	
HW 190 Interim status TSDFs are allowed to conduct OB/OD of waste explosives under specific conditions (40 CFR 265 382)	Determine if the TSDF is conducting OB/OD activities Verify that the OB/OD occurs at the distance from an adjoining property line indicated in the following chart Lbs of Waste Explosive or propellants — Minimum distance from OB/OD activity to the property of others 0 to 100 — 204 m (670 ft) 101 to 1000 — 380 m (1250 ft) 1001 to 10,000 — 530 m (1730 ft) 10,000 to 30,000 — 690 m (2260 ft)
HW 191 TSDFs operating surface impoundments, landfills, or land treatment facilities are required to have a groundwater monitoring program that can determine the impact of these activities on the uppermost aquifer (40 CFR 265 90(a) through 265 90(c) and 265 90(e))	Verify that unless the TSDF has demonstrated in writing there is a low potential for water migration or received a waiver, the TSDF has a groundwater monitoring program Verify that the monitoring program is carried out throughout the active life of the activity and also during post-closure for disposal facilities

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 192 Groundwater monitoring systems are required to meet specific standards (40 CFR 265 91).	Verify that the groundwater monitoring system is capable of yielding groundwater samples for analysis Verify that groundwater monitoring systems consist of the following - Monitoring wells, at least three, installed hydraulically downgradient at the limit of the waste management area - Monitoring wells, at least one, installed hydraulically upgradient from the limit of the waste management area - An alternate hydraulically downgradient monitoring well location that has been demonstrated in writing to be sufficient (NOTE Separate monitoring systems are not required for each component of a waste management system if the upgradient and downgradient sampling will detect any discharge from the waste management area)
HW 193 The TSDF must gather and analyze samples from the groundwater monitoring system according to a groundwater sampling and analysis plan (40 CFR 265 92).	Verify that the plan includes procedures and techniques for the following - Sample collection - Sample preservation and shipment - Analytical procedures - Chain of custody control Verify that the TSDF established initial back groundwater quality Verify that the concentrations and/or values are determined for the following parameters and samples collected as indicated - Parameters characterizing the suitability of groundwater as drinking water as found in Appendix III of 40 CFR 265 - Parameters of chloride, iron, manganese, phenols, sodium, sulfate. annually - Parameters for pH, specific conductance, total organic carbon, total organic halogen semi-annually Verify that the elevation of the groundwater surface is determined each time a sample is obtained
HW 194 Facilities with interim status TSDFs must have an outline of a more extensive groundwater quality assessment program (40 CFR 265 93(a))	Determine if a groundwater quality assessment program outline has been developed Verify that the program is capable of determining - Whether or not hazardous waste or hazardous waste constituents have entered the groundwater - The rate and extent of migration of hazardous waste or hazardous waste constituents in the groundwater - The concentrations of hazardous waste or hazardous waste constituents in the groundwater
HW 195 When there is a significant increase for pH, specific conductance, total organic carbon, or total organic halogen (or pH decrease) in the downgradient wells the TSDF must perform specific actions (40 CFR 265 93(c)(2), and 265.93(d)(1) through 265 93(d)(4))	Verify that additional samples are taken from the wells showing a significant change Verify that if a significant increase (or pH decrease) is confirmed, written notice is issued to the Regional Administrator within seven days of the confirmation Verify that within 15 days after the notification was submitted, the TSDF submits a groundwater quality assessment program Verify that the program is implemented

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 196 If a TSDF is required to have a groundwater assessment program, specific reports must be submitted and actions taken depending on the results of the program (40 CFR 265 93(d)(5) through 265 93(d)(7))	Verify that the program was implemented as soon as possible and a written report containing an assessment of the water was sent to the Regional Administrator (NOTE If the results of the first determinations under the program show that no hazardous waste or hazardous waste constituents have entered the groundwater, the TSDF can return to its usual practices of monitoring)
HW 197 Unless the groundwater is being monitored to satisfy a groundwater assessment program, the TSDF is required to meet specific reporting and record keeping requirements (40 CFR 265 94(a))	Verify that records on analyses and groundwater elevations are kept throughout the life of the site, and for disposal facilities, through post-closure Verify that during the first year of groundwater monitoring the results of parameter monitoring are submitted to the Regional Administrator within 15 days after completing each quarterly analysis Verify that after the first year, concentrations and values for monitored parameters are reported annually
HW 198 When the groundwater is being monitored to satisfy a groundwater assessment program, records have to be maintained of the analyses and annual reported submitted (40 CFR 265 94(b))	Verify that records of analyses and evaluations specified in the plan are maintained throughout the active life of the site, and for disposal facilities throughout post-closure Verify that the results of the program are submitted annually to the Regional Administrator by 1 March of each calendar year
Surface Impoundments	

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 199 New surface impoundments that started construction after 29 January 1992, lateral expansions of surface impoundments which started construction after 29 July 1992, and replacements of existing surface impoundments where reuse started after 29 July 1992 are required to meet specific design and operating criteria (40 CFR 265 19, 265 221(a) through 265 221(e), 265 221(h), 265 222, 265 223)	Verify that the listed surface impoundments have two liners and a leachate collection and removal system between the liners unless a waiver has been granted by the Regional Administrator Verify that the TSDF has a CQA program to ensure that constructed units meet or exceed all design criteria and specifications in the permit Verify that the designated CQA officer is a registered professional engineer Verify that the TSDF has a written CQA plan that addresses the following: - Identification of applicable units and a description of how they will be constructed - Identification of key personnel - A description of sampling and inspection activities Verify that waste is not received in a unit until an approved CQA plan has been submitted to the Regional Administrator. Verify that the Regional Administrator is notified 60 days prior to the receipt of wastes. Verify that a TSDF submitting notice files a Part B application within six months of the receipt of notice. Verify that the TSDF is complying with the action leakage rate established by the Regional Administrator and if the rate is exceeded by flow into any sump: - The Regional Administrator is notified within 7 days - A written notification is submitted within 14 days - The location, size and cause of any leak is determined to the extent practicable - A determination is made as to whether waste receipt should be stopped or restricted - The Regional Administrator is notified of actions taken and actions to be taken within 30 days after discovery of a leak - A monthly report is submitted to the Regional Administrator as long as the flow rate in the leak detection system exceeds the action leakage rate Verify that the TSDF has an approved response action plan (NOTE As of 18 February 1993, surface impoundments that are newly subject to hazardous waste requirements because of new additions or characteristics for the identification of hazardous waste are required to meet the standards outlined above concerning having two or more liners and a leachate collection system)

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 200 Interim status surface impoundments are required to meet specific operating and containment standards (40 CFR 265.221(f), 265 221(g), 265 223, 265 225, 265 226)	Verify that there is enough freeboard to prevent any overtopping of the dike by overfilling, wave actions, or a storm Verify that there is a freeboard of 60 cm (2 ft) unless written certification states that a lesser freeboard is acceptable Verify that all earthen dikes have a protective cover such as grass, shale, or rock to minimize wind and water erosion and preserve integrity Verify that the freeboard is inspected at least once each day Verify that the surface impoundment is inspected at least once a week for signs of deterioration, leaks, or failure. Verify that the amount of liquids removed from each leak detection system sump is recorded at least: - Once a week during the active life and closure period - Monthly after the final cover is installed or: -- if the liquid level in the sump stays below the pump operating level of two consecutive months, quarterly -- if the liquid level in the sump stays below the pump operating level for two consecutive quarters, semi-annually
HW 201 In specific circumstances additional waste analyses must be done (40 CFR 265.225)	Verify that additional waste analyses are done whenever - The surface impoundment is used to treat a substantially different hazardous waste from what was previously treated - A substantially different process is used to treat the waste
HW 202 Specific procedures must be followed during the closure and post-closure periods for an interim status surface impoundment (40 CFR 265 228)	Verify that at closure all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leashate are removed or decontaminated Verify that post-closure care includes care equivalent to that for interim status landfills and 40 CFR 265 310, including - Elimination of free liquids - Stabilization of wastes to a bearing capacity sufficient to support the final cover - Covering of surface impoundment - Maintenance and monitoring of leak detection system Verify that if wastes, waste residues, or contaminated materials remain after closure - The integrity of the final cover is maintained - A groundwater monitoring system is maintained that meets the requirements of 40 CFR 265 90 through 265 94 - Runon and runoff are prevented from damaging or eroding the final cover
Waste Piles	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.203. Interim status waste piles are required to meet specific standards for wind protection, waste analysis, and containment (40 CFR 265 250, 265 251, 265 253)	Determine if the TSDF operates an interim waste pile Verify that interim status waste piles are covered or otherwise managed to prevent dispersal of the pile contents by the wind Verify that if the leachate or runoff from a pile is a hazardous waste, one of the following is done - Option one -- place the pile on an impermeable base that is compatible with the waste -- design, construct, operate, and maintain a runon control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25 year storm -- design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting for a 24 hour, 25 year storm -- empty and manage collection and holding facilities for the runon and runoff systems - Option two -- protect the pile from precipitation and runon -- no liquids or wastes containing liquids are placed in the pile

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 204 New interim status piles which start construction after 29 January 1992, lateral expansions of a waste pile unit which started after 29 July 1992, and each such replacement of an existing waste pile unit for which reuse started after 29 July 1992 must meet specific design and operating standards (40CFR 265.19, 265 255, 265 259, and 265 260)	Determine if the TSDF operates an interim status waste pile meeting the listed description Verify that the waste pile has two or more liners and a leachate collection and removal system Verify that the TSDF has a CQA program to ensure that constructed units meet or exceed all design criteria and specifications in the permit Verify that the TSDF has a written CQA plan that addresses the following - Identification of applicable units and a description of how they will be constructed - Identification of key personnel - A description of sampling and inspection activities Verify that waste is not received in a unit until an approved CQA plan has been submitted to the Regional Administrator Verify that waste piles subject to these requirements meet the action leakage rate set by the Regional Administrator Verify that the TSDF has an approved response action plan before receipt of waste Verify that if the flow rate into the leak detection system exceeds the action leakage rate for any sump: - The Regional Administrator is notified within seven days - A written notification is submitted within 14 days - The location, size and cause of any leak is determined to the extent practicable - A determination is made as to whether waste receipt should be stopped or restricted - The Regional Administrator is notified of actions to be taken within 30 days after discovery of a leak - a monthly report is submitted to the Regional Administrator as long as the flow rate in the leak detection system exceeds the action leakage rate Verify that the amount of liquids removed from each leak detection sump is recorded at least one a week during the active life and closure period
HW 205 Except in specific instances, TSDFs are required to analyze a representative sample from each incoming waste before adding the waste to an existing pile (40 CFR 265 252).	Verify that an analysis is performed unless one of the following occurs - The only wastes that the TSDF receives for piling are compatible - The waste received is compatible with the pile in which it is to be placed
HW.206 Interim status waste piles must meet specific closure and post closure requirements (40 CFR 265 258).	Verify that at closure all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate are removed or decontaminated Verify that if all residues cannot be removed, the waste pile is closed and post-closure care is carried out as for a landfill
Land Treatment Units	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.207. Interim status land treatment units are required to be operated according to specific standards (40 CFR 265.270, 265.272, 265 273, and 265 279)	Determine if the TSDF operates an interim status land treatment unit. Verify that the following standards are met at the land treatment unit - Hazardous wastes are not placed in or on a land treatment facility unless it can be made less hazardous or nonhazardous by degradation, transformation, or immobilization processes occurring in or on the soil - Runon control systems are operated to prevent flow onto the treatment zone during peak discharge from at least a 25 year storm - Runoff management systems are capable of controlling and collecting a water volume at least equivalent to a 24 hour, 25 year storm - Tanks and basins associated with the runon and runoff control systems are emptied or otherwise managed after storms - Wind dispersal is controlled Verify that in addition to required waste analysis, prior to placing a hazardous waste in or on a land treatment facility the owner or operator· - Determines the concentrations in the waste of any substance which equaled or exceeded the maximum concentrations contained in Table 1 of 264 21 - Determines the concentration of any substance which caused the waste to be listed as hazardous - Determines the concentrations of arsenic, cadmium, lead, and mercury if food chain crops are grown unless there is documentation present to prove that none of these constituents exist Verify that hazardous waste application dates and rates are included in the operating record
HW 208. TSDFs are required to operate interim status land treatment facilities where food chain crops are grown according to specific standards (40 CFR 265 276)	Determine if the TSDF grows food chain crops on their land treatment facilities Verify that the TSDF notified the Regional Administrator that food chain crops were being grown Verify that food chain crops are not grown on the land treatment facility unless there is proof that the crop will not be contaminated by arsenic, lead, mercury, or other harmful constituents Verify that if the TSDF accepts waste that is contaminated with cadmium, the handling practices outlined in 50 CFR 265 276(c) are followed
HW 209 TSDFs with interim status land treatment facilities are required to have an unsaturated zone monitoring plan (40 CFR 265 278)	Verify that the TSDF has an unsaturated zone monitoring plan that includes - Soil monitoring using soil cores - Soil-pore water monitoring using devices such as lysimeters - Depth and number of samples to be taken. Verify that the TSDF is following the plan

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 210 TSDFs with interim status land treatment facilities are required to meet specific requirements concerning closure and post-closure (40 CFR 265 280)	Verify that in the closure plan, the TSDF has addressed the following issues for interim status land treatment facilities - Control of migration of wastes - Control of the release of contaminated runoff into surface water - Control of the release of airborne particulates - Compliance with food chain crop restrictions. Verify that during closure - Unsaturated zone monitoring is continued - The runon control system is maintained - The runoff management system is maintained - There is continued control of wind dispersal of particulate matter. Verify that when closure was completed, the TSDF notified the Regional Administrator. Verify that during post-closure the following is done - Soil-core monitoring is continued as specified in the post closure plan - Access to the unit is restricted as appropriate - Growth of food chain crops complies with restrictions - Wind dispersal of hazardous wastes is controlled
Hazardous Waste Landfills	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 211 New interim status landfill units which started construction after 29 January 1992, each lateral expansion of a landfill unit that started construction after 29 July 1992, and each replacement of an existing landfill that will begin reuse after 29 July 1992 is required to meet specific design and operating standards (40 CFR 265 19, 265 301(a) through 65 301(e) and 265 302 through 265 304)	Determine if the TSDF has any interim status landfills meeting the stated criteria Verify that the landfill has two or more liners and a leachate collection system above and between the liners or a waiver of the double liner requirement has been obtained from the EPA Regional Administrator Verify that the TSDF has a CQA program to ensure that constructed units meet or exceed all design criteria and specifications in the permit Verify that the designated CQA officer is a registered professional engineer Verify that the TSDF has a written CQA plan that addresses the following - Identification of applicable units and a description of how they will be constructed - Identification of key personnel - A description of sampling and inspection activities Verify that waste is not received in a unit until an approved CQA plan has been submitted to the Regional Administrator Verify that the TSDF notifies the Regional Administrator at least 60 days prior to receiving waste and files a Part B application within six months of the receipt of notice Verify that landfills subject to these requirements meet the action leakage rate set by the Regional Administrator Verify that the TSDF has an approved response action plan before the receipt of waste Verify that if the flow rate into the leak detection system exceed the action leakage rate for any sump - The Regional Administrator is notified within seven days - A written notification is submitted within 14 days - To the extent practicable, the location, size and cause of any leak is determined - A determination is made as to whether waste receipt should be stopped or restricted - The Regional Administrator is notified of actions taken and actions to be taken within 30 days after discovery - A monthly report is submitted to the Regional Administrator as long as the flow rate is the leak detection system exceeds the action leakage rate
HW.211 (continued)	Verify that after a final cover is installed, the amount of liquids removed from each leak detection system sump is recorded at least monthly or: - If the liquid level in the sump stays below the pump operating level for two consecutive months, quarterly - If the liquid level in the sump stays below the pump operating level for two consecutive quarters, semiannually
Incinerators	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 212 TSDFs with interim status that use incinerators for hazardous waste must sufficiently analyze all wastes burned (40 CFR 265 340 and 40 CFR 265 341)	Determine if the TSDF incinerates hazardous wastes Determine if the results of each waste analysis are kept on file in the operating record Verify that for each waste not previously burned at the site, the results of the waste analysis establish - Steady state (normal) operating conditions including -- waste fuel feed -- auxiliary fuel feed -- air flow -- type of pollutants that might be emitted -- heating value -- halogen content -- sulfur content -- lead concentration level -- mercury concentration level (NOTE TSDFs with interim status may be exempt from all the requirements for hazardous waste incinerators (except closure) under certain conditions - The TSDF has written documentation that the wastes they incinerate do not contain any hazardous constituents listed in Appendix 4-4 - The documentation is retained at the TSDF - The wastes are listed as hazardous solely because of their ignitable (Hazard Code I) or corrosive (Hazard Code C) properties, or both as listed and determined in 40 CFR 261, part C or D - The wastes are listed as reactive (Hazard Code R) for characteristics other than those listed in 40 CFR 261,23(a)(1), (2), (3), (6), (7), or (8) and will not be burned when other hazardous wastes are present in the combustion zone)
HW 213 TSDFs with interim status may burn F020 through F023, F026, F027 if they have proper certification (40 CFR 265 352)	Determine if the TSDF burns EPA hazardous waste numbers F020 through F023, F026, or F027 Verify that the TSDF has received certification from the Assistant Administrator for Solid Waste and Emergency Response if such wastes are burned at the site
HW 214 TSDFs with interim status that incinerate hazardous waste must not feed hazardous waste unless theincinerator is at a steady state (40 CFR 265 345)	Verify that the waste is not fed until steady state conditions are reached by observing the incinerator during startup and shutdown

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 215. An interim status TSDF that incinerates hazardous waste must conduct monitoring and inspections (40 CFR 265 347)	Verify that the following monitoring and inspection procedures are followed - Existing instruments related to combustion and emission are monitored every 15 min including the instruments that control· -- waste feed -- auxiliary fuel feed -- air flow -- incinerator temperature -- scrubber flow -- scrubber pH - The complete incinerator and associated equipment are monitored at least daily for leaks, spills, and fugitive emissions, including -- pumps -- valves -- conveyors -- pipes -- emergency shutdown controls -- system alarms
HW.216. At closure of an interim status incinerator all hazardous waste and hazardous waste residues must be removed (40 CFR 265 351)	Verify that when an interim status hazardous waste incinerator is closed, the wastes and residues are removed.
Thermal Treatment	
HW.217 TSDFs with interim status thermal treatment facilities must meet specific requirements (40 CFR 265.370, 265 373, 265 375, 265 381, and 265 383)	Determine if the TSDF operates an interim status thermal treatment facility (other than enclosed devices using controlled flame combustion) Verify that the following requirements are met - The thermal treatment process is operating at steady state (normal) conditions, including temperature, before adding hazardous waste (unless the process is a noncontinuous (batch) process that requires a complete thermal cycle to treat the waste) - Waste analysis is performed on waste not previously treated at the thermal treatment facility that includes -- establishing steady state (normal) operating condition -- types of pollutants which might be emitted -- heating value -- halogen and sulfur content -- concentrations of lead and mercury. (NOTE The open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives) Verify that if open burning or detonation of waste explosives is conducted, the following standards are met - Pounds of waste explosives or propellants determines the minimum distance from open burning or detonation to property of others as shown below -- 0-100 204m (670 ft) -- 101-1000 380m (1250 ft) -- 1001-10,000 530m (1730 ft) -- 10,001-30,000 690m (2260 ft) Verify that at closure all wastes and residues are removed

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 218 Interim status thermal treatment facilities must be certified, it they treat certain wastes (40 CFR 265 383)	Determine if the TSDF thermally treats EPA waste numbers F020 through F023, F026, or F027. Verify that the TSDF has received certification from the Assistant Administrator for Solid Waste and Emergency Response to burn such wastes
HW 219 Operators of interim status thermal treatment facilities must conduct monitoring and inspections while thermally treating hazardous waste (40 CFR 265 377)	Determine if the operator conducts at a minimum the following monitoring while thermally treating hazardous wastes - Every 15 min, the following instrumentation for temperature and emission controls are monitored and appropriate corrections are made immediately -- waste feed rate -- auxiliary fuel rate -- treatment process temperature -- relevant process flow and level controls -- every hour, stack emissions are visually checked for normal appearance (color and opacity) - Every day, the complete thermal treatment process and associated equipment are checked including -- pumps, valves, conveyors, pipes, etc inspected for leaks, spills, and fugitive emissions -- emergency shutdown controls and systems alarms are checked for proper operation
Chemical/Physical/Biological Treatment	
HW 220 TSDFs with interim status chemical, physical, and biological treatment facilities must meet certain requirements (40 CFR 265 400 through 265 402, 265 404)	Determine if the TSDF operates a chemical, physical, or biological treatment facility to treat hazardous wastes (NOTE These requirements do not apply to TSDFs which treat hazardous wastes by chemical, physical, biological methods in other than tanks, surface impoundments, and land treatment units) Verify that the following criteria are met - Wastes or treatment reagents are not placed in treatment process or equipment if they could cause ruptures, leaks, corrosion or other failures - In addition to the analyses required by 40 CFR 265 13, continuously fed systems are equipped with waste feed cutoff or bypass system - Waste analyses and treatment tests (e g , bench scale or pilot plant tests) are performed, or written, documented information is obtained whenever a substantially different waste is treated or a substantially different treatment process is used Verify that at closure all wastes and residues are removed
HW 221 TSDFs with chemical, physical, and biological treatment facilities must conduct regular inspections (40 CFR 265 403)	Determine if the chemical, physical, and biological treatment facility is inspected in accordance with the following - At least daily, discharge control and safety equipment (e g , waste feed cutoff system, bypass system, drainage systems, and pressure relief systems) to ensure good working order - At least daily, data from monitoring equipment is checked to ensure process is operated in accordance with its design - At least weekly, construction materials of the treatment process or equipment is inspected to detect corrosion, leaks, etc - At least weekly, construction materials of and the area surrounding dikes or other discharge confinement structures are inspected to detect erosion or signs of leakage (dead vegetation, wet spots, etc).

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.222 TSDFs with interim status may not place ignitable, reactive, or incompatible waste in a treatment process or equipment unless certain requirements are met (40 CFR 265 405 through 265 406)	Determine whether the TSDF treats any of these wastes Verify that any ignitable or reactive waste is treated or mixed in such a way before or immediately after placement in the process so that the resultant material no longer meets the definition for ignitable or reactive wastes and is treated in such a way that it is not exposed to conditions that may cause it to react or ignite Verify that incompatible wastes are not placed in the same treatment process, equipment, or in unwashed equipment that previously held incompatible waste
Export/Import of Hazardous Waste	
HW.223 Determine if HW are exported/ imported, if exported/imported, then facilities that export hazardous waste outside the united States must comply with specific notification requirements (40 CFR 262 53(a) and 262 53(b)).	Determine if the facility imports/exports hazardous waste Verify that 60 days prior to the initial shipment of hazardous waste to each country in each calendar year, the facility has notified the EPA (in writing) of the following - Name, mailing address, telephone number, and EPA identification number of the primary exporter - By consignee, for each hazardous waste type: -- identification of the hazardous waste shipped by EPA identification number -- DOT shipping name, hazard class, and importer for the waste -- estimated frequency/rate at which such wastes(s) is to be exported -- estimated total quantity (in units) -- all points of entry to and departure from each foreign country the waste will pass through -- a description of the approximate length of time the waste will remain in each country, and how it will be handled there -- the mode of transportation used to transport the waste -- type(s) of containers used -- description of the treatment, storage, or disposal method to be used in the receiving country -- name and address of the foreign consignee
HW 224 When shipping hazardous waste outside the United States, the facility is required to have an EPA acknowledgment of consent that confirms the consent of the foreign country to receive the waste (40 CFR 262.52(c) and 262 53(f))	Verify that a copy of the EPA acknowledgment of consent is on file by checking the records
HW.225. Primary exporters of hazardous waste must require confirmation of the delivery of the hazardous waste and a description of any significant discrepancies (40 CFR 262.54(f))	Verify that the facility has been receiving confirmation of delivery by reviewing the manifest files. Determine if there are any notations of discrepancies

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 226 Primary exporters of hazardous waste outside the United States are required to use manifests with special additions (40 CFR 262 54(a) through 262 54(e) and 262 54(i))	Verify that the manifest copies comply with the general manifest requirements of 40 CFR 262 20 through 262 23 Determine if the following exceptions and additions are noted by reviewing the manifest copies - The name and address of the foreign consignee is put in the place of the designated facility's name, address, and EPA number - The point of departure through which the waste must travel in the United States before entering the foreign country is indicated - This statement "and conform to the terms of the attached EPA Acknowledgment of Consent" is added to the end of the first sentence of the certification in Item 16 Verify that a copy of the manifest is provided for delivery to the U.S. Customs official at the U.S. point of departure. (NOTE: The primary exporter's state may require the use of its manifest.)
HW.227 Primary exporters of hazardous waste outside the United States are required to file an exception report under certain conditions (40 CFR 262 55)	Verify that an exception report was filed if: - A signed copy of the manifest from the transporter containing the following information was not received within 45 days from the day it was accepted by the initial transporter: -- date of departure of the waste from the United States -- place of departure of the waste from the United States -- within 90 days from the date the waste was accepted by the initial transporter, the facility has not received a written confirmation from the foreign consignee stating that the hazardous waste was received -- the waste is returned to the United States.
HW.228. Primary exporters of hazardous waste are required to follow specific procedures when a shipment cannot be delivered to the designated or alternate consignee (40 CFR 262 54(g)).	Verify that when a shipment cannot be delivered, the facility does one of the following: - Renotifies the EPA of a change in the conditions of the original notification to allow shipment to a new consignee and obtains an EPA Acknowledgment of Consent prior to delivery - Instructs the transporter to return the waste to the primary exporter in the United States or designates another facility within the United States Verify that the facility instructs the transporter to revise the manifest to reflect changes made.

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.229 An annual report must be files with the Regional Administrator by 1 March of each year by the primary exporter (40 FR 262 56)	Verify that an annual report has been submitted by 1 March of every calendar year by checking the records. Determine if the Annual Reports contain the following information for all hazardous waste exported during the previous year by checking a random sample· - Type, EPA hazardous waste number, DOT hazard class and name for each hazardous waste(s) exported - EPA identification number for each transporter (where applicable) - Quantity of hazardous waste(s) exported - Frequency (dates) of hazardous waste(s) exported - Ultimate destination for all hazardous waste(s) exported - Efforts used to reduce the volume and toxicity of the waste (and the changes achieved during the year in comparison to previous years) - A certification signed by the primary exporter that states "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment "
HW 230. Primary exporters of hazardous wastes must maintain additional records that relate to their export activities (40 CFR 262 57)	Verify that copies of the following are kept for at least three years· - Notification of intent to export - EPA Acknowledgment of Consent - Confirmation of delivery (signed manifests) of the waste - Annual reports. (NOTE: Periods of retention are automatically extended during the course of any unresolved enforcement action)
Used Oil	
General	
HW 231 Depending on the constituents of the used oil, (see Appendix 4-12), facilities are required to handle used oil as a hazardous waste or according to specific used oil requirements (40 CFR 279.10)	Determine which types of the used oils listed in Appendix 4-12 are generated at the facility Verify that used oil is handled according to its classification as one of the following (see flow chart) - A hazardous waste - Used oil that falls under the requirements of 40 CFR 279 - Used oil that is not subject to the requirements of the 40 CFR 279 and neither is it a hazardous waste unless testing indicates it does contain hazardous constituents.
Used Oil Generators	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
(NOTE The requirements for used oil generators do not apply to the following· - Household DIY used oil generators - Vessels at sea or at port (in these cases generation occurs when it is transported ashore) - Mixtures of used oil and diesel fuel mixed by the generators for use in the generators own vehicles - Farmers who generate an average of 25 gal/mo (94 64 L/mo) or less of used oil from vehicles or machinery used on the farm in a calendar year) (NOTE· In relation to used oil coming ashore from vessels, the owner or operator of the vessel and the person removing or accepting used oil from the vessel are co-generators of the used oil and are both responsible for managing the waste as used oil once it is ashore)	
HW 232 Used oil generators that detect a release (other than a UST release) after the effective date of the authorized used oil program for the state in which the release is located must meet specific requirements (40 CFR 279 22 (d))	Verify that when a release is detected the following is done - The release is stopped - The released used oil is contained - The released used oil is cleaned up and properly managed - And leaking used oil storage containers or tanks are repaired or replaced prior to returning them to service
HW 233 Generator are allowed to burn used oil in used oil-fire space heaters if specific parameters are met (40 CFR 279 23)	Determine if the facility operates any used oil-fire space heaters Verify that the following parameters are met - The heater burns only used oil that the facility generates or used oil received from household DIY used oil generators - The heater is designed to have a maximum capacity of not more than 0 5 MBtu/h (0 15 W/h) - The combustion gases from the heater are vented to the ambient air
HW 234 Except in specific circumstances, used oil generators must ensure that their used oil is transported only by transporters who have an EPA identification number (40 CFR 279 24)	Determine if the facility is transporting used oil or contracting the transportation of used oil Verify that the transporter has an EPA identification number except when - The generator does not transport more than 55 gal (208 20L) at any time, the vehicle used is owned by the generator or an employee of the generator, and the used oil is going to a used oil collection center that is permitted - The generator is transporting the used oil to an aggregation point owned and/or operated by the same generator in a vehicle owned by the generator or an employee and no more than 55 gal (208 20L) is transported - The used oil is reclaimed under a contractual agreement and the reclaimed oil is returned to the generator for use as lubricant, cutting oil, or coolant and the contract (or tolling agreement) contains the following. -- the type of used oil and frequency of shipments -- verification that the vehicle used for transportation is owned by the used oil processor/refiner -- verification that reclaimed oil will be returned to the generator
HW 235 Used oil generators are not allowed to mix hazardous waste with used oil unless specific parameters are met (40 CFR 279 21(a))	Verify that the facility does not mix hazardous waste with used oil unless - The resulting mixture does not exhibit any characteristics of hazardous waste - The waste is hazardous solely because it exhibits the characteristic of ignitability and is not a listed hazardous waste

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 236 Containers used to store used oil at used oil generators must be in good condition and not leaking (40 CFR 279.22(b))	Verify that containers are not leaking, bulging, rusting, damaged, or dented Verify that used oil is transferred to a new container or managed in another appropriate manner when necessary
HW 237 The words "USED OIL" must be clearly marked on containers used to store used oil and fill pipes used to transfer used oil into underground storage facilities (40 CFR 279.22(c))	Verify that containers and fill pipes used to transfer used oil are clearly marked with the words "USED OIL"
HW.238. Containers of used oil at used oil generator's facilities should be managed in accordance with good management practices (MP)	Verify the following by inspecting containers and storage areas - Containers are not stored more than two high and have pallets between them - At least 3 ft (0 91 m) of aisle space is provided between rows of containers
Used Oil Collection Centers and Aggregation Points	
HW.239 Do-It-Yourselfers (DIY) used oil collection centers are required to meet the same standards as used oil generators (40 CFR 279 30)	Verify that DIY used oil collection centers such as the auto hobby shop meet the requirements outlined in the section titled USED OIL GENERATORS
HW 240 Used oil collection centers are required t be licensed/permitted and operated according to specific standards (40 CFR 279 31)	Determine if the facility operates a used oil collection center. Verify that the collection center meets the requirements for used oil generators outlined in the section titled USED OIL GENERATORS. Verify that the collection center is registered/licensed/ permitted/recognized by a state/country/municipal government to manage used oil
HW 241 Used oil aggregation points are required to be operated according to the standards for used oil generators (40 CFR 279 32)	Verify that the used oil aggregation point is operated according to the standards outlined in the section titled USED OIL GENERATORS
Used Oil Transportation	
(NOTE These requirements concerning transportation and transfer of used oil do not apply to the following - Onsite transportation - Generators who self-transport shipments of used oil totaling 55 gal (208 20L) or less from the generator to a used oil collection center - Generators who self-transport shipments of used oil totaling 55 gal (208 20L) or less from the generator to a used oil aggregation point owned by the generator - Transportation of used oil generated by household DIYs from the initial generator to a regulated generator, collection center, aggregation point, processor/refiner, or burner.)	

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 242 Transporters who put used oil in a truck that has previously transported hazardous waste without emptying and cleaning the truck are required to transport and handle the used oil as a hazardous waste (40 CFR 279 40(b) through 279 40(c))	Verify that if used oil is contaminated with hazardous waste, it is transported as a hazardous waste according to the standards in the Hazardous Waste Management section (NOTE Facilities that transport used oil imported from abroad or exported outside of the United States must met these requirements while in the boundaries of the United States)
HW 243 Used oil transporters can consolidate or aggregate loads of used oil (40 CFR 279 41)	Verify that transporters conduct only incidental processing operations such as settling and water separation unless they also comply with the requirements for processors and refiners
HW 244 Used oil transporters are required to have an EPA identification number (40 CFR 279 42)	Verify that if the facility is transporting used oil, it has an EPA identification number
HW 245 Transporters must meet specific requirements for deliveries and shipments of used oil (40 CFR 279 43(a) through 279 43(b))	Verify that all used oil is delivered to - Another used oil transporter if the transporter has an EPA identification number - A used oil processing/re-refining facility with an EPA identification number - An off-specification used oil burner facility with an EPA identification number - An on-specification used oil burner facility Verify that DOT labeling, packaging, and placarding requirements are met
HW 246 Transporters are required to take specific actions if there is a discharge of used oil during transportation (40 CFR 279 43(c))	Verify that if there is a discharge the following are done - Notification of authorities (the NRC) - Containment of the discharge - Submit a written report to the DOT - Cleanup
HW 247 Transporters are required to determine if the total halogen content of used oil being transported or stored at a transfer facility is above or below 1000 ppm (40 CFR 279 44)	Verify that the transporter determines the total halogen content of the used oil by one of the following methods· - Testing the used oil - Applying knowledge of halogen content of the used oil in light of the materials or processes used Verify that records of analyses are kept for three years

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 248. Used oil transporters are required to keep records for used oil shipments and deliveries (40 CFR 279 46)	Verify that the following records are kept for each shipment accepted for transport - Name and address of the generator, transporter, or processor/re-refiner who provided the used oil for transport - EPA identification number - The quantity of oil accepted - The day of acceptance - Signature of receipt Verify that the following records are kept for each delivery to another used oil transporter or to a used oil burner, processor/re-refiner, or disposal facility and for export/import activities. - The name and address of the receiving facility or transporter - The EPA identification number of the receiving facility or transporter - The quantity of used oil delivered - The date of delivery - The signature, dated upon receipt of the used oil, of a representative of the receiving facility or transporter Verify that records are maintained for three years
HW 249 Transfer facilities are required to store used oil in tanks and containers that meet specific requirements (40 CFR 279 45(b) through 279 45(g))	Verify that the tanks and containers at transfer facilities meet the requirements outlined in the section titled USED OIL GENERATORS. Verify that containers and ASTs used to store used oil have secondary containment that meets that following minimum requirements: - Dikes, berms, or retaining walls - A floor that covers the entire area within the dikes, berms, or retaining walls - The system is impervious Verify that containers and aboveground tanks are labeled with the words "USED OIL" Verify that fill pipes used to transfer used oil into underground storage tanks at transfer facilities are labeled with the words "USED OIL".
HW 250 Specific steps must be followed in response to a release of used oil to the environment (40 CFR 279 45(h))	Verify that the following steps are taken - The release is stopped - The release is contained - The release is cleaned up and properly managed - Necessary repairs and replacements are done
Used Oil Burners	

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW 251 Off-specification used oil fuel may be burned for energy recovery in industrial furnaces and boilers (40 CFR 279 12(c), 279 60(a), and 279 61(a))	Determine if the facility burns used oil fuel for the purpose of energy recovery Verify that off-speculation used oil fuel is only burned for energy recovery in one of the following: - An industrial furnace - A boiler that is identified as one of the following: -- industrial boilers that are located on the site of a facility engaged in a manufacturing process where substances are transformed into new products by mechanical or chemical processes -- utility boilers used to produce electric power steam, heated or cooled air, or other gases or fluids for sale -- used oil-fired space heaters - Hazardous waste incinerators (NOTE The following are exempt from meeting these requirements - The burning of used oil by a generator in an onsite space heater - The burning of used oil by a processor/re-refiner for purposes of processing)
HW 252 Used oil burners are required to have an EPA identification number (40 CFR 279 60(a) and 279 62)	Verify that the facility has an EPA identification number (NOTE The following are exempt from meeting these requirements - The burning of used oil by a generator in an onsite space heater - The burning of used oil by a processor/re-refiner for purposes of processing)
HW 253 Used oil burners are required to determine if used oil is a hazardous waste (40 CFR 279 60(a) and 279 63)	Verify that the used oil is either tested or the used oil burner applies their knowledge of the halogen content of the used oil in light of the materials or processes used, or using information from another source Verify that copies of analyses are maintained for three years
HW 254 Used oil burners are required to store used oil in containers that meet specific requirement (40 CFR 279 60(a), 279 64(a) through 279 64(f))	Verify that the containers at used oil burners meet the requirements outlined in the section titled USED OIL GENERATORS Verify that containers used to store used oil have secondary containment that meets the following minimum requirements - Dikes, berms, or retaining walls - A floor that covers the entire area within the dikes, berms, or retaining walls - The system is impervious Verify that containers are labeled with the words "USED OIL". (NOTE The following are exempt from meeting these requirements - The burning of used oil by a generator in an onsite space heater - The burning of used oil by a processor/re-refiner for purposes of processing)
HW 255 Specific steps must be followed in response to a release at a used oil burner (40 CFR 279 60(a) and 279 64(g))	Verify that the following steps are taken - The release is stopped - The release is contained - The release is cleaned up and properly managed - Necessary repairs replacements are done (NOTE The following are exempt from meeting these requirements - The burning of used oil by a generator in an onsite space heater - The burning of used oil by a processor/re-refiner for purposes of processing)

Compliance Category: **Hazardous Waste Management**	
Regulatory Requirements:	**Reviewer Checks:**
HW.256 Used oil burners are required to keep a record of each used oil shipment accepted for burning (40 CFR 279 60(a) and 279.65)	Verify that some form of records are kept that documents the following - The name and address of the transporter who delivered the used oil - The name and address of the generator or processor or re-refiner from whom the used oil was sent to the burner - The EPA identification numbers of the transporter or, if applicable, the generator, processor/re-refiner - The quantity of used oil accepted - The date of acceptance Verify that records are maintained for at least three years. (NOTE: The following are exempt from meeting these requirements - The burning of used oil by a generator in an onsite space heater - The burning of used oil by a processor/re-refiner for purposes of processing)
HW.257. Before a burner can accept the first shipment of off-specification used oil fuel from a generator, transporter, or processor/re-refiner, the burner must provide a one-time written notice (40 CFR 279 60(a) and 279 66)	Verify that the burner issued a notice to the EPA stating the location and description of the activity and certifying that the used oil will only be burned in an industrial furnace or boiler. Verify that the certification is maintained for three years from the date of the last shipment received. (NOTE: The following are exempt from meeting these requirements: - The burning of used oil by a generator in an onsite space heater - The burning of used oil by a processor/re-refiner for purposes of processing.)
Used Oil Marketing	
HW.258. Used oil fuel marketers may only initiate a shipment of off-specification used oil to a used oil burner who has an EPA identification number and burns the used oil in an industrial furnace or boiler (40 CFR 279 70(b) and 279.71).	Determine if the facility is marketing off-specification used fuel oil. Verify that it is going to an appropriate used oil burner. (NOTE: These requirements do not apply to the following - Persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification - Used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner.)
HW.259. Generators, transporters, processor/re-refiners, or burners must determine if the fuel oil is off or on-specification (40 CFR 279 70(b) and 279.72)	Verify that a determination as to whether the used oil fuel is off or on-specification is made by analyses or obtaining copies of other analyses. Verify that records of analyses are maintained for three years (NOTE· These requirements do not apply to the following· - Persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification - Used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner.)

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 260 Used oil fuel marketers are required to have a EPA identification number (40 CFR 279 70(b) and 279 73)	Verify that the facility has a EPA identification number (NOTE These requirements do not apply to the following: - Persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification - Used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner)
HW 261 Any used oil marketer that directs a shipment of used oil to a burner is required to keep specific records (40 CFR 279 70(b) and 279 74)	Verify that records containing the following information are kept of each shipment of off-specification oil - The name and address of the transporter who delivers the used oil to the burner - The name and address of the burner who will receive the used oil - The EPA identification number of the burner - The quantity of used oil shipped - The date of shipment (NOTE These requirements do not apply to the following - Persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification - Used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner)
HW 262 Before a used oil generator, transporter, processor/re-refiner directs the first shipment of off-specification used oil to a burner, they must obtain a one-time written and signed notice from the burner (40 CFR 279 70(b) and 279 75)	Verify that notice from the burner has been received that indicates the burner notified the EPA of the location and used oil management activities and that the burner will only burn off-specification oil in approved furnaces and boilers Verify that a copy of the notice is kept for three years from the date the last shipment of off-specification used oil is shipped to the burner
HW 263 Used oil cannot be used for dust suppression unless allowed by the state (40 CFR 279 82)	Verify that used oil is not used for dust suppression at the facility If used oil is used for dust suppression, verify that this activity is allowed by the state regulatory agency
Waste Minimization/Pollution Prevention	

Compliance Category: Hazardous Waste Management	
Regulatory Requirements:	**Reviewer Checks:**
HW 264. The generator should have in place a waste minimization program to reduce the volume and toxicity of hazardous wastes generated The generator is required to sign the Generator's Certification statement on each manifest, attesting to its waste minimization program. Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, signed into law in August 1993, requires each Federal agency to develop a pollution prevention strategy and submit it to the EPA Administrator by August 3, 1994 and requires Federal facilities to develop a written pollution prevention plan by December 1995.	Review the generator's waste minimization program to determine if the program includes practical methods for reducing the volume of hazardous wastes generated Determine whether any or all of the following methods suggested by EPA are incorporated into the program - The generator retains information which documents waste minimization activities - The program includes -- provisions for top management assurance that waste minimization is a company-wide effort -- characterization of waste generation and waste management costs -- periodic waste minimization assessments -- a cost allocation system -- encourages technology transfer -- includes program implementation and evaluation -- waste minimization employee awareness plans -- adequate funding -- clearly delineated roles both within DOE and among each contractor generating waste - Conclude if facility actions are resulting in the reduction of hazardous wastes (NOTE Refer to Interim Final Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program, 58 FR 31114, May 28, 1993. This document is intended to provide nonbinding, and nonenforceable guidance to generators of regulated hazardous wastes)

Phase 1

Section 5

CERCLA/SARA

Phase 1
Section 5
Table of Contents

CERCLA/SARA

A. Applicability 5-1
B. Federal Legislation 5-1
C. State/Local Regulations 5-1
D. Key Compliance Requirements 5-1
E. Key Compliance Definitions 5-5
F Records to Review 5-9
G. Physical Features to Inspect 5-10

Appendices

A5-1 Consolidated List of Chemicals Covered in Title III of SARA A5-1

A. Applicability

This section addresses facilities where hazardous substances were released or pose a substantial threat of a release. This section focuses on two main areas:

1. Property transfer considerations for property that may have stored or released hazardous substances; and
2 Spill and release reporting.

Assessors are required to review agency, Federal, state, and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980

This Act, Public Law (PL) 96-510 (42 U.S. Code (USC) 9601 et seq), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (PL 99-499) provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous waste disposal sites. CERCLA, commonly known as "Superfund," establishes a fund which is financed by hazardous substance generators and is used to financially support cleanup and response actions of abandoned hazardous waste sites when no financially responsible party(ies) can be found. Parties responsible for the contamination of hazardous waste sites are liable for all costs incurred in the cleanup and remediation process. The EPA has generated and periodically updates a list of sites requiring cleanup under CERCLA, known as the National Priorities List (NPL). Although Federal agency hazardous waste sites may be listed on the NPL, no Federal facilities are eligible to receive financial assistance from the Superfund program.

C. State/Local Regulations

State and local municipalities may establish release reporting requirements that are more stringent than those under CERCLA.

D. Key Compliance Requirements

1. Hazardous Substance Release Reporting

Under CERCLA Section 103, facilities are required to notify the National Response Center (NRC) immediately if they release hazardous substances in excess of or equal to

reportable quantities. Facilities with continuous and stable releases have limited notification requirements (40 CFR 302.1 through 302.6, and 302.8).

2. National Contingency Plan (NCP)

Section 104(a) of CERCLA requires that whenever there is a release or the substantial threat of a release of any pollutant or contaminant to the environment or which may present an imminent and substantial danger to the public health or welfare, the President is authorized to respond in a manner consistent with the National Contingency Plan (NCP). The NCP outlines procedures and standards for the cleanup of releases and hazardous waste sites and establishes the framework for site evaluations, remedial investigations/feasibility studies, remedial selection and design, removal actions, community relations, and administrative records. The NCP requires that the cleanup is to be conducted by the "lead agency" (the definition of which is under 40 CFR 300.5). Under the NCP, the lead agency is responsible for conducting the following activities as they apply to the hazardous waste site's situation.

3. Site Evaluation

If a release has or may have occurred, the first step required is a site evaluation, the goal of which is to collect data and evaluate releases of hazardous substances, pollutants, or contaminants to determine the extent of the release and the release's impact to public health and the environment 40 CFR 300.420 promulgates the regulations which outline the requirements for a site evaluation. A site evaluation is required to consist of the following three components:

- A Preliminary Assessment (PA) which is a review of existing site information and an off-site reconnaissance, if appropriate, to determine if a release may require further investigations or removal actions;

- A Site Inspection (SI) which is an on-site investigation to determine whether a release has occurred, to identify the preliminary public health and environmental threats associated with the release, and it includes, as appropriate, both on- and off-site field sampling and analysis; and

- A review to determine if the site should be included on the NPL.

If it is determined that the site will need remediation actions, then the lead agency is required to institute a remedial investigation/feasibility study, unless the release "may present an imminent and substantial danger to public health, welfare or the environment," in which case the facility must conduct an immediate removal action.

4. Remedial Investigation/Feasibility Study (RI/FS)

If the site is required to institute remediation actions, then the first required step is a Remedial Investigation/Feasibility Study (RI/FS) intended to assess site conditions and evaluate remedial alternatives to the extent necessary to select a site remedy. The regulations

promulgated under CERCLA that apply to RI/FSs are in 40 CFR 300.430(a)-(e) and require that an RI/FS consist of the following four steps.

- Project Scoping which is a plan developed by the facility for conducting an RI/FS such that the detail of analysis is appropriate to the complexity of the release site problems being addressed;

- A Remedial Investigation which is the collection of the necessary field data to adequately characterize the release site in order to assist in developing and evaluating remedial alternatives;

- A Risk Assessment which, as a component of the RI, should characterize the current and potential threats to human health and the environment that may be posed by contact to environmental media; and

- A Feasibility Study which is a study done to ensure that appropriate remedial alternatives are developed and evaluated.

Following the completion of the RI/FS, a report must be issued and given a period for public comment (to be discussed further in 'Community Relations') and then the lead agency must enter in to the remedy selection and design process.

5. Remedial Selection and Design

The regulations related to the selection and design of a remedy are promulgated in 40 CFR 300.430(f) and describe the required process. The lead agency must select, in conjunction with the lead regulatory agency, a preferred proposed alternative for remediation which can be presented to the public (and state) for their review and comment. The public comments must be considered before the lead agency can issue a final Remedial Design/Remedial Action (RD/RA). Upon receiving new information from the public or regulatory agencies, the lead agency should reassess its initial remedial alternative determination The public comments may prompt the lead agency to modify aspects of their preferred alternative or cause the lead agency to select a different alternative. The lead agency and the lead regulatory agency will make the final remedy selection decision and they will document that decision in the Record of Decision (ROD).

6. Removal Actions

If at any point during the remediation process, a determination has been made that there is a imminent threat to public health welfare, or the environment, the lead agency is required by CERCLA to take an appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release. The promulgation of this rule in 40 CFR 300.410 requires that when the determination that a removal action is appropriate has been made, the following steps should be undertaken as promptly as possible.

- A removal preliminary assessment which includes the collection or review of readily available information such as site management practices, information from waste generator, document review, and facility interviews;

- A removal site inspection, if necessary, to gather information that was not obtained during the removal preliminary assessment; and

- A removal action which is performed in response to a specific release.

The individual facilities will have the latitude to respond as necessary to ensure the minimization of harm to public health, welfare, or the environment.

7. Community Relations

Section 117 of CERCLA requires (through 40 CFR 300 430 and 300.435) that the lead agency conduct various Community Relations (CR) activities throughout the inactive waste site evaluation process. The intention is to promote active communication between communities affected by the release site and the facility's response for implementing remedial actions. CR activities must be undertaken in the RI/FS, RD/RA, and removal actions processes and must include interviewing community interest groups, developing a Community Relations Plan (CRP), and completing various regulatory notification requirements. The CRP is designed to ensure that the public has been provided the appropriate opportunity to become involved in site-related decision making; to identify the appropriate activities for ensuring such public involvement; and to provide the appropriate opportunity for the community to learn about the release site.

8. Administrative Record

Section 133(k) of CERCLA requires the establishment and maintenance of an administrative record which contains all documents containing information used to select response actions, information on the RI/FS and RD/RA processes, the Record of Decision (ROD) and all public comments received. There are specific requirements in CERCLA that are promulgated in 40 CFR 300.800-300.805 which require the administrative record to be maintained at a central location near the release site and that it must be easily accessible to community interest groups.

9. Property Transfer

Under section 120(h) of CERCLA, whenever an agency for the United States enters into contracts for the sale or other transfer of real estate which is owned by the United States, on which hazardous substances were stored for one year or more, known to have been released, or disposed of during the time the property was owned by the United States, the contract must include notice of the type and quantity of such hazardous substance and the time at which such activities took place. These rules are promulgated in 40 CFR 373 and the notifications are required for property transfers that occurred after October 16, 1990. The hazardous substance storage requirement only applies when quantities are or have been stored greater than or equal to 1,000 kilograms or the CERCLA reportable quantity, whichever is greater. Hazardous

substances that are listed as acutely hazardous wastes (40 CFR 261 30), and that are stored for one year or more, are subject to the contract notice requirement when stored in quantities greater than or equal to one kilogram. The release of hazardous substances applies only when quantities greater than or equal to the substance's CERCLA reportable quantity exist.

E. Key Compliance Definitions

1. CERCLIS

The abbreviation of the CERCLA Information System, EPA's comprehensive data base and management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program. CERCLIS contains the official inventory of CERCLA sites and supports EPA's site planning and tracking functions Sites that EPA decides do not warrant moving further in the site evaluation process are given a "No Further Response Action Planned" (NFRAP) designation in CERCLIS This means that no additional Federal steps under CERCLA will be taken at the site unless future information so warrants. Sites are not removed from the data base after completion of evaluations in order to document that these evaluations took place and to preclude the possibility that they be needlessly repeated. Inclusion of a specific site or area in CERCLIS data base does not represent a determination of any party's liability, nor does it represent a finding that any response action is necessary. Sites that are deleted from the NPL are not designated NFRAP sites. Deleted sites are listed in a separate category in the CERCLIS data base (40 CFR 300.5)

2. Community Relations Coordinator

Lead agency staff who work with the On-Scene Coordinations/Remedial Project Manager (OSC/RPM) to involve and inform the public about the Superfund process and response actions in accordance with the interactive community relations requirements set forth in the NCP (40 CFR 300 5).

3. Environment

As defined by section 101(8) of CERCLA, environment means the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson Fishery Conservation and Management Act; and any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States (40 CFR 300.5)

4. Facility

As defined by section 101(9) of CERCLA, facility means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area, where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel (40 CFR 300.5).

5. **Feasibility Study (FS)**

A study undertaken by the lead agency to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the RI, using data gathered during the RI. The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study (40 CFR 300.5)

6. **Hazard Ranking System (HRS)**

The method used by EPA to evaluate the relative potential of hazardous substance releases to cause health or safety problems, or ecological or environmental damage (40 CFR 300.5).

7. **Hazardous Substance**

As defined by section 101(4) of CERCLA, hazardous substance means: Any substance designated pursuant to section 311(b)(2)(A) of the CWA; any element, compound mixture, solution, or substance designated pursuant to section 102 of CERCLA; any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress); any toxic pollutant listed under, section 307(a) of the CWA; any hazardous air pollutant listed under section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance in the first sentence of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas (40 CFR 300.5).

8. **Lead Agency**

The agency that provides the OSC/RPM to plan and implement response action under the NCP, EPA, the United States Coast Guard (USCG), another Federal agency, or a state (or political subdivision of a state) operating pursuant to a contract or cooperative agreement executed pursuant to section 104(d)(1) of CERCLA, or designated pursuant to a Superfund Memorandum of Agreement (SMOA) entered into pursuant to subpart F of the NCP or other agreements may be the lead agency for a response action. In the case of a release of a hazardous substance, pollutant, or contaminant, where the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of Department of Defense (DOD) or Department of Energy (DOE), then DOD or DOE will be the lead agency. Where the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of a Federal agency other than EPA, the USCG, DOD, or DOE, then that agency will be the lead agency for remedial actions and removal actions other than emergencies The Federal agency maintains its lead agency responsibilities whether the remedy is selected by the Federal agency for non-NPL sites or by EPA and the Federal agency or by EPA alone under CERCLA section 120 The lead agency

will consult with the support agency, if one exists, throughout the response process (40 CFR 300.5).

9. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

10. National Priorities List (NPL)

The list, compiled by EPA pursuant to CERCLA section 105, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response (40 CFR 300.5).

11. Person

An individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States government, state municipality, commission, political subdivision of a state, or any interstate body (40 CFR 300.5 and 302.3).

12. Pollutant or Contaminant

As defined by section 101(33) or CERCLA, pollutant or contaminant includes, but not be limited to, any element, substance, compound, or mixture, including disease-causing agents, which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under section 101(4)(A) through (F) of CERCLA, nor does it include natural gas of pipeline quality (or mixtures of natural gas and such synthetic gas). For purposes of the NCP, the term pollutant or contaminant means any pollutant or contaminant that may present an imminent and substantial danger to public health or welfare (40 CFR 300 5)

13. Preliminary Assessment (PA)

Review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action A PA may include an on-site reconnaissance, if appropriate (40 CFR 300.5).

14. Release

As defined by section 101(22) of CERCLA, release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes: Any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons;

emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine; release of source byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or, for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct, or special nuclear materials from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and the normal application of fertilizer. For purposes of the NCP, release also means threat of release (40 CFR 300.5 and 302.3).

15. Relevant and Appropriate Requirements

Those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or state environmental or facility citing laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than Federal requirements may be relevant and appropriate (40 CFR 300.5).

16. Remedial Design (RD)

The technical analysis and procedures which follow the selection of remedy for a site and result in a detailed set of plans and specifications for implementation of the remedial actions (40 CFR 300.5).

17. Remedial Investigation (RI)

A process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The RI emphasizes data collection and site characterization and is generally performed concurrently and in an interactive fashion with the feasibility study. The RI includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives (40 CFR 300.5).

18. Remedy or Remedial Action (RA)

Those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection suing dikes, trenches, or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materials, recycling or reuse diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and run-off, on-site treatment or incineration, provision of alternative water supplies, any monitoring

reasonably required to assure that such actions protect the public health and welfare and the environment and, where appropriate, post-removal site control activities. The term includes the costs of permanent relocation of residents and businesses and community facilities (including the cost of providing "alternative land of equivalent value" to an Indian tribe pursuant to CERCLA section 126(b)) where EPA determines that, alone or in combination with other measures, such relocation is more cost-effective than, and environmentally preferable to, the transportation, storage, treatment, destruction, or secure disposition off-site of such hazardous substances, or may otherwise be necessary to protect the public health or welfare; the term includes off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materials. For the purpose of the NCP, the term also includes enforcement activities related thereto (40 CFR 300.5).

19. Remove or Removal

As defined by section 311(a)(8) of the CWA, refers to removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare or to the environment. As defined by section 101(23) of CERCLA, removal of released hazardous substances from the environment, such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment; such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removed material; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or the environment, which may otherwise result from a release or threat of release. The term includes, in addition, without being limited to, security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, action taken under section 104(b) of CERCLA, post-removal site control, where appropriate, and any emergency assistance which may be provided under the Disaster Relief Act of 1974. For the purpose of the NCP, the term also includes enforcement activities related thereto (40 CFR 300.5).

20. Reportable Quantity

That quantity, as set forth in 40 CFR 302, the release of which requires notification pursuant to 40 CFR 302 (40 CFR 302.3).

21. Site Inspection (SI)

An on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate (40 CFR 300.5).

F. Records to Review

- Spill/release records
- Hazardous substance inventory records.

G. Physical Features to Inspect

- Cleanup sites.

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	C 1 through C 3	5-11
Release Discovery and Notification	C.4 C.5 through C.6 C.7	5-11 5-12 5-13
Site Evaluation	C 8 C 9	5-14 5-15
Remedial Investigation and Feasibility Study	C 10	5-16
Remedial Selection and Design	C 11	5-19
Removal Action	C.12	5-20
Community Relations	C 13	5-22
Administrative Record	C.14	5-23
Property Transfer	C 15	5-24

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
C 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation.)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements,or equivalent state enforcement actions. For those open items, indicate what corrective action is planned and milestones established to correct problems Determine how many dockets, if any, your facility has
C.2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.)	Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist. Verify that the facility is in compliance with all applicable and newly issued regulations.
C 3 Facilities are required to abide by state and local regulations concerning hazardous materials (EO 12088, Section 1-1)	Verify that the facility is abiding by state and local requirements. Verify that the facility is operating according to permits issued by the state or local agencies. (NOTE. Issues typically regulated by state and local agencies include. - Transportation of hazardous materials - Notification requirements - Response plan requirements - Spill response requirements.)
Release Discovery and Notification	
C 4 Facilities that are determined 1) to own or operate, or 2) who at the time owned or operated, or 3) who accepted hazardous substances for transport and selected a facility at which hazardous substances are or have been stored, treated, or disposed of, are required to notify the EPA	Verify that the facility has procedures in place to identify areas where hazardous substances are or may have been stored, treated, or released at the facility Confirm that the facility maintains an inventory of potential inactive waste sites and determine whether the inventory contains the following information for each site - The site location. - The site history (i e , types of waste or hazardous substance that may have been released) - Facility responses to environmental problems

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C 5 Facilities were required to notify EPA of the existence of hazardous waste sites (CERCLA s 103, 40 CFR 300 405(b), 300 135(j), 300 120(b)).	Confirm through interviewing facility personnel and reviewing facility release reporting procedures that the facility has performed the following - If any hazardous substances are found to have been stored, treated, or disposed of at the facility, the EPA is notified of the existence of the site(s) unless the site(s) has been issued a valid RCRA permit - Notified the EPA if the facility accepted hazardous substances for transport and selected a facility where hazardous substances are or have been stored, treated, or disposed of without a valid RCRA permit - Notified the National Response Center (NRC) when a hazardous substance release exceeded a CERCLA Reportable Quantity - Promptly notified trustees for natural resources of hazardous substance releases that are injuring or may injure natural resources under their jurisdiction
C 6 Releases in excess or equal to reportable quantities of hazardous substances shall be reported to the NRC immediately (40 CFR 302 1 through 302 6)	Verify that spills in excess of the reportable quantities listed in Appendix 5-1 have been reported Verify that a procedure is in place for the notification of the NRC immediately after becoming aware of the release Verify that if mixtures or solutions of hazardous substances are released, except for radionuclides, it is reported when either of the following occur: - The quantity of all hazardous constituents of the mixture or solution is known and a reportable quantity or more of any hazardous constituent is released - The quantity of one or more of the hazardous constituents of the mixture or solution is unknown and the total amount of the mixture or solution released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity (NOTE Notification requirements for radionuclide releases are not included in this guide)

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C 7 Facilities with releases that are continuous and stable in quantity and rate are required to meet limited notification requirements (40 CFR 302 8).	Determine if the facility has any releases that are continuous and stable in quantity and rate Verify that the following notifications have been given - Initial telephone notification - Initial written notification within 30 days of the initial telephone notification - Follow-up notification within 30 days of the first anniversary date of the initial written notification - Notification of changes in - The composition or source of the release - Information submitted in the initial written notification - The follow-up notification required on the first anniversary date of the initial written - Notification of when there is an increase in the quantity of the hazardous substances in any 24-hour period that represents a statistically significant increase (NOTE Instead of the initial written report or follow-up report, the facility may submit a copy of the Toxic Release Inventory (TRI) form submitted under SARA Title III section 313 for the previous 1 July provided that conditions are met as described in 40 CFR 302.8(j).)

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
Site Evaluation	
C 8. When a facility experiences a hazardous substance release to the environment, an evaluation of the release site must be performed to determine the extent of the release and the release's impact to public health and the environment. A site evaluation typically contains the following three components (40 CFR 300 420) a A Preliminary Assessment (PA) which is a review of existing site information and an off-site reconnaissance, if appropriate, to determine if a release may require further investigations or removal actions Typically, when performing a PA, facility documents are reviewed and field sampling is not conducted b A Site Inspection (SI) which is an on-site investigation to determine whether a release has occurred and to identify the preliminary public health and environmental threats associated with the release The SI typically builds upon the information collected during the PA Furthermore, the SI involves, as appropriate, both on- and off-site field sampling and analysis c A review to determine if the site should be included on the National Priorities List (NPL)	Verify that for all potential inactive waste sites a preliminary assessment (PA) is conducted that contains at least the following - A review of existing information about the release such as -- Information on the pathways of exposure, -- Exposure targets, and -- Source and nature of release - On-site reconnaissance - Off-site reconnaissance When the facility performs a remedial PA, confirm that the facility completes the EPA Preliminary Assessment form or its equivalent and that it includes the following information: - A description of the release - A description of the probable nature of the release - A recommendation on whether further action is warranted, which lead agency should conduct further action, and whether a Site Investigation (SI) or removal action, or both, should be undertaken Where the facility has received an interim or final RCRA facility permit, determine whether the facility has completed a RCRA Facility Assessment (RFA) For facility, SIs verify that prior to conducting any field sampling, the facility has developed sampling and analysis plans which consist of the following - A field sampling plan - A Quality Assurance Project Plan (QAPP) Determine whether the facility has included the following information when preparing an SI - A description/history/nature of waste handling - A description of known contaminants - A description of pathways of migration of contaminants - An identification and description of human and environmental targets - A recommendation on whether further action is warranted. Determine if the facility determined whether a removal action is appropriate based upon the information collected during the PA/SI If so, confirm that the facility initiated a removal PA pursuant to C 12.

Compliance Category: **CERCLA/SARA**	
Regulatory Requirements:	**Reviewer Checks:**
C 9 Sites that meet a certain criteria may be eligible for placement on the National Priorities List (NPL) (40 CFR 300 425(c), (d))	Confirm that the facility has assisted Federal and state agencies in evaluating whether release sites have met one of the following criteria - The release scores sufficiently high pursuant to the Hazard Ranking System (NOTE The Hazard Ranking System is the method used by EPA to evaluate the relative potential of hazardous substance releases to cause health or safety problems, ecological, or environmental damage) - The state has designated a release as its highest priority (a state may have only one highest priority) - The release satisfies all of the following criteria -- The Agency for Toxic Substances and Disease Registry has issued a health advisory that recommends dissociation of individuals from the release, -- EPA determines that the release poses a significant threat to public health, and -- EPA anticipates that it will be more cost-effective to use its remedial authority than to use removal authority to respond to the release (NOTE The lead agency is responsible for submitting NPL candidates to the EPA by scoring the release site using the Hazard Ranking Scoring (HRS) model The EPA is responsible for reviewing the lead agencies' HRS scoping package and revising them as appropriate Finally, the EPA will propose release sites to the NPL after ensuring appropriate public involvement (40 CFR 300 425(d))) If the facility determines that a release is eligible for placement on the NPL, verify that the facility has submitted the release score (using HRS model) and has provided the appropriate backup documentation

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
Remedial Investigation and Feasibility Study	
C 10 The purpose of the RI/FS is to assess site conditions and evaluate remedial alternatives to the extent necessary to select a site remedy Developing and implementing an RI/FS generally includes the following (40 CFR 300 430). a Project Scoping - The facility should have developed a plan for conducting an RI/FS such that the detail of analysis is appropriate to the complexity of the release site problems being addressed b Remedial Investigation - The purpose of an RI is to collect the necessary field data to adequately characterize the release site in order to assist in developing and evaluating remedial alternatives Site characterization may be conducted in one or more phases to focus sampling efforts and to better define the potential threat to human health or the environment	Determine whether the facility has initiated coordination with regulatory agencies to ensure that both parties have discussed and identified the appropriate sequence actions necessary to address the release site problems Verify that the facility has conducted project scoping to identify the optimal set and sequence of actions necessary to address the release site problems Specifically, the following should be incorporated into the project scope - The assembly and evaluation of existing data for the release site, including the results of any removal actions and PA/SI data - The identification of likely response scenarios, potentially applicable technologies, and operable units that may address site problems - The identification of the type, quality, and quantity of the data that will be collected during the RI/FS. - The preparation of site-specific health and safety plans that specify, at a minimum, employee training and protective equipment, medical surveillance requirements, standard operating procedures, and contingency plan that conforms with 29 CFR 1910 120(l)(1)and (l)(2) - The development of a sampling and analysis plan that meets the requirements outlined in C 8 - The identification of potential Federal and state Applicable or Relevant and Appropriate Requirements (ARARs) Determine whether the facility has assessed the following factors when conducting an RI - The physical characteristics of the site (i e , soils, sediments, geology, hydrogeology, meteorology, and ecology) - Characteristics of air, surface water, and ground water - The general characteristics of the waste, including quantities, physical state, concentration, toxicity, ability to bioaccumulate, and mobility - The extent to which the source can be adequately identified and characterized (i e., evaluation of the vertical and horizontal extent of contamination) - Actual and potential exposure routes (i.e., inhalation through air transport and ingestion through groundwater or bioaccumulation) - Actual and potential exposure pathways through environmental media

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C 10 continued c Risk Assessment - As a component of the RI, the risk assessment should characterize the current and potential threats to human health and the environment that may be posed by contact to environmental media Typically, the risk assessment results will assist in establishing acceptable exposure levels for use in developing remedial alternatives in the FS d Feasibility Study - The purpose of the FS is to ensure that appropriate remedial alternatives are developed and evaluated The development and evaluation of alternatives should reflect the scope and complexity of the remedial action under consideration and the release site problems being addressed	Verify that the facility in conjunction with regulatory agencies have identified the potential ARARs for the release site For each release site undergoing an RI, confirm that the facility has conducted a baseline risk assessment which contains the following - A characterization of the current and potential threats to human health and the environment that may be posed by site contaminants migrating through environmental media - The establishment of acceptable exposure levels for use in developing remedial alternatives Where the facility has received an interim or final RCRA facility permit, determine whether the facility has completed the following - A RCRA Facility Investigation (RFI) to evaluate whether releases of hazardous substances may have occurred from Solid Waste Management Units (SWMUs) Verify that as a part of the FS, the facility has established remedial action objectives (i e , acceptable exposure levels that are protective of human health and the environment) which have been developed by using the following - Applicable or relevant and appropriate requirements (ARARs) under Federal or state environmental laws - Maximum Contaminant Level Goals (MCLGs), established under the Safe Drinking Water Act, or if it the MCLG is determined not to be relevant, the corresponding Maximum Contaminant Level (MCL) - Water quality criteria established under sections 303 or 304 of the Clean Water Act - An Alternative Concentration Limit (ACL) established according to CERCLA section 121(d)(2)(B)(ii) For source control actions, confirm that the facility has developed alternatives tailored to the release site conditions that employ the following, as appropriate - Treatment techniques that reduce toxicity, mobility, or volume of the release site to the maximum extent feasible, eliminating or minimizing the need for long-term management - One or more alternatives that involve little or no treatment, but provide protection of human health and the environment primarily by preventing or controlling exposure to the release site - For groundwater response actions, remedial alternatives which attain site-specific remediation levels within different time periods and using one or more different technologies.

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C.10 continued	Confirm that as a part of an FS, the facility has developed the following: - One or more innovative treatment technologies for further consideration - A no-action alternative or a no further action alternative, if some removal or remedial action has already occurred at the release site Verify that, to the extent possible, the facility has considered the short- and long-term aspects of the following criteria to guide the development and screening of remedial alternatives. - Effectiveness (i.e , minimization of residual risks and short-term impacts, long-term protection, quickness of protection). - Implementability (i.e., technical feasibility and availability). - Cost (i.e., construction, operation, and maintenance). Determine whether the facility has performed an analysis of a limited number of remedial alternatives, which have been considered a viable approach to remedial action, based on the following: - Overall protection of human health and the environment - Compliance with ARARs. - Long-term effectiveness and permanence. - Reduction of toxicity, mobility, or volume. - Short-term effectiveness. - Implementability. - Cost. - State acceptance. - Community acceptance. (NOTE: Where the facility has received an interim or final RCRA facility permit, Federal and state authorities will request that a Corrective Measures Study (CMS) be performed as part of a Corrective Action Order (CERCLA Section 3008(h)) or corrective action requirement outlined in a permit application and/or permit (CERCLA Section 3004(u) and (v)).)

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
Remedial Selection and Design	
C 11 Upon the completion of the RI/FS, the facility must select in conjunction with the regulatory agency a preferred proposed alternative for remediation which can be presented to the public (and state) for their review and comment The public comments must be considered before the facility can issue a final remedial design/remedial action (RD/RA) Upon receiving new information from the public or regulatory agencies, the facility should reassess its initial remedial alternative determination The public comments may prompt the facility to modify aspects of their preferred alternative or cause the facility to select a different alternative The facility and the lead regulatory agency will make the final remedy selection decision and they will document that decision in the Record of Decision (ROD) (40 CFR 300 430(f), 300 435(b), (c), (f))	When the facility has, in conjunction with the regulatory agency, identified a preferred proposed remedial action alternative, verify that the proposed plan has been presented to the public for comment Determine whether the proposed plan presented to the public contains the following - A brief summary of the alternatives. - The rationale used to develop the preferred alternative - A summary of comments received from regulatory agencies - A summary of any proposed waiver from an ARAR Verify that the facility conducts the following community relation activities to support the selection of the remedy - Publishes a notice of availability and a brief analysis of the proposed plan in a major local newspaper. - Makes the proposed plan and supporting information available in the Administrative Record - Provides for a public comment period of not less than 30 days. - Provides for a public meeting at or near the facility during the public comment period. - Keeps a transcript of the meeting and makes the transcript available to the public - Prepares a written summary of significant comments and new information received during the public comment period If any new information is made available which significantly changes the proposed remedy, confirm that the facility - Seeks additional public comment on the revised changes (if the changes could not reasonably have been anticipated by the public) - Includes a discussion in the ROD of the changes and the reasons - Issues a revised proposed plan which includes a discussion of the significant changes and reasons. Determine whether, after a review of the regulatory agency and public comments, the facility, in conjunction with the regulatory agency, has selected a final remedy and documented this remedy in a ROD that contains the following information - How the selected remedy is protective of human health. - A description of ARARs that will be met - A description of ARARs that will not be met and applicable waivers - How the remedy is cost-effective - How the remedy uses permanent solutions and alternative treatment technologies to the maximum extent Whether preferences for remedies employing treatment which permanently and significantly reduces the toxicity, mobility, or volume as a principal element is or is not satisfied and, if not, why not - If the remedy is selected with pollution prevention technologies in mind - The remediation levels the remedy is expected to achieve - A discussion of significant changes made to the proposed plan and a response to public comments - Whether contamination will remain at the site such that a review will have to be made no less often than every five years

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C 11. continued	Verify that the facility has developed an RD/RA that is consistent with the selected and implemented remedy as set forth in the ROD Determine whether the facility has ensured that all Federal and state requirements that are identified in the ROD (i e , ARARs) have been met during the RD/RA Determine whether the facility has reviewed the community relations plan prior to initiating the RD to identify if the plan should be revised to address additional or new public involvement activities during the RD/RA process. Confirm that Operations and Maintenance (O&M) measures have been initiated after the remedial action objectives/goals outlined in the ROD have been achieved.
Removal Action	
C 12 At any release site, regardless if the site has been included on the NPL, where the facility has made the determination that there is a threat to public health, welfare, or the environment, the facility may take an appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release When the facility has determined that a removal action is appropriate, the facility should undertaken the action as promptly as possible The action typically consists of the following three stages (40 CFR 300 410, 300.415) a A removal preliminary assessment which includes the collection or review of readily available information such as site management practices, information from waste generator, document review, and facility interviews. b. A removal site inspection, if necessary, to gather information that was not obtained during the removal preliminary assessment c. A removal action which is performed in response to a specific release.	Confirm that the following information has been considered by the facility when performing a removal preliminary assessment· - Identification of the source and nature of the release or threat of release - Evaluation by the Agency for Toxic Substances and Disease Registry or by other sources (e g , state public health agencies) of the threat to public health - Evaluation of the magnitude of the threat - Evaluation of factors necessary to make the determination of whether a removal is necessary Determine whether a removal site inspection has been performed. Verify that the facility has documented the results obtained from a removal site evaluation. Verify that the facility evaluated the following factors prior to initiating a removal action to determine whether or not the action was appropriate - Actual or potential exposure of contaminants to nearby human populations, animals, or the food chain - Actual or potential contamination of drinking water supplies or sensitive ecosystems. - Hazardous substances or contaminants stored at the facility that may pose a threat of release. - High levels of hazardous substances or contaminants in surface soils that may migrate. - Weather conditions that may cause hazardous substances or contaminants to be released. - Threat of fire or explosion. - The availability of appropriate release response mechanisms

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C 12 Continued	If the removal action requires a planning period of greater than six months, verify that the facility has developed the following - An Engineering Evaluation/Cost Analysis (EE/CA) on the removal alternatives for the site - A sampling and analysis plan that has been reviewed and approved by the EPA If removal actions have been implemented, determine whether the selected action, to the extent practicable, has contributed to the anticipated long-term remedial action for the release site (NOTE 40 CFR 300 415(d) provides several removal action examples) Confirm that the facility has performed the following community relations activities when initiating a removal action - A spokesperson has been selected to inform the community of actions taken, to respond to inquiries, and to provide information concerning the release - For actions in which less than six months exist before on-site removal activity begin, the facility -- Publishes a notice of availability of the Administrative Record file in a major newspaper within 60 days of initiating the on-site removal activity, -- Provides a public comment period of not less than 30 days from the time the Administrative Record was made available to the public, and -- Prepares a written response to significant public comments - For removal actions where on-site activity is expected to extend beyond 120 days from the initiation of those activities, determine whether the facility conducted the following before the end of the 120-day period -- Conducted community interviews, -- Prepared a community relations plan based upon the community interviews and other relevant information, and -- Established an information repository and Administrative Record, available to the public, at or near the facility - For planning periods of at least six months prior to initiating an on-site removal activity, determine whether the facility has completed the following -- Complied with the requirements of c above prior to completing the EE/CA (except that the information repository and Administrative Record must be established no later than when the EE/CA Approval Memorandum is signed), -- Published a notice of availability and brief description of the EE/CA in a major local newspaper, -- Provided a public comment period on the EE/CA of not less than 30 days, and -- Prepared a written response to significant public comments

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
Community Relations	
C 13 The facility is required to conduct various Community Relations (CR) activities throughout the inactive waste site evaluation process The community relations requirements are intended to promote active communication between communities affected by the release site and the facility response for implementing remedial actions Specifically, the facility will be required to initiate CR activities during the RI/FS, removal action, and enforcement action stages Examples of CR activities will include interviewing community interest groups, developing a Community Relations Plan (CRP), and completing various regulatory notification requirements The purpose of the CRP is to ensure that the public has been provided the appropriate opportunity to become involved in site-related decision making, to identify the appropriate activities for ensuring such public involvement, and to provide the appropriate opportunity for the community to learn about the release site (40 CFR 300 430(c), (f))	Verify that prior to commencing fieldwork for the RI, the facility has completed the following - Conducted interviews with community interest groups - Developed a Community Relations Plan (CRP) that is based on the community interviews and other relevant information. - Established and informed the public of the establishment of a information repository at or near the location of the response action Confirm that the facility prior to initiating their remedial design reviewed the CRP to determine whether it should be revised to describe further public involvement activities during the RD/RA phase that were not already addressed or provided for in the CRP Ensure that if the facility (with assistance from regulatory agencies) enters into an enforcement agreement with de minimis parties, a notice of the proposed agreement has been published in the Federal Register at least 30 days before the agreement becomes final Verify that if an enforcement agreement is embodied in a consent decree, that public notice and opportunity for public comment are provided If a change in the remedial or enforcement action has occurred, confirm that the facility has issued a notice in a major local newspaper stating that the ROD has undergone a revision Verify that after the ROD has been signed, the facility has made it available for public inspection and has published a notice of the ROD's availability in a major local newspaper

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
Administrative Record	
C 14 It is required that the facility develop and maintain an administrative record that contains the documents that form the basis for the selection of a response action The administrative record is required to be maintained at a central location near the release site and the record should be easily accessible to community interest groups (40 CFR 300 800, 300 805, 300 810, 300 815, 300 820)	Confirm that the facility has established a docket at an office of the facility or other central location for which documents included in the administrative record are located and a copy of the documents in the AR have also been made available for public inspection at or near the release site. When documents have not been placed in a file at or near the release site, verify that the facility has added such documents to the file upon request Verify that copies of the following documents have been submitted to the EPA - The administrative record index - RI/FS work plans - RI/FS reports released for public comment - Proposed remedial action plan - Public comments on the RI/FS and proposed plan - Any documents specifically requested by the EPA Review the administrative record to ensure that it contains the following documents - Data that has been used to form the basis for the selection of a response action (specific examples are noted in 40 CFR 300 810(a)(1)) - Guidance documents, technical literature, and site-specific policies that may form the basis for the selection of a response action (specific examples are noted in 40 CFR 300 810(a)(2)) - Documents received, published, or made available to the public for remedial or removal actions (specific examples are noted in 40 CFR 300 810(a)(3)) - Decision documents (e g , ROD, action memorandum) - Enforcement orders - Document index For removal actions that have a planning period of at least six months prior to initiating on-site activities, verify the following - The administrative record has been made available for public inspection at or near the site when the Engineering Evaluation/Cost Analysis (EE/CA) has been made available for public comment - A public participation process and public comment period has been provided as outlined in C 12 For removal actions that are not subjected to C 14, verify the following - Documents included in the administrative record were made available for public inspection no later than 60 days after initiation of on-site removal activity - A notice of availability was published in a major local newspaper when the administrative documents were made available for public inspection - A public comment period of not less than 30 days was provided For remedial investigation actions, ensure that the facility completed the following - The administrative record file used for selecting a remedial action was made available for public inspection when the remedial investigation phase begins - A public comment period was provided as outlined in Step C 14 - The public participation process was completed as outlined in Step C 14
Property Transfer	

Compliance Category: CERCLA/SARA	
Regulatory Requirements:	**Reviewer Checks:**
C 15 Facilities are required to identify in contracts for the sale or other transfer of real estate which is owned by the United States that hazardous substances were stored for one year or more, known to have been released, or disposed of during the time the property was owned by the United States This notification is required for property transfers that occurred after October 16, 1990 The real estate contract is required to include, to the extent such information is available, the type and quantity of hazardous substances, and the period at which the storage, release, or disposal took place The hazardous substance storage requirement only applies when quantities are or have been stored greater than or equal to 1,000 kilograms or the CERCLA reportable quantity, whichever is greater Hazardous substances that are listed as acutely hazardous wastes (40 CFR 261 30), and that are stored for one year or more, are subject to the contract notice requirement when stored in quantities greater than or equal to one kilogram The release of hazardous substances applies only when quantities greater than or equal to the substance's CERCLA reportable quantity exist (40 CFR 373)	Confirm that the facility has developed procedures to ensure that property which is transferred to any entity has been evaluated to determine whether hazardous substances are or were stored on-site or whether hazardous substance were released Verify that the facility has completed the necessary contract notification requirements when real estate, which has been owned by the facility, is sold or transferred after October 16, 1990, and satisfies the following - Hazardous substances are or have been stored in quantities greater than or equal to 1,000 kilograms or the CERCLA reportable quantity, whichever is greater - Hazardous substances have been stored for one year or more - Hazardous substances, which are listed as acutely hazardous waste (40 CFR 261 30), have been stored for one year or more, and in quantities greater than or equal to one kilogram - Hazardous substance releases in quantities greater than or equal to the substance's CERCLA reportable quantity Review real estate property sale and transfer contracts to confirm that they include the following - Notice of the following -- Hazardous substance name, -- The Chemical Abstracts Services Registry Number (CASRN), where applicable, -- Hazardous substance regulatory synonym as listed in 40 CFR 302 4, where applicable, -- The RCRA hazardous waste number specified in 40 CFR 261 30, where applicable, -- The quantity in kilograms and pounds of the hazardous substance that has been stored for one year or more, or known to have been released or disposed of on the property, and -- The dates that such storage, release, or disposal occurred. - The following statement has been prominently displayed· "The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA or "Superfund") 42 U S.C section 9620(h)"

Section 5

CERCLA/SARA

Appendix

Appendix 5-1
Consolidated List of Chemicals Covered in Title III of SARA

This consolidated chemical list includes chemicals subject to reporting requirements under Title III of SARA. This consolidated chemical list does not contain all chemicals that are subject to reporting requirements in Sections 311 and 312 of SARA Title III. These hazardous chemicals, for which MSDS must be developed under the Occupational Safety and Health Act Hazard Communication Standards, are identified by broad criteria, rather than enumeration. There are over 50,000 such substances that meet the criteria. The consolidated list has been prepared to help determine whether there is a need to submit reports under Section 304 or 313 of Title III and, for a specific chemical, what reports need to be submitted.

The list includes chemicals under the four following Federal statutory provisions:

1. *SARA Section 302 Extremely Hazardous Substances* - The presence of which, in sufficient quantities, requires certain emergency planning activities to be conducted. Releases of these substances are also subject to reporting under Section 304 of Title III. The final rule listing the extremely hazardous substances and their threshold planning quantities (TPQ), is found in 40 CFR 355.

2. *CERCLA Hazardous Substances (RQ) Chemicals* - Releases of which are subject to reporting under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980. Such releases are also subject to reporting under Section 304 of Title III. CERCLA hazardous substances, and their reportable quantities (RQ), are listed in 40 CFR Part 302, Table 302.4.

3. *SARA Section 313 Toxic Chemicals* - Emissions or releases of which must be reported annually as part of SARA Title III's community right-to-know provisions. A list of these toxic chemicals is found in 40 CFR 372.65.

4. *RCRA Hazardous Wastes* - from the "P" and "U" lists (40 CFR 261.33), of specific chemicals. RCRA hazardous wastes from the "F" and "K" lists are not included here; such waste streams are also CERCLA hazardous substances. This listing is provided as an indicator that you may already have data on a specific chemical that can be used for Title III reporting purposes.

There are four columns in the consolidated list corresponding to these four statutory provisions. If a chemical is listed as an extremely hazardous substance under Section 302, its TPQ is given in the extremely hazardous substance column. Similarly, the CERCLA RQ is given for those chemicals that are listed as hazardous substances. A key to the symbols used in the Section 302 and CERCLA columns precedes the list. An "X" in the column for Section 313 indicates that the chemical is subject to reporting under Section 313.

The letter-and-digit code in the column for 40 CFR 261.33 is the chemical's RCRA hazardous waste code. A blank in any of these columns indicates that the chemical is not subject to the corresponding statutory authorities.

The Chemical Abstract Service (CAS) registry number is provided for each chemical on the list.

Key to Symbols in the Consolidated Chemical List

# Indicates that the RQ is subject to change when an assessment of potential carcinogenicity and/or chronic toxicity is completed; until then, the statutory RQ applies.

Indicates that an adjusted RQ has been proposed, but a final judgment has not been made.

+ USEPA has proposed to adjust the RQ for radionuclides by establishing RQs in units of curies; until then, the 1 lb RQ applies.

* Indicates that the chemical is proposed for deletion from the list of extremely hazardous substances.

** Indicates that no RQ is assigned to this generic or broad class.

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Consolidated Chemical List

This is an alphabetical listing of the consolidated list of chemicals Numbered chemicals are listed first.

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,Amino-2-methyl-anthraquinone			x		82-28-0
1-Butanamine,N-butyl-N-nitroso-		10	x	U172	924-16-3
1-Chloro-1,1-difluoroethane (HCFC-142(b)			x		75-68-3
1-Chloro-1,1,2,2-tetrafluoroethane (HCFC-124a)			x		354-25-6
1-Methylbutadiene		100		U186	504-60-9
1-Naphthalamine		100	x	U167	134-32-7
1-Propanamine		5000		U194	107-10-8
1-Propanol,2,3-dibromo-phosphate (3 1)		10	x	U235	126-72-7
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethoxy-		100	x	U091	119-90-4
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethyl-		10	x	U095	119-93-7
1,1-Dichloro-1-fluoroethane (HCFC-141b)			x		1717-80-6
1,1-Dichloro-1,2,2-trifluoroethane (HCFC-123b)			x		812-04-4
1,1-Dichloroethane		1000		U076	75-34-3
1,1-Dichloroethylene		100	x	U078	75-35-4
1,1,1,2-Tetrachloroethane			x		630-20-6
1,2-Benzenedicarboxylic acid,[bis(2-ethylhexyl)]ester		100	x	U028	117-81-7
1,2-Benzenedicarboxylic acid, diethyl ester (diethyl phthlate)		1000	x	U088	84-66-2
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino) ethyl]-		1000		P042	51-43-4
1,2-Benzisothiazolin-3(2H) one,1,1-dioxide		100	x	U202	81-07-2

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,2-Benzphenanthrene		100		U050	218-01-9
1,2-Butylene oxide			x		106-88-7
1,2-Dibromo-3-chloropropane		1	x	U066	96-12-8
1,2-Dichloro-1,1,2-trifluoroethane (HCFC-123a)			x		354-23-4
1,2-Dichloroethane		100	x	U077	107-06-2
1,2-Dichloroethylene			x		540-59-0
1,2-Dichloropropane		1000	x	U083	78-87-5
1,2-Dimethylhydrazine		1		U099	540-73-8
1,2-Diphenylhydrazine		10	x	U109	122-66-7
1,2-Oxathiolane,2,2-dioxide		10	x	U193	1120-71-4
1,2-trans-Dichloroethylene		1000		U079	156-60-5
1,3-Benzenediol		5000		U201	108-46-3
1,3-Benzodioxole, 5-propyl		10		U090	94-58-6
1,3-Benzodioxole,5-)1-1 propenyl		100	x	U141	120-58-1
1,3-Benzodioxole, 5-) 2,propenyl		100	x	U203	94-59-7
1,3-Butadiene			x		106-99-0
1,3-Dichloropropylene		100	x	U084	542-75-6
1,3-Isobenzofurandione		5000	x	U190	85-44-9
1,4-Dichloro-2-butene			x		764-41-0
1,4-Diethylene dioxide (1,4-Dioxane)		100	x	U108	123-91-1
1,4-Naphthalenedione		5000		U166	130-15-4
2-Acetylaminofluorene		1	x	U005	53-96-3
2-Aminoanthraquinone			x		117-79-3
2-Butanone peroxide		10		U160	1338-23-4
2-Butanone (Methyl ethyl ketone)		5000	x	U159	78-93-3
2-Butene,1,4-dichloro-		1		U074	764-41-0
2-Chloro-1,1,2,2-tetrafluoroethane(HCFC 124)			x		2837-89-0
2-Chloroacetophenone			x		532-27-4

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
2-Chloroethyl vinyl ether		1000		U042	110-75-8
2-Chlorophenol		100		U048	95-57-8
2-Cyclohexl-4,6-dinitrophenoll		100		P034	131-89-5
2-Ethoxyethanol		100	x		110-80-5
2-Furancarboxaldehyde		5000		U125	98-01-1
2-Methoxyethanol			x		109-86-4
2-Methylpyridine			x		109-06-8
2-Naphthylamine		10	x	U168	91-59-8
2-Nitropropane		10	x	U171	79-46-9
2-Phenylphenol			x		90-43-7
2-Picoline		5000		U191	109-06-8
2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)			x		306-83-2
2,2-Dichloropropionic acid		5000			75-99-0
2,3-Dichloropropene		100	x		78-88-6
2,3,4-Trichlorophenol		10	x		15950-66-0
2,3,5-Trichlorophenol		10			933-78-8
2,3,6-Trichlorophenol		10			933-75-5
2,3,7,8-Tetrachlorodibenzo p-dioxin (TCDD)		1			1746-01-6
2,4-D acid		100	x	U240	94-75-7
2,4-D esters		100			94-11-1
2,4-D esters		100			94-79-1
2,4-D esters		100			94-80-4
2,4-D esters		100			1320-18-9
2,4-D esters		100			1928-38-7
2,4-D esters		100			2971-38-2
2,4-D esters		100			53467-11-1
2,4-D esters		100			1928-61-6
2,4-D esters		100			1929-73-3

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
2,4-D esters		100			25168-26-7
2,4-Diaminoanisole sulfate			x		39156-41-7
2,4-Diaminosole			x		615-41-7
2,4-Diaminotoluene		10		U221	823-40-5
2,4-Dichlorophenol		100	x	U081	120-83-2
2,4-Dimethylphenol		100	x	U101	105-67-9
2,4-Dinitrophenol		10	x	P048	51-28-5
2,4,5-T esters		1000			25168-15-4
2,4,5-T salts		1000			13560-99-1
2,4,5-T amines		5000			1319-72-8
2,4,5-T amines		5000			3813-14-7
2,4,5-T amines		5000			6369-96-6
2,4,5-T amines		5000			6369-97-7
2,4,5-T amines		5000			2008-46-0
2,4,5-T esters		1000			93-79-8
2,4,5-T esters		1000			1928-47-8
2,4,5-T esters		1000			2545-59-7
2,4,5-T esters		1000			61792-07-2
2,4,5-T		1000		U232	93-76-5
2,4,5-TP acid esters		100			32534-95-5
2,5-Furandione		5000	x	U147	108-31-6
2,6-Dichlorophenol		100		U082	87-65-0
2,6-Xylidine			x		87-62-7
3,3-Dichlorobenzidine			x		91-94-1
3,4-Diaminotoluene		10	x	U221	95-80-7
3,4-Dinitrotoluene		10			610-39-9
3,4,5-Trichlorophenol		10			609-19-8
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide		5000		U192	23950-58-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
4-Aminoazobenzene			x		60-09-3
4-Aminobiphenyl			x		92-67-1
4-Chloro-m-cresol		5000		U039	59-50-7
4-Chlorophenyl phenyl ether		5000			7005-72-3
4-Nitrobiphenyl			x		92-93-3
4,4'-Diaminodiphenyl ether		x			101-80-4
4,4'-Isopropylidenediphenol		x			80-05-7
4,4'-Methylene bis(N,N-di-methyl) benzenamine		x			101-61-1
4,4'-Methylenedianiline		x			101-77-9
4,4'-Thiodianiline 6-dinitrophenoll		x			139-65-1
5-Nitro-o-anisidine		x			99-59-2
5-Nitro-o-toluidine		x			99-55-6
Acenaphthene		100			83-32-9
Acenaphthylene		5000			208-96-8
Acetaldehyde		1000	x	U001	75-07-0
Acetaldehyde, trichloro-		5000		U034	75-87-6
Acetamide			x		60-35-5
Acetamide-N-(4-ethoxyphenyl)-		100		U187	62-44-2
Acetamide,N-(aminothi-oxomethyl)-		1000		P002	591-08-2
Acetic acid		5000			64-19-7
Acetic acid, ethyl ester		5000		U112	141-78-6
Acetic acid, fluoro, sodium salt 10/10,000		10		P058	62-74-8
Acetic acid, lead(2+) salt		10		U144	301-04-2
Acetic acid, thallium(1+) salt		100		U214	563-68-8
Acetic anhydride		5000			108-24-7
Acetone		5000	x	U002	67-64-1
Acetone cyanohydrin		1000	10	P069	75-86-5
Acetone thiosemicarbazide		1000/10,000			1752-30-3

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Acetonitrile		5000	x	U003	75-05-8
Acetophenone		5000	x	U004	98-86-2
Acetyl bromide		5000			506-96-7
Acetyl chloride		5000		U006	75-36-5
Acrolein	500	1	x	P003	107-02-8
Acrylamide	1000/10,000	5000	x	U007	79-06-1
Acrylic acid		5000	x	U008	79-10-7
Acrylonitrile	10,000	100	x	U009	107-13-1
Acrylyl chloride	100				814-68-6
Adipic acid		5000			124-04-09
Adiponitrile	1000				111-69-3
Aldicarb	100/10,000	1		P070	116-06-3
Aldrin	500/10,000	1	x	P004	309-00-2
Allyl alcohol	1000	100	x	P005	107-18-6
Allyl chloride		1000	x		107-05-1
Allylamine	500				107-11-9
alpha,alpha-Dimethyl phenethylamine		5000		P046	122-09-8
alpha-Endosulfan		1			959-98-8
alpha-BHC		10			319-84-6
Aluminum (fume or dust)			x		7429-90-5
Aluminum oxide (fibrous forms)			x		1344-28-1
Aluminum phosphide	500	100		P006	20859-73-8
Aluminum sulfate		5000			10043-01-3
Aminopterin	500/10,000				54-62-6
Amiton	500				78-53-5
Amiton oxalate	100/10,000				3734-97-2
Amitrole		10	x	U011	61-82-5
Ammonia	500	100	x		7664-41-7
Ammonium acetate		5000			631-61-8

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ammonium benzoate		5000			1863-63-4
Ammonium bicarbonate		5000			1066-33-7
Ammonium bichromate		10			7789-09-5
Ammonium bifluoride		100			1341-49-7
Ammonium bisulfite		5000			10192-30-0
Ammonium carbamate		5000			1111-78-0
Ammonium carbonate		5000			506-87-6
Ammonium chloride		5000			12125-02-9
Ammonium chromate		10			7788-98-9
Ammonium citrate,dibasic		5000			3012-65-5
Ammonium fluoborate		5000			13826-83-0
Ammonium fluoride		100			12125-01-8
Ammonium hydroxide		1000			336-21-6
Ammonium nitrate (solution)			x		6484-52-2
Ammonium oxalate		5000			5972-73-6
Ammonium oxalate		5000			6009-70-7
Ammonium oxalate		5000			14258-49-2
Ammonium picrate		10		P009	131-74-8
Ammonium silicofluoride		1000			16919-19-0
Ammonium sulfamate		5000			7773-06-0
Ammonium sulfate (solution)			x		7783-20-2
Ammonium sulfide		100			12135-76-1
Ammonium sulfite		5000			10196-04-0
Ammonium tartrate		5000			14307-43-8
Ammonium tartrate		5000			3164-29-2
Ammonium thiocyanate		5000			1762-95-4
Ammonium vanadate		1000		P119	7803-55-6
Amphetamine	1000				300-62-9
Amyl acetate		5000			628-63-7

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Analine,2,4,6-trimethyl-	500				88-05-1
Aniline	1000	5000	x	U012	62-53-3
Anthracene		5000	x		120-12-7
Antimony		5000	x		7440-36-0
Antimony pentachloride		1000			7647-18-9
Antimony pentafluoride	500				7783-70-2
Antimony potassium tartrate		100			28300-74-5
Antimony tribromide		1000			7789-61-9
Antimony trichloride		1000			10025-91-9
Antimony trifluoride		1000			7783-56-4
Antimony trioxide		1000			1309-64-4
Antimycin A	1000/10,000				1397-94-0
Antu	500/10,000				86-88-4
Aroclor 1016		1			12674-11-2
Aroclor 1221		1			11104-28-2
Aroclor 1232		1			11141-16-5
Aroclor 1242		1			53469-21-9
Aroclor 1248		1			12672-29-6
Aroclor 1254		1			11097-69-1
Aroclor 1260		1			11096-82-5
Arsenic		1	x		7440-38-2
Arsenic acid		1		P010	1327-52-2
Arsenic acid		1		P010	7778-39-4
Arsenic disulfide		1			1303-32-8
Arsenic pentoxide	100/10,000	1		P011	1303-28-2
Arsenic trisulfide		1			1303-33-9
Arsenic trioxide	100/10,000	1		P012	1327-53-3
Arsenous trichloride	500	1			7784-34-1
Arsine	100				7784-42-1

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Arsine, diethyl-		1		P038	692-42-2
Asbestos		1	x		1332-21-4
Azaserine		1		U015	115-02-6
Azinophos-ethyl	100/10,000				2642-71-9
Azinophos-methyl	10/10,000				86-50-0
Barium and compounds			x		7440-39-3
Barium cyanide		10		P013	542-62-1
Benzal chloride	500	5000	x	U017	98-87-3
Benzamide			x		55-21-0
Benz[a]anthracene		10		U018	56-55-3
Benzanthracene,7,12-dimethyl-		1		U094	57-97-6
Benz[c]acridine		100		U016	225-51-4
Benzenamine,2-methyl 5-nitro-		100		U181	99-55-8
Benzenamine,2-methyl, hydrochloride		100	x	U222	636-21-5
Benzenamine,3-(trifluoro-methyl)-	500				98-16-8
Benzenamine-4-chloro		1000		P024	106-47-8
Benzenamine,4-chloro-2-methyl-hydrochloride		100		U049	3165-93-3
Benzenenamine, 4-methyl		100		U353	106-49-0
Benzenamine,4-nitro-		5000		P077	100-01-6
Benzenamine 4,4'-methylenebis-2-chloro		10	x	U158	101-14-4
Benzenamine,NN-dimethyl-4-phenylazo		10	x	U093	60-11-7
Benzene	10	x		U019	71-43-2
Benzene,1-bromo-4-phenoxy-		100		U030	101-55-3
Benzene,1-(chloromethyl)-4-nitro-	500/10,000				100-14-1
Benzene,1-methyl-2,4-dinitro-		10	x	U105	121-14-2
Benzene,1-methylethyl- (Cumene)		5000	x	U055	98-82-8
Benzene,1,2-dichloro		100	x	U070	95-50-1
Benzene,1,2,4,5-tetrachloro-		5000		U207	95-94-3

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Benzene,1,3-dichloro		100	x	U071	541-73-1
Benzene,1,3-diisocy-anatomethyl		100	x	U223	26471-62-5
Benzene,1,3,5-trinitro-		10		U234	99-35-4
Benzene,1,4-dichloro		100	x	U072	106-46-7
Benzene,2-methyl-1,3-dinitro-		100	x	U106	606-20-2
Benzene, chloro-		100	x	U037	108-90-7
Benzene, dimethyl-		1000	x	U239	1330-20-7
Benzene, hexachloro-		10	x	U127	118-74-1
Benzene, hexahydro- (cyclohexane)		1000	x	U056	110-82-7
Benzene, m-dimethyl-		1000	x		108-38-3
Benzene, methyl-(toulene)		1000	x	U220	108-88-3
Benzene, o-dimethyl-		1000	x		95-47-6
Benzene, p-dimethyl-		1000	x		106-42-3
Benzene, pentachloro-		10		U183	608-93-5
Benzene, pentachloronitro-		100	x	U185	82-68-8
Benzenearsonic acid	10/10,000				98-05-5
Benzenesulfonyl chloride		100		U020	98-09-9
Benzidine		1	x	U021	92-87-5
Benzimidazole,4,5-dichloro-2-(trifluoromethyl)	500/10,000				3615-21-2
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-		10		U157	56-49-5
Benzoic acid		5000			65-85-0
Benzo[a]pyrene		1		U022	50-32-8
Benzo[b]fluoranthene		1			205-99-2
Benzo[ghi]perylene		5000			191-24-2
Benzoic acid		5000			65-85-0
Benzo[jk]fluorene		100		U120	206-44-0
Benzo[k]fluoranthene		5000			207-08-9
Benzonitrile		5000			100-47-0

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Benzotrichloride	500	10	x	U023	98-07-7
Benzoyl chloride		1000	x		98-88-4
Benzoyl peroxide		x			94-36-0
Benzyl chloride	500	100	x	P028	100-44-7
Benzyl cyanide		500			140-29-4
Beryllium chloride		1			7787-47-5
Beryllium fluoride		1			7787-49-7
Beryllium nitrate		1			13597-99-4
Beryllium nitrate		1			7787-55-5
Beryllium powder		10	x	P015	7440-41-7
beta-Endosyulfan		1			33213-65-9
beta-BHC		1			319-85-7
beta-Chloronaphthalene		5000		U047	91-58-7
Bicyclo[2 2 1]heptane-2-carbonitrile, 5-chloro-6-(methyla)	500/10,000				15271-41-7
Biphenyl		x			92-52-4
Bis(2-chloroethoxy) methane		1000	x	U024	111-91-1
Bis(2-chloroisopropyl) ether		1000	x	U027	108-60-1
Bis(2-ethylhexyl)adipate		x			103-23-1
Bis(chloromethyl)ketone	10/10,000				534-07-6
Bitoscanate	500/10,000				4044-65-9
Boron trichloride	500				10294-34-5
Boron trifluoride compound with methyl ether (1 1)	1000				353-42-4
Boron trifluoride	500				7637-07-2
Bromadiolone	100/10,000				18772-56-7
Bromine	500				7726-95-6
Bromoacetone		1000		P017	598-31-2
Bromochlorodifluoromethan (Halon 1211)			x		353-59-3

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Bromoform		100	x	U225	75-25-2
Bromotrifluorometh-ane (Halon 1311)		x			75-63-8
Brucine		100		P018	357-57-3
Butanoic acid,4-[bis(2-chloroethyl)amino] benzene-		10		U035	305-03-3
Butyl benzyl Phthalate		100	x		85-68-7
Butyl acetate		5000			123-86-4
Butyl acrylate			x		141-32-2
Butylamine		1000			109-73-9
Butyraldehyde			x		123-72-8
Butyric acid		5000			107-92-6
CI Acid Green 3			x		4680-78-8
CI Basic Green 4			x		569-64-2
CI Basic Red 1			x		989-38-8
CI Direct Black 38			x		1937-37-7
CI Direct Blue 6			x		2602-46-2
CI Direct Brown 95			x		16071-86-6
CI Disperse Yellow 3			x		2832-40-8
CI Food Red 15			x		81-88-9
CI Food Red 5			x		3761-53-3
CI Solvent Orange 7			x		3118-97-6
CI Solvent Yellow 14			x		824-07-0
CI Solvent Yellow 34 (Auramine)		100	x	U014	492-80-8
CI Solvent Yellow 3			x		97-56-3
CI Vat Yellow 4			x		128-66-5
Cacodylic acid		1		U136	75-60-5
Cadmium		10	x		7440-43-9
Cadmium acetate		10			543-90-8
Cadmium bromide		10			7789-42-6

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Cadmium chloride		10			10108-64-2
Cadmium oxide	100/10,000				1306-19-0
Cadmium stearate	1000/10,000				2223-93-0
Calcium arsenate	500/10,000	1			7778-44-1
Calcium arsenite		1			52740-16-6
Calcium carbide		10			75-20-7
Calcium chromate		10		U032	13765-19-0
Calcium cyanamide		x			156-62-7
Calcium cyanide		10		P021	592-01-8
Calcium dodecylbenzene sulfonate		1000			26264-06-2
Calcium hypochlorite		10			7778-54-3
Cantharidin	100/10,000				56-25-7
Captan		10	x		133-06-2
Carbachol chloride	500/10,000				51-83-2
Carbamic acid, ethyl ester		100	x	U238	51-79-6
Carbamic acid, methyl- nitroso-,ethyl ester		1		U178	615-53-2
Carbamic acid, methyl-o- (((2,4-dimethyl-1,3 dithiolan-2-y	100/10,000				26419-73-8
Carbamic chloride, dimethyl-		1	x	U097	79-44-7
Carbaryl		100	x		63-25-2
Carbofuran	10/10,000	10			1563-66-2
Carbon disulfide	10,000	100	x	P022	75-15-0
Carbon oxyfluoride		1000		U033	353-50-4
Carbon tetrachloride		10	x	U211	56-23-5
Carbonyl sulfide			x		463-58-1
Carbophenothion		500			786-19-6
Catechol			x		120-80-9
Chloramben			x		133-90-4
Chlordane	1000	1	x	U036	57-74-9

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Chlorfenvinfos	500				470-90-6
Chlorinated fluorocarbon(Freon 113)			x		76-13-1
Chlorine	100	10	x		7782-50-5
Chlorine cyanide		10		P033	506-77-4
Chlorine dioxide			x		10049-04-4
Chlormephos	500				24934-91-6
Chlormequat chloride	100/10,000				999-81-5
Chlornaphazine		100		U026	494-03-1
Chloroacetaldehyde		1000		P023	107-20-0
Chloroacetic acid	100/10,000		x		79-11-8
Chlorobenzilate		10	x	U038	510-15-6
Chlorodibromomethane		100			124-48-1
Chlorodifluoromethane (HCFC-22)			x		75-45-6
Chloroethane		100	x		75-00-3
Chloroethanol	500				107-07-3
Chloroethyl chloroformate	1000				627-11-2
Chloroform	10,000	10	x	U044	67-66-3
Chloromethyl methyl ether	100	10	x	U046	107-30-2
Chlorophacinone	100/10,000				3691-35-8
Chloroprene			x		126-99-8
Chlorotetrafluoroethane			x		63938-10-3
Chlorothalonil			x		1897-45-6
Chloroxuron	500/10,000				1982-47-4
Chlorpyrifos		1			2921-88-2
Chlorsulfonic acid		1000			7790-94-5
Chlorthiophos	500				21923-23-9
Chromic acetate		1000			1066-30-4
Chromic acid		10			11115-74-5
Chromic acid		10			7738-94-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Chromic chloride	1/10,000				10025-73-7
Chromic sulfate		1000			10101-53-8
Chromium		5000	x		7440-47-3
Chromous chloride		1000			10049-05-5
Cobalt			x		7440-50-8
Cobalt,((2,2'-1,2- ethanediylbis (nitrilomethylidyne))bis(6)	100/10,000				62207-76-5
Cobalt carbonyl	10/10,000				10210-68-1
Cobaltous bromide		1000			7789-43-7
Cobaltous formate		1000			544-18-3
Cobaltous sulfamate		1000			14017-41-5
Colchicine	10/10,000				64-86-8
Copper		5000	x		7440-50-8
Copper cyanide		10		P029	544-92-3
Coumaphos	100/10,000	10			56-72-4
Coumatetralyl	500/10,000				5836-29-3
Cresol(s) (mixed isomers)		1000	x	U052	1319-77-3
Cresol,o-	1000/10,000	1000	x	U052	95-48-7
Creosote		1	x	U051	8001-58-9
Crimidine	100/10,000				535-89-7
Crotonaldehyde,(E)-	1000	100		U053	123-73-9
Crotonaldehyde	1000	100		U053	4170-30-3
Cumene hyroperoxide			x		80-15-9
Cupferron			x		135-20-6
Cupric acetate		100			142-71-2
Cupric chloride		10			7447-39-4
Cupric nitrate		100			3251-23-8
Cupric oxalate		100			5893-66-3
Cupric sulfate		10			7758-98-7

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Cupric sulfate ammoniated		100			10380-29-7
Cupric tartrate		100			815-82-7
Cyanides (soluble cyanide salts		10		P030	57-12-5
Cyanogen		100		P031	460-19-5
Cyanogen bromide	500/10,000	1000		U246	506-68-3
Cyanogen iodide	1000/10,000				506-78-5
Cyanophos		1000			2636-26-2
Cyanuric fluoride		100			675-14-9
Cyclohexanone		5000		U057	108-94-1
Cycloheximide	100/10,000				66-81-9
Cyclohexylamine	10,000				108-91-8
Cyclophosphamide		10		U058	50-18-0
D-Glucopyranose,2-deoxy-2-(3-methyl-3-ni-trosoureido)-		1		U206	18883-66-4
Daunomycin		10		U059	20830-81-3
DDD		1		U060	72-54-8
DDE		1			72-55-9
DDT		1		U061	50-29-3
Decaborane(14)	500/10,000				17702-41-9
Decabromodiphenyl oxide			x		1163-19-5
Delta-BHC		1			319-86-8
Demeton	500				8065-48-3
Demeton-S-methyl	500				919-86-8
Di-(2-ethylhexyl)phthlate (DEHP)			x		177-81-7
Di-n-octyl phthalate		5000	x	U107	117-84-0
Di-n-propylnitrosamine(N-Nitrosodi-n-propylamine)		10	x	U111	621-64-7
Dialifor	100/10,000				10311-84-9
Diallate		100	x	U062	2303-16-4
Diaminotoluene (mixed isomers)		10	x	U221	25376-45-8

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Diaminotoluene(mixed isomers)		10			496-72-0
Diazinon		1			333-41-5
Diazomethane			x		334-88-3
Dibenz(a)lpyrene		10		U064	189-55-9
Dibenz[a,h] anthracene		1		U063	53-70-3
Dibenzofuran			x		132-64-9
Diborane		100			19287-45-7
Dibromotetrafluor- ethane (Halon 2402			x		124-73-2
Dibutyl phthalate		10	x	U069	84-74-2
Dicamba		1000			1918-00-9
Dichlone		1			117-80-6
Dichloro-1,1,2-trifluoroethane			x		90454-18-5
Dichlorobenzene (mixed isomers)		100	x		25321-22-6
Dichlorobromomethane		5000	x		75-27-4
Dichlorodifluoromethane(CFC-12)		5000	x	U075	75-71-8
Dichloroethyl ether	10,000	10	x	U025	111-44-4
Dichloromethyl ether	100	10	x	P016	542-88-1
Dichloromethyl- phenylsilane	1000				149-74-6
Dichloropropane		1000			26638-19-7
Dichloropropane-		100			8003-19-8
Dichloropropene		100			26952-23-8
Dichlorotetrafluoro-ethane (CFC-114)			x		76-14-2
Dichlorotrifluoroethane			x		34077-87-7
Dichlorvos	1000	10	x		62-73-7
Dicholobenil		100			1194-65-6
Dicofol			x		115-32-2
Dicrotophos		100			141-66-2
Dieldrin		1		P037	60-57-1
Diepoxybutane	500	10	x	U085	1464-53-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Diethanolamine			x		111-42-2
Diethyl chlorophosphate		500			814-49-3
Diethyl-p-nitrophenylphosphate		100		P041	311-45-5
Diethyl sulfate			x		64-67-5
Diethylamine		100			109-89-7
Diethylcarbamazine citrate	100/10,000				1642-54-2
Diethylstilbestrol		1		U089	56-53-1
Digitoxin	100/10,000				71-63-6
Diglycidyl ether	1000				2238-07-5
Digoxin	10/10,000				20830-75-5
Dihydrosafrole			x		94-58-6
Diisopropylfluorophosphate	100	100		P043	55-91-4
Dimefox	500				115-26-4
Dimethoate	500/10,000	10		P044	60-51-5
Dimethyl-p-phenyl-enediamine	10/10,000				99-98-9
Dimethyl phosphoro- chloridothioate	500				2524-03-0
Dimethyl phthalate		5000	x	U102	131-11-3
Dimethyl sulfate	500	100	x	U103	77-78-1
Dimethylamine		1000		U092	124-40-3
Dimethyldichlorosilane	500				75-78-5
Dimethylhydrazine	1000	10	x	U098	57-14-7
Dimetilan	500/10,000				644-64-4
Dinitrobenzene (mixed)		100			25154-54-5
Dinitrophenol		10			25550-58-7
Dinitrotoulene	10/10,000	10	x	P047	534-52-1
Dinitrotoluene (mixed isomers)		10	x		25321-14-6
Dinoseb	100/10,000	1000		P020	88-85-7
Dinoterb	500/10,000				1420-07-1
Dioxathion	500				78-34-2

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Diphacinone	10/10,000				82-66-6
Diphosphoramide, octamethyl-	100	100		P085	152-16-9
Dipropylamine		5000		U110	142-84-7
Diquat		1000			85-00-7
Diquat		1000			2764-72-9
Disulfoton	500	1		P039	298-04-4
Dithiazinine iodide	500/10,000				514-73-8
Dithiobiuret	100/10,000	100		P049	541-53-7
Diuron		100			330-54-1
Dodecylbenzenesulfonic acid		1000			27176-87-0
Emetine,dihyrochloride	1/10,000				316-42-7
Endosulfan	10/10,000	1		P050	115-29-7
Endosulfan sulfate		1			1031-07-8
Endothall		1000		P088	145-73-3
Endothion	500/10,000				2778-04-3
Endrin	500/10,000	1		P051	72-20-8
Endrin aldehyde		1			7421-93-4
Epichlorohydrin	1000	100	x	U041	106-89-8
EPN	100/10,000				2104-64-5
Ergocalciferol	1000/10,000				50-14-6
Ergotamine tartrate	500/10,000				379-79-3
Ethanamine,N-ethyl-N-nitroso-		1	x	U174	55-18-5
Ethane,1,1'-oxybis-		100		U117	60-29-7
Ethane,1,2-dibromo-		1	x	U067	106-93-4
Ethane,1,1,2-trichloro		100	x	U227	79-00-5
Ethane,1,1,1,2-tetrachloro-		100		U208	630-20-6
Ethane,1,1,2,2-tetrachloro-		100	x	U209	79-34-5
Ethane, hexachloro		100	x	U131	67-72-1
Ethanesulfonyl chloride, 2-chloro-	500				1622-32-8

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ethanethioamide		10	x	U218	62-55-5
Ethanol,1,2-dichloro-acetate	1000				10140-87-1
Ethanol,2,2'-(nitroso imino) bis-		1		U173	1116-54-7
Ethene, tetrachloro		100	x	U210	127-18-4
Ethene, chloro-		1	x	U043	75-01-4
Ethion	1000	10			563-12-2
Ethoprophos	1000				13194-48-4
Ethyl acrylate		1000	x	U113	140-88-5
Ethyl chloroformate			x		541-41-3
Ethyl methacrylate		1000		U118	97-63-2
Ethyl methanesulfonate		1		U119	62-50-0
Ethylbenzene		1000	x		100-41-4
Ethylbis(2-chloroethyl)amine	500				538-07-8
Ethylene			x		74-85-1
Ethylene glycol			x		107-21-1
Ethylene oxide	1000	10	x	U115	75-21-8
Ethylene thiourea		10	x	U116	96-45-7
Ethylenebisdithiocarbamic- acid, salts & esters		5000		U114	111-54-6
Ethylenediamine	10,000	5000			107-15-3
Ethylenediamine tetra-acetic acid (EDTA)		5000			60-00-4
Ethyleneimine	500	1	x	P054	151-56-4
Ethylenethiocyanate	10,000				542-90-5
Ethylidene dichloride			x		75-34-3
Famphur		1000		P097	52-85-7
Fenamiphos	10/10,000				22224-92-6
Fenitrothion	500				122-14-5
Fensulfothion	500				115-90-2
Ferric ammonium citrate		1000			1185-57-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ferric ammonium oxalate		1000			2944-67-4
Ferric ammonium oxalate		1000			55488-87-4
Ferric chloride		1000			7705-08-0
Ferric fluoride		100			7783-50-8
Ferric nitrate		1000			10421-48-4
Ferric sulfate		1000			10028-22-5
Ferrous ammonium sulfate		1000			10045-89-3
Ferrous chloride		100			7758-94-3
Ferrous sulfate		1000			7720-78-7
Ferrous sulfate		1000			7782-63-0
Florouracil	500/10,000				51-21-8
Fluenetil	100/10,000				4301-50-2
Fluometuron			x		2164-17-2
Fluorene		5000			86-73-7
Fluorine	500	10		P056	7782-41-4
Fluoroacetamide	100/10,000	100		P057	640-19-7
Fluoroacetic acid	10/10,000				144-49-0
Fluoroacetyl chloride	10				359-06-8
Fonofos	500				944-22-9
Formaldehyde	500	100	x	U122	50-00-0
Formaldehyde cyanohydrin	1000				107-16-4
Formetanate hydrochloride	500/10,000				23422-53-9
Formic acid		5000	x	U123	64-18-6
Formothion	100				2540-82-1
Formparanate	100/10,000				17702-57-7
Fosthietan	500				21548-32-3
Fuberidazole	100/10,000				3878-19-1
Fulminic acid, mercury(II) salt		10		P065	628-86-4
Fumaric acid		5000			110-17-8

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Furan	500	100		U124	110-00-9
Furan, tetrahydro-		1000		U213	109-99-9
Gallium trichloride	500/10,000				13450-90-3
Glycidylaldehyde		10		U126	765-33-4
Guanidine,N-nitroso-N methyl-N'-nitro		10		U163	70-25-7
Heptachlor		1	x	P059	76-44-8
Heptachlor epoxide		1			1024-57-3
Hexachloro-1,3-butadiene		1	x	U128	87-68-3
Hexachlorocyclopentadiene	100	10	x	U130	77-47-4
Hexachloronaphthalene			x		1335-87-1
Hexachlorophene		100	x	U132	70-30-4
Hexachloropropene		1000		U234	1888-71-7
Hexaethyl tetraphosphate		100		P062	757-58-4
Hexamethylenediamine, N,N'-dibutyl-		500			4835-11-4
Hexamethylphosphoramide			x		680-31-9
Hydrazine	1000	1	x	U133	302-01-2
Hydrazine sulfate			x		10034-93-2
Hydrochloric acid (Hydro-gen chloride (gas only))***	500	5000	x		7647-01-0
Hydrocyanic acid	100	10	x	P063	74-90-8
Hydrogen fluoride	100	100	x	U134	7664-39-3
Hydrogen perioxide (conc > 52%)	1000				7722-84-1
Hydrogen selenide	10				7783-07-5
Hydrogen sulfide	500	100	x	U135	7783-06-4
Hydroquinone	500/10,000	x			123-31-9
Indeno(1,2,3-cd)pyrene		100		U137	193-39-5
Iron, pentacarbonyl-	100				13463-40-06
iso-Amyl acetate		5000			123-92-2
iso-Butyl acetate		5000			110-19-0

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
iso-Butylamine		1000			78-81-9
iso-Butyric acid		5000			79-31-2
Isobenzan	100/10,000				297-78-9
Isobutyl alcohol		5000		U140	78-83-1
Isobutyraldehyde			x		78-84-2
Isobutyronitrile	1000				78-82-0
Isocyanic acid,3,4-dichlorophenyl ester	500/10,000				102-36-3
Isodrin	100/10,000	1		P060	465-73-6
Isophorone		5000			78-59-1
Isophorone diisocyanate	100				4098-71-9
Isoprene		100			78-79-5
Isopropanolamine dode-cyclbenzene sulfonate	1000				42504-46-1
Isopropyl alcohol (mfg- strong acid processes)			x		67-63-0
Isopropyl chloroformate	1000				108-23-6
Isopropylmethylpyrazolyl dimethylcarbamate	500				119-38-0
Kepone		1		U142	143-50-0
Lactonitrile	1000				78-97-7
Lasiocarpine		10		U143	303-34-4
Lead		10	x		7439-92-1
Lead arsenate		1			10102-48-4
Lead arsenate		1			7645-25-2
Lead arsenate		1			7784-40-9
Lead chloride		10			7758-95-4
Lead fluoborate		10			13814-96-5
Lead fluoride		10			7783-46-2
Lead iodide		10			10101-63-0
Lead nitrate		10			10099-74-8

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Lead phosphate		10		U145	7446-27-7
Lead stearate		10			1072-35-1
Lead stearate		10			52652-59-2
Lead stearate		10			7428-48-0
Lead stearate		10			56189-09-4
Lead subacetate		10		U146	1335-32-6
Lead sulfate		10			15739-80-7
Lead sulfate		10			7446-14-2
Lead sulfide		10			1314-87-0
Lead thiocyanate		10			592-87-0
Leptophos	500/10,000				21609-90-5
Lewisite	10				541-25-3
Lindane	1000/10,000	1	x	U129	58-89-9
Lithium chromate		10			14307-35-8
Lithium hydride	100				7580-67-8
m-Cresol		1000	x	U052	108-39-4
m-Nitrophenol		100			554-84-7
m-Nitrotoluene		1000			99-08-1
Malathion		100			121-75-5
Maleic acid		5000			110-16-7
Maleic, hydrazide		5000		U148	123-33-1
Malononitrile	500/10,000	1000	x	U149	109-77-3
Maneb			x		12427-38-2
Manganese			x		7439-96-5
Manganese, tricarbonyl methylcyclopentadienyl	100				12108-13-3
Mechlorethamine	10		x		51-75-2
Melphalan		1		U150	148-82-3
Mephosfolan	500				950-10-7

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Mercuric acetate	500/10,000				1600-27-7
Mercuric chloride	500/10,000				7487-94-7
Mercuric cyanide		1			592-04-1
Mercuric nitrate		10			10045-94-0
Mercuric oxide	500/10,000				21908-53-2
Mercuric sulfate		10			7783-35-9
Mercuric thiocyanate		10			592-85-8
Mercurous nitrate		10			7782-86-7
Mercurous nitrate		10			10415-75-5
Mercury		1	x	U151	7439-97-6
Methacrolein diacetate	1000				10476-95-6
Methacrylic anhydride	500				760-93-0
Methacryloyl chloride	100				920-46-7
Methacryloyloxyethyl isocyanate	100				30674-80-7
Methacrylonitrile	500	1000	x	U152	126-98-7
Methamidophos	100/10,000				10265-92-6
Methane, chloro		100	x	U045	74-87-3
Methane, dibromo-		1000	x	U068	74-95-3
Methane, dichloro-		1000	x	U080	75-09-2
Methane, iodide-		100	x	U138	74-88-4
Methane, trichlorofluoro- (CFC-11)		5000		U121	75-69-4
Methanesulfanyl chloride, trichloro	500	100		P118	594-42-3
Methanesulfonyl fluoride	1000				558-25-8
Methanol		5000	x	U154	67-56-1
Methapyrilene		5000		U155	91-80-5
Methidathion	500/10,000				950-37-8
Methiocarb	500/10,000	10			2032-65-7
Methomyl	500/10,000	100		P066	16752-77-5
Methoxychlor		1	x		72-43-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Methoxyethylmercuricacetate	500/10,000				151-38-2
Methyl 2-chloroacrylate		500			80-63-7
Methyl acrylate			x		96-33-3
Methyl bromide	1000	1000	x	U029	74-83-9
Methyl chlorocarbonate			x		79-22-1
Methyl chloroformate(Methylchlorocarbonate)	500	1000		U156	79-22-1
Methyl chloroform		1000	x	U226	71-55-6
Methyl hydrazine		10	x	P068	60-34-4
Methyl isobutyl ketone		5000	x	U161	108-10-1
Methyl isocyanate	500	10	x	P064	624-83-9
Methyl isothiocyanate	500				556-61-1
Methyl mercaptan	500	100	x	U153	74-93-1
Methyl methacrylate		1000	x	U162	80-62-6
Methyl phenkapton	500				3735-23-7
Methyl phosphonic dichloride	100				676-97-1
Methyl tert-butyl ether			x		1634-04-4
Methyl thiocyanate	10,000				556-64-9
Methyl vinyl ketone	10				78-94-4
Methylene-bis-(phenyliso-cyanate)(MBI)			x		101-68-8
Methylmercuric dicy-anamide	500/10,000				502-39-6
Methylthiouracil		10		U164	56-04-2
Methyltrichlorosilane	500				75-79-6
Metolcarb	100/10,000				1129-41-5
Mevinphos	500	10			7786-34-7
Mexacarbate	500/10,000	1000			315-18-4
Michler's ketone			x		90-94-8
Mitomycin C	500/10,000	10		U010	50-07-7
Molybdenum trioxide			x		1313-27-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Moncrotophos	10/10,000				6923-22-4
(Mono)chloropenta- fluoroethane (CFC 115)			x		76-15-3
Monoethylamine		100			75-04-7
Monomethylamine		100			74-89-5
Muscimol	500/10,000	1000		P007	2763-96-4
Mustard gas	500		x		505-60-2
n-Butyl alcohol			x		71-36-3
N,N'-Dimethylaniline			x		121-69-7
N,N'-Diethylhydrazine		10		U086	1615-80-1
N-Nitroso-N-ethylurea		1	x		759-73-9
N-Nitroso-N-methylurea		1	x		684-93-5
N-Nitrosodiphenylamine		100	x		86-30-6
N-Nitrosomethylvinylamine		10	x		4549-40-0
N-Nitrosomorpholine			x		59-89-2
N-Nitrosonornicotine			x		16543-55-8
N-Nitrosopiperidine		10	x	U179	100-75-4
N-Nitrosopyrrolidine		1		U180	930-55-2
Naled		10			300-76-5
Naphthalene		100	x	U165	91-20-3
Naphthenic acid		100			1338-24-5
Nickel		100	x		7440-02-0
Nickel ammonium sulfate		100			15699-18-0
Nickel carbonyl	1	10		P073	13463-39-3
Nickel chloride		100			37211-05-5
Nickel chloride		100			7718-54-9
Nickel cyanide		10		P074	557-19-7
Nickel hydroxide		10			12054-48-7
Nickel nitrate		100			14216-75-2

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Nickel sulfate		100			7786-81-4
Nicotine	100	100		P075	54-11-5
Nicotine sulfate	100/10,000				65-30-5
Nitric acid	1000	1000	x		7697-37-2
Nitric oxide	100	10		P076	10102-43-9
Nitrilotriacetic acid			x		139-13-9
Nitrobenzene	10,000	1000	x	U169	98-95-3
Nitrocyclohexane	500				1122-60-7
Nitrogen			x		1836-75-5
Nitrogen dioxide	100	10		P078	10102-44-0
Nitrogen dioxide		10		P078	10544-72-6
Nitroglycerine		10	x	P081	55-63-0
Nitrophenol (mixed)		100			25154-55-6
Nitrosodimethylamine	1000	10	x	P082	62-75-9
Nitrotoluene		1000			1321-12-6
Norbormide	100/10,000				991-42-4
O,O-Diethyl S-methyl dithiophosphate		5000		U087	3288-58-2
o-Anisidine hydrochloride			x		134-29-2
o-Anisidine			x		90-04-0
o-Dinitrobenzene		100	x		528-29-0
o-Nitrophenol		100	x		88-75-5
o-Nitrotoluene		1000			88-72-2
o-Toluidine		100	x	U328	95-53-4
Octachloronaphthalene			x		2234-13-1
Osmium tetroxide		1000	x	P087	20816-12-0
Ouabain	100/10,000				630-60-4
Oxamyl	100/10,000				23135-22-0
Oxetane,3,3- bis(chloromethyl)-	500				78-71-7
Oxydisulfoton	500				2497-07-6

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ozone	100				10028-15-6
p-Anisidine			x		104-94-9
p-Benzoquinone		10	x	U197	106-51-4
p-Cresidine			x		120-71-8
p-Cresol		1000	x	U052	106-44-5
p-Dinitrobenzene		100	x		100-25-4
p-Nitrophenol		100	x	U170	100-02-7
p-Nitrosodiphenylamine			x		156-10-5
p-Nitrotoluene		1000			99-99-0
p-Phenylenediamine			x		106-50-3
Paraformaldehyde		1000			30525-89-4
Paraldehyde		1000	x		123-63-7
Paraquat	10/10,000				1910-42-5
Paraquat methosulfate	10/10,000				2074-50-2
Parathion	100	10	x	P089	56-38-2
Parathion, methyl	100/10,000	100		P071	298-00-0
Paris green (Cupric acetoarsenite)	500/10,000	1			12002-03-8
Pentaborane	500				19624-22-7
Pentachloroethane		10	x	U184	76-01-7
Pentachlorophenol		10	x	U242	87-86-5
Pentadecylamine	100/10,000				2570-26-5
Peracetic acid	500		x		79-121-0
Phenanthrene		5000			85-01-8
Phenol	500/10,000	1000	x	U188	108-95-2
Phenol,2,2'-thio bis (4-chloro-6-methyl	100/10,000				4418-66-0
Phenol,2,3,4,6-tetrachloro		10		U212	58-90-2
Phenol,2,4,5-trichloro		10	x	U230	95-95-4
Phenol,2,4,6-trichloro		10	x	U231	88-06-2

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Phenol,3-(1-methylethyl), methylcarbamate	500/10,000				64-00-6
Phenoxarsine,10,10'-oxydi-	500/10,000				58-36-6
Phenyl dichloroarsine	500	1		P036	696-28-6
Phenylhydrazine hydrochloride	1000/10,000				59-88-1
Phenylmercury acetate	500/10,000	100		P092	62-38-4
Phenylsilatrane	100/10,000				2097-19-0
Phenylthiourea	100/10,000	100		P093	103-85-5
Phorate		10	10	P094	298-02-2
Phosacetim	100/10,000				4104-14-7
Phosfolan	100/10,000				947-02-4
Phosgene	10	10	x	P095	75-44-5
Phosmet	10/10,000				732-11-6
Phosphamidon	100				13171-21-6
Phosphine	500	100		P096	7803-51-2
Phosphonothioic acidmethyl-O-(4-nitrophenyl)O-phenyl ester	500				2665-30-7
Phosphonothioic acid, methyl-O-ethyl-O-(4-(methylthio)phenyk Ester	500				2703-13-1
Phosphonothioic acid, methyl-,s-(2-(bis(1-methylethyl)amino Ethyl o-Ethyl Ester	100				50782-69-9
Phosphoric acid		5000	x		7664-38-2
Phosphoric acid, dimethyl 4-(methylthio)phenyl ester	500				3254-63-5
Phosphorothioc acid, O,O-diethyl, O-pyrazinyl ester	500	100		P040	297-97-2
Phosphorothioic acid, O,O-dimethyl-S-(2-methylthio)ethyl est	500				2587-90-8
Phosphorus	100	1	x		7723-14-0
Phosphorus oxychloride	500	1000			10025-87-3
Phosphorus pentachloride	500				10026-13-8

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Phosphorus pentasulfide		100		U189	1314-80-3
Phosphorus pentoxide	10				1314-56-3
Phosphorus trichloride	1000	1000			7719-12-2
Physostigmine	100/10,000				57-47-6
Physostigmine, sali-cylate (1 1)	100/10,000				57-64-7
Picric acid			x		88-89-1
Picrotoxin	500/10,000				124-87-8
Piperidine	1000				110-89-4
Pirimifos-ethyl	1000				23505-41-1
Polychlorinated biphenyls		1	x		1336-36-3
Potassium arsenate		1			7784-41-0
Potassium arsenite	500/10,000	1			10124-50-2
Potassium bichromate		10			7778-50-9
Potassium chromate		10			7789-00-6
Potassium cyanide	100	10		P098	151-50-8
Potassium hydroxide		1000			1310-58-3
Potassium permanganate		100			7722-64-7
Potassium silver cyanide	500	1		P099	506-61-6
Promecarb	500/10,000				2631-37-0
Pronamide			x		23950-58-5
Propargite		10			2312-35-8
Propargyl alcohol		1000		P102	107-19-7
Propargyl bromide	10				106-96-7
Propiolactone,beta-	500		x		57-57-8
Propionaldehyde			x		123-38-6
Propionic acid		5000			79-09-4
Propionic acid,2-(2,4,5-trichlorophenoxy)-		100		U233	93-72-1
Propionic anhydride		5000			123-62-6

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ .40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Propiophenone,4'-amino-	100/10,000				70-69-9
Propenenitrile	500	10		P101	107-12-0
Propenenitrile,3-chloro-	1000	1000		P027	542-76-7
Propoxur			x		114-26-1
Propyl chloroformate	500				109-61-5
Propylene (Propene)			x		115-07-1
Propylene oxide	10,000	100	x		75-56-9
Propyleneimine	10,000	1	x	P067	75-55-8
Prothoate	100/10,000				2275-18-5
Pyrene	1000/10,000	5000			129-00-0
Pyrethrins		1			121-21-1
Pyrethrins		1			121-29-9
Pyrethrins		1			8003-34-7
Pyridine		1000	x	U196	110-86-1
Pyridine,2-methyl-5-vinyl-	500				140-76-1
Pyridine,4-amino-	500/10,000	1000		P008	504-24-5
Pyridine,4-nitro-1-oxide	500/10,000				1124-33-0
Pyriminil	100/10,000				53558-25-1
Quinoline		5000	x		91-22-5
Reserpine		5000		U200	50-55-5
Salcomine	500/10,000				14167-18-1
Sarin	10				107-44-8
sec-Amyl acetate		5000			626-38-0
sec-Butyl acetate		5000			105-46-4
sec-Butyl alcohol			x		78-92-2
sec-Butylamine		1000			13952-84-6
sec-Butylamine		1000			513-49-5
Selenium		100	x		7782-49-2
Selenium dioxide		10		U204	7446-08-4

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Selenium disulfide		10		U205	7448-56-4
Selenium oxychloride	500				7791-23-3
Selenious acid	1000/10,000	10		U204	7783-00-8
Selenouree		1000		P103	630-10-4
Semicarbazide hydrochloride	1000/10,000				563-41-7
Silane,(4-aminobutyl) diethoxymethyl-		1000			3037-72-7
Silver		1000	x		7440-22-4
Silver cyanide		1		P104	506-64-9
Silver nitrate		1			7761-88-8
Sodium		10			7440-23-5
Sodium arsenate	1000/10,000	1			7631-89-2
Sodium arsenite	500/10,000	1			7784-46-5
Sodium azide ($Na(N^3)$)	500	1000		P105	26628-22-8
Sodium bichromate		10			10588-01-9
Sodium bifluoride		100			1333-83-1
Sodium bisulfite		5000			7631-90-5
Sodium cacodylate	100/10,000				124-65-2
Sodium chromate		10			7775-11-3
Sodium cyanide (Na(CN))	100	10		P106	143-33-9
Sodium dodecylbenzene sulfonate		1000			25155-30-0
Sodium fluoride		1000			7681-49-4
Sodium fluoroacetate	10/10,000	10		P058	62-74-8
Sodium hydrosulfide		5000			16721-80-5
Sodium hydroxide		1000			1310-73-2
Sodium hypochlorite		100			10022-70-5
Sodium hypochlorite		100			7681-52-9
Sodium methylate		1000			124-41-4
Sodium nitrite		100			7632-00-0
Sodium phosphate,dibasic		5000			10039-32-4

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Sodium phosphate,dibasic		5000			10140-65-5
Sodium phosphate,dibasic		5000			7558-79-4
Sodium phosphate, tribasic		5000			10101-89-0
Sodium phosphate,tribasic		5000			10124-56-8
Sodium phosphate,tribasic		5000			10361-89-4
Sodium phosphate,tribasic		5000			7601-54-9
Sodium phosphate,tribasic		5000			7758-29-4
Sodium phosphate,tribasic		5000			7785-84-4
Sodium selenate	100/10,000				13410-01-0
Sodium selenite	100/10,000	100			10102-18-8
Sodium selenite		100			7782-82-3
Sodium tellurite	500/10,000				10102-20-2
Strannane,acetoxy-triphenyl-	500/10,000				900-95-8
Strontium chromate		10			7789-06-2
Strychnine	100/10,000	10		P108	57-24-9
Strychnine, sulfate	100/10,000				60-41-3
Styrene		1000	x		100-42-5
Styrene oxide			x		96-09-3
Sulfotep	500	100		P109	3689-24-5
Sulfoxide,3-chloropropyl octyl	500				3569-57-1
Sulfur dioxide	500				7446-09-5
Sulfur monochloride		1000			12771-08-3
Sulfur tetrafluoride	100				7783-60-0
Sulfur trioxide	100				7446-11-9
Sulfuric acid	1000	1000	x		7664-93-9
Sulfuric acid		1000			8014-95-7
Tabun	10				77-81-6
Tellurium	500/10,000				13494-80-9
Tellurium hexafluoride	100				7783-80-4

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Tetraethyldithiopyr phosphate	100	10		P111	107-49-3
Terbufos	100				13071-79-9
tert-Amyl acetate		5000			625-16-1
tert-Butyl acetate		5000			540-88-5
tert-Butyl alcohol			x		75-65-0
tert-Butylamine		1000			75-64-9
Tetrachlorvinphos			x		961-11-5
Tetraethyllead	100	10		P110	78-00-2
Tetraethyltin	100				597-64-8
Tetramethyl Lead	100				75-74-1
Tetranitromethane	500	10		P112	509-14-8
Thallic oxide		100		P113	1314-32-5
Thallium		1000	x		7440-28-0
Thallium(1) carbonate	100/10,000	100		U215	6533-73-9
Thallium (I)sulfate	100/10,000	100		P115	10031-59-1
Thallium(I)nitrate		100		U217	10102-45-1
Thallium(I)selenide		1000		P114	12039-52-0
Thallous chloride	100/10,000	100		U216	7791-73-9
Thallous malonate	100/10,000				2757-18-8
Thallous sulfate	100/10,000	100		P115	7446-18-6
Thiocarbazide	1000/10,000				2231-57-4
Thiofanox	100/10,000	100		P045	39196-18-4
Thiram		10	x	U244	137-26-8
Thiophenol	500	100		P014	108-98-5
Thiosemicarbazide	100/10,000	100		P116	79-19-6
Thiourea		10	x		62-56-6
Thiourea,(2-chlorophenyl)-	100/10,000	100		P026	5344-82-1
Thiourea, (2- methylphenyl)-	500/10,000				614-78-8
Thorium dioxide			x		1314-20-1

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Titanium dioxide			x		13463-67-7
Titanium tetrachloride	100		x		7550-45-0
Toluene2,4-diisocyanate	500	100	x		584-84-9
Toluene2,6-diisocyanate	100	100	x		91-08-7
Toxaphene(Campheclor)		1	x	P123	8001-35-2
Trans 1,1-dichlorobutene	500				110-57-6
Triamiphos	500/10,000				1031-47-6
Triaziquone			x		68-76-8
Triazofos	500				24017-47-8
Trichloroacetyl chloride	500				76-02-8
Trichloro(chloromethyl) silane	100				1558-25-4
Trichloro(dichlorophenyl) silane	500				27137-85-5
Trichloroethylene		100	x	U228	79-01-6
Trichloroethylsilane	500				115-21-9
Trichlorofon		100	x		52-68-6
Trichloronate	500				327-98-0
Trichlorophenol		10			25167-82-2
Trichlorophenylsilane	500				98-13-5
Triethanolamine dode-cylbenzene sulfonate		1000			27323-41-7
Triethoxysilane	500				998-30-1
Triethylamine		5000			121-44-8
Trifluralin			x		1582-09-8
Trimethylamine		100			75-50-3
Trimethylchlorosilane	1000				75-77-4
Trimethylolpropane phosphite	100/10,000				824-11-3
Trimethyltin chloride	500/10,000				1066-45-1
Triphenyltin chloride	500/10,000				639-58-7
Tris(2-chloroethyl) amine	100				555-77-1

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Trypan blue		10	x	U236	72-57-1
Uracil,5-[bis(2-chloroethyl)amino]-		10		U237	66-75-1
Uranyl acetate		100			541-09-3
Uranyl nitrate		100			10102-06-4
Uranyl nitrate		100			36478-76-9
Valinomycin	1000/10,000				2001-95-8
Vanadium(fume or dust)			x		7440-62-2
Vanadium pentoxide	100/10,000	1000		P120	1314-62-1
Vanadyl sulfate		1000			27774-13-6
Vinyl acetater	1000	5000	x		108-05-4
Vinyl bromide			x		593-60-2
Warfarin	500/10,000	100		P001	81-81-2
Warfarin sodium	100/10,000				129-06-6
Xylenol		1000			1300-71-6
Xylylene dichloride	100/10,000				28347-13-9
Zinc		1000	x		7440-66-6
Zinc acetate		1000			557-34-6
Zinc ammonium chloride		1000			52628-25-8
Zinc ammonium chloride		1000			14639-97-5
Zinc ammonium chloride		1000			14639-98-6
Zinc borate		1000			1332-07-6
Zinc bromide		1000			7699-45-8
Zinc carbonate		1000			3486-35-9
Zinc chloride		1000			7646-85-7
Zinc cyanide		10		P121	557-21-1
Zinc, dichloro(4,4-dimethyl-5(((methylamino) carbnyl)oxy)imino) Pentane-nitrile)-,(T-4)	100/10,000				58270-08-9
Zinc fluoride		1000			7783-49-5
Zinc formate		1000			557-41-5

Appendix 5-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Zinc hydrosulfite		1000			7779-86-4
Zinc nitrate		1000			7779-88-6
Zinc phenolsulfonate		5000			127-82-2
Zinc phosphide	500	100		P122	1314-84-7
Zinc silicofluoride		5000			16871-71-9
Zinc sulfate		1000			7733-02-0
Zineb			x		12122-67-7
Zirconium nitrate		5000			13746-89-9
Zirconium potassium fluoride		1000			16923-95-8
Zirconium sulfate		5000			14644-61-2
Zirconium tetrachloride		5000			10026-11-6

Phase 1

Section 6

Spill Control and Response

Phase 1
Section 6
Table of Contents

Spill Control and Response

A. Applicability 6-1
B. Federal Legislation 6-1
C. State/Local Regulations 6-1
D Key Compliance Requirements 6-2
E. Key Compliance Definitions 6-3
F. Records to Review 6-6
G. Physical Features to Inspect 6-6
H. Guidance for Checklist Users 6-7

Appendices

A6-1. Facility Response Plans A6-1

A. Applicability

This section applies to facilities that store oil in tanks or containers above or below the ground. Specifically, this section addresses oil spill response plans, facility response plans, and oil transfer activities.

Assessors are required to review agency, Federal, state and local regulations to perform a comprehensive assessment.

B. Federal Legislation

1. Water Pollution Control Act of 1972

This law was the primary Federal law governing the discharge of oil into navigable waters. The Federal Water Pollution Control Act (FWPCA) of 1972 was amended by the Clean Water Act (CWA) of 1977. Section 311 of the CWA describes a policy that no discharges of oil or hazardous substances into navigable waters should occur Regulations found in 40 CFR 110 and 112 establish requirements for oil spill reporting and preparation of oil spill plans for facilities exceeding the threshold quantities of stored oil. 40 CFR 110 prohibits the discharge of harmful quantities of oil into navigable waters. 40 CFR 110 also defines harmful quantities as those discharges that will cause a sheen or discoloration of the surface of the water or a sludge or emulsion to be deposited beneath the surface of the water

2. The Oil Pollution Act (OPA) of 1990

This law, Public Law (PL) 301-308; 33 U.S. Code (USC) 2701-2761, as amended, requires the prevention of oil pollution into navigable waters by tank vessels. Additionally, this act applies to the storage of flammable and combustible liquids.

C. State/Local Regulations

Many states (e.g., New Jersey, California) and some major metropolitan and regional planning agencies have developed legislation and implemented regulations that closely parallel the Federal regulations. Some, however, may differ in important ways, and the evaluator should obtain copies of the state or local requirements for the Oil and Hazardous Substances Pollution Contingency (OHSPC) and the Spill Prevention, Control, and Countermeasures (SPCC) plans, where appropriate, and review them for those differences before conducting the evaluations.

D. Key Compliance Requirements

1. The SPCC Plan

Facilities that store, transport, or dispense petroleum products are required to prepare an SPCC Plan, unless certain criteria are met. The SPCC Plan is required to contain general information about the facility, the name and title of the designated coordinator, and an inventory of all storage, handling, and transfer facilities. Each SPCC Plan must be reviewed at least once every three years, unless it is an exempted facility. The SPCC plan must be reviewed and/or amended when there is a material change in facility design, construction, operation, or maintenance that alters the potential for an oil spill. Each SPCC Plan and any amendments must be certified by a professional engineer, and the plan and each amendment must be prepared according to sound engineering practices. A copy of the SPCC Plan is required to be available at sites that are normally attended at least eight hours/day where there is a potential for a discharge. All facility personnel involved with the management and handling of oil must receive training (40 CFR 112.3, 112.5, and 112.7(e)(10)).

2. Facility Response Plan

Recent revisions to 40 CFR 112 require nontransportation related onshore facilities that, because of location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shoreline to prepare facility response plans for responding to a worst case discharge of oil and to a substantial threat of such discharge (40 CFR 112.20).

A facility could, because of its location, reasonably be expected to cause substantial harm if it meets any of the following criteria:

- The facility transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gallons.
- The facility's total oil storage capacity is greater than or equal to 1 million gallons, and one of the following is true:
  - the facility does not have secondary containment for each above-ground area sufficiently large to contain the capacity of the largest AST within each storage area plus sufficient freeboard to allow for precipitation;
  - the facility is located at a distance such that discharge from the facility could cause injury to fish and wildlife and sensitive environment;
  - the facility is located at a distance such that a discharge from the facility would shut down a public drinking water intake; and
  - the facility has had a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last five years.

3. Discharges/Spills

A discharge of oil into navigable waters of the United States, adjoining shorelines, or areas that may affect natural resources belonging to or under the exclusive management authority of the United States must be reported to the National Response Center (NRC). Facilities are not allowed to add dispersants or emulsifiers to oils that are discharged (40 CFR 110.2 through 110.10).

4. Discharge Prevention/Cleanup

Facilities are required to have appropriate containment and/or diversionary structures and cleanup equipment readily available to prevent discharged petroleum products from reaching navigable water courses (40 CFR 112.7(c)). According to legal counsel and private sector lawyers, the "shoulds" in 40 CFR 112 are "musts". This decision is based on the clause 40 CFR 112.7(e) requiring "conformance with the following applicable guidelines, other effective spill prevention and containment procedures (or, if more stringent), with state rules, regulations, or guidelines". According to the opinions we received, the word "or" implies required compliance with either the Federal guidelines or the state rules, whichever is more strict.

5. Piping Systems

Buried piping at facility transfer operations, pumping activities and in-plant processing is required to have a protective wrapping and/or coating and be cathodically protected if soil conditions warrant (40 CFR 112.7(e)(3)(i) and 112.7(e)(3)(iv)).

6. Loading and Unloading Racks

Onshore tank car and tank truck loading/unloading racks are required to have containment and a method of preventing vehicles from leaving before transfer lines have been disconnected Personnel at these sites are required to survey drains and outlets of vehicles prior to their departure to ensure that there is no leakage (40 CFR 112 7(e)(4)).

E. Key Compliance Definitions

1. Container

Any portable device in which materials are stored, transported, treated, disposed of, or otherwise handled (40 CFR 279.1).

2. Contiguous Zone

The entire zone established or to be established by the United States under article 24 of the Convention on the Territorial Sea and Contiguous Zone (40 CFR 110.1).

3. Continuous Discharge

A discharge occurring without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities (40 CFR 123.3).

4. Daily Discharge

The discharge of a pollutant measured during a calendar day or any 24 hour period that reasonably represents the calendar day for purposes of sampling (40 CFR 122.2).

5. Direct Discharge

The discharge of a pollutant (40 CFR 122.2).

6. Discharge

When used in relation to section 311 of the Act, includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping, but excludes (40 CFR 110.1):

- Discharges in compliance with a permit;
- Discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to an issued permit and subject to a condition in the permit; and
- Continuous or anticipated intermittent discharges from a point source, identified in a permit application, that are caused by events occurring within the scope of relevant operating or treatment systems.

7. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

8. Navigable Waters

The waters of the United States, including the territorial seas. Navigable waters do not include prior converted cropland. The terms includes (40 CFR 100 2):

- All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
- Interstate waters, including interstate wetlands;

- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters·

  -- That are or could be used by interstate or foreign travelers for recreational or other purposes;

  -- From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and

  -- That are used or could be used for industrial purposes by industries in interstate commerce.

- All impoundments of waters otherwise defined as navigable waters under this section;

- Tributaries of waters identified above, including adjacent wetlands; and

- Wetlands adjacent to waters identified above.

9. Offshore Facility

Any facility of any kind located in, on, or under any of the navigable waters of the United States, and any facility or any kind that is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel (40 CFR 110.2 and 33 CFR 153.103).

10. Oil

When used in relation to Section 311 of the Act, means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil (40 CFR 110.2 and 33 CFR 153.103).

11. Public Vessel

A vessel owned or bare boat chartered and operated by the United States, or by a state or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce (40 CFR 110.2 and 33 CFR 153.103).

12. Sheen

An iridescent appearance on the surface of the water (40 CFR 110.2).

13. Sludge

An aggregate of oil or oil and other matter of any kind in any form other than dredged spoil, having a combined specific gravity equivalent to or greater than water (40 CFR 110.2).

14. Spill Event

A discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in harmful quantities (40 CFR 112.3).

15. Spill Prevention, Control, and Countermeasure (SPCC) Plan

The SPCC plan is a carefully thought-out plan prepared in accordance with good engineering practices, which has the full approval of management at a level with authority to commit the necessary resources (40 CFR 112.3).

16. Vessel

Every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel (40 CFR 110.2).

17. Wetlands

Those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support (and that under normal circumstances do support) a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs, and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds (40 CFR 110.2).

F. Records to Review

- Records of all spills, leaks, and associated site assessment/cleanup activities (for three years)
- Official correspondence with state implementing agency
- SPCC Plan
- Facility response plan, if required by OPA
- Records of spill response training programs and employee training
- Tank inspection/integrity testing records.

G. Physical Features to Inspect

- Refueling facilities, including:
  - Above- and below-ground storage tanks and dikes
  - Venting
  - Fill pipes
  - Gauges
- Washrack areas
- Vehicle maintenance areas
- Oil separators
- Sites where oil is stored in containers other than tanks

- Fire training pits
- Grease racks
- Loading/unloading racks

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	S 1 through S 3	6-8
Spill Plans	S 4 S 5 through S 7 S.8 through S 10	6-9 6-10 6-11
Discharges/Spills	S.11 S 12	6-11 6-12
Storage Areas	S.13 through S.14 S-15	6-12 6-13
Transfer Terminals	S.16 through S.17	6-13
Loading and Unloading	S.18 S 19	6-13 6-14
Facility Response Plans	S 20	6-14

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
S 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, interagency agreements, or equivalent state enforcement actions If actions have not been taken, indicate what, if any, corrective action plan has been developed and timetable for completion
S 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities that are regulated but not addressed in this checklist Annotate the checklist to include new standards, and verify that the facility is in compliance with all applicable and newly issued regulations
S 3 Facilities are required to abide by state and local regulations concerning spill management (EO 12088, Sect 1-1)	Annotate the protocol to include state/local standards and verify that the facility is abiding with state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Spill management - Reporting and recordkeeping - Containment)

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
Spill Plans	
S 4 Facilities that store, transport, or dispense petroleum products are required to prepare a SPCC Plan (40 CFR 112 3)	Verify that the facility has a SPCC Plan (NOTE Facilities are exempt from the requirements outlined in 40 CFR 112 if - The facility, equipment, or operation is not subject to the jurisdiction of the EPA as follows -- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines -- equipment or operations of vessels or transportation related onshore and offshore sites that are subject to the authority of the DOT - Both of the following criteria are met -- the underground buried storage capacity of the facility is 42,000 gal (15,987 30 L) or less of oil -- the aggregate storage capacity which is not buried at the facility is 1,320 gal (4,996 74 L) of oil or less with no single container exceeding a capacity of 660 gal (2,498 37 L) (40 CFR 112 1(d)(2)) (NOTE This applies to onshore and offshore sites including onshore and offshore mobile or portable facilities, such as onshore drilling or workover rigs, barge-mounted offshore drilling or workover rigs, and portable fueling facilities)

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
S 5 The SPCC plan is required to contain specific information (40 CFR 112 7)	Determine if the SPCC plan includes the following key items - Senior management approval - Spill reporting procedures - Prespill planning for major potential spill areas - Spill containment and cleanup equipment/facilities - Oil spill contingency plan - Training procedures - Spill response exercises - Plan review and update procedures - Security measures - Inspection procedures - Tank integrity testing procedures Verify that the SPCC Plan contains. - General information about the facility including -- name -- type of function -- location of facility drainage patterns -- location maps - Name and title of designated spill coordinator - Inventory of all storage, handling, and transfer facilities that could produce significant spills, including. -- predictions of direction and rate of flow -- total quantities of oil that could be spilled as a result of major failure
S 6 Each SPCC plan must be reviewed at least once every 3 years (40 CFR 112 5(b))	Verify that the SPCC plan has been reviewed at least once every three years
S 7 The SPCC must be reviewed and/or amended under specific circumstances (40 CFR 112 4 and 112.5(a))	Verify that the plan was amended within six months if there was a material change in the facility design, construction, operations, or maintenance that alters the potential for an oil spill Verify that the plan was sent to the EPA for review if the facility: - Discharged oil of more than 1,000 gal (3,785 41 L) into navigable waters in a single spill event - Discharged oil in harmful quantities into navigable waters in two reportable spill events within any 12-month period

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
S 8 Each SPCC Plan and any amendments must be certified by a professional engineer and the plan and each amendment must be prepared according to sound engineering practices (40 CFR 112 3(d) and 112 5(c))	Verify that the SPCC Plan has been certified by a registered professional engineer
S 9 A copy of the SPCC plan is required to be available at sites that are normally attended at least 8 hours/day where there is a potential for a discharge (40 CFR 112 3(e))	Verify that a copy of the SPCC is available at sites that have personnel onsite at least eight hours a day (NOTE. If personnel are not onsite for eight hours/day, the plan may be kept at the nearest field office and the plan should be made available to the Regional Administrator.)
S 10 All facility personnel involved with the management and handling of oil must take part in periodic training in spill prevention and response (40 CFR 112 7(e)(10))	Verify that training has been conducted by reviewing training records and interviewing the staff Verify that spill training addresses the procedures to follow when a spill occurs, such as. - Emergency response - Notification - Containment - Safety practices - Remediation
Discharges/Spills	
S 11 Discharges of oil into or upon the navigable waters of the United States or adjoining shorelines or into or upon the waters of the contiguous zone or into areas that may affect natural resources belonging to, or under the exclusive management authority of the United States, must be reported (40 CFR 110 2 through 110 10)	Interview staff and review spill records to determine if the facility has had any discharges of oils (NOTE· Discharges of oil are defined as those that violate applicable water quality standards or cause a film or a sheen upon or discoloration of the surface of the water or adjoining shoreline or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shores) Verify that the NRC was notified as soon as possible after discovery of a discharge as defined in the above NOTE (NOTE If direct reporting to the NRC is not practicable, reports may be made to the Coast Guard or EPA pre-designated OSC) (NOTE Discharges of oil from a properly functioning vessel engine are not considered harmful, but discharges of oil from a vessel's bilge are not allowed)

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
S.12. Facilities are not allowed to add dispersants or emulsifiers to oils that are discharged (40 CFR 110.8)	Verify that facilities do not add dispersants or emulsifiers to discharges.
Storage Areas	
S.13 Appropriate containment and/or diversionary structures and cleanup equipment to prevent discharged petroleum products from reaching navigable water course are required to be readily available at the facility (40 CFR 112 7(c)).	(NOTE: Water is of special concern during fueling of vessels on the water and repair, maintenance, and replacement of powerhouse and water control structures) Determine that at onshore facilities one of the following prevention systems or an equivalent is used· - Absorbent material - Dikes, berms, or retaining walls sufficiently impervious to contain spilled oil - Curbing devices - Culverting gutters or other drainage systems - Weirs, booms, or other barriers - Spill diversion ponds - Retention ponds Verify that at offshore facilities (see definitions), one of the following or an equivalent is available. - Curbing - Drip pans - Sumps - Collection systems Determine the following for spill equipment in each oil storage area: - Adequacy of material types and quantity - Accessibility of storage locations - Condition of equipment
S.14. Drainage of rainwater from diked areas must be controlled by a valve that is closed when not in active use (40 CFR 112 7(e)(1) and 112 7(e)(2)(iii)). When plant drainage drains directly into water courses and not into wastewater treatment plants, retained stormwater should be inspected (40 CFR 112 7(e)(1)(ii)).	Verify that valves are closed when not in use by inspecting drainage valves at diked areas. Verify that drainage valves are attended that opened to drain the diked/bermed area by interviewing personnel Determine if operating personnel understand the meaning of a harmful discharge as described in 40 CFR 110.6 Inspect records for any drainage water which was inspected to determine if it would represent a harmful discharge

Compliance Category: Spill Control and Response	
Regulatory Requirements:	**Reviewer Checks:**
S.15 Drainage water that is determined to contain petroleum products in harmful quantities must be treated prior to discharge to meet applicable water quality standards (40 CFR 112.7(e)(2))	Determine if discharges containing harmful quantities of petroleum products were properly treated, recovered, or disposed and reported by interviewing onsite personnel.
Transfer Terminals	
S 16 Buried piping at a transfer facility, pumping station, or in-plant processing facility is required to have a protective wrapping and coating and is required to be cathodically protected if soil conditions warrant (40 CFR 112.7(e)(3)(i))	Determine whether soil conditions warrant cathodic protection Verify that buried fuel piping is properly protected from corrosion by examining records and interviewing personnel Verify that methods are appropriate and correctly applied if cathodic protection is used Verify that detected leaks and failures are being reported
S 17 All above- and below-ground fuel piping systems at transfer facilities, pumping stations, and in-plant processing facilities must be regularly examined and any suspected leaks investigated immediately (40 CFR 112.7(e)(3)(iv))	Verify that regular inspections have been conducted by examining records and interviewing personnel Verify that general condition of items, such as flange joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces have been assessed Verify that confirmed leaks have been reported and that leaking pipes are repaired or replaced through a review of records.
Loading and Unloading	
S.18 Onshore tank car and tank truck loading/unloading racks are required to meet specific structural standards (40 CFR 112 7(e)(4)(ii) and 40 CFR 112.7(e)(4)(iii))	Verify that where rack drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system is used Verify that any containment system is designed to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the site Verify that an interlocked warning light or physical barrier system, or warning signs are provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
S 19 Specific operational procedures are required to be performed at facility tank car and tank truck loading/unloading sites (40 CFR 112 7(e)(iv))	Verify that before filling and departure of any tank car or tank truck, the lower-most drain and all outlets of the vehicle are closely examined for leakage and, if necessary, tightened, adjusted, or replaced to prevent leakage while in transit
Facility Response Plans	
(NOTE The facility response plan requirements are effective 30 August 1994) (NOTE. See Appendix 6-1 for facility criteria in determining whether a facility response plan is required.)	
S 20 Certain facilities, because of their location and the potential to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, are required to prepare facility response plans. (40 CFR 112 20)	By reviewing the volume of oil stored on site and assessing the facility location with regard to the potential to cause substantial harm to the environment, determine if the facility is required to prepare a facility response plan (see Appendix 6-1) If a plan is required - Determine the date of preparation and verify that the plan has been submitted to the EPA Regional Administrator by the required deadline (NOTE The deadlines differ depending upon the date the facility commenced operation See 40 CFR 112 20 for dates by which facility response must be submitted.) - Review the plan against the model facility-specific response plan in 40 CFR 112 Appendix F for conformance with criteria and inclusion of appropriate information, including, but not limited to· -- emergency response action plan -- facility information -- information about emergency response -- hazard evaluation -- response planning levels -- discharge detection systems -- plan implementation -- self-inspection, drills/exercises, and response training -- diagrams -- security systems -- response plan cover sheet Through interviews, determine the frequency with which the facility reviews/plans to review its facility response plan and complete the following. - Review facility construction diagrams, files, and other capital project information and interview key personnel to determine if there have been any facility changes that materially affected the facility response to a worst case discharge If so, confirm that. -- the plan has been appropriately revised; and -- the revised portions of the plan were resubmitted to the EPA Regional Administrator within 60 days of each facility change. - Verify that the facility at least periodically reviews and updates the plan to reflect changes at the facility and submits these revised portions to the EPA Regional Administrator

Compliance Category: **Spill Control and Response**	
Regulatory Requirements:	**Reviewer Checks:**
S 20 Continued	Determine if a copy of the facility response plan has been provided to the local emergency planning committee or state emergency planning commission, if so requested Confirm that the facility response has been coordinated with the local emergency planning committee, regardless of whether the plan was submitted to them If the facility is required to prepare a facility response plan, review the training program it developed to implement the response plan and train facility personnel in response procedures By reviewing the program and interviewing the training manager and key response personnel, verify that the following is included in the training program (NOTE The training program is to be described in the facility response plan (40 CFR 112 20(h)(8))) - Training is functional in nature according to job tasks - Specific lesson plans on relevant subject areas have been developed and communicated to oil spill response and cleanup personnel - Response drills/exercises are included in the training program, as well as procedures to evaluate the effectiveness of the drills/exercises (Appendix E to 40 CFR 112 provides guidance for the determination and evaluation of required response resources for facility response plans) If the facility has determined that, because of its location, it could not reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters of adjoining shorelines, review the facility rationale and note your opinion Also confirm that the facility has completed and maintained at the facility the certification form (contained in 40 CFR 112 Appendix C) and any other supporting documentation If the facility does not meet the criteria for a facility response plan, by interviewing the facility manager and other key environmental response personnel and reviewing documentation, determine if the facility has received notice from EPA requiring the facility to prepare such response plans If so, review the facility documentation to verify that it prepared a facility response plan and submitted it to EPA within six months of EPA's request

Section 6

Spill Control and Response

Appendix

Appendix 6-1
Facility Response Plans

Facilities required to prepare and submit facility response plans:

The following facilities, because of their location and the potential to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, are required to prepare facility response plans (40 CFR 112.20(f)(1))

- The facility transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gallons, or

- The facility's total oil storage capacity is greater than or equal to 1 million gallons, and one or more of the following is true.

  - The facility does not have secondary containment for each above-ground storage area sufficiently large to contain the capacity of the largest above-ground storage tank within each storage area plus sufficient freeboard to allow for precipitation,

  - The facility is located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments,

  - The facility is located at a distance such that a discharge from the facility would shut down operations at a public drinking water intake; or

  - The facility has had a reportable spill greater than or equal to 10,000 gallons within the last five years.

To determine whether a facility could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, the EPA Regional Administrator will consider the following factors (40 CFR 112.20(f)(2)).

- Type of transfer operation,
- Oil storage capacity;
- Lack of secondary containment,
- Proximity to fish and wildlife and sensitive environments and other areas determined by the EPA Regional Administrator to possess ecological value;
- Proximity to drinking water intakes;
- Spill history, and
- Other site-specific characteristics and environmental factors that the EPA Regional Administrator determines to be relevant to protecting the environment from harm by discharges of oil into or on navigable waters or adjoining shorelines

To determine whether a facility could, because of its location, reasonably be expected to cause significant and substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, the EPA Regional Administrator may also consider the following factors (40 CFR 112 20(f)(3))

- Frequency of past spills;
- Proximity to navigable waters;
- Age of oil storage tanks; and
- Other facility-specific and region-specific information, including local impacts on public health.

Phase 1

Section 7

Management of Environmental Impacts

Phase 1
Section 7
Table of Contents

Management of Environmental Impacts

A. Applicability 7-1
B Federal Legislation 7-1
C State/Local Regulations 7-11
D Key Compliance Requirement 7-11
E. Key Compliance Definitions 7-21
F. Records to Review 7-25
G Physical Features to Inspect 7-26
H Guidance for Checklist Users 7-27

Appendices

A7-1 Noxious Weeds A7-2
A7-2 Management of Environmental Impacts Facility Tour Checklist A7-8

A. Applicability

This section, which applies to all Federal facilities and Federal actions, integrates the requirements of diverse laws and regulations pertaining to the assessment, documentation, management, avoidance, minimization, monitoring, and mitigation of environmental impacts resulting from the actions and policies of Federal agencies and the construction and operations of Federal facilities. The collective intent of these laws and regulations is the protection of human health and the environment, including the protection and management of natural resources such as the physical media (air, soil, water) and biological components of ecosystems; protected habitats (e.g., wetlands); endangered and threatened species; agricultural resources; and commercial and recreational fisheries This section integrates the environmental impact assessment and prevention elements of Federal requirements that normally will apply to any facility potentially affecting human health and/or the natural and built environment.

The primary focus of this section is on policy formulation and facility construction impacts of Federal agencies, as regulated by laws such as the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and Section 404 of the Clean Water Act (CWA). More specific regulatory requirements for the prevention, management, and monitoring of facility operational impacts to physical environmental media (e.g., air, soil, and water), which supplement the environmental management provisions of NEPA, ESA, CWA and other laws, are addressed in greater detail elsewhere in other checklists. Management of agency/facility impacts to cultural and historic resources, such as archaeological, paleontological, and historic sites and materials, which must be evaluated concurrently with impacts to ecological resources, is addressed separately.

To perform a comprehensive assessment, assessors also are required to review agency, Federal, state, and local regulations pertaining to the management of facility impacts to natural resources.

B. Federal Legislation

1. The National Environmental Policy Act (NEPA)

The purpose of this Act (42 US Code (USC) 4321-4370c), as last amended in November 1990, is to declare and implement a national policy to prevent or eliminate damage to the environment and biosphere and to stimulate the health and welfare of humans (42 USC 4321). Its underlying intent is to encourage productive and enjoyable harmony between humans and their environment. Under NEPA, the continuing policy of the Federal government is to use all practicable planning, policy, and regulatory means and measures in a manner calculated to foster and promote the general welfare; to create and maintain conditions under which humans and nature can exist in productive harmony; and to fulfill the social, economic, and other needs of present and future generations of Americans (42 USC 4331(a)). Under NEPA and related laws, it is the continuing responsibility of the Federal government to manage, monitor,

and preserve the important historic, cultural, and natural aspects of our national heritage (42 USC 4331(b)(4))

2. Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality

This EO, issued on 5 March 1970 and amended by EO 11991 (which was issued on 24 May 1977), is a Presidential order which implements NEPA. Under this EO, the Federal government must provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life. Federal agencies must direct their policies, plans, and programs so as to meet national environmental goals.

3. The Endangered Species Act (ESA) of 1973

The purpose of this Act (16 USC 1531-1547 et al., last amended in October 1988) is to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved; to provide a program for the conservation of such endangered species and threatened species; and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions for protection of endangered species (16 USC 1531(b)). Under ESA, the policy of Congress is that all Federal departments and agencies must seek to conserve endangered species and threatened species and must use their authorities in furtherance of the purposes of this Act. In addition, Federal agencies must cooperate with state and local agencies to resolve water resource issues in concert with conservation of endangered species (16 USC 1531(c)).

4. The Fish and Wildlife Coordination Act of 1946

This Act, last amended in July 1965 (16 USC 666(c)), is the Federal legislation that coordinates programs and activities regarding the conservation and rehabilitation of fish and wildlife in the United States. A key element linking this statute to assessments of environmental impacts conducted under NEPA is the requirement for interagency consultations by the lead NEPA review agency, with appropriate Federal agencies responsible for the protection and management of fish and wildlife resources throughout the NEPA review process.

For example, whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or otherwise controlled or modified for any purpose, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first must consult with the US Fish and Wildlife Service, Department of the Interior (DOI), and with the head of the agency exercising administration over the wildlife resources of the particular state where the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water resource development (16 USC 662(a)).

5. The Fish and Wildlife Conservation Act of 1980

This Act (Public Law 96-366; 16 USC 2901 *et seq.*) promotes state programs for the purpose of conserving, restoring, or otherwise benefiting nongame fish and wildlife, their habitats, and their uses.

6. The Migratory Bird Treaty Act of 1918

This Act, last amended in December 1989 (16 USC 703-711), is a Federal law that enforces international conventions for the protection of migratory birds and game animals to which the United States is a party. Unless permitted by regulations, it is unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, offer to purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird; any part, nest, or egg of any such bird; or any product, whether or not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest, or egg thereof, included in the terms of the conventions for the protection and conservation of migratory birds and game mammals between the United States and the USSR, the United States and Mexico, and the United States and Japan (16 USC 703). It is also unlawful to ship, transport, or carry, by any means whatever, from one state, territory, or district to or through another state, territory, or district, or to or through a foreign country, any bird, or any part, nest, or egg thereof, captured, killed, taken, shipped, transported, or carried at any time contrary to the laws of the state, territory, or district in which it was captured, killed, or taken, or from which it was shipped, transported, or carried (16 USC 705).

7. Section 10 of the Rivers and Harbors Act of 1899 (RHA)

Section 10 of this Act (33 USC 403) requires issuance of a permit by the Corps of Engineers for maintenance dredging in navigable waters of the United States Permit applications under Section 10 are typically made jointly with Section 404 permit applications under CWA for discharge of dredge and fill material into "waters of the United States."

8. Sections 404 and 401 of the Clean Water Act (CWA)

Section 404 of this Act (33 USC 1344) requires that all discharges of dredge and fill material into "waters of the United States," including vegetated wetlands, must meet the requirements of EPA's 404(b)(1) guidelines (40 CFR 230). All dredge and fill projects permitted individually or jointly under Section 10 (RHA) and Section 404 (CWA) also must obtain a Section 401 water quality certification from the state (33 USC 1341), unless specifically exempted by Congress under Section 404(r) of CWA

9. Highly Erodible Land and Wetland Conservation

These United States Department of Agriculture (USDA) regulations (7 CFR 12), administered by the USDA Agricultural Stabilization and Conservation Service (ASCS), set forth the "terms and conditions under which a person who produces an agricultural commodity on highly erodible land or designates such land for conservation use, plants an agricultural

commodity on a converted wetland, or converts a wetland shall be determined to be ineligible for certain benefits provided by the United States Department of Agriculture and agencies and instruments of the Department" (7 CFR 12.1(a)). The environmental impact mitigation purposes of these economic disincentives for unsound agricultural practices are to reduce soil erosion, reduce sedimentation and improve water quality, and promote wetland conservation.

10. Executive Order 11988, Floodplain Management

This EO, dated 24 May 1977 and amended by EO 12148, on 20 July 1979, implements NEPA, the National Flood Insurance Act of 1968, and the Flood Disaster Protection Act of 1973. Each agency must provide leadership and take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare; and restore and preserve the natural and beneficial values served by floodplains. Each agency must evaluate the potential effects of any actions it may take in a floodplain; ensure that its planning programs and budget requests reflect consideration of flood hazards and floodplain management; and prescribe procedures to implement the policies and requirements of this Order. Each agency must take floodplain management into account when formulating or evaluating any water and land use plans and must require land and water resources use appropriate to the degree of hazard involved. Agencies must include adequate provision for the evaluation and consideration of flood hazards in the regulations and operating procedures for the license, permits, loan, or grants-in-aid programs that they administer (Section 2(c)).

11. Executive Order 11990, the Protection of Wetlands

This EO, dated 24 May 1977 and amended by EO 12608 (dated 9 September 1987), requires all Federal agencies to issue procedures for ensuring that wetlands protection issues are considered in all decision-making activities. Existing procedures such as those established to implement NEPA must be modified to include wetlands protection and management. Under this EO, each Federal agency must provide leadership and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Each agency, to the extent permitted by law, must avoid undertaking or providing assistance for new construction located in wetlands, unless the head of the agency finds that:

- There is no practical alternative to such construction, and

- The proposed action includes all practical measures to minimize harm to wetlands that may result from such use. In making this finding the head of the agency may take into account economic, environmental, and other pertinent factors (Section 2(a)).

Each agency must also provide opportunity for early public review of any plans or proposals for new construction in wetlands (Section 2(b)).

12. The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)

This Convention was created on 2 February 1971, in Ramsar, amended by the Paris Protocol of 12 March 1982, and entered into force for the United States on 18 December 1986. Each country must promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands and providing adequately for their wardening (Article 4, para. 1) The signatory nations (Contracting Parties) must promote the training of personnel competent in the fields of wetland research, management, and wardening (Article 4, para. 4). Contracting Parties agreed:

- Wetlands constitute a resource of great economic, cultural, scientific, and recreational value, the loss of which would be irreparable,

- The progressive encroachment on and loss of wetlands now and in the future should be stemmed;

- Waterfowl in their seasonal migration should be regarded as an international resource, and

- Conservation of wetlands and their flora and fauna can be ensured by combining far-sighted national policies with coordinated international action

13. Sikes Act of 1960

This Act (16 USC 670a-670o, last amended in November 1989) authorizes the Secretary of Defense to carry out a program of planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations in accordance with a cooperative plan mutually agreed upon by the Secretary of Defense, the Secretary of the Interior (SOI), and the appropriate state agency designated by the state in which the reservation is located (16 USC 670a(a)). This Act also requires the Secretary of each military department to:

- Manage the natural resources of each military reservation within the United States that is under his/her jurisdiction so as to:

  -- provide sustained multipurpose uses of those resources; and

  -- provide the public access that is necessary or appropriate for those uses, to the extent that those uses and that access are not inconsistent with the military mission of the reservation (16 USC 670a-1(a)).

- Ensure, to the extent feasible, that the services necessary for the development, implementation, and enforcement of fish and wildlife management on each military reservation within the United States under his/her jurisdiction are provided by DOD personnel who have professional training in those services (16 USC 670a-1(b)).

14. Public Law (PL) 86-337

This Law (10 USC 2671) requires that all hunting, fishing, and trapping on DoD facilities be in accordance with the fish and game laws of the state in which the facilities are located and that appropriate state licenses for these activities on the DoD facility be obtained. PL 86-717 requires that projects be developed and maintained to encourage, promote, and assure adequate and dependable future resources, including supplies of forest products. The forest lands will be administered to increase the value of project lands for recreation and wildlife and to promote ecological conditions by following accepted conservation practices.

15. The Coastal Zone Management Act (CZMA) of 1972

This Act, lasted amended in November 1990 (16 USC 1451-1464), is the state-administered, Federal legislation that governs the preservation and onshore and offshore management of coastal zones in the nation. The national policy for these coastal zones is to:

- Preserve, protect, develop, and where possible, restore or enhance, the resources of the nation's coastal zones for this and succeeding generations;

- Encourage and assist states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and aesthetic values, as well as the needs for compatible economic development,

- Encourage the preparation of special area management plans that provide for increased specificity in protecting significant natural resources; reasonable coastal-dependent economic growth; improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, storm events, or fluctuating water levels of the Great Lakes; and improved predictability in governmental decision making;

- Encourage the participation and cooperation of the public, state and local governments; interstate and other regional agencies; and Federal agencies having programs affecting the coastal zones, in carrying out the purposes of this Act;

- Encourage coordination and cooperation with and among the appropriate Federal, state, and local agencies and international organizations, where appropriate, in collection, analysis, synthesis, and dissemination of coastal management information; research results; and technical assistance to support state and Federal regulation of land-use practices affecting the coastal land ocean resources of the United States; and

- Respond to changing circumstances affecting the coastal environment and coastal resource management by encouraging states to consider such issues as ocean uses potentially affecting coastal zones (16 USC 145).

16. The Marine Mammal Protection Act (MMPA)

This Act (PL 95-522; 16 USC 1361) prohibits the illegal taking of marine mammals, regardless of whether or not they are protected under the Endangered Species Act. Although the taking issue may not be directly applicable to normal Federal facility activities, the environmental monitoring plans of coastal facilities should ensure that facility effects on marine mammals are monitored and mitigated to the fullest extent practicable.

17. Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA)

This Act (PL 92-532, 33 USC 1401 and 1431) implements the provisions of international conventions on ocean dumping and marine pollution to which the United States is a signatory. Title I of the MPRSA prohibits ocean dumping of solid, hazardous, medical, and radioactive wastes without a permit. Title III of the MPRSA provides for the establishment of national marine sanctuaries that are afforded special protection and management programs.

18. Wild and Scenic Rivers Act of 1986

This Act (16 USC 1271-1287, last amended in May 1991) outlines the policy of the United States that certain selected rivers of the nation which, because of their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, must be preserved in free-flowing condition, further, they and their immediate environments must be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and fulfill other vital national conservation purposes (16 USC 1271). The purpose of this Act is to implement the declared policy of Congress by instituting a national wild and scenic rivers system, designing the initial components of that system, and prescribing the methods by which and standards to which additional components may be added to the system from time to time (16 USC 1272).

19. Farmland Protection Policy Act of 1981

The purpose of this Act (7 USC 4201-4209, last amended in December 1991) is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with state, unit, and private programs and policies to protect farmland (7 USC 4201(b))

20. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980

As amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 USC 9601-11050, 10 USC 2701-2810 *et. seq.*), CERCLA/SARA regulates the prevention, control, characterization of, and compensation for impacts and risks to human health and the environment, including damages to natural resources, caused by environmental contamination

resulting from releases of oil, chemicals, and other hazardous materials. Where applicable, the site-specific CERCLA/SARA requirements of Federal agencies and facilities may include:

- The comprehensive characterization of the on-site/off-site nature, extent, and fate/migration of contamination in physical and/or biological media (Remedial Investigation (RI));

- Assessments of the contamination exposure risks to human populations (Human Health Risk Assessment (HHRA)) and ecological receptors (Ecological Risk Assessment (ERA));

- Natural Resource Damage Assessment (NRDA) and notification of Federal and state natural resource trustees regarding damages to trustee resources (e.g., habitats and species);

- The evaluation of other human health and/or environmental consequences of contaminant releases;

- A Feasibility Study (FS) of alternative strategies and methods for site cleanup and restoration; and

- The design (Remedial Design (RD)) and implementation (Remedial Action (RA)) of site-specific remediation plans.

21. Criteria for Classification of Solid Waste Disposal Facilities and Practices

40 CFR 257 regulates the disposal of sludge by application to land used for production of food chain crops. It also sets forth criteria for waste disposal by soil injection and prohibits solid waste disposal facilities or practices from adversely affecting floodplains and endangered species.

22. Oil Pollution Prevention Act

Regulations promulgated under this Act (40 CFR 112) require that surface water receptors be protected from facility releases of oils by implementation of Spill Prevention Control and Countermeasures (SPCC) plans that address each potential source.

23. The Pollution Prevention Act of 1990

This Act (PL 101-508, as amended by PL 102-389) encourages examination of waste more broadly with a view toward reducing pollution. All pollutants are to be minimized and waste creation is to be controlled not just during the production process, but also in the design of products that will have less impact on the environment during use and after disposal.

24. EO 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for ensuring that the agencies, facilities, programs, and

activities the agency funds meet applicable Federal, state, and local environmental requirements for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

25. EO 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements

This EO, dated 3 August 1993, details the requirements to be met to ensure that Federal agencies conduct their facility management and acquisition activities so that, to the maximum extent practicable, the quantity of toxic chemicals entering any waste stream is reduced as expeditiously as possible. The EO required each Federal agency to submit a pollution prevention strategy to the EPA Administrator by 3 August 1994 Among the specific requirements of this EO are a 50 percent reduction of total releases of pollutants and off-site transfers of toxic chemicals per agency by 1999 and the formulation of facility-specific pollution prevention plans.

26. Radiation Protection of the Public and the Environment

Department of Energy (DOE) regulations 10 CFR 834 codify the environmental surveillance requirements of DOE facilities for physical media and biota, including endangered species and terrestrial/aquatic foodstuffs. These DOE regulations provide valuable guidance for other Federal agencies/facilities that lack comparable regulations and are recommended as Best Management Practices (BMPs) for the monitoring and assessment of impacts from facility-derived radionuclides (and chemical contaminants).

27. The Noise Control Act of 1972

This Act, PL 92-574 (42 USC 4901-4918), as amended:

- Establishes a means for effective coordination of Federal research and activities in noise control,
- Authorizes the establishment of Federal noise emission standards for products distributed in commerce; and
- Provides information to the public regarding the noise emission and noise reduction characteristics of such products.

Four categories of noise-generating products are covered:

- Construction equipment,
- Transportation equipment (including recreational vehicles and related equipment);
- Any motor or engine (including any equipment of which an engine or motor is an integral part); and

- Electrical or electronic equipment.

The following are not covered by the Act (42 USC 4902(3)):

- Any aircraft, aircraft engine, propeller, or appliance;
- Any military weapons or equipment designed for combat use;
- Any rockets or equipment designed for research or experimental or developmental work to be performed by the National Aeronautics and Space Administration (NASA); and
- Any other machinery or equipment designed for use in experimental work done by or for the Federal government.

28. Aviation Safety and Noise Abatement Act of 1979

This Act (PL 96-193; 49 USC Appendix 2103, 2104), as amended, complements the Noise Control Act by regulating airport noise. Any airport operator may submit to the Secretary of Transportation a noise exposure map. Such map shall set forth the noncompatible uses in each area of the map, a description of the projected aircraft operations at such airport, and the ways in which such operations will affect receptor populations and thus require revisions of the map (49 USC 2103) Any airport operator who has submitted a noise exposure map and related information may submit to the Secretary of Transportation a noise compatibility program. This program shall include measures that the operator has taken or proposes for the reduction of existing noncompatible uses and the prevention of the introduction of noncompatible uses within the area covered by the noise exposure map submitted (49 USC Appendix 2104).

29. Executive Order 11987, Exotic Organisms

This EO requires executive agencies to restrict the introduction of exotic species into natural ecosystems which they own or lease and encourage the states to prevent such introductions.

30. Executive Order 11989, Use of Off-Road Vehicles (ORVs) on the Public Lands

This EO specifies that ORVs may not be used without special use and location designation.

31. The Federal Noxious Weed Act of 1970

This Act, last amended in September 1988 (7 USC 2803 and 2809), states that no person is permitted to move any noxious weed identified in a regulation into or through the United States or interstate, unless such movement is:

- From Canada, or authorized under general or specific permit from the Secretary of Agriculture; and

- Made in accordance with such conditions as the Secretary may prescribe in a permit and in regulations to prevent the dissemination into the United States, or interstate, of such noxious weed (42 USC 2803).

A listing of aquatic, parasitic, and terrestrial plant species that are federally designated as noxious weeds (7 CFR 360.200) appears in Appendix 7-1.

32. Draft United Nations Convention on Biodiversity

This draft treaty, presented in June 1992 at the United Nations Conference on the Environment and Development in Rio de Janeiro, Brazil, promotes the conservation of biological diversity, restoration of damaged ecosystems, recovery of threatened and endangered species, and sustainable use of biological resources. The United States is a signatory to the Convention

C. State/Local Regulations

Many states have laws and regulations comparable to Federal laws such as NEPA, ESA, and Section 404 of the CWA, which are equally or more stringent than these Federal laws Under such state laws, additional or overlapping requirements may pertain to actions of Federal agencies and facilities potentially affecting ecological resources such as physical media, wetlands, protected species and their habitats, and other categories of flora and fauna. Such examples of state requirements include, but are not limited to·

- Lists of protected plant and animal species, considered rare, threatened, or endangered at the state level, even if they are not listed as federally protected species under ESA,

- Regulations and Management Practices (MPs) for the protection of surface waters, coastal zones, wetlands, and the prevention of nonpoint source pollution; and

- Regulations governing hunting and fishing activities.

D. Key Compliance Requirements

1. Agricultural Resources

Other than the Farmland Protection Policy Act of 1981 (7 CFR 658), which minimizes the extent to which Federal programs may contribute to the unnecessary conversion of farmland to nonagricultural use, agricultural resources are afforded minimal direct protection under Federal, state, and local regulations.

Solid waste disposal regulations (40 CFR 257) provide some protection for agricultural resources, however, because agricultural and livestock production lands are protected from

contaminants that could potentially come from the sewage wastes that are used as fertilizer and soil conditioners.

Federal environmental reviews conducted under NEPA also may offer some protection for agricultural resources, if the impacts of a new Federal facility or agency action on local agriculture are specified as impact issues to be addressed during the public scoping sessions for a NEPA review. Agency-specific policies and regulations also may offer some protection, such as those of DOE that mandate the routine environmental surveillance of agricultural soils and foodstuffs, to detect DOE facility-derived chemical contaminants and radionuclides within a 16 km radius of DOE facilities.

State-level environmental review requirements, similar to those of NEPA, also may address facility impacts to agricultural resources and/or promote the preservation of agricultural land.

2. Aquatic Biota

Federal and state laws protect aquatic biota, both directly for trustee resources such as anadromous fish, commercial shellfish, endangered species, and marine mammals, and/or indirectly by protecting aquatic or wetland habitats and regulating facility impacts to the chemical and radiological quality of the sediments and surface waters found within these habitats. Reporting requirements for spills of oil and hazardous materials into surface waters, for example, include notification of trustees of many of these aquatic biological resources.

Prevention and minimization of impacts to aquatic biota from effluent discharges, including storm water, is accomplished primarily through the National Pollutant Discharge Elimination System (NPDES) permits program under the CWA (40 CFR 122). To be effective, NPDES permits must set facility/site-specific effluent standards, that reflect the capacity of the receiving water body to assimilate and dilute the contaminant levels of the effluent to nontoxic concentrations. To preclude or minimize adverse effects on aquatic biota, NPDES permits should be conditioned to prevent exceedances of surface water quality standards within the surface waters receiving the effluent. To achieve this, the effluent limits should be based on the ambient water quality criteria developed by EPA (1976, 1986, 1987, and 1992). Ambient Water Quality Criteria (AWQC), developed for fresh and marine surface waters by EPA under Section 304(a)(1) of the CWA, are periodically updated and are based on acute and chronic toxicity data for aquatic biota. Because they are designed to protect entire communities of aquatic flora and fauna, these AWQC are the most useful regulatory standards for the protection of fresh water and marine organisms within the context of the Clean Water Act.

The National Oceanic and Atmospheric Administration (NOAA) also has published sediment guidelines that can be applied to marine and freshwater ecosystems to assess ecological risks to benthic invertebrate biota from exposures to sediment contamination. As indicated above for agricultural foodstuffs, other agency-specific regulations, such as those of DOE, may also require monitoring of the levels of facility-derived chemicals and radionuclides

in the surface water, sediments, and biota of aquatic ecosystems that are potentially affected by facility operations.

3. Coastal Zone Resource Management

The Coastal Zone Management Act of 1972 (CZMA, 16 USC 1451-1464) establishes national policy pertaining to the coordinated Federal, state, and local management of natural resources of the coastal zones of the United States, including surface waters, wetlands, floodplains, fish and wildlife, and their habitats. Federal agency policies and facility development activities in the coastal zone, boundaries of which are defined in each state's CZMA Plan, must be consistent with state-administered Coastal Zone Management Plans established pursuant to CZMA. Each facility within the coastal zone must obtain a Certificate of Consistency with the state's CZMA Plan.

Ecological resources found within the coastal zone also may be protected under other Federal and/or state laws, such as those pertaining to wetlands (CWA), floodplains, commercial fish and shellfish resources, migratory birds (MBTA), and marine mammals (MMPA). Estuarine and open ocean ecosystems also may be protected from dumping of solid, hazardous, medical, and radioactive wastes (without a permit), as marine sanctuaries, under the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA; P.L. 92-532, 33 USC 1401 and 1431). Provisions of the CWA and CERCLA also afford protection to certain "trustee resources" of the coastal zone, such as anadromous fish, commercial fish and shellfish, migratory birds, marine mammals, and wetlands, from spills or releases of oil and hazardous materials.

4. Dredge and Fill Permits

Dredge and fill activities conducted within both navigable and nonnavigable "waters of the United States" are regulated by the United States Army Corps of Engineers (COE) pursuant to:

- Section 10 of the Rivers and Harbors Act of 1899 (RHA; 33 USC 403), and
- Section 404 of the Clean Water Act (CWA; 33 USC 1344).

Application under both statutes is made jointly to the COE for the discharge of dredge spoil/water and/or fill into "waters of the United States," which include all surface water bodies and vegetated wetlands such as swamps and marshes. As part of the Sections 10/404 review process, the COE must determine if the project will comply with EPA's 404(b)(1) guidelines (40 CFR 230) that were established as a guide to evaluating discharges of dredged or fill material into the waters of the United States. As part of the Sections 10/404 public interest review process (33 CFR 320.4(a)), the COE also must consider project-specific and cumulative impacts to aesthetics; economics; land use; recreation; shore erosion; water quality; and wetland, fish, and wildlife resources.

As part of the interagency review process mandated by the National Environmental Policy Act (NEPA; see 40 CFR 6.302) and the Fish and Wildlife Coordination Act (16 USC 661-

667e; see 33 CFR 230.25), the COE must obtain application review commentary from the U.S. Environmental Protection Agency (EPA), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS), before deciding whether an Environmental Impact Statement (EIS) is required under NEPA, and before issuing a Section 404 permit.

In compliance with Section 401 of the Clean Water Act (33 CFR 325.2(b)(1)), and as a requirement of the Section 404 permitting process, a Water Quality Certification (WQC) also must be obtained for the project from the state In some states, the COE may hold joint public hearings on Sections 10/404, Section 401, and related permit applications under other state laws (e.g., wetland protection laws). To obtain the Section 401 WQC from the state, the proposed project must be shown to comply with the state's surface water quality criteria, which must be at least as stringent as EPA's ambient water quality criteria (AWQC) for the protection of aquatic life.

Section 404(c) empowers EPA to veto Section 404 permits issued by the COE.

5. Ecological Risk Assessment (ERA)

An ERA is the assessment of qualitative and/or quantitative risks posed to communities, populations, or individual species of ecological receptors (flora and fauna) from the exposure to chemicals or radionuclides in the physical and biological media of their environment. ERAs are often required as part of or concurrently with remedial investigations at CERCLA and/or RCRA sites and may form the basis for natural resource damage assessments and the development of ecological risk-based site cleanup decisions, goals, and remedial actions. An ERA may be based on direct exposures (e g., contact, ingestion, inhalation) or indirect exposures (e g., food chain contamination) to environmental contaminants.

6. Endangered and Threatened Species

Pursuant to both NEPA (40 CFR 6.108 and 6.302) and the Endangered Species Act (16 USC 1531 et seq.; 33 CFR 230.25), Federal agencies and facilities must consider their potential impacts to Federal and state-listed endangered/threatened plant or animal species, and their habitats. Such evaluations, which may include a Baseline Assessment of Endangered Species (BATES), are best conducted during NEPA reviews prior to deciding if an EIS is required and/or issuing Federal permits (e.g., Sections 10/404 dredge and fill permits). Although many states have Natural Heritage Programs or other programs to maintain lists of both Federal- and state-listed endangered/threatened species, not all of these also have endangered species laws.

Facilities with Federal- and/or state-listed endangered and threatened species are required to implement habitat protection and management programs designed to ensure their conservation. A baseline survey is required to determine if the facility has any such species and to inventory such populations as a basis for devising protection and management measures needed to maintain them. Such surveys are typically required within the context of NEPA or comparable state-level environmental reviews, and/or as part of the permitting process for

agency/facility actions or policies affecting wetlands and/or associated surface waters, under Section 404 of the CWA and similar state laws/regulations.

Protected species management programs should be developed in consultation with appropriate Federal and state agencies, and annual consultations with these agencies should be used to report on the species status and to obtain updates on possible on-site occurrences of previously unreported protected species. All facilities must review proposed actions and activities to ensure that they are not likely to jeopardize the continued existence of a federally-listed species or to destroy or adversely modify its critical habitat (40 CFR 1500; 50 CFR 402.01(a), 402.10, 402.12).

7. Environmental Assessment and Monitoring

NEPA is the primary law mandating the assessment of environmental impacts, in concert with other laws designed to protect the quality of physical media (air, soil, ground and surface water), such as the Clean Air Act, Clean Water Act, and Safe Drinking Water Act Federal agency/facility commitments made in NEPA documents, moreover, may include long-term monitoring and assessment of a facility's environmental impacts. Facility-specific permit requirements governing air and water emissions and waste disposal activities also are likely to include environmental monitoring requirements and perhaps ecological effects measurements that must be conducted during the initial construction and/or long-term operation of the facility.

The assessor should, therefore, evaluate the adequacy and accuracy of facility-specific NEPA documents as a basis for long-term monitoring and assessment of facility operational impacts and then coordinate a compliance review of specific monitoring requirements for physical media with the appropriate assessors charged with evaluating medium-specific permit compliance.

This collaboration is critical, because it will provide the impact assessment specialists with necessary data on the types, locations, and concentrations of contaminants released by the facility to assess the facility's impacts on the physical and biological components of local ecosystems.

8. Environmental Noise

NEPA requirements for impact assessment and mitigation include noise effects on humans and the environment. Other Federal laws regulating the management and mitigation of noise impacts are the Noise Control Act of 1972 (NCA) and the Aviation Safety and Noise Abatement Act of 1979 (ASANAA). Noise effects on wildlife and, in particular, on animal species protected under the ESA, MBTA, and MMPA, also are critical elements of any NEPA review or document.

9. Floodplain Management

This includes proactive land use planning to avoid or minimize human activities within and/or alterations of natural floodplains along rivers and other water bodies where the

statistical frequency of flooding (e.g., 10-year and 100-year floodplains) is sufficiently high as to pose significant risk to human life and property. Floodplain management and regulation is mandated by EO 11988 and may also be required by state laws protecting floodplain habitats associated with wetland and surface water resources.

10. Ground Water Protection

Facility operations must be conducted to prevent or minimize, assess, monitor, and mitigate adverse impacts to ground water resources, whether or not the affected aquifers are used as a drinking water source for human consumption. Applicable Federal ground water protection regulations and quality standards are set forth under CERCLA, the CWA, the Safe Drinking Water Act (SDWA), and RCRA. These assessment, monitoring, and ground water protection requirements are addressed in greater detail in other checklists. Many states also have ground water and drinking water standards, and soil standards that are designed to protect ground water resources.

11. Human Health Risk Assessment (HHRA)

HHRA is the assessment, usually quantitative, of incremental, noncancer and cancer risks posed to human receptors from the exposure to chemicals and/or radionuclides occurring in the physical and/or biological media (e.g., food) of their environment. As with ERAs, HHRAs are typically required as part of or concurrently with remedial investigations at CERCLA and/or RCRA sites, they often form the basis for health risk-based remedial planning decisions, media-specific site cleanup standards, and remedial action plans. HHRAs generally integrate a combination of direct (e.g., contact, ingestion, inhalation) and indirect (e.g., contaminated foods) exposures to site-derived environmental contaminants.

12. Natural Resources Damage Assessment (NRDA)

NRDAs may be required to assess the impacts on natural resources resulting from operations and contaminant releases at hazardous waste facilities/sites (CERCLA) or from environmental releases of oil and other hazardous materials into waters of the United States (CWA). CERCLA regulations also require that lead Federal agencies reporting releases and/or performing NRDAs coordinate with other state and Federal Natural Resource Trustees when a facility release or discharge may injure natural resources. These assessment, monitoring, and reporting requirements for releases of oil and hazardous materials are addressed in greater detail in other checklists.

13. NEPA Reviews and Documentation

Prior to undertaking any action having a potentially significant environmental impact, the Federal agency proposing such action must conduct an environmental review, pursuant to the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR 1500-1508) and its agency-specific, NEPA implementing regulations, which were promulgated as required in these CEQ NEPA regulations. The level and extent of NEPA review required is determined on a case-by-case basis, and the documentation requirements will vary as a function of the nature, complexity, scale, and environmental consequences of the action, as indicated below.

- *Environmental Assessment (EA)* - At a minimum, every NEPA review requires preparation of an EA before any contract for action is entered into or action is begun The purpose of an EA is to support a decision regarding the need for a more comprehensive Environmental Impact Statement (EIS) If the lead agency determines that the expected environmental impacts are not sufficient to warrant preparation of an EIS, it will issue a Finding Of No Significant Impact (FONSI) and thus terminate the NEPA review process

- *Finding of No Significant Impact (FONSI)* - When a FONSI is issued on the basis of an EA, the FONSI must meet certain requirements, such as the name of the action, a brief description of the action, a discussion of environmental effects, the conclusions that have led to the FONSI, the date of approval, and the appropriate signature (40 CFR 1502.4, 1502.10 through 1502 13, 1503.4(i), 1508.9, and 1508.13).

- *Environmental Impact Statement (EIS)* - An agency or facility must produce an EIS if, at any time during preparation of the EA, it becomes apparent that a proposed action is likely to significantly degrade environmental quality, pose a threat to public health or safety, and/or result in adverse cultural, socioeconomic, physical, biogeochemical, and/or ecological impacts. The scope and content of the EIS must be determined on the basis of Federal interagency consultations and inputs from state agencies and other concerned private and public entities, as part of a public scoping process

Both the EA and EIS must include an evaluation of project (e.g., project siting or design) or policy alternatives; an assessment of adverse and beneficial impacts; identification of strategies and measures to avoid, minimize, or mitigate adverse impacts; and documentation of any residual, adverse impacts that cannot be fully mitigated

14. No Net Loss Policy for Wetlands

The Federal "no net loss policy" for wetlands, as set forth in a Memorandum of Agreement between the EPA and the COE, effective 31 January 1990, states that destruction of wetlands should be avoided wherever possible, especially in cases where less damaging alternatives to destructive projects/actions are available (40 CFR 230.10(a)). This policy incorporates guidance from the CEQ, which defines avoidance of impacts as the top priority for mitigation, with minimization of impacts as a secondary option, and mitigation of wetland impacts/losses as a third, last resort option for those cases in which no less damaging alternatives exist and wetland impacts prove unavoidable. The policy requires that the COE "strive to avoid adverse impacts...to existing aquatic resources, and for wetlands, will strive to achieve a goal of no overall net loss of values and functions."

15. Pollution Control and Prevention

Pollution control and prevention requirements for air, soil, surface water, and ground water should be addressed cooperatively with the assessors of these physical media, only as needed to assess a facility's impacts resulting from human and ecological exposures to these media. One example is adverse effects on the aquatic biota of receiving waters resulting from exceedances of facility-specific effluent discharge permit limitations (NPDES) that cause local

exceedances of Ambient Water Quality Criteria (AWQC) established by the EPA for the protection of aquatic life

16. Pollution Prevention Plan

A pollution prevention plan is a facility-specific plan for the control, prevention, and reduction of pollution releases and off-site transfers of toxic chemicals, as required of all Federal agencies by EO 12088, EO 12856, the Pollution Prevention Act, and related Federal laws/regulations. EO 12856, for example, requires all Federal agencies to submit a pollution strategy to the EPA Administrator by 3 August 1994, and to develop facility-specific pollution prevention plans by 1995.

17. Remedial Investigation (RI)

Where applicable, Federal facilities may be required to conduct an RI and related studies of potentially contaminated sites. Examples include a Department of Defense Installation Restoration Program and/or compliance with CERCLA/SARA and/or RCRA regulations.

18. Soil and Sediment Quality

Federal remediation guidelines for soil and/or sediment contamination are mostly associated with CERCLA/SARA and RCRA regulations and may vary among sites based on the results of RI/FS studies and site-specific risks posed to human and ecological receptors. Petroleum and other chemical contamination of soils and sediments are of particular importance in areas of releases from hazardous material transport vehicles. Guidelines set by EPA or state regulators and site-specific Applicable or Relevant and Appropriate Regulations (ARARS) developed during CERCLA remedial activities may be useful to consider while auditing sites with soil contamination.

Guidelines on permissible radioactivity levels in solid materials and liquid waste streams disposed of or discharged to soil or sediment are addressed in some agency-specific policies and regulations, in particular those of DOE (e.g., 10 CFR 834). In addition, standards used for remedial action on residual radioactive material from inactive uranium processing sites (40 CFR 192) could be applied to any sites where such material is present in soil or sediments above background levels.

a. Soils. Common sources of soil contamination at facilities are:

- Chemical and radiological effluent discharges
- Use, disposal, storage, and management of hazardous and radiological materials and/or waste
- Spills/discharges during the handling, transport, or use of hazardous and radiological materials and/or wastes

In addition, gaseous and particulate contaminants in air, such as sulfurous and nitrous oxides and radioactive particle emissions from stacks of production facilities, may settle on soil surfaces far from their source. Local soil contamination can also result from landfills containing municipal solid waste, which invariably contains discarded pesticides, cleaning agents, and chemicals.

Toxic Substances Control Act (TSCA) regulations for PCBs denote the level of cleanup required after a PCB spill incident (40 CFR 761.125). Guidelines available from RCRA include restrictions on disposal of solid or sewage wastes on or below agricultural lands. Although there are no federally mandated criteria to define an acceptable level of Total Petroleum Hydrocarbon (TPH) in soils, several states have or are developing risk-based and/or ground water protective soil standards for TPH, related petrochemicals, pesticides, metals, and other chemicals

b. Sediments. Because sediments may originate as soil, any contaminant, especially on the surface, can be washed into water bodies where it may settle out of suspension Consequently, regulations and guidelines applicable to soils could also serve for sediments and vice versa. To a lesser extent, contaminated plants and animals, including aquatic organisms, could also contribute to sediment contamination as a result of biomass decomposition and organic particulate deposition.

Chemical and radiological contamination of sediments may have adverse environmental effects, for some of the following reasons:

- Contaminated sediments may be in equilibrium with pore water and thus could contaminate aquatic life, particularly benthic invertebrates and their predators, such as fish;

- Dredging of sediments in wetlands and surface waters can generate large volumes of excavated sediments which, because of possible unacceptable levels of contaminants, may pose problems in handling and disposal; and

- Contaminated sediments can be disturbed, resuspended, and/or redeposited on land surfaces by boating, shipping, flood events, dredging, and underwater construction.

Bottom sediments of water bodies generate the potential for continued environmental degradation, even when water-column contaminant levels comply with established water quality criteria, because the sediments can first act as a sink for contaminants and then as a source during resuspension

Although there are no federally mandated sediment quality criteria that define acceptable levels of chemical sediment contamination, potential ecological impacts can be assessed using sediment ecotoxicological guidelines published by NOAA (Long and Morgan, 1990, 1991) These bioassay-based sediment guidelines can be applied to assess potential impacts and risks

to benthic invertebrate biota of marine and freshwater ecosystems from exposures to specific sediment contaminants.

19. Surface Water Protection

Facility operations must be conducted to prevent or minimize, assess, monitor, and mitigate adverse impacts to surface water resources, whether or not the affected water bodies are used as a drinking water source for human consumption. Applicable Federal surface water protection regulations are set forth by the EPA under Section 304(a)(1) of the CWA, as Ambient Water Quality Criteria (AWQC) designed both for the protection of aquatic life and as standards for the human consumption of surface water and/or fish. These surface water assessment, monitoring, and protection requirements are addressed in greater detail in the Water Pollution Control checklist. Many states also have surface water standards, that must be approved by the EPA and must be as stringent or more stringent than EPA's AWQC.

20. Vegetation Management

Vegetation management refers to efforts to establish and maintain beneficial vegetative cover types and communities and to control and/or eliminate noxious weeds that have the ability to disrupt and degrade native plant and animal communities, cause economic damages to property and agricultural crops, and/or cause health problems to humans and/or agricultural animals (livestock). Federal and state regulations governing the use of herbicides, the destruction and transport of noxious weeds, and the alteration of vegetated wetlands and other protected habitats, collectively, must be considered in the development of facility-specific vegetation management plans.

21. Water Quality Certification

See Dredge and Fill Permits (Sections 401 and 404 of the CWA) and Surface Water Protection (Section 304(a)(1) of the CWA).

22. Wetlands Protection

Protection of "waters of the United States," including vegetated wetlands, is federally mandated under Section 404 of the CWA, EO 11990, Protection of Wetlands, and the Federal "no net loss policy" for wetlands as set forth in a Memorandum of Agreement between the EPA and the Corps of Engineers (effective as of 31 January 1990).

23. Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 (30 CFR 297) prohibits the use of Federal funds for activities that would have an adverse effect on those characteristics that caused a river to be classified as wild, scenic, or recreational. Protection of officially designated wild and scenic rivers from construction and/or operation of Federal facilities is also provided by various other laws that protect the physical media, upland (bank) habitats, wetlands, floodplains, vegetation, and resident and migratory fauna that are associated with the riverine and riparian ecosystems of these wild and scenic river corridors.

Protection of the aesthetic, cultural, and historical values of these federally listed rivers is also addressed in the Cultural and Historic Resources checklist.

24. Wildlife Protection and Management

Resident, migratory, terrestrial, and wetlands wildlife individuals and populations (aquatic biota are addressed separately) may be affected by the construction and/or operation of Federal facilities, either:

- Directly, through direct impacts (e.g., suffocation from earth moving activities), loss of habitat, displacement, and/or exposure to site-derived contaminants; and/or

- Indirectly, as a result of the loss or contamination of their food resources caused by the exposure of these plant or animal food species to site-derived radionuclides and/or chemical contaminants.

Except for legally protected Federal and state trustee resources such as endangered species (ESA), marine mammals (MMPA), and migratory birds (MBTA), little direct Federal or state protection is afforded to aquatic, wetland, and terrestrial wildlife. Thus NEPA provides the primary tool for the regulation of impacts to wildlife species that are not legally protected, in and of themselves, under Federal or state statutes. NEPA reviews and documentation, including interagency consultations mandated by the Fish and Wildlife Coordination Act are the primary means of protecting wildlife populations and their habitats.

Other Federal laws mandating the characterization and remediation of site contamination (e.g., CERCLA/SARA and RCRA), however, can also mandate assessments of impacts/risks to wildlife species in the form of an ecological risk assessment (ERA), which, in turn, may be used to set site remediation goals and chemical-specific cleanup standards for soil, sediment, and surface water. Wildlife management is also promoted by Federal laws such as the Sikes Act, which allows Federal facilities to charge fees for hunting and fishing permits. These funds then must be used for on-site fish and wildlife conservation programs.

E. Key Compliance Definitions

1. Action

All activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to (50 CFR 402.02):

- Actions intended to conserve listed species or their habitat;

- The promulgation of regulations;

- The granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid, and

- Actions directly or indirectly causing modifications to the air, landscape, soil, sediment, ground water, surface water, and/or the biota (including humans) and ecosystems affected by impacts to the quality of physical environmental media.

2. Action Area

All areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

3. Anadromous Fish

Species of finfish that spend much of their adult life or nonreproductive seasons thereof in the marine environment but migrate inland to freshwater habitats during their respective spawning seasons, where eggs are released/fertilized, embryos develop, and juvenile fish spend up to several years maturing before migrating downstream to marine waters. Protection and management of anadromous fish species (e.g., salmon, shad) are the responsibilities of Federal agencies such as the United States Fish and Wildlife Service (DOI USFWS) and the National Oceanic and Atmospheric Administration (NOAA). States may also have laws and regulations designed to protect, manage, and regulate the sport and commercial harvesting of such fish populations.

4. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe or environmentally sound operating procedures.

5. Candidate Species

Any plant or animal species being considered by the Secretary of Interior (SOI) for Federal listing as a rare, threatened, or endangered species under the ESA (50 CFR 404.02). This term may also apply to candidates for state-listing under comparable state laws.

6. CERCLIS

The acronym for EPA's CERCLA information system, a comprehensive database and management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program (40 CFR 300.5).

7. Compensatory Wetland Replication

A wetland impact mitigation method increasingly used at the Federal and state levels to compensate for unavoidable losses of wetland habitats, wherein a new wetland as similar in hydrology, soils, and vegetation to that lost is created, preferably within the same hydrologic reach as the lost wetland. It should be noted, however, that this is a last resort when avoidance of impacts is not possible, since wetland creation has proven effective and successful, in most cases, only where relatively simple, herbaceous wetland plant communities such as wet meadows, marshes, and shrub swamps are being created.

8. Critical Habitat

Specific areas within the geographic area commonly occupied by a species that contain features essential to the survival, reproductive success, and effective conservation of the species and that may require special management considerations or protection. Specific areas outside the currently occupied range of a rare, threatened, or endangered species may be determined by the SOI as areas essential for the conservation of the species (50 CFR 424.02). This term also may apply to critical habitat for state-listed species under comparable state laws.

9. Decibel (dB)

A quantitative measure for sound. The zero on the decibel scale is based on the lowest sound level that a healthy, unimpaired human ear can hear. Decibels are not linear but are representative points on a sharply rising (exponential) curve

10. dBA

A scale for measuring sound levels in decibels, using the A-weighting network of a sound level meter.

11. dBC

A scale for measuring sound levels in decibels, using the C-weighting network of a sound level meter

12. Destruction or Adverse Modification

A direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical (50 CFR 402.02).

13. Endangered Species

Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range (other than noxious weeds or a species of the Class Insecta determined to constitute a pest). Federally listed endangered species are officially designated by the DOI (50 CFR 81.1). This term also may apply to state-listed species under comparable state laws.

14. Environmental Remediation

The active cleanup of environmental contamination in physical media, followed by restoration of the damaged landscape, including its physical and/or biological components. Remediation is planned/implemented on the basis of a comprehensive Remedial Investigation (RI) and Feasibility Study (FS), conducted as under the requirements of CERCLA and/or RCRA.

15. Feasibility Study (FS)

A study undertaken by the lead agency, on the basis of data gathered during an RI and related studies (e.g., ERA and HHRA), to develop and evaluate options for remedial action at a contaminated site (40 CFR 300.5).

16. Finding of No Significant Impact (FONSI)

A NEPA document issued by the Federal agency leading a NEPA review that is based on the results of an EA and that briefly presents the reasons why an action, not otherwise excluded from an EIS under NEPA, does not require preparation of an EIS (40 CFR 1508.13).

17. Jeopardize the Continued Existence of

To engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02).

18. No Net Loss of Wetlands

The Federal goal and policy of preventing any net loss of wetland acreage, functions, or values in the United States, in part, by avoiding or minimizing wetland impacts to the maximum extent possible and choosing to mitigate wetland losses through compensatory replication or creation of wetlands, as a last resort only when wetland impacts or losses are unavoidable.

19. Notice of Intent (NOI)

A published notice from a Federal agency leading a NEPA review that an EIS will be prepared. It must be published in the *Federal Register* and should contain (40 CFR 1508.22):

- A description of the proposed action and possible alternatives;
- The proposed public EIS scoping process and schedule; and
- The name and address of the person who can give more information.

20. Preliminary Assessment (PA)

A review of existing information, and an on-site and/or off-site reconnaissance if appropriate, to determine if an environmental release of a contaminant may require additional investigation or action. A PA may include an on-site reconnaissance if appropriate (40 CFR 300.5).

21. Remedial Design (RD)

Technical analysis and procedures following selection of a cleanup method for a contaminated site, which results in a detailed set of plans and specifications for the remedial action (e.g , at a CERCLA or RCRA site)(40 CFR 300.5).

22. Remedial Investigation (RI)

A process undertaken by the lead agency to determine the nature and extent of the site's environmental contamination problem presented by the release of a hazardous substance (40 CFR 300 5).

23. Threatened Species

Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its geographic distributional range. Federally listed threatened species are officially designated by the DOI (50 CFR 81.21). This term also may apply to state-listed species under comparable state laws.

F. Records to Review

- Administrative Records (CERCLA)
- Aerial site photographs
- Agricultural and Grazing Lease Contracts
- Coastal Zone Management Plans
- Dredging permits (Section 10 RHA)
- Ecological Risk Assessments (ERA)
- Endangered Species Management Plan
- Environmental Impact Documentation (e.g., NEPA documents)
- Federal/state lists of protected plant and animal species
- Fish and Wildlife Cooperative Agreements
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) to identify the 100-year floodplain
- Forest and Vegetation Management Plans
- Grounds Maintenance Contracts
- Human Health Risk Assessments (HHRA)
- Land and surface water resource management plans
- Land use and site development master plans
- Memoranda of Agreement (MOA)
- National Wetlands Inventory (NWI) maps
- Natural Resource Damage Assessments (NRDA)
- Natural Resources Managemetn Plan (Facility)
- Natural Resources Heritage Programs to get listing of Endangered/Threatened species for facility area (GIS maps with above data plotted for facility)
- NEPA Documents: EA, FONSI, EIS, Supplemental EIS
- Notices of Violations (NOVs) for air/water emissions
- NPDES permit effluent limitations and effluent monitoring data
- Outdoor Recreation Cooperative Agreement
- Pollution Prevention Plans
- Remedial Investigation/Feasibility Study (RI/FS) reports
- Surface water quality monitoring results (compare to Federal/state AWQC)
- US Geological Survey (USGS) topographic maps

- Wetland permits (Section 404 CWA and state permits)
- Heavy equipment/vehicle lay-down yards/parking lots.

G. Physical Features to Inspect

- Agricultural areas: croplands, livestock pens, and grazing pastures/lease areas (condition and management)
- Construction, dredging, and excavation sites (landscaping and control of erosion, runoff, and sedimentation)
- Critical habitats for protected species of flora/fauna
- Devices to prevent wildlife contact with hazardous materials
- Equipment that could damage wildlife, its habitat, or land and water resources (use and control)
- Exposed soils and steep slopes (condition and erosion)
- Facilities constructed since passage of the CWA (spatial relationship to floodplains and wetlands)
- Floodplains, associated rivers, dams, and levees
- Forest management areas (condition and management)
- Grounds maintenance areas (beautification and condition)
- Heavy equipment/vehicle lay-down yards/parking lots
- Pipeline, powerline, and sewerage corridors and facilities
- Pesticide application areas (impacts to nontarget species)
- Shorelines, coastal storm surge areas, and velocity zones
- Sites undergoing remedial action (impacts of remediation)
- Stormwater drainage areas and management systems (condition)
- Surface water bodies, water intakes, and pumping stations
- Terrestrial wildlife habitats (condition and management)
- Training (e.g., firefighting and spill response) sites
- Vegetated wetland ecosystems
- Vegetation control areas (impacts to nontarget species)
- Waste disposal, transfer, and/or storage facilities
- Wastewater biological treatment facilities (including wetlands)
- Wildlife containment areas (condition and management)
- Wildlife hunting areas, preserves, and sanctuaries.

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	IMP.1 through IMP 3	7-29
Noise	IMP 4	7-29
	IMP 5 through IMP 6	7-30
Pollution Prevention	IMP 7 through IMP 8	7-30
Exotic Organisms	IMP.9	7-30
Off-Road Vehicles	IMP 10	7-31
NEPA Compliance	IMP 11 through IMP 13	7-31
	IMP.14 through IMP.15	7-32
	IMP 16 through IMP 17	7-33
	IMP.18 through IMP 20	7-34
	IMP 21 through IMP 23	7-35
Ecological Assessment and Monitoring	IMP 24	7-35
	IMP 25 through IMP 26	7-36
	IMP 27	7-37
	IMP 28	7-38
	IMP.29 through IMP 30	7-39
	IMP 31	7-40
Soil and Sediment	IMP 32	7-41
	IMP 33	7-42

	Refer To	
	Checklist Items	Page Numbers
Vegetation	IMP 34 IMP 35	7-42 7-43
Wildlife	IMP 36 through IMP.37 IMP 38 through IMP.40	7-44 7-45
Aquatic Biota	IMP.41 through IMP.43	7-46
Endangered Species	IMP 44 IMP.45 through IMP 46	7-47 7-48
Floodplains and Wetlands	IMP 47 IMP 48 through IMP 49 IMP 50 through IMP.52	7-49 7-50 7-51
Agricultural Resources	IMP.53 IMP 54 through IMP.56	7-51 7-52
Coastal Resources	IMP.57 IMP 58 through IMP 59	7-52 7-53
Wild and Scenic Rivers	IMP 60	7-53

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
IMP 1 Review the current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions. (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues, pertaining to any of the following compliance or resource categories, have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
IMP 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding, unless it is a best management practice.)	Determine if any new regulations have been issued since the finalization of the guide. If so, annotate checklist to include new standards Determine if the facility has activities or facilities that are federally regulated but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations.
IMP.3. All facilities are required to abide by state and local regulations concerning prevention of pollution impacts to natural resources (EO 12088, Sect 1-1, 16 USC 1531(c)).	Verify that the facility is abiding by state and local requirements pertaining to the natural resources addressed below under IMP 4 through IMP 12 Verify that the facility is operating according to impact prevention, mitigation, and monitoring conditions of permits issued by state or local agencies
Noise	
IMP.4 Facilities are required to abide by Federal, state and local regulations concerning environmental noise (EO 12088, Sect 1-1, 42 USC 4901-4918)	Verify that the facility is abiding by Federal, state, and local noise control requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE: Issues typically regulated by state and local agencies include: - Construction noise - Shooting/firing range noise - Motor vehicle noise)

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 5 Airport facilities must document and manage noise impacts as required by the Aviation Safety and Noise Abatement Act (PL 96-193)	Verify that the facility has submitted a noise exposure map and noise compatibility program to the Secretary of Transportation Verify that the exposure map and compatibility program are revised and updated, as needed, to keep pace with local land use changes.
IMP 6 A single facility Point Of Contact (POC) should be identified for noise complaints (MP).	If the facility has activities that produce noise that would potentially disturb people outside the property lines, verify that a POC has been identified and is accessible to concerned parties Verify that the POC keeps a log of complaints
Pollution Prevention	
IMP.7. All Federal facilities are required to abide by state and local regulations concerning pollution prevention (EO 12088, Sect. 1-1)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies. (NOTE. Issues typically regulated by state and local agencies include - Pollution prevention plans - Effluent and emissions monitoring - Hazardous material use reduction)
IMP 8. Facilities are required to prepare Pollution Prevention Plans by 31 December 1995 (EO 12856, Sect 3-302(d))	Verify that the facility is in the process of preparing a Pollution Prevention Plan that outlines what the facility is going to do to minimize pollution. (NOTE: Coordinate with the auditor assigned to the Emergency Planning and Community Right-to-Know checklist.)
Exotic Organisms	
IMP.9. Executive Order 11987, Exotic Organisms, requires executive agencies to restrict the introduction of exotic species into natural ecosystems they own or lease and to encourage the states to prevent such introductions (EO 11987).	Determine whether the agency/facility has an active program to monitor and prevent the introduction of exotic plant and animal species into natural ecosystems on Federal lands Verify that, if appropriate, the facility/agency cooperates with appropriate state/local authorities to eradicate, as needed, and to prevent or minimize the further colonization of unaffected ecosystems by exotic organisms found on Federal lands
Off-Road Vehicles	

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 10 Executive Order 11989, Use of Off-Road Vehicles (ORVs) on the Public Lands, specifies that ORVs may not be used without special use and location designation (EO 11989)	Verify that the facility has an appropriate program to control, manage, and issue permits for the use of ORVs on Federal lands,that adequately identifies and protects environmentally sensitive areas, ecosystems, habitats, and their resident biota
NEPA Compliance	
IMP 11 The NEPA process must be integrated into planning for projects at the facility as early as possible to prevent delays in project implementation (40 CFR 1501 1, 1501 2)	Verify that the NEPA process is routinely integrated as a part of new project planning and development to assure that potentially significant impact issues are identified as early as possible Verify that early cooperative consultation among agencies is also a part of new project development Verify that the facility identifies environmental effects and values in adequate detail for the comparison with economic benefits and other technical analyses Verify that the facility develops and describes appropriate alternatives to recommended actions in any proposal that involves unresolved conflicts concerning alternative uses of available resources
IMP 12 An Environmental Assessment (EA) must be produced, under certain circumstances, to determine if an Environmental Impact Statement (EIS) is necessary (40 CFR 1501 1(b) and 1508 9)	Determine if an EA has been completed and submitted for review by the lead Federal agency before any contract for action is entered into or action is begun unless - The action normally requires an EIS - Normally does not require either an EIS or a CX (a categorical exclusion) Verify that the assessment was prepared according to agency policies (NOTE 40 CFR 1501 3 requires Federal agencies to adopt procedures to indicate when an EA is required to be done Review agency-specific NEPA implementing regulations.)
IMP 13 A facility must produce an EIS if certain conditions exist due to a proposed action (40 CFR 1501 4(a), 1501 4(c), and 1502 4)	Verify that the facility produces an EIS for any activity that normally required an EIS including· - The adoption of new agency policies, programs, or regulations - Issuance of a Federal permit - Technological developments - Provision of Federal funding for a non-government project - Broad agency actions - Based on the EA, it is deemed necessary by the lead agency (NOTE Federal Agencies are required to develop policies indicating what types of actions require an EIS)

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP.14. If, because of the results of an EA, an EIS is not going to be prepared, a Finding of No Significant Impact (FONSI) must be prepared according to specific parameters (40 CFR 1501.4(e) and 1508 13)	Verify that FONSIs include the following information - The name of the action - A brief description of the action (including any alternatives considered) - A short discussion of anticipated environmental effects - The conclusions that have led to the FONSI. Verify that, in general, the FONSI is made available for public review Verify that the FONSI is made available for public review for 30 days, prior to making a final determination whether to prepare an EIS and before the action begins, when· - The proposed action is, or is closely similar to, one which normally requires the preparation of an EIS by the lead agency - The nature of the proposed action is without precedence
IMP 15 When two or more Agencies propose or are involved in the same action or in a group of actions directly related to each other because of their functional interdependencies or geographical proximity, a lead agency will supervise the preparation of the EIS (40 CFR 1501 5 and 1501.6)	If the facility is involved in an EIS that includes actions of agencies other than their own, determine who the lead agency is. (NOTE: Federal, state, or local agencies, including at least one Federal agency, may act as joint lead agencies to prepare an EIS) Verify that a letter or memorandum of agreement indicates which agency is the lead Federal agency and which are the cooperating agencies Verify that, if the facility is operated by the lead agency, it - Requests the participation of each cooperating agency in the NEPA process at the earliest possible time - Uses the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise to the maximum extent possible consistent with its responsibility as lead agency - Meets with a cooperating agency at the cooperating agency's request

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 16 A draft EIS must be prepared according to a specific format and process (40 CFR 1501 5(d), 1501 7, 1502 5(a), 1502 6, 1502 9 through 1502 18, 1508 22)	Determine if a notice of intent (NOI) of the proposed action is published in the Federal Register and made available to the media in the areas potentially affected by the proposed action Verify that after the NOI has been published, public scoping procedures begin to determine the relative significance of issues and to what depth they must be addressed in the EIS. Verify that for projects directly undertaken by a Federal agency, the EIS is prepared at the feasibility analysis and planning stage Verify that a preliminary draft EIS is prepared, based on decisions reached during the scoping procedure, and conforming to the format and content specified in the Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1508) and the NEPA implementing regulations of the lead Federal agency Verify that the EIS is prepared using an interdisciplinary approach
IMP.17 As a part of the EIS process, public scoping of issues to be addressed must be done according to specific requirements (40 CFR 1501.7(a)).	Verify that during the scoping process, the lead Federal agency - Invites the participation of affected Federal, state, and local agencies, any affected Indian tribe, the proponent of the action, and other interested persons unless there is a limited exception as defined by agency regulations - Determines the scope and the significant issues to be analyzed in depth in the EIS - Identifies and eliminates from detailed study the issues that are not significant or that have been covered by prior environmental review - Allocates assignments for preparation of the EIS among the lead and cooperating agencies with the lead agency retaining responsibility for the statement - Indicates any public EAs and other EISs that are being or will be prepared that are related but are not part of the scope of the EIS under consideration - Identifies other environmental review and consultation requirements so that other analyses and studies may be prepared concurrently with and integrated with the EIS - Indicates the relationship between the timing of the preparation of environmental analyses and the agency's tentative planning and decision making schedules

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 18 Public involvement is a required part of the EIS process (40 CFR 1506 6)	Verify that the facility (and/or lead agency) made a diligent effort to involve the public including - Providing public notice of NEPA-related hearings, public meetings, and the availability of environmental documentation such as -- mailing of notices to those who have requested it on an individual action -- notice in the Federal Register and mailings to national organizations reasonably expected to be interested if the action is of national concern -- notice to the state, local Indian tribes, local newspapers, and other local media if the action is of local concern - Holding or sponsoring public meetings in response to -- substantial environmental controversy or substantial interest in holding the meeting -- a request for a hearing by another agency with jurisdiction over the action supported by reasons the hearing would be helpful -- soliciting appropriate information from the public -- explanations of where individuals can get information or status reports
IMP 19 After the preparation of the draft EIS, the facility is required to obtain and request comments from specific individuals (40 CFR 1502 19, 1503 1).	Verify that prior to preparing the final EIS, the facility obtained the comments of any Federal agency with jurisdiction by law or special expertise with respect to any environmental impact involved or that is authorized to develop and enforce environmental standards Verify that prior to preparing the final EIS, comments were requested from the following - Appropriate state and local agencies that are authorized to develop and enforce environmental standards - Indian tribes, when the effects may be on a reservation - Any agency that has requested statements on actions of the kind proposed Verify that comments were requested from the applicant, if any Verify that comments were requested from the public
IMP.20 When preparing the final EIS, specific actions are required (40 CFR 1503 4)	Verify that when preparing the final EIS, all comments are assessed, considered, and responded to in one of the following ways - The alternatives are modified, including the proposed action - Alternatives not previously given serious consideration by the agency are developed and evaluated - The analysis is supplemented, improved, or modified - An explanation is provided as to why the comments do not warrant further agency response Verify that all substantive comments received on the draft (or a summary of the comments) are attached to the final statement whether or not the comments are thought to merit individual discussion

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 21 Under certain circumstances, supplements to the draft or final EIS must be prepared (40 CFR 1502 9(c)(1) and 1502 9(c)(4))	Verify that a supplement is prepared if one of the following occurs - The facility makes substantial changes in the proposed action that are relevant to environmental concern - There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impact Verify that the supplement is prepared, circulated, and filed in the same way as a draft and final statement unless alternate procedures have been approved by the CEQ
IMP 22 At the time of a decision, facilities are required to prepare a concise public record of decision (ROD) (40 CFR 1505 2)	Verify that the ROD states what the decision was and - Identifies all alternatives considered in reaching the decision, specifying the alternative or alternatives considered to be environmentally preferable - Includes a statement as to whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted and, if not, why not
IMP 23 When implementing the decision, the facility must meet specific requirements (40 CFR 1505 3)	Verify that mitigation and other conditions established in the EIS or during its review and committed to be the facility/agency as a part of the decision are implemented Verify that appropriate conditions are included in grants, permits, or other approvals Verify that funding is based on agreed-to implementation of mitigation Verify that results of relevant impact monitoring are made available upon request.
Ecological Assessment and Monitoring	
IMP 24 A remedial site evaluation consists of a remedial preliminary assessment (PA) and a remedial Site Inspection (SI) (40 CFR 300 420) (See the CERCLA/SARA checklist)	Verify that the remedial PA includes the following - A review of existing information about potential impacts from a release, such as information on the pathways of exposure, exposure targets, and source - On-site and off-site reconnaissance of environmental impacts and stress symptoms, as appropriate.

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 25. Environmental risk assessments may be required as part of a remedial investigation (RI) or other CERCLA compliance activity. (See the CERCLA/SARA checklist.)	Verify that if natural resources are or may be injured by the release of oil or another hazardous material, state and Federal trustees of the property are notified, and the need for an ecological risk assessment (ERA) and/or natural resource damage assessment (NRDA) has been determined. Verify that data on the extent of facility-derived chemical and radionuclide contamination in physical and biological media, generated by facility environmental surveillance programs, are incorporated into baseline assessments of environmental risks to ecological receptors. Prior to an RI/FS or Engineering Evaluation and Cost Analysis (EE/CA), verify that the site has identified whether there will be impacts on natural resources and has also notified the appropriate trustees of the potential natural resource impacts (Executive Order 12580; CERCLA Sections 104(b) and 122(j)) Concurrent with notification of the resource trustees (pursuant to CERCLA and CWA), verify that the site has sought to coordinate plans, NRDA studies, or cleanup activities with the trustees Determine if a baseline ERA was performed prior to remedial action and if any subsequent remedial action that has been completed resulted in residual ecological risk on- or off-site
IMP 26 As a management practice (MP), the facility should have in place an environmental monitoring program that includes biological surveillance as well as chemical and/or radiological surveillance of physical and biological media to document facility impacts to the environment (MP) (NOTE. This Department of Energy policy requirement (DOE Orders 5400 1 and 5400.5) is treated by DOE as if it were a regulation At a minimum, such monitoring should be considered as an MP for all agencies)	Confirm that the facility uses the baseline ecological resource inventories of facility-specific NEPA documents and/or ERAs to design customized, facility-specific programs for the monitoring, protection, and management of biological diversity and natural ecosystems. If there is soil erosion and/or contamination migration to natural waterways, confirm that there is a system in place for sampling of media and analyzing the concentrations of the contaminants in the soil, sediment, and/or surface waters of waterways and associated wetlands

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 27 Facility-specific Federal and/or state permits may require integrated physical, chemical, radiological, and biological monitoring to document ecological impacts of facility emissions or effluent (See the following checklists Air Pollution Control, Water Pollution Control, CERCLA/SARA, Spill Control and Response, and Environmental Radiation)	Determine if biological monitoring programs are being conducted as required by any state or local regulations or by an operating air emission or effluent discharge permit (e.g , PSD or NPDES permit) for the operation of the facility If aquatic biological monitoring is required by an NPDES or other permit, confer with the Surface Water (SW) specialist to confirm that - The permit has been renewed as required - Monitoring report specifications and deadlines have been met (during the audit period) - Biological monitoring parameters are changed only in accordance with the permit specifications - All biological monitoring program changes approved by the permitting authority have been implemented Review facility aquatic biological monitoring records/reports, verify compliance with permit conditions, and obtain input from the water pollution specialist regarding the seasonal timing (breeding, season?), pollutant types, intensity, and duration of thermal/chemical effluent exceedances during the audit period If exceedances have occurred - Based on AWQC and ambient water quality monitoring results, determine if the duration and intensity of emissions were potentially toxic and/or lethal for the exposed aquatic species and, if so, if any correlative evidence of invertebrate, shellfish, or fish stress/death in the potential impact areas was observed and recorded - Determine if any habitat restoration measures were required and/or taken following facility-induced death of fish/shellfish/invertebrates Verify that biological monitoring requirements of CWA Section 401 (state water quality certification) and CWA Section 404 (dredge and fill) permits under the Clean Water Act are being met

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 28 Monitoring of environmental impacts and risks from radionuclide releases must include considerations of ecological, food chain, and human health effects, including contamination of agricultural and aquatic foodstuffs (40 CFR 190 10, 10 CFR 834)	If liquid process waste streams containing radioactive material in the form of settleable solids are being released into natural waterways from any of the site's facilities, verify that the site routinely tests sediments and associated native aquatic organisms for radioactive contamination If soil, sediment, surface water, and/or biota surveillance programs are conducted for exposure to low-level wastes and radioactive material which may be released to physical media or to cultivated plant and animal foods eaten by humans, verify that facility-derived radionuclides do not cause an individual human to receive an overall dose that exceeds an effective dose equivalent of - 25 Millirems to the whole body - 75 Millirems to the thyroid - 25 Millirems to any other organ of the body Determine if migratory or resident game animals that could have been exposed to radionuclides (either directly or through ingestion of contaminated foods) and that are or could be hunted for human consumption are being tested or analyzed for levels of radionuclides acceptable for human consumption

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 29 Facility-specific environmental monitoring programs should be sophisticated enough to permit reliable assessments of on-site and downstream contaminant-specific impacts/risks to human populations and sensitive ecological receptors (MP)	Determine if the facility's integrated monitoring program for effluent, ambient surface water quality and aquatic biota - Is mandatory or voluntary - Includes all permit-specified water quality parameters and seasonal sampling requirements - Applies standardized biological monitoring and stress detection protocols, using field-compiled data sheets - Requires that documented exceedances of water quality thresholds be followed up by inspections for fish kills and/or stress symptoms in local aquatic indicator species - Includes routine sampling of surface water, sediments, and/or biota at coincident points in time and space If the answer to any of the above is no, document the reasons Verify that sediment and surface water sampling locations and methods, analytical methods, parameters, and detection limits are adequate to assess the ecotoxicological effects of facility-derived contaminants on aquatic biota and food chains through comparisons of ambient contaminant levels with ecologically protective, Federal and state Ambient Water Quality Criteria (AWQC) and sediment quality guidelines (e.g , NOAA) Confirm that the facility monitors the levels of site-derived inorganic and organic compounds in surface waters against the state and Federal AWQC designed to protect freshwater and marine, aquatic organisms, and humans that consume these aquatic biota Verify that the facility adequately monitors its impacts to protected biota and their habitats, such as threatened and endangered species of flora and fauna, anadromous fish, migratory birds, marine mammals, floodplains, wetlands, and marine sanctuaries Obtain and review data from environmental monitoring programs and determine if they are adequate for use in, and if the site performs, ecological impact and risk assessments for accidental or other nonroutine releases of contaminants into air, soil, sediment, and/or surface water
IMP 30 Commitments made in NEPA documents may include facility monitoring of actual (*versus* predicted) environmental impacts and/or the effectiveness of agreed-to impact mitigation measures (MP)	Determine if impact assessment models and impact projections, presented in facility NEPA documents, have been verified by monitoring data from receptor locations for facility-related - Air pollutant dispersion patterns - Dry and wet atmospheric deposition patterns - Aqueous/thermal effluent dilution/mixing patterns - Impacts on air/water quality and biota/ecosystems

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP.31 As an MP and/or regulatory requirement, water-dependent facilities/activities and facilities potentially affecting aquatic ecosystems should proactively manage and minimize effects on local fish and shellfish resources (CWA, CZMA, MPSRA) (MP)	Determine if the facility has a fisheries management and/or monitoring program and if - It is voluntary or required by specific permit conditions - Start-up and seasonal, operational data exist on fish impingement for facility water intakes - Fish impingement monitoring is required and/or conducted for surface water intake structures - Monthly/seasonal fish impingement data are up to date If so, review them for this audit period - The facility routinely monitors contaminant bioaccumulation in aquatic indicator organisms, especially aquatic foodstuffs (10 CFR 834) - Prohibitions of fishing and shellfish harvesting are clearly posted in contaminated and/or restricted areas - The facility records and adequately documents full compliance with these permit conditions - Any biocides used, such as those for corrosion prevention, are discharged into surface waters - Nonimpingement fish kills, either in or downstream of receiving waters, have been observed, documented, and reported to appropriate authorities (e g , trustees) during the audit period - Any prescribed fisheries mitigation plan/program has been implemented during or since construction of the facility - All required fish diversionary structures were properly constructed and maintained to satisfy mitigation commitments made in NEPA documents and/or specific permit requirements for water-dependent facilities

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
Soil and Sediment	
IMP 32 Soil and sediment inventory and monitoring activities are often based on the requirements of NEPA, other Federal statutes regulating spills and disposal of radioactive materials and toxic chemicals, and environmental monitoring and biological surveillance MPs for soil and sediment resources (MP)	Tour the facility and interview key personnel to - Verify that suitable erosion and sediment control practices are used on land undergoing clearing, grading, or other development activities to ensure that these activities will not adversely affect adjacent floodplains, wetlands, or surface waters - Verify that a protective vegetative cover or other measures are used to conserve soils, minimize dust-induced damages to air quality, prevent erosion-mediated contaminant migration off site, and/or preclude siltation damages to aquatic ecological receptors - Confirm that the use of soil columns to retain and attenuate radioactive contaminants contained in facility effluent has been and/or is being discontinued, in accordance with pertinent agency regulations and/or policies (e g , DOE Order 5400 5, 10 CFR 834) Observe and assure that the facility's environmental monitoring program includes soil and sediment sampling locations in all areas potentially affected by atmospheric deposition, discharges of contaminated ground water (seeps), and/or facility effluent to surface water resources (NOTE Coordinate review with appropriate specialists) Review disposal practices and interview personnel to verify that land-farming and/or soil-injection methods used for disposal of sludges, pesticides, radionuclides, and other wastes are conducted in compliance with applicable Federal and state regulations (e g , 40 CFR 168 8 and 257)

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 33 Site remediation of soil and/or sediment contamination should conform to Federal, state, and/or site-specific risk-based cleanup goals/standards for specific contaminants (40 CFR 192 12, 40 CFR 257; 40 CFR 257 3-257.5)	Review the cleanup criteria established for chemical and/or radiological contaminants in soils and sediments to confirm that· - Applicable Federal and/or state cleanup goals are met - Where no regulatory criteria exist, site-specific cleanup goals are based on contaminant-specific human health or ecological risks - Attainment of the selected cleanup goals will ensure that any residual soil or sediment contamination following cleanup will pose no significant human health or ecological risk Verify that the facility conducts remedial actions to provide reasonable assurance that the concentration of radium-226 in land averaged over any area of 100 square meters does not exceed the background level by more than - 5 pCi/g averaged over the first 15 cm of soil below the surface - 15 pCi/g averaged over the first 15 cm thick layers of soil below the surface Verify that the facility conducts remedial actions to ensure that any occupied or habitable buildings are made - To have a radon decay product concentration (including background) not to exceed 0 02 WL - To have gamma radiation levels below 20 microentgens per hour - In accordance with any state-specific cleanup criteria. For areas with solid or sewage wastes deposited from 0–1 m depth, confirm that testing of soil-waste mix indicated a pH greater than or equal to 6 5 and concentrations of cadmium below 2 mg/kg (dry weight) Determine, through interviews and documentation review, if soils are routinely sampled and analyzed from those lands used for grazing by dairy animals on which solid or sewage wastes are being disposed from 0–1 m depth
Vegetation	
IMP 34 Noxious weeds, listed in Appendix 7-1, must not be moved through the United States unless the movement is allowed by a permit (7 CFR 360 100 through 360.300)	Verify that the facility is not moving noxious weeds without a permit

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 35 As an MP, facility activities should be conducted so as to minimize and mitigate, as needed, damages to vegetation (MP)	If any obvious (visible) vegetative stresses or deaths, either on-site or downwind/downstream of the facility, occurred since construction or during the current audit period, determine if - It had been accurately predicted in the facility-specific NEPA documents (EA, EIS) - Mitigation of such impacts was required and has been provided per commitments made in NEPA documents - It can be attributed to normal atmospheric emissions or aqueous effluent from the facility - It is spatially and temporally related to air emission and/or effluent discharge (NPDES) permit exceedances (confer with air and water pollution specialists) - It was caused by accidents, process upsets, chemical spills, or other unintentional or nonroutine releases - It occurred to nontargeted plant species, as a result of improper facility-related herbicide applications to noxious weeds - Critical habitat of protected species or other protected plant communities (e g , wetlands) were adversely affected - Any obvious vegetative stress/death was documented by means of color photographs, field notes, specimen collection, and recorded information in working papers If wetland vegetation is damaged, determine if its restoration is mandated by a Section 404 (CWA) dredge and fill permit, and/or state and local wetland permits, and verify that all regulatory restoration requirements have been satisfied under such permits If terrestrial reclamation/restoration is performed following facility-induced damages, review the program and determine if - It is mandatory or voluntary (permit or policy) - Permits or agency policy specifies the ecological objectives and success criteria for restoration - Past reclamation results indicate that the techniques used adequately restored baseline biological communities and ecological functions - Native species are planted or simply allowed to recolonize areas by natural processes - Seeded plant species of the restored community are similar to the composition and dominance patterns of the original habitat - Several experimental reclamation methods were used in similar habitats and, if so, which most successfully recreated the baseline floristic characteristics - Installed plantings have survived, are healthy, and are being properly watered/ maintained

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
Wildlife	
IMP.36 Individuals may not take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter any migratory bird, or the parts, nests, or eggs without a permit (50 CFR 21 11 through 21 50)	Determine if the facility is located along a bird migratory route Verify that prior to killing birds for any reason, it is determined if they are migratory birds Verify that if actions are taken that affect migratory birds, the facility has Federal and/or state approvals/permits to do so (NOTE Exemptions from the permit requirement are available for mallard ducks and other migratory waterfowl species, if they have been captive-reared and are properly marked) Determine if adequate measures are taken to protect migratory birds and their habitats, such as waterfowl using floodplain and wetland areas, from poisoning and/or hunting on Federal property, pursuant to NEPA, FWCA, the Migratory Bird Treaty Act of 1918, and international treaties such as the Ramsar Convention of 1971 Confirm that the facilities have not destroyed any wildlife or bird habitat and/or obstructed migratory routes, without providing compensatory mitigation (e g , habitat replacement) for such impacts (33 CFR 230.15 and 50 CFR 1505 2-1505 3)
IMP 37 Although legal protection is afforded mostly to wildlife that qualify as Federal and state trustee resources (e.g., endangered species, marine mammals, and migratory birds), as an MP, facilities should proactively manage wildlife populations and their habitat to comply with the intent of laws such as NEPA, FWCA, and the Sikes Act (MP)	Confirm that land, water resource, vegetation, and pest management plans and operations are consistent with modern conservation and land use principles, provide measures for the conservation of biological diversity, and minimize adverse effects on biota and ecosystems from the use of pesticides Confirm that all pesticide use by the facility complies with Federal and state laws and regulations (See the Pesticide Management checklist) From interviews, verify that the facility carefully monitors on-site recreation, hunting, trapping, and fishing in natural habitats in accordance with. - Regulations for recreation on public lands (43 CFR Subchapter H) - Rules implementing the Fish and Wildlife Conservation Act of 1980 (50 CFR 83) - Applicable state regulations Also note whether such restrictions are posted in potential hunting/fishing areas

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 38 Assessment and mitigation of facility impacts to wildlife populations, as proposed in NEPA documents, should be based on accurate data on local occurrences of resident and migratory wildlife populations (33 CFR 230 13 and 230 15; 50 CFR 1505 2-1505 3)	Determine if preconstruction, baseline shorebird, waterfowl, and mammal migratory behaviors, patterns, routes, and seasons were documented as part of a NEPA review or other environmental impact analysis Determine if any compensatory mitigation has been provided for loss of wildlife habitat Verify that the facility's presence and/or activities do not disrupt or inhibit any of the following - Wildlife access to and use of critical habitat - Bird or mammal migration - Nesting and breeding of migratory birds - Breeding of terrestrial or marine mammals - Feeding behavior of birds and other wildlife Verify that the facility has sufficient ecological documentation with which to answer such questions about impacts to wildlife
IMP.39. As an MP, each Federal facility located in a rural setting and/or inhabited by wildlife should have a wildlife management program designed on the basis of data contained in NEPA or other facility-specific environmental documents	Verify that the facility has a wildlife management program and, if so, that it - Protects rare/endangered wildlife species and their local habitat (50 CFR 450 and 424) - Includes and follows procedures to maintain up-to-date records for timely reporting of wildlife losses due to facility operations and/or related vehicular traffic (e g , road kills) - Ensures that legal and/or agency-specific policy restrictions on hunting are advertised locally, posted on site, and enforced by facility security and/or appropriate government authorities - Includes any required habitat creation/enhancement or wildlife restocking programs Verify that the facility's wildlife management program includes preventive measures (e.g , physical enclosures, netting) to protect wildlife from exposure to hazardous material releases, storage areas, and contaminated surface water impoundments
IMP.40 All damages to wildlife from releases of and/or exposures to oil and other hazardous materials should be documented and reported to appropriate Federal/state/local agencies and/or resource trustees (BMP, CERCLA; CWA)	Determine if there have been any hazardous material releases or incidents resulting in obvious, direct damages to wildlife. (See the Water Pollution Control and CERCLA/SARA checklists) Determine if such incidents have been recorded, reported to pertinent authorities, documented in an NRDA, and/or mitigated to compensate for on-site and/or off-site damages to wildlife species and/or their habitats (43 CFR 11) (See the Water Pollution Control and CERCLA/SARA checklists)

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
Aquatic Biota	
IMP 41 Federal (e g , CWA, CERCLA) and state laws may protect aquatic biota, both directly (e g , trustee resources) and/or indirectly, by protecting aquatic or wetland habitats and regulating facility impacts to the chemical and radiological quality of the sediments and surface waters found within these habitats Protection of aquatic biota includes compliance with regulatory requirements and/or adherence to MPs (MP)	Determine if invertebrates, fish, and shellfish resources, as well as spawning and nursery areas, in impact areas were mapped and inventoried as part of a baseline site characterization in facility NEPA documents (40 CFR 6) Determine if the operation and/or maintenance of the facility has resulted in any new obstructions to natural fish movement and/or deposits of deleterious materials into fish habitat (CWA) and if - Water circulation, maintenance, dredging, and/or soil erosion resulted in silt deposits to finfish or shellfish habitat - Uncontrolled releases of pollutants into fish habitats have occurred via spills, storm water, cooling water, or wastewater discharges from the facility or its infrastructure - Fish kills have resulted from such releases - Water intake structures are equipped with fish exclusionary/bypass devices - Fish losses resulting from impingement on intake screening are routinely recorded/reported to appropriate agencies - Appropriate regulatory authorities have been notified of any such releases in compliance with NPDES facility permits - NRDA reports have been prepared to document damages to aquatic biota that are trustee resources - Remedial/restorative measures been required, approved, and/or implemented for such deposits into fish habitat
IMP 42 Sediment and water quality monitoring programs may be required by facility permits to help assess impacts to aquatic biota and ecosystems (MP)	Confer with the water pollution control and environmental radiation specialists to verify that surface water and sediment sampling and analytical methods, especially sample detection limits, are adequate to provide useable data on facility impacts to sediment and surface water quality Verify that analytical detection limits are low enough to assess media- and contaminant-specific effects on and risks to benthic and pelagic biota by comparing ambient contaminant levels with sediment quality guidelines and Federal/state AWQC
IMP.43 The Marine Mammal Protection Act (MMPA) prohibits the illegal taking of marine mammals, deliberate or incidental, irrespective of whether or not they are protected under the Endangered Species Act (16 USC 1361)	Verify that facility/agency NEPA reviews and other activities, such as maintenance dredging in coastal waters, have documented the local presence and status of marine mammal populations and have evaluated potential impacts of such activities to them Determine if facility operations in the marine environment may have caused any adverse effects to marine mammals Evaluate whether environmental monitoring programs of coastal facilities are adequate to assess potential facility effects on marine mammal populations. Assess the adequacy of marine mammal impact prevention and mitigation programs conducted by coastal facilities to comply with the provisions of the MMPA.

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
Endangered Species	
IMP 44 Federal protection of plant and animal species officially listed as endangered, threatened, or rare, is afforded primarily by the Endangered Species Act (ESA) and related provisions of Federal statutes such as NEPA and the Fish and Wildlife Coordination Act (FWCA) Some states also have endangered species laws and independent lists of protected species, many of which may not appear in the Federal lists (MP)	Compare baseline wildlife inventory of NEPA documents and monitoring records against species listed as protected under the Endangered Species Act (50 CFR 17), as needed, to determine if protected species inhabit the facility or its surroundings If applicable, verify that the facility performed a Baseline Assessment of Threatened and Endangered Species (BATES) and/or NEPA review for activities that may affect federally listed endangered or threatened species occurring on site (NEPA, ESA) Verify that any BATES was conducted in consultation with appropriate Federal (USFWS or NMFS) and/or state agencies (e g , Natural Heritage Program), pursuant to NEPA, ESA, and FWCA Verify that the site conducts approved programs for the protection and management of the species and their critical habitat (ESA, FWCA, and NEPA) Verify that the facility consults state and Federal agencies annually to - Report on the status of protected species found on site - Obtain updated reports of new listings and/or local sightings of Federal- and state-listed endangered and threatened species of flora and fauna - Select appropriate protected species for inclusion in the facility's biological surveillance programs If any rare or endangered wildlife species or aquatic organisms are known to inhabit or feed at either the site or off-site facility impact areas, determine if - Appropriate Federal and state authorities (trustees) have been promptly notified of their presence - Potential facility operational and/or long-term expansion impacts on these species and their habitat have been fully evaluated as a basis for impact mitigation programs - A protection and habitat management program has been developed and implemented for these species in collaboration with appropriate wildlife experts and regulatory authorities - Signs are posted to indicate locations of nesting sites and sensitive habitat, and these areas are identified on site maps and appropriate site personnel are aware of them Verify that the facility conducts educational programs for site personnel regarding the locations and sensitivities of endangered biota so as to prevent or minimize operational impacts to these organisms

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 45 Facilities with federally designated endangered and threatened species must carry out programs for their conservation (50 CFR 402 01(a), 402 10, 402 12)	Verify that a survey has been to determine if the facility has any threatened or endangered species and if so, that the conducted results are reflected in management plans Verify that consultations have been held with the US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the appropriate state conservation agency. Verify that measures have been initiated to maintain threatened and endangered species by checking records of USFWS and/or NMFS consultations/opinions received Verify that action was taken to comply with USFWS and/or NMFS requirements, if a jeopardy biological opinion has been given
IMP 46 All facilities must review proposed actions and activities to ensure that they are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat (50 CFR 402 01(a) and 40 CFR 1500)	Verify that the following documents are considered in the review process - 40 CFR 1500 through 1508, Council on Environmental Quality - 50 CFR 17, Endangered and Threatened Wildlife and Plants - 50 CFR 402, Interagency Cooperation-Endangered Species Act 1973, as amended - 50 CFR 450, Endangered Species Exemption Process General Provisions - 50 CFR 451, Endangered Species Exemption Process Application Procedures

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
Floodplains and Wetlands	
IMP 47 Floodplain management and wetland protection by all Federal agencies are mandated, respectively, by Executive Orders 11988 and 11990	Confirm that facility programs for floodplain management and wetlands protection required by these EOs have been developed, in formal documents and following the guidelines established - In accordance with criteria for land management and use (44 CFR 60, Subpart A) - In accordance with agency-specific floodplain management and wetlands protection regulations and Federal policy Determine if the facility's floodplain management program - Requires consultation with the COE about project siting, planning, and design within floodplains (33 CFR 320) - Includes measures and standards to ensure no net loss of natural flood storage capacity on or offsite - Identifies, evaluates, preserves, enhances, and/or restores the natural ecological functions and beneficial societal values provided by floodplains - Prevents, whenever possible, building construction and other projects within floodplains, so as to reduce human health and safety hazards from flooding - Requires consideration of project siting and/or design alternatives that avoid, minimize, or mitigate adverse impacts to floodplain ecological functions and values - Appears to have effectively minimized actual impacts from floods on human health, safety, property, and welfare Verify that any necessary structures built in the floodplain are in accordance with criteria set forth in regulations promulgated by the Federal Insurance Administration pursuant to the National Flood Insurance Act of 1968, as amended (33 CFR 208) Verify that the agency/facility avoids undertaking or providing assistance for new construction located in wetlands, unless the head of the agency finds that - There is no practical alternative to such construction, and - The proposed action includes all practical measures to minimize harm to wetlands that may result from such use

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
IMP.48 Dredge and fill activities within "waters of the United States," which include wetlands, are regulated by the US Army Corps of Engineers (COE) pursuant to Section 404 of the CWA (33 CFR 323 3(a) and 323 3(b)) (NOTE Fill material means any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a water body The term does not include any pollutant discharged into the water primarily to dispose of waste, that activity is regulated under section 402 of the Clean Water Act)	Confirm that the facility consults with the COE on use of the appropriate Federal Wetlands Delineation Manual (WES Technical Report Y-87-1, January 1987) for the delineation of wetlands based on soils, hydrology, and vegetation (58 FR 4995 (19 January 1993)) Verify that Section 10/404 permits (CWA) have been obtained from the COE for all dredging and filling activities and other work in waters of the United States, including wetlands (33 CFR 320) Verify that biological monitoring requirements of the facility's Section 10/404 dredge and fill permits have been satisfied, such as studies to verify successful restoration and/or compensatory replication of functional wetland habitats (33 CFR 320) Verify that a wetland functional assessment, conducted during NEPA and/or CWA Section 404 reviews, addresses the functional values of wetlands identified in the 404(b)(1) guidelines of the CWA (40 CFR 230) and forms the basis for the facility's wetland impact assessment, mitigation and monitoring programs
IMP 49 In conjunction with these EOs and the CWA, Federal laws such as NEPA and CERCLA protect wetlands and floodplains, in part, by requiring that NEPA reviews and documents address and provide mitigation for impacts to wetlands, and CERCLA-mandated investigations and site remediation assess/ mitigate contamination related impacts and risks to wetlands and their biota	Verify that all on-site wetland resources have been mapped and their ecological features/functions described in NEPA documents, as a basis for facility-specific, wetland impact assessment, mitigation, monitoring, and protection programs Confirm that baseline ecological data contained in facility-specific NEPA documents are used to develop site-specific, floodplain, and wetland management programs needed to ensure the implementation of long-term impact mitigation measures originally proposed in these same NEPA documents Confirm that ecological risk assessments and natural resource damage assessments, conducted by the facility under CERCLA and/or the CWA, have adequately addressed risks and/or damages to wetland and floodplain ecosystems and their biota (43 CFR 11)

Compliance Category: **Management of Environmental Impacts**	
Regulatory Requirements:	**Reviewer Checks:**
IMP 50 All agencies must adhere to the Federal "no net loss policy" for wetlands, as set forth in a 1990 Memorandum of Agreement between the EPA and the COE The policy requires that the COE "strive to avoid adverse impacts to existing aquatic resources, and for wetlands, will strive to achieve a goal of no overall net loss of values and functions "	Verify that the facility systematically identifies, preserves, and manages the fish and wildlife habitat value and the other beneficial ecological functions of wetlands, as outlined in EPA's Section 404(b)(1) guidelines (33 CFR 320, 44 CFR 60) Verify that the facility/agency avoids impacts to or destruction of wetlands whenever possible, especially in cases where less damaging alternatives to destructive projects/actions are available (40 CFR 230 10(a)) Verify that the facility follows wetlands policy guidance from the CEQ by minimizing and/or mitigating all impacts to wetlands, in those cases where no less damaging alternatives exist and wetland impacts prove to be unavoidable
IMP 51 The Highly Erodible Land and Wetland Conservation Act (7 CFR 12), which is administered by the US Department of Agriculture's Agricultural Stabilization and Conservation Service (USDA ASCS), allows for the denial of USDA economic support to those entities engaged in unsound agricultural operations or practices that result in damages to or losses of wetlands	Verify that the agency/facility does not permit the planting of crops on a converted wetland or the conversion of wetlands to agricultural production If wetland losses were caused by agricultural activity on Federal lands, determine if the agency/facility has notified USDA ASCS of any such losses that might warrant forfeiture of USDA support
IMP 52 State and local laws also commonly protect the habitats, ecological functions, and societal values provided by wetlands, floodplains, and associated surface water resources	Identify and ensure facility compliance with wetland impact mitigation and monitoring requirements of state and local wetland laws, regulations, permits and policies
Agricultural Resources	
IMP 53 The Farmland Protection Policy Act of 1981 (7 CFR 658) limits the extent to which Federal programs may contribute to the unnecessary conversion of farmland to non-agricultural use	Determine if the facility has a program to conserve agricultural lands on site and comply with related requirements of this law

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
IMP 54 The Highly Erodible Land and Wetland Conservation Act (7 CFR 12), which is administered by the (USDA ASCS) allows for the denial of USDA economic support to those entities engaged in unsound agricultural operations or practices that result in soil erosion, sedimentation, and water quality degradation	Verify that the agency/facility does not permit the conduct of unsound agricultural practices on Federal lands that result in soil erosion, sedimentation, or water quality degradation If such soil losses or water quality impacts were caused by unsound agricultural practices on Federal lands, determine if the agency/facility has notified USDA ASCS of agricultural practices that might warrant the forfeiture of USDA economic support.
IMP 55 Land farming or other waste disposal methods conducted on agricultural lands must comply with all pertinent Federal, state, and local laws, regulations, and policies (40 CFR 257, 257 3-5)	Confirm that solid wastes or sewage wastes from DOE facilities are not disposed of on or below lands used for crop production or livestock grazing On solid/sewage waste disposal lands used for dairy animals, verify that testing has demonstrated PCB concentrations of less than 1 5 mg/kg milk fat and 0 2 mg/kg animal feed actual weight
IMP 56 Although agricultural resources are afforded little protection under other Federal, state, and local regulations, facilities should develop soil conservation and other programs to manage on-site agricultural resources, as an MP.	Verify that Federal land in agricultural use is properly managed, in accordance with agency policies, state/local regulations, Federal lease agreements, and sound range management practices
Coastal Resources	
IMP 57. Coastal resources, their habitats, and the associated biota are protected under the Federal Coastal Zone Management Act (CZMA) through state-administered Coastal Zone Management Plans (15 CFR 930.33(a)).	Confirm that the agency/facility has obtained a Certificate of Consistency with the state's Coastal Zone Management Plan for all projects located in wetlands, floodplains, or other coastal land areas subject to the CZMA. Verify that the facility has determined which (if any) of its activities affects ecological resources of the coastal zone in states with approved management programs

Compliance Category: Management of Environmental Impacts	
Regulatory Requirements:	**Reviewer Checks:**
IMP 58 In the event of environmental damage from a spill or other release of oil or hazardous material, resultant effects to coastal ecological resources must be evaluated by means of Natural Resource Damage Assessments (NRDA, 43 CFR 11 33).	Confirm that NRDAs have been conducted by the responsible agency/facility to assess damages to Federal and state trustee resources from specific oil or hazardous material spill/release events in coastal and marine ecosystems
IMP 59. The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) regulates ocean dumping and marine pollution and provides for the establishment of national marine sanctuaries that are afforded special protection and management programs	Verify that the facility/agency does not dispose of solid, hazardous, medical, or radioactive wastes in the ocean, except as approved through, and in compliance with, the conditions of a valid permit Determine if any facility or adjacent land is part of the National Marine Sanctuary Program (NMSP) or is currently a candidate on the Site Evaluation List (SEL) to be added to the NMSP. Verify that any facility bordering or potentially affecting a marine sanctuary protected under the NMSP adheres to the MPRSA regulations protecting these ecosystems (15 CFR 922-923)
Wild and Scenic Rivers	
IMP 60. Wild and scenic rivers registered under the Wild and Scenic Rivers Act (WSRA) are protected primarily within the context of environmental reviews and planning decisions made by the lead agency during the NEPA review process (36 CFR 297.6(a))	Verify that during NEPA reviews, the facility has determined which (if any) of its activities affects or has the potential to affect any rivers registered under the WSRA Confirm that EAs, EISs, FONSIs, and related studies made to satisfy NEPA requirements adequately address the effects on rivers protected by the WSRA.

Section 7

Other Environmental Impacts

Appendices

Appendix 7-1
Noxious Weeds
(7 CFR 360.200)

Scientific Name	Common Name
1. Aquatic weeds	
Azolla pinnata R Brown	mosquito fern, water velvet
Eichornia azurea (Swartz) Kunth	anchored waterhyacinth, rooted waterhyacinth
Hydrilla verticillata (Linnaeus f) Royle	hydrilla
Hygrophila polysperma T Anderson	Miramar weed
Ipomoea aquatica Forsskal	water-spinach, swamp morning-glory
Lagarosiphon major (Ridley) Moss	Limnophila sessiliflora (Vahl) Blume ambulia
(Linnaeus) Solms-Laubach Monochoria vaginalis	(Burman f) C Presl
Sagittaria latifolia Linnaeus	arrowhead
Salvinia auriculata Aublet	giant salvinia
Salvinia biloba Raddi	giant salvinia
Salvinia herzogii de la Sota	giant salvinia
Salvinia molesta D S Mitchell	giant salvinia
Sparganium erectum Linnaeus	exotic burrweed
Stratiotes aloides Linnaeus	water-aloe
2. Parasitic weeds	
Aeginetia spp	
Alectra spp	
Cuscuta *spp (dodders),* other than the following species *Cuscuta americana* Linnaeus *Cuscuta applanata* Engelmann *Cuscuta approximata* Babington	

Scientific Name	Common Name
Cuscuta attenuata Waterfall	
Cuscuta boldinghii Urban	
Cuscuta brachycalyx Yuncker	
Cuscuta californica Hooker & Arnot	
Cuscuta campestris Yuncker	
Cuscuta cassytiodes Nees ex Engelmann	
Cuscuta ceanothii Behr	
Cuscuta cephalanthii Engelmann	
Cuscuta compacta Jussieu	
Cuscuta corylii Engelmann	
Cuscuta cuspidata Engelmann	
Cuscuta decipiens Yuncker	
Cuscuta dentatasquamata Yuncker	
Cuscuta denticulata Engelmann	
Cuscuta epilinum Weihe	
Cuscuta epithymum (Linnaeus) Linnaeus	
Cuscuta erosa Yuncker	
Cuscuta europaea Linnaeus	
Cuscuta exalta Engelmann	
Cuscuta fasciculata Yuncker	
Cuscuta glabrior (Engelmann) Yuncker	
Cuscuta globulosa Bentham	
Cuscuta glomerata Choisy	
Cuscuta gronovii Willenow	
Cuscuta harperi Small	
Cuscuta howelliana Rubtzoff	
Cuscuta indecora Choisy	
Cuscuta jepsonii Yuncker	
Cuscuta leptantha Engelmann	
Cuscuta mitriformis Engelmann	

Scientific Name	Common Name
Cuscuta nevadenis I M Johnston *Cuscuta obtusiflora* Humbolt, Bonpland, & Kunth *Cuscuta occidentalis* Millspaugh, Mill & Nutall *Cuscuta odontolepis* Engelmann *Cuscuta pentagona* Engelmann *Cuscuta planiflora* Tenore *Cuscuta plattensis* A Nelson *Cuscuta polygonorum* Engelmann *Cuscuta rostrata* Shuttleworth & Engelmann *Cuscuta runyonii* Yuncker *Cuscuta salina* Engelmann *Cuscuta sandwichiana* Choisy *Cuscuta squamata* Engelmann *Cuscuta suaveolens* Seringe *Cuscuta suksdorfi* Yuncker *Cuscuta tuberculata* Brandegee *Cuscuta umbellata* Humbolt, Bonpland & Kunth *Cuscuta umbrosa* Beyrich & Hooker *Cuscuta vetchii* Brandegee	
Cuscuta warneri Yuncker	
Orobanche *spp (broomrapes)* other than the following species *Orobanche bulbosa* (Gray) G Beck *Orobanche californica* Schlechtendal & Chamisso *Orobanche cooperi* (Gray) Heller *Orobanche corymbosa* (Rydberg) Ferris *Orobanche dugessi* (S Watson) Munz *Orobanche fasciculata* Nutall *Orobanche ludoviciana* Nutall *Orobanche multicaulis* Brandegee	
Orobanche parishii (Jepson) Heckard	

Scientific Name	Common Name
Orobanche pinorum Greyer ex Hooker *Orobanche uniflora* Linnaeus *Orobanche valida* Jepson *Orobanche vallicola* (Jepson) Heckard	
Striga spp (witchweeds)	
3. Terrestrial weeds	
Ageratina adenophora (Sprengel) King & Robinson	crofton weed
Alternanthera sessilis (Linnaeus) R Brown ex de Candolle	sessile joyweed
Asphodelus fistulosus Linnaeus	onionweed
Avena sterilis Linnaeus *including Avena ludoviciana* Durieu	animated oat, wild oat
Borreria alata (Aublet) de Candolle	
Carthamus oxyacantha M Bieberstein	wild safflower
Chrysopogon aciculatus (Retzius) Trinius	pilipiliula
Commelina benghalensis Linnaeus	Benghal dayflower
Crupina vulgaris Cassini	common crupina
Digitaria scalarum (Schweinfurth) Chiovenda	African couchgrass, fingergrass
Digitaria velutina (Forsskal) Palisot de Beauvois	velvet fingergrass, annual conchgrass
Drymaria arenarioides Humboldt & Bonpland ex Roemer & Schultes	lightning weed
Emex australis Steinhell	three-cornered jack
Emex spinosa (Linnaeus) Campdera	devil's thorn
Euphorbia prunifoli Jacquin	painted euphorbia
Galega officinalis Linnaeus	goatsrue
Heracleum mantegazzianum Sommier & Levier	giant hogweed
Imperata brasiliensis Trinius	Brazilian satintail

Scientific Name	Common Name
Imperata cylindrica (Linnaeus) Raeuschel	cogongras
Ipomoea triloba Linnaeus	little bell, aiea morning-glory
Ischaemum rugosum Salisbury	muraingrass
Leptochloa chinensis (Linnaeus) Nees	Asian sprangletop
Lycium ferocissimum Miers	African boxthorn
Melastoma malabathricum Linnaeus	
Mikania cordata (Burman f) B L Robinson	mile-a-minute
Mikania micrantha Humboldt, Bonpland, & Kunth	
Mimosa invisa Martius	giant sensitive plant
Mimosa pigra Linnaeus var pigra	catclaw mimosa
Nassella trichotoma (Nees) Hackel ex Arechavaleta	serrated tussock
Opuntia aurantiaca Lindley	jointed prickly pear
Oryza longistaminata A Chevalier & Roehrich	red rice
Oryza punctata Kotschy ex Steudel	red rice
Oryza rufipogon Griffith	red rice
Paspalum scrobiculatum Linnaeus	Kodomillet
Pennisetum clandestinum Hochstetter ex Chiovenda	kikuyugrass
Pennisetum macrourum Trinius	African feathergrass
Pennisetum pedicellatum Trinius	kyasumagrass
Pennisetum polystachion (Linnaeus) Schultes	missiongrass, thin napiergrass
Prosopis alpataco R A Philippi	
Prosopis argentina Burkart	
Prosopis articulata S Watson	
Prosopis burkartii Munoz	

Scientific Name	Common Name
Prosopis caldenia Burkart	
Prosopis calingastana Burkart	
Prosopis campestris Griseback	
Prosopis castellanosii Burkart	
Prosopis denudans Bentham	
Prosopis elata (Burkart) Burkart	
Prosopis farcta (Solander ex Russel) Macbride	
Prosopis ferox Grisebach	
Prosopis fiebrigii Harms	
Prosopis hassleri Harms	
Prosopis humilis Gilles ex Hooker & Arnott	
Prosopis kuntzei Harms	
Prosopis pallida (Humboldt, Bonpland ex Willdenow) Humboldt, Bonpland, & Kunth	
Prosopis palmeri S Watson	
Prosopis reptans Bentham var reptans	
Prosopis rojasiana Burkart	
Prosopis ruizlealii Burkart	
Prosopis ruscifolia Grisebach	
Prosopis sericantha Gillies ex Hooker & Arnott	
Prosopis strombulifera (Lamarck) Bentham	
Prosopis torquata (Cavanilles ex Lagasca y Segura) de Candolle	
Rottboellia exaltata Linnaeus	itchgrass, raoulgrass
Rubus fruticosus Linnaeus (complex)	wild blackberry

Scientific Name	Common Name
Rubus moluccanus Linnaeus	wild raspberry
Saccharum spontaneum Linnaeus	wild sugarcane
Salsola vermiculata Linnaeus	wormleaf salsola
Setaria pallide-fusca (Schumacher) Stapf & Hubbard	cattail grass
Solanum torvum Swartz	turkeyberry
Tridax procumbens Linnaeus	coat buttons
Urochloa panicoides Beauvois	liverseed grass

Appendix 7-2
Management of Environmental Impacts Facility Tour Checklist

This checklist is provided as a reference for things to look for and take notes on during the "orientation tour " The list is not all inclusive, it is meant to serve as an aid or tool to remind the auditor of the major considerations during the tour Areas and specific compliance issues should be identified and targeted during the tour for subsequent follow-up/return visits

Ecological Assessment and Monitoring

_____ Locations of environmental monitoring/sampling stations, including biological surveillance areas
_____ Locations of air and water emission/effluent point sources

Soil and Sediment

_____ Erosion and sediment control devices for land undergoing development activities
_____ Vegetative cover to control dust and minimize soil erosion
_____ Soil type(s)
_____ Land farming or soil injection methods
_____ pH of soils in areas where solid or sewage wastes are deposited on land
_____ Backfill areas or tailings deposit areas
_____ Evidence of spills or releases into soils or sediments
_____ Evidence of ground water seeps and downgradient of contaminant sources

Vegetation

_____ Symptoms of stress/damage, plant death, or changes in floristic composition
_____ Relation of prevailing winds or water currents to vegetative death or distress
_____ Areas of reclamation or restoration (check health of plantings)
_____ Presence of and control efforts for noxious weeds

Wildlife

_____ Visible evidence of the relative extent of biodiversity
_____ Measures to protect migratory birds (e.g , nets over waste lagoons) and their habitats
_____ Restrictions on hunting posted at the facility
_____ Adverse effects on habitat resulting from vegetative death
_____ Breeding habitat for birds and wildlife
_____ Presence of pest species of wildlife
_____ Presence of wildlife migratory corridors or well-worn trails
_____ Signs of wildlife presence (e g , tracks, nests, scat (dung), etc)
_____ Sightings of wildlife onsite, utilizing habitats
_____ Presence of wildlife exclusionary devices in hazardous areas (e.g , fences)

Appendix 7-2 (continued)
Management of Environmental Impacts Facility Tour Checklist

Aquatic Biota

_____ Water quality of aquatic habitat (extent of eutrophication/algal blooms)
_____ Abundance of invertebrates, fish, and shellfish
_____ Evidence of fish kills resulting from contaminant releases or impingement water intakes
_____ Outfalls to fish habitats
_____ Locations of commercial shellfish beds and fishing grounds
_____ Evidence of silt deposits in or filling of surface waters

Endangered Species

_____ Presence of endangered species onsite
_____ Damages to endangered species habitats
_____ Endangered species surveillance program
_____ Signs warning of habitat sensitivity

Floodplains and Wetlands

_____ Presence/condition of dams, levees, and impoundments
_____ Signs indicating flood hazard zone
_____ Presence of fill material and/or construction in floodplains or within the wetlands boundary
_____ Locations of dredge spoil disposal areas in wetlands or floodplains
_____ Locations of wetland mitigation areas, such as compensatory replication for lost/damaged wetland habitat
_____ Measures to minimize the effects of flooding in wetlands
_____ Erosion/silt controls between work areas and wetlands

Agricultural Resources

_____ Types of crops/livestock raised on nearby farms
_____ Presence of crop/pasture lands within 16 km of facility
_____ Sewage/solid waste applied to agricultural grounds

Coastal Resources

_____ Define areas within the Coastal Zone Management Area

Wild and Scenic Rivers

_____ Features of wild and scenic rivers that have been or could be affected by facility

Phase 1

Section 8

Hazardous Materials Management

Phase 1
Section 8
Table of Contents

Hazardous Materials Management

A. Applicability 8-1
B. Federal Legislation 8-1
C. State/Local Regulations 8-1
D. Key Compliance Requirements 8-2
E. Key Compliance Definitions 8-4
F. Records to Review 8-8
G Physical Features to Inspect 8-8
H. Guidance for Checklist Users 8-9

Appendices

A8-1. Maximum Allowable Capacity of Containers A8-1
A8-2. Storage in Inside Rooms A8-2
A8-3. Flammable/Combustible Materials A8-3
A8-4. Potentially Incompatible Hazardous Materials A8-7
A8-5. Placarding Guidelines A8-10

A. Applicability

This section addresses the proper storage and handling of chemicals and the spill contingency and response requirements related to hazardous materials. Oil, pesticides, and asbestos are hazardous materials that require special management practices at facilities; they and are addressed in separate sections. Radioactive substances and the general category of hazardous wastes are also not included in this section This section does not focus on individual hazardous chemicals or substances used but deals with the generic requirements and Management Practices (MPs) associated with minimizing impacts on the environment resulting from spills or releases of hazardous materials because of improper storage and handling.

Assessors are required to review agency, Federal, state, and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. The Occupational Safety and Health Act (OSHA)

This Act, last amended in November 1990 (29 U S. Code (USC) 651-678), is a Federal statute that governs the issues related to occupational safety and health. The purpose and policy of this Act are to assure every working man and woman in the nation safe and healthful working conditions and to preserve our human resources by, among other things, providing for the development and publication of occupational safety and health standards, an effective enforcement program, and appropriate reporting procedures with respect to occupational safety and health procedures that will help achieve the objectives of this Act and accurately describe the nature of the occupational safety and health (29 USC 651(b)(9)(10)(12)).

2. The Hazardous Materials Transportation Act of 1975

This Act, as last amended in November 1990 (49 USC 1801-1819, et al), is the Federal legislation that governs the transportation of hazardous materials in the nation. The policy of Congress is to improve the regulatory and enforcement authority of the Secretary of Transportation to protect the nation adequately against the risks to life and property inherent in the transportation of hazardous materials in commerce (49 USC 1801).

3. The National Fire Code, Flammable and Combustible Liquids Code NFPA 30

Prohibits the storage of Class I and Class II liquids in plastic containers in general-purpose warehousing.

C. State/Local Regulations

Hazardous materials may be regulated on the state level as well as by local agencies (county/city fire departments) which may require flammable/combustible materials to meet certain storage requirements. Usually, these local ordinances will follow the National Fire Protection

Association (NFPA) Fire Protection Guide on Hazardous Materials (Pamphlets 325A, 325M, 49, 491F, and 704M)

D. Key Compliance Requirements

1. Planning and Documentation

Facilities should maintain a master listing of hazardous materials storage sites. When the facility requires outside fire protection help, it should tell the local fire department the types of hazardous chemicals it uses, the areas where it uses them, what it uses them for, and the amounts it uses. Facilities are required to have Material Safety Data Sheet (MSDS) files for each hazardous chemical it stores and uses, not including such items as hazardous waste, tobacco, or drugs and cosmetics meant for personal use (29 CFR 1910.1200(b) and 1910.1200(g)).

2. Personnel Training

Facilities are required to provide all employees with written information about the hazardous chemicals to which they are exposed. Personnel who work with hazardous materials are required to be trained in the use of and potential hazards of such materials. All employees and supervisors working on sites exposed to hazardous materials or other hazards are required to be trained before engaging in these activities (29 CFR 1910.1200).

3. Hazardous Materials Storage

Containers for hazardous chemicals are required to be labeled or tagged with the identity of the substance and appropriate warning markings. Areas where hazardous materials are stored or used around the facility are required to be kept free from accumulations of materials that create a hazard, such as leaking containers or a placement of containers in a manner that would create hazards such as tripping, fire, or pests Substances that together may create a fire hazard must separated (29 CFR 1910.176(c), 1910.1200(b) and 1910.1200(f)).

4. Hazardous Materials in Laboratories

Facilities that use hazardous chemicals in laboratories are required to have a Chemical Hygiene Plan, which is reviewed annually. Such facilities are also required to provide employees with information and training about the hazardous chemicals in their work areas Records about the exposure of employees are to be kept medical records (29 CFR 1910.1450(e), 1910.1450(f), 1910.1450(h), 1910.1450(j))

5. Storage of Flammable/Combustibles

In general, containers of flammable combustible liquids are to be stored and handled so as not to damage the container or label, block exits, or create a fire hazard (29 CFR 1910.106(d)).

6. Flammable Combustible Storage Cabinets

Storage cabinets are to be fire resistant and labeled FLAMMABLE - KEEP FIRE AWAY. No more than 60 gal (227.12 L) of Class I or Class II liquids and no more than 120 gal (454.23 L) of Class III liquids can be stored in a cabinet (29 CFR 1910.106(d)(3)).

7. Flammable Combustible Storage Rooms

Storage rooms inside a building are to be fire resistant and have a raised sill or ramp to prevent the flow of spilled material from exiting the room Ventilation and clear aisles must be provided, and dispensing must be done by an approved pump or self-closing faucet (29 CFR 1910.106(d)(4)).

8. Flammable/Combustible Warehouses or Storage Buildings

These structures will have 3-ft (0.91 m) wide aisles for access to doors, windows, or standpipe connections. Materials will be stacked using pallets or dunnage when needed for stabilization, and fire protection must be provided (29 CFR 1910 106(d)(5)(iv)).

9. Outside Storage of Flammable Combustible Liquids

Containers of flammable/combustible liquids can be stored outside if no more than 1,100 gal (4,163.95 L) of liquid are stored adjacent to a building More than 1,100 gal (4,163 95 L) can be stored if there are 10 ft (3.05 m) or more between buildings and the nearest flammable container The storage area must be graded or surrounded by a curb to divert spills (29 CFR 1910.106(d)(6)).

10. Storage of Flammable/Combustibles in Industrial Areas

Specific guidelines, requirements, or operating standards apply wherever flammable/combustible materials are stored, dispensed, or used in industrial plants; are in incidental storage, or in use in unit operations. This includes availability of portable fire extinguishers, precautions being to prevent ignition, and use of maintenance and operating practices to control leakage and prevent accidental escape of flammable/combustible liquids (29 CFR 1910 106(e)(2) through 1910.106(e)(9)).

11. Compressed Gases

Regardless of where the cylinders are stored, NO SMOKING signs should be posted and actions taken to prevent fire. Compressed gases are required to be stored according to the Compressed Gas Association Pamphlet P-1-1965 (29 CFR 1910.101).

12. Acid Storage

Bulk storage of acids should be in buildings that are one story in height with ventilation Safety equipment and fire protection must be available The building is labeled NO SMOKING and heated to prevent freezing (MP)

13. Hazardous Materials Transportation

The regulations in Title 49, Subchapter C of the CFR detail requirements for the transportation of hazardous materials. 49 CFR 171.1(c) stipulates that these requirements apply when materials are being transported in commerce According to a representative from the Department of Transportation (DOT), commerce is defined in terms of making a profit in this instance. Therefore, according to this representative, Subchapter C does not apply when government personnel are transporting hazardous materials in government vehicles.

E. Key Compliance Definitions

1. Aerosol

A material is dispensed from its container as a mist, spray, or foam by a propellant under pressure (29 CFR 1910.106(a)(1)).

2. Airborne Radioactivity Area

This includes (29 CFR 1910.96(e)(4)(i)):

- Any room, enclosure, or operating area in which airborne radioactive materials, composed wholly or partly of radioactive material, exist in concentration in excess of the amounts specified in column 1, Table 1, Appendix B, 10 CFR 20.

- Any room, enclosure, or operating area in which airborne radioactive materials exist in concentrations that, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amounts specified in column 1, Table 1, Appendix B to 10 CFR 20.

3. Approved

Listed or approved by Underwriters Laboratories, Inc., Factory Mutual Engineering Corporation, The Bureau of Mines, National Institute of Occupational Safety and Health (NIOSH), The American National Standards Institute (ANSI), NFPA, or other nationally recognized agencies that list, approve, test, or develop specifications for equipment to meet fire protection, health, or safety requirements (29 CFR 1910.106(a)(35)).

4. Barrel

A volume of 42 US gallons (29 CFR 1910.106(a)(33)).

5. Basement

A story of a building or structure having one-half or more of its height below ground level to which access for fire fighting purposes is unduly restricted (29 CFR 1910.106(a)(4)).

6. Boiling Point

The temperature at which a liquid starts to boil when at atmospheric pressure (14.7 psia (760 mm)), as determined by ASTM test D-86-72 (29 CFR 1910.106(a)(5)).

7. Bulk Plant

That portion of the property where flammable or combustible liquids are received by tank vessel, pipelines, tank car, or tank vehicle, and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel pipeline, car, tank vehicle, or container (29 CFR 1910.106(a)(7)).

8. Closed Container

A container so sealed with a lid or other closing device that neither liquid nor vapor will escape from it at ordinary temperatures (29 CFR 1910.106(a)(9)).

9. Combustible Liquid

A liquid having a flashpoint at or above 100°F (37.8°C). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows (29 CFR 1910 106(a)(18)):

- Class II liquids are those having a flashpoint at or above 100°F (37.8°C) and below 140°F (60°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.

- Class IIIA liquids are those having flashpoints at or above 140°F (60°C) and below 200°F (93 3°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the total volume of which makes up 99 percent or more of the total volume of the mixture.

- Class IIIB liquids are those having flashpoints at or above 200°F (93.3°C).

10. Fire Area

That portion of a building separated from the remainder by construction that has a rated fire resistance of at least one hour and all communicating openings properly protected by an assembly having a fire resistance rating of at least two hours (29 CFR 1910.106(a)(12)).

11. Flammable Aerosol

An aerosol that is required to be labeled FLAMMABLE under the Federal Hazardous Substance Labeling Act (15 USC 1261). These aerosols are considered Class IA liquids (29 CFR 1910.106(a)(19)).

12. Flammable Liquid

A liquid with a flashpoint below 100°F (37.8°C) except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Flammable liquids are categorized as Class I liquids, and are further subdivided as follows (29 CFR 1910.106(a)(19)).

- Class IA are those that have a flashpoint below 73°F (22.8°C) and a boiling point below 100°F (37.8°C).

- Class IB are those that have a flashpoint below 73°F (22.8°C) and a boiling point at or above 100°F (37.8°C).

- Class IC are those that have flashpoints at or above 73°F (22.8°C) and below 100°F (37.8°C).

13. Flashpoint

The minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Flashpoints are established using several standard closed-cup test methods (29 CFR 1910.106(a)(14)).

14. Hazardous Chemical

In relationship to laboratories, a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees (29 CFR 1910.1450(b)).

15. High Radiation Area

Any area accessible to personnel in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 mrems (29 CFR 1910.96(d)(3)(iii)).

16. Institutional Occupancy

The occupancy or use of a building or structure or any portion thereof by persons harbored or detained to receive medical, charitable, or other care or treatment or by persons involuntarily detained (29 CFR 1910.106(a)(16)).

17. Laboratory

A facility where the laboratory use of hazardous chemicals occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis (29 CFR 1910.1450(b)).

18. Laboratory Scale

Work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person (29 CFR 1910.1450(b)).

19. Laboratory Use of a Hazardous Chemical

Handling or use of such chemicals in which all of the following conditions are met (29 CFR 1910.106(a)(17)):

- Chemical manipulations are carried out on a laboratory scale;
- Multiple chemical procedures or chemicals are used;
- The procedures involved are not part of a production process, nor in any way simulate a production process; and
- Protective laboratory practices and equipment are available and are in common use to minimize the potential for employee exposure to hazardous chemicals.

20. Liquid

Any material with a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test D-5-73. When not otherwise identified, the term liquid will include both flammable and combustible liquid (29 CFR 1910.106(a)(17))

21. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

22. Material Safety Data Sheet (MSDS)

Written or printed material that contains information on hazardous chemicals such as common name, physical hazards, and health hazards (29 CFR 1910.1200(c)).

23. Office Occupancy

The occupancy or use of a building or structure or any portion thereof for the transaction of business, or the rendering or receiving of professional services (29 CFR 1910.106(a)(24)).

24. Protection for Exposure

Adequate fire protection for structures on property adjacent to tanks where there are employees of the establishment are located (29 CFR 1910.106(a)(27)).

25. Radiation

Includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles, but does not include sound or radio waves, visible light, or infrared or ultraviolet (29 CFR 1910.96(a)(1)).

25. Radiation Area

Any area accessible to personnel in which there exists radiation, originating in whole or in part with licensed material, at such levels that a major portion of the body could receive in any one hour a dose in excess of five mrems, or in any five consecutive days a dose in excess of 100 mrems (29 CFR 1910.96(d)(3)(ii)).

26. Radioactive Material

Any material that emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations (29 CFR 1910.96(a)(2)).

27. Safety Can

An approved flammable liquid container having a spring-closing lid, spout cover, and other features designed to safely relieve internal pressure and to provide safe storage for the liquid (29 CFR 1910.106(a)(29)).

28. Select Carcinogens

Any substance that meets *one* of the following criteria (29 CFR 1910.1450(b)):

- It is regulated by OSHA as a carcinogen;

- It is listed under the category "known to be carcinogens" and in the Annual Report on Carcinogens published by the National Toxicology Program (NTP);

- It is listed under Group 1 (carcinogenic to humans) by the International Agency for Research on Cancer Monographs (IARC); or

- It is listed in either Group 2A or 2B by IARC or under the category "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidences in experimental animals under specific situations.

29. Vapor Pressure
The pressure, measured in psia, exerted by a volatile liquid (29 CFR 1910.106(a)(30)).

F. Records to Review

- Hazardous Substance Spill Control and Contingency Plan
- Spill records
- Emergency plan documents
- MSDSs
- Inventory records
- Hazardous substance release reports
- Shipping papers
- Training records
- Placarding of hazardous materials
- Used oil storage sites
- HAZCOM plan

G. Physical Features to Inspect

- Hazardous material storage areas
- Shop activities
- Shipping and receiving area.

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	**Page Numbers**
All facilities	HM 1 through HM.4 HM 5 through HM 6 HM.7 HM 8	8-10 8-11 8-12 8-13
Personnel Training	HM 9 HM 10	8-13 8-15
Hazardous Materials in Laboratories	HM 11 HM 12 through HM 14	8-16 8-17
Releases of Hazardous Materials	HM 15	8-18
Flammable/Combustible Liquids General Industrial Areas	 HM 16 HM.17 through HM.20 HM 21 through HM 22 HM.23 through HM 24 HM.25 HM 26 HM 27	 8-18 8-19 8-20 8-21 8-22 8-23 8-24
Compressed Gas Storage	HM 28	8-24
Hazardous Materials Transportation	HM.29 through HM.30 HM 31 through HM 33 HM 34 through HM 35 HM 36 HM 37 HM.38 through HM.39 HM 40	8-24 8-25 8-26 8-27 8-28 8-29 8-30
Radioactive Materials	HM 41 through HM 42 HM.43 through HM 44 HM.45 through HM 46	8-30 8-31 8-32

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
HM 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
HM 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
HM 3 Facilities are required to abide by state and local regulations concerning hazardous materials (EO 12088, Section 1-1)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - transportation of hazardous materials - notification requirements - response plan requirements - spill response requirements)
HM 4 A master listing of all hazardous materials storage sites should be maintained at the facility (MP)	Determine the locations of all hazardous materials storage areas on the facility by interviewing staff (NOTE Hazardous constituents of expired materials discovered during the inventory process, or at any other time, should be identified prior to disposal, see appropriate checklist item in the Hazardous Waste Management protocol)

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 5 Specific persons should be designated responsible for hazardous materials storage areas, and the precise nature of their responsibilities should be specified (MP)	Verify that specific individuals have been designated responsible for hazardous materials storage areas Verify that the individuals designated responsible for hazardous materials storage areas are aware of the precise nature of their responsibilities
HM 6 Facilities are required to have on file a MSDS for each hazardous chemical stored and used at the facility (29 CFR 1910 1200(b)(3)(ii), 1910 1200(b)(4)(ii), 1910 1200(b)(6), 1910 1200(g)(1) and 1910 1200(g)(8))	Verify that an MSDS is on file and readily accessible to workers on all shifts in the workplace for each hazardous material stored or used (NOTE These requirements do not apply to - Hazardous waste - Tobacco or tobacco products - Wood or wood products - Articles which are defined as a manufactured item other than a fluid or particle which under normal conditions of use does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that -- is formed to a specific shape or design during manufacture -- has end use functions dependent in whole or in part upon its shape or design during end use - Food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - Any drug as that term is defined in the Federal Food, Drug, and Cosmetic Act when it is in its solid, final form for direct administration - Cosmetics which are packaged for sale or intended for personal use - Any consumer product or hazardous substance as defined in the Consumer Product Safety Act and the Federal Hazardous Substances Act where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater then exposure experienced by consumers - Ionizing and nonionizing radiation - Biological hazards) (NOTE· This requirement also applies to laboratories It also applies to work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use)

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM.7 Containers of hazardous chemicals in the workplace are required to be labeled, tagged, or marked with specific information (29 CFR 1910.1200(b)(3)(i), 1910 1200(b)(4)(i), 1910 1200(b)(5), 1910.1200(f)(5) through 1910 1200(f)(7)).	Verify that all containers of hazardous chemicals in the workplace are labeled with the following information: - Identity of the hazardous chemical - Appropriate hazard warnings - Name and address of the manufacturer, importer, or other responsible party - Identity of the hazardous chemical - Appropriate hazard warnings (NOTE. - The facility may use signs, placards, process sheets, batch tickets, operating procedures or other written materials instead of attached labels to identify stationary process containers as long as the alternate method identifies the containers to which it is applicable. - Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for the immediate use of the employee who performs the transfer are not required to be marked. - These requirements do not apply to -- any pesticide as such term is defined in FIFRA, when subject to the labeling requirements of that Act and regulations issued under that Act -- any chemical substance or mixture as defined by the Toxic Substances Control Act (TSCA) when subject to the labeling requirements of TSCA -- any food, food additive, color additive, drug, cosmetic, or medical or veterinary device as defined in the Federal Food, Drug, and Cosmetic Act -- any distilled spirits, wine, or malt beverage intended for nonindustrial use as defined in the Federal Alcohol Administration Act -- any consumer product or hazardous substance as defined in the Consumer Product Safety Act and the Federal Hazardous Substances Act when subject to a consumer product safety standard or labeling requirement under those Acts -- agricultural or vegetable seed treated with pesticides and labeled in accordance with the Federal Seed Act - These requirements do not apply to -- hazardous waste -- tobacco or tobacco products -- wood or wood products -- articles which are defined as a manufactured item other than a fluid or particle which under normal conditions of use does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that. - is formed to a specific shape or design during manufacture - has end use functions dependent in whole or in part upon its shape or design during end use -- food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel -- any drug as that term is defined in the Federal Food, Drug, and Cosmetic Act when it is in its solid, final form for direct administration -- cosmetics which are packaged for sale or intended for personal use -- any consumer product or hazardous substance as defined in the Consumer Product Safety Act and the Federal Hazardous Substances Act where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater then exposure experienced by consumers -- ionizing and nonionizing radiation -- biological hazards - This requirement also applies to laboratories It also applies to work operations where employees only handle chemicals in sealed containers which are not opened

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 8 Specific housekeeping requirements must be met in areas where hazardous materials are stored (29 CFR 1910 176(c))	Verify that areas where hazardous materials are stored and/or used around the facility are free from accumulations of materials that create a hazard from tripping, fire, explosion, or pest harborage (NOTE The following are suggested housekeeping practices: - Drums/containers are not leaking and are tightly sealed - Drip pans and/or absorbent material are placed under containers - Dispensing areas are located away from catch basins and storm drains)
Personnel Training	
HM 9 Facilities are required to have a written hazard communication program that is designed to provide all employees with information about the hazardous chemicals to which they are exposed (29 CFR 1910 1200(b)(6), 1910 1200(e)(1))	Verify that there is a written hazard communication program that contains or does the following - How general training will be done to inform employees of issues such as MSDSs and hazardous materials labels and other warning signs - A list of the hazardous chemicals known to be present (can be done for the entire workplace or individual work areas) - How training will be done - The methods the facility will use to inform the employees of the hazards associated with nonroutine tasks and the hazards associated with chemicals contained in unlabeled pipes in their work areas - Provides the other employers onsite with access to MSDSs for each hazardous chemical the other employer's employees may be exposed to while working - Informs the other employers of the labeling system used in the workplace - Informs the other employers of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies Verify that if the facility is operated such that employees from more than one employer may be exposed (for example, employees of a construction contractor working onsite), the hazard communication program also addresses what the facility will do to - Provide the other employers onsite with access to MSDSs for each hazardous chemical the other employer's employees may be exposed to while working - Inform the other employers of the labeling system used in the workplace - Inform the other employers of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies (NOTE This requirement also applies to laboratories and to work operations where employees handle chemicals in sealed containers that are not opened under normal conditions of use)

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM 9 continued	(NOTE· These requirements do not apply to - Hazardous waste - Tobacco or tobacco products - Wood or wood products - Articles that are defined as a manufactured item other than a fluid or particle which, under normal conditions of use, does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that: -- is formed to a specific shape or design during manufacture -- has end-use functions dependent in whole or in part upon its shape or design during end use - Food or alcoholic beverages that are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - Any drug as that term is defined in the Federal Food, Drug, and Cosmetic Act when it is in its solid, final form for direct administration - Cosmetics packaged for sale or intended for personal use - Any consumer product or hazardous substance as defined in the Consumer Product Safety Act and the Federal Hazardous Substances Act where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and whose use results in a duration and frequency of exposure that is not greater than exposure experienced by consumers - Ionizing and nonionizing radiation - Biological hazards)

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM.10. Personnel working with hazardous materials are required to be trained in their use and the potential hazards of such materials (29 CFR 1910.1200(b)(3)(iii), 1910.1200(b)(4)(iii), 1910.1200(b)(6), and 1910 1200(h)).	Verify that employees are provided with information and are trained on hazardous chemicals in their workplace at the time of initial assignment and whenever a new hazard is introduced into the workplace Verify that employees are informed of the following - Any operations in their work areas where hazardous chemicals are present - The location and availability of the written hazard communication program, including the required lists of hazardous chemicals and MSDSs Verify that training includes - Methods and observations to use to detect a release - The physical and health hazards of the chemicals in the work areas - Protective measures and procedures to use - The details of the hazard communication program developed by the facility, including an explanation of the labeling system, MSDSs, and how employees can obtain and use the appropriate hazard information. (NOTE· These requirements also apply to laboratories. They also apply, as necessary for protection in event of a spill or leak, to work operations where employees only handle chemicals in sealed containers that are not opened under normal conditions of use.) (NOTE: These requirements do not apply to - Hazardous waste - Tobacco or tobacco products - Wood or wood products - Articles defined as a manufactured item other than a fluid or particle which under normal conditions of use does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that -- is formed to a specific shape or design during manufacture -- has end use functions dependent in whole or in part upon its shape or design during end use - Food or alcoholic beverages that are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - Any drug as that term is defined in the Federal Food, Drug, and Cosmetic Act when it is in its solid, final form for direct administration - Cosmetics which are packaged for sale or intended for personal use - Any consumer product or hazardous substance as defined in the Consumer Product Safety Act and the Federal Hazardous Substances Act where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and whose use results in a duration and frequency of exposure that is not greater than exposure experienced by consumers - Ionizing and nonionizing radiation - Biological hazards)

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
Hazardous Materials in Laboratories	
(NOTE: The requirements for hazardous materials in laboratories do not apply to - Uses of hazardous chemicals that do not meet the definition of laboratory use - Laboratory uses of hazardous chemicals that provide no potential for exposure such as -- commercially prepared kits, such as pregnancy tests, in which all the reagents needed to conduct the test are contained in the kit -- procedures using chemically impregnated test media, such as Dip and Read tests)	
HM 11 Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to have a Chemical Hygiene Plan (29 CFR 1910 1450(e))	Verify that a written Chemical Hygiene Plan exists and is: - Capable of protecting employees from health hazards associated with hazardous chemicals in the laboratory - Capable of keeping exposure to regulated substances below required limits Verify that the plan is readily available to employees and employee representatives Verify that the plan includes the following elements and indicates specific measures to be taken when laboratory work involves the use of hazardous chemicals· - Standard operating procedures relevant to safety and health considerations to be followed - Criteria that will be used to determine and implement control measures to reduce employee exposure to hazardous chemicals including the engineering controls, the use of personal protective equipment, and hygiene practices - A requirement that fume hoods and other protective equipment are functioning properly and specific measures are taken to ensure proper and adequate performance of the equipment - Provisions for employee information and training - Circumstances and situations that require prior approval from a designated individual - Provisions for medical consultations and medical exams - Designation of individuals responsible for the implementation of the plan - Assignment of a Chemical Hygiene Officer and, if appropriate, establishment of a Chemical Hygiene Committee - Provisions for additional employee protection when working with particularly hazardous substances, including select carcinogens, reproductive toxins and substances that have a high degree of acute toxicity Provisions might include: -- establishment of a designated area -- use of containment devices such as fume hoods or glove boxes -- procedures for safe removal of contaminated waste -- decontamination procedures Verify that the plan is reviewed annually and updated as needed.

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 12 Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to provide employees with information and training concerning the hazards of the chemicals in their work areas (29 CFR 1910 1450(f))	Verify that information about the hazards of the chemicals in the work area is provided at the time of initial employment and prior to assignment involving new exposure risks (NOTE The frequency of refresher training is to be determined by the facility) Verify that employees are informed of - The requirements to be trained and informed - The location and availability of the Chemical Hygiene Plan - The permissible exposure limits for OSHA regulated substances or recommended exposure levels for other hazardous chemicals where there is no OSHA limit - Signs and symptoms associated with exposure - The location and known availability of known reference material such as MSDSs Verify that training includes - Methods and observations that may be used to detect the presence or release of a hazardous chemical - The physical and health hazards of chemicals in the work area - The measures employees can take to protect themselves - Applicable details of the Chemical Hygiene Plan.
HM 13 Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to follow specific handling and operating procedures (29 CFR 1910 1450(h))	Verify that labels on incoming containers of hazardous chemicals are not removed or defaced. Verify that MSDSs are maintained and readily accessible to lab employees Verify that if the facility is developing chemical substances, a determination is made as to whether or not it is a hazardous chemical if the composition of the chemical is known and the chemical is produced for use only by the laboratory Verify that if the facility is developing a chemical substance as a byproduct and the composition is not known, it is assumed to be hazardous Verify that if the chemical substance is produced for another user outside of the lab, the lab meets the standards outlined in 29 CFR 1910 1200 (see checklist items HM 6, HM 7, HM.9, and HM.10)
HM 14 Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to maintain specific records (29 CFR 1910 1450(j))	Verify that records of monitoring for employee exposure are maintained along with any medical records or test results

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
Release of Hazardous Materials	
HM 15 Absorbent materials should be available for spill and/or release cleanup in areas where hazardous materials are used or stored (MP)	Verify that absorbent materials are available for spill cleanup
Flammable/Combustible Liquids	
(NOTE· The requirements pertaining to the handling, storage and use of flammable/combustible liquids with a flashpoint below 200 °F (93.33 °C) outlined through 29 CFR 1910.106 (checklist items HM.17 through HM.27) do not apply to the following - Bulk transportation of flammable/combustible liquids - Storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment - Storage of flammable and combustible liquids on farms - Liquids without a flashpoint that may be flammable under some conditions, such as halogenated hydrocarbons and mixtures containing halogenated hydrocarbons - Mists, sprays, or foams, except in flammable aerosols - The following facilities when they meet NFPA Standards -- drycleaning plants -- manufacture of organic coatings -- solvent extraction plants -- stationary combustion engines and gas turbines (29 CFR 1910.106(j))	
General	
HM 16 Specific management practices should be considered when storing and handling flammable/combustible materials (MP)	Verify that the following management practices are followed - Items are not stored against pipes or coils producing heat - Paint drums that are stored horizontally are rolled a half turn every 90 days - Containers of paint are pelletized prior to storage - Aerosol containers are stored in well-ventilated areas

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 17 Drums and other containers of less than 60 gal (227 12 L) individual capacity and portable tanks less than 660 gal (2,498 37 L) individual capacity used to store flammable or combustible materials are required to meet specific standards (29 CFR 1910 106(d)(1) and 1910 106(d)(2))	Verify that flammable and combustible liquid containers meet the constraints outlined in Appendix 8-1 except that glass or plastic containers of no more than 1-gal (3 79-L) capacity may be used for a Class IA or IB flammable liquid if - The liquid would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container - The user's process either would require more than 1 pt (0 47 L) of a Class IA liquid or more than 1 qt (0 95 L) of a Class IB liquid of a single assay lot to be used at one time, or would require the maintenance of an analytical standard liquid of a quality that is not met by the specified standards of the liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-sixteenth of the capacity of the container allowed under Appendix 8-1 for the class of liquid Verify that each portable tank has one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 psig or 30 percent of the bursting pressure of the tank, whichever is greater (NOTE These standards do not apply to - Storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days)
HM 18 Flammable or combustible liquids shall not be stored in ways that limit the use of exits, stairways, or areas normally used for the safe egress of people (29 CFR 1910 106(d)(5)(i))	Verify that exits or common traffic routes are not blocked (NOTE These standards do not apply to - Storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days)
HM 19 Storage cabinets used for the storage of flammable/ combustible liquids must meet specific requirements (29 CFR 1910 106(d)(3))	Verify that storage cabinets meet the following - No more than 60 gal (227 12 L) of Class I or Class II liquids nor any more than 120 gal (454 23 L) of Class III liquids are stored in the cabinet - The cabinets are fire resistant - Cabinets are constantly closed and are conspicuously labeled *FLAMMABLE-Keep Fire Away*
HM 20 Storage cabinets used for the storage of flammable/ combustible liquids should meet specific requirements (MP)	Verify that storage cabinets meet the following - Materials within the cabinet are segregated - There are no open containers within the cabinet - All containers in the cabinet are labeled

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM 21 Flammable/ combustible storage rooms inside of buildings must meet certain specifications (29 CFR 1910 106(d)(4))	Verify that the facility's flammable/ combustible storage rooms meet the following - The walls meet fire resistance test NFPA 251-1969 - A 4-in (10 16-cm) raised sill or ramp is provided to adjacent rooms or buildings, or the floor of the storage area is 4 in. (10 16 cm) lower than the surrounding floors - An open grated trench that drains into a safe area is in the building if a sill or ramp is not present - Liquid tight wall/ floor joints exist - Self-closing fire doors exist (NFPA 80) - The electrical wiring and equipment meet NFPA 70 requirements - The storage in the rooms meet the requirements in Appendix 8-2 - There is either gravity or mechanical exhaust ventilation system - The exhaust system provides for six changes of air in the room per hour - Mechanical exhaust systems are controlled by a switch outside the door and have exhaust outlets on exterior walls - For gravity ventilation, the fresh air intake is on exterior walls - There is one clear aisle at least 3 ft (0 91 m) wide - Containers over 30-gal (113 56-L) capacity are not stacked one upon the other - Dispensing is done by an approved pump or self-closing faucet
HM 22 The storage of flammable or combustible liquids in warehouses or storage buildings shall meet specific requirements (29 CFR 1910.106(d)(5)(vi))	Verify that the following requirements are met - If the storage area is located 50 ft (15 24 m) or less from a building or line of adjoining property that may be built upon, the exposing wall is a blank wall having a fire-resistance rating of at least 2 hours - The storage arrangements outlined in Appendix 8-3 are met - Containers are separated by pallets or dunnage when necessary to provide stability and prevent excess stress on container walls - Portable tanks stored over one tier high are designed to nest securely - No pile is closer than 3 ft (0 91 m) to the nearest beam, chord, girder, or other obstruction - Piles are 3 ft (0 91 m) below sprinkler deflectors or discharge points of water spray - All wood shelving is at least 1 in (2 54 cm) thick - Aisles are at least 3 ft (0 91 m) wide when necessary for access to doors, windows, or standpipe connections

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 23 Flammable/combustible materials stored outside of buildings must meet certain storage and handling criteria (29 CFR 1910 106(d)(6))	Verify that outdoor flammable/combustible storage meets the following - No more than 1,100 gal (4,163 95 L) of flammable/combustible liquids are stored adjacent to buildings located on the same premises unless 10 ft (3 05 m) or more exists between buildings and the nearest flammable container - The storage area is graded to divert spills or is surrounded by a curb at least 6 in (15 24 cm) high - Drains terminate in a safe location - The storage area is protected against tampering and kept free of waste and other combustible materials - All containers bear contents, labels, and hazard markings - Total quantity and arrangement of liquids outside a building complies with the requirements in Appendix 8-3 (NOTE These standards do not apply to - Storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days)
HM 24 Areas where flammable/ combustible materials are stored must meet certain fire protection standards (29 CFR 1910 106(d)(7))	Verify that all flammable/combustible storage locations meet the following - There is at least one 12-B rated portable fire extinguisher located outside and within 10 ft ((3 05 m) of a door opening into any room for storage - There is at least one 12-B rated portable fire extinguisher located within 10 to 25 ft (3 05 to 7 62 m) of any Class I or Class II liquid storage area outside of a storage room, but inside a building - Fire extinguishing sprinklers or systems meet the standards in 29 CFR 1910 159 - No smoking or open flame is permitted within 50 ft (15 24 m) and signs are posted - Incompatible materials are not stored together (see Appendix 8-4) - No water reactive materials are stored in the same room with flammable/combustible liquids (NOTE These standards do not apply to - Storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - Flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days)

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
Industrial Areas	
(NOTE Checklist items HM 25 through HM 27 pertain to industrial areas where the use of flammable or combustible liquid is incidental to the principal business or where flammable or combustible liquids are handled or used only in unit physical operations such as drying, evaporating, filtering, distillation, and similar operations which do not involve chemical reactions)	
HM.25. Areas where flammable/combustible materials are stored, dispensed, or used in industrial plants shall meet specific guidelines (29 CFR 1910.106(e)(4) through 1910.106(e)(9))	Verify that the following provisions are met - Portable fire extinguishers and fire control equipment are in place, in quantity, and in type as needed for the hazards of operation and storage at the site - Adequate precautions are taken to prevent sources of ignition at the site - Class I liquids are not dispensed into containers unless nozzles and containers are electrically interconnected - Operations such as welding and cutting for repairs to equipment are done under the supervision of an individual in charge - Maintenance and operating practices control leakage and prevent the accidental escape of flammable or combustible liquids -- adequate aisles shall be maintained -- combustible waste material and residues are kept to a minimum, stored in covered metal containers, and disposed of daily -- the grounds areas around the buildings and unit operating areas are kept free of weeds, trash, or other unnecessary combustibles - Tank vehicle and tank car loading or unloading facilities are separated from aboveground tanks, warehouses, and other plant buildings or nearest line of adjoining property by a distance of 25 ft (7 62 m) for Class I liquids and 15 ft (4 57 m) for Class II and III liquids

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM 26. Incidental storage of flammable/combustible liquids in industrial areas must conform to certain requirements (29 CFR 1910 106(e)(2))	Verify that flammable and combustible liquids are stored in closed containers Verify that the storage areas meet the requirements outlined in 29 CFR 1910 106(d)(3) through 1910 106(d)(4) as listed in checklist items HM 19 and HM 21 except that - The quantity of liquid that is located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building does not exceed -- 25 gal (94 64 L) of Class IA liquids in containers -- 120 gal (454 25 L) of Class IB, IC, II, or III liquids in containers -- 660 gal (2,498 37 L) of Class IB, IB, II, or III liquids in a single portable tank - Where large quantities of flammable or combustible liquids are needed, storage may be in tanks Verify that areas where flammable/combustible liquids are transferred from one container to another container are separated from other operations in the building by an adequate distance or by fire-resistant construction Verify that adequate drainage or other means is provided to contain spills and adequate natural or mechanical ventilation is present Verify that the following practices are observed at the point of final use - Flammable liquids are kept in covered containers when not actually in use - Where flammable/combustible liquids are used or handled, means are provided to dispose promptly and safely of spills and leaks - Class I liquids are used only where there are no open flames or other sources of ignition - Flammable/combustible liquids are drawn from or transferred into vessels, containers, or portable tanks within a building only through a closed piping system, from safety cans by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self closing valve. (NOTE Transferring flammable/combustible liquids by means of air pressure on the container or portable tank is prohibited)

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 27 Those areas where flammable/ combustible liquids are used in unit operations such as mixing, drying, evaporating, filtering, or distillation are required to meet specific operating standards (29 CFR 1910.106(e)(3)).	Verify that the following parameters are met - Areas are located so that each building or unit of equipment is accessible from at least one side for fire fighting - Areas where unstable liquids are handled or small-scale unit chemical processes are carried out shall be separated from the remainder of the area by a fire wall of 2 hours minimum fire-resistance rating - Emergency drainage systems direct leakage and fire protection water to a safe location - Emergency drainage systems, if connected to public sewers or discharged into public waterways, are equipped with traps or a separator - When Class I liquids are being used, ventilation is provided at a rate of not less than 1 $ft^3/min/ft^2$ of solid floor area through either natural or mechanical means - Equipment is designed to limit flammable vapor-air mixtures
Compressed Gas Storage	
HM 28. The in-plant storage, handling, and utilization of all compressed gases in cylinders, portable tanks, rail tankers, or motor vehicles must be done according to the Compressed Gas Association Pamphlet P-1-1965 (29 CFR 1910.101).	Verify that compressed gas cylinders and tanks have safety relief devices
Hazardous Materials Transportation	
(NOTE· The regulations found in Title 49, Subchapter C of the CFR detail requirements for the transportation of hazardous materials 49 CFR 171.1(c) stipulates that these requirements apply when materials are being transported in commerce. According to a representative from the Department of Transportation, commerce is defined in this instance in terms of making a profit, therefore, Subchapter C does not apply to Federal agencies when Government personnel are transporting hazardous materials in Government vehicles However, the regulations do apply when transport is occurring in non-Government vehicles)	
HM 29 Shipping papers for hazardous materials are required to indicate the proper shipping name, hazard class, identification number, and quantities of materials (49 CFR 172.202)	Verify that the proper information is displayed on the shipping papers for the hazardous material.
HM 30 Each package or container shall be marked in accordance with specific marking requirements (49 CFR 171 3)	Verify that the commodity description (proper shipping name) as well as the following information is on the container - Exemption numbers for containers shipped under DOT exemptions - The name and address of consignee (or consignor) on the container.

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 31 The facility is responsible for providing proper placarding to vehicles transporting hazardous materials off the facility (49 CFR 172 500)	Determine if facility vehicles are used to transport hazardous materials off the facility Determine if proper DOT placards, as described in 49 CFR 172 504 through 172 558, are affixed to vehicles being used to transport hazardous materials offsite Determine if transportation has proper DOT placards for vehicles that are being used for transport of hazardous materials (NOTE Observe, if practical, the placarding of vehicles used to transport hazardous materials) (NOTE See Appendix 8-5 for sample wording of placards)
HM 32 The facility should ensure that transportation of hazardous materials between buildings is accomplished in accordance with good management practices to help ensure against spills, releases, and accidents (MP)	Determine if procedures exist to manage movement of hazardous materials throughout the facility Determine if drivers are trained in spill control procedures Determine if provisions have been made for securing hazardous materials in vehicles when transporting
HM 33 A facility that offers for transport, accepts for transport, transfers, or otherwise handles a hazardous material must have emergency response information available (49 CFR 172 600 through 172 604)	Verify that emergency response information includes - The description of the hazardous material required by 49 CFR 172 202-203 - Immediate hazards to health - Risks of fire or explosion - Immediate precautions to take in the event of an accident or incident - Immediate methods for handling small or large fires - Immediate methods for handling spills or leaks in the absence of fire - Preliminary first aid measures (NOTE Shipping papers must contain an emergency response telephone number for the hazardous materials being shipped) Verify that each carrier and facility operator maintains this emergency response information

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 34 Spills, leaks, and other incidents occurring during hazardous material transportation require immediate notification in specific circumstances (49 CFR 171.15)	Verify that immediate notification is done for those incidents in which, as a direct result of hazardous materials - A person is killed - A person is injured and requires hospitalization - Estimated carrier or other property damage exceeds $50,000 - An evacuation of the general public occurs lasting 1 or more hours - One or more major transportation arteries or facilities are closed or shut down for 1 or more hours - The operational flight pattern of an aircraft is altered - Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive materials - Fire, breakage, spillage, or suspected contamination occurs involving shipment of etiologic agents - The carrier feels the situation merits reporting, even though it does not meet the above requirements Verify that the immediate notification is given to the DOT by telephone (NOTE. If the notice involves etiologic agents, it may be given to the Centers for Disease Control and Prevention(CDC))
HM 35 Written hazardous materials incident reports are required to be submitted to the DOT of each hazardous material incident within 30 days of the incident (49 CFR 171 16)	Verify that Detailed Hazardous Materials Incident Reports (DHMIRs) are submitted to the DOT within 30 days if. - Any of the circumstances of 49 CFR 171 15 are met - There has been an unintentional release of hazardous materials from a package - Any quantity of hazardous materials has been discharged during transportation (NOTE Guidelines for assistance in completing a DHMIR may be obtained free of charge from the Office of Hazardous Materials Transportation DHM-51, U S Department of Transportation, Washington DC 20590) Verify that a copy of the report is retained onsite for 2 years (unless written permission has been obtained from the DOT to maintain records elsewhere)

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 36. Facilities are required to train each of its employees involved in the transportation of hazardous materials according to specific requirements (49 CFR 172.704(a), 172 704(b), 172 704(c)(3), 172.704(c)(4), 172.704(e), and 173 1(b))	(NOTE· Training conducted by facilities to comply with the hazard communication programs required by OSHA, The Department of Labor (29 CFR 1910 120), or the EPA (40 CFR 311.1) may be used to satisfy these requirements to the extent that the training addresses the requirements) (NOTE Relevant training received by the employee from a previous employer or other source may be used to satisfy these requirements, provided a current record of the training is obtained from the employee's previous employer) Verify that each employee is provided with general awareness/familiarization training designed to do the following - Provide familiarity with the requirements of 49 CFR 171 through 177 - Enable each employee to recognize and identify hazardous materials consistent with the hazard communication standards of 49 CFR 171 through 177 Verify that each employee is provided with function-specific training concerning those requirements of 49 CFR 171 through 177 that are specifically applicable to the functions the employee performs (NOTE Training related to the requirements of the ICAO Technical Instructions and the IMDG Code may be provided as an alternative to function-specific training on the requirements of 49 CFR 171 through 177 to the extent such training addresses functions authorized by 49 CFR 171 11 and 171 12) Verify that each employee is provided with function-specific training concerning exemptions issued under 49 CFR 106, 107, and 110 that are specifically applicable to the functions the employee performs Verify that each employee is provided with safety training concerning the following: - Emergency response information - Methods and procedures for avoiding accidents, such as the proper procedures for handling packages containing hazardous materials - Measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed to in the workplace, including specific measures the employer has implemented to protect employees from exposure (NOTE This requirement does not apply to an employee who repairs, modifies, reconditions, or tests packaging as qualified for use in the transportation of hazardous materials, and who does not perform any other function subject to the requirements of 49 CFR 171 through 177)

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 37. Facility employees that operate motor vehicles transporting hazardous materials must be appropriately trained (49 CFR 177 816(a) and 177 816(c))	(NOTE· This requirement may be met by compliance with the current requirements for a Commercial Driver's License (CDL) with a tank vehicle or hazardous materials endorsement) Verify that the motor carrier does not transport (or cause to be transported) a hazardous material unless each hazardous material employee who will operate a motor vehicle has been trained in the following - The applicable requirements prescribed in 49 CFR 390 through 397 - The procedures necessary for the safe operation of that vehicle Verify that each driver receives driver training that includes the following subjects· - Pretrip safety inspection - Use of vehicle controls and equipment, including operation of emergency equipment - Procedures for maneuvering tunnels, bridges, and railroad crossings - Requirements pertaining to attendance of vehicles, parking, smoking, routing, and incident reports - Loading and unloading of materials, including load securement, package handling methods, and compatibility and segregation of cargo in a mixed load - Operation of the vehicle, including turning, backing, braking, parking, and handling - Vehicle characteristics, including those that affect vehicle stability, such as -- effects of braking and curves -- effects of speed on vehicle control -- dangers associated with maneuvering through curves -- dangers associated with weather or road conditions that a driver may experience -- high center of gravity

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM 38 Facility employees that operate cargo tanks or vehicles with portable tanks having a capacity of 1,000 gal or more of hazardous materials must be appropriately trained (49 CFR 177.816(b) through 177 826(d)).	(NOTE This requirement may be met by compliance with the current requirements for a CDL with a tank vehicle or hazardous materials endorsements) Verify that each hazardous material employee who operates a cargo tank or vehicle with a portable tank with a capacity of 1000 gal or more receives training applicable to the requirements of 49 CFR 171 through 177 Verify that each employee has the appropriate state-issued CDL Verify that each employee receives specialized training that includes the following subjects - Operation of emergency control features of the cargo tank and portable tank - Retest and inspection requirements for cargo tanks - Loading and unloading procedures - The properties and hazards of the material transported - Special vehicle handling characteristics, including the following: -- high center of gravity -- fluid load subject to surge -- effects of fluid-load surge on braking -- characteristic differences in stability among baffled, unbaffled, and multi-compartmented tanks -- effects of partial loads on vehicle stability.
HM 39. Facilities must meet specific requirements regarding training schedules (49 CFR 172 704(c)(1) through 172 704(c)(3)).	Verify that training for an employee hired on or before 2 July 1993 is completed prior to 1 October 1993 Verify that training for an employee hired after 2 July 1993 is completed within 90 days after employment. Verify that an employee who changes hazardous materials job functions completes training in the new job function(s) within 90 days after the change. (NOTE: An employee may perform new hazardous materials job functions prior to the completion of training provided that the employee performs those functions under the supervision of a properly trained and knowledgeable employee) Verify that the employee receives the required training at least once every 2 years

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM 40. Facilities are required to maintain training records (49 CFR 172 704(d))	Verify that a record of current training, inclusive of the preceding two years, is created and retained by the facility for each employee for as long as that employee is employed by the facility as an employee and for 90 days thereafter Verify that the record includes the following: - The employee's name - The most recent training completion date of the employee's training - A description, copy, or the location of the training materials used - The name and address of the person providing the training - Certification that the employee has been trained and tested.
Radioactive Materials	
HM 41. Personnel working around radioactive materials are required to be notified of specific information and then trained (29 CFR 1910 96(i))	Verify that all individuals working in or frequenting any portion of a radiation area are - Informed of the existence of radioactive materials - Instructed in the safety problems associated with exposure to such materials and radiation, and in precautions or devices to minimize exposure - Advised of reports that must be made concerning exposure Verify that the facility has conspicuously posted a current copy of its provisions and operating procedures in locations where radioactive materials are found or keeps the documents in a place where they are available upon request.
HM.42. Specific notification requirements must be met for radioactive material incidents (29 CFR 1910 96(l) and 1910 96(m))	Verify that the facility notifies the Assistant Secretary of Labor (or the duly appointed representative) by telephone or telegraph of any incident that may have caused or threatened to cause - Exposure of the whole body or any individual to 25 rems or more of radiation - Exposure of the skin or the whole body of any individual to 150 rems or more of radiation - Exposure of the feet, ankles, hands, or forearms of any individual to 375 rems or more of radiation Verify that the facility notifies the Assistant Secretary of Labor or his duly appointed representative by telephone or telegraph of any incident that may have caused or threatens to cause the release of radioactive material in concentrations which, if averaged over a period of 24 hours, would exceed 5,000 times the limits specified in Table II, Appendix B, 10 CFR 20 Verify that notification is made within 24 hours of· - Exposure of the whole body or any individual to 5 rems or more of radiation - Exposure of the skin or the whole body of any individual to 30 rems or more of radiation - Exposure of the feet, ankles, hand, or forearms to 75 rems or more of radiation Verify that a written report of overexposure is made within 30 days.

Compliance Category: **Hazardous Materials Management**	
Regulatory Requirements:	**Reviewer Checks:**
HM 43 Specific signs are required in radiation areas (29 CFR 1910 96(e)(1) through 1910 96(e)(3)(i), 1910 96(e)(4) through 1910 96(e)(5), and 1910 96(g))	Verify that each radiation area is posted with a conspicuous sign or signs bearing the radiation symbol and the words CAUTION, RADIATION AREA Verify that each high-radiation area is posted with a conspicuous sign or signs bearing the radiation symbol and the words CAUTION, HIGH-RADIATION AREA. Verify that each airborne radioactive area is posted with a conspicuous sign or signs bearing the radiation symbol and the words CAUTION, AIRBORNE RADIOACTIVITY AREA Verify that each area or room in which radioactive material is used or stored and which contains any radioactive material (other than natural uranium or thorium) in any amount exceeding 10 times the quantity of such material specified in Appendix C of 10 CFR 20 is conspicuously posted with a sign or signs bearing the radiation caution symbol and the words CAUTION, RADIOACTIVE MATERIALS (NOTE. The following are exempted from sign posting requirements - A room or an area with a sealed source when the radiation level 12 in from the surface of the source container or housing does not exceed 5 mrems/hour - Rooms or other areas containing radioactive material for periods of less than 8 hours if. -- the materials are constantly attended during such periods by an individual who takes appropriate precautions -- the room is under the control of the facility.)
HM 44. Containers of radioactive materials are required to be labeled according to specific standards (29 CFR 1910 96(e)(6) and 1910 96(h))	Verify that each container that is used to transport, store, or hold a quantity of radioactive material (other than natural uranium or thorium) greater than the quantity of the material specified in Appendix C, 10 CFR 20 bears a durable, clearly visible label with the radiation caution symbol and the words CAUTION, RADIOACTIVE MATERIAL. (NOTE· A label is not required if: - The concentration of the material in the containers does not exceed that specified in Appendix C, 10 CFR 20 - The containers are laboratory containers such as beakers, flasks, and test tubes used transiently in laboratory procedures, and the user is present.) Verify that when containers are used for storage, the labels also state the quantities and kinds of radioactive materials in the containers as well as the date of measurement of the quantities (NOTE Radioactive materials packaged and labeled according to DOT rules do not have to be labeled according to these requirements if the inside containers are labeled according to these requirements)

Compliance Category: Hazardous Materials Management	
Regulatory Requirements:	**Reviewer Checks:**
HM 45 High-radiation areas are required to be equipped with specific control devices (29 CFR 1910 96(e)(3)(ii))	Verify that each high-radiation area is equipped with a control device that either causes the level of radiation to be reduced below the level at which an individual might receive a dose of 100 mrems in 1 hour upon entry into the area or energizes a conspicuous visible or audible alarm signal so that the individual entering and the supervisor of the activity are aware of the entry (NOTE This requirement does not apply to high radiation areas established for a period of 30 days or less)
HM 46 Radioactive materials stored in a nonradiation area must be secured against unauthorized removal from the place of storage (29 CFR 1910 96(j))	Verify that radioactive materials are stored in a manner that they are secured against unauthorized removal

Section 8

Hazardous Materials Management

Appendices

Appendix 8-1
Maximum Allowable Capacity of Containers and Portable Tanks
(29 CFR 1910.106(d)(2), Table H-12)

Container Type	Flammable Liquids			Combustible Liquids	
	IA	IB	IC	II	III
Glass or approved plastic	1 pt (0 47 L)	1 qt (0 95 L)	1 gal (3 79 L)	1 gal (3 79 L)	1 gal (3 79 L)
Metal (other than DOT drums)	1 gal (3 79 L)	5 gal (18 93 L)	5 gal (18 93 L)	5 gal (18 93 L)	5 gal (18 93 L)
Safety cans	2 gal (7 57 L)	5 gal (18 93 L)	5 gal (18 93 L)	5 gal (18 93 L)	5 gal (18 93 L)
Metal drums (DOT specifications)	60 gal (227 12 L)	60 gal (227 12 L)	60 gal (227 12 L)	60 gal (227 12 L)	60 gal (227 12 L)
Approved portable tanks	660 gal (2498 37 L)	660 gal (2498 37 L)	660 gal (2498 37 L)	660 gal (2498 37 L)	660 gal (2498 37 L)

Appendix 8-2
Storage in Inside Rooms
(29 CFR 1910.106(d)(4), Table H-13)

Fire Protection Provided[1]	Fire Resistance (hours)	Maximum Size	Total Allowable Quantities (gal/ft² floor area)[2]
Yes	2	500 ft² (46 45 m²)	10 (37.85 L)
No	2	500 ft² (46.45 m²)	4 (15.14 L)
Yes	1	150 ft² (13.94 m²)	5 (18.93 L)
No	1	150 ft² (13.94 m²)	2 (7.57 L)

[1] Fire protection system will be sprinkler, water spray, or other approved method.
[2] If metric containers are being stored, use the nearest metric equivalent

Appendix 8-3
Flammable/Combustible Materials
(29 CFR 1910.106(d)(5) and 1910.106(d)(6), Tables H-14 through H-17)

Indoor Container Storage

Class	Liquid Storage Level	Protected Storage Maximum per Pile	Unprotected Storage Minimum per Pile
A	Ground and upper floors Basement	2,750 gal (10,409 88 L) (50) Not permitted	600 gal (2,271.25 L) (12) Not permitted
B	Ground and upper floors Basement	5,500 gal (20,819 77 L) (100) Not permitted	1,375 gal (5,204.94 L) (25) Not permitted
C	Ground and upper floors Basement	16,500 gal (62,459 30 L) (300) Not permitted	4,125 gal (15,614 82 L) (25) Not permitted
II	Ground and upper floors Basement	16,500 gal (62,459 30 L) (300) 5,500 gal (20,819 77 L) (100)	4,125 gal (15,614.82 L) (75) Not permitted
III	Ground and upper floors Basement	55,000 gal (208,197.66 L) (1,000) 8,250 gal (31,229 65 L) (450)	13,750 gal (52,049 42 L) (250) Not permitted

Numbers in parenthesis indicate corresponding number of 55-gal drums.

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate maximum gallonages

NOTE 2. Aisles will be provided so that no container is more than 12 ft (3 66 m) from an aisle. Main aisles will be at least 8 ft (2.44 m) wide and side aisles at least 4 ft (1.22 m) wide

NOTE 3. Each pile shall be separated from the others by at least 4 ft (1 22 m).

Appendix 8-3 (continued)
Flammable/Combustible Materials
(29 CFR 1910.106(d)(5) and 1910.106(d)(6), Tables H-14 through H-17)

Outdoor Container Storage

Class	Maximum per pile (gal) (L)	Distance between piles (ft) (m)	Distance to property line that can be built upon (ft) (m)	Distance to street, alley or public way (ft) (m)
IA	1100 (4163 95)	5 (1 52)	20 (6 10)	10 (3 05)
IB	2200 (8327 91)	5 (1.52)	20 (6 10)	10 (3.05)
IC	4400 (44003.79)	5 (1 52)	20 (6 10)	10 (3.05)
II	8800 (33311.63)	5 (1 52)	10 (3.05)	5 (1.52)
III	22,000 (83279.06)	5 (1.52)	10 (3 05)	5 (1.52)

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate gallonages

NOTE 2. Within 200 ft (60 96 m) of each container, there will be a 12-ft (3.66-m) wide access way to permit approach of fire control apparatus.

NOTE 3. The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 3 will be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft (0.91 m)

Indoor Portable Tank Storage

Class Liquid	Storage Level	Protected Storage Maximum per Pile (gal) (L)	Unprotected Storage Minimum per Pile (gal) (L)
IA	Ground and upper floors Basement	Not permitted Not permitted	Not permitted Not permitted
IB	Ground and upper floors Basement	20,000 (75,708 24) Not permitted	2000 (7,570 82) Not permitted
IC	Ground and upper floors Basement	40,000 (151,420 48) Not permitted	5500 (20,820.32) Not permitted
II	Ground and upper floors Basement	40,000 (151,420.48) 20,000 (75,708.24)	5500 (20,820.32) Not permitted
III	Ground and upper floors Basement	60,000 (227,124 72) 20,000 (75,708.24)	22,000 (83,279.06) Not permitted

NOTE 1 When one or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate maximum gallonages

NOTE 2· Aisles will be provided so that no container is more than 12 ft (3 66 m) from an aisle. Main aisles will be at least 8 ft (2 44 m) wide and side aisles at least 4 ft (1.22 m) wide.

NOTE 3. All piles shall be separated from each other by at least 4 ft (1 22 m).

Outdoor Portable Tank Storage

Class	Maximum per pile (gal) (L)	Distance between piles (ft) (m)	Distance to property line that can be built upon (ft) (m)	Distance to street, alley public way (ft) (m)
IA	2,200 (8,327.95)	5 (1.52)	20 (6.10)	10 (3.05)
IB	4,400 (44,003 79)	5 (1 52)	20 (6 10)	10 (3.05)
IC	8,800 (33,311 63)	5 (1 52)	20 (6 10)	10 (3.05)
II	17,600 (66,623 25)	5 (1 52)	10 (3 05)	5 (1.52)
III	44,000 (166,558 12)	5 (1.52)	10 (3.05)	5 (1.52)

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate gallonages

NOTE 2. Within 200 ft (60 96 m) of each container, there will be a 12-ft (3 66-m) wide access way to permit approach of fire control apparatus.

NOTE 3 The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 3 will be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft (0.91 m).

Appendix 8-4
Potentially Incompatible Hazardous Materials

(Law, Regulations, and Guidelines for Handling of Hazardous Waste, California Department of Health, February 1975 (40 CFR 264, Appendix V))

Below are examples of potentially incompatible materials, along with the harmful consequences that result from mixing materials in one group with materials in another group. The list is intended as a guide to indicate the need for special precautions when managing these potentially incompatible waste materials or components This list is not intended to be exhaustive.

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequences as noted.

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery acid	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalies	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid

Potential Consequences: Heat generation; violent reaction.

Group 2-A	Group 2-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

Potential Consequences: Fire or explosion; generation of flammable hydrogen gas.

Appendix 8-4 (continued)
Potentially Incompatible Hazardous Materials

Group 3-A	Group 3-B
Alcohols	Any concentrated waste in Groups 1-A or 1-B
Water	Calcium
	Lithium
	Metal hydrides
	Potassium
	SO_2, Cl_2, $SOCl_2$, PCl_3, CH_3, $SiCl_3$
	Other water-reactive waste

Potential Consequences: Fire or explosion or heat generation; generation of flammable or toxic gases.

Group 4-A	Group 4-B
Alcohols	Concentrated Group 1-A or Group 1-B wastes
Aldehydes	Group 2-A wastes
Halogenated hydrocarbons	
Nitrated hydrocarbons	
Unsaturated hydrocarbons	
Unsaturated hydrocarbons	
Other reactive organic compounds and solvents	

Potential Consequences: Fire or explosion; violent reaction.

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential Consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Appendix 8-4 (continued)
Potentially Incompatible Hazardous Materials

Group 6-A	Group 6-B
Chlorates	Acetic acid and other organic acids
Chlorine	Concentrated mineral acids
Chlorites	Group 2-A wastes
Chromic acid	Group 4-A wastes
Hypochlorites	Other flammable and combustible wastes
Nitrates	
Nitric acid, fuming	
Perchlorates	
Permanganates	
Perioxides	
Other strong oxidizers	

Potential Consequences: Fire, explosion; or violent reaction.

Appendix 8-5
Placarding Guidelines

The following table specifies placards that should be used for the transportation of ANY QUANTITY of the listed hazardous material.

Hazardous Materials	
Classed or Described As	**Placards**
Class A Explosives	EXPLOSIVES A
Class B Explosives	EXPLOSIVES B
Poison A	POISON GAS
Flammable Solid	FLAMMABLE SOLID

(NOTE. Any of the above substances that are dangerous when wet should also have the placard· DANGEROUS WHEN WET, in addition to their primary placard)

The following table specifies placards that should be used for the transportation of 1,000 lb or more of the listed hazardous materials

Hazardous Materials	
Classed or Described As	**Placards**
Class C Explosives	FLAMMABLE
Nonflammable Gas	NONFLAMMABLE GAS
Nonflammable Gas (Chlorine)	CHLORINE
Nonflammable Gas (Fluorine)	POISON
Nonflammable Gas (Oxygen, pressurized liquid)	OXYGEN
Flammable Gas	FLAMMABLE GAS
Combustible Liquid	COMBUSTIBLE
Flammable Liquid	FLAMMABLE
Flammable Solid	FLAMMABLE SOLID
Oxidizer	OXIDIZER
Organic Perioxide	ORGANIC PERIOXIDE
Posion B	POISON
Corrosive Material	CORROSIVE
Irritating Material	DANGEROUS

1. Placards should be affixed on both sides, rear and front, of the motor vehicle
2. Place placards clear of ladders, pipes, and tarps
3. Placards should be at least 3 in. away from advertising and markings
4. The DANGEROUS placards may be used when a motor vehicle contains two or more classes of hazardous materials requiring different placards The DANGEROUS placard may be used in place of the separate placards for each class.
5. Portable tanks having a rated capacity of 1000 gal or more must be placarded
6. Cargo tanks having any quantity of hazardous material must be placarded

Phase 1

Section 9

Emergency Planning and Community Right-to-Know (EPCRA)

Phase 1
Section 9
Table of Contents

Emergency Planning and Community Right-to-Know (EPCRA)

A. Applicability 9-1
B Federal Legislation 9-1
C. State/Local Regulations 9-2
D. Key Compliance Requirements 9-2
E. Key Compliance Definitions 9-3
F. Records to Review 9-6
G Physical Features to Inspect 9-6
H. Guidance for Checklist Users 9-7

Appendices

A9-1. Consolidated List of Chemicals Covered in Title III of SARA A9-1

A. Applicability

This section addresses facilities that manufacture, process, store, or otherwise use Extremely Hazardous Substances (EHSs), as defined in 40 CFR 355, and toxic chemicals, as defined in 40 CFR 372.

Assessors are required to review agency, Federal, state, and local regulations to perform a comprehensive assessment.

B. Federal Legislation

1. The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)

This Act, also known as SARA Title III, was designed to promote emergency planning and preparedness at both the state and local level. It provides citizens, local governments, and local response authorities with information regarding the potential hazards in their community. EPCRA requires the use of emergency planning and designates state and local governments as recipients for information regarding certain chemicals used in the community

2. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements and for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

3. EO 12856, Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements

This EO, dated 3 August 1993, requires the heads of Federal agencies to develop a written pollution prevention strategy for their agencies The head of each agency shall ensure that each of its covered facilities develops a written pollution prevention plan no later than the end of 1995. Federal agencies are required to conduct assessments of their facilities as necessary to ensure development of these plans and of the facilities pollution prevention program. Each Federal agency will also develop voluntary goals to reduce the agency's total releases of toxic chemicals to the environment, and to ensure that offsite transfers of such chemicals for treatment and disposal are publicly reported. This also requires Federal agencies to comply with the provisions of EPCRA, because Previous to the EO, Federal agencies were exempted from compliance with EPCRA. As a result of EO 12856, Federal agencies that either own or operate a "facility", as that term is defined in Section 329(4) of EPCRA, must now comply with EPCRA as such facility meets the threshold requirements set forth in the regulations.

4. Pollution Prevention Act of 1990 (PPA)

In 1990, Congress enacted the Pollution Prevention Act (PPA) aimed at preventing or reducing pollution at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and conducted in an environmentally safe manner. The PPA required owners or operators of facilities required to file an annual toxic chemical release form under EPCRA Section 313 to also include with each annual filing a toxic chemical source reduction and recycling report for the preceding calendar year. Not only did EO 12856 require Federal agencies to comply with the provisions of EPCRA and file Toxic Release Inventory (TRI) reports for those chemicals exceeding thresholds, it also requires Federal facilities to prepare pollution prevention plans.

C. State/Local Regulations

State and local emergency response agencies may establish more stringent reporting requirements and may require the use of a state-specific inventory reporting form.

D. Key Compliance Requirements

1. Emergency Planning

A facility with extremely hazardous substances in amounts equal to or greater than the limits found in Appendix 9-1 are required to notify the emergency response commission and designate a representative to participate in local emergency planning (40 CFR 355.10 through 355.30 and 355 Appendix A).

2. Right-to-Know Requirements

Facilities which are required to prepare or have available a Material Safety Data Sheet (MSDS) for a hazardous chemical under OSHA are required to submit the MSDSs to the emergency commission and the fire department with jurisdictions over the facility for each hazardous chemical present at the facility according to the following thresholds by 3 August 1994:

- For all hazardous chemicals present at the facility at any one time in amounts equal to or greater than 10,000 lb (4540 kg) (not all hazardous chemicals requiring an MSDS are listed in Appendix 9-1); and

- For all extremely hazardous substances present at the facility in amounts greater than or equal to 500 lb (227 kg) or the threshold planning quantity (see Appendix 9-1).

But, instead of submitting the MSDSs, the facility has the option to submit

- A list of hazardous chemicals for which the MSDS is required, grouped by hazard category,
- The chemical or common name of each hazardous chemical, and
- Any hazardous component of each hazardous chemical except when reporting mixture

3. Emergency and Hazardous Chemical Inventory Forms

Section 312 of EPCRA requires subject facilities to submit annual *Emergency and Hazardous Chemical Inventory forms* to the state emergency response commission, the local emergency planning committee, and the fire department having jurisdiction over the facility The inventory form (Tier I) indicates chemical categories, quantities, and locations of chemicals on site Additionally, more detailed information may be requested by state agencies, in which case facilities would submit a Tier II form to emergency response organizations, which includes more detailed chemical information. The reporting under this requirement does not include accidental releases or permitted discharges and is specifically targeted toward chemicals present on site for emergency response planning activities.

4. Toxic Chemical Release Reporting

Section 313 of EPCRA requires annual reporting to the Federal and state governments of all releases of "toxic materials" (listed at 40 CFR 372.65) to the environment that occur as a result of normal operations. Facilities subject to this requirement must complete and submit to EPA and state officials a toxic chemical release form (Form R) for each toxic chemical manufactured, processed, or otherwise used in quantities exceeding established minimum threshold values during the preceding calendar year. EO 12856 requires Federal facilities to comply with Section 313 reporting regardless of the facility's Standard Industrial Classification (SIC) code, if the facility manufactured, processed, or otherwise used a listed toxic chemical in excess of specified threshold quantities.

5. Release Reporting

Section 304 of EPCRA establishes the reporting requirements for facilities that release any extremely hazardous substance listed in 40 CFR 355. EPCRA release reporting requirements apply to any facility where a hazardous chemical is produced, used, or stored and where there is a release of a reportable quantity of CERCLA hazardous substance (listed at 40 CFR 302) or any extremely hazardous substance (listed at 40 CFR 355).

E. Key Compliance Definitions

1. Article

A manufactured item·

a. which is formed to a specific shape or design during manufacture;
b. which has end-use functions dependent in whole or in part upon its shape or design during end use; and
c. which does not release a toxic chemical under normal conditions of processing or use of that item at the facility or establishments (40 CFR 372.3).

2. Commission

The emergency response commission for the state in which the facility is located except where the facility is located in Indian Country, in which case commission means the emergency response commission for the tribe under whose jurisdiction the facility is located. In absence of an emergency response commission, the Governor and the chief executive officer, respectively, shall be the commission. Where there is a cooperative agreement between a state and a tribe, the commission shall be the entity identified in the agreement (40 CFR 355.20, 370.2).

3. Committee or Local Emergency Planning Committee

The local emergency planning committee appointed by the emergency response commission (40 CFR 355 20, 370.2).

4. Extremely Hazardous Substance

A substance listed in the Appendices to 40 CFR Part 355, Emergency Planning and Notification (40 CFR 355.20, 370.2).

5. Facility

All buildings, equipment, structures, and other stationary items that are located on a single site or on contiguous or adjacent sites and that are owned or operated by the same person (or by any person which controls, is controlled by, or is under common control with, such person). The facility shall include manmade structures as well as all natural structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use. For purposes of emergency release notification, the term includes motor vehicles, rolling stock, and aircraft (40 CFR 355.20, 370.2, 372.3).

6. Hazardous Chemical

Any hazardous chemical as defined under 29 CFR 1910.1200(c), except where such term does not include the following substances (40 CFR 355.20, 370.2)

- Any food, food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration;
- Any substance present as a solid in any manufactured item to the extent that exposure to the substance does not occur under normal conditions of use;
- Any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public;

- Any substance to the extent it is used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual; and
- Any substance to the extent it is used in routine agricultural operations or is fertilizer held for sale by a retailer to the ultimate customer.

7. Import

To cause a chemical to be imported into the customs territory of the United States. For purposes of this definition, to cause means to intend that the chemical be imported and to control the identity of the imported chemical and the amount to be imported (40 CFR 372.3).

8. Inventory Form

The Tier I and Tier II emergency and hazardous chemical inventory forms set forth in Subpart D of 40 CFR 370 (40 CFR 370 2).

9. Material Safety Data Sheet or MSDS

The sheet required to be developed under 29 CFR 1910.1200(g) (40 CFR 370 2).

10. Manufacture

To produce, prepare, import, or compound a toxic chemical. Manufacture also applies to a toxic chemical that is produced coincidentally during the manufacture, processing, use, or disposal of another chemical or mixture of chemicals, including a toxic chemical that is separated from that other chemical or mixture of chemicals as a byproduct, and a toxic chemical that remains in that other chemical or mixture of chemicals as an impurity (40 CFR 372.3)

11. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

12. Mixture

Any combination of two or more chemicals, if the combination is not, in whole or in part, the result of a chemical reaction. However, if the combination was produced by a chemical reaction but could have been produced without a chemical reaction, it is also treated as a mixture A mixture also includes any combination that consists of a chemical and associated impurities (40 CFR 372.3).

13. Otherwise Use of Use

Any use of a toxic chemical that is not covered by the terms manufacture or process and includes use of a toxic chemical contained in a mixture or trade name product. Relabeling or redistributing a container of a toxic chemical where no repackaging of the toxic chemical occurs does not constitute use or processing of the toxic chemical (40 CFR 372 3).

14. Process

The preparation of a toxic chemical, after its manufacture, for distribution in commerce (40 CFR 372.3):

- In the same form or physical state as, or in a different form or physical state from, that in which it was received by the person preparing such substance, or
- As part of an article containing the toxic chemical.
- Process also applies to the processing of a toxic chemical contained in a mixture or trade name product.

15. Release

Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any toxic chemical (40 CFR 355.20, 372.3).

16. Threshold Planning Quantity or TPQ

The threshold planning quantity for an extremely hazardous substance as defined in 40 CFR 355 (40 CFR 355 20).

17. Toxic Chemical

A chemical or chemical category listed in 40 CFR 372.65 (40 CFR 372.3).

F. Records to Review

- Chemical inventory
- Previous Tier I/Tier II reports
- Toxic Release Inventory (TRI) reports (TRI or Form R)
- Pollution prevention plan
- MSDSs

G. Physical Features to Inspect

- Chemical storage areas
- Chemical manufacturing areas
- Recordkeeping system

H. Guidance to Checklist Users

	Refer To	
	Checklist Items	**Page Numbers**
All Facilities	E 1 through E 3	9-8
Releases	E 4 E 5 E 6 through E 7 E 8	9-9 9-10 9-11 9-12
Pollution Prevention	E 9	9-13

Compliance Category: **Emergency Planning and Community Right-to-Know (EPCRA)**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
E 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violations (NOVs), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements, or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
E 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities that are federally regulated but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
E 3 Facilities are required to abide by state and local regulations concerning hazardous materials (EO 12088, Section 1-1)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Transportation of hazardous materials - Notification requirements - Response plan requirements - Spill response requirements)

Compliance Category: Emergency Planning and Community Right-to-Know (EPCRA)	
Regulatory Requirements:	**Reviewer Checks:**
Releases	
E 4 Facilities where any hazardous chemical is used or stored at which there is a release of a reportable quantity of any extremely hazardous substance in amounts equal to or greater than the threshold limits (see Appendix 9-1) are required to provide emergency release notification (EO 12856, 40 CFR 355 40 and Part 355 Appendix A)	Determine if the facility has any of the extremely hazardous substances in amounts equal to or greater than those listed in Appendix 9-1 Determine if there has been a spill of an extremely hazardous substance in an amount exceeding the reportable quantity Verify that if a spill has occurred in excess of the reportable quantity, the facility immediately notified the - Community emergency coordinator for the local emergency planning committee of any area likely to be affected by the release - State emergency response commission of any state likely to be affected by the release - Local emergency response personnel if there is no local emergency planning committee Verify that the notice contains the following, to the extent known at the time of notice, so long as no delay in notice or emergency response results - The chemical name or identity of any substance involved in the release - An indication of whether the substance is an extremely hazardous substance - An estimate of the quantity of any such substance that was released into the environment - The time and duration of the release - The medium or media into which the release occurred - Any known or anticipated acute or chronic health risks associated with the emergency, and, where appropriate, advice regarding medical attention necessary for exposed individuals - Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordination because of the local emergency plan) - The names and telephone numbers of the person or persons to be contacted for further information Verify that after the immediate verbal notification, a follow-up written emergency notification is produced which contains the same information detailed in the verbal notice plus - Actions taken to respond to and contain the release - Any known or anticipated acute or chronic health risks associated with the risk - Advice regarding medical attention necessary for exposed individuals, as needed (NOTE These release notification requirements do not apply to the following - Any release that results in exposure to persons solely within the boundary of the facility - Any release that is a federally permitted release as defined in CERCLA - Any release that is continuous and stable in quantity and rate - Any release of a pesticide product exempt from CERCLA reporting - Any release not meeting the definition of a release)

Compliance Category: Emergency Planning and Community Right-to-Know (EPCRA)	
Regulatory Requirements:	**Reviewer Checks:**
E 5 Facilities required to prepare or have available a MSDS for a hazardous chemical under OSHA are required to meet specific MSDS reporting requirements for planning purposes (EO 12856, 40 CFR 370 20, 370 21, and 370.28)	Verify that MSDs are submitted to the emergency commission and the fire department with jurisdictions over the facility for each hazardous chemical present at the facility according to the following thresholds by 3 August 1994· - For all hazardous chemicals present at the facility at any one time in amounts equal to or greater than 10,000 lb (4,540 kg) (not all hazardous chemicals requiring an MSDS are listed in Appendix 9-1) - For all extremely hazardous substances present at the facility in amounts greater than or equal to 500 lb (227 kg) or the threshold planning quantity, whichever is lower (see Appendix 9-1). (NOTE Commonly overlooked substances requiring a an MSDS are propane and petroleum-based fuels) Verify that if the facility has not submitted MSDSs, the following have been submitted - A list of hazardous chemicals for which the MSDS is required, grouped by hazard category - The chemical or common name of each hazardous chemical - Any hazardous component of each hazardous chemical except when reporting mixture Verify that revised MSDS sheets are provided within 3 months after the discovery of significant new information concerning the hazardous chemical. (NOTE The facility may fulfill these reporting requirements for a hazardous chemical that is a mixture of hazardous chemicals by doing one of the following - Providing the required information on each component in the mixture that is a hazardous chemical - Providing the required information on the mixture itself)

Compliance Category: **Emergency Planning and Community Right-to-Know (EPCRA)**	
Regulatory Requirements:	**Reviewer Checks:**
E 6 Facilities required to prepare or have available an MSDS sheet for a hazardous chemical under OSHA are required to meet specific inventory reporting requirements for planning purposes (EO 12856, 40 CFR 370 20, 370 25 and 370 28)	Verify that the Tier I (or Tier II) forms are submitted to the emergency commission and the fire department with jurisdictions over the facility for each hazardous chemical present at the facility according to the following thresholds by 1 March 1995 and annually thereafter - For all hazardous chemicals present at the facility at any one time in amounts equal to or greater than 10,000 lb (4,540 kg) (not all hazardous chemicals requiring an MSDS are listed in Appendix 9-1) - For all extremely hazardous substances present at the facility in amounts greater than or equal to 500 lb (227 kg) or the threshold planning quantity (see Appendix 9-1) (NOTE Commonly overlooked substances requiring an MSDS are propane and petroleum based fuels) (NOTE The facility may fulfill these reporting requirements for a hazardous chemical that is a mixture of hazardous chemicals by doing one of the following - Providing the required information on each component in the mixture which is a hazardous chemical - Providing the required information on the mixture itself)
E 7 As of 1 July 1995 Facilities that manufacture, process, or otherwise use a toxic chemical (see Appendix 9-1) in excess of applicable threshold quantities and that have 10 or more employees are subject to certain reporting and record keeping requirements (EO 12856, 40 CFR 372 22 through 372 30)	Determine if facilities meeting the listed criteria exceed the following threshold levels - Has manufactured or processed 25,000 lb/yr (11,337 31 kg/yr) of toxic chemicals - Has used 10,000 lb (4,40 kg) of toxic chemicals in other ways during the year (NOTE Articles containing toxic chemicals are not included in calculations of total toxic chemical present at the facility See 40 CFR 372 30(b)(3) for procedure to determine whether an excess has occurred) Verify that facility annually submits a completed EPA Form R to the EPA and state on or before 1 July of the next year Verify that facilities retain the following records for 3 years - A copy of each report submitted - All supporting materials and documentation used to make the compliance determination

Compliance Category: Emergency Planning and Community Right-to-Know (EPCRA)	
Regulatory Requirements:	**Reviewer Checks:**
E 8 Facilities where there are extremely hazardous substances present in amounts equal to or greater than the threshold limits found in Appendix 9-1 are required to follow specific emergency planning procedures (EO 12856, 40 CFR 355 30, and Part 355 Appendix A)	Determine if the facility has any of the items listed in Appendix 9-1 as extremely hazardous substances in amounts equal to or greater than those listed in Appendix 9-1 Verify that the facility has notified the state emergency response commission, or Governor if there is not emergency response commission, that the facility is subject to emergency planning requirements within 60 days after the facility first becomes subject to these requirements Determine whether the facility has representatives TO contact by internal and external parties Verify that the facility has notified the local emergency planning committee, or Governor if there is no committee, of the facility representative on or before 3 March 1994 Verify that the facility is actively participating in offsite planning by interviewing the facility point of contact and reviewing the files Verify that a procedure is in place to notify the local emergency planning committee of changes at the facility that are relevant to emergency planning

Compliance Category: Emergency Planning and Community Right-to-Know (EPCRA)	
Regulatory Requirements:	**Reviewer Checks:**
Pollution Prevention	
E 9 EO 12856 required Federal facilities to develop a written pollution prevention plan (EO 12856, Section 3-302)	Determine if the facility has prepared a written pollution prevention plan (EO 12856, Section 3-302). (NOTE This plan is required by the end of 1995 for each "covered facility" (e g , a Federal facility that meets the threshold for toxic chemical release reporting under EPCRA Section 313)) If so, review the plan to determine if the following components are included and comment on the thoroughness of the plan based on the size of the facility - Facility-wide methods to reduce pollutants to reach required Federal agency reduction goals - Goals and policies for the facility's pollution prevention achievements - Management commitment to pollution prevention - Baseline study/information on pollutant generation, environmental releases of pollutants, worker exposures to hazardous chemicals, use and management of hazardous materials, and adverse environmental impacts - Identification of pollution prevention opportunities and options - Criteria for prioritizing the opportunities and ranking the options - Implementation schedule for completion of major milestones, identification of roles and responsibilities, identification of barriers encountered or expected, communication and training needs, and evaluation and measurement of success

Section 9

Emergency Planning and Community Right-to-Know

Appendix

Appendix 9-1
Consolidated List of Chemicals Covered in Title III of SARA

This consolidated chemical list includes chemicals subject to reporting requirements under Title III of SARA. This consolidated chemical list does not contain all chemicals that are subject to reporting requirements in Sections 311 and 312 of SARA Title III. These hazardous chemicals, for which MSDS must be developed under the Occupational Safety and Health Act Hazard Communication Standards, are identified by broad criteria, rather than enumeration. There are over 50,000 such substances that meet the criteria. The consolidated list has been prepared to help determine whether there is a need to submit reports under Section 304 or 313 of Title III and, for a specific chemical, what reports need to be submitted.

The list includes chemicals under the four following Federal statutory provisions

1 *SARA Section 302 Extremely Hazardous Substances* - The presence of which, in sufficient quantities, requires certain emergency planning activities to be conducted. Releases of these substances are also subject to reporting under Section 304 of Title III. The final rule listing the extremely hazardous substances and their threshold planning quantities (TPQ), is found in 40 CFR 355.

2 *CERCLA Hazardous Substances (RQ) Chemicals* - Releases of which are subject to reporting under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980. Such releases are also subject to reporting under Section 304 of Title III. CERCLA hazardous substances, and their reportable quantities (RQ), are listed in 40 CFR Part 302, Table 302 4.

3. *SARA Section 313 Toxic Chemicals* - Emissions or releases of which must be reported annually as part of SARA Title III's community right-to-know provisions. A list of these toxic chemicals is found in 40 CFR 372.65.

4. *RCRA Hazardous Wastes* - from the "P" and "U" lists (40 CFR 261.33), of specific chemicals. RCRA hazardous wastes from the "F" and "K" lists are not included here, such waste streams are also CERCLA hazardous substances. This listing is provided as an indicator that you may already have data on a specific chemical that can be used for Title III reporting purposes

There are four columns in the consolidated list corresponding to these four statutory provisions. If a chemical is listed as an extremely hazardous substance under Section 302, its TPQ is given in the extremely hazardous substance column. Similarly, the CERCLA RQ is given for those chemicals that are listed as hazardous substances. A key to the symbols used in the Section 302 and CERCLA columns precedes the list. An "X" in the column for Section 313 indicates that the chemical is subject to reporting under Section 313

The letter-and-digit code in the column for 40 CFR 261.33 is the chemical's RCRA hazardous waste code. A blank in any of these columns indicates that the chemical is not subject to the corresponding statutory authorities.

The Chemical Abstract Service (CAS) registry number is provided for each chemical on the list.

Key to Symbols in the Consolidated Chemical List

# Indicates that the RQ is subject to change when an assessment of potential carcinogenicity and/or chronic toxicity is completed; until then, the statutory RQ applies.

Indicates that an adjusted RQ has been proposed, but a final judgment has not been made.

+ USEPA has proposed to adjust the RQ for radionuclides by establishing RQs in units of curies; until then, the 1 lb RQ applies.

* Indicates that the chemical is proposed for deletion from the list of extremely hazardous substances.

** Indicates that no RQ is assigned to this generic or broad class.

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Consolidated Chemical List

This is an alphabetical listing of the consolidated list of chemicals. Numbered chemicals are listed first.

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,Amino-2-methyl-anthraquinone			x		82-28-0
1-Butanamine,N-butyl-N-nitroso-		10	x	U172	924-16-3
1-Chloro-1,1-difluoroethane (HCFC-142(b)			x		75-68-3
1-Chloro-1,1,2,2-tetrafluoroethane (HCFC-124a)			x		354-25-6
1-Methylbutadiene		100		U186	504-60-9
1-Naphthalamine		100	x	U167	134-32-7
1-Propanamine		5000		U194	107-10-8
1-Propanol,2,3-dibromo-phosphate (3 1)		10	x	U235	126-72-7
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethoxy-		100	x	U091	119-90-4
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethyl-		10	x	U095	119-93-7
1,1-Dichloro-1-fluoroethane (HCFC-141b)			x		1717-80-6
1,1-Dichloro-1,2,2-trifluoroethane (HCFC-123b)			x		812-04-4
1,1-Dichloroethane		1000		U076	75-34-3
1,1-Dichloroethylene		100	x	U078	75-35-4
1,1,1,2-Tetrachloroethane			x		630-20-6
1,2-Benzenedicarboxylic acid,[bis(2-ethylhexyl)]ester		100	x	U028	117-81-7
1,2-Benzenedicarboxylic acid, diethyl ester (diethyl phthlate)		1000	x	U088	84-66-2
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino) ethyl]-		1000		P042	51-43-4
1,2-Benzisothiazolin-3(2H) one,1,1-dioxide		100	x	U202	81-07-2

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,2-Benzphenanthrene		100		U050	218-01-9
1,2-Butylene oxide			x		106-88-7
1,2-Dibromo-3-chloropropane		1	x	U066	96-12-8
1,2-Dichloro-1,1,2-trifluoroethane (HCFC-123a)			x		354-23-4
1,2-Dichloroethane		100	x	U077	107-06-2
1,2-Dichloroethylene			x		540-59-0
1,2-Dichloropropane		1000	x	U083	78-87-5
1,2-Dimethylhydrazine		1		U099	540-73-8
1,2-Diphenylhydrazine		10	x	U109	122-66-7
1,2-Oxathiolane,2,2-dioxide		10	x	U193	1120-71-4
1,2-trans-Dichloroethylene		1000		U079	156-60-5
1,3-Benzenediol		5000		U201	108-46-3
1,3-Benzodioxole, 5-propyl		10		U090	94-58-6
1,3-Benzodioxole,5-)1-1 propenyl		100	x	U141	120-58-1
1,3-Benzodioxole, 5-) 2,propenyl		100	x	U203	94-59-7
1,3-Butadiene			x		106-99-0
1,3-Dichloropropylene		100	x	U084	542-75-6
1,3-Isobenzofurandione		5000	x	U190	85-44-9
1,4-Dichloro-2-butene			x		764-41-0
1,4-Diethylene dioxide (1,4-Dioxane)		100	x	U108	123-91-1
1,4-Naphthalenedione		5000		U166	130-15-4
2-Acetylaminofluorene		1	x	U005	53-96-3
2-Aminoanthraquinone			x		117-79-3
2-Butanone peroxide		10		U160	1338-23-4
2-Butanone (Methyl ethyl ketone)		5000	x	U159	78-93-3
2-Butene,1,4-dichloro-		1		U074	764-41-0
2-Chloro-1,1,2,2-tetrafluoroethane(HCFC 124)			x		2837-89-0
2-Chloroacetophenone			x		532-27-4

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
2-Chloroethyl vinyl ether		1000		U042	110-75-8
2-Chlorophenol		100		U048	95-57-8
2-Cyclohexl-4,6-dinitrophenoll		100		P034	131-89-5
2-Ethoxyethanol		100	x		110-80-5
2-Furancarboxaldehyde		5000		U125	98-01-1
2-Methoxyethanol			x		109-86-4
2-Methylpyridine			x		109-06-8
2-Naphthylamine		10	x	U168	91-59-8
2-Nitropropane		10	x	U171	79-46-9
2-Phenylphenol			x		90-43-7
2-Picoline		5000		U191	109-06-8
2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)			x		306-83-2
2,2-Dichloropropionic acid		5000			75-99-0
2,3-Dichloropropene		100	x		78-88-6
2,3,4-Trichlorophenol		10	x		15950-66-0
2,3,5-Trichlorophenol		10			933-78-8
2,3,6-Trichlorophenol		10			933-75-5
2,3,7,8-Tetrachlorodibenzo p-dioxin (TCDD)		1			1746-01-6
2,4-D acid		100	x	U240	94-75-7
2,4-D esters		100			94-11-1
2,4-D esters		100			94-79-1
2,4-D esters		100			94-80-4
2,4-D esters		100			1320-18-9
2,4-D esters		100			1928-38-7
2,4-D esters		100			2971-38-2
2,4-D esters		100			53467-11-1
2,4-D esters		100			1928-61-6
2,4-D esters		100			1929-73-3

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
2,4-D esters		100			25168-26-7
2,4-Diaminoanisole sulfate			x		39156-41-7
2,4-Diaminosole			x		615-41-7
2,4-Diaminotoluene		10		U221	823-40-5
2,4-Dichlorophenol		100	x	U081	120-83-2
2,4-Dimethylphenol		100	x	U101	105-67-9
2,4-Dinitrophenol		10	x	P048	51-28-5
2,4,5-T esters		1000			25168-15-4
2,4,5-T salts		1000			13560-99-1
2,4,5-T amines		5000			1319-72-8
2,4,5-T amines		5000			3813-14-7
2,4,5-T amines		5000			6369-96-6
2,4,5-T amines		5000			6369-97-7
2,4,5-T amines		5000			2008-46-0
2,4,5-T esters		1000			93-79-8
2,4,5-T esters		1000			1928-47-8
2,4,5-T esters		1000			2545-59-7
2,4,5-T esters		1000			61792-07-2
2,4,5-T		1000		U232	93-76-5
2,4,5-TP acid esters		100			32534-95-5
2,5-Furandione		5000	x	U147	108-31-6
2,6-Dichlorophenol		100		U082	87-65-0
2,6-Xylidine			x		87-62-7
3,3-Dichlorobenzidine			x		91-94-1
3,4-Diaminotoluene		10	x	U221	95-80-7
3,4-Dinitrotoluene		10			610-39-9
3,4,5-Trichlorophenol		10			609-19-8
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide		5000		U192	23950-58-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
4-Aminoazobenzene			x		60-09-3
4-Aminobiphenyl			x		92-67-1
4-Chloro-m-cresol		5000		U039	59-50-7
4-Chlorophenyl phenyl ether		5000			7005-72-3
4-Nitrobiphenyl			x		92-93-3
4,4'-Diaminodiphenyl ether		x			101-80-4
4,4'-Isopropylidenediphenol		x			80-05-7
4,4'-Methylene bis(N,N-di-methyl) benzenamine		x			101-61-1
4,4'-Methylenedianiline		x			101-77-9
4,4'-Thiodianiline 6-dinitrophenoll		x			139-65-1
5-Nitro-o-anisidine		x			99-59-2
5-Nitro-o-toluidine		x			99-55-6
Acenaphthene		100			83-32-9
Acenaphthylene		5000			208-96-8
Acetaldehyde		1000	x	U001	75-07-0
Acetaldehyde, trichloro-		5000		U034	75-87-6
Acetamide			x		60-35-5
Acetamide-N-(4-ethoxyphenyl)-		100		U187	62-44-2
Acetamide,N-(aminothi-oxomethyl)-		1000		P002	591-08-2
Acetic acid		5000			64-19-7
Acetic acid, ethyl ester		5000		U112	141-78-6
Acetic acid, fluoro, sodium salt 10/10,000		10		P058	62-74-8
Acetic acid, lead(2+) salt		10		U144	301-04-2
Acetic acid, thallium(1+) salt		100		U214	563-68-8
Acetic anhydride		5000			108-24-7
Acetone		5000	x	U002	67-64-1
Acetone cyanohydrin		1000	10	P069	75-86-5
Acetone thiosemicarbazide		1000/10,000			1752-30-3

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Acetonitrile		5000	x	U003	75-05-8
Acetophenone		5000	x	U004	98-86-2
Acetyl bromide		5000			506-96-7
Acetyl chloride		5000		U006	75-36-5
Acrolein	500	1	x	P003	107-02-8
Acrylamide	1000/10,000	5000	x	U007	79-06-1
Acrylic acid		5000	x	U008	79-10-7
Acrylonitrile	10,000	100	x	U009	107-13-1
Acrylyl chloride	100				814-68-6
Adipic acid		5000			124-04-09
Adiponitrile	1000				111-69-3
Aldicarb	100/10,000	1		P070	116-06-3
Aldrin	500/10,000	1	x	P004	309-00-2
Allyl alcohol	1000	100	x	P005	107-18-6
Allyl chloride		1000	x		107-05-1
Allylamine	500				107-11-9
alpha,alpha-Dimethyl phenethylamine		5000		P046	122-09-8
alpha-Endosulfan		1			959-98-8
alpha-BHC		10			319-84-6
Aluminum (fume or dust)			x		7429-90-5
Aluminum oxide (fibrous forms)			x		1344-28-1
Aluminum phosphide	500	100		P006	20859-73-8
Aluminum sulfate		5000			10043-01-3
Aminopterin	500/10,000				54-62-6
Amiton	500				78-53-5
Amiton oxalate	100/10,000				3734-97-2
Amitrole		10	x	U011	61-82-5
Ammonia	500	100	x		7664-41-7
Ammonium acetate		5000			631-61-8

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ammonium benzoate		5000			1863-63-4
Ammonium bicarbonate		5000			1066-33-7
Ammonium bichromate		10			7789-09-5
Ammonium bifluoride		100			1341-49-7
Ammonium bisulfite		5000			10192-30-0
Ammonium carbamate		5000			1111-78-0
Ammonium carbonate		5000			506-87-6
Ammonium chloride		5000			12125-02-9
Ammonium chromate		10			7788-98-9
Ammonium citrate,dibasic		5000			3012-65-5
Ammonium fluoborate		5000			13826-83-0
Ammonium fluoride		100			12125-01-8
Ammonium hydroxide		1000			336-21-6
Ammonium nitrate (solution)			x		6484-52-2
Ammonium oxalate		5000			5972-73-6
Ammonium oxalate		5000			6009-70-7
Ammonium oxalate		5000			14258-49-2
Ammonium picrate		10		P009	131-74-8
Ammonium silicofluoride		1000			16919-19-0
Ammonium sulfamate		5000			7773-06-0
Ammonium sulfate (solution)			x		7783-20-2
Ammonium sulfide		100			12135-76-1
Ammonium sulfite		5000			10196-04-0
Ammonium tartrate		5000			14307-43-8
Ammonium tartrate		5000			3164-29-2
Ammonium thiocyanate		5000			1762-95-4
Ammonium vanadate		1000		P119	7803-55-6
Amphetamine	1000				300-62-9
Amyl acetate		5000			628-63-7

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Analine,2,4,6-trimethyl-	500				88-05-1
Aniline	1000	5000	x	U012	62-53-3
Anthracene		5000	x		120-12-7
Antimony		5000	x		7440-36-0
Antimony pentachloride		1000			7647-18-9
Antimony pentafluoride	500				7783-70-2
Antimony potassium tartrate		100			28300-74-5
Antimony tribromide		1000			7789-61-9
Antimony trichloride		1000			10025-91-9
Antimony trifluoride		1000			7783-56-4
Antimony trioxide		1000			1309-64-4
Antimycin A	1000/10,000				1397-94-0
Antu	500/10,000				86-88-4
Aroclor 1016		1			12674-11-2
Aroclor 1221		1			11104-28-2
Aroclor 1232		1			11141-16-5
Aroclor 1242		1			53469-21-9
Aroclor 1248		1			12672-29-6
Aroclor 1254		1			11097-69-1
Aroclor 1260		1			11096-82-5
Arsenic		1	x		7440-38-2
Arsenic acid		1		P010	1327-52-2
Arsenic acid		1		P010	7778-39-4
Arsenic disulfide		1			1303-32-8
Arsenic pentoxide	100/10,000	1		P011	1303-28-2
Arsenic trisulfide		1			1303-33-9
Arsenic trioxide	100/10,000	1		P012	1327-53-3
Arsenous trichloride	500	1			7784-34-1
Arsine	100				7784-42-1

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Arsine, diethyl-		1		P038	692-42-2
Asbestos		1	x		1332-21-4
Azaserine		1		U015	115-02-6
Azinophos-ethyl	100/10,000				2642-71-9
Azinophos-methyl	10/10,000				86-50-0
Barium and compounds			x		7440-39-3
Barium cyanide		10		P013	542-62-1
Benzal chloride	500	5000	x	U017	98-87-3
Benzamide			x		55-21-0
Benz[a]anthracene		10		U018	56-55-3
Benzanthracene,7,12-dimethyl-		1		U094	57-97-6
Benz[c]acridine		100		U016	225-51-4
Benzenamine,2-methyl 5-nitro-		100		U181	99-55-8
Benzenamine,2-methyl, hydrochloride		100	x	U222	636-21-5
Benzenamine,3-(trifluoro-methyl)-	500				98-16-8
Benzenamine-4-chloro		1000		P024	106-47-8
Benzenamine,4-chloro-2-methyl-hydrochloride		100		U049	3165-93-3
Benzenenamine, 4-methyl		100		U353	106-49-0
Benzenamine,4-nitro-		5000		P077	100-01-6
Benzenamine 4,4'-methylenebis-2-chloro		10	x	U158	101-14-4
Benzenamine,NN-dimethyl-4-phenylazo		10	x	U093	60-11-7
Benzene	10	x		U019	71-43-2
Benzene,1-bromo-4-phenoxy-		100		U030	101-55-3
Benzene,1-(chloromethyl)-4-nitro-	500/10,000				100-14-1
Benzene,1-methyl-2,4-dinitro-		10	x	U105	121-14-2
Benzene,1-methylethyl- (Cumene)		5000	x	U055	98-82-8
Benzene,1,2-dichloro		100	x	U070	95-50-1
Benzene,1,2,4,5-tetrachloro-		5000		U207	95-94-3

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Benzene,1,3-dichloro		100	x	U071	541-73-1
Benzene,1,3-diisocy-anatomethyl		100	x	U223	26471-62-5
Benzene,1,3,5-trinitro-		10		U234	99-35-4
Benzene,1,4-dichloro		100	x	U072	106-46-7
Benzene,2-methyl-1,3-dinitro-		100	x	U106	606-20-2
Benzene, chloro-		100	x	U037	108-90-7
Benzene, dimethyl-		1000	x	U239	1330-20-7
Benzene, hexachloro-		10	x	U127	118-74-1
Benzene, hexahydro- (cyclohexane)		1000	x	U056	110-82-7
Benzene, m-dimethyl-		1000	x		108-38-3
Benzene, methyl-(toulene)		1000	x	U220	108-88-3
Benzene, o-dimethyl-		1000	x		95-47-6
Benzene, p-dimethyl-		1000	x		106-42-3
Benzene, pentachloro-		10		U183	608-93-5
Benzene, pentachloronitro-		100	x	U185	82-68-8
Benzenearsonic acid	10/10,000				98-05-5
Benzenesulfonyl chloride		100		U020	98-09-9
Benzidine		1	x	U021	92-87-5
Benzimidazole,4,5-dichloro-2-(trifluoromethyl)	500/10,000				3615-21-2
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-		10		U157	56-49-5
Benzoic acid		5000			65-85-0
Benzo[a]pyrene		1		U022	50-32-8
Benzo[b]fluoranthene		1			205-99-2
Benzo[ghi]perylene		5000			191-24-2
Benzoic acid		5000			65-85-0
Benzo[jk]fluorene		100		U120	206-44-0
Benzo[k]fluoranthene		5000			207-08-9
Benzonitrile		5000			100-47-0

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Benzotrichloride	500	10	x	U023	98-07-7
Benzoyl chloride		1000	x		98-88-4
Benzoyl peroxide		x			94-36-0
Benzyl chloride	500	100	x	P028	100-44-7
Benzyl cyanide		500			140-29-4
Beryllium chloride		1			7787-47-5
Beryllium fluoride		1			7787-49-7
Beryllium nitrate		1			13597-99-4
Beryllium nitrate		1			7787-55-5
Beryllium powder		10	x	P015	7440-41-7
beta-Endosyulfan		1			33213-65-9
beta-BHC		1			319-85-7
beta-Chloronaphthalene		5000		U047	91-58-7
Bicyclo[2 2 1]heptane-2-carbonitrile, 5-chloro-6-(methyla)	500/10,000				15271-41-7
Biphenyl		x			92-52-4
Bis(2-chloroethoxy) methane		1000	x	U024	111-91-1
Bis(2-chloroisopropyl) ether		1000	x	U027	108-60-1
Bis(2-ethylhexyl)adipate		x			103-23-1
Bis(chloromethyl)ketone	10/10,000				534-07-6
Bitoscanate	500/10,000				4044-65-9
Boron trichloride	500				10294-34-5
Boron trifluoride compound with methyl ether (1 1)	1000				353-42-4
Boron trifluoride	500				7637-07-2
Bromadiolone	100/10,000				18772-56-7
Bromine	500				7726-95-6
Bromoacetone		1000		P017	598-31-2
Bromochlorodifluoromethan (Halon 1211)			x		353-59-3

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Bromoform		100	x	U225	75-25-2
Bromotrifluorometh-ane (Halon 1311)		x			75-63-8
Brucine		100		P018	357-57-3
Butanoic acid,4-[bis(2-chloroethyl)amino] benzene-		10		U035	305-03-3
Butyl benzyl Phthalate		100	x		85-68-7
Butyl acetate		5000			123-86-4
Butyl acrylate			x		141-32-2
Butylamine		1000			109-73-9
Butyraldehyde			x		123-72-8
Butyric acid		5000			107-92-6
CI Acid Green 3			x		4680-78-8
CI Basic Green 4			x		569-64-2
CI Basic Red 1			x		989-38-8
CI Direct Black 38			x		1937-37-7
CI Direct Blue 6			x		2602-46-2
CI Direct Brown 95			x		16071-86-6
CI Disperse Yellow 3			x		2832-40-8
CI Food Red 15			x		81-88-9
CI Food Red 5			x		3761-53-3
CI Solvent Orange 7			x		3118-97-6
CI Solvent Yellow 14			x		824-07-0
CI Solvent Yellow 34 (Auramine)		100	x	U014	492-80-8
CI Solvent Yellow 3			x		97-56-3
CI Vat Yellow 4			x		128-66-5
Cacodylic acid		1		U136	75-60-5
Cadmium		10	x		7440-43-9
Cadmium acetate		10			543-90-8
Cadmium bromide		10			7789-42-6

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Cadmium chloride		10			10108-64-2
Cadmium oxide	100/10,000				1306-19-0
Cadmium stearate	1000/10,000				2223-93-0
Calcium arsenate	500/10,000	1			7778-44-1
Calcium arsenite		1			52740-16-6
Calcium carbide		10			75-20-7
Calcium chromate		10		U032	13765-19-0
Calcium cyanamide		x			156-62-7
Calcium cyanide		10		P021	592-01-8
Calcium dodecylbenzene sulfonate		1000			26264-06-2
Calcium hypochlorite		10			7778-54-3
Cantharidin	100/10,000				56-25-7
Captan		10	x		133-06-2
Carbachol chloride	500/10,000				51-83-2
Carbamic acid, ethyl ester		100	x	U238	51-79-6
Carbamic acid, methyl- nitroso-,ethyl ester		1		U178	615-53-2
Carbamic acid, methyl-o- (((2,4-dimethyl-1,3 dithiolan-2-y	100/10,000				26419-73-8
Carbamic chloride, dimethyl-		1	x	U097	79-44-7
Carbaryl		100	x		63-25-2
Carbofuran	10/10,000	10			1563-66-2
Carbon disulfide	10,000	100	x	P022	75-15-0
Carbon oxyfluoride		1000		U033	353-50-4
Carbon tetrachloride		10	x	U211	56-23-5
Carbonyl sulfide			x		463-58-1
Carbophenothion		500			786-19-6
Catechol			x		120-80-9
Chloramben			x		133-90-4
Chlordane	1000	1	x	U036	57-74-9

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Chlorfenvinfos	500				470-90-6
Chlorinated fluorocarbon(Freon 113)			x		76-13-1
Chlorine	100	10	x		7782-50-5
Chlorine cyanide		10		P033	506-77-4
Chlorine dioxide			x		10049-04-4
Chlormephos	500				24934-91-6
Chlormequat chloride	100/10,000				999-81-5
Chlornaphazine		100		U026	494-03-1
Chloroacetaldehyde		1000		P023	107-20-0
Chloroacetic acid	100/10,000		x		79-11-8
Chlorobenzilate		10	x	U038	510-15-6
Chlorodibromomethane		100			124-48-1
Chlorodifluoromethane (HCFC-22)			x		75-45-6
Chloroethane		100	x		75-00-3
Chloroethanol	500				107-07-3
Chloroethyl chloroformate	1000				627-11-2
Chloroform	10,000	10	x	U044	67-66-3
Chloromethyl methyl ether	100	10	x	U046	107-30-2
Chlorophacinone	100/10,000				3691-35-8
Chloroprene			x		126-99-8
Chlorotetrafluoroethane			x		63938-10-3
Chlorothalonil			x		1897-45-6
Chloroxuron	500/10,000				1982-47-4
Chlorpyrifos		1			2921-88-2
Chlorsulfonic acid		1000			7790-94-5
Chlorthiophos	500				21923-23-9
Chromic acetate		1000			1066-30-4
Chromic acid		10			11115-74-5
Chromic acid		10			7738-94-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Chromic chloride	1/10,000				10025-73-7
Chromic sulfate		1000			10101-53-8
Chromium		5000	x		7440-47-3
Chromous chloride		1000			10049-05-5
Cobalt			x		7440-50-8
Cobalt,((2,2'-1,2- ethanediylbis (nitrilomethylidyne))bis(6)	100/10,000				62207-76-5
Cobalt carbonyl	10/10,000				10210-68-1
Cobaltous bromide		1000			7789-43-7
Cobaltous formate		1000			544-18-3
Cobaltous sulfamate		1000			14017-41-5
Colchicine	10/10,000				64-86-8
Copper		5000	x		7440-50-8
Copper cyanide		10		P029	544-92-3
Coumaphos	100/10,000	10			56-72-4
Coumatetralyl	500/10,000				5836-29-3
Cresol(s) (mixed isomers)		1000	x	U052	1319-77-3
Cresol,o-	1000/10,000	1000	x	U052	95-48-7
Creosote		1	x	U051	8001-58-9
Crimidine	100/10,000				535-89-7
Crotonaldehyde,(E)-	1000	100		U053	123-73-9
Crotonaldehyde	1000	100		U053	4170-30-3
Cumene hyroperoxide			x		80-15-9
Cupferron			x		135-20-6
Cupric acetate		100			142-71-2
Cupric chloride		10			7447-39-4
Cupric nitrate		100			3251-23-8
Cupric oxalate		100			5893-66-3
Cupric sulfate		10			7758-98-7

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Cupric sulfate ammoniated		100			10380-29-7
Cupric tartrate		100			815-82-7
Cyanides (soluble cyanide salts		10		P030	57-12-5
Cyanogen		100		P031	460-19-5
Cyanogen bromide	500/10,000	1000		U246	506-68-3
Cyanogen iodide	1000/10,000				506-78-5
Cyanophos		1000			2636-26-2
Cyanuric fluoride		100			675-14-9
Cyclohexanone		5000		U057	108-94-1
Cycloheximide	100/10,000				66-81-9
Cyclohexylamine	10,000				108-91-8
Cyclophosphamide		10		U058	50-18-0
D-Glucopyranose,2-deoxy-2-(3-methyl-3-ni-trosoureido)-		1		U206	18883-66-4
Daunomycin		10		U059	20830-81-3
DDD		1		U060	72-54-8
DDE		1			72-55-9
DDT		1		U061	50-29-3
Decaborane(14)	500/10,000				17702-41-9
Decabromodiphenyl oxide			x		1163-19-5
Delta-BHC		1			319-86-8
Demeton	500				8065-48-3
Demeton-S-methyl	500				919-86-8
Di-(2-ethylhexyl)phthlate (DEHP)			x		177-81-7
Di-n-octyl phthalate		5000	x	U107	117-84-0
Di-n-propylnitrosamine(N-Nitrosodi-n-propylamine)		10	x	U111	621-64-7
Dialifor	100/10,000				10311-84-9
Diallate		100	x	U062	2303-16-4
Diaminotoluene (mixed isomers)		10	x	U221	25376-45-8

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Diaminotoluene(mixed isomers)		10			496-72-0
Diazinon		1			333-41-5
Diazomethane			x		334-88-3
Dibenz(a)lpyrene		10		U064	189-55-9
Dibenz[a,h] anthracene		1		U063	53-70-3
Dibenzofuran			x		132-64-9
Diborane		100			19287-45-7
Dibromotetrafluor- ethane (Halon 2402			x		124-73-2
Dibutyl phthalate		10	x	U069	84-74-2
Dicamba		1000			1918-00-9
Dichlone		1			117-80-6
Dichloro-1,1,2-trifluoroethane			x		90454-18-5
Dichlorobenzene (mixed isomers)		100	x		25321-22-6
Dichlorobromomethane		5000	x		75-27-4
Dichlorodifluoromethane(CFC-12)		5000	x	U075	75-71-8
Dichloroethyl ether	10,000	10	x	U025	111-44-4
Dichloromethyl ether	100	10	x	P016	542-88-1
Dichloromethyl- phenylsilane	1000				149-74-6
Dichloropropane		1000			26638-19-7
Dichloropropane-		100			8003-19-8
Dichloropropene		100			26952-23-8
Dichlorotetrafluoro-ethane (CFC-114)			x		76-14-2
Dichlorotrifluoroethane			x		34077-87-7
Dichlorvos	1000	10	x		62-73-7
Dicholobenil		100			1194-65-6
Dicofol			x		115-32-2
Dicrotophos		100			141-66-2
Dieldrin		1		P037	60-57-1
Diepoxybutane	500	10	x	U085	1464-53-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Diethanolamine			x		111-42-2
Diethyl chlorophosphate		500			814-49-3
Diethyl-p-nitrophenylphosphate		100		P041	311-45-5
Diethyl sulfate			x		64-67-5
Diethylamine		100			109-89-7
Diethylcarbamazine citrate	100/10,000				1642-54-2
Diethylstilbestrol		1		U089	56-53-1
Digitoxin	100/10,000				71-63-6
Diglycidyl ether	1000				2238-07-5
Digoxin	10/10,000				20830-75-5
Dihydrosafrole			x		94-58-6
Diisopropylfluorophosphate	100	100		P043	55-91-4
Dimefox	500				115-26-4
Dimethoate	500/10,000	10		P044	60-51-5
Dimethyl-p-phenyl-enediamine	10/10,000				99-98-9
Dimethyl phosphoro- chloridothioate	500				2524-03-0
Dimethyl phthalate		5000	x	U102	131-11-3
Dimethyl sulfate	500	100	x	U103	77-78-1
Dimethylamine		1000		U092	124-40-3
Dimethyldichlorosilane	500				75-78-5
Dimethylhydrazine	1000	10	x	U098	57-14-7
Dimetilan	500/10,000				644-64-4
Dinitrobenzene (mixed)		100			25154-54-5
Dinitrophenol		10			25550-58-7
Dinitrotoulene	10/10,000	10	x	P047	534-52-1
Dinitrotoluene (mixed isomers)		10	x		25321-14-6
Dinoseb	100/10,000	1000		P020	88-85-7
Dinoterb	500/10,000				1420-07-1
Dioxathion	500				78-34-2

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Diphacinone	10/10,000				82-66-6
Diphosphoramide, octamethyl-	100	100		P085	152-16-9
Dipropylamine		5000		U110	142-84-7
Diquat		1000			85-00-7
Diquat		1000			2764-72-9
Disulfoton	500	1		P039	298-04-4
Dithiazinine iodide	500/10,000				514-73-8
Dithiobiuret	100/10,000	100		P049	541-53-7
Diuron		100			330-54-1
Dodecylbenzenesulfonic acid		1000			27176-87-0
Emetine,dihyrochloride	1/10,000				316-42-7
Endosulfan	10/10,000	1		P050	115-29-7
Endosulfan sulfate		1			1031-07-8
Endothall		1000		P088	145-73-3
Endothion	500/10,000				2778-04-3
Endrin	500/10,000	1		P051	72-20-8
Endrin aldehyde		1			7421-93-4
Epichlorohydrin	1000	100	x	U041	106-89-8
EPN	100/10,000				2104-64-5
Ergocalciferol	1000/10,000				50-14-6
Ergotamine tartrate	500/10,000				379-79-3
Ethanamine,N-ethyl-N-nitroso-		1	x	U174	55-18-5
Ethane,1,1'-oxybis-		100		U117	60-29-7
Ethane,1,2-dibromo-		1	x	U067	106-93-4
Ethane,1,1,2-trichloro		100	x	U227	79-00-5
Ethane,1,1,1,2-tetrachloro-		100		U208	630-20-6
Ethane,1,1,2,2-tetrachloro-		100	x	U209	79-34-5
Ethane, hexachloro		100	x	U131	67-72-1
Ethanesulfonyl chloride, 2-chloro-	500				1622-32-8

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ethanethioamide		10	x	U218	62-55-5
Ethanol,1,2-dichloro-acetate	1000				10140-87-1
Ethanol,2,2'-(nitroso imino) bis-		1		U173	1116-54-7
Ethene, tetrachloro		100	x	U210	127-18-4
Ethene, chloro-		1	x	U043	75-01-4
Ethion	1000	10			563-12-2
Ethoprophos	1000				13194-48-4
Ethyl acrylate		1000	x	U113	140-88-5
Ethyl chloroformate			x		541-41-3
Ethyl methacrylate		1000		U118	97-63-2
Ethyl methanesulfonate		1		U119	62-50-0
Ethylbenzene		1000	x		100-41-4
Ethylbis(2-chloroethyl)amine	500				538-07-8
Ethylene			x		74-85-1
Ethylene glycol			x		107-21-1
Ethylene oxide	1000	10	x	U115	75-21-8
Ethylene thiourea		10	x	U116	96-45-7
Ethylenebisdithiocarbamic- acid, salts & esters		5000		U114	111-54-6
Ethylenediamine	10,000	5000			107-15-3
Ethylenediamine tetra-acetic acid (EDTA)		5000			60-00-4
Ethyleneimine	500	1	x	P054	151-56-4
Ethylenethiocyanate	10,000				542-90-5
Ethylidene dichloride			x		75-34-3
Famphur		1000		P097	52-85-7
Fenamiphos	10/10,000				22224-92-6
Fenitrothion	500				122-14-5
Fensulfothion	500				115-90-2
Ferric ammonium citrate		1000			1185-57-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ferric ammonium oxalate		1000			2944-67-4
Ferric ammonium oxalate		1000			55488-87-4
Ferric chloride		1000			7705-08-0
Ferric fluoride		100			7783-50-8
Ferric nitrate		1000			10421-48-4
Ferric sulfate		1000			10028-22-5
Ferrous ammonium sulfate		1000			10045-89-3
Ferrous chloride		100			7758-94-3
Ferrous sulfate		1000			7720-78-7
Ferrous sulfate		1000			7782-63-0
Florouracil	500/10,000				51-21-8
Fluenetil	100/10,000				4301-50-2
Fluometuron			x		2164-17-2
Fluorene		5000			86-73-7
Fluorine	500	10		P056	7782-41-4
Fluoroacetamide	100/10,000	100		P057	640-19-7
Fluoroacetic acid	10/10,000				144-49-0
Fluoroacetyl chloride	10				359-06-8
Fonofos	500				944-22-9
Formaldehyde	500	100	x	U122	50-00-0
Formaldehyde cyanohydrin	1000				107-16-4
Formetanate hydrochloride	500/10,000				23422-53-9
Formic acid		5000	x	U123	64-18-6
Formothion	100				2540-82-1
Formparanate	100/10,000				17702-57-7
Fosthietan	500				21548-32-3
Fuberidazole	100/10,000				3878-19-1
Fulminic acid, mercury(II) salt		10		P065	628-86-4
Fumaric acid		5000			110-17-8

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Furan	500	100		U124	110-00-9
Furan, tetrahydro-		1000		U213	109-99-9
Gallium trichloride	500/10,000				13450-90-3
Glycidylaldehyde		10		U126	765-33-4
Guanidine,N-nitroso-N methyl-N'-nitro		10		U163	70-25-7
Heptachlor		1	x	P059	76-44-8
Heptachlor epoxide		1			1024-57-3
Hexachloro-1,3-butadiene		1	x	U128	87-68-3
Hexachlorocyclopentadiene	100	10	x	U130	77-47-4
Hexachloronaphthalene			x		1335-87-1
Hexachlorophene		100	x	U132	70-30-4
Hexachloropropene		1000		U234	1888-71-7
Hexaethyl tetraphosphate		100		P062	757-58-4
Hexamethylenediamine, N,N'-dibutyl-		500			4835-11-4
Hexamethylphosphoramide			x		680-31-9
Hydrazine	1000	1	x	U133	302-01-2
Hydrazine sulfate			x		10034-93-2
Hydrochloric acid (Hydro-gen chloride (gas only))***	500	5000	x		7647-01-0
Hydrocyanic acid	100	10	x	P063	74-90-8
Hydrogen fluoride	100	100	x	U134	7664-39-3
Hydrogen perioxide (conc > 52%)	1000				7722-84-1
Hydrogen selenide	10				7783-07-5
Hydrogen sulfide	500	100	x	U135	7783-06-4
Hydroquinone	500/10,000	x			123-31-9
Indeno(1,2,3-cd)pyrene		100		U137	193-39-5
Iron, pentacarbonyl-	100				13463-40-06
iso-Amyl acetate		5000			123-92-2
iso-Butyl acetate		5000			110-19-0

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
iso-Butylamine		1000			78-81-9
iso-Butyric acid		5000			79-31-2
Isobenzan	100/10,000				297-78-9
Isobutyl alcohol		5000		U140	78-83-1
Isobutyraldehyde			x		78-84-2
Isobutyronitrile	1000				78-82-0
Isocyanic acid,3,4-dichlorophenyl ester	500/10,000				102-36-3
Isodrin	100/10,000	1		P060	465-73-6
Isophorone		5000			78-59-1
Isophorone diisocyanate	100				4098-71-9
Isoprene		100			78-79-5
Isopropanolamine dode-cyclbenzene sulfonate	1000				42504-46-1
Isopropyl alcohol (mfg- strong acid processes)			x		67-63-0
Isopropyl chloroformate	1000				108-23-6
Isopropylmethylpyrazolyl dimethylcarbamate	500				119-38-0
Kepone		1		U142	143-50-0
Lactonitrile	1000				78-97-7
Lasiocarpine		10		U143	303-34-4
Lead		10	x		7439-92-1
Lead arsenate		1			10102-48-4
Lead arsenate		1			7645-25-2
Lead arsenate		1			7784-40-9
Lead chloride		10			7758-95-4
Lead fluoborate		10			13814-96-5
Lead fluoride		10			7783-46-2
Lead iodide		10			10101-63-0
Lead nitrate		10			10099-74-8

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Lead phosphate		10		U145	7446-27-7
Lead stearate		10			1072-35-1
Lead stearate		10			52652-59-2
Lead stearate		10			7428-48-0
Lead stearate		10			56189-09-4
Lead subacetate		10		U146	1335-32-6
Lead sulfate		10			15739-80-7
Lead sulfate		10			7446-14-2
Lead sulfide		10			1314-87-0
Lead thiocyanate		10			592-87-0
Leptophos	500/10,000				21609-90-5
Lewisite	10				541-25-3
Lindane	1000/10,000	1	x	U129	58-89-9
Lithium chromate		10			14307-35-8
Lithium hydride	100				7580-67-8
m-Cresol		1000	x	U052	108-39-4
m-Nitrophenol		100			554-84-7
m-Nitrotoluene		1000			99-08-1
Malathion		100			121-75-5
Maleic acid		5000			110-16-7
Maleic, hydrazide		5000		U148	123-33-1
Malononitrile	500/10,000	1000	x	U149	109-77-3
Maneb			x		12427-38-2
Manganese			x		7439-96-5
Manganese, tricarbonyl methylcyclopentadienyl	100				12108-13-3
Mechlorethamine	10		x		51-75-2
Melphalan		1		U150	148-82-3
Mephosfolan	500				950-10-7

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Mercuric acetate	500/10,000				1600-27-7
Mercuric chloride	500/10,000				7487-94-7
Mercuric cyanide		1			592-04-1
Mercuric nitrate		10			10045-94-0
Mercuric oxide	500/10,000				21908-53-2
Mercuric sulfate		10			7783-35-9
Mercuric thiocyanate		10			592-85-8
Mercurous nitrate		10			7782-86-7
Mercurous nitrate		10			10415-75-5
Mercury		1	x	U151	7439-97-6
Methacrolein diacetate	1000				10476-95-6
Methacrylic anhydride	500				760-93-0
Methacryloyl chloride	100				920-46-7
Methacryloyloxyethyl isocyanate	100				30674-80-7
Methacrylonitrile	500	1000	x	U152	126-98-7
Methamidophos	100/10,000				10265-92-6
Methane, chloro		100	x	U045	74-87-3
Methane, dibromo-		1000	x	U068	74-95-3
Methane, dichloro-		1000	x	U080	75-09-2
Methane, iodide-		100	x	U138	74-88-4
Methane, trichlorofluoro- (CFC-11)		5000		U121	75-69-4
Methanesulfanyl chloride, trichloro	500	100		P118	594-42-3
Methanesulfonyl fluoride	1000				558-25-8
Methanol		5000	x	U154	67-56-1
Methapyrilene		5000		U155	91-80-5
Methidathion	500/10,000				950-37-8
Methiocarb	500/10,000	10			2032-65-7
Methomyl	500/10,000	100		P066	16752-77-5
Methoxychlor		1	x		72-43-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Methoxyethylmercuricacetate	500/10,000				151-38-2
Methyl 2-chloroacrylate		500			80-63-7
Methyl acrylate			x		96-33-3
Methyl bromide	1000	1000	x	U029	74-83-9
Methyl chlorocarbonate			x		79-22-1
Methyl chloroformate(Methylchlorocarbonate)	500	1000		U156	79-22-1
Methyl chloroform		1000	x	U226	71-55-6
Methyl hydrazine		10	x	P068	60-34-4
Methyl isobutyl ketone		5000	x	U161	108-10-1
Methyl isocyanate	500	10	x	P064	624-83-9
Methyl isothiocyanate	500				556-61-1
Methyl mercaptan	500	100	x	U153	74-93-1
Methyl methacrylate		1000	x	U162	80-62-6
Methyl phenkapton	500				3735-23-7
Methyl phosphonic dichloride	100				676-97-1
Methyl tert-butyl ether			x		1634-04-4
Methyl thiocyanate	10,000				556-64-9
Methyl vinyl ketone	10				78-94-4
Methylene-bis-(phenyliso-cyanate)(MBI)			x		101-68-8
Methylmercuric dicy-anamide	500/10,000				502-39-6
Methylthiouracil		10		U164	56-04-2
Methyltrichlorosilane	500				75-79-6
Metolcarb	100/10,000				1129-41-5
Mevinphos	500	10			7786-34-7
Mexacarbate	500/10,000	1000			315-18-4
Michler's ketone			x		90-94-8
Mitomycin C	500/10,000	10		U010	50-07-7
Molybdenum trioxide			x		1313-27-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Moncrotophos	10/10,000				6923-22-4
(Mono)chloropenta- fluoroethane (CFC 115)			x		76-15-3
Monoethylamine		100			75-04-7
Monomethylamine		100			74-89-5
Muscimol	500/10,000	1000		P007	2763-96-4
Mustard gas	500		x		505-60-2
n-Butyl alcohol			x		71-36-3
N,N'-Dimethylaniline			x		121-69-7
N,N'-Diethylhydrazine		10		U086	1615-80-1
N-Nitroso-N-ethylurea		1	x		759-73-9
N-Nitroso-N-methylurea		1	x		684-93-5
N-Nitrosodiphenylamine		100	x		86-30-6
N-Nitrosomethylvinylamine		10	x		4549-40-0
N-Nitrosomorpholine			x		59-89-2
N-Nitrosonornicotine			x		16543-55-8
N-Nitrosopiperidine		10	x	U179	100-75-4
N-Nitrosopyrrolidine		1		U180	930-55-2
Naled		10			300-76-5
Naphthalene		100	x	U165	91-20-3
Naphthenic acid		100			1338-24-5
Nickel		100	x		7440-02-0
Nickel ammonium sulfate		100			15699-18-0
Nickel carbonyl	1	10		P073	13463-39-3
Nickel chloride		100			37211-05-5
Nickel chloride		100			7718-54-9
Nickel cyanide		10		P074	557-19-7
Nickel hydroxide		10			12054-48-7
Nickel nitrate		100			14216-75-2

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Nickel sulfate		100			7786-81-4
Nicotine	100	100		P075	54-11-5
Nicotine sulfate	100/10,000				65-30-5
Nitric acid	1000	1000	x		7697-37-2
Nitric oxide	100	10		P076	10102-43-9
Nitrilotriacetic acid			x		139-13-9
Nitrobenzene	10,000	1000	x	U169	98-95-3
Nitrocyclohexane	500				1122-60-7
Nitrogen			x		1836-75-5
Nitrogen dioxide	100	10		P078	10102-44-0
Nitrogen dioxide		10		P078	10544-72-6
Nitroglycerine		10	x	P081	55-63-0
Nitrophenol (mixed)		100			25154-55-6
Nitrosodimethylamine	1000	10	x	P082	62-75-9
Nitrotoluene		1000			1321-12-6
Norbormide	100/10,000				991-42-4
O,O-Diethyl S-methyl dithiophosphate		5000		U087	3288-58-2
o-Anisidine hydrochloride			x		134-29-2
o-Anisidine			x		90-04-0
o-Dinitrobenzene		100	x		528-29-0
o-Nitrophenol		100	x		88-75-5
o-Nitrotoluene		1000			88-72-2
o-Toluidine		100	x	U328	95-53-4
Octachloronaphthalene			x		2234-13-1
Osmium tetroxide		1000	x	P087	20816-12-0
Ouabain	100/10,000				630-60-4
Oxamyl	100/10,000				23135-22-0
Oxetane,3,3- bis(chloromethyl)-	500				78-71-7
Oxydisulfoton	500				2497-07-6

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Ozone	100				10028-15-6
p-Anisidine			x		104-94-9
p-Benzoquinone		10	x	U197	106-51-4
p-Cresidine			x		120-71-8
p-Cresol		1000	x	U052	106-44-5
p-Dinitrobenzene		100	x		100-25-4
p-Nitrophenol		100	x	U170	100-02-7
p-Nitrosodiphenylamine			x		156-10-5
p-Nitrotoluene		1000			99-99-0
p-Phenylenediamine			x		106-50-3
Paraformaldehyde		1000			30525-89-4
Paraldehyde		1000	x		123-63-7
Paraquat	10/10,000				1910-42-5
Paraquat methosulfate	10/10,000				2074-50-2
Parathion	100	10	x	P089	56-38-2
Parathion, methyl	100/10,000	100		P071	298-00-0
Paris green (Cupric acetoarsenite)	500/10,000	1			12002-03-8
Pentaborane	500				19624-22-7
Pentachloroethane		10	x	U184	76-01-7
Pentachlorophenol		10	x	U242	87-86-5
Pentadecylamine	100/10,000				2570-26-5
Peracetic acid	500		x		79-121-0
Phenanthrene		5000			85-01-8
Phenol	500/10,000	1000	x	U188	108-95-2
Phenol,2,2'-thio bis (4-chloro-6-methyl	100/10,000				4418-66-0
Phenol,2,3,4,6-tetrachloro		10		U212	58-90-2
Phenol,2,4,5-trichloro		10	x	U230	95-95-4
Phenol,2,4,6-trichloro		10	x	U231	88-06-2

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Phenol,3-(1-methylethyl), methylcarbamate	500/10,000				64-00-6
Phenoxarsine,10,10'-oxydi-	500/10,000				58-36-6
Phenyl dichloroarsine	500	1		P036	696-28-6
Phenylhydrazine hydrochloride	1000/10,000				59-88-1
Phenylmercury acetate	500/10,000	100		P092	62-38-4
Phenylsilatrane	100/10,000				2097-19-0
Phenylthiourea	100/10,000	100		P093	103-85-5
Phorate		10	10	P094	298-02-2
Phosacetim	100/10,000				4104-14-7
Phosfolan	100/10,000				947-02-4
Phosgene	10	10	x	P095	75-44-5
Phosmet	10/10,000				732-11-6
Phosphamidon	100				13171-21-6
Phosphine	500	100		P096	7803-51-2
Phosphonothioic acidmethyl-O-(4-nitrophenyl)O-phenyl ester	500				2665-30-7
Phosphonothioic acid, methyl-O-ethyl-O-(4-(methylthio)phenyk Ester	500				2703-13-1
Phosphonothioic acid, methyl-,s-(2-(bis(1-methylethyl)amino Ethyl o-Ethyl Ester	100				50782-69-9
Phosphoric acid		5000	x		7664-38-2
Phosphoric acid, dimethyl 4-(methylthio)phenyl ester	500				3254-63-5
Phosphorothioc acid, O,O-diethyl, O-pyrazinyl ester	500	100		P040	297-97-2
Phosphorothioic acid, O,O-dimethyl-S-(2-methylthio)ethyl est	500				2587-90-8
Phosphorus	100	1	x		7723-14-0
Phosphorus oxychloride	500	1000			10025-87-3
Phosphorus pentachloride	500				10026-13-8

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Phosphorus pentasulfide		100		U189	1314-80-3
Phosphorus pentoxide	10				1314-56-3
Phosphorus trichloride	1000	1000			7719-12-2
Physostigmine	100/10,000				57-47-6
Physostigmine, sali-cylate (1 1)	100/10,000				57-64-7
Picric acid			x		88-89-1
Picrotoxin	500/10,000				124-87-8
Piperidine	1000				110-89-4
Pirimifos-ethyl	1000				23505-41-1
Polychlorinated biphenyls		1	x		1336-36-3
Potassium arsenate		1			7784-41-0
Potassium arsenite	500/10,000	1			10124-50-2
Potassium bichromate		10			7778-50-9
Potassium chromate		10			7789-00-6
Potassium cyanide	100	10		P098	151-50-8
Potassium hydroxide		1000			1310-58-3
Potassium permanganate		100			7722-64-7
Potassium silver cyanide	500	1		P099	506-61-6
Promecarb	500/10,000				2631-37-0
Pronamide			x		23950-58-5
Propargite		10			2312-35-8
Propargyl alcohol		1000		P102	107-19-7
Propargyl bromide	10				106-96-7
Propiolactone,beta-	500		x		57-57-8
Propionaldehyde			x		123-38-6
Propionic acid		5000			79-09-4
Propionic acid,2-(2,4,5-trichlorophenoxy)-		100		U233	93-72-1
Propionic anhydride		5000			123-62-6

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Propiophenone,4'-amino-	100/10,000				70-69-9
Propenenitrile	500	10		P101	107-12-0
Propenenitrile,3-chloro-	1000	1000		P027	542-76-7
Propoxur			x		114-26-1
Propyl chloroformate	500				109-61-5
Propylene (Propene)			x		115-07-1
Propylene oxide	10,000	100	x		75-56-9
Propyleneimine	10,000	1	x	P067	75-55-8
Prothoate	100/10,000				2275-18-5
Pyrene	1000/10,000	5000			129-00-0
Pyrethrins		1			121-21-1
Pyrethrins		1			121-29-9
Pyrethrins		1			8003-34-7
Pyridine		1000	x	U196	110-86-1
Pyridine,2-methyl-5-vinyl-	500				140-76-1
Pyridine,4-amino-	500/10,000	1000		P008	504-24-5
Pyridine,4-nitro-1-oxide	500/10,000				1124-33-0
Pyriminil	100/10,000				53558-25-1
Quinoline		5000	x		91-22-5
Reserpine		5000		U200	50-55-5
Salcomine	500/10,000				14167-18-1
Sarin	10				107-44-8
sec-Amyl acetate		5000			626-38-0
sec-Butyl acetate		5000			105-46-4
sec-Butyl alcohol			x		78-92-2
sec-Butylamine		1000			13952-84-6
sec-Butylamine		1000			513-49-5
Selenium		100	x		7782-49-2
Selenium dioxide		10		U204	7446-08-4

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Selenium disulfide		10		U205	7448-56-4
Selenium oxychloride	500				7791-23-3
Selenious acid	1000/10,000	10		U204	7783-00-8
Selenouree		1000		P103	630-10-4
Semicarbazide hydrochloride	1000/10,000				563-41-7
Silane,(4-aminobutyl) diethoxymethyl-		1000			3037-72-7
Silver		1000	x		7440-22-4
Silver cyanide		1		P104	506-64-9
Silver nitrate		1			7761-88-8
Sodium		10			7440-23-5
Sodium arsenate	1000/10,000	1			7631-89-2
Sodium arsenite	500/10,000	1			7784-46-5
Sodium azide ($Na(N^3)$)	500	1000		P105	26628-22-8
Sodium bichromate		10			10588-01-9
Sodium bifluoride		100			1333-83-1
Sodium bisulfite		5000			7631-90-5
Sodium cacodylate	100/10,000				124-65-2
Sodium chromate		10			7775-11-3
Sodium cyanide (Na(CN))	100	10		P106	143-33-9
Sodium dodecylbenzene sulfonate		1000			25155-30-0
Sodium fluoride		1000			7681-49-4
Sodium fluoroacetate	10/10,000	10		P058	62-74-8
Sodium hydrosulfide		5000			16721-80-5
Sodium hydroxide		1000			1310-73-2
Sodium hypochlorite		100			10022-70-5
Sodium hypochlorite		100			7681-52-9
Sodium methylate		1000			124-41-4
Sodium nitrite		100			7632-00-0
Sodium phosphate,dibasic		5000			10039-32-4

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Sodium phosphate,dibasic		5000			10140-65-5
Sodium phosphate,dibasic		5000			7558-79-4
Sodium phosphate, tribasic		5000			10101-89-0
Sodium phosphate,tribasic		5000			10124-56-8
Sodium phosphate,tribasic		5000			10361-89-4
Sodium phosphate,tribasic		5000			7601-54-9
Sodium phosphate,tribasic		5000			7758-29-4
Sodium phosphate,tribasic		5000			7785-84-4
Sodium selenate	100/10,000				13410-01-0
Sodium selenite	100/10,000	100			10102-18-8
Sodium selenite		100			7782-82-3
Sodium tellurite	500/10,000				10102-20-2
Strannane,acetoxy-triphenyl-	500/10,000				900-95-8
Strontium chromate		10			7789-06-2
Strychnine	100/10,000	10		P108	57-24-9
Strychnine, sulfate	100/10,000				60-41-3
Styrene		1000	x		100-42-5
Styrene oxide			x		96-09-3
Sulfotep	500	100		P109	3689-24-5
Sulfoxide,3-chloropropyl octyl	500				3569-57-1
Sulfur dioxide	500				7446-09-5
Sulfur monochloride		1000			12771-08-3
Sulfur tetrafluoride	100				7783-60-0
Sulfur trioxide	100				7446-11-9
Sulfuric acid	1000	1000	x		7664-93-9
Sulfuric acid		1000			8014-95-7
Tabun	10				77-81-6
Tellurium	500/10,000				13494-80-9
Tellurium hexafluoride	100				7783-80-4

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Tetraethyldithiopyr phosphate	100	10		P111	107-49-3
Terbufos	100				13071-79-9
tert-Amyl acetate		5000			625-16-1
tert-Butyl acetate		5000			540-88-5
tert-Butyl alcohol			x		75-65-0
tert-Butylamine		1000			75-64-9
Tetrachlorvinphos			x		961-11-5
Tetraethyllead	100	10		P110	78-00-2
Tetraethyltin	100				597-64-8
Tetramethyl Lead	100				75-74-1
Tetranitromethane	500	10		P112	509-14-8
Thallic oxide		100		P113	1314-32-5
Thallium		1000	x		7440-28-0
Thallium(1) carbonate	100/10,000	100		U215	6533-73-9
Thallium (I)sulfate	100/10,000	100		P115	10031-59-1
Thallium(I)nitrate		100		U217	10102-45-1
Thallium(I)selenide		1000		P114	12039-52-0
Thallous chloride	100/10,000	100		U216	7791-73-9
Thallous malonate	100/10,000				2757-18-8
Thallous sulfate	100/10,000	100		P115	7446-18-6
Thiocarbazide	1000/10,000				2231-57-4
Thiofanox	100/10,000	100		P045	39196-18-4
Thiram		10	x	U244	137-26-8
Thiophenol	500	100		P014	108-98-5
Thiosemicarbazide	100/10,000	100		P116	79-19-6
Thiourea		10	x		62-56-6
Thiourea,(2-chlorophenyl)-	100/10,000	100		P026	5344-82-1
Thiourea, (2- methylphenyl)-	500/10,000				614-78-8
Thorium dioxide			x		1314-20-1

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Titanium dioxide			x		13463-67-7
Titanium tetrachloride	100		x		7550-45-0
Toluene2,4-diisocyanate	500	100	x		584-84-9
Toluene2,6-diisocyanate	100	100	x		91-08-7
Toxaphene(Campheclor)		1	x	P123	8001-35-2
Trans 1,1-dichlorobutene	500				110-57-6
Triamiphos	500/10,000				1031-47-6
Triaziquone			x		68-76-8
Triazofos	500				24017-47-8
Trichloroacetyl chloride	500				76-02-8
Trichloro(chloromethyl) silane	100				1558-25-4
Trichloro(dichlorophenyl) silane	500				27137-85-5
Trichloroethylene		100	x	U228	79-01-6
Trichloroethylsilane	500				115-21-9
Trichlorofon		100	x		52-68-6
Trichloronate	500				327-98-0
Trichlorophenol		10			25167-82-2
Trichlorophenylsilane	500				98-13-5
Triethanolamine dode-cylbenzene sulfonate		1000			27323-41-7
Triethoxysilane	500				998-30-1
Triethylamine		5000			121-44-8
Trifluralin			x		1582-09-8
Trimethylamine		100			75-50-3
Trimethylchlorosilane	1000				75-77-4
Trimethylolpropane phosphite	100/10,000				824-11-3
Trimethyltin chloride	500/10,000				1066-45-1
Triphenyltin chloride	500/10,000				639-58-7
Tris(2-chloroethyl) amine	100				555-77-1

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Trypan blue		10	x	U236	72-57-1
Uracil,5-[bis(2-chloroethyl)amino]-		10		U237	66-75-1
Uranyl acetate		100			541-09-3
Uranyl nitrate		100			10102-06-4
Uranyl nitrate		100			36478-76-9
Valinomycin	1000/10,000				2001-95-8
Vanadium(fume or dust)			x		7440-62-2
Vanadium pentoxide	100/10,000	1000		P120	1314-62-1
Vanadyl sulfate		1000			27774-13-6
Vinyl acetater	1000	5000	x		108-05-4
Vinyl bromide			x		593-60-2
Warfarin	500/10,000	100		P001	81-81-2
Warfarin sodium	100/10,000				129-06-6
Xylenol		1000			1300-71-6
Xylylene dichloride	100/10,000				28347-13-9
Zinc		1000	x		7440-66-6
Zinc acetate		1000			557-34-6
Zinc ammonium chloride		1000			52628-25-8
Zinc ammonium chloride		1000			14639-97-5
Zinc ammonium chloride		1000			14639-98-6
Zinc borate		1000			1332-07-6
Zinc bromide		1000			7699-45-8
Zinc carbonate		1000			3486-35-9
Zinc chloride		1000			7646-85-7
Zinc cyanide		10		P121	557-21-1
Zinc, dichloro(4,4-dimethyl-5(((methylamino) carbnyl)oxy)imino) Pentane-nitrile)-,(T-4)	100/10,000				58270-08-9
Zinc fluoride		1000			7783-49-5
Zinc formate		1000			557-41-5

Appendix 9-1 (continued)
Consolidated List of Chemicals Covered in Title III of SARA

Chemical Name	Extremely Haz Sub 40 CFR 355 (pounds)	Haz Sub RQ 40 CFR 302.4 (pounds)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Zinc hydrosulfite		1000			7779-86-4
Zinc nitrate		1000			7779-88-6
Zinc phenolsulfonate		5000			127-82-2
Zinc phosphide	500	100		P122	1314-84-7
Zinc silicofluoride		5000			16871-71-9
Zinc sulfate		1000			7733-02-0
Zineb			x		12122-67-7
Zirconium nitrate		5000			13746-89-9
Zirconium potassium fluoride		1000			16923-95-8
Zirconium sulfate		5000			14644-61-2
Zirconium tetrachloride		5000			10026-11-6

Phase 1

Section 10

Cultural and Historic Resources Management

Phase 1
Section 10
Table of Contents

Cultural and Historic Resources Management

A. Applicability 10-1
B. Federal Legislation 10-1
C. State/Local Regulations 10-4
D. Key Compliance Requirements 10-4
E. Key Compliance Definitions 10-5
F. Records to Review 10-11
G. Physical Features to Inspect 10-12
H. Guidance for Checklist Users 10-12

A. Applicability

This section applies to any facility with cultural and historic resources. Plans and programs for protection and management of cultural resources, which include historic and prehistoric properties, are included in this section.

Assessors are required to review agency, Federal, state and local regulations in order to perform a comprehensive assessment.

B. Federal Regulations

1. Antiquities Act of 1906

Within this Act, 16 U.S. Code (USC) 431-433, the President of the United States is authorized to declare historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Federal government to be national monuments (16 USC 431). Permits for the examination of ruins, the excavation of archaeological and paleontological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior (SOI), Agriculture, and Army to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe (16 USC 432).

2. Historic Sites Act of 1935

This Act, Public Law (PL) 74-292 (16 USC 470-470w-6), authorizes the designation of national historic sites and landmarks, authorizes interagency efforts to preserve historic resources, and establishes a maximum fine of $500 for violations of the Act.

3. National Historic Preservation Act (NHPA) of 1966

This Act, 16 USC 470-470w-6, last amended in August 1989, addresses the issue of preserving our national history. The Congress declares that the historical and cultural foundations of the nation should be preserved as a living part of our community life and development; and that the preservation of this irreplaceable heritage is in the public interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans (16 USC 470(b)(2)(4)). The policy of the Federal government is to:

- Use measures, including financial and technical assistance, to foster conditions under which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations;

- Provide leadership in the preservation of the prehistoric and historic resources of the United States and of the international community of nations;

- Administer federally owned, administered, or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations;

- Contribute to the preservation of nonfederally owned prehistoric and historic resources and give maximum encouragement to organizations and individuals undertaking preservation by private means;

- Encourage the public and private preservation and utilization of all usable elements of the nation's historic built environment; and

- Assist state and local governments and the National Trust for Historic Preservation in the United States to expand and accelerate their historic preservation programs and activities (16 USC 470-1).

4. The National Environmental Policy Act (NEPA)

The purpose of this Act, 42 USC 4321-4370c, as last amended in November 1990, was to declare a national policy which will encourage productive and enjoyable harmony between man and his environment. Additionally, it provides for the promotion of efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man (42 USC 4321). It is the continuing responsibility of the Federal government to use practicable means and resources to the end that the nation may preserve important historic, cultural, and natural aspects of our national heritage (42 USC 4331(b)(4)).

5. Executive Order (EO) 11593, Protection and Enhancement of the Cultural Environment

This EO, dated 13 May 1971, directs Federal agencies to: provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation; ensure the preservation of historic resources; locate, inventory, and nominate to the national Register all properties under their control that meet the criteria for nomination; and ensure that historic resources are not inadvertently damaged, destroyed, or transferred before the completion of inventories and evaluation for the National Register.

6. Archaeological and Historic Preservation Act of 1974

This Act, PL 93-291 (amends PL 86-523); (16 USC 469-469c), directs Federal agencies to notify the SOI when they find that any Federal construction project or federally licensed activity or program may cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archaeological data. It also provides criteria for funding historical and archaeological protection for such projects.

7. Public Buildings Cooperative Use Act of 1976

This Act, 40 USC 490, 601 note, et seq., was last amended in November 1988. Under this Act, the Administrator of General Services must, among other duties, acquire and use space in suitable buildings of historic, architectural, or cultural significance, unless use of such space would not prove feasible and prudent compared with available alternatives (40 USC 601a(a)(1)).

8. American Indian Religious Freedom Act of 1978

This Act, PL 95-341 (42 USC 1996), states the policy of the United States to protect and preserve for American Indians their inherent rights of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Alert, and native Hawaiians. These rights include, but are not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremony and traditional rites.

9. Archaeological Resources Protection Act (ARPA) of 1979

This Act, 16 USC 470aa-470mm, was last amended in October 1988. The purpose of this Act is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before 1 October 1979 (16 USC 470aa(b)).

10. Native American Graves Protection and Repatriation Act (NAGPRA) of October 1990

This Act, 25 USC 3001-3013, permits the intentional removal from or excavation of Native American cultural items from Federal or tribal lands for purposes of discovery, study, or removal of such items only if:

- Such items are excavated or removed pursuant to a permit issued which must be consistent with this Act;
- Such items are excavated or removed after consultation with or, in the case of tribal lands, consent of the appropriate (if any) Indian tribe or Native Hawaiian organization;
- The ownership and right of control of the disposition of such items must be as provided in subsections (a) and (b) of this section; and
- Proof of consultation or consent is shown (25 USC 3002(c)).

Each Federal agency and museum which has possession or control over holdings or collections of Native American human remains and associated funerary objects must compile an inventory of such items and, to the extent possible based on information processed by such museum or Federal agency, identify the geographical and cultural affiliation of such item (25 USC 3003(a)). Each Federal agency or museum which has possession or control over holdings or objects of Native American unassociated funerary objects, sacred objects, or objects of cultural patrimony must provide a written summary of such objects based on available information held by such agency or museum. The summary must describe the scope of the collection, kinds of objects included, reference to geographical location, means and period of acquisition and cultural affiliation, where readily ascertainable.

11. Abandoned Shipwreck Act of 1987

This Act, PL 100-298, defines and clarifies access and ownership rights and directs the Director of the National Park Service to prepare guidelines, in consultation with appropriate public and private section interests, to administer and manage underwater resources.

12. Religious Freedom Restoration Act of 1993

This Act (PL 103-141) [H.R. 1308), states that the Government shall not substantially burden a person's exercise of religion, except in instances where the burden furthers a compelling governmental interest and is the least restrictive means of furthering that compelling governmental interest.

C. State/Local Regulations

At the state level, the State Historic Preservation Officer (SHPO) provides assistance in determining cultural significance and eligibility for the National Register, but may also nominate properties, irrespective of ownership. The SHPO must be consulted during all cultural resources planning. States may also issue regulations designating state historical sites.

D. Key Compliance Requirements

1. Historical Properties

All Federal agencies are required to establish a program to locate, inventory, and nominate to the SOI all properties under the agency's control that qualify for inclusion on the National Register of Historic Places. Facilities are required to take into account the effects of a new undertaking on property in the National Register before beginning an undertaking. The facility is required to consult the SHPO during identification, location, and evaluation of historic properties and in assessing the effect of an undertaking on historic property (36 CFR 60.9(7)(f), 60.13, 800.1, 800.4, and 800.5; 32 CFR 229.4(a) and 229.5(b)).

2. Archaeological Requirements

When unrecorded historic property is discovered during construction or other undertakings, work is required to halt until the situation is properly evaluated. Archaeological resources on either public or Indian lands cannot be excavated, removed, damaged, or otherwise altered without permit (32 CFR 229.4(a) and 229.5(b)).

3. Native American Graves and Artifacts

Federal law protects Native American graves and artifacts. Facilities are required to take measures to identify and protect them and cooperate with Native American groups in returning them to their rightful owners (PL 101-601, Sect. 3d, Sect. 5, and Sect 6).

4. Collection Management and Curation

Archaeological and historic collections owned or controlled by Federal facilities are required to be assessed and evaluated. Facilities responsible for long-term management and preservation of collections are covered by regulations dealing with curation, record keeping, long-term curatorial services, repository security, curatorial staff qualifications, use of collections, and conduct of inspections and inventories of the collections. Collection management centers are also required to write annual reports updating the status of their collections (36 CFR 79).

E. Key Compliance Definitions

1. Advisory Council on Historic Preservation (ACHP)

The Council was established by Title II of the NHPS to advise the President and Congress, to encourage private and public interest in cultural preservation, and to comment on Federal agency action under Section 106 of the NHPA (36 CFR 65.3).

2. Archaeological Resource

Any material remains of prehistoric or historic human life or activities. Such resources include, but are not limited to: pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, graves, human skeletal materials, or any portion or piece of any of the foregoing items (16 USC 470bb).

3. Associated Funerary Objects

Objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later, and both the human remains and associated funerary objects are presently in the possession or control of a Federal agency or museum, except for other items exclusively made for burial purposes or to contain human remains shall be considered as associated funerary objects (PL 101-601, Section 2)

4. Associated Records

Original records, or copies thereof, that are prepared or assembled and document efforts to locate, evaluate, record, study, preserve, or recover a prehistoric or historic resource (36 CFR 79 4).

5. Building

A structure created to shelter any form of human activity, such as a house, barn, church, hotel, or similar structure. Building may refer to a historically related complex such as a courthouse and jail or a house and barn (36 CFR 60.3).

6. Burial Site

Any natural or prepared physical location, whether originally below, on, or above the surface of the earth, into which as a part of the death rite or ceremony of a culture, individual human remains are deposited (PL 101-601, Section 2).

7. Collection

Materials remains that are excavated or removed during a survey, excavation, or other study of a prehistoric or historic resource, and associated records that are prepared or assembled in connection with the survey, excavation or other study (36 CFR 79.4).

8. Cultural Affiliation

A relationship of shared group identity which can be reasonably traced historically or prehistorically between a present day Indian tribe or Native Hawaiian organization and an identifiable earlier group (PL 101-601, Section 2).

9. Cultural Items

Associated and unassociated funerary objects, sacred objects, and cultural patrimony (PL 101-106, Section 2(3)(a-d)).

10. Cultural Patrimony

An object having ongoing historical, traditional, or cultural importance central to the Native American group or culture itself, rather than property owned by an individual Native American, and which, therefore, cannot be alienated, appropriated, or conveyed by any individual regardless of whether or not the individual is a member of the Indian tribe or Native Hawaiian organization (PL 101-601, Section 2).

11. Curatorial Services

Managing and preserving a collection according to professional museum and archival practices (36 CFR 79.4).

12. Determination of Eligibility

A decision by the Department of the Interior (DOI) that a district, site, building, structure, or object meets the National Register criteria for evaluation although the property is not formally listed in the National Register (36 CFR 60.3).

13. District

A geographically definable area, urban or rural, that possesses a significant concentration, linkage or continuity of sites, structures, buildings, or objects united by past events or aesthetically by plan or physical development. A district may also compromise individual elements separated geographically but linked by association or history (36 CFR 60.3).

14. Effect

Direct effects are caused by the undertaking and occur at the place and time of the undertaking. Indirect effects are those caused by the undertaking that are later in time or further removed in distance, but are still reasonably foreseeable (50 CFR 1508.8).

15. Endangered Property

A historic property that is, or is about to be, subjected to a major impact that will destroy or seriously damage the qualities of significance that make it eligible for National Historic Landmark or National Register of Historic Places designation (36 CFR 65 3).

16. Federal Agency Official

Any officer, employer, or agent officially representing the secretary of the department or the head of any other agency or instrumentality of the United States having primary management authority over a collection that is subject to 36 CFR 79 (36 CFR 79.4).

17. Federal Lands

Any land other than tribal lands which are controlled or owned by the United States, including lands selected by but not yet conveyed to Alaska Native Corporations and groups pursuant to the Alaska Native Claims Settlement Act of 1971 (PL 101-601, Section 2).

18. Federal Preservation Officer

The person who is responsible for coordinating the agency's activities under the NHPA and EO 11593, including nominating properties under the agency's ownership or control to the National Register (36 CFR 60.3).

19. Historic Preservation

Identification, evaluation, documentation, curation, acquisition, protection, rehabilitation, restoration, management, stabilization, maintenance, recording, and reconstruction of cultural resources, and any combination of the foregoing (16 USC 470(w)(8)).

20. Historic Property or Resource

Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register; such term includes artifacts, records, and remains which are related to such a district, site, building, structure, or object (16 USC 470W).

21. Indian Lands

All lands under the jurisdiction or control of an Indian tribe (36 CFR 800.2).

22. Indian Tribe or Tribe

An Indian Tribe, band, nation, or other organized group or community including a Native village, Regional Corporation or Village Corporation as those terms are defined in section 3 of the Alaska Native Claims Settlement Act (42 USC 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians (NHPA, Sect. 301(4)).

23. Inventory

An itemized list of human remains and funerary objects along with their geographical and cultural affiliations (PL 101-601, Section 5.(a) and (e)).

24. Landmark

A National Historic Landmark is a district, site, building, structure or object, in public or private ownership, judged by the SOI to possess national significance in American history, archeology, architecture, engineering, and culture, and is so designated by the Secretary (36 CFR 65.3).

25. Management Practice (MP)

Practices, that although not mandated by law, are encouraged to promote safe operating procedures.

26. Material Remains

Artifacts, objects, specimens, and other physical evidence that are excavated or removed in connection with efforts to locate, evaluate, document, study, preserve, or recover a prehistoric or historic resource. Classes of material remains that may be in a collection include, but are not limited to (36 CFR 79.4):

- Components of structures and features (such as houses, mills, piers, fortifications, earthworks, and mounds);
- Intact or fragmentary artifacts of human manufacture;
- Intact or fragmentary natural objects used by humans (such as rock crystals, feathers, and pigments);
- By-products, waste products, or debris resulting from manufacture or use of man-made or natural materials;
- Organic materials (such as vegetable and animal remains);
- Human remains;
- Components of petroglyphs, pictographs, intaglios, or other works of artistic or symbolic representation;
- Components of shipwrecks;
- Environmental and chronometric specimens; and
- Paleontological specimens that are found in direct physical relationship with a prehistoric or historic resource.

27. Museum

Any institution or state or local government agency (including any institution of higher learning) that receives Federal funds and has possession of, or control over, Native American

cultural items. Such term does not include the Smithsonian Institution or any other Federal agency (PL 101601, Section 2).

28. National Historic Landmark

A National Historic Landmark is a district, site, building, structure, or object, in public or private ownership, judged by the SOI to possess national significance in American history, archaeology, architecture, engineering, and culture, and is so designated by the Secretary (36 CFR 65.3).

29. National Historic Landmarks Program

The program that identifies, designates, recognizes, lists, and monitors National Historic Landmarks, conducted by the Secretary through the National Park Service (36 CFR 65.3)

30. National Park Service

The bureau of the DOI to which the SOI has delegated the authority and responsibility for administering the National Register program (36 CFR 60 3(h)).

31. National Register of Historic Places (National Register)

The listing of districts, sites, buildings, structures, and objects of national, state, or local significance in American history, architecture, archaeology, or culture that is maintained by the SOI (Keeper of the Register) (36 CFR 65.3).

32. Native American

Of, or relating to, a tribe, people, or culture that is indigenous to the United States (PL 101-106, Section 2)

33. Native Hawaiian

Any individual who is a descendent of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the state of Hawaii (PL 101-106, Section 2).

34. Nominate

To complete and submit National Register of Historic Places form proposing that a resource be included in the National Register. Nominations can be made for individual resources, multiple resources, or thematic groups (36 CFR Part 60.4)

35. Preservation

Identification, evaluation, recordation, documentation, curation, acquisition, protection, management, rehabilitation, restoration, stabilization, maintenance, and reconstruction of any constituents of the foregoing activities (16 USC 470W).

36. Property

A site, building, object, structure, or a collection of the above that forms a district (36 CFR 65 3).

37. Public Lands

Lands owned and administered by the United States including the national park system, national wildlife refuge system, and national forest system. Additional public lands are those whose fee title is held by the United States, the Outer Continental Shelf, and lands under the jurisdiction of the Smithsonian Institute (PL 96-95, Section 3(3)).

38. Qualified Museum Professional

A person who possesses knowledge, experience, and demonstrable competence in museum methods and techniques appropriate to the nature and content of the collection under the person's management and care and commensurate with the person's duties and responsibilities (36 CFR 79.4).

39. Religious Remains

Material remains that the Federal Agency Official (FAO) has determined are of traditional, religious, or sacred importance to an Indian tribe or other group because of customary use in religious rituals or spiritual activities. This determination is made in consultation with appropriate Indian tribes or other groups (36 CFR 79.4).

40. Repository

A facility such as a museum, archeological center, laboratory or storage facility managed by a university, college, museum, other educational or scientific institution, a Federal, state or local government agency or Indian tribe that can provide professional, systematic, and accountable curatorial services on a long-term basis (36 CFR 79.4).

41. Restoration

The act or process of accurately recovering the form and details of property and its setting as it appeared at a particular period of time by means of the removal of later work or by the replacement of missing earlier work (36 CFR 68.2).

42. Sacred Objects

Specific ceremonial objects which are needed by traditional Native American religious leaders for the practice of their traditional Native American religions by their present day adherents (PL 101-601, Section 2).

43. Section 106 Consultation

A compliance procedure in which an agency requests the comments of the SHPO and/or the ACHP when an undertaking may affect a property on, or eligible for, the National Register (36 CFR 800.3 through 800.9).

44. Significant

Having a characteristic that makes a property eligible for listing on the National Register (DOD Directive 4710.0).

45. State Historic Preservation Officer (SHPO)

The official who is responsible for administering the NHPA within the state of jurisdiction, or a designated representative authorized to act for the SHPO (36 CFR 60.3)

46. Tribal Official

The chief executive officer or any officer employee or agent officially representing the Indian tribe (36 CFR 79.4).

47. Unassociated Funerary Objects

Objects that, as a part of the death rites or ceremony of a culture are reasonably believed to have been placed with individual human remains either at the time of death or later, where the remains are not in the possession or control of the Federal agency or museum and the objects can be identified by a preponderance of the evidence as related to specific individuals or families or to known human remains or, by a preponderance of the evidence, as having been removed from a specific burial site of an individual culturally affiliated with a particular Indian tribe (PL 101-106, Section 2).

48. Undertaking

A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including (NHPA 301(7)).

a. Those carried out by or on behalf of the agency;

b. Those carried out with Federal financial assistance,

c. Those requiring a Federal permit, license, or approval, and

d. Those subject to state or local regulation administered pursuant to a delegation of approval by a Federal agency.

F. Records to Review

For construction activities: documentation of finding of no adverse effect, finding of adverse effect, or Memorandum of Agreement (MOA) with the SHPO or requests for comment when there is no agreement on historic properties;

- Cultural resources inventory/survey;
- Land use plans;
- Local zoning maps (historic districts);
- Environmental assessments;

- Environmental impact documentation; and
- Federal (Section 10 and 404) and state dredge and/or fill of wetlands and water bodies permits.

G. Physical Features to Inspect

- Sites of historic, archaeological, or Native American interest (designation, protection, and interpretation); and
- Buildings and structures of potential historical significance (National, state, or local).

H. Guidance For Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	CH 1 through CH 4	10-13
Historic Properties	CH 5 through CH 7	10-14
Religious/Heritage Access	CH 8	10-14
Archaeological and Indian Sites	CH 9 CH.10	10-15 10-16
Collection Management and Curation	CH 11 CH 12 through CH 14 CH.15 through CH 17 CH 18 through CH.19	10-16 10-17 10-18 10-19

Compliance Category: **Cultural and Historic Resources Management**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
CH 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements, or equivalent state enforcement actions. For those open items, indicate what corrective action is planned and milestones established to correct problems
CH 2 Facilities are required to comply with all applicable Federal and state regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new Federal or state regulations concerning cultural resources management have been issued since the finalization of the manual If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued Federal and state regulations
CH 3 Facilities should comply with state and local regulations concerning cultural resources management (MP)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Designation of historic and archeological sites - Protection of historic and archeological sites)
CH 4 All facilities should have a Compliance Management Plan for cultural and historical resources (MP)	(NOTE Based in part on inventories of such resources contained in facility-specific environmental documents such as those prepared under NEPA) Verify through consultation with other team specialists that the cultural resource planning process has been integrated into the compliance actions driven by other environmental statutes such as CERCLA and RCRA Verify that the site has developed a proactive cultural resources management program, identifying both short-term and long-term management goals (NHPA, Section 101(f)) Verify that historic preservation is an integral part of the site's environmental mission

Compliance Category: Cultural and Historic Resources Management	
Regulatory Requirements:	**Reviewer Checks:**
Historic Properties	
CH 5. All Federal agencies are required to establish a program to locate, inventory, and nominate to the SOI all properties under the agency's ownership or control that appear to qualify for inclusion on the National Register of Historic Places (36 CFR 60 9).	Determine if the facility has a program to locate, inventory, and nominate properties that include the following - Assignment of responsibility for recognizing and maintaining cultural resources - An inventory and evaluation of all known cultural resources - Identification of the likelihood (based on scientific study) of the presence of other significant cultural resources - Description of the facility's strategies for maintaining cultural resources and the methods used for compliance with this regulation - Clear identification of the impacts on historic resources of ongoing projects and the mitigation of those impacts Determine if the SHPO is given the opportunity to review and comment on all aspects of the program. Verify that known historic properties have been nominated
CH 6 Prior to the start of a new undertaking, facilities are required to take into account the effects of the undertaking on property included in or eligible for the National Register of Historic Places (36 CFR 800 1)	Verify that prior to the start of a new undertaking, the impact of that undertaking on property included in or eligible for the National Register of Historic places has been investigated through the Section 106 process of consultation and documentation Verify that the facility determines the area of potential effect for every undertaking Determine if a MOA has been drafted and review a copy for compliance Verify that the MOA was reviewed by the ACHP
CH 7. The facility is required to consult with the SHPO during the identification, location, and evaluation of historic properties and in assessing the effect of any undertaking on historic property (36 CFR 800 4 and 800 5)	Determine if the SHPO and staff have been consulted during all cultural resources planning including - Identification of cultural properties - Research design - Applying criteria of National Register - Requesting a determination of eligibility from the Keeper (Chief of Registration) of the National Register when an agency and a SHPO disagree on eligibility - Interaction with ACHP - Determination-of-effect in a single property compliance procedure
Religious/Heritage Access	
CH.8. Facilities cannot substantially burden a person's exercise of religion (Religious Freedom Restoration Act of 1993, Sec 3)	Determine if the facility has on its property a site which is an integral part of a religious ceremony Examples might include a burial ground or holy site Verify that access to and use of these sites is allowed unless denial of access/use furthers a compelling government interest and is the least restrictive means of furthering a government interest

Compliance Category: Cultural and Historic Resources Management	
Regulatory Requirements:	**Reviewer Checks:**
Archaeological and Indian Sites	
CH 9 Facilities are required to take measures to identify Native American graves and artifacts, determine their cultural affiliation, protect them, and cooperate with Native American groups in returning them to their rightful owners (NAGPRA of 1990 (P L 101601), Sect 3(d), Sect 5, and Sect 6)	Verify that if Native American human remains, funerary objects, or other cultural items are discovered at the facility, that the Secretary of the Agency is notified through command channels, and the appropriate Indian tribe, Native Hawaiian organization, or Alaskan Native Corporation or group is notified Verify that if the discovery is the result of an activity such as construction, mining, logging, or agriculture, the activity is stopped and a reasonable effort is made to protect the sites and items discovered (NOTE The activity may resume 30 days after receipt of certification that notification has been received) Verify that if the facility museum has possession or control over holdings or collections of Native American human remains and associated funerary objects an inventory of such items is being prepared by qualified museum professionals, and that it - Includes information on the geographical origin and cultural information of the items - Is completed in consultation with tribal government and Native Hawaiian organization officials and traditional religious leaders - Is scheduled for completion no later than 16 November 1995 - Is made available for review at all times and stages of completion to the reviewing committee established by the SOI Verify that the facility museum supplies, upon request by an Indian tribe or Native Hawaiian organization, additional available documentation in the form of a summary of existing museum records, including inventories and catalogues, for the limited purpose of determining the geographical origin, cultural affiliation, and basic facts surrounding acquisition and accession of Native American or Native Hawaiian human remains and associated funerary objects Verify that if a determination of cultural affiliation of any particular Native American human remains or associated funerary objects is made, the affected Native American group is notified within six months of the completion of the inventory and a copy of the notice is sent to the SOI Each notice shall contain information which - Identifies each Native American human remains or associated funerary objects and the circumstances surrounding its acquisition - Lists the human remains or associated funerary objects that are clearly identifiable as to tribal origin - Lists the Native American human remains and associated funerary objects that are not clearly identifiable as to cultural affiliation, but which are likely to be affiliated with that Indian tribe or Native Hawaiian organization Determine if the facility museum has possession or control over unassociated funerary objects, sacred objects, or objects of cultural patrimony If so, confirm that a written summary of such objects is prepared containing - A description of the scope of the collection - Kinds of objects included in the collection - Reference to geographical origin of the objects - Description of the means and time period of acquisition - Cultural affiliation of the object Verify that completion of the summary is followed by consultation with tribal officials and traditional religious leaders

Compliance Category: **Cultural and Historic Resources Management**	
Regulatory Requirements:	**Reviewer Checks:**
CH 10 Archaeological resources located on public lands or Indian lands cannot be excavated, removed, damaged, defaced, or otherwise altered, without a permit (32 CFR 229 4(a), 229 5(b), and 229 18)	Determine if there is currently any excavation, removal, or disturbing of archaeological resources at the facility Verify that any actions taken in relationship to archaeological resources have been permitted. Verify that the facility is adhering to the conditions of the permit (NOTE· - A permit is not required in the following circumstances -- for activities being conducted on public lands under other permits, leases, licenses, or entitlements for use when such authorizations are exclusively for activities other than excavation and/or removal of archaeological resources, even if authorized activities might disturb the archaeological resources -- for the collection for private purposes any rock, coin, bullet, or mineral which is not an archaeological resource if the collection of the item does not result in the disturbance of an archaeological resource -- excavations done by an Indian tribe or member of an Indian tribe on the lands of that tribe - Federal land managers will not disclose information about the nature and location of any archaeological resources, except under the following circumstances -- the disclosure furthers the purposes of the NHPA without risking harm to the archeological resource or the site at which it is located -- when the Governor of any state submits a request for the information if the request includes -- the specific archaeological resource or area about which information is sought -- the reason the information is requested -- the Governor's written commitment to adequately protect the confidentiality of the information)
Collection Management And Curation	
CH 11 Facilities responsible for the long-term management and preservation of pre-existing collections are subject to certain regulations regarding curation (36 CFR 79 5(a))	Determine if the facility has responsibility for the long-term management and preservation of pre-existing archeological collections Verify that the responsible person identifies repositories holding pre-existing collections placed prior to 12 October 1990, and reviews and evaluates the curatorial services being provided Verify that collections are managed by a qualified museum professional, such as a conservator or curator Verify that if the curatorial services being provided are not adequate, appropriate actions to eliminate inadequacies are being taken

Compliance Category: Cultural and Historic Resources Management	
Regulatory Requirements:	**Reviewer Checks:**
CH 12 Facilities responsible for the long-term management and preservation of new archaeological collections are required to meet specific curation standards (36 CFR 79 5(b))	Determine if the facility has responsibility for the long-term management and preservation of new archaeological collections which were obtained/placed after 12 October 1990 Verify that new archeological collections are deposited in a repository only after the following criteria have been met - The repository has the capability to provide adequate long-term curatorial services - The repository's facilities, written curatorial policies and operating procedures are consistent with 36 CFR 79 - The repository has certified, in writing, that the collection will be cared for, maintained and made accessible in accordance with 36 CFR 79 - When the collection is from Indian lands, written consent to the disposition has been obtained from the Indian landowner and the Indian tribe having jurisdiction over the lands - The initial processing of the material remains (including appropriate cleaning, sorting, labeling, cataloging, stabilizing, and packaging) has been completed by qualified museum professionals, and associated records have been prepared and organized in accordance with the repository's processing and documentation procedures
CH.13 Facilities responsible for the long-term management and preservation of pre-existing and new archaeological collections are required to keep specific administrative records (36 CFR 79.5(c))	Verify that the following administrative records on the disposition of each collection includes. - The name and location of the repository where the collection is deposited - A copy of the contract, memorandum, agreement or other appropriate written instrument, and any subsequent amendments, between the facility, the repository, and any other party for curatorial services - A catalog list of the contents of the collection that is deposited in the repository - A list of any other Federal personal property that is furnished to the repository as part of the contract, memorandum, or agreement - Copies of reports documenting inspection, inventories and investigations of loss, damage, or destruction that are conducted - Any subsequent permanent transfer of the collection to another repository
CH 14 Facilities responsible for the long-term management and preservation of pre-existing and new archaeological collections are required to provide long-term curatorial services conducted by qualified museum professionals (36 CFR 79 9(a) and 79.9(b)(1))	Verify that the repository provides the following as adequate long-term care - Accession, labeling, cataloging, storage, maintenance, inventory, and conservation of the particular collection on a long-term basis using professional museum and archival practices - Maintenance of complete and accurate records of the collection, including -- records on acquisition -- catalogs and artifact inventory lists -- descriptive information, including field notes, site forms, and reports -- photographs, negative, and slides -- locational information, including maps -- approved loans and other uses -- inventory and inspection records, including any environmental monitoring records -- records on lost, deteriorated, damaged, or destroyed government property

Compliance Category: **Cultural and Historic Resources Management**	
Regulatory Requirements:	**Reviewer Checks:**
CH 15 Facilities responsible for the long-term management and preservation of pre-existing and new archaeological collections are required to provide repository security that meets specific standards (36 CFR 79.9(b)(2), 79 9(b)(3), and 79 9(b)(6))	Verify that the repository has dedicated equipment and space to properly store, study and conserve the collection. Verify that the collection is under physically secure conditions within storage, laboratory, study, and any exhibition areas, and the physical plant meets the following criteria· - Local electrical, fire, building, health, and safety codes are met - Has an appropriate and operational fire detection and suppression system - Has appropriate and operational intrusion detection and deterrent system - Has an adequate emergency management plan establishing procedures for responding to fires, floods, natural disasters, civil unrest, acts of violence, structural failures, and failures of electrical and mechanical systems within the physical plant - Provides fragile or valuable items with additional security, and limits and controls access to keys, the collection, and the physical plant - Inspections of the physical plant for possible security weaknesses and environmental control problems are carried out, and inadequacies corrected Verify that storage of site forms, field notes, artifacts inventory lists, computer disks and tapes, catalog forms, and a copy of the final report is done in manner that protects them from theft and fire by one of the following· - Storing a duplicate set of records in a separate location - Ensuring records are maintained and accessible through another party
CH 16 The curation staff at facilities responsible for the long-term management and preservation of pre-existing and new archeological collections are required to be qualified museum professionals (36 CFR 79 9(b)(4))	Verify that the staff and consultants who are responsible for managing the collection are qualified museum professionals
CH 17. Facilities responsible for the long-term management and preservation of pre-existing and new archeological collections are required to follow specific curatorial procedures (36 CFR 79 9(b)(5))	Verify that handling, storage, cleaning, conservation, and exhibition of the collection is performed in a manner that - Is appropriate to the nature of the material remains and associated records - Protects the collections from breakage and possible deterioration from adverse temperature and relative humidity, visible light, ultraviolet radiation, dust, soot, gases, mold, fungus, insects, rodents, and general neglect - Preserves data that may be studied in future laboratory analyses

Compliance Category: Cultural and Historic Resources Management	
Regulatory Requirements:	**Reviewer Checks:**
CH 18 Facilities responsible for the long-term management and preservation of pre-existing and new archeological collections are required to follow specific practices regarding the use of the collections (36 CFR 79 10)	Verify that the collection is available for scientific, educational and religious uses, subject to such terms and conditions as are necessary to protect and preserve the condition, research potential, religious or sacred importance, and uniqueness of the collection
CH 19 Facilities responsible for the long-term management and preservation of pre-existing and new archaeological collections are required to inventory and inspect those collections (36 CFR 79.9(b)(7), 79 9(b)(8), and 79 11(b) through 79 11(d)).	Verify that inspections and inventories of the collection are conducted periodically Verify that inspection of the collection for possible deterioration and damage is conducted Verify that the inventories include the material remains and associated records, and any other U S Government-owned personal property in the possession of the repository. Verify that qualified museum professionals conduct the inspections and inventories Verify that following each inspection and inventory, the personnel responsible for the inspection and inventory prepare and provides the responsible person with a written report of the results, including the status of the collection, treatments completed, and recommendations for additional treatments (NOTE· For collections from Indian lands, the Indian landowner, and the Tribal Official, and the Indian tribe that has jurisdiction over the lands, are provided with a copy of the notification also) Verify that within five days of the discovery of any loss or theft of, deterioration and damage to, or destruction of the collection (or a part thereof) or any other U.S. Government-owned property, the personnel responsible for the curation of the collection prepare and provide the responsible person with written notification of the circumstances surrounding the loss Verify that the collection is available for inspection by the responsible person, the Indian landowner and Tribal Official (when the collection is from Indian lands), the Indian tribal elder, religious leaders, and other officials representing the Indian tribe or other group for which the remains have religious or sacred importance

Phase 1

Section 11

Storage Tank Management

Phase 1
Section 11
Table of Contents

Storage Tank Management

A. Applicability 11-1
B. Federal Legislation 11-1
C State/Local Requirements 11-2
D. Key Compliance Requirements 11-2
E. Key Compliance Definitions 11-7
F. Records to Research 11-19
G. Physical Features to Inspect 11-19
H. Guidance for Checklist Users 11-20

Appendices

A11-1. UST Applicability Guide A11-1
A11-2. Schedule for Phase-In Release Detection A11-2
A11-3. Release Detection Requirements for USTs and Underground Piping A11-3

A. Applicability

This section applies to facilities that utilize storage tanks and pipelines, whether aboveground or underground, for the storage and/or conveyance of hazardous materials, petroleum products, or hazardous waste. The section presents review action items for emissions from tanks, structural concerns, monitoring, and recordkeeping requirements.

Assessors are required to review agency, state, and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. The Resource Conservation and Recovery Act (RCRA) Subtitles I and C

Subtitle I, Public Law (PL) 99-49 (42 U.S. Code (USC) 6991-699(1)(i)), established the standards and procedures for Underground Storage Tanks (UST). It required the EPA to issue standards on leak detection, record maintenance, release reporting, corrective actions, tank upgrading, and replacement (42 USC 6991(b)(a)(c)). Subtitle C, PL 98-616 (42 USC 6921-6939(b)) establishes standards and procedures for handling, storage, treatment, and disposal of hazardous waste Specifically, RCRA prohibits the placement of bulk or noncontainerized liquid hazardous waste or free liquids containing hazardous waste into a landfill

2. The Clean Air Act (CAA) Amendments of 1990

This Act (PL 101-549; 42 USC 7401-7671(q)), is currently the effective, comprehensive Federal legislation that regulates the prevention and control of air pollution. See the Air Pollution Control checklist for further information on the CAA

3. Clean Water Act of 1977

The Clean Water Act (CWA) of 1977 established a program to regulate certain nontransportation related aboveground and belowground oil storage tanks that have the potential to release oil into or upon the navigable waters of the United States adjoining shorelines.

4. The Federal Facilities Compliance Act (FFCA) of 1992

This act provides for a waiver of sovereign immunity with respect to Federal, state, and local procedural and substantive requirements relating to RCRA.

5. The Occupational Safety and Health Act (OSHA)

This Act, last amended in November 1990 (29 USC 651-678), is a Federal statute which governs the issues related to occupational safety and health. The purpose and policy of this Act is to assure every working man and woman in the nation safe and healthful working conditions and to preserve our human resources by, among other things, providing for the development and publication of occupational safety and health standards, providing for an effective enforcement program, and providing for appropriate reporting procedures with respect to occupational safety and health which procedures will help achieve the objectives of this Act and accurately describe the nature of the occupational safety and health (29 USC 651(b)(9)(10)(12)).

6. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

Since the primary mechanisms regulating air pollutant emissions are the state or Air Quality Control Region (AQCR) regulations, some states and/or municipalities may be regulating emissions from storage vessels.

Many state and local governments have active UST programs. These various governments have developed regulations specific to the physical environment and the regulated communities' needs. It is important to review regulations at the state and local level to ensure that any differences such as permitting, reporting or notification requirements, and monitoring requirements are complied with.

D. Key Compliance Requirements

1. Aboveground Storage Tanks (AST)

All bulk storage tanks are required to be provided with a secondary means of containment for the entire contents of the largest single tank, plus sufficient freeboard to allow for precipitation. ASTs are required to undergo periodic integrity testing and keep a written log of this testing. Drainage of rainwater from diked areas must be controlled by a valve that is closed when not in active use. Drainage water that is determined to contain petroleum products in harmful quantities must be treated before discharge to meet applicable water quality standards (40 CFR 112.7(e)(1) through 112.7(e)(2)).

2. Bulk Gasoline Terminals

Bulk gasoline terminals with greater than 75,000 L (19,997.82 gal) gasoline throughput per day that deliver liquid product into greater tank trucks, and that started construction or modification after 17 December 1980 are required to ensure that vapor tightness documentation is available for each gasoline tank truck, and that the tank identification number is recorded as each gasoline tank truck is loaded (40 CFR 60.500 through 60.506).

3. Petroleum Storage Vessels

Storage vessels for petroleum liquids with a storage capacity greater than 151,416 L (40,000 gal) but less than 246,052 L (65,000 gal), that started construction or modification after 8 March 1974 but before 19 May 1978, or with a capacity greater than 246,052 L (65,000 gal) that started

construction or modification after 11 June 1973 but before 19 May 1978, are required to meet specific standards for emissions and monitoring. These standards vary depending upon whether the true vapor pressure of the petroleum liquid is greater or less than 11.1 psia. Storage vessels with a storage capacity greater than 151,416 L (40,000 gal) constructed after 18 May 1978 are required to ensure that the vessel has an external floating roof, or a fixed roof with an internal floating type cover, and a vapor recovery system (40 CFR 60 110 through 60.113 and 60 110(a) through 60.115(a)).

4. Volatile Organic Liquid (VOL) Storage Vessels

Storage vessels for VOLs having a capacity of greater than or equal to 40 m^3 (10,566.88 gal) for which construction, reconstruction, or modification started after 23 July 1984 are required to meet specific inspection, documentation, and notification requirement standards. These include ensuring that certain inspections are made, notifying the EPA in advance of performing gap measurements, and providing it certain records upon request (40 CFR 60.110(b) through 60.115(b)).

5. Substandard USTs

Substandard UST systems must be upgraded, closed, or removed from service by 22 December 1998. If a release detection system is not available for the UST, it must be phased out in one to five years (40 CFR 280.21(a) through 280.21(c)).

6. New or Upgraded USTs

New or upgraded USTs are required to be fitted with spill and overfill prevention equipment. Notice must be given to the appropriate authority within 30 days when a UST system is brought into service after 8 May 1986. If the UST is installed after 22 December 1988, it must be constructed so that it will remain structurally sound for its operating life. Installation of USTs must be done by a certified installer and UST systems must be made of or lined with materials compatible with the substance stored (40 CFR 280.20, 280.21(d), 280.22, and 280.32).

7. Metallic USTs

Buried metallic storage tanks installed after 1973 must be protected from corrosion by coatings, cathodic protection, or other effective methods. They must also undergo regular pressure testing (40 CFR 112.7(e)(2)(iv)).

8. Spill and Overfill Prevention for USTs

The filling of an UST must include the prevention of overfilling and spilling of the substance. If a spill does occur, facilities with UST systems are required to contain and immediately clean up a spill or overfill and report it to the implementing agency within 24 hours if (40 CFR 280.30, 280.53):

a. Spills or overfills of petroleum that resulted in a release to the environment of more than 25 gal (93.89 L) or that caused a sheen on nearby surface water; and

b. Spills or overfills of hazardous substances that result in a release to the environment in excess of the reportable quantity.

9. Corrosion Protection and Repairs for USTs

Corrosion protection on USTs must operate continuously to provide corrosion protection to the metal components that routinely contain regulated substances and are in contact with the ground. UST systems with impressed current cathodic protection are required to be inspected every 60 days by a qualified cathodic protection tester. Repairs to USTs must be performed according to industry code. Tanks and piping that have been replaced or repaired are required to be tested for tightness within 30 days. Records of repairs shall be maintained for the life of the tank (40 CFR 280.31, 280.33, 280.43, and 280.44).

10. Release Detection for USTs

Facilities with new and existing USTs are required to provide a method, or combination of methods of release detection. Release detection requirements in 40 CFR 280.40 through 280.45 do not apply to USTs which store fuel solely for use by emergency power generators. Release detection records are required to be kept as follows (40 CFR 280.40 through 280.45):

a. All written performance claims pertaining to any release detection system used for five years from the date of installation;

b. The results of any sampling testing or monitoring for one year;

c. The results of tank tightness testing, until the next test is done;

d. Written documentation of calibration, maintenance, repair, of release detection equipment permanently located onsite, at least one year after the servicing is done; and

e. Schedules of required calibration and maintenance provided by the release detection equipment manufacturer, five years after the date of installation.

Depending on the age, size, and construction of the tank, acceptable methods of release detection include the following:

a. Inventory control;

b. Manual tank gauging;

c. Tank tightness testing;

d. Automatic tank gauging;

e. Vapor monitoring;

f. Groundwater monitoring; and

g. Interstitial monitoring.

Existing UST system tanks must implement release detection requirements based on when the system was installed. The table below identifies the deadline for providing release detection:

Deadlines for Release Detection	
UST System Installation Date	**Leak Detection Required by 22 December of**
All others	1992
1980-December 1988	1993

11. Release Detection for Underground Piping Associated with UST Systems

40 CFR 280, Subpart D establishes separate release detection requirements for underground piping depending on whether it conveys substances under pressure or suction. These include:

a. Pressurized piping may be equipped with an automatic line leak detector and have an annual line tightness test conducted; or pressurized piping may be equipped with an automatic line leak detector and a permanent release detection system that allows monthly monitoring. Permanent release detection methods acceptable for piping include: vapor monitoring, interstitial monitoring, and groundwater monitoring. The deadline for implementing release detection requirements on pressurized piping was 22 December 1990.

b. Suction piping either may have a line tightness test conducted every three years or may use a permanent release detection system that allows monthly monitoring. Deadlines for implementing release detection requirements on suction piping are based on when the UST system was installed. The table above identifies the deadline for providing release detection. For suction piping constructed to certain standards, no release detection monitoring is required. It must meet five criteria:

(1) Below-grade piping must operate at less than atmospheric pressure
(2) Below-grade piping must be sloped to drain back into the tank when suction is released
(3) Only one check valve can be included in each suction line
(4) The check valve is located directly below and as close as practical to the suction pump
(5) Criteria in paragraphs b through d must be verifiable.

c Corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used.

d. Documentation of operation of corrosion protection equipment.

e. Documentation of repairs.

f. Closure records.

g. Results of any site investigations (40 CFR 280.34. 280.45, and 280.74).

12. Change in Service or Closure of USTs

USTs which are put out of service temporarily must have continued maintenance. If the UST has been out-of-service for near or over one year, plans must be made for permanent closure. The facility must notify the implementing agency for any closure or change in service 30 days in advance or within a reasonable time frame as determined by the implementing agency. UST closure must be done by either removing the tank from the ground or leaving it in place with the contents removed and filled with an inert solid material and closing it to all future outside access. If a tank is undergoing a change-in-service, it must be emptied and cleaned and a site assessment conducted. Prior to the completion of permanent closure or change-in-service, measurements must be made for the presence of a release where contamination is most likely to be present at the site. Facilities with UST systems closed prior to 22 December 1988 must assess the excavation zone and close the UST according to current standards if releases from the UST may pose a current or potential threat to human health and the environment (40 CFR 280.70 through 280.73).

13. Hazardous Waste Storage Tanks

Storage tanks are one storage option that facilities which produce or store hazardous waste can use. The storage tank requirements are based on whether the facility is a Small Quantity Generator (SQG), a Generator, or a Treatment, Storage or Disposal Facility (TSDF). Refer to the sections titled Hazardous Waste Management for more details on the definitions of these classifications.

14. Flammable Combustible Liquid Storage Tanks

Storage tanks that hold flammable/combustible liquids must not be below ground or inside buildings. They are to be built of steel except in certain circumstances. Outside aboveground tanks for flammable liquids are to meet requirements for distance between tanks, firefighting access, and containment. When flammable vapor may be present from storage tanks, heat sources will be kept from the tanks. Tanks are required to have been strength tested before being used (29 CFR 1910.106(b)).

15. Onshore Oil Pipelines

Facilities with onshore oil pipelines that because of location could reasonably be expected to cause substantial harm to the environment by discharging oil into navigable waters are required to prepare a response plan. Copies of the response plan are required to be submitted to the EPA Research and Special Programs Administration (RSPA) for approval. Copies of the response plan are required to be kept at the operators headquarters, pump stations, and other places where response activities might be conducted. Training is required for the implementation of the response plan. The response plan is required to be reviewed every three years from the date of submission and modified to address new or different operating conditions or information (49 CFR 194).

16. Service Stations

The storage of liquids at service stations, specifically Class I liquids, has to be done in containers that are secure and which prevent excess release of vapors (29 CFR 1910.106(g)).

17. Transfer Terminals

Terminals transferring oil or hazardous materials to vessels with a capacity of more than 250 bbl (30,746.83 L) are required to have an operations manual If the reception facility at the terminal or port loads a daily average of more than 1,000 metric tons (1,100 short tons) of oil, it has to be able to receive waste such as oily bilge water, sludge, oily ballast, and cargo residue (33 CFR 154.100 through 154.300 and 158.220 through 158.230).

E. Key Compliance Definitions

1. Aboveground Release

Any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of an UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST system (40 CFR 280.12).

2. Aboveground Storage Tank

In relation to hazardous waste, a device that meets the definition of tank in 40 CFR 260.10 and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected (40 CFR 260.10).

3. Ancillary Equipment

Any devices including, but not limited to, such devices as pipings, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from the UST (40 CFR 280.12).

4. Atmospheric Tank

A storage tank which has been designed to operate at pressures from atmospheric through 0.5 psig (29 CFR 1910.106(a)(2)).

5. Automotive Service Station

That portion of property where flammable or combustible liquids used as motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles and shall include any facilities available for the sale and service of tires, batteries, and accessories, and for minor automotive maintenance work. Major automotive repairs, painting, body, and fender work are excluded (29 CFR 1910.106(a)(3)).

6. Belowground Release

Any release to the subsurface of the land and to groundwater. This includes, but is not limited to, releases from the belowground portion of an underground storage tank system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST (40 CFR 280.12).

7. Bulk Gasoline Plant

Any gasoline distribution facility that has a throughput less than or equal to 75,000 L (19,997.82 gal/day) (40 CFR 60.111(b)).

8. Cathodic Protection

A technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current (40 CFR 280.12).

9. Cathodic Protection Tester

A person who can demonstrate understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems (40 CFR 280.12).

10. CERCLA

Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended (40 CFR 280.12).

11. Combustible Liquid

A liquid having a flashpoint at or above 100° F (37.8° C). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows (29 CFR 1910.106(a)(18)):

a. Class II liquids are those having a flashpoint at or above 100° F (37.8° C) and below 140° F (60° C) except any mixture having components with flashpoints of 200° F (93.3°

C) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.

b. Class IIIA liquids are those having flashpoints at or above 140° F (60° C) and below 200° F (93.3° C) except any mixture having components with flashpoints of 200° F (93.3° C) or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

c. Class IIIB liquids are those having flashpoints at or above 200° F (93.3° C).

12. Compatible

The ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST (40 CFR 280.12).

13. Connected Piping

All underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them (40 CFR 280.12).

14. Consumptive Use

With respect to heating oil, means consumed on the premises (40 CFR 280.12).

15. Corrosion Expert

A person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks (40 CFR 280.12).

16. Deferred USTs

USTs which are exempt from meeting the requirements in 40 CFR 280 except those concerning release response and corrective action for UST systems containing petroleum or hazardous substances in 40 CFR 280.60 through 280.67. These tanks include (40 CFR 280.10(e)).

a Wastewater treatment tank systems;

b. Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954;

c. Any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A;

d. Airport hydrant fuel distribution systems; and

e. UST systems with field-constructed tanks.

17. Dielectric Material

A material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST system (e.g., tank from piping) (40 CFR 280.12).

18. Electrical Equipment

Underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electric cable (40 CFR 280.12).

19. Environmentally Sensitive Area

An area of environmental importance which is in or adjacent to navigable waters (49 CFR 194.5).

20. Excavation Zone

The volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation (40 CFR 280.12).

21. Excluded USTs

These are USTs which are not required to meet the requirements found in 40 CFR 280 and include (40 CFR 280.10(b)):

a. Any UST system holding hazardous wastes listed under Subtitle C of the Solid Waste Disposal Act, or a mixture of such hazardous waste and other regulated substances.

b. Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the Clean Water Act (CWA)

c. Equipment of machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment

d. Any UST system whose capacity is 110 gal (416.40 L) or less

e. UST system that contains a de minimis concentration of a regulated substance

f. Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

22. Existing Tank System

A tank system used to contain an accumulation of regulated substances or for which installation has commenced on or before 22 December 1988. Installation is considered to have commenced if (40 CFR 280.12):

a. The owner or operator has obtained all Federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system.

b. Either a continuous onsite physical construction or installation program has begun, or the owner or operator has entered into any contractual obligations: which cannot be canceled or modified without substantial loss for physical construction at the site or installation of the tank system to be completed within a reasonable time.

23. Farm Tank

A tank located on a tract of land devoted to the production of crops or raising animals; including fish and associated residences and improvements. A farm tank must be located on the farm property. "Farm" includes fish hatcheries, rangeland, and nurseries with growing operations (40 CFR 280.12).

24. Flammable Liquid

A liquid with a flashpoint below 100°F (37.8°C) except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Flammable liquids are categorized as Class I liquids, and are further subdivided as follows (29 CFR 1910.106(a)(19)):

a. Class IA are those that have a flashpoint below 73°F (22.8°C) and boiling point below 100° F (37.8°C)

b. Class IB are those that have flashpoints below 73°F (22.8°C) and boiling points at or above 100°F (37.8°C)

c. Class IC are those that have flashpoints at or above 73°F (22.8°C) and below 100°F (37.8°C).

25. Flow-through Process Tank

A tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of material prior to their introduction into the production process or for the storage of finished products or byproducts from the production (40 CFR 280.12).

26. Free-product

A regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water) (40 CFR 280.12).

27. Gathering Lines

Any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production (40 CFR 280.12).

28. Generator

Any person, by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261, or whose act first causes a hazardous waste to become subject to regulation (40 CFR 260.10). (NOTE: This typically is used to refer to a facility producing hazardous waste in quantities greater than 1000 kg/mo (2204.62 lb/mo)).

29. Hazardous Substance UST System

Any underground storage tank system that contains a hazardous substance defined in section 101(14) of the Comprehensive Environmental Compensation and Liability Act of 1980 (but not including any substance regulated as a hazardous waste under Subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system (40 CFR 280.12).

30. Hazardous Waste

A solid waste identified as a characteristic or listed hazardous waste in 40 CFR 261.3 (40 CFR 260.10)

31. Heating Oil

Petroleum that is No. 1, No. 2, No. 4--light, No. 4--heavy, No.5 --heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C); and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces (40 CFR 280.12).

32. Hydraulic Lift Tank

A tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices (40 CFR 280.12).

33. In-ground Tank

A device meeting the definition of tank in 40 CFR 260.10 whereby a portion of the tank is situated to any degree within the ground, thereby preventing visual inspection of the external surface of that tank that is in the ground (40 CFR 260.10).

34. Liquid Trap

Sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extracting operations (including gas production plants), for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for

subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream (40 CFR 280.12).

35. Low Pressure Tank

A storage tank which has been designed to operate at a pressure above 0.5 psig but not more than 15 psig (29 CFR 1910.106(a)(21)).

36. Maintenance

The normal operational upkeep to prevent an UST system from releasing product (40 CFR 280.12).

37. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures

38. Motor Fuel

Petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No 1 or No.2 diesel fuel, or any grade of gasohol, and is typically used in the operation of motor engines (40 CFR 280.12).

39. New Tank

In relation to used oil, a tank that will be used to store or process used oil and for which installation has started after the effective date of the authorized used oil program for the state in which the tank is located (40 CFR 279.1).

40. New Tank System

For USTs, a tank system that will be used to contain an accumulation of regulated substances and for which installation has commenced after 22 December 1988 (40 CFR 280.12)

41. New Tank System or New Component System

In relation to hazardous waste, a tank system or component that will be used for the storage and treatment of hazardous waste and for which installation has commenced after 14 July 1986, except however, for purposes of 40 CFR 264 193(g)(2) and 265.193(g)(2), a new tank system is one for which construction commenced after 14 July 1986 (40 CFR 260 10)

42. Noncommercial Purposes with Respect to Motor Fuel

Not for resale (40 CFR 280.12).

43. On the Premises Where Stored (heating oil)

UST systems located on the same property where the stored heating oil is used (40 CFR 280 12).

44. Onground Tank

In relation to hazardous waste, a device meeting the definition of tank in 40 CFR 260.10 and that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visibly inspected (40 CFR 260.10).

45. Onshore Oil Pipeline Facilities

New and existing pipe, rights-of-way and any equipment, facility, or building used in the transportation of oil located in, on, or under, any land within the United States other than submerged land (49 CFR 194.5).

46. Operator

Any person in control of or having responsibility for the daily operation of the UST system (40 CFR 280.12).

47. Operator

In relationship to onshore oil pipeline facilities, a person who owns or operates onshore oil pipeline facilities (49 CFR 194.5).

48. Overfill Release

A release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment (40 CFR 280.12).

49. Person

An individual, trust, firm, joint stock company, Federal agency, corporation, state, municipality, commission, political subdivision of a state, or any interstate body. Person also includes a consortium, a joint venture, a commercial entity, and the U. S. Government (40 CFR 280.12).

50. Petroleum UST System

An UST system that contains petroleum or a mixture of petroleum with de minimis quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils (40 CFR 280.12).

51. Pipe or Piping

A hollow cylinder or tubular conduit that is constructed of non-earthen materials (40 CFR 280.12).

52. Pipeline

All parts of an onshore pipeline facility through which oil moves, including, but not limited to, line pipe, valves, and other appurtenances connected to the line pipe, pumping units, fabricated assemblies associated with pumping units, metering and delivery stations and fabricated assemblies therein, and breakout tanks (49 CFR 194.5).

53. Pipeline Facilities (including gathering lines)

Are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings (40 CFR 280.12).

54. Portable Tank

A closed container having a liquid capacity over 60 gal (227.12 L) and not intended for fixed installation (29 CFR 1910.106(a)(25)).

55. Pressure Vessel

A storage tank or container designed to operate at pressures above 15 psig (29 CFR 1910.106(a)(29)).

56. Qualified Individual

An English-speaking representative of an operator, located in the United States, available on a 24-hour basis, with full authority to: activate and contract with required oil spill removal organizations, activate personnel and equipment maintained by the operator; act as liaison with the On-Scene Coordinator (OSC); and obligate any funds required to carry out all required or directed oil response activities (49 CFR 194.5).

57. Regulated Substance

This includes (40 CFR 280 12)(40 CFR 280 10(b)):

a. Any substance defined in section 101(14) of CERCLA of 1980 (but not including any substance regulated as a hazardous waste under Subtitle C); and

b. Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60°F (15 56°C) and 14 7 lb/psia).

(NOTE: The term regulated substance includes, but is not limited to, petroleum and petroleum based substances comprised of a complex blend of hydrocarbons derived from crude oil though processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.)

58. Reid Vapor Pressure

The absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases as determined by the ASTM, Part 17, 1973, D-323-72 (reapproved 1977) (40 CFR 60.111(a)).

59. Release

Any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST into groundwater, surface water, or subsurface soils (40 CFR 280 12).

60. Release Detection

Determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it (40 CFR 280.12).

61. Repair

To restore a tank or UST system component that has caused a release of product from the UST system (40 CFR 280.12).

62. Residential Tank

A tank located on property used primarily for dwelling purposes (40 CFR 280.12).

63. Response Activities

The containment and removal of oil from the water and shorelines, the temporary storage and disposal of recovered oil, or the taking of other actions as necessary to minimize or mitigate damage to the environment (49 CFR 194.5).

64. Response Area

The inland zone or coastal zone, as defined in the National Contingency Plan, in which response activity is occurring (49 CFR 194.5).

65. Response Plan

The operator's core plan and the response zone appendices for responding, to the maximum extent practicable, to a worst case discharge of oil, or the substantial threat of such a discharge (49 CFR 194.5)

66. Response Zone

A geographic area, either along a length of pipeline or including multiple pipelines, containing one or more adjacent line sections, for which the operator must plan for the deployment of, and provide, spill response capabilities (49 CFR 194.5).

67. SARA

Superfund Amendments and Reauthorization Act (40 CFR 280 12)

68. Septic Tank

A water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility (40 CFR 280.12).

69. Small Quantity Generator

A generator who generates less than 1,000 kg/mo (2,204.62 lb/mo) of hazardous waste in a calendar month but more than 100 kg (220.46 lb) (40 CFR 260 10)

70. Stormwater or Wastewater Collection System

Piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water runoff resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of stormwater and wastewater does not include treatment except where incidental to conveyance (40 CFR 280.12).

71. Surface Impoundment

A natural topographic depression, manmade excavation, or diked area formed of primarily of earthen materials (although it may be lined with manmade materials) that is not an injection well (40 CFR 280 12)

72. Tank

A stationary device designed to contain an accumulation of regulated substances and constructed of non-earthen materials (e.g. concrete, steel, plastic) that provide structural support (40 CFR 280.12)

73. Tank

In relation to hazardous waste, a stationary device designed to contain an accumulation of hazardous waste that is constructed primarily of nonearthen materials (e.g., wood, concrete, steel, plastic) which provide structural support (40 CFR 260 10).

74. Tank System

A hazardous waste storage or treatment tank and its associated ancillary equipment and containment system (40 CFR 260.10).

75. True Vapor Pressure

The equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute (API) Bulletin 2517, Evaporation Loss From Floating Roof Plants, 1962 (40 CFR 60.111(a)).

76. Underground Area

An underground room such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor (40 CFR 280.12).

77. Underground Release

Any belowground release (40 CFR 280 12).

78. Underground Storage Tank (UST)

Any one or a combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include any (40 CFR 280.12):

a. Farm or residential tank of 1,100 gal (4,163.95 L) or less capacity used for storing motor fuel for non-commercial purposes.

b. Tank used for storing heating oil for consumptive use on the premises where stored

c. Septic tanks.

d. Pipeline facility (including gathering lines) which are regulated by other acts.

e. Surface impoundment, pit, pond, or lagoon.

f. Storm-water or waste water collection system.

g. Flow-through process tank.

h. Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations.

i. Storage tank situated in an underground area if the storage tank is situated upon or above the surface of the floor such as basements or tunnels.

j. Tanks holding 110 gal (106.21 L) or less.

k. Emergency spill and overfill tanks.

(NOTE: The definition of UST does not include any pipes connected to any tank which is described in paragraph (a) through (i) of this definition.)

79. Underground Tank

In relation to hazardous waste, a device meeting the definition of tank in 40 CFR 260.10 whose entire surface area is totally below the surface and covered by the ground (40 CFR 260.10).

80. Unfit-for-Use Tank System

A tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment (40 CFR 260.10).

81. Upgrade

The addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of an UST system to prevent the release of product (40 CFR 280.12).

82. UST System or Tank System

UST, connected underground piping, underground ancillary equipment, and containment system, if any (40 CFR 280.12).

83. Volatile Organic Liquid (VOL)

Any organic liquid which can emit volatile organic compounds into the atmosphere except those VOLs that emit only those compounds which the Administrator has determined do not contribute appreciably to the formation of ozone. These compounds are identified in EPA statements on ozone abatement policy for State Implementation Plan (SIP) revisions (40 CFR 60.111(b)(k))

84. Wastewater Treatment Tank

A tank that is designed to receive and treat influent waste water through physical, chemical, or biological methods (40 CFR 280.12).

85. Worst Case Discharge

The largest foreseeable discharge of oil, including a discharge from fire or explosion, in adverse weather conditions (49 CFR 194.5).

F. Records to Research

- Records of all spills, leaks, and associated site assessment/cleanup activities (for three years)
- Official correspondence with state implementing agency
- Spill Prevention and Response Plan
- Results of all AST/UST testing, sampling, monitoring, inspection, maintenance, and repair work (for one year)
- Registration records for all in-service, temporarily out-of-service, and permanently closed tanks
- Records of all spills, leaks, and associated site assessment/cleanup activities (for three years)
- Records for AST/UST disposal, closure, and removal from activity and results of excavation area assessment (for three years)

G. Physical Features to Inspect

- Refueling facilities, including:
  - Belowground storage tanks and dikes
  - Venting
  - Fill pipe
  - Gauges
  - Vehicle Maintenance areas
- Oil and hazardous substance site
- Any site with a UST

- Fuel farms
- Transfer terminals/transfer stations
- Pipelines.

H. Guidance For Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	ST 1 through ST 3	11-22
Aboveground Storage Tanks	ST 4 through ST 5 ST 6 through ST 7	11-23 11-24
Emissions from Bulk Gasoline Terminals	ST 8	11-25
Emissions from Storage Vessels	ST 9 ST 10	11-26 11-27
Emissions from VOL Storage Vessels	ST 11 ST 12 ST 13	11-28 11-29 11-30
Substandard USTs	ST 14	11-31
New or Upgraded USTs	ST 15 through ST 16 ST.17 ST 18 through ST 19	11-32 11-33 11-34
Metallic USTs	ST 20	11-35
UST Filling	ST 21 ST 22	11-35 11-36
UST Corrosion Protection and Repairs	ST.23 ST.24	11-37 11-38
Release Detection for USTs		
General	ST 25	11-39
Petroleum USTs	ST 26	11-39
Hazardous Substance UST	ST 27	11-41
	ST 28	11-42
Exempt USTs	ST 29	11-43
UST Releases	ST.30 through ST.31 ST.32 through ST.33 ST 34 ST.35 through ST 36	11-44 11-45 11-46 11-47
Deferred UST Systems	ST 37	11-48

	Refer To	
	Checklist Items	**Page Numbers**
UST Documentation	ST 38 ST 39	11-48 11-49
Changes in Service or Closure of USTs	ST 40 ST 41 through ST 42 ST 43 through ST 44 ST 45 through ST 46	11-50 11-51 11-52 11-53
Hazardous Waste Storage Tanks		
Small Quantity Generators	ST 47 ST 48 through ST 49	11-54 11-55
Generators	ST 50 through ST 51 ST 52 through ST 53 ST 54 through ST 56 ST 57 through ST 58 ST 59 through ST 60 ST 61 through ST 62 ST 63 through ST 64	11-56 11-57 11-58 11-59 11-60 11-61 11-62
TSDFs	ST 65 through ST 67 ST 67 through ST 69 ST 70 through ST 71	11-63 11-64 11-65
Flammable/Combustible Liquid Storage Tanks	ST 72 ST 73 ST 74 through ST 76	11-66 11-67 11-68
Pipelines	ST 77 ST 78 ST 79 ST 80 through ST 82 ST 83 through ST 84	11-69 11-70 11-71 11-72 11-73
Service Stations	ST 85 through ST 87 ST 88	11-74 11-75
Transfer Terminals	ST 89 through ST 91	11-76
POL Loading and Unloading	ST 92 through ST 93	11-77

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
ST 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
ST 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist. Verify that the facility is in compliance with all applicable and newly issued regulations
ST 3 Facilities are required to comply with state and local regulations concerning storage tank management (EO 12088, under "Federal Legislation" section)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Operational standards - Permitting requirements - Replacement and removal schedules - Cathodic protection requirements - Alarm system requirements)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Aboveground Storage Tanks (AST)	
ST 4 All bulk storage tanks (over 660 gal (2,498 37 L)) are required to be provided with a secondary means of containment for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation (40 CFR 112 7(e)(2)(ii))	Verify that adequate containment is provided for bulk storage tanks in the storage area and at remote tanks by looking for signs of cracks, erosion, animal burrows, and vegetation growth Verify that diked areas are impervious enough to contain spilled oil (NOTE Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely contained in an in-plant catchbasin or holding pond) (NOTE Facilities are exempt from the requirements outlined in 40 CFR 112 if - The facility, equipment, or operation is not subject to the jurisdiction of the EPA as follows -- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines -- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the Department of Transportation (DOT) - Both of the following criteria are met -- the underground buried storage capacity of the facility is 42,000 gal (15,987 30 L) or less of oil -- the storage capacity which is not buried at the facility is 1,320 gal (4,996 74 L) of oil or less and no single container exceeds a capacity of 660 gal (2,498 37 L) (40 CFR 112 1(d)(2))
ST 5 Drainage of rainwater from diked areas must be controlled by a valve which is closed when not in active use (40 CFR 112 7(e)(1) and 112 7(e)(2)(iii))	Verify that valves are closed when not in use by inspecting drainage valves at diked areas Verify that drainage valves are attended when opened to drain diked/bermed area by interviewing personnel. Determine if operating personnel understand the meaning of a harmful discharge as described in 40 CFR 110 6 Inspect records for any drainage water which was inspected to determine if it would represent a harmful discharge

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
ST.6 Drainage water which is determined to contain petroleum products in harmful quantities must be treated prior to discharge to meet applicable water quality standards (40 CFR 112.7(e)(2))	Determine if discharges containing harmful quantities of petroleum products were properly treated, recovered, or disposed and reported by interviewing onsite personnel
ST 7 Aboveground Storage Tanks (ASTs) are required to undergo periodic integrity testing (40 CFR 112 7(e)(2)(vi))	Verify that periodic leak tests have been conducted (a decrease in converted fuel volume equal to or greater than 1/4 in (0 64 cm) constitutes a suspected leak) and check the results of these tests Determine if leaking tanks have been repaired or replaced (NOTE Periodic testing should take tank design into account and involve such techniques as hydrostatic testing, visual inspection, or a system of non-destructive shell thickness testing.) Verify that a written log of integrity testing has been maintained

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Emissions From Bulk Gasoline Terminals	
ST 8 Bulk gasoline terminals with greater than 75,700 L (19,997 82 gal) gasoline throughput per day that delivers liquid product into greater tank trucks and that started construction or modification after 17 December 1980 are required to meet specific operating standards (40 CFR 60 500 through 60.506)	Verify that each terminal has a vapor collection system designed to collect the total organic compound vapors displaced from tank trucks during product loading and to prevent the total organic compounds collected at the on-loading rack from passing to another loading rack Verify that emissions from the vapor collection system do not exceed 35 mg of total organic compound per liter of gasoline loaded except those terminals with existing vapor processing systems that were constructed or refurbished before 17 December 1980 may emit 80 mg of total organic compounds per liter of gasoline loaded Determine if the following loading procedures are followed - Vapor tightness documentation is available for each gasoline tank truck - The tank identification number is recorded as each gasoline tank truck is loaded - Each tank identification number is cross-checked with the file of tank vapor tightness documentation within two weeks after the tank is loaded - Steps are taken to ensure that only vapor-tight tanks are loaded and vapor collection systems are operational Verify that the vapor collection and liquid loading equipment is designed and operated to prevent gauge pressure in the delivery tank from exceeding 4,500 pascals (450 mm of water) during product loading Verify that pressure vacuum vents in the vapor collection system do not open at a system pressure of less than 4,500 pascals (450 mm of water). Verify that a monthly inspection of the vapor collection system, the vapor processing system, and each loading rack handling gasoline is done during loading, and inspection records are kept on file for two years Verify that leaks are repaired within 15 calendar days after detection. Verify that records of all replacements or additions of components performed on existing vapor processing systems are kept for at least three years

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Emissions From Storage Vessels	
ST 9 Storage vessels for petroleum liquids are required to meet specific standards for emissions and monitoring (40 CFR 60 110 through 60 113)	(NOTE These requirements only apply to storage vessels for petroleum liquids with a storage capacity greater than 151,416 L (40,000 gal), but less than 246,052 L (65,000 gal), that started construction or modification after 8 March 1974 but before 19 May 1978, or with a capacity greater than 246,052 L (65,000 gal) and started construction or modification after 11 June 1973 but before 19 May 1978.) Determine if the facility has any petroleum storage tanks meeting these parameters. Determine what the vapor pressure is of the petroleum liquids being stored Verify that if the true vapor pressure of the petroleum stored is equal to or greater than 78 mm Hg (1 5 psia) but not greater than 570 mm Hg (11 1 psia) the storage vessel is equipped with a floating roof and a vapor recovery system or their equivalents. Verify that if the true vapor pressure of the petroleum liquid being stored is greater than 570 mm Hg (11 1 psia,) the storage vessel is equipped with a vapor pressure recovery system or its equivalent Verify that if proper vapor recovery and return or disposal systems are not in place, a record is maintained of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of the liquid during the storage period. (NOTE· Facilities storing petroleum liquids with a Reid vapor pressure of less than 6.9 kPa (1.0 psia) are not required to keep records)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 10 Storage vessels for petroleum liquids with a storage capacity greater than 151,416 L (40,000 gal) constructed after 18 May 1978 are required to meet specific standards (40 CFR 60 110a through 60 115a)	Determine if the facility has any liquid petroleum storage vessels meeting these parameters Determine the true vapor pressure of the liquids stored Verify that vessels storing petroleum liquid with a true vapor pressure equal to or greater than 10 3 kPa (1 5 psia) but less than 76 6 kPa (11 1 psia) are equipped with one of the following. - An external floating roof meeting design requirements outlined in 40 CFR 60.112a - A fixed roof with an internal floating type cover equipped with a continuous closure device between the tank wall and edges - A vapor recovery system that collects all VOC vapors and gases discharged from the storage vessel and a vapor return or disposal system to process the VOC vapors and gases to reduce emissions by at least 95 percent by weight - An equivalent approved system Verify that vessels storing petroleum liquids with a vapor pressure greater than 76 6 kPa (11 1 psia) are equipped with a vapor recovery system that collects all VOC vapors and gases and a vapor return or disposal system that is designed to process the VOC vapors to reduce emissions by at least 95 percent by weight Verify that the following testing is done - Gap measurement for primary seals of external floating roofs are measured at least once every five years - Gap measurement for secondary seals of external floating roofs are measured at least once every year. Verify that the following records are kept· - Records of gap measurement are to be kept for at least two years following the date of measurement - The petroleum liquid stored, the period of storage, and the maximum true vapor pressure during the storage unless the storage vessel has a vapor recovery and return or disposal system

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Emissions From VOL Storage Vessels	
ST 11 Storage vessels for Volatile Organic Liquids (VOL) having a capacity of greater than or equal to 40 m^3 (10,566 88 gal) for which construction, reconstruction, or modification was started after 23 July 1984 are required to meet specific standards (40 CFR 60 110(b) through 60 115(b))	(NOTE These standards do not apply to - Pressure vessels designed to operate in excess of 204 9 kPa (29 72 psi) and without emissions to the atmosphere - Vessels which are permanently attached to mobile vehicles - Vessels located at bulk gasoline plants - Vessels located at gasoline service stations.) Determine if any of the storage vessels on the facility meet these parameters Determine the vapor pressure of the liquids being stored in the vessels Verify that storage vessels with a design capacity greater than or equal to 151 m^3 (39,889 98 gal) containing VOL with a vapor pressure equal to or greater than 5 2 kPa, but less than 76 6 kPa or storage vessels with a capacity greater than or equal to 75 m3 (19,812 90 gal) but less than 151 m^3 (39,889.98 gal) containing VOL that has a maximum vapor pressure equal to or greater than 27 6 kPa but less than 76 6 kPa are equipped with one of the following - A fixed roof in combination with an internal floating roof - An external floating roof - A closed vent system and control device that reduces emissions by 95 percent by weight - An approved equivalent system Verify that storage vessels with a design capacity greater than or equal to 75 m^3 (19,812 90 gal) containing a VOL with a maximum true vapor pressure greater than or equal to 76 6 kPa is equipped with one of the following: - A closed vent system and control device that reduces emissions by 95 percent by weight - An approved equivalent alternative method Verify that the accumulated areas or gaps do not exceed. - 212 cm^2/m of tank diameter between the tank wall and the primary seal and the width of any portion of any gap does not exceed 3.81 cm (1.5 in.) - 21 2 cm^2/m of tank diameter between the tank wall and the secondary seal and the width of any portion of any gap does not exceed 1.27 cm (0 5 in.)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 12 Storage vessels for VOLs having a capacity of greater than or equal to 40 m^3 (10,566 88 gal) for which construction, reconstruction, or modification was started after 23 July 1984 are required to meet specific inspection, documentation, and notification requirements standards (40 CFR 60 110b through 60 115b)	(NOTE These standards do not apply to pressure vessels designed to operate in excess of 204.9 kPa (29.72 psi) and without emissions to the atmosphere, vessels which are permanently attached to mobile vehicles, vessels located at bulk gasoline plants, vessels located at gasoline service stations) Verify that the following inspections are made - Inspection of internal floating roofs, primary seals, and secondary seals for holes, tears, or defects before filling the tank - Visual inspection of vessels with a liquid-mounted or mechanical shoe primary seal shall have the internal floating roof and primary or secondary seals at least once every 12 months after the initial fill - Nessels with a double seal system at least every five years - Internal floating roofs, primary seals, gaskets, slotted membranes, and sleeve seals each time the storage vessel is emptied and degassed - When control equipment is installed, measurement of gap areas is done - At least once every five years for gaps between the tank wall and the primary seal - At least once a year for gaps between the tank wall and the secondary seal Verify that as problems are found, the vessel is either repaired or removed from service within 45 days Verify that a procedure is in place to notify the EPA in advance of performing gap measurement and provide them, upon request, with copies of the following records which are to be maintained for two years - Inspection records - Repair or removal from service of a vessel - Operating plans - Monitoring records - Records showing the dimensions of storage vessels and capacity Verify that for vessels with a design capacity greater than or equal to 151 m^3 (39,889 98 gal) storing a liquid with a maximum true vapor pressure greater than or equal to 3 5 kPa or with a design capacity greater than or equal to 75 m^3 (19,812 90 gal) but less than 151 m^3 (39,889 98 gal), storing a liquid with a true vapor pressure greater than or equal to 15 0 kPa, a record is kept of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the storage period (NOTE· This does not apply to vessels storing a waste mixture of indefinite or variable composition or vessels equipped with a closed vent system and control device)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 12 Continued	Verify that, except for vessels equipped with a closed vent system and control device, a procedure exists to notify EPA within 30 days if the maximum true vapor pressure of a liquid exceeds the following limits for the capacities listed - Vessels with a design capacity greater than or equal to 151 m^3 (39,889 98 gal) storing a liquid with a maximum vapor pressure that is normally less than 5 2 kPa - Vessels with a design capacity greater than 75 m^3 (19,812.90 gal) but less than 151 m^3 (39,889.98 gal) storing a liquid with a maximum true vapor pressure that is normally less than 27 6 kPa, notify EPA within 30 days when the maximum true vapor pressure of the liquid exceeds the allowed maximum true vapor pressure according to capacity.
ST 13 Facilities with benzene storage vessels are required to comply with specific recordkeeping requirements (40 CFR 61 276(b))	Verify that facilities with benzene storage vessels keep readily accessible records of the dimensions and capacity of the vessel. (NOTE This applies regardless of the size of the vessel)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Substandard USTs	
(NOTE See Appendix 11-1 for guidance on applicability of checklist items)	
ST 14 Substandard UST systems are required to be upgraded, closed, or removed from service by 22 December 1998 (40 CFR 280 21(a) through 280 21(c))	(NOTE If a release detection system is not available for the UST, it must be phased out in one to five years) Determine if there are currently any plans for upgrading or decommissioning a substandard UST Verify that upgrading of steel USTs includes one of the following methods - Internal lining according to the following requirements -- lining is installed so that it prevents releases due to structural failure or corrosion and meets a recognized code of practice -- within 10 years after installation of lining, and every five years thereafter, the lined tank is inspected internally and found to be structurally sound, with the lining still performing in accordance with original design specifications - Cathodic protection with field-installed systems designed by an expert, impressed current systems, or an approved equivalent system and the integrity is assured by one of the following -- tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion -- the tank has been installed for less than 10 years and is monitored monthly for releases -- the tank has been installed for less than 10 years and is assessed for corrosion holes by conducting two tightness tests, one before and one three to six months after installation of the cathodic protection system -- tank is assessed for corrosion holes by a method that is determined to be equally protective by the implementing agency - Lining combined with cathodic protection -- if lining is installed according to requirements -- if cathodic protection system meets requirements Verify that when spill and overfill equipment is added, the tank meets the same standards as new USTs Verify that piping that routinely contains regulated substances and is in contact with the ground is cathodically protected. (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
New or Upgraded USTs	
ST.15 New or upgraded USTs are required to be fitted with spill and overfill prevention equipment (40 CFR 280 20(c) and 280 21(d))	Verify that spill prevention equipment will prevent a release of product to the environment when the transfer hose is detached from the fill pipe. Verify that overfill prevention equipment does one of the following: - Automatically shuts off flow into the tank when the tank is no more than 95 percent full - Alerts the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm - Restrict flow 30 minutes prior to overfilling, alert the operator with a high-level alarm one minute before overfilling, or automatically shut off flow into the tank so that none of the fittings are exposed to product due to overfilling. (NOTE. This equipment is not required if approved equivalent equipment is used or the UST system is filled by transfers of no more than 25 gal (94 64 L) at one time) (NOTE All existing tanks must be upgraded by 1998 The state may have a sooner deadline.) (NOTE. The following types of USTs are not subject to these requirements. - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
ST 16 Notice must be given within 30 days when a UST system is brought into service after 8 May 1986. (40 CFR 280.22)	Determine if the facility has brought any USTs into service after 8 May 1986. Verify that the appropriate notification was issued (NOTE State forms may be used for notification in lieu of an EPA form 7530 These notices must be sent to the appropriate agency) (See 40 CFR 280 for a list of agencies) (NOTE The following types of USTs are not subject to these requirements. - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 17 UST systems installed after 22 December 1988 must be constructed in such a manner that they will remain structurally sound for their operating life (40 CFR 280 20(a) and 280 20(b))	Verify that USTs conform to industry standards by reviewing records Verify that USTs meet the following - They have leak/spill prevention protection - The tank is constructed of one of the following materials -- fiberglass-reinforced plastic -- steel which has one of the following types of cathodic protection - coated with a suitable dielectric material - field installed cathodic protection (expert installed) - impressed current systems which allow determination of current operating status -- steel fiberglass reinforced plastic composite -- metal without additional corrosion protection provided that - the site has been determined not to cause corrosion to the tank by a corrosion expert - records are maintained for the life of the tank that it is in a corrosion free environment -- construction is in a manner that is deemed to prevent release of the regulated substance (NOTE Piping must also meet these criteria with the exception of not being constructed of steel fiberglass reinforced plastic composite.) (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST.18 Installation of UST must be done by a certified installer and according to standard practices (40 CFR 280 20(d) and 280 20(e))	Determine if new UST systems have been properly installed by reviewing records for certification. Verify that if the facility does its own installation of USTs, the installation is done according to standard practices (NOTE· The following types of USTs are not subject to these requirements: - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
ST 19. Facilities are required to use UST systems made of or lined with materials compatible with the substance stored (40 CFR 280.32).	Verify that the substances stored in UST systems are compatible with the system Determine which USTs are being used to store a substance other than that for which it was originally intended (NOTE: The following types of USTs are not subject to these requirements: - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Metallic USTs	
ST 20 Buried metallic storage tanks installed after 1973 must be protected from corrosion by coatings, cathodic protection, or other effective methods (40 CFR 112 7(e)(2)(iv)).	Verify that new USTs are appropriately protected from corrosion by inspecting records and interviewing personnel Verify that the tanks are pressure tested regularly (NOTE. Facilities are exempt from the requirements outlined in 40 CFR 112 if: - The facility, equipment, or operation is not subject to the jurisdiction of the EPA as follows: -- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines -- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT - The facility, which although otherwise subject to EPA jurisdiction meets both of the following criteria are met -- the underground buried storage capacity of the facility is 42,000 gal (158,987.3 L) or less of oil -- the storage capacity which is not buried at the facility is 1320 gal (4,996.74 L) of oil or less and no single container exceeds a capacity of 660 gal (2,498 37 L) (40 CFR 112.1(d)(2).)
UST Filling	
ST.21. The filling of a UST must include the prevention of overfilling and spilling of the substance (40 CFR 280.30(a)).	Determine if there is a problem with overfilling of USTs or spills by observing the filling operations, reviewing records, and checking the ground around the fill-lines for visible or odorous indications of contamination. Determine if the level of the UST is checked before a transfer is made and that the volume available in the tank is greater than the volume of the product to be transferred. Verify that fill-lines are capped and locked Verify that the transfer is monitored constantly (NOTE: The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
ST.22. Facilities with UST systems are required to contain and immediately clean up a spill or overfill and report it to the implementing agency within 24 hours in specific situations (40 CFR 280.30(b) and 280 53)	Determine if the facility has reported, contained, and cleaned up any and all spills or overfills which met the following criteria - Spills or overfills of petroleum that resulted in a release to the environment of more than 25 gal (94.64 L) or that caused a sheen on nearby surface water - Spills or overfills of hazardous substances that result in a release to the environment in excess of the reportable quantity (see the Hazardous Materials Management Appendices) (NOTE. Spills or overfills of hazardous substances equal to or greater than the reportable quantity must be immediately reported to the National Response Center (NRC).) Verify that the facility has contained and immediately cleaned-up a spill or overfill of petroleum that is less than 25 gal (94 64 L) and a spill or overfill of a hazardous substance that is less than the reportable quantity. Verify that if these lesser quantities cannot be accomplished within 24 hours, or another reasonable time period established by the implementing agency, the implementing agency is notified (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
UST Corrosion Protection and Repairs	
ST 23 UST systems with corrosion protection must meet specific requirements (40 CFR 280 10(c) and 280 31).	Determine which UST systems have corrosion protection Verify that the corrosion protection systems operate continuously to provide corrosion protection to the metal components that routinely contain regulated substances and are in contact with the ground Verify that all cathodic protection systems are tested within six months after installation and every three years thereafter Verify that UST systems with impressed current cathodic protection are inspected every 60 days Verify that inspection records are maintained of the last three inspections for systems with impressed current cathodic protection and of the last two inspections for all other cathodic protection systems Verify that inspections are carried out by a qualified cathodic protection tester (NOTE· The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST.24 Repairs to USTs must be performed according to industry code (40 CFR 280 10 (c) and 280 33)	Determine if there have been any repairs by reviewing the records and interviewing personnel Determine who does repairs to USTs and that the following procedures are used to repair USTs - Fiberglass reinforced tanks are repaired by the manufacturer's authorized representative or according to industry standards - Metal pipe fittings and sections that have leaked due to corrosion are replaced, whereas fiberglass may be repaired according to manufacturer's specifications Verify that tanks and piping that have been replaced or repaired are tested for tightness within 30 days (NOTE. Tanks and piping need not be tested if - Repairs are internally inspected - The repaired portion is already monitored monthly - An equally protective test is used) Verify that within six months of repair, tanks with cathodic protection systems are tested as follows - Every three years thereafter for all cathodic protection systems - Every 60 days for impressed current cathodic protection systems Verify that records of repairs are maintained for the life of the tank (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks).

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Release Detection for USTs	
General	
ST 25 Facilities with new and existing USTs are required to provide a method, or combination of methods of release detection (40 CFR 280 10(c), 280 10(d) and 280 40)	Verify that the installed release detection system can detect a release from any portion of the tank and the connected underground piping Verify that the appropriate schedule has been complied with (see Appendix 11-2) (NOTE Any pressurized delivery lines must be retrofitted by 22 December 1990) (NOTE: The following types of USTs are not subject to these requirements· - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
Petroleum USTs	
ST 26. UST systems containing petroleum must meet specific release detection system requirements (40 CFR 280 10, 280 10(d), 280 40, 280 41, 280 43 and 280 44)	Verify that tanks are monitored every 30 days using one of the following methods (details of methods are provided in Appendix 11-3) - Tank automatic gauging - Vapor monitoring - Groundwater monitoring - Interstitial monitoring - Other acceptable methods (NOTE: The following are exceptions: - UST systems which meet performance standards for new or upgraded systems and monthly inventory requirements may use tank tightness testing at least every five years until 22 December 1998 or until 10 years after the tank is upgraded or installed - UST systems which do not meet performance standards for new or upgraded systems, may use monthly inventory controls and annual tank tightness testing until 22 December 1998, at which time the tank must be upgraded or permanently closed - Tanks which hold less than 550 gal (2,081 98 L) may use weekly tank gauging)

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
S T 26 continued	Verify that underground piping which routinely contains a regulated substance has the following release detection done as described in Appendix 11-3. - Pressurized piping. -- equipped with automatic line leak detector -- annual tightness testing or monthly monitoring - Suction piping -- line tightness testing every three years or monthly monitoring -- no release detection system is needed for suction piping which is below grade and: - operates at less than atmospheric pressure - is sloped so that contents of pipe will roll back to tank when suction is released - only one check valve is included in each suction line - the check valve is located directly below and as close as practical to the suction pump (NOTE· The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system that stores fuel solely for use by emergency power generator)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Hazardous Substance USTs	
ST 27 Hazardous substance USTs must meet specific release detection standards (40 CFR 280 10(c), 280 10 (d), 280 42(a), 280 43, and 280 44)	Verify that tanks are monitored every 30 days using one of the following methods (details of methods are provided in Appendix 11-3): - Tank automatic gauging - Vapor monitoring - Groundwater monitoring - Interstitial monitoring - Other acceptable methods (NOTE The following are exceptions - UST systems which meet performance standards for new or upgraded systems and monthly inventory requirements may use tank tightness testing at least every five years until 22 December 1998 or until 10 years after the tank is upgraded or installed - UST systems which do not meet performance standards for new or upgraded systems may use monthly inventory controls and annual tank tightness testing until 22 December 1998, at which time the tank must be upgraded or permanently closed - Tanks which hold less than 550 gal (2,081 98 L) may use weekly tank gauging) Verify that underground piping which routinely contains a regulated substance has the following release detection done as described in Appendix 11-3 - Pressurized piping -- equipped with automatic line leak detector -- annual tightness testing or monthly monitoring - Suction piping -- line tightness testing every three years or monthly monitoring -- no release detection system is needed for suction piping which is below grade and - operates at less than atmospheric pressure - is sloped so that contents of pipe will roll back to tank when suction is released - only one check valve is included in each suction line - the check valve is located directly below and as close as practical to the suction pump
ST 27 Continued	(NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system that stores fuel solely for use by emergency power generator)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**

ST 28 Hazardous substance USTs must meet specific release detection standards by 22 December 1998 (40 CFR 280.10(c), 280 10 (d), 280.42(b), 280.43, and 280.44)	Verify that existing hazardous substance USTs meet the requirements for new hazardous substance USTs by 22 December 1998 as stated below
	- Secondary containment is checked for evidence of a release at least every 30 days and is designed and constructed to
	  - contain regulated substances released until they are detected and removed
	  - prevent releases of regulated substances to the environment at any time during the operational life of the UST
	- Double-walled tanks are designed, constructed, and installed to·
	  - contain releases from any portion of the inner tank within the outer-wall
	  - detect failure of the inner wall
	- External liners, including vaults, are designed, constructed, and installed in such a manner that:
	  - 100 percent of the capacity of the largest tank is contained within its boundary
	  - the interference of precipitation or groundwater intrusion is prevented with the ability to contain or detect release of regulated substances
	  - the tank is completely surrounded.
	
	Verify that underground piping is equipped with secondary containment which satisfies the requirements for UST secondary containment.
	
	Verify that piping which delivers regulated substances under pressure is equipped with an automatic line leak detector.
	
	Verify that when other release detection methods are used, they are approved by the implementing agency.
	
	(NOTE: The following types of USTs are not subject to these requirements:
	- Wastewater treatment tank systems
	- Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954
	- Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A
	- Airport hydrant fuel distribution systems
	- UST system that stores fuel solely for use by emergency power generator.)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Exempt USTs	
ST 29 UST systems containing fuel used solely for emergency generators should meet specific release detection system requirements (MP).	Verify that tanks are monitored every 30 days using the method in Appendix 11-3 except for: - UST systems which meet performance standards for new or upgraded systems and monthly inventory requirements may use tank tightness testing at least every five years until 22 December 1998 or until 10 years after the tank is upgraded or installed - UST systems which do not meet performance standards for new or upgraded systems may use monthly inventory controls and annual tank tightness testing until 22 December 1998, at which time the tank must be upgraded or permanently closed - Tanks which hold less than 550 gal (2089 98 L) may use weekly tank gauging Verify that underground piping which routinely contains a regulated substance has the following release detection done according to the methods in Appendix 11-3 - Pressurized piping -- equipped with automatic line leak detector -- annual tightness testing or monthly monitoring - Suction piping. -- line tightness testing every three years or monthly monitoring -- no release detection system is needed for suction piping which is below grade and: - operates at less than atmospheric pressure - is sloped so that contents of pipe will roll back to tank when suction is released - only one check valve is included in each suction line - the check valve is located directly below and as close as practical to the suction pump.

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
UST Releases	
ST 30 Facilities with UST systems are required to report releases under specific conditions (40 CFR 280 10(c) and 280 50)	Determine if the facility reported any and all releases which met the following criteria: - Released regulated substances found at the UST site or in the surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface waters - Unusual operating conditions observed such as the erratic behavior of dispensing equipment or a sudden loss of product unless it is determined the problem lies in the equipment but it is not leaking and is immediately repaired or replaced - Monitoring results indicate a possible release Verify that the implementing agency was notified within 24 hours (or time period specified by the implementing agency) of the release (NOTE· The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
ST 31 Installations must investigate and confirm all suspected releases of a regulated substances requiring reporting within seven days unless a corrective action is started immediately as detailed in 40 CFR 280 10 (c) and 280 52)	Verify that tightness testing is done within seven days of a suspected release to determine whether a leak is in the tank or the delivery piping. Verify that if environmental contamination is the basis for suspecting a leak, and the tightness test does not indicate that a leak exists, a site check is done that measures for the presence of a release in the areas where contamination is most likely to be present. (NOTE. - If the results indicate that a leak has occurred corrective actions must be started out - If the tightness test does not indicate a leak and environmental contamination is not the basis for suspecting a release, no further investigation is needed) (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 32 Facilities with a confirmed release from petroleum or hazardous substance USTs are required to perform specific initial response actions within 24 hours of a release (40 CFR 280 60 and 280 61)	Verify that facility personnel are aware of the following initial response actions - The release is reported - Immediate action is taken to prevent further release of the regulated substance into the environment - Fire, explosion, and vapor hazards are identified and mitigated (NOTE - These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements - A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility A release from such a UST would be handled as required under the RCRA permit's corrective action plan)
ST 33 Facilities with a confirmed release from petroleum or hazardous substance USTs are required to perform specific initial abatement measures and site checks unless directed to do otherwise by the implementing agency (40 CFR 280 60 and 280 62)	Verify that the following actions are performed - As much of the substance as is necessary to prevent further release is removed from the UST system - Visual inspection of aboveground releases or exposed belowground releases is done and further migration of the released substance into surrounding soils and groundwaters is prevented - Monitoring and mitigation of any fire and safety hazards caused by vapors or free product is done - Hazards from contaminated soils that are excavated or exposed are remedied - Measurements are done for the presence of a release where the contamination is most likely to be present unless the presence and source of the release has previously been confirmed - An investigation is done for the presence of free product and the removal of free product is done as soon as possible Verify that within 20 days after release confirmation a report is submitted to the implementing agency summarizing the initial abatement measures, site checks, and the resulting information and data collected (NOTE - These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements - A RCRA Subtitle C, Section 3004(u) UST is an UST holding a hazardous material at a RCRA Subtitle C permitted facility A release from such a UST would be handled as required under the RCRA permit's corrective action plan)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 34. Facilities with a confirmed release from petroleum or hazardous substance USTs are required to assemble information about the site and nature of the release unless exempted by the implementing agency (40 CFR 280 60 and 280 63)	Verify that the following information is collected - Data on the nature and estimated quantities of the release - Data from available sources and/or site investigations concerning surrounding population, water quality, use and approximate locations of wells potentially affected, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use - Results of site check - Results of free product investigation Verify that within 45 days of the release confirmation this information is submitted to the implementing agency in a manner that demonstrates the applicability and technical adequacy or according to a format required by the implementing agency (NOTE· - These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements - A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility A release from such a UST would be handled as required under the RCRA permit's corrective action plan)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 35 Facilities with a confirmed release from petroleum or hazardous substance USTs where site investigations have indicated free product must, to the maximum extent possible as required by the implementing agency, remove the free product (40 CFR 280 60 and 280 64)	Determine if there are any release sites at the facility where free product has been confirmed Verify that free product removal is done so that the spread of contamination is minimized Verify that, unless exempted by the implementing agency, within 45 days after confirming a release, a free product removal report is submitted to the implementing agency that includes the following - The name of the person responsible for implementing the free product removal system - The estimated quantity, type, and thickness of free product observed or measured - The type of free product recovery system used - Whether there will be any onsite or offsite discharges during the recovery operation and where this discharge will be located - The type of treatment used for any discharge during the recovery operation and where this discharge will be located - The steps taken to obtain any required permits - The disposition of the recovered free product (NOTE· - These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements) - A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility A release from such an UST would be handled as required under the RCRA permit's corrective action plan)
ST 36 Facilities with a confirmed release from petroleum or hazardous substance USTs are required to perform an investigation for soil and groundwater contamination (40 CFR 280 60 and 280 65)	Verify that an investigation of the release, the release site, and possibly affected surrounding areas has been done and identified if any of the following conditions exists. - Evidence that groundwater wells have been affected - Free product is evident - Evidence that contaminated soil is in contact with groundwater - The implementing agency requests an investigation Verify that the results of the investigation are submitted to the implementing agency according to a time schedule defined by the implementing agency (NOTE - These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements) - A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility A release from such a UST would be handled as required under the RCRA permit's corrective action plan)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Deferred UST Systems	
ST 37 Deferred UST systems (see definition) are required to meet specific standards (40 CFR 280 10(c) and 280 11).	Verify that deferred UST systems (whether single or double-walled) are not installed to store regulated substances unless - Releases due to corrosion or structural failure will be prevented for the operational life of the system - They are cathodically protected against corrosion, constructed of non-corrodible materials, steel clad with a noncorroding material, or designed to prevent release - They are constructed or lined with material that is compatible with the stored substance Verify that deferred systems meet the standards concerning release response and action for USTs containing petroleum or a hazardous substance found in 40 CFR 280 60 through 280 67 (see checklist items ST 32 through ST 36) (NOTE· The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
UST Documentation	
ST 38 Facilities with USTs are required to meet specific reporting requirements (40 CFR 280 10 (c) and 280 34(a))	Verify that the facility has submitted the following when applicable - Notifications of new USTs - Release reports - Planned or complete corrective actions - Notice of closure or change-in-service (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 39 Facilities with USTs are required to meet specific recordkeeping requirements (40 CFR 280 10 (c), 280 34(b), 280 34(c), 280 45, and 280 74)	Verify that records are kept of the following - A corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used - Documentation of operation of corrosion protection equipment - Documentation of repairs - Closure records - Results of any site investigations Verify that records are available at one of the following - At the UST site and immediately available for inspection - At a readily available alternative site and provided for inspection Verify that records are kept as follows - All written performance claims pertaining to any release detection system used for five years from the date of installation - The results of any sampling, testing, or monitoring for one year except the tank tightness results are kept until the next tank tightness test - The results of tank tightness testing until the next test is done - Written documentation of calibration, maintenance, repair of release detection equipment permanently located onsite at least one year after the servicing is done - Schedules of required calibration and maintenance provided by the release detection equipment manufacturer for five years after the date of installation. (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Changes in Service or Closure of USTs	
ST 40 USTs which are put out of service temporarily, must have continued maintenance (40 CFR 280 10(c) and 280 70)	Determine if the facility has any out-of-service USTs Verify that proper maintenance is being performed for the following - Corrosion protection - Release detection. Verify that if the UST has been out-of-service for near or over one year, plans have been made for permanent closure (NOTE - If the UST is empty, release detection is not required - An empty UST is one which has no more than 2 5 cm (1 in) of residue or less than 0 3 percent by weight of total capacity of the UST system) Verify that if a UST system is closed for three months or more, the vent lines are open and functioning and all other lines, pumps, manways, and ancillary equipment is capped and secured Verify that if the UST has been out of service for more than 12 months and does not meet the standards for new or upgraded USTs, it is permanently closed unless the implementing agency has provided an extension (NOTE. The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 41 Notification must be given to the implementing agency for any closure or change in service 30 days in advance or within a reasonable time frame as determined by the implementing agency (40 CFR 280 10(c) and 280 71(a)	Determine if the facility is planning to close or change any USTs Verify that notification of changes were given within 30 days (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
ST 42 UST closure must be done according to specific requirements (40 CFR 280 10(c) and 280 71(b)	Verify that if there are any closed USTs or USTs in the process of being closed at the facility, one of the following methods is used - It is removed from ground - It is left in place with the contents removed, and filled with an inert solid material and closing it to all future outside access Verify that tanks being permanently closed are emptied and cleaned by removing all liquids and accumulated sludges Determine if there are any possible abandoned USTs and if there are plans to close the UST off in an appropriate manner Determine if a site assessment was made to ensure that no releases to the environment have occurred by reviewing records (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 43 Prior to a change-in-service, tanks must be emptied and cleaned and a site assessment conducted (40 CFR 280.10 (c) and 280 71(c))	Determine if there are any tanks which the facility has continued to use to store a non-regulated substance (a change-in-service) Verify that prior to the change, the tank was emptied and cleaned. Verify that prior to the change a site assessment was done (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
ST.44 Prior to permanent closure or change-in-service, measurements must be made for the presence of a release where contamination is most likely to be present at the site (40 CFR 280 10(c) and 280 72)	Verify that measurements for the presence of a release have been done (NOTE These requirements are met if one of the leak detection methods outlined in 40 CFR 280 43(e) and 280 43(f) have been met (see checklist items ST 24, ST 26, and ST.27 through ST 28) (NOTE· The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 45 Facilities with UST systems closed prior to 22 December 1988 must assess the excavation zone and close the UST according to current standards if releases from the UST pose a current or potential threat to human health and the environment (40 CFR 280 10(c) and 280 73)	Determine if the facility has any USTs which were closed prior to 22 December 1988 Verify that the excavation zone of these USTs has been assessed and cleanup done as needed. (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)
ST 46 Excavation zone assessment records shall be maintained for three years (40 CFR 280 10(c) and 280 74)	Verify that excavation zone assessment records are maintained for three years in one of the following ways - By the facility - At the implementing agency if they cannot be maintained at the closed facility (NOTE The following types of USTs are not subject to these requirements - Wastewater treatment tank systems - Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954 - Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A - Airport hydrant fuel distribution systems - UST system with field-constructed tanks)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Hazardous Waste Storage Tanks	
Small Quantity Generators (SQG)	
ST 47 SQGs must comply with certain storage tank requirements (40 CFR 262 34(d)(3) and 40 CFR 265 201(a) through 265 201(c))	Determine if the facility is a SQG that stores or treats wastes in tanks Verify that - The tank prevents -- generation of extreme heat or pressure, fire or explosions, or violent reactions -- production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment -- production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion -- damage to structural integrity of the device or facility -- threats to human health or the environment through other means - No treatment reagent or hazardous wastes are placed in the tank that would cause it to rupture, leak, corrode, or otherwise fail before the end of its intended life - Uncovered tanks have at least 60 cm (2 ft) of freeboard unless the tank has a containment structure, drainage control system, or a diversion structure with a volume that equals or exceeds the capacity of the top 60 cm (2 ft) of the tank - Continuous feed tanks have a wastefeed cutoff or other stop/bypass system Verify that the following are inspected at the indicated times - Discharge control equipment at least once each operating day - Monitoring equipment (pressure and temperature gauges) at least once each operating day - Waste level in tank at least once each operating day - Construction material of the tank for corrosion or leakage weekly - Surrounding area for leakage and/or contamination at least weekly

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 48 Tank systems at SQGs must comply with requirements for ignitable, reactive, or incompatible wastes (40 CFR 262 34(d)(3) and 40 CFR 265 201(e) through 265 201(f))	Verify that ignitable or reactive wastes are not placed in a tank system unless one of the following is done - The waste is treated, rendered, or mixed before or immediately after placement in the tank system so that it is no longer reactive or ignitable and the minimum requirements for reactive and ignitable wastes are met - The waste is treated or stored in such a way that it is protected from any material or conditions that may cause the waste to ignite or react - The tank system is used solely for emergencies Verify that the minimum protective distances between waste management areas and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's Flammable and Combustible Liquids Code are maintained Verify that incompatible waste, or incompatible wastes and materials, are not placed in the same tank system unless minimum safety requirements are met Verify that hazardous waste is not placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material unless minimum safety requirements are met
ST 49 SQGs must comply with specific tank closure requirements (40 CFR 265 201(d))	Verify that tank systems in the process of being closed or closed had all hazardous waste removed from tanks, discharge control equipment, and discharge confinement structures

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
Generators	
ST 50 Secondary containment is required for specific types of tank systems used to store or treat hazardous waste at generators (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 190(a), 265 190(b), and 265 193(a))	Verify that the following types of tanks used to store or treat hazardous waste have secondary containment· - All new tank systems or components - All existing tank systems used to store or treat EPA Hazardous Waste Numbers F020, F021, F022, F023, F026 and F027 - Existing tank systems of known documented age of 15 years Verify that existing tank systems for which the age cannot be determined within eight years of 12 January 1987 and are at a facility that is older than seven years old are provided with secondary containment by time the facility reaches 15 years of age or 12 January 1989, which ever comes later (NOTE The following are exempt from these requirements - Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor - Tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes.)
ST 51 Secondary containment on tank systems at generators must meet specific requirements (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 190(a), 265 193(b) through 265 193(d))	Verify that secondary containment meets the following criteria - It is designed, installed, and operated to prevent the migration of liquid out of the system - It is capable of detecting and collecting releases and accumulated liquids until removal is possible - It is constructed of or lined with materials compatible with the wastes - It is placed on a foundation or base that can provide appropriate support and prevent failure due to settlement, compression, or upset - A leak-detection system is present that is designed and operated to detect the failure of either the primary or secondary containment structure or the release of any hazardous waste within 24 hours or the earliest practicable time - It is sloped or designed to drain and remove liquids from leaks, spills, or precipitation Verify that spilled or leaked wastes are removed from secondary containment within 24 hours or as timely as possible Verify that secondary containment for tanks includes one or more of the following - A liner (external to the tank) - A vault - A double-walled tank - An equivalent approved device (NOTE Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 52 External liners, vaults and double-walled tanks at generators are required to meet specific standards (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 190(a) and 265 193(e))	Verify that external liner systems meet the following requirements - They are designed and operated so that 100 percent of the capacity of the largest tank within the boundary would be contained - They prevent runon and infiltration of precipitation into the secondary containment unless the collection system has sufficient capacity to handle runon or infiltration - They are free of cracks or gaps - They surround the tank completely and cover all surrounding earth likely to come into contact with the waste if there is a release - Capacity is sufficient to contain precipitation from a 25 year, 24 hour rainfall event Verify that vault systems meet the following criteria - It will contain 100 percent of the capacity of the largest tank within its boundary - It prevents runon and infiltration of precipitation unless there is sufficient excess capacity - It is constructed with chemical-resistant water stops at all joints - It has an impermeable interior coating that is compatible with the wastes it contains - It has a means to protect against the formation and ignition of vapors within the vault if the waste is ignitable or reactive - It has an exterior moisture barrier or otherwise operated to prevent migration of moisture into the vault Verify that double-walled tanks meet the following criteria - It is designed as an integral structure so that any release is contained by the outer shell - It is protected from both corrosion of the primary tank and the external surface of the outer shell if constructed of metal - It has a built-in continuous leak detection system capable of detecting a release within 24 hours (NOTE Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements)
ST 53 Tank ancillary equipment at generators must also be provided with secondary containment (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 190(a) and 265.193(f))	Verify that ancillary equipment, except for the following, has secondary containment - Aboveground piping that is visually inspected for leaks on a daily basis - Welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis - Seamless or magnetic coupling pumps and seamless valves, that are visually inspected for leaks on a daily basis - Pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis (NOTE Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 54 Tank systems that are required to have secondary containment at generators that do not have secondary containment are required to meet specific requirements 40 CFR 262 34 (a)(1)(ii) and 40 CFR 265 190(a), 265 191(a) through 265 191(c), and 265 193(i))	Verify that tank systems without secondary containment meet the following - For non-enterable underground tanks a leak test is conducted annually - For other than non-enterable underground tanks either a leak test is done annually or the facility develops a schedule and procedure for an assessment of the overall condition by an independent, qualified, registered, professional engineer Verify that the facility maintains a record of the results of testing and assessments Verify that tank systems which store or treat materials that become hazardous waste after 14 July 1986 are assessed within 12 months after the waste becomes hazardous (NOTE. Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)
ST.55 Generators with new tank systems must submit to the Regional Administrator a written assessment review certified by an independent, qualified, registered, professional engineer to certify that it was installed according to specific standards (40 CFR 262.34(a)(1)(ii) and 40 CFR 265 192).	Determine if the facility has any new tank systems Verify that when the tanks are installed they are handled so as to prevent damage to the tank and any backfill material that is used is a noncorrosive, porous, homogeneous substance. Verify that the facility keeps on file the written assessments from the individuals required to certify the tank and supervise the installation of the tank.
ST 56. Tanks used for hazardous waste treatment or storage at generators must follow certain operating requirements (40 CFR 262 34(a)(1)(ii) and 265 194).	Verify that hazardous wastes or treatment reagents are not placed in tanks if they could cause the tank system (including ancillary equipment, or containment system) to fail. Verify that appropriate measures are taken to prevent overfill, including - Spill prevention controls - Overfill prevention controls - Maintenance of sufficient freeboard to prevent overtopping by wave, wind action, or precipitation for uncovered tanks

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 57 Tank systems at generators must comply with requirements for ignitable, reactive, or incompatible wastes (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 198 and 265 199)	Verify that ignitable or reactive wastes are not placed in a tank system, unless one of the following is met - The waste is treated, rendered, or mixed before or immediately after placement in the tank system so that it is no longer reactive or ignitable and the minimum requirements for reactive and ignitable wastes are met - The waste is treated or stored in such a way that it is protected from any material or conditions that may cause the waste to ignite or react - The tank system is used solely for emergencies Verify that the minimum protective distances between waste management areas and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's Flammable and Combustible Liquids Code are maintained Verify that incompatible waste, or incompatible wastes and materials, are not placed in the same tank system unless minimum safety requirements are met Verify that hazardous waste is not placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material unless minimum safety requirements are met
ST 58 Generators must conduct inspections of tank systems and associated equipment (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 195)	Verify that a schedule and procedure has been developed and is followed to inspect overfill controls at permitted sites Determine if the following inspections are conducted at least once a day - Data gathered from monitoring and detection equipment - Overfill/spill control equipment at interim state facilities to ensure it is in good working order - Aboveground portions of the tank to detect corrosion or releases - Tank monitoring equipment (e g , pressure and temperature gauges) - Area surrounding tank including the secondary containment system for signs of leakage (wet spots, dead vegetation) Verify that the proper operation of cathodic protection systems are inspected within six months after initial installation and annually thereafter Verify that all sources of impressed current are inspected and/or tested every other month. Verify that inspections are documented

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 59 Tank systems or secondary containment systems at generators from which there has been a leak or spill or which have been declared unfit for use must be removed from service immediately and meet specific requirements (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 196)	Verify that the following steps are taken· - The flow or addition of hazardous wastes to the tank is stopped - The hazardous waste is removed from the tank -- within 24 hours of detection (or other reasonable time as demonstrated by the owner/operator) remove as much waste form the tank as necessary to prevent further release and allow inspection and repair -- within 24 hours (or in as timely a manner as is possible to prevent harm to human health and the environment) remove waste released to secondary containment system - A visual inspection of the release is done and -- action is taken to prevent further migration to soils or surface or groundwater -- any visible contamination of soil and surface water is removed and disposed Verify that notification is made within 24 hours for any release to the environment to the Regional Administrator Verify that a report is submitted within 30 days. (NOTE. Releases of 0 45 kg (1 lb) or less that are immediately contained and cleaned up are exempt from reporting) Verify that the tank and/or secondary containment is repaired prior to its return to service and that extensive repairs are certified by an independent, qualified, registered, professional engineer
ST 60 Generators are required to follow specific procedures when closing a tank system (40 CFR 262 34(a)(1)(ii) and 40 CFR 265 197(a) and 265 197(b))	Determine if the facility has closed any tank systems Verify that all waste residues, contaminated containment system components, contaminated soils, and structures and equipment contaminated with waste have been removed or decontaminated Verify that if it is not possible and/or practicable to remove or decontaminate all soils, the facility closes the tank and performs postclosure care as required for landfills

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
TSDFs	
ST 61 Secondary containment is required for specific types of tank systems used to store or treat hazardous waste at TSDFs (40 CFR 264 190(a) and 264 190(b), 264 193(a), 40 CFR 265 190(a), 265 190(b), and 265 193(a))	Verify that the following types of tanks used to store or treat hazardous waste have secondary containment - All new tank systems or components - All existing tank systems used to store or treat EPA Hazardous Waste Numbers F020, F021, F022, F023, F026 and F027 - Existing tank systems of known documented age that are 15 years of age Verify that existing tank systems for which the age cannot be determined within eight years of 12 January 1987 and are at an facility that is older than seven years old are provided with secondary containment by the time the facility reaches 15 years of age or 12 January 1989, whichever comes later (NOTE The following are exempt from these requirements - Tank systems that are used to store or treat hazardous waste that contain no free liquids and are situated inside a building with an impermeable floor - Tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes)
ST 62 Secondary containment on tank systems at TSDFs must meet specific requirements (40 CFR 264 190(a), 264 193(b) through 264 193(d), 40 CFR 265 190(a), 265 193(b) through 265 193(d))	Verify that secondary containment meets the following criteria - It is designed, installed, and operated to prevent the migration of liquid out of the system - It is capable of detecting and collecting releases and accumulated liquids until removal is possible - It is constructed of or lined with materials compatible with the wastes - It is placed on a foundation or base that can provide appropriate support and prevent failure due to settlement, compression, or upset - A leak-detection system is present that is designed and operated to detect the failure of either the primary or secondary containment structure or the release of any hazardous waste within 24 hours or the earliest practicable time - It is sloped or designed to drain and remove liquids from leaks, spills, or precipitation Verify that spilled or leaked wastes are removed from secondary containment within 24 hours or as timely as possible Verify that secondary containment for tanks includes one or more of the following - A liner (external to the tank) - A vault - A double-walled tank - An equivalent approved device (NOTE Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 63 External liners, vaults and double-walled tanks at TSDFs are required to meet specific standards (40 CFR 264 190(a) and 264.193(e), 40 CFR 265 190(a) and 265 193(e))	Verify that external liner systems meet the following requirements - It is designed and operated so that 100 percent of the capacity of the largest tank within the boundary would be contained - It prevents runon and infiltration of precipitation into the secondary containment unless the collection system has sufficient capacity to handle runon or infiltration - It is free of cracks or gaps - It surrounds the tank completely and covers all surrounding earth likely to come into contact with the waste if there is a release - Capacity is sufficient to contain precipitation from a 25-year, 24-hour rainfall event Verify that vault systems meet the following criteria - It will contain 100 percent of the capacity of the largest tank within its boundary - It prevents runon and infiltration of precipitation unless there is sufficient excess capacity - It is constructed with chemical-resistant water stops at all joints - It has an impermeable interior coating that is compatible - It has a means to protect against the formation of, and ignition of, vapors within the vault if the waste is ignitable or reactive - It has an exterior moisture barrier or otherwise operated to prevent migration of moisture into the vault Verify that double-walled tanks meet the following criteria - It is designed as an integral structure so that any release is contained by the outer shell - It is protected from both corrosion of the primary tank and the external surface of the outer shell if constructed of metal - It has a built-in continuous leak detection system capable of detecting a release within 24 hours (NOTE Tank systems used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)
ST 64 Tank ancillary equipment at TSDFs must also be provided with secondary containment (40 CFR 264 190(a) and 264 193(f), 40 CFR 265.190(a) and 265.193(f))	Verify that ancillary equipment, except for the following, has secondary containment - Aboveground piping that is visually inspected for leaks on a daily basis - Welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis - Seamless or magnetic coupling pumps and seamless valves that are visually inspected for leaks on a daily basis - Pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis (NOTE Tank systems used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 65 Tank systems at TSDFs that are required to have secondary containment that do not have secondary containment must meet specific requirements (40 CFR 264 190(a), 264 191(a) through 264 191(c), and 264 193(i), 40 CFR 265 190(a), 265 191(a) through 265 191(c), and 265 193(i))	Verify that tank systems without secondary containment meet the following - For nonenterable underground tanks,a leak test is conducted annually - For other than nonenterable underground tanks either a leak test is done annually or the facility develops a schedule and procedures for an assessment of the overall condition by an independent, qualified, registered professional engineer - For ancillary equipment a leak test or other approved integrity assessment at least annually Verify that the TSDF maintains a record of the results of testing and assessments Verify that tank systems which store or treat materials that become hazardous waste after 14 July 1986 are assessed within 12 months after the waste becomes hazardous (NOTE Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements)
ST 66 TSDFs with new tank systems must submit to the Regional Administrator a written assessment review certified by an independent, qualified, registered professional engineer and install the tank according to specific standards (40 CFR 264 192 and 40 CFR 265 192)	Determine if the TSDF has any new tank systems Verify that when the tanks are installed they are handled so as to prevent damage to the tank and any backfill material that is used is a noncorrosive, porous, homogeneous substance Verify that the facility keeps on file the written assessments from the individuals required to certify the tank and supervise the installation of the tank
ST 67 Tanks used for hazardous waste treatment or storage at TSDFs must follow certain operating requirements (40 CFR 264 194 and 40 CFR 265 194)	Verify that hazardous wastes or treatment reagents are not placed in tanks if they could cause the tank system (including ancillary equipment or containment system) to fail Verify that appropriate measures are taken to prevent overfill, including - Spill prevention controls - Overfill prevention controls - Maintenance of sufficient freeboard to prevent overtopping by wave, wind action,or precipitation for uncovered tanks

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 68 Tank systems at TSDFs must comply with requirements for ignitable, reactive, or incompatible wastes (40 CFR 264 198 and 264 199, 40 CFR 265 198 and 265 199).	Verify that ignitable or reactive wastes are not placed in a tank system, unless one of the following is met - The waste is treated, rendered, or mixed before or immediately after placement in The tank system so that it is no longer reactive or ignitable and the minimum requirements for reactive and ignitable wastes are met - The waste is treated or stored in such a way that it is protected from any material or conditions that may cause the waste to ignite or react - The tank system is used solely for emergencies Verify that the minimum protective distances between waste management areas and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's Flammable and Combustible Liquids Code are maintained Verify that incompatible waste, or incompatible wastes and materials, are not placed in the same tank system unless minimum safety requirements are met. Verify that hazardous waste is not placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material unless minimum safety requirements are met
ST 69. Personnel at TSDFs must conduct inspections of tank systems and associated equipment (40 CFR 264 195 and 40 CFR 265 195)	Verify that a schedule and procedure has been developed and is followed to inspect overfill controls at permitted facilities Determine if the following inspections are conducted at least once a day - Data gathered from monitoring and leak detection equipment - Overfill/spill control equipment at interim state facilities to ensure it is in good working order - Aboveground portions of the tank to detect corrosion or releases - Tank monitoring equipment (e g , pressure and temperature gauges) - Area surrounding tank including the secondary containment system for signs of leakage (wet spots, dead vegetation) Verify that the proper operation of cathodic protection systems are inspected within six months after initial installation and annually thereafter Verify that all sources of impressed current are inspected and/or tested every other month Verify that inspections are documented

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 70. Tank systems or secondary containment systems at TSDFs from which there has been a leak or spill or which have been declared unfit for use must be removed from service immediately and specific requirements met (40 CFR 264 196 and 40 CFR 265 196)	Verify that the following steps are taken - The flow or addition of hazardous wastes to the tank is stopped - The hazardous waste is removed from the tank -- within 24 hours of detection (or other reasonable time as demonstrated by the owner/operator) remove as much waste from the tank as necessary to prevent further release and allow inspection and repair -- within 24 hours (or in as timely a manner as is possible to prevent harm to human health and the environment) remove waste released to secondary containment system - A visual inspection of the release is done and -- action is taken to prevent further migration to soils or surface or groundwater -- any visible contamination of soil and surface water is removed and disposed Verify that notification is made within 24 hours for any release to the environment to the Regional Administrator. Verify that a report is submitted within 30 days (NOTE Releases of 1 lb (0 45 kg) or less that are immediately contained and cleaned up are exempt from reporting) Verify that the tank and/or secondary containment is repaired prior to its return to service and that extensive repairs are certified by an independent, qualified, registered, professional engineer
ST 71 TSDFs are required to follow specific procedures when closing a tank system (40 CFR 264 197(a), 264 197(b), 40 CFR 265 197(a), 265 197(b))	Determine if the TSDF has closed any tank systems Verify that all waste residues, contaminated containment system components, contaminated soils, and structures and equipment contaminated with waste have been removed or decontaminated Verify that if it is not possible and/or practicable to remove or decontaminate all soils, the facility closes the tank and performs post-closure care as is required for landfills

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Flammable/Combustible Liquid Storage Tanks	
ST 72 Tanks used for the storage of flammable/ combustible liquids are required to meet specific design and construction standards (29 CFR 1910 106(b)(1))	Verify that tanks are built of steel unless - The tank is installed underground - The properties of the liquid being stored requires materials other than steel be used - The tank is designed according to specifications embodying principles recognized as good engineering design for the materials used - It is an unlined concrete tank that stores flammable or combustible liquids having a gravity of 40 degrees API or heavier (NOTE· API gravity is a scale adopted by the American Petroleum Institute for measuring the density of oils) Verify that tanks located aboveground or inside buildings are of noncombustible construction (NOTE Tanks designed for underground service not exceeding 2,500 gal (9,463 53 L) capacity may be used aboveground and low-pressure tanks and pressure vessels may be used as atmospheric tanks) Verify that atmospheric tanks are not used for the storage of a flammable or combustible liquid at a temperature at or above its boiling point Verify that the normal operating pressure of a low pressure tank does not exceed the design pressure of the tank

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 73 Outside aboveground tanks used for the storage of flammable/ combustible liquids are required to be installed according to specific parameters (29 CFR 1910 106(b)(2)(i) through 1910 106(b)(2)(ii))	Verify that there is a minimum distance of 3 ft (0 91 m) between any two tanks Verify that the distance between any two adjacent tanks is not less than one-sixth the sum of their diameters (NOTE. When the diameter of one tank is less than half the diameter of the adjacent tank, the distance between the two tanks is not less than one-half the diameter of the smaller tank.) Verify that where unstable flammable or combustible liquids are stored, the distance between the tanks is not less than one-half the sum of their diameters Verify that when tanks are compacted in three or more rows or in an irregular pattern, greater spacing or other means is provided for firefighting access Verify that there is a minimum distance of 20 ft (6 1 m) between a Liquefied Petroleum Gas (LPG) container and a flammable or combustible liquid storage tank (NOTE In the case of flammable of combustible liquid tanks operating at pressure exceeding 2.5 psig or equipped with emergency venting which will permit pressures to exceed 2 5 psig spacing of 3 ft (0 91 m) or the use of the formula concerning one-sixth of diameters may be used) Verify that means such as diversion curbs or grading are provided to prevent the accumulation of flammable or combustible liquids under adjacent LPG containers Verify that if flammable combustible liquid storage tanks are within a diked area, LPG containers are outside the diked area and at least 10 ft (3 05 m) away from the centerline of the wall of the diked area (NOTE· The requirement concerning LPG containers and diked areas does not apply if LPG containers of 125 gal (473 18 L) or less capacity are installed adjacent to fuel oil supply of 550 gal (2,081 98 L) or less capacity)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 74 Tanks for the storage of flammable/ combustible liquids are required to meet specific containment requirements (29 CFR 1910 106(b)(2)(vii))	Verify that the area surrounding a tank, or a group of tanks, is either provided with drainage or diked as follows - Drainage systems terminate in vacant land or other area or in an impounding basin having a capacity not smaller than that of the largest tank served - Diked areas have a volumetric capacity of not less than the greatest amount of liquid that can be released from the largest tank within the diked area, assuming a fuel tank Verify that walls of diked areas are of earth, concrete, steel, or solid masonry designed to be liquid tight Verify that earthen walls 3 ft (0 91 m) or more in height have a top that is no less than 2 ft (0 61 m) wide Verify that the walls of the diked area are restricted to an average height of 6 ft (1 83 m) above interior grade. Verify that there are no loose combustible materials, empty or full drums,or barrels within the diked area.
ST 75 In locations where flammable vapors may be present from storage tanks, precautions are required to be taken to prevent ignition (29 CFR 1910 106(b)(6))	Verify that sources of ignition such as open flames, smoking, welding and cutting, hot surfaces, sparks, and radiant heat are avoided
ST.76. Tanks used for the storage of flammable/ combustible liquids are required to be strength tested before being placed into service (29 CFR 1910 106(b)(7)).	Verify that the tank is marked with a American Society of Mechanical Engineers (ASME) code stamp, API monogram, or the label of the Underwriters Laboratory as evidence of having had a strength test

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Pipelines	
ST 77 In specific instances of failure in a pipeline for hazardous liquids, a report must be submitted (49 CFR 195 1, 195 50, and 195.54).	Verify that when there is a release of hazardous liquid or CO_2 that results in the following, an accident report is submitted to DOT within 30 days - Explosion or fire not intentionally set by the operator - Loss of 50 or more barrels (bbl) of hazardous liquid or CO_2 - Escape to the atmosphere of more than 5 bbl a day of highly volatile liquids (NOTE· 1 barrel = 42 gallons as defined by this regulation) - Death of any person - Bodily harm resulting in -- loss of consciousness -- necessity to carry the person from the scene -- necessity for medical treatment -- disability which prevents the discharge of normal duties or pursuit of normal activities - Estimated property damage to the property of the operator of others or both, exceeding $5,000 (NOTE This requirement does not apply to the transportation of - A hazardous liquid that is transported in a gaseous state - A hazardous liquid through a pipeline by gravity - A hazardous liquid through pipelines that operate at a stress level of 20 percent or less of the specified minimum yield strength of the line pipe - Petroleum in onshore gathering lines in rural areas except gathering lines in the inlets of the Gulf of Mexico - A hazardous liquid or CO_2 in offshore pipelines which are located upstream from the outlet flange of each facility on the Outer Continental Shelf where hydrocarbons or CO_2 are produced or where produced hydrocarbons or CO_2 are first separated, dehydrated, or otherwise processed, whichever facility is further downstream - A hazardous liquid or CO_2 through onshore production, refining, or manufacturing facilities, storage or in plant piping systems associated with such facilities - A hazardous liquid or CO_2 by vessel, aircraft, tank truck, tank car or other vehicle or terminal facilities used exclusively to transport hazardous liquids or CO_2 between such modes of transportation - CO_2 downstream from a point in the vicinity of the well site at which CO_2 is delivered to a production facility)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 78 Under specific circumstances, if there is a release of a hazardous liquid or CO_2 transported in a pipeline, telephone notification must be made as soon as possible after discovery of the release (49 CFR 195 1 and 195 52)	Verify that telephone notification is made as soon as possible of any failure that. - Caused a death or a personal injury requiring hospitalization - Resulted in either a fire or explosion not intentionally set by the operator - Caused estimated damage to the property of the operator or other or both, exceeding $5,000 - Resulted in pollution of any stream, river, lake, reservoir, or other similar body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or upon adjoining shoreline - Is significant in the judgement of the operator even though it did not meet any of the above criteria (NOTE· Telephone reports are to be made to 1-800-424-8802) (NOTE This requirement does not apply to the transportation of - A hazardous liquid that is transported in a gaseous state - A hazardous liquid through a pipeline by gravity - A hazardous liquid through pipelines that operate at a stress level of 20 percent or less of the specified minimum yield strength of the line pipe - Petroleum in onshore gathering lines in rural areas except gathering lines in the inlets of the Gulf of Mexico - A hazardous liquid or CO_2 in offshore pipelines which are located upstream from the outlet flange of each activity on the Outer Continental Shelf where hydrocarbons or CO_2 are produced or where produced hydrocarbons or CO_2 are first separated, dehydrated, or otherwise processed, whichever is further downstream - A hazardous liquid or CO_2 through onshore production, refining, or manufacturing facilities, storage or in plant piping systems associated with such facilities - A hazardous liquid or CO_2 by vessel, aircraft, tank truck, tank car or other vehicle or terminal facilities used exclusively to transport hazardous liquids or CO_2 between such modes of transportation - CO_2 downstream from a point in the vicinity of the well site at which CO_2 is delivered to a production facility)

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 79 Facilities with onshore oil pipelines that, because of location, could reasonably be expected to cause substantial harm or significant and substantial harm to the environment by discharging oil into or on any navigable waters of the United States or adjoining shorelines are required to prepare an oil spill response plan (49 CFR 194 3 and 194 101 through 194 107)	Verify that the response plan includes - A statement indicating which sections in a response zone can be expected to cause significant and substantial harm to the environment if there is a discharge of oil into or on the navigable water or adjoining shorelines - Indications of the worst case discharge - Immediate notification procedures - Spill detection and mitigation procedures - The name address and phone number of an oil spill response organization - Response activities and response resources - Training procedures - Equipment testing - Schedules for drills - Plan updating procedures - An appendix for each response zone indicating all the above general information in a way that is tailored to that response zone Verify that the response plan is in english and if necessary, any other language understood by personnel responsible for carrying out the plan (NOTE Significant and substantial harm can be expected if the line is greater than 6 5/8 in (16 83 cm) in outside nominal diameter, greater than 10 miles (16 09 km) in length and the line section - Has experienced a release greater than 1,000 bbl (158,987 3 L) in the previous five years - Has experienced two or more reportable releases in the previous five years - Contains any electric resistance welded pipe, manufactured prior to 1970, operated at maximum operating pressure that corresponds to a stress level greater than 50 percent of the specified minimum yield strength of the pipe - Is located within a 5 mile (8 05 km) radius of potentially affected public drinking water intakes and could reasonably be expected to reach the intake - Is located within 1 mile (1 61 km) radius of potentially affected environmentally sensitive areas, and could reasonably be expected to reach these areas) (NOTE. The requirement to submit a response plan is effective 18 February 1993 After 18 August 1993, the onshore pipeline must be operated according to the details outlined in the response plan) (NOTE A response plan is not required for the following - A pipeline that is 6 5/8 in (16 83 cm) or less in outside nominal diameter and is 10 miles (16 09 km) or less in length, and all the following conditions apply -- the pipeline has not experienced a release greater than 1,000 bbl (158,987.3 L) within the previous five years -- the pipeline has not experienced at least two reportable releases within the previous five years -- the pipeline contains any electric resistance welded pipe, manufactured prior to 1970, does not operate at a maximum operating pressure that corresponds to a stress level greater than 50 percent of the specified minimum yield strength of the pipe -- the pipeline is not in proximity to navigable waters, public drinking water intakes, or environmentally sensitive areas

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST.79 *(continued)*	- A line section that is greater than 6 5/8 in (16 83 cm) in outside nominal diameter and is greater than 10 miles (16 09 km) in length, where the operator determines that it is unlikely that the worst case discharges from any point on the line section would adversely affect, within 12 hours after the start of discharge, any navigable waters, public drinking water intakes, or environmentally sensitive areas - A line section that is 6 5/8 in. (16 83 cm) or less in outside nominal diameter and is 10 miles (16 09 km) or less in length, where the operator determines that it is unlikely that the worst case discharge from any point on the line section would adversely affect, within four hours after the initiation of the discharge, any navigable waters, public drinking water intakes, or environmentally sensitive areas.)
ST 80 Copies of the response plan are required to be submitted to the EPA RSPA (49 CFR 194 119(a) through 194 119(d))	Verify that two copies were submitted to the following address Pipelines Response Plans Office Research and Special Programs Administration Department of Transportation 400 Seventh St SW Washington D C 20590-0001 Verify that the RSPA approved the response plan.
ST 81 If the RSPA does not approve a response plan for a pipeline identified as expected to cause significant and substantial harm to the environment, the operator must submit certification to the RSPA by 18 July 1993 that the operator has obtained, through contract or other means, the necessary personnel and equipment to respond to a worst case discharge or a substantial threat of a discharge (49 CFR 194 119(e))	Determine if the facility has an approved response plan Verify that if there is not an approved response plan, the necessary certification has been submitted to the RSPA
ST 82 Copies of the response plan are required to be kept at specific locations (49 CFR 194 111)	Verify that a copy of the complete response plan is at the operators headquarters and a copy is provided to each responsible individual Verify that a copy of the core portion of the plan and relevant response zone appendices for each line section whose pressure may be affected by the operation of a particular pump station is provided at the pump station Verify that a copy of the core portion of the plan and relevant response zone appendices is kept at locations where response activities might be conducted

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
ST 83 Training is required for the implementation of the response plan (49 CFR 194 117)	Verify that training is conducted such that all personnel know - Their responsibilities under the plan - The names, addresses, and procedures for contacting the operator on a 24-hour basis and a qualified individual Verify that reporting personnel know - The content of the information summary - The toll free number of the National Response Center (NRC) - The notification process Verify that personnel engaged in response activities know - The characteristics and hazards of oil discharged - The conditions that are likely to worsen emergencies and appropriate corrective actions - The steps needed to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity, or environmental damage - The proper firefighting procedures and use of equipment, fire suits and breathing apparatus Verify that training records exist for each individual that has been trained, specifically records for· - Operator personnel are at the operators headquarters - Personnel engaged in response are maintained as determined by the operator (NOTE This training does not take the place of emergency response training requirements as found in 29 CFR 1910 120)
ST 84 Pipeline response plans are required to be reviewed every three years from the date of submission and modified to address new or different operating conditions or information (49 CFR 194 121)	Verify that the plan is reviewed every three years

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Service Stations	
ST 85 Liquids at service stations are required to be stored in approved closed containers not exceeding 60 gal (227.12 L) capacity, in tanks underground, tanks in special enclosures, or in aboveground tanks that meet specific requirements (29 CFR 1910.106(g)(1)(i)(a) through 1910 106(g)(1) (i)(e), 1910 106(g)(1)(ii), and 1910.106(g)(1)(iii)).	Verify that if aboveground tanks are located in an adjoining bulk plant, they are connected by piping to service station underground tanks if, in addition to valves at the aboveground tank, there is a valve installed within the control of service station personnel Verify that apparatus for dispensing Class I liquids into the fuel tanks of motor vehicles of the public is not located at a bulk plant unless it is separated by a fence or similar barrier from the area in which bulk operations occur. (NOTE· These requirements do not prohibit the dispensing of flammable liquids in the open from a tank vehicle to a motor vehicle if - The tank vehicle complies with the requirements in Standard on Tank Vehicles for Flammable Liquids, NFPA 385-1966 - The dispensing is done on premises not open to the public - The dispensing hose does not exceed 50 ft (15 24 m) - The dispensing nozzle is a listed automatic closing type without a latchopen device Verify that underground tanks are installed as required by the Storage Tank Management checklist. Verify that if tanks for flammable or combustible liquids are installed in enclosures because it is impractical due to property or building limitations to correctly install USTs, the enclosure meets the following. - It is substantially liquid and vapor tight without backfill - Sides, top, and bottom of the enclosure are of reinforced concrete at least 6 in (15.24 cm) thick - Openings for inspection are only on the top - Tank connections are piped or closed so that neither vapors or liquid can escape into the enclosed space - Means are provided so that portable equipment can be used to discharge to the outside any liquid or vapors that might accumulate if leakage occurs. Verify that no Class I liquids are stored within any service station building in closed containers of aggregate capacity exceeding 60 gal (227.12 L) unless the container meets the enclosure requirements Verify that Class II and III liquids are not stored or dispensed inside service station buildings from tanks of more than 120 gal (454 25 L) capacity each.
ST 86. Class I liquids at service stations are required to not be stored or handled within a building having a basement or pit into which flammable vapors can travel (29 CFR 1910.106(g)(1)(i)(f))	Verify that Class I liquids are not stored or handled in a building with a basement or pit into which flammable vapors can travel unless the area is provided with adequate ventilation
ST 87 Dispensing of Class I liquids into portable containers is restricted (29 CFR 1910.106(g)(1)(v)).	Verify that Class I liquids are not dispensed into portable containers unless the container is constructed of metal, has a tight closure with screwed or spring cover, and is fitted with a spout or designed to prevent spilling.

Compliance Category: **Storage Tank Management**	
Regulatory Requirements:	**Reviewer Checks:**
ST 88 Dispensing devices at automotive service stations are required to meet specific standards (29 CFR 1910 106(g)(3))	Verify that dispensing systems are located so that all parts of the vehicle being served are located on the premises of the station Verify that if the dispensing unit is located inside a building the following are met - The dispensing area is separated from other areas - The unit and its piping are mounted whether on a concrete island or protected against collision damage - The area has an approved mechanical or gravity ventilation system (NOTE: When indoor dispensing units are below grade, only approved mechanical ventilation can be used) Verify that all dispensing units are equipped with a clearly identified and easily accessible switch or circuit breaker at a location remote from the dispensing devices to shut off power in case of an emergency Verify that Class I liquids are transferred from tanks by means of a fixed pump that is designed and operated to prevent leakage or accidental discharge Verify that Class I liquids are not dispensed by pressure from drums, barrels, or similar containers. Verify that all dispensing units, except those attached to a container, are mounted so as to prevent damage from a collision Verify that the nozzles on Class I dispensing units are listed manual or automatic closing type hose nozzles

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
Transfer Terminals	
ST.89. Facilities that can transfer oil or hazardous materials, in bulk, to or from a vessel with a capacity of 250 bbl (30746 83 L) or more are required to develop an operations manual to aid in the prevention of spills and discharges (33 CFR 154.100 and 154 300).	Determine if the facility can transfer oil or hazardous materials, in bulk, to or from a vessel with a capacity of 250 bbl (30746 83 L) or more Verify that the facility has an operating manual that describes - How the facility is meeting the regulatory requirements for operations, including spill prevention - Responsibilities of personnel - Translations into additional languages as needed. Verify that the facility has received a letter of adequacy from the Coast Guard indicating the manual is sufficient (NOTE: This also applies to each mobile facility that is used, or intended to be used to transfer oil or hazardous material, in bulk, to or from a vessel with a capacity of 250 bbl (30746 83 L) or more) (NOTE· This requirement does not apply to transfer facilities in caretaker status)
ST.90 Reception facilities for an oil loading port or terminal that loads a daily average of more than 1000 metric tons (1100 short tons) of oil other than crude oil or bunker oil to oceangoing tankers must have the capacity to receive specific types of waste (33 CFR 158 220)	Determine if the installation operates a reception facility for an oil loading port or terminal that loads a daily average of more than 1000 metric tons (1100 short tons) or oil other than crude oil or bunker oil to oceangoing tankers Verify that the reception facility has the capacity to receive the following - Sludges from on-board fuel and lubricating oil processing in the amount of 10 metric tons (11 short tons) - Oily bilge water in the amount of 10 metric tons (11 short tons) or 2 metric tons (2 2 short tons) multiplied by the daily vessel average, whichever quantity is greater - Oily ballast in the amount of 30 percent of the deadweight tonnage of the largest of oceangoing tankers loading oil other than crude oil or bunker oil, at the port or terminal, that do not have an appropriate clean ballast tank or an appropriate segregated ballast tank multiplied by one or the daily vessel average, whichever quantity is greater - Cargo residue in the amount of 0 2 percent of the total cargo capacity of the largest of the oceangoing tankers loading oil other than crude oil or bunker oil, at the port or terminal, multiplied by one or the daily vessel average, whichever quantity is greater.
ST 91 Reception facilities other than those in 33 CFR 158 220 (see checklist item P 31) and other than ship repair yards, ports and terminal loading crude oil and those used exclusively by non-self-propelled tank barges are required to have specific types of reception facilities (33 CFR 158 230)	Verify that the reception facility has the capacity for receiving the following - Sludge from on-board fuel and lubricating oil processing in the amount of 10 metric tons (11 short tons) or 1 metric ton (1 1 short tons) multiplied by the daily vessel average, whichever is greater - Oil ballast water in the amount of 10 metric tons (11 short tons) or 2 metric tons (2.2 short tons) multiplied by the daily vessel average, whichever quantity is greater

Compliance Category: Storage Tank Management	
Regulatory Requirements:	**Reviewer Checks:**
POL Loading and Unloading	
ST 92. Onshore tank car and tank truck loading/ unloading racks are required to meet specific structural standards (40 CFR 112.7(e)(4)(ii) and 40 CFR 112 7(e)(4)(iii))	Verify that where rack drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system is used Verify that any containment system is designed to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the site Verify that an interlocked warning light or physical barrier system, or warning signs are provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines (NOTE Facilities are exempt from the requirements outlined in 40 CFR 112 if - The facility, equipment, or operation is not subject to the jurisdiction of the EPA as follows -- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines -- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT - Both of the following criteria are met -- the underground buried storage capacity of the facility is 42,000 gal (15,987 30 L) or less of oil -- the aggregate storage capacity which is not buried at the facility is 1,320 gal (4,996 74 L) of oil or less or no single container exceeds a capacity of 660 gal (2,498 37 L) (40 CFR 112 1(d)(2))
ST 93 Specific operational procedures are required to be performed at facility tank car and tank truck loading/ unloading sites (40 CFR 112 7(e)(iv))	Verify that before filling and departure of any tank car or tank truck, the lowermost drain and all outlets of the vehicle are closely examined for leakage and if necessary tightened, adjusted, or replaced to prevent leakage while in transit (NOTE Facilities are exempt from the requirements outlined in 40 CFR 112 if - The facility, equipment, or operation is not subject to the jurisdiction of the EPA as follows -- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines -- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT - Both of the following criteria are met -- the underground buried storage capacity of the facility is 42,000 gal (15,987 30 L) or less of oil -- the aggregate storage capacity which is not buried at the facility is 1,320 gal (4,996 74 L) of oil or less or no single container exceeds a capacity of 660 gal (2,498 37 L) (40 CFR 112 1(d)(2))

Section 11

Storage Tank Management

Appendices

Appendix 11-1
UST Applicability Guide

Type of UST	Applicable CFR Citation	Checklist #s
Underground Storage Tanks as defined in 40 CFR 280.12 (see definitions)	40 CFR 280	ST.14 through ST.46
Excluded USTs (see definitions)	none	none
Deferred USTs (see definitions)	40 CFR 280 11	ST 37
USTs storing fuel for emergency generators	40 CFR 280 20 through 280 22 280 30 through 280 34 280 50 through 280 53 280 60 through 280 67 280.70 through 270.74	ST 14 through ST.19, ST 21 through ST.24, ST 29 through ST.36, ST 38 through ST 46

Appendix 11-2
Schedule for Phase-in of Release Detection
(40 CFR 280.40(c))

Year system was installed	Year when release detection is required (by December 22 of the year indicated)				
	1989	1990	1991	1992	1993
Before 1965 or date unknown	RD	P			
1965-69		P/RD			
1970-74		P	RD		
1975-79		P		RD	
1980-88		P			RD

P = must begin release detection for all pressurized piping as defined in 40 CFR 280.41(b)(1).
RD = must begin release detection for tanks and suction piping

Appendix 11-3
Release Detection Requirements for USTs and Underground Piping
(40 CFR 280.41 through 280.43)

A. UST Options (see NOTE for additional guidance)

1. Inventory control

Product inventory control must be conducted monthly to detect a release of at least 1.0 percent of flow-through plus 130 gal on a monthly basis in the following manner:

a. Inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank are recorded each operating day;

b The equipment used is capable of measuring the level of product over the full range of the tanks height to the nearest 1/8 in.;

c. The regulated substance inputs are reconciled with delivery receipts by measurements of the tank inventory volume before and after delivery;

d. Deliveries made through a drop tube that extends to within 1 ft of the tank bottom;

e. Product dispensing is metered and recorded within the local standards of product withdrawn, and

f. The measurement of any water level in the bottom of the tank is made to the nearest 1/8 in. at least once a month.

2. Manual gauging

Manual tank gauging must meet the following requirements:

a. Tank liquid level measurements are taken at the beginning and end of a period of at least 36 hours during which no liquid is added to or removed from the tank;

b. Level measurements are based on an average of two consecutive stick readings at both the beginning and end of the period,

c. The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest 1/8 in.;

d. A leak is suspected and subject to the requirements of subpart E if the variation between beginning and ending measurements exceeds the weekly or monthly standards of Table A below;

e. Only tanks of 550 gal or less nominal capacity may use this as a sole method of release detection Tanks of 551 to 2000 gal may also use inventory control. See paragraph 1 in this appendix Tanks of greater than 2000 gal nominal capacity may not use this method to meet release detection requirements.

Table A		
Nominal Tank Capacity	Weekly Standard (one test)	Monthly Standard (average of four)
550 gal or less	10 gal	5 gal
551-1000 gal	13 gal	7 gal
1001-2000 gal	26 gal	13 gal

3. Tank Tightness Testing

Tank tightness testing must be capable of detecting a 0.1 gal/hour leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

4. Tank Automatic Gauging

Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control; must meet the following requirements:

a. The automatic product level monitor test can detect a 0.2 gal/hour leak rate from any portion of the tank that routinely contains product; and

b. Inventory control is conducted according to requirements (see paragraph 1 above).

5. Vapor Monitoring

Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:

a. The materials used as backfill are sufficiently porous (e.g., gravel, sand, crushed rock) to easily allow diffusion of vapors from releases into the excavation area;

b. The stored regulated substance, or a tracer compound placed in the tank system, is sufficiently volatile (e.g., gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;

c. The measurement of vapors by the monitoring device is not rendered inoperative by the ground water, rainfall, or soil moisture or other unknown interferences so that a release could go undetected for more than 30 days;

d. The level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank;

e. The vapor monitors are designed and operated to detect any significant increase in concentration above background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system;

f In the UST excavation zone, the site is assessed to ensure compliance with the requirements of paragraph 5 a-d above and to establish the number and positioning of monitor wells that will detect any releases within the excavation zone from any portion of the tank that routinely contains product; and

g. Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

6. Groundwater Monitoring

Testing or monitoring for liquids in the ground water must meet the following requirements·

a. The regulated substance stored is immiscible in water and has a specific gravity of less than one;

b. Groundwater is never more than 20 ft from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices is not less than 0.01 cm/s (e.g., the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials;

c. The slotted portion of the monitoring well casing must be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low ground water conditions;

d. Monitoring wells should be sealed from the ground surface to the top of the filter pack;

e. Monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible;

f. The continuous monitoring devices or manual methods used can detect the presence of at least 1/8 in. of free product on tip of the ground water in the monitoring wells;

g. Within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements of paragraphs 6 a-e above and to establish the number and positioning of monitoring wells or devices that

will detect releases from any portion of the tank that routinely contains product; and

h. Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

7. Interstitial Monitoring

Interstitial monitoring between the UST system and a secondary barrier immediately around or beneath it may be used, but only if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product and also meets one of the following requirements·

a. For double-walled systems, the sampling or testing method can detect a release through the inner wall in any portion of the tank that routinely contains product;

b. For UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release between the UST system and the secondary barrier;

c. The secondary barrier around or beneath the UST system consists of artificially constructed material that is sufficiently thick and impermeable (at least 10^{-6} cm/s for the regulated substance stored) to direct a release to the monitoring point and permit its detection;

d. The barrier is compatible with the regulated substance stored so that a release from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected;

e. For cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system;

f. The ground water, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;

g. The site is assessed to ensure that the secondary barrier is always above the ground water and not in a 25 year floodplain, unless the barrier and monitoring designs are for use under such conditions; or

h. Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering

i. For tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner. The liner is compatible with the substance stored.

8. Other Methods

Any other type of release detection method, or combination of methods, can be used if:

a. It can detect a 0.2 gal/hour leak rate or a release of 150 gal within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05; or

b. The implementing agency may approve another method, if it can be demonstrated that this method can detect releases as effectively as the methods listed in this appendix

NOTE: The following are alternatives on the above listings for UST release detection options:

- USTs meeting the requirements in 40 CFR 280.20 for new tanks and the monthly inventory requirements in A11-1 and A11-2 above can use tank tightness testing as outlined in A11-3 at least every five years until 22 December 1998, or until 10 years after the tank is installed or upgraded under 40 CFR 280.21(b),

- USTs that do not meet the standards of 40 CFR 280.20 or 280.21 may use monthly inventory as outlined in A11-1 or A11-2 and annual tank tightness testing done according to A11-3 until 22 December 1998 when the tank must be upgraded or permanently closed.

- USTs with a capacity of 550 gal or less may use weekly tank gauging done according to A11-2.

B. Underground Piping Options

1. Automatic Line Detectors

Methods which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping, or triggering an audible or visual alarm may be used only if they detect leaks of 3 gal/hour at 10 lb/in^2 line pressure within one hour. An annual test of the operation of the leak detector must be conducted in accordance with the manufacturer's requirements.

2. Line Tightness Testing

A periodic test of piping may be conducted only if it can detect a 0.1 gal/hour leak one and one-half times the operating pressure.

3. Applicable Tank Methods

The methods outlined in A11-2 through A11-4 may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

NOTE: The following is additional information on the above listings for underground piping release detection options:

- Pressurized piping must meet both of the following:
  - Be equipped with an automatic line leak detector as outlined in B1
  - Have an annual line tightness test done according to B2 or have monthly monitoring done in accordance with B3.

- Underground suction piping must either have a line tightness test done according to B2 at least every three years or use a monthly monitoring method in accordance with B3. No release detection is required for suction piping that is designed and constructed to meet the following standards:
  - The below-grade piping operates at less than atmospheric pressure
  - The below-grade piping is sloped so that the contents of the pipe will drain back into the Storage tank is the suction is released
  - Only one check valve is included in each suction line
  - The check valve is located directly below and as close as practical to the suction pump
  - A method is provided that allows compliance with these standards to be readily determined.

Phase 1

Section 12

Drinking Water Management

Phase 1
Section 12
Table of Contents

Drinking Water Management

A. Applicability 12-1
B. Federal Legislation 12-1
C. State/Local Regulations 12-3
D. Key Compliance Requirements 12-3
E. Key Compliance Definitions 12-5
F. Records to Review 12-11
G. Physical Features to Inspect 12-11
H. Guidance for Checklist Users 12-12

Appendices

A12-1. Primary Drinking Water Standards for Organic Contaminants A12-1
A12-2. Primary Drinking Water Standards for Inorganic Contaminants A12-4
A12-3. Detection Limitations for Inorganic Contaminants A12-6
A12-4. Detection Limitations A12-7
A12-5. Unregulated Organic and Inorganic Contaminants A12-8
A12-6. Coliform Bacteria Sampling Frequency A12-9
A12-7. Monitoring and Sampling Parameters for Lead and Copper in DrinkingWater A12-10

A. Applicability

This section identifies rules, regulations, and requirements for any facility that has jurisdiction over any public water supply system. A public water system is defined as a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes.

1 Any collection, treatment, storage, and distribution facilities under control of the operator of such system.

2. Any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system

A public water system is either a community water system or a noncommunity water system (40 CFR 141 2)

Facilities that meet all the criteria listed below are not required to comply with the requirements of the Safe Drinking Water Act (SDWA) since, by definition, they are not public water systems (40 CFR 141.3):

1 The system consists only of distribution and storage facilities and does not have any collection and treatment facilities.

2 The system gets all of its water from a public water system that is owned or operated by another party.

3 The system does not sell water to any party.

Assessors are required to review agency, Federal, state and local regulations in order to perform a comprehensive assessment.

This section also identifies rules, regulations, and requirements for facilities that have Underground Injection Control (UIC) activities.

B. Federal Legislation

1. The Safe Drinking Water Act (SDWA)

This Act, Public Law (PL) 99-339, 42 U.S. Code (USC) 201, 300(f)-300(j)(25), 6939(b), 6979(a), 6979(b), 7401-7402, etc., is the Federal legislation which regulates the safety of drinking water in the country. Each department, agency, and instrument of the executive, legislative, and judicial branches of the Federal government having jurisdiction over any potential source of contaminants identified by a state program must be subject to and observe all

requirements of the state program applicable to such potential source of contaminants, both substantive and procedural, in the same manner, and to the same extent, as any other person, including payment of reasonable charges and fees (42 USC 300(h)-7(h)) [Please note that this revision of the *Generic Protocol for Conducting Environmental Audits of Federal Facilities* does not include the 1996 amendments to the Safe Drinking Water Act.]

If a Federal agency has jurisdiction over any federally owned or maintained public water system, or is engaged in any activity resulting, or which may result in, underground water injection which endangers drinking water, it is subject to, and must observe, any Federal, state, and local regulations, administrative authorities, and process and sanctions respecting the provision of safe drinking water and respecting any underground injection program in the same manner, and to the same extent as any nongovernmental entity. This requirement applies (42 USC 300(j)-6(a)):

a. To any rules, substantive or procedural (including any recordkeeping or reporting, permits, and other requirements);

b To the exercise of any Federal, state, or local authorities; and

c. To any process or sanction, whether enforced in Federal, state, or local courts or in any other manner.

National primary drinking water regulations apply to each public water system in each state. However, such regulations do not apply to a public water system (42 USC 300(g)):

a. Which consists only of distribution and storage facilities (and does not have any collection and treatment facilities).

b. Which obtains all its water from, but is not owned or operated by, a public water system to which such regulations apply;

c. Which does not sell water to any person; and

d. Which is not a carrier which conveys passengers in interstate commerce.

2. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Regulations

States have primary responsibility to enforce compliance with national primary drinking water standards and sampling, monitoring, and notice requirements in conformance with 40 CFR Part 141. EPA executes the enforcement responsibilities until individual state programs are approved.

States that have primacy may establish drinking water regulations, monitoring schedules and reporting requirements more stringent than, or in addition to, those in the Federal regulations. Generally speaking, most states who have primacy adopt drinking water regulations which closely reflect the Federal requirements. Almost all states have achieved authorization from EPA to administer drinking water compliance programs including Underground Injection Control (UIC) programs. Some states also require certification of operators of public water systems. Furthermore, some states require operators to receive approval of plans and specifications prior to constructing or modifying a public drinking water system.

D. Key Compliance Requirements

1. Plans and Records

The drinking water facility manager must keep records of actions taken to correct or repair any part of the treatment and distribution system for at least three years. Plans for water system modifications should be reviewed. Facilities are required to survey public water systems and maintain records of those reviews (MP, 40 CFR 141.21(d) and 141.33(b)).

2. Physical Requirements for Drinking Water Systems

There will not be any cross-connection, open or potential, between a system furnishing potable water and a system furnishing nonpotable water. All water systems shall install and operate optimal corrosion control treatment and/or comply with corrosion control requirements specified by the state (40 CFR 141 80(d)).

3. Maximum Contaminant Level (MCL) Standards

Drinking water is to be supplied from sources approved by Federal, state, or local health authorities, or treated to specific standards. Community water systems, noncommunity water systems, except as defined under exempted water systems, and community and nontransient, noncommunity water systems are required to meet specific MCLs for organic, inorganic, and microbiological contaminants. These are outlined in Appendices 12-1 and 12-2 (40 CFR 141.11(a) through 1141.11(c), 141.12, 141.15, 141.16(a), and 141.60 through 141.63).

4. Monitoring

The monitoring schedule and what constituents are to be monitored is based on what type of drinking water facility is being operated. Facilities with community water systems and/or nontransient, non-community water systems are required to monitor for inorganic contaminants All public water systems are required to conduct monitoring to determine compliance for nitrate

and nitrite levels. Monitoring for Endrin is required to be done according to specific schedules. Community and non-community water systems are required to monitor for total coliforms and facilities are required to monitor for radioactivity in community water systems (40 CFR 141.21(a), 141.23, 141.24, and 141.26).

5. Total Coliform and Turbidity Sampling

Total coliform samples are required to be collected at regular intervals throughout the month except at systems that use only groundwater and serve 4900 people or fewer. Public water systems that use surface water or groundwater under the direct influence of surface water and do not practice filtration are required to collect at least one total coliform sample near the first service connection each day the turbidity level of the source water exceeds 1 Nephelometric Turbidity Unit (NTU). When a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within 24 hours of being notified of the positive result. Sampling for turbidity is required to be done at public water systems that use water obtained in whole or part from surface water sources according to a specific schedule and any excesses reported (40 CFR 141.21 and 141.22).

6. Water Analysis

Facilities with community water systems that add a disinfectant to the water are required to analyze for Total Trihalomethanes (TTHM). Suppliers of water for community public water systems are required to analyze for sodium and collect samples from representative entry points to the water distribution system and analyze for corrosivity. Bacteriological analysis of samples used to determine compliance with MCLs must be performed in a state-approved lab or by a state-approved individual (40 CFR 141.28, 141.30, 141.41 and 141.42).

7. Filtration and Disinfection

Facilities that have a public water system that uses surface water sources or groundwater sources under direct influence of a surface water source, must provide filtration as a treatment technique for microbiological contaminants which meets specific standards, provide disinfection treatment by 29 June 1993, and report specific information monthly to the state starting 29 June 1993, or when filtrating.

8. Notification and Reporting Requirements

Records of chemical analyses are required to be kept for not less than 10 years. When primary drinking water standards are exceeded, public notifications must be made. Facilities that operate public water systems must send reports to the state on any failure to comply with the applicable biological, turbidity, radioactivity, and chemical standards, and on any failure to comply with monitoring requirements that apply (40 CFR 141.31, 141.32, and 141.33(a)).

9. Lead and Copper in Drinking Water Systems

Facilities with community or nontransient, noncommunity water systems must notify their users about lead in drinking water systems and must meet specific standards for lead and copper action levels and reporting requirements when these levels are exceeded. Facilities with water systems exceeding the lead action level after the implementation of corrosion control and source

water treatment requirements are required to replace lead service lines. Monitoring for lead and copper is required to start on a specified date, be done at a specified number of sites. The facility is required to fulfill specific reporting requirements and retain onsite all the original records of sampling data, analysis, reports, surveys, letters, evaluations, state determinations, and any other pertinent documents for at least 12 years (40 CFR 141.80 through 141.90).

E. Key Compliance Definitions

1. Action Level

The concentration of lead or copper in the water specified in 40 CFR 141.80(c) which determines, in some cases, the treatment requirements that a water system is required to complete (40 CFR 141.2).

2. Best Available Technology (BAT)

The best technology treatment techniques, or other means which the administrator finds, examined for efficacy under field conditions and not solely under lab conditions that are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon (40 CFR 141.2).

3. Coagulation

A process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs (40 CFR 141.2).

4. Community Water System

A public water system that serves at least 15 service connections used by year round residents or regularly serves at least 25 year-round residents (40 CFR 141.2).

5. Contaminant

Any physical, chemical, biological, or radiological substance or matter in water (40 CFR 141.2).

6. Conventional Filtration Treatment

A series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal (40 CFR 141.2).

7. Diatomaceous Earth Filtration

A process resulting in substantial particulate removal in which (40 CFR 141.2):

a. A precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and

b. While the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

8. Direct Filtration

A series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal (40 CFR 141.2).

9. Disinfectant

Any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process that is intended to kill or inactivate pathogenic micro-organisms (40 CFR 141.2).

10. Disinfection

A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents (40 CFR 141.2).

11. Domestic or Other Non-Distribution System Plumbing Problem

A coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken (40 CFR 141.2).

12. Exempted Public Water Systems

The following are public water systems which are not required to meet the standards outlined in 40 CFR 141 (40 CFR 141.3):

- Systems which consist only of distribution and storage facilities and do not have any collection and treatment facilities;
- Systems that obtain all of their water from, but one not owned by or operated by, a public water system to which 40 CFR 141 applies;
- Systems that do not sell water to any person; and
- Systems that are not carriers that convey passengers in interstate commerce.

13. Filtration

A process for removing particulate matter from water by passage through porous media (40 CFR 141.2).

14. Flocculation

A process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means (40 CFR 141.2).

15. Gross Alpha Particle Activity

The total radioactivity due to alpha particle emissions as inferred from measurements on a dry sample (40 CFR 141.2).

16. Groundwater Under the Direct Influence of Surface Water

Refers to any water beneath the surface of the ground with:

a. Significant occurrence of insects or other macro-organisms, algae, or large-diameter pathogens such as Giardia lamblia, or

b. Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

Direct influence must be determined for individual sources in accordance with criteria established by the state (40 CFR 141.2).

17. Halogen

One of the chemical elements chlorine, bromine, or iodine (40 CFR 141.2).

18. Initial Compliance Period

The first full three year compliance period which begins at least 18 months after promulgation, except for Dichloromethane, 1,2,4-Trichlorobenzene, 1,1,2-Trichloroethane, Benzo(a)pyrene, Dalapon, Di(2-ethythexyl) adipate, Di(2-ethythexyl) phthalate, Dinoseb, Diquat, Endrin, Endothall, Glyphosate, Hexachlorobenzene, Hexachlorocyclopentadiene, Oxamyl (Vydate), Picloram, Simazine, 2,3,7,8,-TCDD (Dioxin), Antimony, Beryllium, Cyanide (as free Cyanide), Nickel, and Thallium, the initial compliance period means the first full three year compliance period after promulgation for systems with 150 or more service connections (January 1993 December 1995), and first full three year compliance period after the effective date of the regulation (January 1996 December 1998) for systems having fewer than 150 service connections (40 CFR 141.2).

19. Large Water System

In reference to lead and copper in systems, this refers to a water system that serves more than 50,000 persons (40 CFR 141.2).

20. Lead Service Line

A service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to such a lead line (40 CFR 141.2).

21. Legionella

A genus of bacteria, some species of which have caused a type of pneumonia called Legionaries Disease (40 CFR 141.2).

22. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

23. Maximum Contaminant Level (MCL)

The maximum permissible level of a contaminant in water that is delivered to any user of a public water system (40 CFR 141.2).

24. Maximum Contaminant Level Goal (MCLG)

Refers to the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are nonenforceable health goals (40 CFR 141.2).

25. Maximum Total Trihalomethane Potential

Means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after seven days at a temperature of 25°C or above (40 CFR 141.2).

26. Medium Size Water System

In reference to lead and copper in systems, this refers to a water system that serves greater than 3300 and less than or equal to 50,000 persons (40 CFR 141.2).

27. Near the First Service Connection

Means at one of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility as measured by water transport time within the distribution system (40 CFR 141.2).

28. Noncommunity Water System

A public water system that is not a community water system (40 CFR 141.2).

29. Nontransient, Noncommunity Water System

A public water system that is not a community water system and that regularly serves at least 25 of the same persons over six months per year (40 CFR 141.2).

30. Person

An individual, corporation, company, association, partnership, municipality, or state, Federal, or tribal agency (40 CFR 141.2).

31. Picocurie (pCi)

Quantity of radioactive material producing 2.22 nuclear transformations/min (40 CFR 141.2).

32. Point of Disinfectant Application

The point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff (40 CFR 141.2).

33. Point-of-Entry Treatment Device

A treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building (40 CFR 141.2).

34. Point-of-Use Treatment Device

A treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap (40 CFR 141.2).

35. Public Water System

A system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes:

- Any collection, treatment, storage, and distribution facilities under control of the operator of such system, and

- Any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

A public water system is either a community water system or a noncommunity water system (40 CFR 141.2).

36. Rem

The unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/1,000 of a rem (40 CFR 141.2).

37. Residual Disinfectant Concentration

("C" in CT calculations) is the concentration of disinfectant measured in mg/L in a representative sample of water (40 CFR 141.2).

38. Sanitary Survey

An onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water (40 CFR 141.2).

39. Sedimentation

A process for removal of solids before filtration by gravity or separation (40 CFR 141.2).

40. Slow Sand Filtration

A process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/hr (1.31 ft/hr)) resulting in substantial particulate removal by physical and biological mechanisms (40 CFR 141.2).

41. Standard Sample

The aliquot of finished drinking water that is examined for the presence of coliform bacteria (40 CFR 141.2).

42. State

The agency of the state or tribal government that has jurisdiction over public water systems. During any period when a state or tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the SDWA (42 USC 300g-2), the term "state" means the Regional Administrator of the EPA (40 CFR 141.2).

43. Supplier of Water

Any person who owns or operates a public water system (40 CFR 141.2).

44. Surface Water

All water that is open to the atmosphere and subject to surface runoff (40 CFR 141.2).

45. System with a Single Service Connection

A system which supplies drinking water to consumers via a single service line (40 CFR 141.2).

46. Total Trihalomethanes (TTHM)

The sum of the concentration in mg/L of the trihalomethane compounds rounded to two significant figures (40 CFR 141.2).

47. Trihalomethane (THM)

One of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure (40 CFR 141.2).

48. Virus

Means a virus of fecal origin which is infectious to humans by waterborne transmission (40 CFR 141.2).

49. Waterborne Disease Outbreak

The significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the appropriate local or state agency (40 CFR 141.2).

F. Records To Review

- Bacterial and chemical analyses of drinking water, including sampling dates and locations, dates of analyses, analytical methods used, and results of analyses
- Monthly operating reports (flow, chlorine residual, etc.)
- State and public notification of noncompliance with primary drinking water regulations
- Action taken by the facility to correct violations of primary drinking water regulations
- Sanitary surveys of the water system conducted by the installations/CW facility itself, a private consultant, or any local, state, or Federal agency
- Public notification of noncompliance with secondary MCL for fluoride; and
- Variance or exemption granted to the facility for its water supply system.

G. Physical Features to Inspect

- Laboratory analysis facilities;
- Drinking water treatment facility; and
- Well sites.

H. Guidance For Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All Facilities	DW.1 through DW 3	12-13
General Requirements	DW 4 through DW.6	12-14
Standards	DW 7 through DW.9	12-15
Monitoring/Sampling	DW 10 DW 11 through DW 12 DW.13 DW.14 DW 15 DW 16 DW.17 DW 18 through DW 19 DW 20 through DW 22 DW.23 through DW 24 DW.25 through DW.27 DW.28 through DW.29	12-16 12-17 12-18 12-19 12-20 12-21 12-22 12-23 12-24 12-25 12-26 23-27
Disinfecting and Filtration	DW 30 DW 31 DW 32 through DW 33 DW.34 through DW.35 DW.36 throug DW.37	12-28 12-29 12-30 12-31 12-32
Notification and Reporting	DW 38 DW.39 through DW 41	12-32 12-33
Lead and Copper in Drinking Water Systems	DW 42 through DW 43 DW 44 through DW 46 DW 47 through DW 48 DW 49 through DW 50 DW 51 through DW.53	12-34 12-35 12-36 12-37 12-38
Sole Source Aquifer	DW 54	12-39

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
All Facilities	
DW 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined. (A finding under this checklist item will have the enforcement action/identifying information as the citation.)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
DW 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist. Verify that the facility is in compliance with all applicable and newly issued regulations
DW 3 Facilities are required to comply with state and local drinking water regulations (EO 12088, Sect. 1-1 and 42 USC 300h-7(h))	Verify that the facility is abiding by state and water air quality requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include. - More stringent contaminant level requirements certification and training requirements - Water system surveys - Reporting requirements - Monitoring frequency - Use of groundwater - Use and maintenance of wells - Wellhead protection programs - Cross connection control and backflow prevention - O & M practices such as maintenance of a disinfectant residual throughout the distribution system, proper maintenance of the distribution system, proper disinfection of replaced or repaired mains, main flushing.)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
General Requirements	
DW.4. Facility must keep records of actions taken to correct or repair any part of the treatment and distribution system for at least three years (40 CFR 141.33(b)).	Determine if facility or operational changes to the water system have taken place since the previous review. Review map of complete potable water system. Verify that as-built drawings are updated to reflect changes in water supply. Determine if there have been operational changes by examining water system records. Verify that water system records are maintained for at least three years. Determine if there are recurring work programs, spare parts and supplies list, equipment calibration and maintenance history records.
DW.5. Facilities are required to survey public water systems according to a specified schedule and maintain records of those reviews (40 CFR 141.21(d) and 141 33(c)).	Verify that non-community water systems which do not collect five or more routine samples per month have undergone an initial sanitary survey by 29 June 1999 and are than surveyed every five years thereafter Verify that community water systems that collect less than five routine biological samples per month are surveyed every five years since 29 June 1994. (NOTE: Non-community water systems using only protected and disinfected groundwater are only required to conduct a survey every 10 years after the initial survey.) Verify that records of sanitary system surveys are kept for 10 years. Verify that the results of the sanitary surveys have been submitted to the state and determine whether the state has requested an alternate monitoring frequency.
DW.6. All public water systems shall install and operate optimal corrosion control treatment and/or comply with corrosion control requirements specified by the state (40 CFR 141.80(d)).	Verify that water systems are operating corrosion control systems and/or meeting state requirements.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
Standards	
DW.7 Community water systems, except as defined under exempted water systems in the definitions, are required to meet specific MCLs for inorganic and organic chemicals, fluorides, radium 226, radium-228, gross alpha particle radioactivity, beta particles and photon radioactivity from man-made radionuclides (40 CFR 141.11(a) through 141.11(c), 141.12, 141.15, and 141.16(a)).	Verify that combined radium-226 and radium-228 do not exceed 5 pCi/L Verify that gross alpha particle radioactivity does not exceed 15 pCi/L Verify that the average annual concentration of beta particles and photon radioactivity from man-made radionuclides does not produce an average dose rate equal to the total body or any internal organ greater than 4 millirems/yr. Verify that the MCL of 4.0 mg/L for fluoride is not exceeded. Verify that the MCLs outlined in Appendix 12-1 and 14-2 are met.
DW.8. Non-community water systems, except as defined under exempted water systems, will not exceed a MCL for nitrate of 10 mg/L (40 CFR 141.11(a)).	Verify that the nitrate level at non-community water systems does not exceed 10 mg/L.
DW.9. Community and non-transient, non-community water systems, except as defined under exempted water systems, are required to meet specific MCLs for organic contaminants, inorganic contaminants and microbiological contaminants (40 CFR 141.60 through 141.63).	Verify that the standards outlined in Appendix 12-1 and 12-2 are met. Verify that systems which collect at least 40 bacteriological samples per month have no more than five percent of the samples collected during a month that are total coliform positive. Verify that systems which collect less than 40 bacteriological samples per month have no more than one sample collected per month that is total coliform positive. Verify that there are no fecal coliform-positive repeat sampling or E coli positive repeat samples, or any total coliform-positive repeat samples following a fecal coliform-positive or E coli-positive routine sample.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
Monitoring/Sampling	
DW.10. Facilities with community water systems and/or non-transient, noncommunity water systems are required to meet specific monitoring requirements for inorganic contaminants (40 CFR 141 23(a))	Verify that groundwater systems: - Take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment beginning in the compliance period starting 1 January 1993 - Take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. Verify that surface water systems· - Take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment beginning in the compliance period starting 1 January 1993 - Takes each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. (NOTE. In relation to these requirements, surface water systems include systems with a combination of surface and ground sources) Verify that if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions. (NOTE: The state may reduce the total number of samples which must be analyzed by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed if the detection limit of the method used for analysis is less than one fifth the MCL and compositing is done in a laboratory.) Verify that if the concentration in a composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, a follow-up sample is analyzed within 14 days from each sampling point included in the composite and analyzed for the contaminants which exceeded one fifth of the MCL in the composite sample. (NOTE Detection limits for each analytical methods and MCLs for each inorganic contaminant are listed in Appendix 12-3.) Verify that for groundwater systems, inorganic monitoring is repeated at least once every compliance period (every three years), and samples are taken quarterly for at least two quarters if a MCL is violated. Verify that for surface water systems, inorganic sampling is repeated annually and samples are taken quarterly for at least four quarters if a MCL is violated. (NOTE: The state may issue a waiver reducing the required monitoring)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.11. Facilities with community and non-transient, non-community water systems are required to meet specific monitoring requirements for asbestos (40 CFR 141 23(b))	Verify that asbestos is monitored during the first three year compliance period of each nine year compliance cycle starting 1 January 1993 (NOTE The facility may apply to the state for a waiver of monitoring if they believe that asbestos is not an issue) Verify that if the system is vulnerable to asbestos contamination only because of corrosion of asbestos-cement pipe, one sample is taken at a tap served by asbestos cement pipe and under conditions where asbestos contamination is most likely to occur Verify that if the system is vulnerable to asbestos contamination due to both its source water supply and corrosion of asbestos-cement pipe, one sample is taken at a tap served by asbestos-cement pipe and under conditions where contamination is most likely to occur Verify that when the MCL is exceeded, monitoring is done quarterly
DW 12. Facilities with community water systems and/or non-transient, noncommunity water systems are required to meet specific monitoring requirements for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium (40 CFR 141 23(c))	Verify that monitoring is done as follows - Groundwater systems take one sample at each sampling point every three years - Surface water systems (or combined surface/ground) take one sample annually at each sampling point - When MCLs are exceeded, monitoring is done quarterly

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.13 All public water systems are required to conduct monitoring to determine compliance for nitrate and nitrite levels according to specific parameters (40 CFR 141 23(d) and 141 23(e))	Verify that the following schedules are met for monitoring of nitrate - Community and non-transient, non-community water systems served by groundwater monitor annually starting 1 January 1993 - Community and non-transient, non-community water systems served by surface water monitor quarterly starting 1 January 1993 - Transient non-community water systems monitor annually starting 1 January 1993 Verify that when the MCL for nitrate are exceeded community and non-transient, non-community water systems do repeat monitoring quarterly for at least one year following any one sample in which the concentration exceeds more than 50 percent of the MCL (NOTE. After the initial round of quarterly sampling is completed, each community and non-transient non-community system which is monitoring annually shall take the subsequent samples during the quarters which previously resulted in the highest analytical result) Verify that public water systems take one sample at each sampling point in the compliance period beginning 1 January 1993 and ending 31 December 1995 for nitrite (NOTE: After the initial sample, systems where an analytical result for nitrite is less than 50 percent of the MCL will monitor at the frequency specified by the state.) Verify that community, non-transient, non-community and transient non-community systems repeat monitoring for nitrites quarterly for at least one year after any one sample is greater than 50 percent of the MCL. Verify that systems which are monitoring annually for nitrites take each subsequent sample during the quarters which previously resulted in the highest analytical result. Verify that when nitrate or nitrite samples indicate an exceedence of the MCL, a confirmation sample is taken within 24 hours of receipt of the results. (NOTE: If the system is unable to take a confirmation sample within 24 hours, it must notify consumers of the exceedence)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 14. Monitoring for endrin is required to be done according to specific schedules (40 CFR 141.24(a) through 141 24(d))	Verify that community water systems using surface water sources have completed endrin analyses by 30 July 1993. (NOTE For community water systems, samples will be taken during the time of the year designated by the state as most likely for pesticide contamination and the analyses repeated at intervals specified by the state but no less frequently than every three years) Verify that when the MCL is exceeded the state is notified within seven days and three additional analyses are initiated within one month Verify that when an average of four analyses exceeds the MCL level, the facility reports to the state and gives notice to the public and continues to monitor at a frequency designated by the state (NOTE Instead of the initial analyses, data for surface water acquired within one year prior to 30 July 1992 and data for groundwater acquired within three years of 30 July 1992 may be substituted at the discretion of the state.)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.15 Beginning with the initial compliance period, monitoring of the contaminants listed in Table 2 of Appendix 12-1 at community and nontransient, non-community water systems is required to be done according to specific parameters (40 CFR 141 24(f)).	Verify that groundwater systems take a minimum of one sample at every entry point of the distribution system which is representative of each well after treatment. Verify that surface water systems (or combined surface/ground) take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (NOTE For both groundwater and surface water systems, each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system) Verify that if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions Verify that each community and non-transient non-community water system takes four consecutive quarterly samples for each contaminant, except vinyl chlorides (NOTE: If the initial monitoring for contaminants is completed by December 1992 and none of the contaminants listed are found, then each system shall take one sample annually starting with the initial compliance period) (NOTE· After a minimum of three years of sampling, the state may reduce the number of samples to one each compliance period) Verify that if a contaminant, except vinyl chloride, is detected at a level exceeding 0 0005 mg/L in any sample, the system monitors quarterly at each sampling point which resulted in a detection. Verify that groundwater systems which have detected one or more of the following two-carbon organic compounds, trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene monitor quarterly for vinyl chlorides at each sampling point at which one or more of the two-carbon organic compounds was detected Verify that when the MCLs are exceeded, monitoring is conducted quarterly until the state determines that the system is reliably and consistently below the MCL

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 16 Monitoring for organic contaminants listed in Table 3 of Appendix 12-1 at community water systems and non-transient, noncommunity water systems is required to be done according to specific parameters (40 CFR 141 24(h))	Verify that groundwater systems take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment. Verify that surface water systems (or surface/ground) take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (NOTE· For both groundwater and surface water systems, each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system) Verify that if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions. Verify that each community and non-transient, non-community water system takes four consecutive quarterly samples for each contaminant during each compliance period starting 1 January 1993 (NOTE Systems serving more than 3,300 persons which do not detect a contaminant in the initial compliance period may reduce sampling to two quarterly samples in one year during each repeat compliance period.) (NOTE Systems serving less than or equal to 3,300 person that do not detect a contaminant in the initial compliance period may reduce sampling to one sample during each repeat compliance period.) Verify that when an organic contaminant is detected (see Appendix 12-4), the system monitors quarterly at each sampling point that resulted in a detection Verify that if monitoring results in detection of one or more of aldicarb, aldicarb sulfone, aldicarb sulfoxide, and heptachlor, heptachlor epoxide then subsequent monitoring analyzes for all related contaminants (NOTE The state may reduce the number of samples required and/or the frequency of sampling.)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.17. Community and non-transient, noncommunity water systems are required to monitor for specific organic and inorganic contaminants (40 CFR 141.35 and 141 40(a) through 141.40(m))	Verify that monitoring is being done for the following contaminants. Chloroform; Bromodichloromethane; Bromoform, Chlorodibromomethane, Chlorobenzene; m-Dichlorobenzene; 1,1-Dichloropropene, 1,1-Dichloroethane; 1,1,2,2-Tetrachloroethane, 1,3-Dichloropropane; Chloromethane, Bromomethane, 1,2,3-Trichloropropane, 1,1,1,2-Tetrachloroethane, Chloroethane, 2,2,-Dichloropropane; o-Chlorotoluene, p-Chlorotoluene; Bromobenzene, 1,3-Dichloropropene Verify that surface water systems sample at points in the distribution system that are representative of each water source or at entry point to the distribution system after any application of treatment Verify that for surface water systems, the minimum number of samples taken is one year of quarterly samples per water system. Verify that groundwater systems sample at points of entry to the distribution system, representative of each well after any application of treatment. Verify that for groundwater systems the minimum number of samples taken is one sample taken per entry point to the distribution system. Verify that initial monitoring was done by the dates specified in the following, and that all community and non-transient, non-community water systems repeat the monitoring every five years after the specified dates: Number of persons served — Monitoring to Begin No Later Than: Over 10,000 — 1 January 1988 3300 to 10,000 — 1 January 1989 less than 3300 — 1 January 1991 (NOTE: Public water systems may use monitoring data collected any time after 1 January 1983 to meet the requirements for unregulated monitoring, provided the monitoring program was consistent with these requirements. Additionally the results of EPA's Groundwater Supply Survey may be used in a similar manner for systems supplied by a single well.) (NOTE: The state may require monitoring of additional contaminants.) (NOTE: Instead of doing the monitoring required here, a community water system or non-transient, non-community water system serving fewer than 150 service connections may send a letter to the state by 1 January 1991 stating that the system is available for sampling.) Verify that the facility notifies the systems users of the availability of the results of sampling. Verify that the facility sends copies of the monitoring results within 30 days after public notification

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.18 Monitoring of specific contaminants must be completed by 31 December 1995 (40 CFR 141 35 and 141.40(n))	Verify that the substances listed in Appendix 12-5 are monitored for by 31 December 1995 Verify that each community and non-transient, non-community water systems takes four consecutive quarterly samples for the unregulated organic contaminants listed in Appendix 12-5 at each sampling point and reports the results to the state Verify that each community and non-transient non-community water system takes one sample at each sampling points for the unregulated inorganic compounds listed in Appendix 12-5 and reports the results to the state Verify that groundwater systems take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment and that each sample is taken from the same sampling point unless conditions make another sampling point more representative of each source or treatment. Verify that surface water systems, including systems with a combination of surface and ground sources, take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment and that each sample is taken from the same sampling point unless conditions make another sampling point more representative of each source or treatment Verify that if the system draws water from more than one source and the sources are combined before distribution, the system samples at the entry point to the distribution system during periods of normal operating conditions Verify that the facility notifies the systems users of the availability of the results of sampling. Verify that the facility sends copies of the monitoring results within 30 days after public notification.
DW.19 Community water systems, except as defined as exempted water systems, are required to monitor for total coliforms at a frequency based on the population served by the system (40 CFR 141.21(a)(2)).	Verify that the facility's community water systems is sampling according to the schedule in Appendix 12-6

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.20. Non-community water systems, except as defined under exempted water systems, are required to monitor for total coliforms according to a specific schedule (40 CFR 141 21(a)(3)).	Verify that non-community water systems using only groundwater (except groundwater under the direct influence of surface water) and serving 1,000 persons or less, monitors each calendar quarter the system provides water to the public. Verify that the following non-community water systems are monitoring for total coliforms according to the schedule outlined in Appendix 12-6· - Systems using only groundwater (except groundwater under the direct influence of surface water) and serving more than 1,000 persons during any month - Systems using surface water, in total or in part - Systems using groundwater under the direct influence of surface water
DW.21. Total coliform samples are required to be collected at regular time intervals throughout the month except at system which use only groundwater and serves 4,900 person or fewer (40 CFR 141 21(a)(4)).	Verify that total coliform samples are collected at regular intervals. (NOTE: Systems which use groundwater (except groundwater under the influence of surface water) and serves 4,900 persons or fewer may collect all required samples on a single day if they are being taken from different sites.)
DW.22. Public water systems that use surface water or groundwater under the direct influence of surface water that do not practice filtration are required to collect at least one total coliform sample near the first service connection each day the turbidity level of the source water exceeds 1 NTU (40 CFR 141 21(a)(5))	Verify that when the turbidity exceeded 1 NTU, total coliform samples were taken within 24 hours of the first exceedence by reviewing the records on turbidity levels

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.23. When a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within 24 hours of being notified of the positive result (40 CFR 141.21(b)(1) through 141 21(b)(4), and 141 21(e)(1))	Verify that if more than one routine sample per month is collected, at least three repeat samples are taken for each total coliform-positive sample found Verify that if one or less routine sample per month is collected, no less than four repeat samples are collected for each total coliform-positive sample found Verify that at least one of the repeat samples is collected from the sampling tap where the original total coliform positive sample was taken Verify that at least one repeat sample was taken at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. Verify that the sampling process is repeated until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms is exceeded and the state is notified Verify that all repeat samples are collected on the same day Verify that if one or more of the repeat samples is total coliform-positive, an additional set of repeat samples is collected within 24 hours of notification of the positive result Verify that if a repeat sample is total coliform-positive it is also analyzed for fecal coliforms (NOTE. The system may test for E coli instead of fecal coliforms)
DW 24 Sampling for turbidity is required to be done at public water systems which must install filtration according to a specific schedule until the time at which the systems installs filtration (40 CFR 141 22)	Verify that suppliers of water for both community and non-community water systems sample for turbidity at a representative entry point to the water distribution system at least once daily Verify that when the turbidity levels are exceeded immediate resampling is done Verify that the state is notified within 48 hours (NOTE These systems must monitor for turbidity according to 40 CFR 141 73 and 141 74)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 25 Facilities are required to monitor for radioactivity in community water systems (40 CFR 141.26).	Verify that compliance for standards of gross alpha particle activity, radium-226 and radium-228 are based on an annual composite of four consecutive samples that are obtained at quarterly intervals or the average of the analyses of four samples obtained at quarterly intervals (NOTE· A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis if the measured gross alpha particle activity does not exceed 5 pCi/L at a confidence level of 95 percent) Verify that when the gross alpha particle activity exceeds 5 pCi/l the same or an equivalent sample is analyzed for radium-226 and if the concentration of radium-226 exceeds 3 pCi/L, the same or equivalent sample is analyzed for radium-228. Verify that suppliers of water monitor for gross alpha particle activity, radium-226 and radium-228 every four years and within one year of the introduction of a new water source for a community water system (NOTE The state has the power to order additional samples, waive required samples and impose additional requirements.) Verify that if the MCL for gross alpha particle activity or total radium is exceeded and the facility is the supplier of a community water system, the installation notifies the state and the public of the exceedence Verify that systems using surface water sources and serving more than 100,000 persons are initially monitored quarterly for compliance with man-made radioactivity limitations and after the initial analysis, monitoring is done at least every four years Verify that suppliers of any community water system using waters contaminated by nuclear facilities initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.
DW.26 Facilities with community water systems that add a disinfectant to the water are required to analyze for TTHM (40 CFR 141 30)	(NOTE: The minimum number of samples that is required is based on the number of treatment plants used by the system) Verify that community water systems serving a population of 10,000 or more individuals that adds a disinfectant to the water and uses surface water sources or only groundwater sources analyze for total TTHM on a quarterly basis on at least four samples
DW.27. Suppliers of water for community public water systems are required to analyze for sodium (40 CFR 141 41)	Verify that one sample is taken per plant at the entry point of the distribution system annually for systems using surface water in whole or in part and every three years for systems using solely groundwater sources Verify that the results of the sampling were reported to the EPA and/or state within 10 days following the end of the required monitoring period or within the first 10 days of the month following the month in which the sample was taken.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 28 Suppliers of water for community water systems shall collect samples from representative entry points to the water distribution system and analyze for corrosivity (40 CFR 141 42)	Verify that the supplier collects two samples per plant for analyses for each plant using surface water sources wholly or in part Verify that the samples are taken one in mid-winter and one during mid-summer Verify that one sample per plant is collected for each plant using groundwater sources (NOTE Determination of corrosivity includes measurement of pH, calcium, hardness, alkalinity, temperature, total dissolved solids, and calculation of the Langelier Index) Verify that the results for the analyses of corrosivity are reported to the EPA and/or state within the first 10 days of the month following the month in which the sample results were received (NOTE The state might require monitoring for additional parameters which may indicate corrosivity, such as sulfates and chlorides)
DW.29 Analysis for inorganic chemicals volatile organic contaminants, pesticides, and bacteria to determine compliance with MCLs must be performed in a state-approved laboratory or by a state-approved individual (40 CFR 141.23(k)(5), 141 24(f)(17), 141.24(l)(19), and 141.28).	Verify that laboratory is approved by reviewing documentation of state certification for laboratory analysis

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
Disinfection And Filtration	
DW.30 Facilities that have a public water system that uses surface water sources or groundwater sources under direct influence of a surface water source must provide filtration as a treatment technique for microbiological contaminants unless certain criteria are met (40 CFR 141.71(a) and 141 71(b))	(NOTE. Public water systems that use a groundwater source under the direct influence of surface water are not required to meet these conditions to avoid filtration until 18 months after the state has determined that the system is under the direct influence of surface water.) Verify that filtration of drinking water is performed unless all of the following conditions for surface water are met· - The fecal coliform concentration is less than or equal to 20/100 mL or total coliform concentration is equal to or less than 100/100 mL in representative samples of the source water immediately prior to the first or only point of disinfectant application in at least 90 percent of the measurements made in the last six months that the system served water to the public on an ongoing basis - The turbidity level does not exceed 5 NTU in representative samples of the source water immediately prior to the first or only point of disinfectant application the unless state determines otherwise and there has not been more than two events in the past 12 months the system served water to the public or more than five events in the past 120 months the system served water to the public Verify that filtration of drinking water is done unless all the following site specific conditions are met· - Meets the requirements of 40 CFR 141 72(a)(1) for disinfection treatment of Giardia lamblia for at least 11 of the 12 previous months - Meets 40 CFR 141 72(a)(2) through 141 72(a)(4) at all times - Maintains a watershed control program for Giardia lamblia in the source water, including. -- identification of watershed characteristics -- monitoring occurrence of activities that have adverse effects -- demonstrates through ownership and/or written agreements that the control of adverse effects of human activities are regulated -- submits annual reports to the state -- subject to annual onsite inspection by the state or a party approved by the state, to assess watershed control program -- has not been identified as a source of waterborne disease or threat or has been modified sufficiently to prevent recurrence - Complies with MCL for total coliforms as defined in 40 CFR 141 63 for at least 11 of the previous 12 months (see Appendix 12-1) - Complies with requirements for trihalomethanes as listed on 40 CFR 141 12 and 141 13 (see Appendix 12-1)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 31. Systems that do not meet the criteria necessary for exclusion from filtration for public water systems that use a surface water source or a groundwater source under the direct influence of surface water must provide filtration that meets specific standards by 29 June 1993, or within 18 months after being required to provide filtration, whichever is later (40 CFR 141.73 and 141.74(c)(2)).	Verify that if conventional or direct filtration is used the following are met· - A turbidity level of 0 5 NTU or less in 95 percent of measurements taken each month - The turbidity level of representative samples of filtered water at no time exceeds 5 NTU Verify that if slow sand filtration is used the following are met: - The turbidity level of representative samples of a systems filtered water is 1 NTU or less in 95 percent of the monthly measurements - The turbidity level of representative samples of a systems filtered water at no time exceeds 5 NTU Verify that if diatomaceous earth filtration is used the following is met. - The turbidity level of representative samples of a systems filtered water is less than or equal to 1 NTU in at least 95 percent of the measurements taken each month - The turbidity level of representative samples of a systems filtered water at no time exceeds 5 NTU. Verify that if other filtration technologies are used, they have been approved by the state Verify that, starting 29 June 1993, or when filtration is installed, turbidity measurements are performed on representative samples of the systems filtered water every four hours that the system serves water to the public. Verify that as of 29 June 1993, or whenever filtration is installed, the residual disinfectant concentration of water entering the distribution system is monitored continuously and the lowest value recorded each day Verify that if there is a failure in the continuous monitoring equipment, grab sampling is done every four hours (NOTE Grab sampling can be done for no more than five working days following the failure of the continuous monitoring system) (NOTE Systems serving 3300 or fewer person can use grab sampling instead of continuous monitoring if the following daily frequencies are met System size by population — Samples/day 500 or less — 1 501 to 1,000 — 2 1,001 to 2,500 — 3 2,501 to 3,300 — 4 Verify that any time the residual disinfectant concentration falls below 0 2 mg/L in a system using grab sampling, the system takes a grab sample every four hours until the residual disinfectant concentration is equal to or greater then 0.2 mg/L Verify that the residual disinfectant concentration is measured at least at the same points in the distribution system and at the same time as total coliforms are sampled.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 32. Facilities with public water systems that use a surface water source or a groundwater source under direct influence of a surface water source that is not required to provide filtration are required to provide disinfection treatment by 30 December 1991 (40 CFR 141 72(a))	Verify that the following requirements for disinfection are met: - It ensures 99.9 percent (3-log) inactivation of Giardia lamblia cysts every day except for once per month by meeting the required CT applicable to the systems particular drinking water parameters as outlined in 40 CFR 141.74 - It ensures 99 99 percent (4-log) inactivation of virus every day except for once per month by meeting the required CT applicable to the systems particular drinking water parameters as outlined in 40 CFR 343 74 - The CT values are calculated daily as specified in 40 CFR 141.74(b)(3) - Throughout the disinfection system there is either -- automatic startup and alarm for insuring continuous disinfection application while water is delivered through the distribution system -- automatic shutoff when there is less than 0.2 mg/L residual disinfectant - The residual disinfectant concentration in water entering distribution system is not less than 0.2 mg/L for more than four hours - The residual disinfectant concentration, measured as total chlorine, combined chlorine, or chlorine dioxide is not undetectable in more than 5 percent of samples each month for more than two consecutive months. (NOTE: Water in a distribution system with a heterotrophic bacteria concentration less than or equal to 500 mL, measured as Heterotrophic Plate Count (HPC) is deemed to have a detectable disinfectant residual.)
DW.33. Facilities with public water systems that use a surface water source or a groundwater source under direct influence of a surface water source that provide filtration or that are required by the state to install filtration must meet specific disinfection requirements by 29 June 1993 or within 18 months of being required to install filtration (40 CFR 141.72(b) and 141.73).	Determine if the facility provides filtration for drinking water Verify that the following requirements for disinfection are provided: - It ensures 99.9 percent (3-log) inactivation of Giardia lamblia cysts - It ensures 99.99 percent (4-log) inactivation of viruses - The residual disinfectant concentration in water entering distribution system is not less than 0.2 mg/L for more than four hours. - The residual disinfectant concentration throughout the distribution system is not undetectable in more than five percent of samples each month for any two months the system serves water to the public - Analytical methods as specified in 40 CFR 141.74 are used to demonstrate compliance with the requirements for filtration and disinfection. (NOTE· Systems which filter are given an inactivation credit dependant on the type of filtration used.)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.34 Facilities with public water systems that use a surface water source and do not provide filtration are required to report specific information monthly to the state beginning 31 December 1990 (unless the state has determined that filtration is not required) until filtration is in place (40 CFR 141 75(a))	Verify that the following listed information is reported to the state at the indicated times: - Source drinking water information within 10 days after the end of each month the system serves water to the public - Disinfection information within 10 days after the end of each month the system serves water to the public - A report summarizing compliance with all watershed control programs no later than 10 days after the end of each Federal Year (FY) - A report on the onsite inspection conducted during that year, unless it was conducted by the state, no later than 10 days after the end of the Federal FY - The occurrence of a waterborne disease outbreak potentially attributable to that water system as soon as possible, but no later than by the end of the next business day - When turbidity exceeds 5 NTU, as soon as possible, but no later than the end of the next business day - Any time the residual falls below 0 2 mg/L in the water entering the distribution system as soon as possible, but no later than by the end of the next business day. (NOTE See the complete text of 40 CFR 141 75(a) for more details on how this information is to be reported)
DW 35. Facilities with public water systems that use a groundwater source under the direct influence of surface water and does not provide filtration treatment must report specific information to the state monthly starting 31 December 1990, or six months after the state determines that the groundwater source is under the direct influence of surface water, whichever is later (40 CFR 141.75(a)).	Verify that the following listed information is reported to the state at the indicated times. - Source drinking water information within 10 days after the end of each month the system serves water to the public - Disinfection information within 10 days after the end of each month the system serves water to the public - A report summarizing compliance with all watershed control programs no later than 10 days after the end of each Federal FY - A report on the onsite inspection conducted during that year, unless it was conducted by the state, no later than 10 days after the end of the Federal FY - The occurrence of a waterborne disease outbreak potentially attributable to that water system as soon as possible, but no later than by the end of the next business day - When turbidity exceeds 5 NTU, as soon as possible but no later than the end of the next business day - Any time the residual falls below 0.2 mg/L in the water entering the distribution system as soon as possible, but no later than by the end of the next business day (NOTE: See the complete text of 40 CFR 141.75(a) for more details on how this information is to be reported.)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW 36. Facilities with public water systems that use a surface water source or a groundwater source under the direct influence of surface water that provide filtration must report specific information monthly to the state starting 29 June 1993 or when filtration is installed, whichever is later (40 CFR 141 75(b))	Verify that by 29 June 1993, or whenever filtration is installed, the following information is provided to the state in the indicted time frame· - Turbidity measurements within 10 days after the end of each month the system serves water to the public - Disinfection information within 10 days after the end of each month the system serves water to the public - Notice of an occurrence of a waterborne disease outbreak, as soon as possible but no later than by the end of the next business day - When the turbidity exceeds 5 NTU, as soon as possible, but no later than the end of the next business day - Any time the residual falls below 0 2 mg/L in the water entering the distribution system, as soon as possible, but no later than by the end of business the next day (NOTE: See the complete text of 40 CFR 141 75(b) for more details on how this information is to be reported)
DW.37 EPA has set certain standards for analytic procedures that must be used and followed to demonstrate compliance with disinfection and filtration requirements (40 CFR 141.74)	Verify that analytic methods as specified in 40 CFR 141 74 are used to demonstrate compliance with the requirements for filtration and disinfection
Notification and Reporting Requirements	
DW 38 Public water systems are required to maintain on the premises, or at a convenient location specific records (40 CFR 141.33(a), 141 33(b) and 141.33(d))	Verify that records of bacteriological analyses are kept for a minimum of five years. Verify that records of chemical analyses are kept for a minimum of 10 years. Verify that records of actions taken to correct violations of primary drinking water regulations are kept for a minimum of three years after the last action taken for a particular violation. Verify that records concerning a variance or exemption granted to the system are kept for a period ending not less than five years following the expiration of the variance or exemption.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.39 When primary drinking water standards are exceeded, public notifications must be made (40 CFR 141 32)	Verify that if there was an excess, the following public notification procedures were followed - Notices were placed in a daily newspaper of general circulation in the area served by the system as soon as possible, but no later than 14 days after the violation or failure - Notices were placed in a weekly newspaper of general circulation if there is no daily newspaper - Notices were issued by mail delivery, by direct mail or with the water bill, or by hand delivery within 45 days after the violation or failure. (NOTE The state may waive mail or hand delivery if it is determined that the violation or failure is corrected within the 45 day period.) Verify that if it was an acute violation, the public radio and TV stations were notified. Verify that if public notification was made, it was made according to EPA guidelines Verify that following the initial notice, additional notice is given at least once every three months by mail delivery, or by hand delivery, for as long as the violation exists (NOTE· Instead of the requirements outlined here, community water systems in an area that is not served by a daily or weekly newspaper of general circulation must give notice by hand delivery or by continuous posting in conspicuous places within the area served by the system. Notice must be given within 72 hours for acute violations and 14 days for other violations)
DW 40. Community water systems that exceed the secondary MCL of 2.0 mg/L for fluoride but not the MCL of 4 0 mg/L are required to notify specific individuals (40 CFR 143.5)	Verify that notice has been provided to the following - All billing units annually - All new billing units at the time service begins - The state public health officer (NOTE A copy of the text of the notice is found in 40 CFR 243.5(b))
DW 41 Facilities that operate public water systems must send reports to the state on any failure to comply with applicable biological, turbidity, radioactivity, and chemical standards, and on any failure to comply with monitoring requirements that apply (40 CFR 141 31)	Verify that, in general, reports are sent within the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period whenever standards are not met Verify that the facility reported failure to comply with any national primary drinking water regulations to the state within 48 hours.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
Lead and Copper in Drinking Water Systems	
DW.42. The use of pipe, solder, or flux that contains lead is not allowed in specific situations (40 CFR 141.43(a)(1) and 141.43(d)).	Verify that lead pipe, solder, or flux is not used in the installation or repair of either of the following: - Any public water system - Any plumbing in a residential facility providing water for human consumption which is connected to a public water system (NOTE This does not apply to leaded joints necessary for the repair of cast iron pipes) (NOTE: Lead-free is defined as not more than 0.2 percent content for solders and flux and not more than 8 0 percent lead in reference to pipes and pipe fittings.)
DW 43. Community waters systems and each non-transient, non-community water systems were required to issue a notice by 19 June 1988 to persons served by the system that might be affected by lead contamination (40 CFR 141.34 and 141.43(a)(2)).	Verify that the notice was issued by one of the following methods: - Three newspaper notices - A notice included with the water bill - A hand delivered notice (NOTE For non-transient, non-community water systems notice may be given by continuous posting.) (NOTE: The notice is not required if the system can demonstrate to the state that the water system, including the non-residential and residential portion connected to the water system, are lead free) (NOTE· Notice must be provided even if there is no violation of the national primary drinking water standards The required wording of the notice is outlined in 40 CFR 141.34)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.44. Facilities with community or non-transient, non-community water systems must notify their users about lead in drinking water systems (40 CFR 141 85 and 141 91(f))	Verify that public education materials are distributed in the following manner when a water system exceeds the lead action level based on tap water samples: - The material is in the appropriate languages where languages other than English are spoken by a significant proportion of the population - Within 60 days after exceeding the lead action level -- notices are insert in each customer's water utility bill -- information is provided to the editorial departments of the major daily and weekly newspapers circulated in the community -- pamphlets or brochures are delivered to pertinent facilities, organizations, schools and medical centers -- public service announcements are submitted to at least five of the radio and television stations broadcasting to the community Verify that the notification tasks are repeated every six months for as long as a community water system exceeds the lead action level Verify that a non-transient, non-community water system delivers the public education materials by posting informational posters and distributing brochures Verify that a non-transient, non-community water system repeats distribution of information at least once each calendar year in which the system exceeds the lead action level (NOTE The text of written materials and broadcast materials can be found in 40 CFR 141 85(a) and 141 85(b)) Verify that by December 31st any water system that has had to issue public education materials submits a letter to the state indicating that the system has delivered the public education materials as required each year that the levels are exceeded
DW 45. Community water systems and nontransient, non-community water systems are required to meet specific standards for lead and copper action levels and reporting requirements when these levels are exceeded (40 CFR 141.80(a)(1), 141 80(c), 141 80(e), 141 86(b) and 141 90(e))	Verify that the concentration of lead does not exceed 0 015 mg/L in more than 10 percent of tap water samples collected during any monitoring period. Verify that the concentration of copper does not exceed 1 3 mg/L in more than 10 percent of tap water samples collected during any monitoring period
DW 46. All water systems are required to install and operate optimal corrosion control (40 CFR 141.80(d))	Verify that the water system has corrosion control that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any of the national primary drinking water standards (NOTE See 40 CFR 181 and 40 CFR 183 for design details for corrosion control systems in relationship to the size of the water system)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.47. Systems that exceed the lead or copper action level are required to implement applicable source water treatment standards (141 80(e) and 141 83).	Verify that systems exceeding the lead or copper action level do lead and copper source water monitoring and make a treatment recommendation to the state within six months after exceeding the lead or copper action rate. Verify that if the state requires the installation of source water treatment, the installation is done within 24 months after the state's initial response. Verify that follow-up tap water monitoring and source water monitoring is completed within 36 months after the states initial response.
DW 48. Facilities with water systems exceeding the lead action level after implementation of corrosion control and source water treatment requirements are required to replace lead service lines (40 CFR 141.80(f) and 141 84).	Verify that lead service line replacement is done according to the schedules and parameters outlined in 40 CFR 141.84. (NOTE A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line is less than 0.015 mg/L.) (NOTE: Replacement of lead service lines can stop when the first draw samples that are collected meet the lead action levels during two consecutive monitoring periods and the system submits the results to the state.)

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.49. Monitoring for lead and copper is required to start on a specified date and be done at a specified number of sites according to the chart in Appendix 12-7 (40 CFR 141 80(g), 141 86(a)(1), 141.86(c), and 141.86(d)).	Verify that sample sites have been selected and sampling started as of the dates indicated in Appendix 12-7. Verify that monitoring is done according to the schedules outlined in 40 CFR 141.86 and as required by the state Verify that the procedures for sampling and granting of variances found in 40 CFR 141 86 are followed. Verify that for the initial tap sample, all large water systems monitor during two consecutive six month periods and all small and medium-size water systems monitor during each six month period until - The system exceeds the lead or copper action levels and is then required to implement corrosion control treatment - The system meets the lead and copper action levels during two consecutive six month monitoring periods. (NOTE: A small or medium-sized water system that meets the lead and copper action levels during each of two consecutive six month monitoring periods can reduce the frequency of sampling to once a year If action levels are met during three consecutive years of monitoring, the frequency may be reduced to once every three years.) Verify that for monitoring after the installation of corrosion control and source water treatment, large systems with optimal corrosion control by 1 January 1997 monitor during two consecutive six month periods by 1 January 1988 Verify that for monitoring after the installation of corrosion control and source water treatment, small or medium-size systems that install optimal corrosion control within 24 months after being required to do so by the state, monitor during two consecutive six month periods within 36 months after being required to install optimal corrosion control treatment. Verify that for monitoring after the installation of corrosion control and source water treatment required by the state, all systems that install state required systems monitor during two consecutive months within 36 months after the initial state requirement Verify that after the state has specified drinking water parameter values for optimal corrosion control that monitoring is done during each subsequent six month monitoring period beginning when the state specified the optimal values
DW 50. All large water systems and all small and medium size systems that exceed the lead or copper action level are required to monitor for drinking water parameters in addition to lead and copper (40 CFR 141 40(h) and 141 87)	Verify that monitoring for drinking water parameters is done according to Appendix 12-8.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
DW.51. Water systems that fail to meet the lead or copper action levels are required to meet specific monitoring requirements (40 CFR 141.80(h) and 141.88)	Verify that systems that exceed lead or copper action levels at the tap collect one source water sample from each entry point to the distribution system within six months after the exceedence. Verify that systems which install source water treatment as required by the state collects an additional source water sample from each entry point to the distribution system during two consecutive six month monitoring periods. Verify that the system monitors as follows when the state specifies maximum permissible source water levels. - Once during the three year compliance period for water systems using only groundwater - Annually for water systems using surface water or a combination of surface and groundwater. (NOTE Frequency of monitoring may be reduced by the state upon request.)
DW 52. In reference to lead and copper in water systems, all water systems are required to fulfill specific reporting requirements (40 CFR 141.90(a) and 141.90(b)).	Verify that waste systems report sampling results for all tap water samples within the first 10 days following the end of each monitoring period. Verify that water systems report the sampling results for all source water samples within the first 10 days following the end of each source water monitoring period.
DW 53. All systems subject to the lead and copper requirements are required to retain onsite all the original records of sampling data, analysis, reports, surveys, letters, evaluations, state determinations, and any other pertinent documents for at least 12 years (40 CFR 141.80(j), 141.91).	Verify that records are kept onsite for at least 12 years.

Compliance Category: Drinking Water Management	
Regulatory Requirements	**Reviewer Checks**
Sole Source Aquifer	
DW 54 Projects that may affect the recharge zone or stream flow source zone of a designated sole source aquifer are regulated (40 CFR 149 103 and 149 104)	(NOTE· Currently the only federally designated sole source aquifer is the Edwards Aquifer in the San Antonio, Texas area) Determine if the facility is located near a designated sole source aquifer Verify that the facility maintains a list of projects for which environmental impact statements will be prepared. Verify that if any projects may potentially cause direct or indirect contamination through its recharge zone a petition has been submitted to the EPA Regional Administrator

Section 12

Drinking Water Management

Appendices

Appendix 12-1
Primary Drinking Water Standards for Organic Contaminants

Table 1
Maximum Contaminant Levels Applicable to Community Water Systems
(40 CFR 141.12)

Contaminant	Mg/L
Total Trihalomethanes (TTHM) (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform) and trichloromethane (chloroform)	0.10

(NOTE The standard for TTHM only applies to community water systems serving greater than 10,000 individuals which add a disinfectant during treatment)

Appendix 12-1 *(continued)*
Primary Drinking Water Standards for Organic Contaminants

Table 2
Maximum Contaminant Levels Applicable to Community and Non-Transient, Non-Community Water Systems (40 CFR 141.61(a))

Contaminant	Mg/L
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.20
1,2-Dichloroethane	0 005
1,2-Dichloropropane	0.005
Benzene	0.005
Carbon Tetrachloride	0 005
cis-1,2-Dichloroethylene	0 07
Ethylbenzene	0 7
Monochlorobenzene	0 1
0-Dichlorobenzene	0.6
para-Dichlorobenzene	0 075
Styrene	0.1
Tetrachloroethylene	0 005
Toluene	1.0
trans-1,2-Dichloroethylene	0 1
Trichloroethylene	0.005
Vinyl chloride	0 002
Xylenes (total)	10.0
Dichloromethane	0 005*
1,2,4-Trichlorobenzene	.07*
1,1,2-Trichloroethane	.005*

* The effective date for these MCLs is 17 January 1994

Appendix 12-1 ***(continued)***
Primary Drinking Water Standards for Organic Contaminants

Table 3
Maximum Contaminant Levels For Synthetic Organic Contaminants Applicable to Community Water Systems and Non-Transient, Non-Community Water Systems (40 CFR 141.61(c))

Contaminant	Mg/L	Contaminant	Mg/L
Alachlor	0 002	2,4,5-TP	0 05
Aldicarb	0 003**	Benzo(a)pyrene	0 0002*
Aldicarb sulfoxide	0 004**	Delapon	0 2*
Aldicarb sulfone	0.003**	Di(2-ethythexyl) adipate	0 4*
Atrazine	0 003	Di(2-ethythexyl) phthalate	0.006*
Carbofuran	0.04	Dinoseb	0.007*
Chlordane	0.002	Diquat	0 02*
Dibromochloropropane	0 0002	Endothall	0 1*
2,4-D	0 07	Endrin	0 002*
Ethylene dibromide	0.00005	Glyphosate	0 7*
Heptachlor	0 0004	Hexachlorobenzene	0.001*
Heptachlor epoxide	0.0002	Hexachlorocyclopentadiene	0.05*
Lindane	0.0002	Oxamyl (Vydate)	0 2*
Methoxychlor	0 04	Picloram	0 5*
Pentachlorophenol	0.001	Simazin	0.004*
Polychlorinated biphenyls	0.0005	2,3,7,8,-TCDD (Dioxin)	3 x 10*
Toxaphene	0 003		

*The effective date for these MCLs is 17 January 1994
**The MCLs for these substances have been postponed by the USEPA

Appendix 12-2
Primary Drinking Water Standards for Inorganic Contaminants

Table 1
Maximum Contaminant Levels Applicable to Community Water Systems
(40 CFR 141.11, 141.12(c) and 141.62(b)(1))

Contaminant	Mg/L
Arsenic	0 05
Fluoride	4.0
Total Trihalomethanes	0.10*

* This MCL only applies to community water systems which serve a population of 10,000 individuals or more and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process.

Table 2
Maximum Contaminant Levels Applicable to Community Water Systems and
Non-Transient, Non-Community Water Systems
(40 CFR 141.62(b)(2) through141.62(b)(6) and 141.62(b)(10) through 141.62(b)(15))

Contaminant	Mg/L
Asbestos	7 million fibers/L (longer than 10 micrometers)
Barium	2.0
Cadmium	0.005
Chromium	0.1
Mercury	0.002
Selenium	0.05
Antimony	0.006
Beryllium	0.004
Cyanide (as free Cyanide)	0.2
Nickel	0.1
Thallium	0.002

Appendix 12-2 ***(continued)***
Primary Drinking Water Standards for Inorganic Contaminants

Table 3
Maximum Contaminant Levels Applicable to Community, Non-Transient, Non-Community and Transient Non-Community Water Systems (40 CFR 141.62(b)(7) through 141.62(b)(9))

Contaminant	Mg/L
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Total Nitrate and Nitrite (as N)	10.0

Appendix 12-3
Detection Limitations for Inorganic Contaminants
(40 CFR 141.23(a))

Contaminant	MCL (mg/L)	Analytical Method	Detection Limit (mg/L)
Antimony	0 005	Atomic Absorption Furnace ICP Mass spectrometry Hydride Atomic Absorption	0 003 0 0008[6] 0 0004 0 001
Asbestos	7 million fibers/L	Transmission Electron Microscopy	0 01 million fibers/L
Barium	2 0	Atomic Absorption; furnace technique Atomic Absorption; direct aspiration Inductively Coupled Plasma	0 002 0 1 0 002(0 001*)
Cadmium	0 005	Atomic Absorption; furnace technique Inductively Coupled Plasma	0 0001 0 001[1]
Chromium	0 1	Atomic Absorption, furnace technique Inductively Coupled Plasma	0.001 0 007 (0 001)*
Cyanide	0 2	Distillation,Spectrophotometric[4] Distillation, Automated, Spectrophotometric[4] Distillation, Selective Electrode[4] Distillation, Amenable, Spectrophotometric[5]	0.02 0.05 0 02
Mercury	0 002	Manual Cold Vapor Technique Automated Cold Vapor Technique	0 0002 0 0002
Nickel	0 1	Atomic Absorption, Furnace Inductively Coupled Plasma[3] ICP Mass Spectrometry	0 001 0.0006[6] 0 005 0 0005
Nitrate	10 as N	Manual Cadmium Reduction Automated Hydrazine Reduction Automated Cadmium Reduction Ion Selective Electrode Ion Chromatography	0 01 0.01 0.05 1.0 0.01
Nitrite	1 as N	Spectrophotometric Automated Cadmium Reduction Manual Cadmium Reduction Ion Chromatography	0 01 0 05 0 01 0 004
Selenium	0.05	Atomic Absorption, furnace Atomic Absorption, gaseous hydride	0 002 0.002
Thallium	0 002	Atomic Absorption Furnace ICP-Mass Spectrometry	0 001 0 0007[6] 0 0003

1 Using concentration techniques n Appendix A to EPA Method 200 7
3 Using a 2x preconcentration step as noted in Method 200 7 Lower MDLs may be achieved by using a 4x preconcentration
4 Screening method for total cyanides
5 Measures "free" cyanides
6 Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption

Appendix 12-4
Detection Limitations
(40 CFR 141.24(h)(18))

Contaminant	Detection Limit
Alachlor	0 0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0 0008
Atrazine	0 0001
Benzo[a]pyrene	0 00002
Carbofuran	0 0009
Chlordane	0.0002
Dalapon	0.001
Dibromochloropropane (DBCP)	0 00002
Di (2-ethylhexyl) adipate	0.0006
Di (2-ethylhexyl) phthalate	0.0006
Dinoseb	0 0002
Diquat	0.0004
2,4-D	0.0001
Endothall	0 009

Contaminant	Detection Limit
Endrin	0 00001
Ethylene dibromide (EDB)	0 00001
Heptachlor	0 00004
Heptachlor epoxide	0 00002
Hexachlorobenzene	0 0001
Hexachlorocyclopentadiene	0 0001
Lindane	0 00002
Methoxychlor	0 0001
Oxamyl	0 002
Picloram	0 0001
Pentachlorophenol	0 00004
Polychlorinated biphenyls	0 0001
Simazine	0.00007
Toxaphene	0 001
1,3,7,8-TCDD (Dioxin)	0 000000005
2,4,5-TP	0 0002

Appendix 12-5
Unregulated Organic and Inorganic Contaminants
(40 CFR 141.40(n)(11) and 141.40(n)(12))

Organic Contaminants
Aldrin
Butachlor
Carbaryl
Dicamba
Dieldrin
3-Hydroxycarbofuran
Methomly
Metolachlor
Metribuzin
Propachlor

Inorganic Contaminants
Sulfate

Appendix 12-6
Coliform Bacteria Sampling Frequency
(40 CFR 141.21(a)(2))

Population Served Per Month	Minimum Number of Samples Per Month
25 to 1000	1
1001 to 2500	2
2501 to 3300	3
3301 to 4100	4
4101 to 4900	5
4901 to 5800	6
5801 to 6700	7
6701 to 7600	8
7601 to 8500	9
8501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

Appendix 12-7
Monitoring and Sampling Parameters for Lead and Copper in Drinking Water (40 CFR 141.86(c) and 141.86(d))

Number of Sampling Sites Required		
System Size (people served)	No. of sites (standard monitoring)	No. of sites (reduced monitoring)
> 100,000	100	50
10,001 - 100,000	60	30
3301 - 10,000	40	20
501 - 330	20	10
101 - 500	10	5
≤ 100	5	5

Dates for the Start of Monitoring	
System Size (people served)	First 6 mo Monitoring period begins in:
> 50,000	1 Jan 1992
3301 - 50,000	1 July 1992
≤ 3300	1 July 1993

Phase 1

Section 13

PCB Management

Phase 1
Section 13
Table of Contents

PCB Management

A. Applicability 13-1
B. Federal Legislation 13-1
C. State/Local Regulations 13-2
D. Key Compliance Requirements 13-2
E. Key Compliance Definitions 13-5
F Records to Review 13-8
G. Physical Features to Inspect 13-8
H. Guidance for Checklist Users 13-9

Appendices

A13-1. PCB Label Format A13-1
A13-2. Dielectric Fluid Trend Names and Manufacturers A13-2

A. Applicability

This section is used to determine the compliance status of the management activities associated with PCBs and in-service and out-of-service PCB items.

Assessors are required to review agency, Federal, state, and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. The Toxic Substances Control Act (TSCA)

This Act, as last amended in 1986 (15 U.S. Code (USC) 2601-2671), is the Federal legislation which deals with the control of toxic substances The Act consists of three subchapters, one of which regulates the control of toxic substances (such as PCBs), another governs asbestos hazard emergency response, and another subchapter regulates indoor radon abatement. The policy developed in TSCA on chemical substances is as follows (15 USC 2601(b)):

a. Adequate data should be developed with respect to the effect of chemical substances and mixtures on health and the environment and that the development of such data should be the responsibility of those who manufacture and those who process such chemical substances and mixtures;

b. Adequate authority should exist to regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment, and to take action regarding chemical substances and mixtures, and

c. Authority over chemical substances and mixtures should be exercised in such a manner as not to impede unduly or create unnecessary economic barriers to technological innovation while fulfilling the primary purpose of this Act to assure that such innovation and commerce in such chemical substances and mixtures do not present an unreasonable risk of injury to health or the environment

Upon request by the EPA, each Federal department and agency is authorized to (15 USC 2625(a)):

a Make its services, personnel, and facilities available (with or without reimbursement) to the EPA to assist the EPA in the administration of this Act, and

b. Furnish the EPA with information, data, estimates, and statistics, and allow the EPA access to all information in its possession as the EPA may reasonably determine to be necessary for the administration of this Act

2. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Regulation

1. PCBs

According to the general structure of Federal regulatory programs, any state regulations must adopt the Federal regulations as a minimum set of requirements. In some cases, state regulations have been developed which regulate PCBs more stringently than the Federal program. State PCB regulations may provide additional regulatory requirements beyond the Federal program to address a specific concern or activity sensitive in that state. State regulations may supersede the Federal regulations in areas including the following:

a. PCBs may be regulated as a hazardous waste;

b. PCBs may be regulated to a lower concentration. For example, regulated PCBs in one state are defined to be materials and fluids which contain PCBs at a concentration greater than 7 ppm;

c. Shipments of PCBs may require manifest documents,

d. Analysis may be required to quantify the PCB concentration in all PCB items;

e. Additional inspections of select PCB items and specific disposal requirements for PCBs and PCB items may also be required; and

f. Generators of PCBs and PCB items may be required to obtain disposal permits.

D. Key Compliance Requirements

1. Personnel and PCBs

Certain regulations and practices should be followed to ensure the health of personnel who come in contact with PCBs. These include provision of protective work-clothing, shower facilities, and facilities for washing hands during shift. Airborne contaminations of PCBs should be assessed and certain precautionary practices followed to protect personnel, which

include the wearing of respirators if contamination is above a certain level. Certain records and practices should be maintained for employees exposed to PCBs, including medical histories and physical examinations emphasizing liver and skin condition.

2. PCB Equipment Marking

The following equipment is required to be marked indicating that they contain PCBs (40 CFR 761.40 and 761 45):

- PCB containers with PCBs in concentrations of 50 to 500 parts per million (ppm);
- PCB transformers (500 ppm or greater);
- PCB large high voltage capacitors;
- Equipment containing a PCB transformer (500 ppm or greater) or a PCB large high voltage capacitor at the time of removal from service;
- PCB large low voltage capacitors at the time of removal from service;
- Electric motors using PCB coolants with a concentration of 50 to 500 ppm;
- Hydraulic systems using PCB hydraulic fluid with concentrations of 50 to 500 ppm;
- Heat transfer systems (other than PCB transformers) using PCB concentrations of 50 to 500 ppm;
- PCB article containers containing any of the above;
- Each storage area used to store PCBs and PCB items for disposal;
- Transport vehicles loaded with PCB containers that contain more than 45 kg (99.4 lb) of PCBs in the liquid phase with PCB concentrations of 50 to 500 ppm or one or more PCB transformers with PCB concentrations of greater than 500 ppm· mark on each end and side, and
- Vault doors, machinery room doors, fences, hallways, or means of access, other than a manhole or grate cover, to a PCB transformer (500 ppm or greater).

3. Records for PCBs

A written annual document log must be prepared by 1 July of each calendar year, covering the previous year for all facilities that use or store at any time at least 45 kg (99.4 lb) of PCBs contained in PCB containers, or one or more PCB transformers. Owners and operators of PCB chemical waste landfills shall keep records on water analysis and operational records, including

burial coordinates for 20 years after disposal has ceased. Generators of PCBs shall keep copies of manifests and certificates of disposal for three years.

4. PCB Transformers

PCB transformers with PCBs of 500 ppm or greater that are in use or in storage for reuse, must not pose an exposure risk to food and feed and are subject to registration requirements. Combustible materials, including, but not limited to, paints, solvents, plastics, paper, and sawn wood, must not be stored by a PCB transformer. PCB transformers are required to be properly serviced, and inspections must be performed once every three months for all in-service transformers. If the transformer is found to be leaking, it must be repaired or replaced to eliminate the source of the leak. When a PCB transformer is involved in a fire, the facility is required to immediately report the incident to the National Response Center (NRC) (40 CFR 761 120(a), 761.120(b), 761.120(c), 761.123(d)(2), and 761.125)

5. PCB Spills

Facilities are required to report spills of more than 10 lb (4.56 kg) of PCBs of concentrations of 50 ppm to the EPA regional office. Spills of greater than 1 lb (0.45 kg) must be cleaned up. The criteria for cleanup is based on whether the spill is of high or low concentration of PCBs (40 CFR 761.120, 761,123, 761.125).

6. PCB Items

The use of PCBs in electromagnetic switches, voltage regulators, capacitors, heat transfer and hydraulic systems, circuit breakers, reclosers, and cable is allowed if applicable restrictions are met and precautions taken (40 CFR 761.30).

7. PCB Storage

PCBs and PCB items at concentrations greater than 50 ppm that are to be stored before disposal must be stored in a facility that will assure the containment of PCBs. Storage prior to disposal is not to exceed one year. Nonleaking and structurally undamaged PCB large, high-voltage capacitors and PCB contaminated electric equipment that have not been drained of freeflowing dielectric fluid may be stored on pallets next to a storage area that complies with the storage area requirements. Containers used for the storage of PCBs must comply with the shipping container specification of the Department of Transportation (DOT) (40 CFR 761.65)

8. PCB Transportation

A generator who offers a PCB waste for transport to commercial offsite storage or offsite disposal must prepare a manifest. If the generator does not receive a signed copy of the manifest with 35 days from the date the waste was accepted by the initial transporter, the generator must immediately contact the transporter and/or owner or operator of the designated facility to determine the status of the PCB waste (40 CFR 761.207 through 761.210, 761.215).

9. PCB Disposal

For each shipment of manifested PCB waste that a disposal facility accepts, the owner or

operator of the disposal facility must prepare a Certificate of Disposal (COD). PCB contaminated fluids of concentrations greater than 50 ppm, but less than 500 ppm, are required to be disposed of in a EPA approved incinerator, or chemical waste landfill, or a high efficiency boiler. PCB liquids and transformers with concentrations of 500 ppm or greater must be disposed of in a EPA approved PCB incinerator. PCB capacitors must be disposed of either a solid waste landfill or an approved incinerator depending on the concentration of PCBs. PCB hydraulic machines containing PCBs at concentrations greater than 50 ppm may be disposed of as municipal solid waste when drained. PCB-contaminated electrical equipment, except capacitors, shall be disposed of by draining off the free-flowing liquid. PCB articles and containers shall be disposed of in a EPA approved incinerator or chemical waste landfill if all free-flowing liquids have been removed (40 CFR 761.60, 761.218).

E. Key Compliance Definitions

1. Capacitor

A device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows (40 CFR 761.3):

- Small capacitor - a capacitor which contains less than 1.36 kg (3 lb) of dielectric fluid;
- Large high-voltage capacitor - a capacitor which contains 1.36 kg (3 lb) or more of dielectric fluid and which operates at 2000 volts (a.c. or d.c.) or above; and
- Large Low-voltage Capacitor - a capacitor which contains 1.36 kg (3 lb) or more of dielectric fluid and which operates at 2000 volts (a.c. or d.c.).

2. Chemical Waste Landfill

Landfill at which protection against risk of injury to health or the environment from mitigation of PCBs to land, water, or the atmosphere is provided from PCBs and PCB items deposited therein by locating, engineering, and operationing the landfill as required (40 CFR 761.3).

3. Commercial Storer of PCB Waste

The owner or operator of each facility that is subject to the PCB storage facility standards of 40 CFR 761.65, and who engages in storage activities involving PCB waste generated by others, or PCB waste that was removed while servicing the equipment owned by others and brokered for disposal. The receipt of a fee or any other forms of compensation for services is not necessary to qualify as a commercial storer of PCB waste. It is sufficient under this definition that the facility stores PCB waste generated by others or the facility removed the PCB waste while servicing equipment owned by others. If a facility's storage of PCB waste at no time exceeds 500 gal (1892.71 L) of PCBs, the owner or operator is not required to seek approval as a commercial storer of PCB waste (40 CFR 761.3).

4. Disposal

Intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB items (40 CFR 761.3)

5. Double Wash/Rinse

A minimum requirement to cleanse solid surfaces (both impervious and nonimpervious) two times with an appropriate solvent or other material in which PCBs are at least five percent soluble (by weight) (40 CFR 761.123).

6. Emergency Situations

For continuing use of a PCB transformer exists when (40 CFR 761.3):

a. Neither a non-PCB transformer nor a non-PCB contaminated transformer is currently in storage for reuse or readily available within 24 hours for installation, or

b. Immediate replacement is necessary to continue service for power users.

7. High Concentration PCBs

PCBs that contain 500 ppm or greater PCBs, or those materials which the EPA requires to be assumed to contain 500 ppm or greater PCBs in the absence of testing (40 CFR 761.123).

8. In or Near Commercial Buildings

Within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 meters of a non-industrial, non-substation building (40 CFR 761.3).

9. Industrial Building

A building directly used in manufacturing or technically productive enterprises (40 CFR 761.3).

10. Leak or Leaking

Any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface (40 CFR 761.3).

11. Low Concentration PCBs

PCBs that are tested and found to contain less than 500 ppm PCBs or those PCB-containing materials which EPA requires to be assumed to be at concentrations below 500 ppm (e.g., untested mineral oil dielectric fluid) (40 CFR 761.123).

12. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

13. Mark

The descriptive name, instructions, cautions, or other information applied to PCBs and PCB items, or other objects subject to these regulations (40 CFR 761.3).

14. Marking

The marking of PCB items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations (40 CFR 761 3).

15. Mineral Oil PCB Transformers

Any transformer originally designed to contain mineral oil as the dielectric fluid and which has been tested and found to contain 500 ppm or greater PCBs (40 CFR 761.3).

16. Non-PCB Transformers

Any transformer that contains less than 50 ppm PCB except any transformer that has been converted from a PCB transformer or a PCB-contaminated transformer cannot be classified as a non-PCB transformer until reclassification has occurred in accordance with the requirements of 40 CFR 761.30(a)(2)(v) (40 CFR 761.3).

17. PCB or PCBs

An chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance (40 CFR 761.3).

18. PCB Article

Any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. This includes capacitors, transformers, electric motors, pumps, and pipes (40 CFR 761.3).

19. PCB Article Container

Any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB articles or PCB equipment, and whose surface(s) has not been in direct contact with PCBs (40 CFR 761.3).

20. PCB-Contaminated Electrical Equipment

Any electrical equipment, including but not limited to transformers, capacitors, circuit breakers, reclosers, voltage, regulators, switches, electromagnets, and cable, that contain 50 ppm or greater PCB, but less than 500 ppm PCB (40 CFR 761.3).

21. PCB Equipment

Any manufactured item, other than a PCB container or a PCB article container, which contains a PCB article or other PCB equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures (40 CFR 761.3).

22. PCB Item

Any PCB article, PCB article container, PCB container, or PCB equipment that deliberately or unintentionally contains or has as a part of it any PCB or PCBs (40 CFR 761.3).

23. PCB Transformer

Any transformer that contains 500 ppm PCB or greater (40 CFR 761.3).

24. PCB Waste

Those PCBs and PCB items that are subject to the disposal requirements of Subpart D of 40 CFR 761 (40 CFR 761.3).

25. Posing an Exposure Risk to Food or Feed

Being in any location where human food or animal feed products could be exposed to PCBs released from a PCB item (40 CFR 761.3).

26. Retrofill

To remove PCB or PCB contaminated dielectric fluid and replace it with either PCB, PCB contaminated, or non-PCB dielectric fluid (40 CFR 761.3).

27. Rupture of a PCB Transformer

A violent or non-violent break in the integrity of a PCB transformer caused by an overtemperature and/or overpressure condition that results in the release of PCBs (40 CFR 761.3).

F. Records to Review

- Inspection, storage, maintenance, and disposal records for PCBs/PCB items;
- PCB Equipment inventory and sampling results;
- Correspondence with regulatory agencies concerning noncompliance situations;
- Annual reports;
- Spill Prevention Control and Countermeasure (SPCC) Plan;
- Manifests; and
- Certificates of Disposal.

G. Physical Features to Inspect

- PCB storage areas; and
- Equipment, fluids, and other items used or stored at the facility containing PCBs.

H. Guidance For Checklist Users

	Refer To	
	Checklist Items	**Page Numbers**
All Facilities	PCB 1 through PCB 3	13-10
PCB Management	PCB 4 PCB 5	13-11 13-12
PCB Records	PCB 6 through PCB 7 PCB 8	13-13 13-14
PCB Transformers	PCB 9 through PCB 12 PCB.13 PCB 15 through PCB 17	13-14 13-15 13-16
PCB Spills	PCB 18 through PCB 19 PCB 20	13-17 13-18
PCB Items	PCB 21 through PCB 23 PCB 24	13-19 13-20
PCBs in Research	PCB.25	13-20
PCB Storage	PCB 26 through PCB 28 PCB.29 through PCB 31	13-20 13-21
PCB Transportation	PCB 32 through PCB 33	13-22
PCB Disposal	PCB 34 PCB 35 through PCB 36 PCB 37 through PCB.39 PCB 40 through PCB 45	13-22 13-23 13-24 13-25

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
PCB 1. The current status of any ongoing or unresolved Consent rders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
PCB.2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
PCB 3. Facilities are required to comply with state and local regulations concerning PCB management (EO 12088, Sect 1-1)	Verify that the facility is abiding by state and local requirements. Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include· - Definitions of PCB-contaminated - PCB storage, labeling, and disposal requirements)

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB Management	
PCB 4 Certain equipment that contains PCBs must be marked with an ML marking (40 CFR 761 40 and 761 45)	(NOTE Marking Format Large PCB Mark (ML) letters and striping, on a white or yellow background, sufficiently durable to equal or exceed the life of the PCB Article The size shall be 15 25 cm (6 in) on each side If the article is too small to accommodate this size, a smaller label (Ms) may be used) Verify that equipment containing PCBs is marked with an ML marking that can be easily read by any person inspecting or servicing the equipment (see Appendix 13-1 for a sample of the marking) - PCB containers with PCBs in concentrations of 50 to 500 ppm - PCB transformers (500 ppm or greater) - PCB large high voltage capacitors - Equipment containing a PCB transformer (500 ppm or greater) or a PCB large high voltage capacitor at the time of removal from service - PCB large low voltage capacitors at the time of removal from service - Electric motors using PCB coolants with a concentration of 50 to 500 ppm - Hydraulic systems using PCB hydraulic fluid with concentrations of 50 to 500 ppm - Heat transfer systems (other than PCB transformers) using PCB concentrations of 50 to 500 ppm - PCB article containers containing any of the above - Each storage area used to store PCBs and PCB items for disposal - Transport vehicles loaded with PCB containers that contain more than 45 kg (99 4 lb) of PCBs in the liquid phase with PCB concentrations of 50 to 500 ppm or one or more PCB transformers with PCB concentrations of greater than 500 ppm are marked on each end and side - Vault doors, machinery room doors, fences, hallways, or means of access, other than a manhole or grate cover, to a PCB transformer (500 ppm or greater) Verify that if one or more PCB large high voltage capacitors is installed in a protected location such as a pole, structure, or behind a fence, the pole, structure, or fence is marked and a record or procedure identifying the PCB capacitor is maintained by the facility (NOTE Marking of PCB contaminated electrical equipment (50 500 ppm) is not required) (NOTE Appendix 13-2 contains a list of manufacturers that produced PCB contaminated dielectric fluid) (NOTE The annual document log should contain a list of all PCB equipment at the site)

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB.5 Generators, transporters, and disposers of PCB waste are required to have an EPA identification number (40 CFR 761 202 through 761 205).	(NOTE Some facilities are exempt from the notification requirement and do not have a specified PCB storage area as regulated by 40 CFR 761 65 and just temporarily store before they transport for disposal) Determine if the facility is a generator, transporter, or disposer of PCB waste Verify that facilities which generate PCB waste have an EPA identification number before processing, storing, dispensing, transporting, or offering for transport PCB waste. Verify that facilities which transport or dispose of PCB waste have an EPA identification number. Verify that if an facility must file, Form 7710-53, Notification of PCB Waste Activity, it was filed with EPA by 4 April 1990 and a EPA identification number was obtained

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB Records	
PCB 6 A written annual document log must be prepared by July 1 of each calendar year, covering the previous year for all facilities that use or store at any time at least 45 kg (99 4 lb) of PCBs contained in PCB containers or one or more PCB transformers (500 ppm or greater), or 50 or more PCB large, high, or low voltage capacitors (40 CFR 761 180(a))	Verify that the annual document log and annual records (manifests certificates of disposal) are kept for at least five years after the facility stops using or storing PCBs and PCB items in the listed quantities Review the written annual document log for the following - Identification of facility - Calendar year covered - Manifest number for every manifest generated - Total number (by type) of PCB articles, PCB article containers, and PCB containers placed into storage for disposal or disposed of during the calendar year - Total weight placed into storage for disposal or disposed of during the calendar year of -- PCBs in PCB articles -- contents of PCB article container -- contents of PCB containers -- bulk PCB Waste - A list of PCBs and PCB items remaining in-service at the end of the calendar year The total weight of any PCBs and PCB items in containers including identification of container contents and the total number of PCB transformers, PCB large, high- and low-voltage capacitors, and the total weight of PCBs in PCB transformers - A record of each telephone call or other form of verification to confirm the receipt of PCB waste transported by independent transport Verify that the annual document log contains the following for each manifest, for unmanifested waste, and for any PCBs or PCB items received from or shipped from another facility owned or operated by the generator - Date removed from service for disposal (first date material placed in PCB container) - Date placed into transport for offsite storage/disposal - Date of disposal (if known) - Weight of PCB Wastes -- total bulk for PCB wastes -- in each article for PCB transformers or capacitors -- total in each container for PCB containers -- total weight of contents and of the PCB article (in kg) in each PCB article container - Serial number or other unique identification number (except for bulk wastes) - Description of the contents for PCB containers and article containers Determine if the following information is provided by reviewing the annual document log: - All signed manifests generated or received at the facility during the calendar year - All CODs that have been generated or received during the calendar year
PCB 7 Owners and operators of PCB chemical waste landfills shall keep records on water analysis and operational records, including burial coordinates, for 20 years after disposal has ceased (40 CFR 761 180(d))	Verify that records on water analysis and operations are being kept for the required 20 years

Compliance Category: **PCB Management**	
Regulatory Requirements:	**Reviewer Checks:**
PCB 8 Storage and disposal facilities for PCBs shall maintain specific records for three years (40 CFR 761 180(f))	Verify that facilities which store or dispose of PCBs collect and maintain the following records for three years - All documents, correspondence, and data that have been provided by any state or local government - All documents, correspondence, and data provided to the state or local governments by the facility - Any applications and related correspondence concerning wastewater discharge permits, solid waste permits, building permits, or other permits and authorizations
PCB Transformers	
PCB.9 PCB Transformers with PCBs of 500 ppm or greater that are in use or in storage for reuse shall not pose an exposure risk to food and feed (40 CFR 761 30(a)(1)(i))	Determine if there are any PCB transformers on the installation/CW facility, in use or in storage for reuse, that pose an exposure risk to food and feed by reviewing the inventory
PCB 10 PCB Transformers with concentrations of PCBs of 500 ppm or greater are subject to certain registration requirements (40 CFR 761 30(a)(1)(vi))	Verify that all PCB transformers, including those in storage for reuse, are registered with the facility fire department, or the fire department with jurisdiction, with the following information· - Physical location of PCB transformer(s) - Principle constituent of dielectric fluid (e.g., PCBs, mineral oil, silicone oil, etc) - Name and telephone number of contact person knowledgeable of PCB transformer(s).
PCB 11 Railroad transformers must not contain dielectric fluid with greater than 1000 ppm PCB and must be serviced according to specific requirements (40 CFR 761 30(b)((1)(vi), 761 30(b)(2)(iii) and 761 30(b)(2)(iv))	Verify that railroad transformers do not exceed 1000 ppm PCB Verify that servicing of a railroad transformer is only done with dielectric fluid containing less than 1000 ppm PCB Verify that if the coil is removed from the casing of a railroad transformer, it is refilled with dielectric fluid containing 50 ppm or less PCB (NOTE: Dielectric fluid may be filtered through activated carbon or otherwise industrially processed for the purpose of reducing the PCB concentration in the fluid)
PCB 12 Combustible materials, including but not limited to paints, solvents, plastics, paper, and sawn wood, must not be stored by a PCB transformer (40 CFR 761.30(a)(1)(viii))	Verify that all combustible materials have been removed from the area within a PCB transformer enclosure (e g , vault or partitioned area) and the area within 5 meters (16.40 ft) of a PCB transformer or PCB transformer enclosure.

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB 13 PCB transformers of concentrations of 500 ppm or greater in use in or near commercial buildings are subject to certain requirements (40 CFR 761 30(a)(1)(ii) through 761 30(a)(1)(v) and 761 30(a)(1)(vii))	Determine if there are any transformers located in or near commercial buildings by reviewing the inventory Verify that procedure/policy exists prohibiting installation of PCB transformers which have been placed into storage for reuse or which have been removed from another location Verify that there are no network PCB transformers with higher secondary voltages (equal to or greater than 430 V, including 480/277 V systems) in or near commercial buildings. Determine where any of the following PCB transformers are in use in or near commercial buildings or located in sidewalk vaults and if a plan exists to equip such PCB transformers with electrical protection to avoid transformer failure that would result in release of PCBs - Radial PCB transformers and lower secondary voltage network PCB transformers (voltage less than 480 V) - Radial PCB transformers with higher secondary voltages (greater than or equal to 480 V including 480/277 V system) Determine if lower secondary voltage network PCB transformers which have not been electrically protected are registered with the EPA Regional Administrator and plans are being made to remove them from service by 1 October 1993 Verify that all higher secondary voltage radial PCB transformers, in use in or near commercial buildings, and lower secondary voltage network PCB transformers not located in sidewalk vaults in or near commercial buildings are equipped with: - Electrical protection such as current-limiting fuses to avoid transformer ruptures - Disconnect equipment to insure complete de-energization of the transformer in case of a sensed abnormal condition Verify that all lower secondary voltage radial PCB transformers, in use in or near commercial buildings, are equipped with electrical protection such as current limiting fuses or equivalent technology and provide for the complete de-energization of the transformer or complete de-energization of the faulted phase of the transformer within several hundredths of a second
PCB.14 PCB transformers are required to be properly serviced (40 CFR 761.30(a)(2)).	Verify that servicing activities are properly conducted as follows by reviewing servicing records - Transformers classified as PCB-contaminated electrical equipment (50-500 ppm PCBs) are only serviced with dielectric fluid containing less than 500 ppm PCB - The transformer coil is not removed during servicing of PCB transformers with PCB concentrations of 500 ppm or greater - PCBs removed during servicing are captured and are either reused as dielectric fluid or disposed of properly - The PCBs from a PCB Transformer with PCB concentrations of 500 ppm or greater are not mixed with or added to dielectric fluid from PCB-contaminated electrical equipment (50-500 ppm PCBs) - Dielectric fluids containing less than 500 ppm PCBs that are mixed with fluids containing 500 ppm or greater are not used as dielectric fluid in any transformers classified as PCB-contaminated electrical equipment (50-500 ppm PCBs) (NOTE PCB transformers may be serviced with dielectric fluid at any concentration.)

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB 15. Inspections must be performed once every three months for all in-service PCB transformers with greater than 500 ppm PCB (40 CFR 761.30(a) (1)(ix) and 761 30(a)(1)(xii) through 761 30(a)(1)(xiv))	Verify that applicable transformers are inspected at least once every three months by reviewing inspection records Determine whether any PCB transformers have been leaking Verify that the following information is recorded for each PCB Transformer inspection: - Location of transformer - Dates of each visual inspection - Date when any leak was discovered - Name of person conducting inspection - Location and estimate of the dielectric fluid quantity for any leaks - Data and description of any cleanup, containment, or repair performed - Results of any daily inspections for transformers with uncorrected active leaks. (NOTE Reduced visual inspections of at least once every 12 months is allowed for PCB transformers with impervious, undrained secondary containment capacity of 100 percent of dielectric fluid and for PCB transformers tested and found to contain less than 60,000 ppm PCBs) (NOTE· Increased visual inspections of once a week is required for any PCB Transformer in use or stored for reuse which poses an exposure risk to food or feed.) Verify that records of inspection and maintenance are kept for three years after disposal
PCB 16 PCB transformers with PCB concentrations of 500 ppm or greater found to be leaking during an inspection must be repaired or replaced to eliminate the source of the leak (40 CFR 761 30(a)(1)(x))	Determine if cleanup and/or containment of released PCBs has been initiated within 48 hours of its detection or as soon as possible Verify that leaking PCB transformers are inspected daily Determine if plans exist to repair or replace transformers to eliminate the source of the leak Verify that cleaned up material is disposed of according to appropriate requirements
PCB 17 When a PCB Transformer with concentrations of PCBs 500 ppm or greater is involved in a fire, the facility is required to immediately report the incident to the NRC (40 CFR 761 30(a)(1)(xi))	Determine if any PCB transformers have been involved in any incident where sufficient heat and/or pressure was generated to result in the violent or nonviolent rupture of a PCB Transformer and the release of PCBs. Verify that the NRC was notified and the following measures were taken - Floor drains were blocked - Water runoff was contained

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB Spills	
PCB 18 Facilities are required to report spills of more than 10 lb (4.53 kg) of PCBs of concentrations of 50 ppm or greater (40 CFR 761 120(a)(1), 761 123(d)(2), and 761 125(a))	Verify that when a spill of 10 lb (4 53 kg) or more directly contaminates surface water, sewers, or drinking water, the facility notifies the regional EPA office within 24 hours after discovery of the spill and acts on the guidance given by the EPA Verify that if a spill of 10 lb (4 53 kg) or more directly contaminates grazing land or a vegetable garden the facility notifies the EPA regional office within 24 hours after discovery and begins the cleanup of the spill. Verify that when a spill of 10 lb (4.53 kg) or more occurs which does not directly contaminate surface waters, sewers, drinking water supplies, grazing land, or a vegetable garden the facility notifies the EPA Regional office within 24 hours after discovery of the spill and begins decontamination of the spill area (NOTE: Spills of greater than 1 lb (0.45 kg) must be reported to the NRC under 40 CFR 302 1 through 302 6, see appropriate checklist items in Hazardous Materials Management protocol)
PCB.19 Cleanup of low concentration spills of less than 1 lb (0 45 kg) of PCBs (less than 270 gal (1,022 26 L) of untested mineral oil) must be done according to specific requirements (40 CFR 761 120(a)(2), 761.120(b), 761 120(c), and 761 125(b)).	Verify that solid surfaces are double washed/rinsed and all indoor, residential surfaces other than vault areas are cleaned to 10 mg/100 cm^2 by standard commercial wipe tests Verify that all soil within the spill area (visible traces of soil and buffer of 1 lateral foot (3 28 lateral meters) around the visible traces) is excavated and the ground restored to its original status by backfilling with clean soil (soil with less than 1 ppm PCBs) Verify that the above cleanup requirements are done within 48 hours after identifying the spill unless an emergency or adverse weather delays the process Verify that the cleanup is documented with records and certification of decontamination and the records are maintained for six years (NOTE. The final numerical cleanup standards do not apply to spills directly into surface waters, drinking water, sewers, grazing lands, and vegetable gardens) (NOTE The EPA may impose more stringent or less stringent cleanup requirements on a case by case basis depending on conditions such as possibility of groundwater contamination.)

Compliance Category: **PCB Management**	
Regulatory Requirements:	**Reviewer Checks:**
PCB 20 Cleanup of high concentration spills and low concentration spills involving 1 lb (0 45 kg) or more of PCBs by weight (270 gal (1,022 64 L) or more of untested mineral oil) must be done according to specific requirements (40 CFR 761 120(a)(2), 761 120(b), 761 120(c), and 761.125(c))	Verify that the following actions are taken within 24 hours (or within 48 hours for PCB Transformer with PCB concentrations of greater than 500 ppm) of discovery of the spill - Notification of the EPA regional office and the NRC - The area of the spill is cordoned off or otherwise identified to include the area with visible traces of the spill and a 3 ft (0 91 m) buffer zone If there are no visible traces the area of the spill may be estimated - Clearly visible signs are placed advising persons to avoid the area - The area of visible contamination is recorded and documented, identifying the extent and center of the spill - Cleanup of visible traces of the fluid from hard surfaces is initiated - Removal of all visible traces of the spill on soil and other media such as gravel, sand, etc is started Verify that if the spill occurs in an outdoor substation· - Contaminated solid surfaces are cleaned to a PCB concentration of 100 mg/cm^2 (as measured by standard wipe tests) - Soil contaminated by the spill is cleaned to either 25 ppm PCBs by weight or 50 ppm PCBs by choice of the facility if a label to notice is placed in the area indicating the level of cleanup - Post-cleanup sampling is done Verify that if the spill occurs in a restricted access area other than an outdoor substation - High-contact solid surfaces are cleaned to 10 mg/100 cm^2 (as measured by standard wipe tests) - Low-contact, indoor, impervious solid surfaces are decontaminated to 10 mg/100 cm^2 - Low contact, indoor, nonimpervious surfaces are cleaned to either 10 mg or 100 mg/100 cm^2 and encapsulated at the option of the facility - Low-contact, outdoor surfaces (both impervious and non-impervious) are cleaned to 100 mg/100 cm^2 - Soil contaminated by the spill is cleaned to 25 ppm PCBs by weight - Post-cleanup sampling is done Verify that spills in nonrestricted access locations are decontaminated as follows - Furnishings, toys, and other easily replaceable household items are disposed of and replaced - Indoor solid surfaces and high-contact outdoor solid surfaces are cleaned to 10 mg/ 100 cm^2 (as measured by standard wipe tests) - Indoor vault areas and low-contact, outdoor, impervious solid surfaces are decontaminated to 10 mg/100 cm^2 - At the option of the facility, low-contact, outdoor, nonimpervious solid surfaces are cleaned to either 10 or 100 mg/100 cm^2 and encapsulated - Soil is decontaminated to 10 ppm PCBs by weight provided that the soil is excavated to a minimum depth of 10 in (25 cm) and replaced with clean soil - Post-cleanup sampling is done

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB 20 Continued	Verify that records documenting all cleanup and decontamination are maintained for five years (NOTE The occurrence/discovery of the spill on the weekend or overtime costs are not considered acceptable reasons to delay response) (NOTE The final numerical cleanup standards do not apply to spills directly into surface waters, drinking water, sewers, grazing lands, and vegetable gardens) (NOTE The EPA may impose more stringent or less stringent cleanup requirements on a case by case basis depending on conditions such as possibility of groundwater contamination)
PCB Items	
PCB 21 PCBs may be used in heat transfer and hydraulic systems in a manner other than a totally enclosed manner at concentrations less than 50 ppm if specific requirements are met (40 CFR 761 30(d) through 761 30(e))	Determine if testing has been conducted to demonstrate that heat transfer or hydraulic systems that formerly contained PCBs at a concentration greater than 50 ppm now contain less than 50 ppm PCB Verify that no fluid containing greater than 50 ppm PCB is added to heat transfer or hydraulic systems. Verify that results from analyses which are performed to demonstrate presence of less than 50 ppm PCB, are retained for confirmation for at least five years Verify that heat transfer or hydraulic systems are free from leaks of dielectric PCBs
PCB 22 Electromagnets, switches, and voltage regulators may contain PCBs at any concentration if certain requirements are met (40 CFR 761 30(h))	Verify that no electromagnets are used or stored at the facility that contain greater than 500 ppm PCB and pose an exposure risk to food or feed Verify that electromagnets that contain greater than 500 ppm PCB and which pose an exposure risk to food or feed are inspected at least weekly to determine if they are leaking Verify that electromagnets, switches, and voltage regulators that contain 500 ppm or greater PCB are not rebuilt and no removal or reworking of internal components is done during servicing Verify that electromagnets, switches, and voltage regulators which contain between 50 and 500 ppm PCB (PCB contaminated electrical equipment) are only serviced with dielectric fluid which that less than 500 ppm PCB Verify that PCBs removed or captured are either reused as dielectric fluid or disposed of properly Verify that dielectric fluid containing a mixture of fluids with less than 500 ppm PCBs are not used as dielectric fluid in any electrical equipment
PCB 23 Capacitors may contain PCBs at any concentration subject to certain requirements (40 CFR 761 30(l)).	Verify that all PCB large, high- and low-voltage capacitors that pose an exposure risk to food and feed have been removed Verify that all PCB large, high- and low-voltage capacitors are in use only in restricted-access electrical substations, or in a contained and restricted-access indoor area Verify that capacitors are free from leaks of dielectric PCBs

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB 24 Circuit breakers, reclosers, and cable may contain PCBs at any concentration for remainder of their useful lives subject to certain conditions (40 CFR 761 3(m))	Verify that any circuit breakers, reclosers, and cables used at the facility are serviced using only dielectric fluid which contains less than 50 ppm PCB and have been free from leaks
PCBs in Research	
PCB 25 The use of pigments containing PCBs in research or microscopy or in miscellaneous items is subject to certain conditions (40 CFR 761 30(g), 761.30(j), and 761 30(k)).	Verify that pigments used at the facility contain PCBs in concentrations less than 50 ppm Verify that pigments are handled in enclosed conditions
PCB Storage	
PCB.26. PCBs and PCB items at concentrations greater than 50 ppm that are to be stored before disposal must be stored in a facility that will assure the containment of PCBs (40 CFR 761 65(a) through 761 65(b) and 761.65(c)(8))	Verify that the following provisions are present by inspecting the PCB storage area. - The roof and walls of the building in which the PCBs are stored are constructed so as to exclude rainfall from contacting PCBs and PCB items - A 6 in (15 24 cm) tall containment curb circumscribes the entire area in which any PCBs or PCB items are stored Such curbing shall effectively provide containment for twice the internal volume of the largest PCB Article or 25 percent of the total internal volume of all PCB articles or containers stored, whichever is greater - Drains, valves, floor drains, expansion joints, sewer lines or other openings that would allow liquids to flow from the curbed area are not present - Floors and curbing are constructed of continuous, smooth, and impervious material - Location is not below a 100-year flood water elevation Verify that PCB articles or PCB containers are removed from storage and disposed of within one year from the date they were placed in storage
PCB 27 PCB items may also be stored in other areas that do not comply with the storage area requirements when such storage is for a period of less than 30 days and when any such PCB items are marked with the date of removal from service (40 CFR 761.65(c)(1))	Verify that only the following items are stored and are properly marked in areas used as a 30 day storage area - Nonleaking PCB articles and PCB equipment - Leaking PCB articles and PCB equipment placed in a non-leaking PCB container which contains sufficient sorbent material to absorb liquid contained on the PCB Article or equipment - PCB containers in which nonliquid PCBs have been placed - PCB containers in which liquid PCBs at a concentration between 50-500 ppm have been placed when containers are marked to indicate less than 500 ppm PCB Verify that area has been included in the facility Spill, Prevention, Control, and Countermeasure (SPCC) Plan
PCB 28 Nonleaking and structurally undamaged PCB large, high-voltage capacitors and PCB contaminated electric equipment that have not been drained of freeflowing dielectric fluid may be stored on pallets next to a storage area that complies with the storage area	Determine if available unfilled storage space in the storage area is equal to at least 10 percent of the volume of capacitors and electrical equipment stored outside Verify that capacitors and equipment stored outside the storage facility are on pallets and inspected at least weekly

Compliance Category: **PCB Management**	
Regulatory Requirements:	**Reviewer Checks:**
PCB.29 Specific operational procedures are required at PCB storage areas (40 CFR 761 65(c)(4), 761 65(c)(5), and 761 65(c)(8))	Verify that the following practices are conducted at any area where PCBs or PCB items are stored - Movable equipment used for handling PCBs and PCB items that directly contact PCBs is not removed from storage area unless decontaminated - Inspections for leaks of all PCB articles and PCB containers in storage are done at least once every 30 days - Any leaked PCBs are immediately cleaned up and any spill absorbent material properly disposed - PCB articles and containers are marked with the date when placed into storage - PCB articles and PCB containers are positioned so that they can be located by the date they were placed into storage - Containers in which PCBs are accumulated have a record that includes quantity and date of each batch
PCB 30 Containers used for the storage of PCBs must comply with the shipping container specification of the DOT (40 CFR 761 65(c)(6) and 761 65(c)(7))	Verify that DOT specifications are on drums/containers Typical specifications are 5, 5B, 17C (NOTE Containers larger than those specified in DOT specifications 5, 5B, or 17C may be used for nonliquid PCBs when such containers will provide as much protection against leaking and exposure to the environment as the DOT specified containers) Verify that containers used for storage of liquid PCBs are containers without removable heads Verify that if the facility uses containers larger than DOT approved containers it has prepared a SPCC Plan covering its containers storing PCBs
PCB 31 Commercial storers of PCB Waste must have final storage approval (40 CFR 761 65(d))	Determine if the facility is a commercial storer of PCB or has a commercial storer of PCB waste at the facility Verify that the commercial storer has final storage approval from the EPA Regional Administrator for PCB waste (NOTE Commercial storers were required to file for final storage approval by 2 August 1990. After filing for final approval, they will operate under interim approval until the a final decision is made on approval) (NOTE The following storage facilities may be exempt from this requirements for storage approval - Storage areas at transfer facilities unless the PCB waste is stored at the transfer facility for more than 10 consecutive days between destinations - Storage areas at RCRA-permitted facilities if the facility proves to the Regional Administrator that the facility's existing RCRA closure plan substantially meets the requirements for a TSCA closure plan - Storage areas ancillary to a TSCA approved disposal facility if the disposal approval contain an expiration date and the current disposal approval's closure and financial responsibility conditions specifically extend to storage areas ancillary to disposal)

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB Transportation	
PCB 32 A generator who offers a PCB waste for transport for commercial offsite storage or offsite disposal must prepare a manifest (40 CFR 761 207 through 761 210)	(NOTE This applies to PCB wastes as defined in 40 CFR 761 3, and that contain greater than 50 ppm PCB unless the concentration was reduced below 500 ppm by dilution) Verify that a manifest has been prepared when needed and that it contains (use EPA Form 8700-22). - The identity of PCB waste, the earliest date of removal from service for disposal and the weight in kg of the waste for bulk load of PCBs - The unique identifying number of each PCB article container or PCB container, the date of removal from service, type of waste, and the weight of PCB waste contained - The serial number if available or other identification for each PCB article not in a PCB container or PCB article Container, the date of removal from service for disposal, and weight in kg of the PCB waste in each PCB article Verify that sufficient copies are prepared to supply the generator, the initial transporter, each subsequent transporter, and the owner or operator of the disposal facility with one legible copy each for their records, and one additional copy to be signed and returned to the generator by the owner or operator of the disposal facility Verify that the generator maintains a copy of the signed manifest for at least three years after receipt of waste by the initial transporter
PCB.33. If the generator does not receive a signed copy of the manifest within 35 days of the date the waste was accepted by the initial transporter, the generator is required to immediately contact the transporter and/or owner or operator of the designated facility to determine the status of the PCB waste (40 CFR 761.215(a) and 761 215(b)).	Verify that a procedure is in place so that if the generator does not receive a copy within 35 days of the date the waste was accepted by the initial transporter, an Exception Report is filed with the EPA containing the following information. - A legible copy of the manifest for which the generator does not have confirmation of delivery - A cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the PCB waste and the results of those efforts
PCB Disposal	
PCB.34. For each shipment of manifested PCB waste that a disposal facility accepts, the owner or operator of the disposal facility must prepare a COD (40 CFR 761 218).	Verify that a COD has been prepared containing the following information - The identity of the disposal facility by name, address, and EPA identification number - The identity of the PCB waste affected by the COD including reference to the manifest number for the shipment - A certification as defined in 40 CFR 761 3 Verify that a copy of the COD was: - Sent to the generator identified on the manifest within 30 days of the date that disposal of the PCB waste was completed - Retained at the facility with the annual report

Compliance Category: **PCB Management**	
Regulatory Requirements:	**Reviewer Checks:**
PCB 35 PCB contaminated fluids other than mineral oil dielectric fluid of concentrations greater than 50 ppm but less than 500 ppm are required to be disposed of according to specific requirements (40 CFR 761 60(a)(3))	Determine if any PCB fluids meeting these criteria were processed for disposal in the last year Verify that disposal was done at - A EPA-approved incinerator - A EPA-approved chemical waste landfill - A high efficiency boiler Verify that if the fluid is burned in an high efficiency boiler - The boiler is rated at a minimum of 50 MBtu/h (14 65 MW) - The CO concentration in the stack is 50 ppm or less and the excess O_2 is at least three percent when PCBs are being burned and the boiler uses natural gas or oil as the primary fuel - The CO concentration in the stack is 100 ppm or less and the O_2 content is at least three percent when PCBs are being burned and the boiler uses coal as the primary fuel - The waste does not compromise more than 10 percent (on a volume basis), of the total fuel feed rate - The waste is not fed into the boiler unless the boiler is operating at its normal operating temperature the operator of the boiler does one of the following -- continuously monitors and records the CO concentrations and excess O_2 percentages in the stack gas while burning the waste fluid -- measure and records the CO concentration and excess O_2 percentage in the stack gas at regular intervals of no longer than 60 minutes if boiler will burn less than 30,000 gal/yr (113,562 36 L/yr) of waste fluid -- measures and records the primary fuel feed rates, the waste fluid feed rates, and total quantities of both primary fuel and waste fluid fed to the boiler at regular intervals of no longer than 15 minutes -- checks the CO concentration and the excess O_2 percentage at least once every hour and if either measurement falls below the specified levels, the flow of the waste fluid to the boiler stops immediately. Verify that before burning waste fluid, approval has been obtained from the EPA Regional Administrator. Verify that the following information is obtained by persons burning waste fluid in a boiler and kept at the boiler location for five years - Emissions data - The quantity of waste fluid burned in the boiler each month - A waste analysis Verify that such PCB fluids were disposed of by an approved method at a properly licensed facility
PCB.36. PCB liquids greater than 50 ppm must be disposed of in an incinerator which is approved by EPA to incinerate PCBs (40 CFR 761 60(a)(1))	Verify that all shipments were made to EPA licensed PCB incinerators by reviewing manifests for a PCB shipments over the past three years. (NOTE: Other disposal provisions apply to - Mineral oil dielectric fluid from PCB-Contaminated Electrical Equipment with a concentration greater than 50 ppm but less than 500 ppm - Liquids, other than mineral oil dielectric fluids, with PCB concentrations between 50 and 500 ppm - Rags, solids, and other debris contaminated with PCB at concentrations greater than 50 ppm - PCB articles)

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB 37 Mineral oil dielectric fluid from PCB-contaminated electrical equipment containing a PCB concentration greater than 50 ppm but less than 500 ppm is required to be disposed of according to specific methods (40 CFR 761 60(a)(2))	Verify that mineral oil dielectric fluid as described is disposed of in one of the following ways - An EPA approved incinerator - An approved chemical waste landfill if written information proves that the fluid is not contaminated at greater than 500 ppm and is not an ignitable waste - An approved high efficiency boiler that is rated at a minimum of 50 MBtu/h (14 65 MW) Verify that if the fluid is burned in an high efficiency boiler - The boiler is rated at a minimum of 50 MBtu/h (14 65 MW) - The CO concentration in the stack is 10 ppm or less and the excess O_2 is at least three percent when PCBs are being burned and the boiler uses natural gas or oil as the primary fuel - The CO concentration in the stack is 100 ppm or less and the O_2 content is at least three percent when PCBs are being burned and the boiler uses coal as the primary fuel - The mineral oil dielectric fluid does not compromise more than 10 percent (on a volume basis), of the total fuel feed rate - The mineral oil dielectric fluid is not fed into the boiler unless the boiler is operating at its normal operating temperature - The operator of the boiler does one of the following -- continuously monitors and records the CO concentrations and excess O_2 percentages in the stack gas while burning mineral oil dielectric fluid -- measure and records the CO concentration and excess O_2 percentage in the stack gas at regular intervals of no longer than 60 minutes if boiler will burn less than 30,000 gal (113,562 36 L) of mineral oil dielectric fluid per year -- measure and record the primary fuel feed rates, the mineral oil dielectric fluid feed rates, and total quantities of both primary fuel and mineral oil dielectric fluid fed to the boiler at regular intervals of no longer than 15 min -- checks the CO concentration and the excess O_2 percentage at least once every hour and if either measurement falls below the specified levels, the flow of the mineral oil dielectric fluid to the boiler stops immediately Verify that 30 days before burning mineral oil dielectric fluid, a written notice of the burning is given the to EPA Regional Administrator Verify that the following information is obtained by persons burning mineral oil dielectric fluid in a boiler and kept at the boiler location for five years - Emissions data - The quantity of mineral oil dielectric fluid burned in the boiler each month
PCB.38. Rags, soils, and other debris contaminated with PCBs at concentrations greater than 50 ppm must be disposed of in a PCB incinerator or in a chemical waste landfill (40 CFR 761 60(a)(4))	Determine if any contaminated soil or debris has been disposed of, and verify that disposal was conducted at a properly licensed facility
PCB 39 PCB transformers with PCB concentrations of 500 ppm or greater shall be disposed of in either a EPA approved incinerator or a chemical waste landfill (40 CFR 761 60(b)(1))	Determine if the PCB transformers are being disposed of at a EPA-approved incinerator or a chemical waste landfill Verify that if disposal is being done at a chemical waste landfill the transformer is drained of all free-flowing liquids, filled with solvent, allowed to stand for at least 18 hours, and than drained thoroughly

Compliance Category: PCB Management	
Regulatory Requirements:	**Reviewer Checks:**
PCB 40 PCB capacitors must be disposed of in accordance with certain requirements (40 CFR 761 60(b)(2))	Verify that disposal of PCB capacitors was done as follows - PCB small capacitors (less than 1 36 kg (3 lb) of PCBs) are disposed of in a solid waste landfill - PCB large, high- or low-voltage capacitors (greater than 1 36 kg (3 lb) of PCBs) containing more than 500 ppm are incinerated in a EPA approved incinerator (NOTE The large, high, or low-voltage capacitors may be disposed of in a chemical waste landfill upon approval of the EPA) Verify that capacitors in storage are placed in DOT containers with absorbent material
PCB 41 PCB hydraulic machines containing PCBs at concentrations greater than 50 ppm may be disposed of as municipal solid waste if specific conditions are met (40 CFR 761 60(b)(3))	Verify that the machines are drained of all free-flowing liquid Verify that if the machine contained PCB liquid of 1000 ppm PCB or greater, it is flushed prior to disposal with a solvent containing less than 50 ppm PCB
PCB 42 PCB contaminated electrical equipment (50 500 ppm PCB), except capacitors, shall be disposed of by draining off the free-flowing liquid (40 CFR 761 60(b)(4))	Verify that the free-flowing liquid is drained from electrical equipment prior to disposal
PCB 43 PCB articles shall be disposed of properly (40 CFR 761 60(b)(5))	Verify that PCB articles with concentrations at 500 ppm or greater are disposed of in either - A EPA-approved incinerator - A chemical waste landfill if all free-flowing liquids have been removed Verify that PCB articles with PCB concentration between 50 and 500 ppm are drained of all free-flowing liquid
PCB 44 PCB containers shall be disposed of properly (40 CFR 761 60(c))	Verify that PCB containers with concentrations of 500 ppm or greater are disposed of in one of the following ways - In a EPA-approved incinerator - In a chemical waste landfill if first the container is drained of any liquid PCBs Verify that PCB containers used to contain only PCBs at concentrations less than 500 ppm are drained of PCB liquid prior to disposal as municipal solid waste
PCB 45 PCB contaminated fluids other than mineral oil dielectric fluid of concentrations greater than 50 ppm but less than 500 ppm shall be disposed of properly (40 CFR 761 60(a)(3))	Determine if any PCB fluids meeting these criteria were processed for disposal in the last year Verify that disposal was done at - A EPA-approved incinerator - A EPA-approved chemical waste landfill - A high efficiency boiler, if -- the boiler is rated at a minimum of 50 MBtu/h -- the boiler uses natural gas or oil Verify that such PCB fluids were disposed of by an approved method at a properly licensed facility

Section 13

PCB Management

Appendices

Caution

Contains
PCBs
(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordance with the U.S. Environmental Protection Agency Regulations 40 CFR 761.

For disposal information, contact the nearest U.S. EPA office.

In case of accident or spill, call toll free the U.S. Coast Guard National response Center: 800-424-8802.

Also contact:_____

Tel. no. :_____

Appendix 13-2
Dielectric Fluid Trend Names and Manufacturers

Name	Manufacturer
1 U S Manufactured Dielectrics	
Aroclor	Monsanto
Aroclor B	Mallory
Sbestol	American Corporation
Askarel Hevi-Duty	Hevi-Duty Corporation
Askarel *	Ferranti-Packard, Ltd
Askarel	Universal Mfg Co
Chlorextol	Allis-Chalmers
Chlorinol	Sparagoe Electric
Chlorphen	Jard Company
Diaclor	Sangamo Electric
Dykanol	Cornell Dubilier
Elemex	McGraw Edison
Eucarel	Electric Utilities Co
Hyvol	Aerovox
Inerteen	Westinghouse Electric
No-Flamol	Wagner Electric
Pyranol	General Electric
Saf-T-Kuhl	Kuhlman Electric

* Generic name used for insulating liquids in capacitors and transformers.

Name	Manufacturer
2 Foreign Manufactured Dielectrics	
Clophen	Bayer (Germany)
Fenclo	Caffaro (Italy)
Kennechlor	Mitsubishi (Japan)
Phenoclor	Prodelec (France)
DK	Caffaro (Italy)
Pyralene	Prodelec (France)
Solvol	USSR
Santotherm	Mitsubishi (Japan)

3	Transformers that list other dielectrics or do not bear a manufacturer's identification or service plate on the transformer: if the transformer contains any of the dielectrics (commonly referred to as askarels), it is to be certified as a PCB transformer containing in excess of 500 ppm PCB and no laboratory testing is necessary

Phase 1

Section 14

Pesticide Management

Phase 1
Section 14
Table of Contents

Pesticide

A. Applicability 14-1
B. Federal Legislation 14-1
C. State/Local Regulations 14-1
D. Key Compliance Requirements 14-2
E. Key Compliance Definitions 14-3
F. Records to Review 14-5
G. Physical Features to Inspect 14-5
H. Guidance for Checklist Users 14-6

Appendix

A14-1. Restricted Use Pesticides A14-1

A. Applicability

This section applies to facilities which use, store or handle pesticides. Pesticides are regulated on the Federal and state levels.

Assessors are required to review agency, Federal, state, and local regulations in order to perform a comprehensive assessment.

It must be noted that pesticides by nature are hazardous materials and are subject to hazardous materials management regulations. Please see Section 8, Hazardous Materials Management. In this manual, the term pesticides includes herbicides and fungicides.

B. Federal Legislation

1. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

This Act, as last amended in December 1991 (7 U.S. Code (USC) 136-136(y)), deals with the sale, distribution, transportation, storage, and use of pesticides It requires the registration of new pesticides and, when pesticides are preregistered, requires that they will not present any unreasonable risks to human health or the environment if used according to label directions.

2. Executive Order (EO) 12088, Federal Compliance with Pollution Standards

This EO, dated 13 October 1978, requires federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

State pesticide regulatory programs are to be at least as stringent as FIFRA State and local programs typically contain regulations which are tailored to an industry or activity which is prevalent or particularly sensitive in a state. State and local pesticide regulations in many cases provide more stringent standards or specifically identify a requirement which may be qualitatively regulated under the Federal program. State and local pesticide programs generally include regulations which address the following topics:

1. Restrictions or requirements for the sale, distribution, or use of selected pesticides;
2. Disposal requirements for excess pesticides and pesticide wastes such as pesticide containers;
3. Restrictions on the control of specific animal or insect species;
   Operational requirements for selected application methods; and

4. Recordkeeping and applicator certification requirements. This may require that applicators practice Integrated Pest Management (IPM) techniques.

D. Key Compliance Requirements

1. Pesticide Application

People applying restricted use pesticides must be certified to purchase and apply restricted use pesticides. Contractors used for pest management must have current certification for the types of applications to be performed. The application of pesticides must not jeopardize the existence of threatened or endangered species. (40 CFR 171.9 and 50 CFR 402).

2. Pesticide Storage, Mixing, and Preparation Facilities

Pesticide storage, mixing, and preparation activities must provide facilities and procedures to ensure safety of personnel. Facilities such as a ventilation system for all indoor pesticide mixing/preparation areas and an emergency deluge shower and eyewash station located to provide immediate access to all personnel performing mixing. Personal protective clothing and equipment need to be provided and used by pest management personnel. Pesticides, pesticide container, and/or pesticide residues are to be stored such that it is not inconsistent with labeling (40 CFR 165.7).

3. Highly Toxic and Moderately Toxic Pesticide Storage and Use

Storage facilities for pesticides and excess pesticides classed as highly toxic or moderately toxic that are labeled DANGER, POISON, or with the skull and crossbones symbol, must meet specific structural, operational (e.g., ventilation) and storage requirements. These include pesticides being kept in a dry, separate room (building) with fire protection and not near food or feed, and in containers in good condition with plainly visible labels. There should be a decontamination facility, the area must be placarded and the local fire department, hospitals, public health officials, and police departments should be notified in writing that the pesticides are being stored (MP).

4. Pesticide and Container Disposal

Facilities are required to dispose of any excess pesticide, pesticide container, or pesticide residue in a manner consistent with labeling, not including open dumping or burning. Organic pesticides other than organic mercury, lead, cadmium, and arsenic compounds, must be disposed according to specific procedures. Options include incineration at an incinerator that meets air quality standards for gaseous emissions. Metallo-organic pesticides must be disposed of in a manner that facilities the recovery of heavy metals (40 CFR 165.7, 165.8 and 165.9).

5. Recordkeeping

Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain application and disposal records beyond the regulated periods of time in order to support facility compliance.

E. Key Compliance Definitions

1. Acute LD_{50}

A statistically derived estimate of the concentration of a substance that would cause 50 percent mortality to the test population under specified conditions (40 CFR 152.3).

2. Caution

The human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category III or IV must bear on the front panel the signal word CAUTION (see Toxicity Category (40 CFR 156.10(h)).

3. Commercial Applicator

A certified applicator, other than a private applicator, who uses or supervises the use of any pesticide, for any purpose, on any property, or performs other pest control related activities (40 CFR 171.2).

4. Crisis Exemption

This is utilized in an emergency condition when the time from discovery of the emergency to the time when the pesticide use is needed is insufficient to allow for the authorization of a specific quarantine exemption or public health exemption (40 CFR 166.2)

5. Danger

The human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category I must bear on the front panel the signal word DANGER (see Toxicity Category) (40 CFR 156.10(h)).

6. Imminent Hazard

A situation that exists when the continued use of a pesticide during the time required for cancellation proceedings would be likely to result in unreasonably adverse effects on the environment or will involve unreasonable hazard to the survival of a species declared endangered by the Secretary of the Interior (SOI) under PL 91-135 (40 CFR 165.1).

7. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

8. Pesticide

Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or disinfectant; and is further categorized into the following (40 CFR 165.1):

a. Excess pesticides means all pesticides that cannot be legally sold pursuant to the Act or that are to be discarded;

b. Organic pesticides means carbon-containing substances used as pesticides, excluding metallo-organic compounds;

c. Inorganic pesticides means noncarbon-containing substances used as pesticides;

d. Metallo-organic pesticides means a class of organic pesticides containing one or more metal or metalloid atoms in the structure.

9. Pesticide Product

A pesticide in the particular form (including composition, packaging, and labeling) in which the pesticide is, or is intended to be, distributed or sold. This includes any physical apparatus used to deliver or apply the pesticide if distributed or sold with the pesticide (40 CFR 152.3).

10. Public Health Exemption

This may be authorized in an emergency condition to control a pest that will cause a significant risk to human health (40 CFR 166.2).

11. Quarantine Exemption

This may be authorized in an emergency condition to control the introduction or spread of any pest new to or not theretofore known to be widely prevalent or distributed within and throughout the United States and its territories (40 CFR 166.2).

12. Restricted Use Pesticides

Pesticides designated for restricted use under the provisions of Section 3(d)(1)(c) of FIFRA (40 CFR 171.2)

13. Specific Exemption

This exemption may be authorized in an emergency condition to avert (40 CFR 166.2):

a. A significant economic loss;

b. A significant risk to endangered species, threatened species, beneficial organisms, or the environment.

14. Toxicity Category

Required warnings and precautionary statements are based on the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown in the table listed in 40 CFR 156.10 (40 CFR 156.10(h)).

15. Warning

The human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word WARNING (see 40 CFR 156.10 for listing of indicators necessary to meet specific criteria of toxicity categories) (40 CFR 156 10(h)).

F. Records to Review

- Records of pesticides purchased by the facility (purchase orders, inventory),
- Pesticide application records and annual reports,
- Description of the management of the facility's pest control program;
- Certification status of pesticide applicators;
- Pesticide disposal manifests and records,
- Contract files;
- Respiratory protection program (qualification, medical monitoring and respirator maintenance/cartridge replacement);
- Any emergency exemption granted to the Federal agency by the EPA;
- Disposal of pesticide containers; and
- Monitoring of applicator's health status.

G. Physical Features to Inspect

- Personnel protection equipment;
- Pesticide application equipment;
- Pesticide storage areas, including storage containers;
- Observation of pesticide applications, procedures and protective equipment; and
- Disposal of used containers and pesticide waste (if any)

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	**Page Numbers**
All facilities	PM 1 through PM 3 PM 4 through PM 5	14-7 14-8
Pesticide application	PM 6 through PM 10 PM.11 through PM 12	14-9 14-10
Storage, mixing, or preparation areas	PM 13 through PM 14 PM 13 through PM 15	14-10
Highly and moderately toxic pesticides	PM 19 PM 20 through PM.22 PM 23 PM 24 through PM 25 PM 26	14-11 14-12 14-13 14-14 14-15
Mixing/formulation facilities	PM 27	14-15
Disposal	PM 28 through PM 29 PM 30 through PM 31 PM 32 through PM 33	14-15 14-16 14-17
Agricultural pesticides	PM.34 through PM 35	14-18

Compliance Category: **Pesticide Management**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
PM 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective action is planned and milestones established to correct problems
PM 2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist Verify that the facility is in compliance with all applicable and newly issued regulations
PM 3 Facilities are required to comply with state and local pesticide regulations concerning pesticide management (EO 12088, Section 1-1)	Verify that the facility is abiding by state and local requirements Verify that the facility is operating according to permits issued by the state or local agencies (NOTE Issues typically regulated by state and local agencies include - Applicator certification - Restricted use pesticides - Application procedures - Banned pesticides - Disposal methods - Emergency application of pesticides due to public health threats - Annual reporting of usages - Application health monitoring - Record of each application including target pest)

Compliance Category: **Pesticide Management**	
Regulatory Requirements:	**Reviewer Checks:**
PM.4 All pesticides present on the facility must be registered or ruled exempt from the registration requirements (40 CFR 152 15 through 152 30)	Verify that pesticide products at the facility are registered unless the facility or product is considered exempt, such as the following. - Certain biological control agents - Certain human drugs - Treated articles or substances such as paint treated with a pesticide - Pheromones and pheromone traps - Preservatives for biological specimens - Vitamin hormone products - Pesticide transferred between registered establishments operated by the same producer - A pesticide distributed or sold under an experimental use permit - A pesticide transferred solely for export - A pesticide distributed or sold under an emergency exemption
PM 5 All facilities must comply with pesticide use requirements unless an emergency exemption has been granted by the EPA (40 CFR 166 1, 166.2, 166 20, 166 28, 166 32, 166 45, 166 50).	Verify that pesticide use requirements are followed unless one or more of the following emergency conditions exist - Specific exemptions may be authorized to avoid conditions of - Significant economic loss - Significant risk to threatened or endangered species - Significant risk to beneficial organisms - Significant risk to the environment - Quarantine exemptions may be authorized to control the introduction or spread of any pest new to or unknown to be widespread throughout the United States and its territories - Public health exemptions may be authorized to control a pest that imposes significant risk to human health - Crisis exemptions may be utilized when the time constraint between discovery, and implementation of pesticide use will not allow a specific, quarantine, or public health exemption to be issued Verify that applications for exemptions are submitted to the Regional Administrator in writing and include· - A description of the pesticide - The proposed use - Target organism - Any alternative means of control and why those means are not feasible Verify that exemptions are issued for a specific length of time, as follows - No more than one year for specific and public health exemptions - For no longer than three years for a quarantine permit, but it may be renewed - No longer than 15 days (unless an application for another type of exemption has been submitted) for an crisis exemption. Verify that any unexpected adverse affects from the use of a pesticide under exemption conditions are be reported to the EPA Verify that a report summarizing the use of a pesticide under an exemption was submitted within six months after the expiration of the exemption to the agency (three months for a crisis exemption).

Compliance Category: **Pesticide Management**	
Regulatory Requirements:	**Reviewer Checks:**
Pesticide Application	
PM 6 Persons applying restricted use pesticides must be certified to apply restricted use pesticides (40 CFR 171 9)	Determine if facility personnel apply restricted use pesticides (see Appendix 14-1). Determine if pesticide applicators are trained and/or certified Verify that training recertification is scheduled and performed as required to maintain certification and that certification is relevant to the pest management activities undertaken Verify the certification status of contractors used for pest management through interviews or contract review
PM.7. Personnel routinely applying any pesticides should be trained in safety procedures and application procedures (MP)	Determine if personnel at the facility routinely apply pesticides Verify that personnel are trained in appropriate handling and use procedures.
PM 8 Health monitoring should be provided for government personnel applying restricted use pesticides (MP)	Verify that all pest management personnel have received baseline physical examinations within 30 days of starting pest management work Verify that pest management personnel receive additional physical examinations once each year Verify that cholinesterase tests are given to pest management personnel working regularly with pesticides which contain organophosphates or N-alkyl-carbamates
PM 9 Public safety should be ensured when applying or using pesticides (MP)	Verify the elimination of hazardous exposure to the general public by checking for the following - Appropriate signs for treatment area are posted - Scheduling for low use periods or restricted usage for a number of days - Water use restrictions and reentry times are followed according to the pesticide labels
PM 10 Records should be maintained of each application of a pesticide, whether performed by facility staff or contract labor, and retained at the facility (MP)	Verify that records are kept on file for a minimum of three years Verify that the record of each application includes information (e g , target organism, compound applied, dilution, quantity applied, notification/posting done, etc) , based on individual state requirements

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
PM 11. Facilities must ensure that the use of pesticides does not jeopardize the existence of threatened or endangered species (50 CFR 402 01)	Determine if surveys have been conducted to identify the presence of threatened or endangered species in areas where pesticides are used Determine what measures are taken to ensure that threatened or endangered species are not impacted Verify that applications are made according to label instructions regarding the protection of endangered species (NOTE Refer to the checklist items on endangered species in Natural Resources Management)
PM 12 Dining facilities should be notified at least 24 hours in advance of a pesticide application (MP)	Verify that food services personnel are notified of scheduled applications and that only compounds and procedures labelled for food service are used by applications certified in the food processing category
Storage/Mixing/Preparation Areas	
(NOTE. Storage areas must also meet the general requirements for the storage of hazardous materials found in 29 CFR 1910 106, see Hazardous Materials Management protocol)	
PM 13 Facilities are required to store any pesticide, pesticide container, or pesticide residue according to specific restrictions (40 CFR 165 7)	Verify that pesticides, pesticide containers, and/or pesticide residues are stored such that they are consistent with labeling
PM 14 Pesticide storage, mixing and preparation facilities must provide structures and procedures to ensure safety of personnel (29 CFR 1910 133).	Determine if a ventilation system is specifically provided for all indoor pesticide mixing/preparation areas Verify that an emergency deluge shower and eyewash station are located to provide immediate access to all personnel performing mixing Verify that personal protective clothing and equipment is provided and used by pest management personnel The following equipment depends upon magnitude and type of operations - Respirators - Masks - Gloves (appropriate kinds) - Safety shoes - Coveralls - Barrier aprons - Specialized personal protective equipment for fumigation. Verify that operations include health and safety procedures emphasizing good work habits, reduction or elimination of hazards (through the use of engineering controls), and use of personal protective equipment

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
PM 15 A spill containment system constructed of impervious materials should provide containment for pesticide storage, mixing, preparation and management areas (MP).	Verify that there is curbing around the required areas Determine if there are drains or cracks in floors Determine if pest management shop personnel are familiar with spill response procedures Verify that spill response procedures are written and understood by staff
PM 16 Storage facilities for pesticides should have ventilation at a rate of 10 air changes/hour (MP)	Verify that storage facilities for pesticides have ventilation at a rate of 10 air changes/ hour
PM 17. Storage facilities for pesticides should have separate drainage systems and fire suppression/extinguishers (MP).	Verify that fire extinguishers are installed near the door of pesticide storage room or an automatic fire suppression system is in place and working Verify that the drainage systems are separated from the regular systems
PM.18 Pesticide storage areas should be inspected quarterly by certified applicator ersonnel (MP)	Verify that pesticide storage areas are inspected
Highly and Moderately Toxic Pesticides	
PM 19 Storage facilities for pesticides classified as highly toxic or moderately toxic which are required to be labeled with DANGER, POISON, WARNING, or the skull and crossbones symbol should meet specific structural requirements (MP)	Verify that storage is in a dry, separate room, building, or covered area where fire protection is provided and that the building is clearly placarded on the exterior Verify that when relevant and practicable, the entire storage facility is secured by a climb-proof fence and the doors and gates are kept locked Verify that pesticides are not stored near food or feed (NOTE: These MPs are based on recommendations found in 40 CFR 165 10(c)(1))

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
PM 20 The storage of pesticides classified as highly toxic or moderately toxic which are required to be labeled with DANGER, POISON, WARNING, or the skull and crossbones symbol should meet specific operational requirements (MP)	Verify that pesticide containers are stored with the label plainly visible Verify that all containers are in good condition Verify that the lids and bungs on metal or rigid plastic containers are tight Verify that the pesticides are segregated Verify that a complete inventory is kept indicating the number and identity of containers in a storage unit (See PM 25 for posting requirements) Verify that containers are regularly inspected for corrosion and leaks and that absorbent material is available for spill cleanup Verify that diluted oil based pesticides are stored separately from other materials since they are flammable Verify that excess pesticides and containers are segregated (NOTE These MPs are based on recommendations found in 40 CFR 165.10(d))
PM 21 Pest management programs which use pesticides classified as highly toxic or moderately toxic and are required to bear the signal words DANGER, POISON, WARNING, or the skull and crossbones symbol on the label should have decontamination facilities (MP)	Determine if facilities are available for personnel decontamination and where they are located. Determine if facilities are available for the decontamination of equipment, including vehicles which have been used for pesticide applications Verify that berms, curbing, surfaces, and catchment drains used to impound washwater resulting from decontamination are impervious Verify that drains impound washwater and are not connected to sanitary sewer or stormwater systems Verify that the procedure for disposal of washwater resulting from decontamination activities is the same as for excess pesticides (NOTE These MPs are based on recommendations found in 40 CFR 165 10(c)(3) and 165 10(c)(4))
PM 22 Equipment used for pesticides applications may not be removed from a decontamination site unless thoroughly decontaminated (MP)	Verify that prior to removal from a site, vehicles are decontaminated (NOTE This MP is based on recommendations found in 40 CFR 165 10(c)(2) and 165 10(e)(1)(v))

Compliance Category: **Pesticide Management**	
Regulatory Requirements:	**Reviewer Checks:**
PM 23 Storage of pesticides and excess pesticides that are classified as highly toxic or moderately toxic and are required to be labeled DANGER, POISON, WARNING, or the skull and crossbones should meet specific requirements (MP)	Verify that the site location, where possible, is in an area where flooding is unlikely and where hydrogeologic conditions prevents contamination of any water system by runoff or percolation by - Inspecting area surrounding facilities and determining proximity to surface water - Noting location relative to floodplains, depth of groundwater, and general soil types and typical permeabilities - Verifying that the spill management system is in existence Verify that an environmental monitoring system exists for facilities which do not have spill management system when the facility handles large quantities of pesticides and is located near sensitive environmental receptors The reviewer should - Note approximate quantity of pesticides and location of sensitive environmental receptors - Check whether groundwater, or surface water, or air monitoring program exists to determine any effects caused by pesticide storage, mixing and preparation - Inspect facility operations and layout to determine if operations are likely to allow runoff of water which may have contacted pesticides (NOTE· The Clean Water Act specifies certain pesticides which may trigger additional monitoring/reporting requirements (Aldrin/Dieldrin, DDT, Endrin, Toxaphene) (40 CFR 129).) Verify that, when needed, drainage from the site is contained by natural or artificial barriers or dikes (NOTE· These MPs are based on recommendations found in 40 CFR 165 10(b))

Compliance Category: **Pesticide Management**	
Regulatory Requirements:	**Reviewer Checks:**
PM 24 Facilities which store/use pesticides that are classified as highly toxic or moderately toxic and are required to bear the signal words DANGER, POISON, WARNING, or the skull and crossbones symbol should provide facilities and procedures to ensure the safety of personnel (MP)	Verify that no food consumption, drinking, smoking, or tobacco use is undertaken in any area where pesticides are present Verify that the following practices are performed in pest management operations - Persons handling pesticides keep hands away from mouths and eyes and wear rubber gloves during all pesticide handling - Persons handling pesticides wash hands immediately upon completion of working with pesticides and always prior to eating, smoking or using toilet facilities - Persons handling concentrated pesticides wear protective clothing which is removed if found to be contaminated - A stock of clean protective clothing and respirators is available - Self-contained breathing apparatus and impermeable suits are available when handling pesticides which present the potential of being absorbed through the skin - Inspections are made once a month to determine if any pesticide containers are leaking - Pesticide containers are inspected for leakage prior to handling - Unauthorized persons are not allowed in storage areas Verify that the following accident prevention measures are done - Containers are not manhandled - Unauthorized persons are not allowed in the storage area - Pesticides are not stored next to food or feed or other articles intended for consumption by humans or animals - All vehicles are inspected prior to departure (NOTE These MPs are based on recommendations found in 40 CFR 165 10(e) and 165 10(f))
PM 25 Pesticide storage facilities and equipment which contain or use pesticides classified as highly toxic or moderately toxic and are labeled DANGER, POISON, WARNING, or the skull and crossbones symbol should have signs and safety procedures posted (MP)	Verify that signs which read DANGER POISON, PESTICIDE STORAGE, are placed on or near entries to storage facilities Verify that safety precautions and accident prevention measures are posted Verify that an inventory of pesticides is displayed outside of the storage facility identifying all chemicals in storage. Verify that mobile equipment used for pesticide applications is labeled CONTAMINATED WITH PESTICIDES (NOTE These MPs are based on recommendations found in 40 CFR 165 10(c)(2) through 165 10(c)(3), 165 10(e), and 165 10(g)(2))

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
PM 26 Where large quantities of pesticides classified as highly toxic or moderately toxic and are labeled DANGER, POISON, WARNING, or the skull and crossbones symbol are being stored, or other conditions warrant, the local fire department, hospitals, public health officials, and police department should be notified in writing that pesticides are being stored in the event of a fire (MP)	Verify that notification has been submitted and includes a statement of the hazards that pesticides may present during a fire Verify that a floor plan of the storage facility indicating the location of the different pesticide classifications has been submitted to the fire department Verify that the fire chief has the home telephone numbers of the person(s) responsible for the pesticide storage facility (NOTE These MPs are based on recommendations found in 40 CFR 165 10(g)(1))
Mixing/Formulation Facilities	
PM 27 Mixing/formulation areas should meet specific standards (MP)	Determine if the facility has any mixing/formulation areas Verify that enclosed mixing areas have a local exhaust ventilation with a minimum face velocity of 100 linear feet per minute to control toxic vapors Verify that drainage systems are separate from the regular system
Disposal	
PM 28 Facilities are required to dispose of any pesticide, pesticide container, or pesticide residue according to specific restrictions (40 CFR 165 7)	Verify that pesticides, empty pesticide containers, and/or pesticide residues are disposed of such that - Disposal is not inconsistent with labeling - Open dumping of pesticides or pesticide containers is not done - Open burning is not done except when allowed by state and local regulation - Water dumping or ocean dumping does not occur
PM 29 Organic pesticides, except organic mercury, lead, cadmium, and arsenic compounds should be disposed of according to specific procedures (MP)	Determine if the facility uses organic pesticides Verify that the organic pesticides are disposed of through incineration at an incinerator which meets the air quality standards for gaseous emissions, or in a specially designated landfill if incineration is not available, or by another approved method (NOTES - Municipal solid waste incinerators may be allowed to be used to incinerate pesticides and pesticide containers if they meet criteria of the state - These MPs are based on guidelines found in 40 CFR 165.8 and 165 9)

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
PM.30 Metallo-organic pesticides, except organic mercury, lead, cadmium, or arsenic compounds should be disposed of according to specific procedures (MP)	Determine if the facility uses metallo-organic pesticides Verify that metallo-organic pesticides are subjected to an appropriate chemical or physical treatment to recover the heavy metals from the hydrocarbon structure prior to disposal. Verify that metallo-organic pesticides are disposed of through incineration at an approved incinerator, or in a specially designated landfill, or by another approved method (NOTE· These MPs are based on guidelines found in 40 CFR 165.8 and 165 9)
PM 31 Organic mercury, lead, cadmium, arsenic, and all inorganic pesticides should be disposed of according to specific procedures (MP)	Determine if the facility uses organic mercury, lead, cadmium, arsenic, or any inorganic pesticides Verify that these pesticides are converted to a nonhazardous compound and the heavy metal resources are recovered Verify that, if chemical deactivation facilities are not available, these pesticides are encapsulated and buried in a specially designated landfill and records sufficient to permit location and retrieval are maintained Determine if an alternate method of disposal has been approved (NOTE· These MPs are based on guidelines found in 40 CFR 165 8 and 165 9)

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
PM 32 Containers should be disposed of according to their classification as either a Group I, Group II, or Group III container (MP)	Determine which of the following types of containers the facility has onsite - Group I Containers combustible containers which formerly contained organic or metallo-organic pesticides - Group II Containers noncombustible containers which formerly held organic or metallo-organic pesticides - Group III Containers containers (both combustible and noncombustible) which formerly held organic mercury, lead, cadmium, or arsenic or inorganic pesticides Verify that Group I containers are disposed of in an incinerator or buried in a specially designated landfill (NOTE Small quantities of Group I containers may be burned in open fields by the user of the pesticide when allowed by the state) Verify that Group II containers are triple rinsed Verify that Group II containers in good condition are returned to the manufacturer, formulator, or drum reconditioner to reuse with the same chemical class of pesticides Verify that Group II containers which are going to be transported to a facility for recycling as scrap metal or for disposal are punctured Determine if rinsed Group II containers are crushed and disposed of in a landfill according to state or local requirements Verify that unrinsed Group II containers are disposed of in a specially designated landfill or incinerated Verify that Group III containers which are not rinsed are encapsulated and disposed of in a specially designated landfill (NOTE - Group III containers which are rinsed may be disposed of in a sanitary landfill - These MPs are based on guidelines found in 40 CFR 165.8 and 165 9.)
PM.33 Pesticide residues and rinse liquids should be added to spray mixtures or disposed of according to their pesticide type (MP)	Verify that pesticide residues or rinse liquids are reused. Verify that if they are not reused they are disposed of according to their pesticide type (NOTE These MPs are based on guidelines found in 40 CFR 165 8 and 165 9)

Compliance Category: Pesticide Management	
Regulatory Requirements:	**Reviewer Checks:**
Agricultural Pesticides	
PM 34 Agricultural pesticides must be applied in a manner that workers or other persons, except those knowingly involved in the application, are not exposed either directly or through drift (40 CFR 170.3(a) and 170.4(c))	Determine if the facility applies agricultural pesticides Verify that the area being treated is vacated by unprotected persons (NOTE· These requirements do not pertain to - Mosquito abatement treatment and related public pest control programs - Greenhouse treatments which are applied in accordance with labeling directions and restrictions - Livestock and other animal treatments which are applied in accordance with labeling directions and restrictions - Treatment of golf courses and similar non-agricultural areas which are applied in accordance with labeling directions and restrictions) Verify that workers are warned when a field is to be treated and when a field has been treated
PM.35 Workers not wearing protective clothing shall not be allowed to enter a field treated with sprays until specific conditions are met (40 CFR 170.3(b) and 170 4(c))	Verify that workers without protective clothing do not enter fields that have been sprayed until the labelled reentry times have elapsed Verify that if the following pesticides are used, the indicated reentry times are observed - Ethyl parathion: 48 hours - Methyl parathion· 48 hours - Guthion· 24 hours - Demeton: 48 hours - Azodrin· 48 hours - Phosalone 24 hours - Carbophenothion. 48 hours - Metasystox-R 48 hours - EPN 24 hours - Bidrin 48 hours - Endrin 48 hours - Ethion 24 hours (NOTE. Check labels to verify these reentry times have not changed.) (NOTE. These requirements do not pertain to. - Mosquito abatement treatment and related public pest control programs - Greenhouse treatments which are applied in accordance with labeling directions and restrictions - Livestock and other animal treatments which are applied in accordance with labeling directions and restrictions - Treatment of golf courses and similar non-agricultural areas which are applied in accordance with labeling directions and restrictions.)

Section 14

Pesticide Management

Appendices

Appendix 14-1
Restricted Use Pesticides
(40 CFR 152.175)

The following uses of pesticide products containing the active ingredients specified below have been classified for restricted use and are limited to use by or under the direct supervision of a certified applicator

NOTE These may vary from state to state. The auditor must check each state, some compounds are not permitted and for others, the trigger concentrations may be lower.

NOTE· Any applications made by a certified applicator must be recorded and done in accordance with the labelled instructions, even if the compounds are not restricted use pesticides

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Acrolein	As sole active ingredient No mixtures registered	All uses	Restricted	Inhalation hazard to humans Residue effects on avian species and aquatic organisms
Acrylonitrile	In combination with carbon tetrachloride No registrations as the sole active ingredient	*do	do	Other hazards-accident history of acrylonitrile and carbon tetrachloride products
Aldicarb	As sole active ingredient No mixtures registered	Ornamental uses (indoor and outdoor) Agricultural crop uses	do Under further evaluation	Other hazards-accident history
Allyl alcohol	All formulations	All uses	Restricted	Acute dermal toxicity
Aluminum phosphide	As sole active ingredient No mixtures registered	do	do	Inhalation hazard to humans
Azinphosmethyl	All liquids with a concentration greater than 13 5%	do	do	do
	All other formulations	do	Under further evaluation	
Calcium cyanide	As sole active ingredient No mixture registered	do	Restricted	do
Carbofuran	All concrete suspensions and wettable powders 40% and greater	do	do	Acute inhalation toxicity
	All granular formulations	Rice	Under evaluation	
	All granular and fertilizer formulations	All uses except rice	do	
Chlorfenvinphos	All concentrate solutions or emulsifiable or concentrates 21% and greater	All uses (domestic and non-domestic)	Restricted	Acute dermal toxicity

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification	Criteria Influencing Restriction
Chloropicrin	All formulations greater than 2%	All uses	Restricted	Acute inhalation toxicity
	All formulations	Rodent control	Restricted	Hazard to non-target organisms
	All formulations 2% and less	Outdoor uses (other than rodent control)	Unclassified	
Clonitralid	All wettable powders 70% and greater	All uses	do	Acute inhalation toxicity
	All granulars and wettable powders	Molluscide uses	do	Effects on aquatic organisms
	Pressurized sprays 0 55% and less	Hospital antiseptics	Unclassified	
Cycloheximide	All formulations greater than 4%	All uses	Restricted	Acute dermal toxicity
	All formulations 0 027% to 4%	All uses	Under evaluation	
	All formulations 0 027% and less	Domestic uses	Unclassified	
Demeton	1% fertilizer formulation, 1 985% granular	All uses including domestic uses	Restricted	Domestic uses Acute oral toxicity Acute dermal toxicity Nondomestic outdoor uses Residue effects on avian and mammalian species
	All granular formulations emulsifiable concentrates and concentrated solutions	All uses	do	Acute dermal toxicity Residue effects on mammalian and avian species
Dicrotophos	All liquid formulations 8% and greater	All uses	Restricted	Acute dermal toxicity, residue effects on avian species (except for tree injections)

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Dioxathion	All concentrate solutions or emulsifiable concentrates[2] greater than 30%	All uses	Restricted	Acute dermal toxicity
	Concentrate solutions or emulsion concentrates[2] 30% and less and wettable powders 25% and less	Livestock and agricultural uses (nondomestic uses only)	Unclassified	
	All solutions[2] 3% and greater	Domestic	Restricted	do
	3% and greater 2 5% solutions[2] with toxaphene and malathion	All uses	Under evaluation	
Disulfoton	All emulsifiable concentrates 65% and greater, all emulsifiable concentrates and concentrate solutions 21% and greater with fensulfothion 43% and greater, all emulsifiable concentrates 32% and greater in combination with 32% fensulfothion and greater	do	Restricted	do Acute inhalation toxicity
	Non-aqueous solution 95% and greater	Commercial seed treatment	Restricted	Acute dermal toxicity
	Granular formulations 10% and greater	Indoor uses (greenhouse)	do	Acute inhalation toxicity
Endrin	All emulsions, dusts, wettable powders, pastes, and granular formulations 2% and above	All uses	Restricted	Acute dermal toxicity Hazard to nontarget organisms
	All concentrations less than 2%	do	do	Hazard to non-target organisms
EPN	All liquid and dry formulations greater than 4% Aquatic uses	All uses	Restricted	Acute dermal toxicity, acute inhalation toxicity, residue effects on avian species
		Restricted	Effects on aquatic organisms	
Ethoprop	Emulsifiable concentrates 40% and greater	do	do	Acute dermal toxicity
	All granular and fertilizer formulations	do	Under evaluation	

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Ethyl parathion	All granular and dust formulations greater than 2% fertilizer formulations, wettable powders, emulsifiable concentrates, concentrated suspensions, concentrated solutions	do	Restricted	Inhalation hazard to humans Acute dermal toxicity Residue effects or mammalian, aquatic, avian species Inhalation hazard to humans
	Smoke fumigants	do	do	Other hazards-accident history
	Dust and granular formulations 2% and below	do	do	
Fenamiphos	Emulsifiable concentrates 35% and greater	do	do	Acute dermal toxicity
Fensulfothion	Concentrate solutions 63% and greater, all emulsifiable concentrates and concentrate solutions 43% and greater with disulfoton 21% and greater all emulsifiable concentrates 32% and greater in combination with disulfoton 32% and greater	do	Restricted	do
	Granular formulations 10% and greater	Indoor uses (greenhouse)	do	Acute inhalation toxicity
Fluoroacetamide/1 081	As sole active ingredient in baits No mixtures registered	All uses	Restricted	Acute oral toxicity
Fonofos	Emulsifiable concentrates 44% and greater	All uses	do	
	Emulsifiable concentrates 12 6% and less with pebulate 50 3% and less	Tobacco	Unclassified	Acute dermal toxicity
Hydrocyanic acid	As sole active ingredient No mixtures registered	do	do	Inhalation hazard to humans
Methamidophos	Liquid formulations 40% and greater	All uses	Restricted	Acute dermal toxicity, residue effects on avian species
	Dust formulations 2 5% and greater	All uses	Restricted	Residual effects on avian species

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification[3]	Criteria Influencing Restriction
Methidathion	All formulations	All uses except stock safflower and sunflower	Restricted	Residue effects on avian species
	All formulations	Nursery stock, safflower, and sunflower	Unclassified	Residue effects on avian species
Methomyl	As sole active ingredient in 1% to 2 5 baits (except 1% fly bait)	Nondomestic outdoor agricultural crops, ornamental and turf All other registered uses	Restricted	Residue effects on mammalian species
	All concentrated solution formulations	do	do	Other hazards-accident history
	90% wettable powder formulations (not in water soluble bags)	do	do	Other hazards-accident history
	90% wettable powder formulation in water soluble bags	do	Unclassified	do
	All granular formulations	do	do	
	25% wettable powder formulations	do	do	
	In 1 24% to 2 5% dusts as sole active ingredient and in mixtures with fungicides and chlorinated hydrocarbon, inorganic phosphate and biological insecticides	do	do	
Methylbromide	All formulations in containers greater than 1 5 lb	All uses	Restricted	Other hazards-accident history
	Containers with not more than 1 5 lb of methyl bromide with 0 25% to chloropicrin as an indicator	Single applications (nondomestic use) for soil treatment in closed systems	Unclassified	
	Containers with not more than 1 5 lb having no indicator	All uses	Restricted	do

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Methyl parathion	All dust and granular formulations less than 5%	do	do	Other hazards-accident history All foliar applications restricted based on residue effects on mammalian and avian species
	Microencapsulated All dust and granular formulations 5% and greater and all wettable powders and liquids	do	do	Residue effects on avian species Hazard to bees Acute dermal toxicity Residue effects on mammalian and avian species
Mevinphos	All emulsifiable concentrates and liquid concentrates	do	do	do
	Psycodid filter fly liquid formulations	do	do	Acute dermal toxicity
	2% dusts	do	do	Residue effects on mammalian and avian species
Monocrotophos	Liquid formulations 19% and greater	do	do	Residue effects on avian species Residue effects on mammalian species.
	Liquid formulations 55% and greater	do	do	Acute dermal toxicity Residue effects on avian species. Residue effects on mammalian species
Nicotine (alkaloid)	Liquid and dry formulations 14% and above.	Indoor (greenhouse)	Restricted	Acute inhalation toxicity
	All formulations	Applications to cranberries	Restricted	Effects on aquatic organisms
	Liquid and dry formulations 1 5% and less	All uses (domestic and non-domestic)	Unclassified	

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification[3]	Criteria Influencing Restriction
Paraquat (dichloride) and paraquat bis(methylsulfate)	All formulations and concentrations except those listed below	All uses	Restricted	Other hazards Use and accident history, human toxicological data
	Pressurized spray formulations containing 0 44% Paraquat bis(methyl sulfate) and 15% petroleum distillates as active ingredients	Spot weed and grass control	do	
	Liquid fertilizers containing concentrations of 0 025% paraquat dichloride and 0 03% atrazine, 0 03% paraquat dichloride and 0 37% atrazine, 0 04% paraquat dichloride and 0 49% atrazine	All uses	Unclassified	
Phorate	Liquid formulations 65% and greater	do	Restricted	Acute dermal toxicity Residue effects on avian species (applies to foliar applications only) Residue effects on mammalian species (applies to foliar application only)
	All granular formulations	Rice	Restricted	Effects on aquatic organisms
Phosacetim	Baits 0 1% and greater	All uses	Restricted	Hazard to non-target species Residues effects on mammalian species Residue effects on avian species
Phosphamidon	Liquid formulations 75% and greater	do	do	Acute dermal toxicity Residue effects on mammalian species Residue effects on avian species
	Dust formulations 1 5% and greater	do	do	Residue effects on mammalian species
Picloram	All formulations and concentrations except tordon 101R	do	do	Hazard to non-target organisms (specifically nontarget plants both crop and noncrop)
	Tordon 101 R forestry herbicide containing 5 4% picloram and 20 9% 2, 4-D	Control of unwanted trees by cut surface treatment	Unclassified	
Sodium cyanide[3]	All capsules and ball formulations	All uses	Restricted	Inhalation hazard to humans

Appendix 14-1 (continued)
Restricted Use Pesticides
(40 CFR 152.175)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Sodiumfluoro-acetate	All solutions and dry baits	do	do	Acute oral toxicity Hazard to nontarget organisms Use and accident history
Strychnine	All dry baits pellets and powder formulations greater than 0 5%	do	do	Acute oral toxicity Hazard to non-target avain species Use and accident history
	All dry baits pellets and powder formulations	All uses calling for burrow builders	do	Hazard to non-target organisms
	All dry baits, and pellets, and powder formulations 0 5% and below	All uses except subsoil	do	do
	do	All subsoil uses	Unclassified	do
Sulfotepp	Sprays and smoke generators	All uses	Restricted	Inhalation hazard to humans
Tepp	Emulsifiable concentrate formulations	do	do	Inhalation hazard to humans Dermal hazard to humans Residue effects on mammalian and avian species
Zinc Phosphide	All formulations 2% and less	All domestic uses and non-domestic uses in and around buildings	Unclassified	
	All dry formulations 60% and greater	All uses	Restricted	Acute inhalation toxicity
	All bait formulations	Nondomestic outdoor uses (other than around buildings)	Restricted	Hazard to nontarget organisms
	All dry formulation 10% and greater	Domestic uses	Restricted	Acute oral toxicity

1 "Under evaluation" means no classification decision has been made and the use/formulation is still under active review within EPA
2 Percentages given are the total of dioxathion plus related compounds
3 (NOTE M-44 sodium cyanide capsules may only be used by certified applicators who have also taken the required additional training)

Phase 1

Section 15

Groundwater Protection

Phase 1
Section 15
Table of Contents

Groundwater Protection

A. Applicability 15-1
B. Federal Legislation 15-1
C. State/Local Regulations 15-1
D. Key Compliance Requirements 15-2
E. Key Compliance Definitions 15-6
F. Records to Review 15-10
G. Physical Features to Inspect 15-11
H. Guidance for Checklist Users 15-11

Appendices

15-1. Inventory of Neighboring Facilities A15-1
15-2. Inventory of Groundwater Wells A15-2
15-3. Inventory of Existing and Former Aboveground Storage Tanks A15-3
15-4 Inventory of Prior Operations A15-4
15-5. Inventory of Spills and Leaks or Suspected Areas of Contamination A15-5
15-6. Inventory of Aquifers A15-6
15-7. Inventory of Lithologies A15-7
15-8. Inventory of On-Site Disposal A15-8
15-9. Inventory of Water Discharges A15-9
15-10. Inventory of Existing and Former Underground Storage Tanks A15-10

A. Applicability

This section applies to facilities that have Solid Waste Management Units (SWMUs), and/or hazardous waste Treatment, Storage, or Disposal Facilities (TSDFs), and/or Underground Injection Control (UIC) activities. It includes a discussion of the relevant statutes, regulations, and procedures for determining applicability of groundwater protection and UIC requirements and it includes reviewing procedures for determining the facilities' compliance status with respect to these requirements.

B. Federal Legislation

1. Resource Conservation and Recovery Act (RCRA), Subtitle C and D

This Act, Public Law (PL) 98-616, 42 U.S. Code (USC) 6921-2939(b), establishes standards for groundwater protection and monitoring at hazardous waste treatment, storage, and disposal facilities, and solid waste disposal facilities.

Under the Underground Storage Tank (UST) rules of RCRA, USTs containing petroleum products or hazardous substances must have a release detection program That program can include a shallow groundwater monitoring program. The UST shallow groundwater monitoring program for USTs is only appropriate for tanks storing materials, immiscible in and with a density less than water, located where the water table is less than 20 feet below ground surface, backfill soils are similar to natural soils and monitoring wells are properly constructed, placed, marked and secured.

2. The Safe Drinking Water Act (SDWA)

This Act, Public Law (PL) 99-339, 42 U.S. Code (USC) 201, 300(f)--300(j)-25, 6939(b), 6979(a), 6979(b), 7401--742, etc., is the Federal legislation which regulates the safety of drinking water in the country.

The SDWA also established a program to ensure that underground injection will not endanger drinking water sources and empowers each state to develop a UIC program.

Under the SDWA, regulations were promulgated concerning the use of underground injection as a means of disposing wastes. The regulations require an Underground Injection Control Program permit and establishment of an Underground Injection Control Program. The program must contain procedures for sampling, recordkeeping, reporting, well construction, well plugging and abandonment, and outline financial assurances for the underground injection control program.

C. State/Local Regulations and Other State Regulations

The UIC program within each state is administered directly by the state (Primary Program) or EPA (where states do not administer the program), or a combination of the state and EPA. The

overall Wellhead Protection Program for a state is administered by the state but is developed and implemented on a local (e.g., municipal, water district) level.

D. Key Compliance Requirements

1. Classification of Wells

There are five classes of UIC wells:

Class I.

a. Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.

b. Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.

Class II. Wells which inject fluids:

a. Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

b. For enhanced recovery of oil or natural gas.

c. For storage of hydrocarbons which are liquid at standard temperature and pressure.

Class III. Wells which inject for extraction of minerals including:

a. Mining of sulfur by the Frasch process.

b. In-situ production of uranium or other metals; this category includes only in-situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.

c. Solution mining of salts or potash.

Class IV.

a. Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within one-quarter mile of the well contains an underground source of drinking water.

b. Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste

disposal sites to dispose of hazardous waste or radioactive waste above a formation which within one-quarter mile of the well contains an underground source of drinking water.

c. Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under 1.a or 4 a and b above (e.g., wells used to dispose of hazardous waste into or above a formation which contains an aquifer which has been exempted pursuant to 40 CFR 146.04).

Class V. Injection wells not included in Classes I, II, III, or IV.

2. Exempted Aquifers

Under 40 CFR 144.7(b), EPA has identified "exempted aquifers" which cannot be used as sources of drinking water because they:

a. Contain minerals, hydrocarbons, or geothermal energy expected to be commercially producible;
b. Are situated at a depth or location which makes recovery for drinking water purposes economically or technologically impractical;
c. Are contaminated;
d. Are located over a Class III well or mining area subject to subsidence or catastrophic collapse; or
e. contain between 3,000 and 10,000 mg/l of total dissolved solids. These aquifers are exempted from the protection afforded by the UIC regulations (40 CFR 144.7)

3. Indian Lands

EPA may promulgate an alternative UIC program for Class II wells on any Indian reservation or Indian lands (40 CFR 144.2).

4. Prohibition of Unauthorized Discharge

Any underground injection, except as authorized by permit or rule issued under the UIC program is prohibited (40 CFR 144.11).

5. Prohibition of Class IV Wells

The following activities relating to Class IV wells are prohibited, unless the conditions in 40 CFR 144.13(c) are met (40 CFR 144.13):

- The construction of any Class IV well;
- The operation or maintenance of any Class IV well not in operation prior to July 18, 1980;
- The operation or maintenance of any Class IV well that was in operation prior to July 18, 1980, after six months following the effective date of a UIC program approved or promulgated for the state;

- Any increase in the amount of hazardous waste or change in the type of hazardous waste injected into a Class IV well.

6. Prohibition of Movement

The construction, operation, maintenance, conversion, plugging, abandonment, or conduct of other injection activities must not cause movement of fluid containing contamination into underground sources of drinking water if the presence of that contaminant may cause a violation of any primary drinking water regulation or otherwise adversely affect the health of persons (40 CFR 144 12).

7. Injection of Hazardous Waste Under the UIC Program

Each facility using any class of well to inject hazardous waste must comply with (40 CFR 144.14):

- The notification requirements of Section 3010 of RCRA;
- The identification number requirements of 40 CFR 264.11;
- The recordkeeping, reporting, and manifest requirements in 40 CFR 264.71-264.72;
- The operation record requirements in 40 CFR 264.73(a), (b)(1), and (b)(2);
- The annual report requirements of 40 CFR 264.75;
- The unmanifested waste report requirements in 40 CFR 264.75;
- The applicable training requirements of 40 CFR 264.16;
- The closure certification requirements of 40 CFR 144.52(a)(6).

8. Inventory Requirements

Owners/operators of all injection wells authorized by rule must submit an inventory to the Director (40 CFR 144.26).

9. Financial Responsibility

Owners/operators of Class I hazardous waste injection wells must establish financial assurance. A written estimate, in current dollars, of the cost of plugging and abandoning each injection well is required. Owners/operators of each facility must establish financial assurance for the plugging and abandonment of each existing and new Class I hazardous waste injection well, choosing from the following options:

- Plugging and abandonment trust fund; surety bond guaranteeing payment into a plugging and abandonment trust fund;
- Surety bond guaranteeing performance of plugging and abandonment; plugging and abandonment letter of credit;

- Plugging and abandonment insurance; or
- Financial test and corporate guarantee for plugging and abandonment (40 CFR 144(f)).

Owners/operators of hazardous and solid waste landfills have similar responsibilities defined in Subpart H of 40 CFR 258, 264 and 265. A written estimate of costs for closure, post-closure care, liability and sudden and non-sudden occurrences is required. The options for establishing financial assurance are the same as those for the UIC program. These estimates are to be updated annually; some states may require a more frequent update.

10. RCRA Permit Programs

RCRA regulations under 40 CFR 258.50-258.58 outline the requirements of a groundwater monitoring and corrective action program. RCRA regulations under 40 CFR 264 and 265 require that any facility that treats, stores or disposes of hazardous waste must apply to the state for an operating permit If the state has not yet given final approval or denial of the permit application, then the facility is considered an "interim status" facility, and the temporary permit issued by the state is called a "Part A permit." If a final permit, called a "Part B permit" has been issued, then the facility is considered a Treatment, sStorage, and Disposal Facility (TSDF) The facility RCRA permit, whether it is Part A or B, will have requirements in it for groundwater programs and those requirement tend to differ from state to state.

In the Federal regulations, there are basic requirements for both interim status facilities and TSDFs including the development and maintenance of a groundwater monitoring program. The programs generally have different levels of requirements depending on the potential level of groundwater contamination at the facility, and proximity to sensitive receptors.

11. Imminent and Substantial Endangerment

Federal environmental laws, including CERCLA, RCRA, the SDWA, the Clean Air Act (CAA) and, to some extent, the Clean Water Act (CWA), rely on the concept of immediate response action when an actual or threatened release poses an imminent and substantial endangerment to public health, welfare or the environment. Site inspectors must have a full understanding of this concept to properly interpret and take immediate and appropriate action if situations that present an imminent and substantial endangerment to human health, welfare, or the environment are encountered. The following definitions provide clarification·

"Actual or threatened release" applies not only to actual releases or discharges, but also to potential releases or discharges as well. However, the release or discharge must be actual or probable not merely speculative.

"Imminent" is defined as existing now or likely to exist in the near future. "Imminent" refers to endangerment, it does not require that actual harm be imminent.

"Substantial" is defined both in relation to the potential for risk (that is, harm is very likely to occur) and the degree of harm that may occur (that is, the harm will be very serious).

"Endangerment" is defined broadly as the risk of harm to human health, welfare, or the environment. Risk of harm to human health includes the potential for acute/chronic illness or injury caused by exposure to hazardous substances, wastes, contaminants, or pollutants including contaminated public or private water supplies Risk of harm to welfare includes the potential for economic loss due to damage to property, livestock, crops, resources, fish, or other harm to livelihood. Risk of harm to the environment includes the direct physical destruction or alteration of an ecosystem, (e.g., harm to flora and fauna). The harm need not have already occurred for the endangerment to exist.

Consideration of these terms simultaneously suggests a complex interaction between the material released or threatened to be released, the amount of material released, the potential pathways of migration, the proximity of such pathways, the potential for human, animal, or environmental exposure, the nature of harm caused by exposure, and the severity of harm.

12. Clean Water Act - Discharges to Groundwater

Frequently, state NPDES equivalent programs will contain regulations controlling the discharge of pollutants to groundwater. These programs generally require permitting, monitoring, and reporting activities.

E. Key Compliance Definitions

1. Approved State Program

a. UIC program administered by the state or Indian Tribe that has been approved by EPA according to SDWA Sections 1422 and/or 1425 (40 CFR 144.3).

b. A RCRA program administered by the state or Indian Tribe that has been approved by EPA according to 40 CFR 271.

2. Aquifer

Geological "formation," group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring (40 CFR 144.3, 40 CFR 260.10).

3. Area of Review

The area surrounding an injection well described according to the criteria set forth in 40 CFR 146.06 or in the case of an area permit, the project area plus a circumscribing area the width of which is either 1/4 of a mile or a number calculated according to the criteria set forth in 40 CFR 146 06 (40 CFR 144.3).

4. Contaminant/Pollutant

a. Any physical, chemical, biological, or radiological substance or matter in water (40 CFR 144 3).

b. As defined by section 101(33) of CERCLA, this term includes, but is not limited to, any element, substance, compound or mixture, including disease-causing agents, which after

release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions, or physical deformations, in such organisms or their offspring The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under section 101(14)(A) through (F) of CERCLA (40 CFR 300 5)

5. Corrective Action Management Unit (CAMU)

An area within a facility that is designated by the Regional Administrator under 40 CFR 264 Subpart S, for the purpose of implementing corrective action requirements under 40 CFR 264 101 and RCRA section 3008(h) A CAMU shall only be used for the management of remediation wastes pursuant to implementing such corrective action requirements at the facility

6. Discharge

As defined by section 311(a)(2) of the CWA, includes, but is not limited to, any spilling, leaking, pumping, pouring emitting, emptying, or dumping of oil but excludes discharges in compliance with a permit under section 402 of the CWA. For purposes of the NCP, discharge also means threat of discharge.

7. Drilling Mud

A heavy suspension used in drilling an "injection well," introduced down the drill pipe and through the drill bit (40 CFR 144.3).

8. Exempted Aquifer

An "aquifer" or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures in 40 CFR 144.7 (40 CFR 144 3)

9. Facility or Activity

a Any UIC "injection well," or another facility or activity that is subject to regulation under the UIC program (40 CFR 144.3).

b. Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock or aircraft, or any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

10. Fluid

Any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state (40 CFR 144.3).

11. Formation

A body of consolidated or unconsolidated rock characterized by a degree of lithologic homogeneity which is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface (40 CFR 144.3).

12. Formation Fluid

"Fluid" present in a "formation" under natural conditions as opposed to introduced fluids, such as "drilling mud" (40 CFR 144.3).

13. Generator

Any person, by site location, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261 (40 CFR 144.3).

14. Groundwater

Water below the land surface in a zone of saturation (40 CFR 260.10, 144.3).

15. Hazardous Waste

Hazardous waste as defined in 40 CFR 261.3 (40 CFR 144.3).

16. Hazardous Waste Management Facility

"HWM facility" means all contiguous land, and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (for example, one or more landfills, surface impoundments, or combination of them) (40 CFR 144.3).

17. Indian Lands

"Indian country" as defined in 18 U.S.C. 1151. That section defines Indian country as (40 CFR 144.3):

a. All land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation.

b. All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state.

c. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

18. Indian Tribe

Any Indian Tribe having a federally recognized governing body carrying out substantial governmental duties and powers over a defined area (40 CFR 144.3).

19. Injection Well

A "well" into which "fluids" are being injected (40 CFR 144.3).

20. Injection Zone

Geological "formation" group of formations, or part of a formation receiving fluids through a "well" (40 CFR 144.3).

20. Landfill

A disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit (40 CFR 260.10).

21. Management Practice (MP)

Practices that, although not mandated by law, are encouraged to promote safe operating procedures.

22. Owner or Operator

The owner or operator of any "facility or activity" subject to regulation under the UIC program (40 CFR 144.3).

23. Permit

An authorization, license, or equivalent control document issued by EPA or an approved state to implement the requirements of 40 CFR Parts 144, 145, 146 and 124. "Permit" includes an area permit (40 CFR 144.33) and an emergency permit (40 CFR 144.34). Permit does not include UIC authorization by rule (40 CFR 144.21), or any permit which has not yet been the subject of final agency action, such as a "draft permit" (40 CFR 144.3)

24. Person

An individual, association, partnership, corporation, municipality, state, Federal, or Tribal agency, or an agency or employee thereof (40 CFR 144.3).

25. Plugging

The act or process of stopping the flow of water, oil or gas into or out of a formation through a borehole or well penetrating that formation (40 CFR 144.3).

26. Project

A group of wells in a single operation (40 CFR 144.3).

27. Radioactive Waste

Any waste which contains radioactive material in concentrations which exceed those listed in 10 CFR Part 10, Appendix B, table II, Column 2 (40 CFR 144 3).

28. Site

The land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity (40 CFR 144.3).

29. Underground Injection Control (UIC)

Underground Injection Control program under Part C of the Safe Drinking Water Act, including an "approved state program" (40 CFR 144.3).

30. Underground Source of Drinking Water (USDW)

An aquifer or its portion (40 CFR 144.3):

a. Which supplies any public water system; or
b. Which contains a sufficient quantity of ground water to supply a public water system; and
c. Currently supplies drinking water for human consumption; or
d. Contains fewer than 10,000 mg/l total dissolved solids; and
e. Which is not an exempted aquifer.

31. Uppermost Aquifer

The geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary (40 CFR 144.3).

32. Well

A bored, drilled or driven shaft, or a dug hole, whose depth is greater than the largest surface dimension (40 CFR 144.3)

33. Well Injection

The subsurface emplacement of "fluids" through a bored, drilled, or driven "well;" or through a dug well, where the depth of the dug well is greater than the largest surface dimension (40 CFR 144.3).

F. Records to Review

- Approved underground injection well permits;
- Injection well planning and constction records;
- Injection well monitoring results;
- Facility records, or petitions for review records, for projects that may potentially cause contamination of a sole source aquifer through its recharge zone;
- State waivers; and
- Groundwater monitoring results, reports (for more detail, see checklist).

G. Physical Features to Inspect

- Underground injection wells;
- Groundwater monitoring well system; and
- Surrounding environment for signs of stress.

H. Guidance for Checklist User

	Refer To	
	Checklist Items	Page Numbers
All Facilities	GW.1 through GW 2	15-12
Site Reconnaissance and Inspections	GW 3	15-12
Records Review	GW 4	15-13
State-Specific Regulatory Requirements	GW 5	15-13
Groundwater Pollution and Hydrogeology	GW 6	15-14
Groundwater Protection Program	GW.7	15-15
Hazardous Waste Site Groundwater Monitoring - Permitted Facilities	GW.8 through GW 9 GW.10 through GW 11 GW 12 through GW 13	15-15 15-16 15-17
Hazardous Waste Site Groundwater Monitoring - Interim Status Facilities	GW.14 through GW.15 GW 16	15-18 15-19
Sampling and Analytical Practices	GW 17 through GW.18	15-20
Underground Injection	GW 19 through GW 22 GW.23 through GW 25 GW.26 through GW 29	15-21 15-22 15-23

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
All Facilities	
GW 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions must be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency agreements or equivalent state enforcement actions For those open items, indicate what corrective actions are planned and milestones established to correct problems
GW.2 Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (A finding under this checklist item will have the citation of the applied regulation as a basis of finding.)	Determine if any new regulations have been issued since the finalization of the guide If so, annotate checklist to include new standards Determine if the facility has activities or facilities which are federally regulated, but not addressed in this checklist. Verify that the facility is in compliance with all applicable and newly issued regulations.
Site Reconnaissance and Inspections	
GW 3 The facility must review all of its operations in an effort to identify any possible areas of concern with respect to groundwater protection Creating inventories of potential sources of groundwater contamination (e g , USTs, ASTs, past spills and leaks, etc), allows the facility to determine its compliance status (MP)	Determine whether the facility has developed an inventory of potential sources of groundwater contamination Determine whether the following potential contaminant sources are present at the facility. - Petroleum products, hazardous material, and non-RCRA wastes stored in underground storage tanks which could negatively affect groundwater If yes, complete Appendix 15-3, Inventory of Existing and Former Underground Storage Tanks - Petroleum products and oil-filled dielectric transformers stored in aboveground storage tanks which could negatively affect groundwater If yes, complete Appendix 15-3, Inventory of Existing and Former Aboveground Storage Tanks - Facility operations (e.g., soil column discharges, SWMUs) that caused on-site soil or groundwater contamination If yes, complete Appendix 15-5, Inventory of Spills and Leaks or Suspected Areas of Contamination - Operation of any offsite locations (e g , warehouses, garages, storage units, specialty experiments shops, etc) that could negatively affect groundwater monitoring or supply wells, etc If yes, complete Appendix 15-2, Inventory of Groundwater Wells, Appendix 15-6, Inventory of Aquifers, and Appendix 15-7, Inventory of Lithologies - Any known or suspected spill events with the potential for causing soil or groundwater contamination If yes, complete Appendix 15-5, Inventory of Spills and Leaks or Suspected Areas of Contamination - Property abettors capable of causing groundwater contamination. If yes, complete Appendix 15-1, Inventory of Neighboring Facilities - The facility discharges pollutants into water bodies If yes, complete Appendix 15-9, Inventory of Water Discharges - Operation of wastewater treatment facilities

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
Records Review	
GW 4 The facility must keep records of all past groundwater problems and all facility programs and procedures in place to prevent groundwater pollution This will help the facility compare the types of problems they may be susceptible to with the control techniques they use to prevent and remediate those problems to ensure there is a contingency for all potential problems (MP).	Evaluate whether the facility been subject to any regulatory action (e g , lawsuits, consent decrees, investigations, etc) during the period of review Determine if the facility documented any internal audits, appraisals, or reviews during the period of review. Determine if the facility evaluated the potential effect past operations may have had on groundwater Determine if the facility has been the subject of groundwater complaints or lawsuits by third parties (e.g., neighbors, environmental organizations, etc) during the period of review. Identify and evaluate any formal groundwater protection programs in place
State Specific Regulatory Requirements	
GW 5 Groundwater is normally considered "waters of the state" and is regulated by individual states The specialist should obtain and review state groundwater related regulations and laws Below are some state regulated issues the specialist should keep in mind (MP)	Determine if the state has any groundwater regulations covering the following - Groundwater well plugging and abandonment procedures - Groundwater discharge permits - Monitoring well security requirements - Wellhead protection (often regulated and implemented at the local level) - Groundwater contamination reporting requirements and cleanup standards - Other state regulatory requirements

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
Groundwater Pollution and Hydrogeology	
GW 6 The facility must consistently monitor the groundwater at the site for evidence of contamination It is imperative to understand how the contaminants are discharged, how they would react if discharged to the groundwater, as well as the hydrologic regime at the site to properly evaluate the groundwater monitoring system	Verify that facility programs are adequate to detect leaks from underground storage tanks before groundwater resources are degraded Determine if there is groundwater contamination on-site. (NOTE Primary types of contamination include volatile organic compounds, inorganic compounds and radiological compounds) (If groundwater contamination exists, if possible, determine its state (e g , non-aqueous phase, dissolved) Determine if soil gas studies and/or other programs for contamination within the unsaturated zone or vadose zone have been conducted to characterize volatile organic compounds and/or radiological contaminants Verify that facility formal site assessment procedures exist to address groundwater contamination if it is identified Determine that applicable state environmental regulations and/or CERCLA requirements are met Determine if there is groundwater contamination at the site. If contamination is present, has the facility - Identified and removed the source - Characterized the nature and extent (e g , determined the types of contamination present, the state (dissolved/non-aqueous) the contamination is in, and the limits of the contaminant plume) - Taken necessary steps with the regulators to determine if cleanup is necessary? Determine if soil base studies and/or other investigations have been performed to identify and characterize contamination in the unsaturated zone Verify that the facility has characterized the groundwater system and determined the aquifer properties that control groundwater flow, and that the facility has characterized groundwater quality, flow direction and rate Methods for assessing aquifer properties include slug tests, aquifer pump tests, geophysical methods, tracer testing, and laboratory soil/sediment property measurements The aquifer characteristics of importance include transmissivity, storage coefficient, anisotropy, infiltration rates, organic carbon content, fracture spacing and aperture, degree of interconnection between aquifer and other water bearing units and surface water, leakage rates, groundwater velocity, porosity, gradients, and dispersion

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
Groundwater Protection Program	
GW 7 The facility should develop a formal groundwater protection program which includes groundwater monitoring, documentation, recordkeeping and standard operating procedures for groundwater related activities (e g , drilling, well inspection and maintenance, etc) (MP)	Confirm that facility standard operating procedures exist for - Drilling - Well construction - Management and disposal of investigation derived waste (e g , borehole cuttings, development water and purge water, and drilling fluid) - Well inspection and maintenance - Groundwater and soil sampling, preservation and shipment and chain of custody control - Well abandonment - Data management Verify that the facility developed and maintains documentation relating to hydrogeologic characterization which includes the definition and description of site geology and hydrology including identification of aquifers, and surface water/groundwater relationships
Hazardous Waste Site Groundwater Monitoring - Permitted Facilities	
(NOTE GW 8 through GW 13 describe the requirements for groundwater programs pursuant to 40 CFR 264 Subpart F, Releases from Solid Waste Management Units, such as surface impoundments, waste piles, land treatment units, received waste after July 26, 1982 (40 CFR 264 90))	
GW 8 The facility must comply with the conditions specified in the facility permit meant to ensure that hazardous constituents under 40 CFR 264 93 detected in the groundwater do not exceed the concentration limits under 40 CFR 264.94 in the uppermost aquifer underlying the waste management area beyond the point of compliance under 40 CFR 264 95 (40 CFR 264 92)	Review the facility Part B permit and determine whether the groundwater protection standards set forth are addressed in the facility's groundwater protection program The groundwater protection standards should include at least the following parts - The identification of hazardous constituents listed in Appendix VIII of 40 CFR 261 that have been detected in the groundwater from the facility - Concentration limits for the hazardous constituents identified - The point of compliance at which monitoring must be conducted - The compliance period during which the groundwater protection standard applies
GW 9 Facilities are required to conduct a monitoring program (40 CFR 264 91)	Verify that the facility conducts the following monitoring and response activities as applicable - At a minimum, the facility must institute a detection monitoring program as described in Step GW 11 - Whenever hazardous constituents are detected at statistically significant concentrations at a compliance point, the facility must institute a compliance monitoring program as described in GW 12 - Whenever the groundwater protection standard is exceeded or hazardous constituents exceed concentration limits beyond the point of compliance, the facility must institute a corrective action program as described in Step GW 13

Compliance Category: **Groundwater Protection**	
Regulatory Requirements:	**Reviewer Checks**
GW 10 Facilities must comply with the requirements in 40 CFR 264 97 for any groundwater monitoring program developed to satisfy 40 CFR 264 98, 264 99, or 264 100 (40 CFR 264.97)	If there is a possibility of hazardous constituents in the groundwater, ensure that the following activities are added to the groundwater monitoring plan - For each hazardous constituent in each well, one of the statistical methods described in 40 CFR 264 97(h) for evaluating monitoring data has been chosen by the facility, approved by the Regional Administrator, and complies with the performance standards in 40 CFR 264.97(i) - All groundwater monitoring data collected is maintained in the facility operating record and submitted for review as required by the Regional Administrator - The program includes sampling and analytical procedures that are appropriate and accurately measure hazardous constituents in groundwater samples - An appropriate method for determining background water quality has been selected and background groundwater quality has been determined
GW 11 Facilities required to establish a detection monitoring program under 40 CFR 264 Subpart F must, at a minimum, comply with 40 CFR 264 98 (40 CFR 264 98)	If the facility is required by the Regional Administrator to establish a detection monitoring program, ensure that the following activities are included in the groundwater monitoring plan - Monitoring for indicator parameters (e g , specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in the groundwater (NOTE· The Regional Administrator will specify the parameters or constituents to be monitored and their frequency for collection and statistical analysis in the facility permit (40 CFR 264 98(d)) - Determination of the groundwater flow rate and direction in the uppermost aquifer, at least annually - Determination of whether statistically significant evidence of contamination exists and if it does exist, the following steps are taken (NOTE. If statistically significant evidence of contamination exists but, may have been caused by contamination from another source or by an error in sampling, then the facility must demonstrate that to the Regional Administrator) -- the Regional Administrator is notified in writing within seven days -- the groundwater is immediately sampled in all monitoring wells to determine if any constituents in Appendix IX of 40 CFR 264 are present, and if so, in what concentration (NOTE: If Appendix IX constituents are present in the sample then the following activities are required - An application for a permit modification to establish a compliance monitoring program is submitted within 90 days to the Regional Administrator - An engineering feasibility plan for corrective action and all data necessary to justify any alternative concentration limits are submitted to the Regional Administrator within 180 days.)

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
GW 12 Facilities required to establish a compliance monitoring program under CFR 264 Subpart F must, at a minimum, comply with 40 CFR 264 99 (40 CFR 264 99).	If the facility is required to establish a compliance monitoring plan, verify that the plan contains procedures for the following activities to be done in conjunction with the groundwater monitoring plan - Determination of whether any significant evidence of increased contamination exists and if it does exist, the following steps are taken -- the Regional Administrator is notified in writing which limits are exceeded within seven days -- an application for a permit modification to establish a corrective action program is submitted to the Regional Administrator within 180 days (NOTE If statistically significant evidence of increased contamination exists but, may have been caused by contamination from another source or by an error in sampling, then the facility must demonstrate that to the Regional Administrator)
GW 13 Facilities required to establish a corrective action program under 40 CFR 264 Subpart F must, at a minimum, comply with 40 CFR 264 100 (40 CFR 264 100)	If the facility is required to establish a corrective action program, determine whether the following procedures are in place in addition to the groundwater monitoring plan - The facility either removes hazardous waste constituents or treats them in place to prevent the constituents from exceeding their respective concentration limits The permit will specify the specific measures that will be taken - The facility establishes a groundwater monitoring program to evaluate the effectiveness of the corrective action program and submits the results of the evaluation semi-annually in a written report to the Regional Administrator
Hazardous Waste Site Groundwater Monitoring - Interim Status Facilities	
(NOTE GW 14 through GW 16 describe the requirements for groundwater programs pursuant to 40 CFR 265 Subpart F, Interim Status for Owners and Operators of Treatment, Storage, and Disposal Facilities (40 CFR 265 90))	

Compliance Category: **Groundwater Protection**	
Regulatory Requirements:	**Reviewer Checks**
GW.14. The facility must have a groundwater monitoring program capable of determining the facility's impact on the uppermost aquifer unless they have demonstrated and certified that a program is not necessary (40 CFR 265.90(c)(e)). The program must include a groundwater monitoring system consistent with the requirements of 40 CFR 265.91 and a sampling and analysis plan consistent with 40 CFR 265.92	Verify that the facility has developed a groundwater sampling and analysis plan Review the plan and verify that it includes procedures and techniques for - Sample collection - Sample preservation and shipment - Analytical procedures - Chain of custody control. Verify that the facility determines the background concentration or value of the following parameters in the groundwater samples at least annually: - Parameters characterizing the suitability of groundwater as a drinking water supply, as specified in 40 CFR 265 Appendix III - The following parameters establishing groundwater quality -- Chloride -- Iron -- Manganese -- Phenols -- Sodium -- Sulfate. - The following parameters used as indicators of groundwater contamination. -- pH -- specific conductance -- total organic carbon -- total organic halogen Verify that the facility maintains records of all borings advanced and well construction details for all wells installed Review records to determine if wells are capable of determining the facility's impact on the uppermost aquifer.
GW.15 The facility must resample and provide notice if a downgradient monitoring well sample shows a significant increase (or pH decrease) in constituent concentration (40 CFR 265.93(c)).	If the facility determines that a monitoring well sample shows a significant increase (or pH decrease) in constituent concentration, confirm that the facility conducts the following activities: - Duplicate resampling of the well(s) that showed the difference and separate analysis of the two sets of samples to determine whether the difference was a result of sampling or laboratory error - If it is determined that the difference was not a result of sampling or laboratory error, the facility must prepare: -- written notice for the Regional Administrator within seven days -- a groundwater quality assessment plan that has been approved by a qualified geologist or geotechnical engineer for the Regional Administrator within 15 days -- an assessment report for the Regional Administrator within 15 days of its completion.

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
GW 16 Groundwater monitoring program records must be maintained (40 CFR 265 94)	Unless the groundwater is monitored to satisfy 40 CFR 265 93(d)(4), verify that the facility - Maintains records of the analyses required in 40 CFR 265 92(c) and (d), the associated groundwater surface elevations required in 40 CFR 265 92(e), and the evaluations required in 40 CFR 265 93(b) (NOTE These records must be kept throughout the active life of the facility, and, for disposal facilities, throughout the post-closure care period as well) - Reports information specified in 40 CFR 265 94(a)(2) to the Regional Administrator If the groundwater is maintained to satisfy the requirements of 40 CFR 265 93(d)(4), verify that the facility - Maintains records of the analyses and evaluations specified in the plan (NOTE These records must be kept throughout the active life of the facility, and, for disposal facilities, throughout the post-closure care period as well) - Annually submits a report to the Regional Administrator containing the results of the groundwater quality assessment program (NOTE This report is required annually until final closure of the facility) Review facility recordkeeping and reporting procedures to ensure that they include the following with respect to groundwater monitoring - Procedures to keep all analyses and evaluations of groundwater throughout the active life of the facility, and, for disposal facilities, throughout the post-closure care period as well - Procedures to submit (no later than 1 March each year) to the Regional Administrator, a report containing the results of the groundwater quality assessment

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
Sampling and Analytical Practices	
GW 17 Sampling and analysis requirements are largely regulated by the individual states and will be described in the facility's permit A review of the permit requirements and the groundwater protection program is necessary to complete this section The following steps are general requirements which should be coordinated with the permit requirements when conducting sampling and analysis procedures (MP)	Verify that groundwater sampling technicians are properly trained and certified Verify that all sampling activities are conducted in accordance with an approved health and safety plan Verify that all sampling and analysis is conducted in accordance with an approved Quality Assurance Plan. Verify that samples are submitted to approved laboratories where required
GW 18 The groundwater monitoring system must be capable of yielding representative groundwater samples (40 CFR 265 91)	Obtain and review the facility's written groundwater monitoring program and/or procedures Test the adequacy of the facility's monitoring system and sampling and analytical procedures by performing the following - Verify compliance with applicable sampling and analytical procedures and requirements by completing the following· -- verify that the appropriate and up-to-date state certification has been obtained -- verify that representative samples are obtained and that the sampling frequency and analytical program complies with prescribed requirements - Note whether or not the monitoring frequency is consistent with regulatory provisions and good management practices -- review the procedures used in calibrating and maintaining analytical equipment and review maintenance logs and determine whether the equipment is routinely maintained and calibrated in conformance with good management practices -- review the analytical procedures used by the facility to verify compliance with best management practices or approved test procedures (e.g., confirm that proper preservation techniques, holding times, and quality control procedures are used and correct) - If samples are analyzed by an outside laboratory: -- confirm that the lab is certified or approved to perform the work -- note any provisions for cross-checking or verification by independent analysis as well as other quality control/assurance procedures

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
Underground Injection	
GW 19 Injection wells are classified into five classes of wells Class I, Class II, Class III, Class IV, and Class IV (40 CFR 144 6)	Determine by reviewing engineering records or other documentation if - the injection well is properly classified according to EPA requirements - any injection wells have been installed since 20 July 1984 Confirm by comparing engineering data to regulatory provisions that the design and construction of those wells meet EPA standards
GW 20 Owners/operators of Class I injection wells are required to establish financial assurance for the plugging and abandonment of the wells using one of the options specified in 40 CFR 144 63(a)-(f) (40 CFR 144 62 and 144 63)	For any class I injection well, determine whether the facility has established financial assurance by - establishing and keeping current a cost estimate for its plugging and abandonment plan (P&A) (NOTE The cost estimate must be in current dollars, equal to the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would make plugging and abandonment the most expensive, and adjusted for inflation annually) - keeping financial assurance for its plugging and abandonment plan using at least one of the specified forms -- P&A trust -- surety bond guaranteeing payment into a P&A trust fund -- surety bond guaranteeing performance of P&A -- P&A letter of credit -- P&A insurance -- financial test and corporate guarantee for P&A
GW 21. Underground injection activities must be authorized by permit All permit applications must be complete before the Director of the UIC program will issue a permit (40 CFR 144 31-144 41)	Obtain and review the permit application for the underground injection control program Confirm that the permit application reflects current operations (complete and accurate) and has the proper signatories Confirm that the facility's permits are up to date and reflect current operations
GW 22 The permittee must comply with all conditions of the permit Any permit noncompliance is a violation of the SDWA and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application (40 CFR 144 51)	Prepare a schedule that includes a representative sample of permit conditions and regulatory requirements Verify that the facility has meet these obligations by observing operations, reviewing facility records, and interviewing facility personnel Note any discrepancies

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
GW 23. The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) necessary to achieve compliance Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures (40 CFR 144 51(e))	Review the facility's maintenance and calibration records and observe operations to verify that automatic monitoring systems are functioning properly. Evaluate the facility's injection well operation by performing the following - Review a representative sample of location monitoring data to verify that permitted operating limitations (injection pressure, temperature, pH) are being met - Verify by interviewing personnel and inspection records that other operating requirements (receipt control, inspections, etc.) are addressed by the facility and that they are being met
GW.24. The permittee is required to retain all monitoring information as specified in 40 CFR 144 51(j))	Verify that samples and measurements taken are representative of the monitored activity Verify by reviewing facility files that the following records have been maintained for a minimum of three years (or longer if requested by the Director) - Calibration and maintenance records - Original strip chart recordings for continuous monitoring instrumentation - Monitoring reports - Permit application data - Nature and composition of all injected fluids Review monitoring information to verify that it includes - The date, exact place, and time of sampling or measurements - The individual(s) who performed the sampling or measurements - The date(s) analyses were performed - The individual(s) who performed the analyses - The analytical techniques or methods used - The results of such analyses Determine by interviewing key personnel how the facility will maintain inventory records of plugged wells for three years after they are taken out of service to ensure the facility will meet the requirements of 40 CFR 144.51.
GW 25 All applications, reports, or information submitted to the Administrator must be signed and certified (40 CFR 144 32 and 144 51(k))	Review all permit applications, reports, and other information to verify that the proper signature and certification is included.

Compliance Category: Groundwater Protection	
Regulatory Requirements:	**Reviewer Checks**
GW 26 The permittee must notify the Director of any planned physical alterations or additions to the facility, any anticipated noncompliance, compliance schedules, and permit transfers. In addition, monitoring reports must be reported as specified in the permit (see 40 CFR 144 51(j)), and 24-hour reporting is required for any noncompliance which may endanger health or the environment (40 CFR 144 51(l))	Confirm that the facility conducts required reporting activities such as - Planned changes, anticipated non-compliance, transfers, or compliance schedules - Monitoring reports - 24-hour reporting of any non-compliance which may endanger health or the environment, including -- any monitoring or other information which indicates that any contaminant may cause an endangerment to an Underground Source of Drinking Water (USDW) or -- any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs (NOTE Information must be provided orally within 24-hours and written submission must follow within five days)
GW 27. New injection wells may not commence injection until construction is complete and the permittee has submitted notice of completion of construction to the Director, and the Director has inspected or reviewed the new injection well an finds it in compliance with permit conditions (40 CFR 144 51(m))	Determine if any new injection wells have commenced construction or injection since the last audit Verify that for each new injection well - A notice of completion of construction was submitted to the Director - The Director has inspected/reviewed the injection well for permit compliance
GW 28 The permittee must notify the Director before conversion or abandonment of the well or before closure of the project (40 CFR 144 51(n))	Determine if any injection wells have been - Converted, - Abandoned, or - Closed Verify that the Director was notified of such activity as specified in the permit
GW 29 A plugging and abandonment report must be submitted to the Regional Administrator for EPA-administered programs (40 CFR 144 51(o))	Determine if any plugging and abandonment activities have occurred since the last audit Determine if the facility is located in an EPA-administered program state Verify that a plugging and abandonment report was submitted to the Regional Administrator - Written 60 days after plugging a well, or - At the time of the next quarterly report, whichever is less (NOTE: If the quarterly report is due less than 15 days before completion of plugging, the report must be submitted within 60 days) Verify that the report is certified as accurate by the person who performed the plugging operation

Section 15

Groundwater Protection

Appendices

Appendix 15-1: Inventory of Neighboring Facilities

Name	Location and Distance	Operations	Known or Suspected Contamination

Name Name and owner of facility
Location Proximity to reviewed location
Operations Nature of operations capable of causing soil or groundwater contamination
Known or Suspected Groundwater Contamination. Nature of groundwater contamination at the neighboring facility and the extent of any migration
"Neighboring Facility" Facility within 1/2 mile of the reviewed location with a potential for causing groundwater contamination

Location _____ Prepared by _____ Date _____

Appendix 15-2: Inventory of Groundwater Wells

Well Number	Type	Location	Pumping Rate	Geologic Material in Screened Area	Depth of Screen	Hydraulic Conductivity	Water Table Depth Average or Range	Date of Measurement	Contamination Present Y or N. If Y type e.g., VOC, BNA, PCB

Type e g , monitoring, observation, potable water supply, cooling water, injection wells
Hydraulic Conductivity Indicate value and methods, e g , based on pump, rising head, or falling head tests
Location On-site - indicate area of site, Off-site - indicate distance and direction from site

Location _____ Prepared by _____ Date _____

Appendix 15-3: Inventory of Existing and Former Aboveground Storage Tanks

Tank Identification	Contents	Capacity (gallons)	Age	Materials of Construction	Frequency of Integrity Inspection

Tank Identification	Daily Inspection	Type of Overfill Protection	Inventory Frequency	Leak Detection	Secondary Containment

Secondary Containment Nature and adequacy of dikes, berms, etc
"Tanks": Tank, drum, or barrel

Location _____ Prepared by _____ Date _____

Appendix 15-4: Inventory of Prior Operations

Owner	Operations	Hazardous Materials Used	Dates	Comments

Owner Include all past owners of the site
Operations Nature of operations capable of causing soil or groundwater contamination
Hazardous Materials Used Nature and quantities of hazardous materials used
Comments e g , known or potential soil or groundwater contamination and nature of any remedial activities undertaken

Location _____ Prepared by· _____ Date _____

Appendix 15-5: Inventory of Spills and Leaks or Suspected Areas of Contamination

Location	Number of Gallons Leaked/ Spilled	Material Spilled/Leaked	Date	Area/Volume of Contamination	Comments

Comments e g , nature of any cleanup or remediation undertaken, cost estimates, verification from regulators that area is "clean"

Location _____ Prepared by _____ Date _____

Appendix 15-6: Inventory of Aquifers

Name	Type	Depth	Discharge to	Recharge From	Gradient and Direction	Comments

Comments e g , nature of any cleanup or remediation undertaken, cost estimates, verification from regulators that area is "clean"

Location _____ Prepared by _____ Date _____

Appendix 15-7: Inventory of Lithologies

Name	Depth of Top and Bottom Unit	Composition	Comments

Comments e g , grain size, fracturing, faulting, jointing

Location _____ Prepared by _____ Date _____

Appendix 15-8: Inventory of On-Site Disposal

Unit Type	Location	Waste/ Hazardous Constituents	Method of Disposal	Date of Disposal/ Total Amount	Regulatory Status	Comments

Unit Type: e g., impoundment, landfill, sump, drain, pit, tank, drum, storage area, treatment unit, incinerator, etc.
Waste: Nature, amount, and ownership of waste disposal
Regulatory Status: e g , conformance with applicable permits, compliance orders/agreements, regulations, etc , likely future conformance
Comments: e g , visible leakage/spillage, nature of spill protection, condition of unit and usable life, potential for mixing of incompatibles
Disposal: Treatment, storage, or disposal

Location _____ Prepared by. _____ Date· _____

Appendix 15-9: Inventory of Water Discharges

Source	Type	Receptor	Daily Discharge Rate	Pollutants	Length of Discharge Piping	Conformance with Applicable Limitations/ Standards

Source: Point of generation
Type: Direct (D) or Indirect (I) discharge, Point Source (P) or Nonpoint Source (N)
Receptor: e g , surface water body, POTW, deep well, French drain, retention/settling pond
Applicable Limitations/Standards: e g , nature of permits, compliance orders/agreements, POTW regulations, sewer use ordinances, pre-treatment standards, etc
Length of Piping: Length of facility-maintained piping from source to receptor
Conformance with Applicable Limitations/Standards: During preceding twelve-month period and likely future conformance

Location _____ Prepared by _____ Date _____

Appendix 15-10: Inventory of Existing and Former Underground Storage Tanks

Tank Identification	Type	Contents	Capacity	Age	Materials of Construction		Date Last Leak Tested and Method	Secondary Containment	Type of Leak Detection
					Tank	Piping			

Type: e g , product storage tank, sump, pipe, oil/water separator, process tanks, septic tanks, if more than 10% of volume is below the surface

Location _____ Prepared by _____ Date _____

Phase 1

Section 16

Environmental Radiation Protection

Phase 1
Section 16
Table of Contents

Environmental Radiation Protection

A. Applicability 16-1
B. Federal Legislation 16-1
C. State/Local Regulations 16-2
D Key Compliance Requirements 16-2
E. Key Compliance Definitions 16-3
F Records to Review 16-6
G Physical Features to Inspect 16-6
H. Guidance for Checklist Users 16-6

A. Applicability

This section applies to Federal facilities that use, possess, store, and dispose of radioactive materials. This section and its associated checklists address activities associated with Federal research and development laboratories, hospitals, and other facilities where radioactive material is used, stored, and disposed. Not all checklist items will be applicable to a facility. Guidance is provided on the checklists to direct the assessor to the regulations concerning the radioactive material use, storage, and disposal activities at the facility. Information regarding radioactive waste that also contains a hazardous waste subject to the requirements of the Resource Conservation and Recovery Act (RCRA), Subtitle C, are included in the Hazardous Waste Management checklist.

Assessors are required to review the Federal facility's Radiation Protection Program, Radioactive Material License and license application, and state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

1. The Atomic Energy Act of 1954, as Amended

This Act established the Nuclear Regulatory Commission (NRC) and empowered the NRC to regulate the use, possession, storage and disposal of source material, byproduct material and special nuclear material. Also under the authority of the Atomic Energy Act of 1954, the NRC has promulgated regulations regarding the packaging of radioactive material for transport.

2. The Low-Level Radioactive Waste Policy Amendments Act of 1985

This Act required states to establish their own capability for disposal of low-level radioactive waste generated within their borders

3. The Federal Water Pollution Control Act

Commonly known as the Clean Water Act (CWA), this is the primary Federal statute designed to "restore and maintain the chemical, physical, and biological integrity" of the Nation's navigable waterways. The EPA and authorized states regulate point sources of pollutants through the National Pollutant Discharge Elimination System (NPDES) Permit Program.

4. The Radon Program Development Act of 1987

This Act requires studies to be conducted to determine the extent of radon contamination in buildings owned by the Department of the Interior, the Department of Agriculture, the General Services Administration, and the Veterans' Administration, including radon contamination of water for Federal buildings using a nonpublic water source (such as a well or other groundwater). Radon checklist items can be found in the protocol, "Air Pollution Control" - Section 1.

5. The Safe Drinking Water Act

This Act establishes requirements for sampling drinking water sources for radioactivity.

6. Hazardous Substance Release Reporting

Under CERCLA Section 103, facilities are required to notify the National Response Center (NRC) immediately if it releases hazardous substances in excess of or equal to reportable quantities. Facilities with continuous and stable releases have limited notification requirements (40 CFR 302.1 through 302.6, and 302.8).

7. The National Environmental Policy Act (NEPA)

The purpose of this Act (42 U.S. Code (USC) 4321-4370(c)), as last amended in November 1990, is to declare and implement a national policy to prevent or eliminate damage to the environment and biosphere, and stimulate the health and welfare of man (42 USC 4321). Its underlying intent is to encourage productive and enjoyable harmony between man and his environment. Under NEPA, the continuing policy of the Federal government is to use all practicable planning, policy, and regulatory means and measures in a manner calculated to foster and promote the general welfare, and to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other needs of present and future generations of Americans (42 USC 4331(a)). Under NEPA and related laws, it is the continuing responsibility of the Federal government to manage, monitor, and preserve the important historic, cultural, and natural aspects of our national heritage (42 USC 4331(b)(4)).

C. State/Local Regulations

Many states have met the U.S. Nuclear Regulatory Commission's requirements for establishing a state agency and management system to regulate users of radioactive material, and have been granted Agreement State status. Agreement States have promulgated regulations identical to the NRC, and in some instances, have promulgated regulations that are more restrictive than those of the NRC. Since differences might exist between regulations of an Agreement State and the NRC, the assessor must review the regulations of the Agreement State to ensure that additional restrictions are included in the scope of the assessment and added to this checklist.

D. Key Compliance Requirements

1. License Requirements

In order for Federal facilities to possess, use, store, and dispose of radioactive materials, the facility must obtain a license from the NRC. As part of the licensing process, the facility must submit an application describing the contents of a Radiation Protection Program designed to ensure that activities meet the regulations of the NRC or Agreement State. Specific conditions stated in the license imposed by the NRC, and information presented in the application for the license are enforceable.

2. Radioactivity in Liquid Discharge Requirements

Under the Clean Water Act, discharges of radioactive material cannot exceed specific quantities specified in a NPDES Permit. In addition, radionuclide discharges to the sanitary sewer must meet certain discharge limitations presented in Appendix B, Table II of 10 CFR Part 20.

3. Air Effluent Discharge Requirements

Under the Clean Air Act, the National Emission Standards for Hazardous Air Pollutants (NESHAPS) requirements specify that discharges of radioactivity in airborne effluents must not result in an annual effective dose equivalent exceeding 10 millirem to the public for the airborne pathway. Additionally, airborne effluents containing radioactivity measured at the point of discharge cannot exceed specific concentrations presented in 10 CFR Part 20 Appendix B, Table II.

4. Radioactive Waste Management Requirements

Radioactive wastes must be segregated, stored and disposed of according to specific requirements of the NRC and the state.

5. Decommissioning Funding Plan

Facilities that use, possess, store, and dispose of radioactive materials must establish a financial instrument to ensure the decontamination and decommissioning of affected facilities. The facility can establish a bond by either developing a detailed cost estimate for the decontamination and decommissioning of affected facilities and submitting to the NRC for approval, or by establishing a bond of predetermined value based on the possession limits stated in the facility's NRC license.

6. Dose to the Public Requirements

The facility must demonstrate that the radiological dose to the public from activities and releases to the environment of radioactive materials does not exceed specific values.

E. Key Compliance Definitions

(NOTE: Definitions taken from "The Health Physics and Radiological Health Handbook", Revised Edition, Scinta, Inc., 1992.)

1. Agreement State

Any state with which the U.S. Nuclear Regulatory Commission or the U.S. Atomic Energy Commission has entered into an effective agreement under subsection 274b. of the Atomic Energy Act of 1954, as amended (73 Stat. 689).

2. ALARA

Acronym for "As Low As is Reasonably Achievable." Making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical consistent with the

purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

3. Annual Limit on Intake (ALI)

The derived limit for the amount of radioactive material taken into the body of an adult worker by inhalation or ingestion in a year. ALI is the smaller value of intake of a given radionuclide in a year by the reference man that would result in a committed effective dose equivalent of 5 rems (0.05 Sv) or a committed dose equivalent of 50 rems (0.5 Sv) to any individual organ or tissue.

4. Background Radiation

Radiation from cosmic sources; naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material) and global fallout as it exists in the environment from the testing of nuclear explosive devices. Background radiation does not include radiation from source, byproduct, or special nuclear materials.

5. Becquerel

A unit, in the International System of Units (SI) of measurement, of radioactivity equal to one transformation per second.

6. Byproduct Material

a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material; and

b. The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute byproduct material within this definition.

7. Curie

The basic unit used to describe the intensity of radioactivity in a sample of material. The curie is equal to 37 billion disintegrations per second, which is approximately the rate of decay of 1 gram of radium A curie is also a quantity of any radionuclide that decays at a rate of 37 billion disintegrations per second.

8. Decontamination

The reduction or removal of contaminating radioactive material from a structure, area, object, or person. Decontamination may be accomplished by:

a. Treating the surface to remove or decrease the contamination;
b. Letting the material stand so that the radioactivity is decreased as a result of natural decay; and
c. Covering the contamination to shield or attenuate the radiation emitted

9. Dose Equivalent

The product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and Sievert (Sv). The ICRP defines this as the equivalent dose.

10. Effective Dose Equivalent

The sum of the products of the dose equivalent to the organ or tissue (H_T) and the weighing factors (W_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \sum W_T H_T$) The ICRP defines this as the effective dose.

11. Half-life

The time in which half the atoms of a particular radioactive substance disintegrate to another nuclear form. Measured half-lives vary from millionths of a second to billions of years. Also called physical half-life.

12. High-Level Radioactive Waste

a. Irradiated reactor fuel,
b. Liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and
c Solids into which such liquid wastes have been converted.

13. Low-Level Radioactive Waste

Radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material.

14. Member of the Public

An individual in a controlled or unrestricted area. However, an individual is not a member of the public during any period in which the individual receives an occupational dose

15. Occupational Dose

The dose received by an individual in a restricted area or in the course of employment in which the individual's assigned duties involve exposure to radiation and to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include dose received from background radiation, as a patient from medical practices, from voluntary participation in medical research programs, or as a member of the general public.

16. Transuranic Waste

Material contaminated with elements that have an atomic number greater than 92, including neptunium, plutonium, americium, and curium, and that are in concentrations greater than 10 nanocuries per gram, or in such other concentrations as the Nuclear Regulatory Commission may prescribe to protect the public health and safety.

F. Records to Review

- NRC License;
- License application,
- Radioactive material inventory;
- Records of radioactive material quantities discharged via the sanitary sewer;
- Radioactive material receiving procedures;
- NESHAP compliance documentation;
- Radioactive waste shipping manifests;
- Decommissioning funding plan; and
- Previous audits and inspections.

G. Physical Features to Inspect

- Laboratories;
- Radioactive waste storage areas; and
- Radioactive material storage areas.

H. Guidance for Checklist Users

	Refer To	
	Checklist Items	Page Numbers
All facilities	ER 1 through ER 3 ER 4 through ER 6 ER 7 through ER 10	16-7 16-8 16-9

Compliance Category: **Environmental Radiation Protection**	
Regulatory Requirements:	**Reviewer Checks:**
All Facilities	
ER 1 The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, Notices of Violation (NOV), Interagency Agreements, or equivalent state enforcement actions is required to be examined (A finding under this checklist item will have the enforcement action/identifying information as the citation)	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, Consent Orders, Compliance Agreements, NOVs, Interagency Agreements or equivalent state enforcement actions For those items, indicate what corrective actions are planned and milestones established to correct problems
ER 2 Federal facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist. (A finding under this checklist item will have the citation of the applied regulation as the citation)	Determine if any new regulations have been issued since the finalization of this checklist If so, annotate checklist to include new standards Determine if the Federal facility has activities or facilities which are Federally regulated, but not addressed in this checklist Verify that the Federal facility is in compliance with all applicable and newly issued regulations
ER 3 Federal facilities must meet the requirements provided in a NRC or Agreement State issued license for the use, possession, storage, and disposal of by-product materials Radionuclides, quantities, and activities requiring a license are presented in 10 CFR Part 30 through 35, and 39 or the equivalent Agreement State regulations	Verify that the Federal facility possesses or is operating under a license issued by the NRC or Agreement State where licensable quantities of by-product materials are used, stored, or disposed

Compliance Category: **Environmental Radiation Protection**	
Regulatory Requirements:	**Reviewer Checks:**
ER 4 The NPDES program as contained in 40 CFR 122 1 requires permits for the discharge of "pollutants" from any "point source" into "waters of the Untied States " The terms "pollutant," "point source," and "waters of the United States" are defined in 40 CFR 122 2 Requirements for NPDES permits for storm water discharges associated with industrial activity are contained in 40 CFR 122 26	Determine whether radionuclide discharge limitations are specified by the Federal facility's discharge permit Verify whether radionuclide discharge limitations, if any, are met (Specific requirements regarding implementation of the NPDES program are addressed in the Water Pollution Control checklist)
ER 5 Federal facilities releasing radionuclides into the sanitary sewer must ensure that discharge limitations are not exceeded, and must maintain records of such releases (10 CFR 20 2003, 20 2103(b)(4))	Determine whether the Federal facility releases radionuclides into the sanitary sewer for disposal Verify that the facility only disposes of material that is readily soluble, or is readily disposable biological material, in water Verify that the facility maintains records of radionuclides disposed by releasing into the sanitary sewer Verify that the quantity of licensed or other radioactive material released by the Federal facility into the sanitary sewer in one month divided by the average monthly volume of water released into the sewer by the facility by the facility does not exceed the concentration listed in Table 3 of Appendix B to 10 CFR Part 20 Verify that the total quantity of licensed and other radioactive material released into the sanitary sewer in a year does not exceed 5 Ci of H-3, 1 Ci of C-14, and 1 Ci of all others combined
ER 6 Federal facilities must evaluate the potential for radionuclide emissions in airborne effluents, and demonstrate that the annual effective dose equivalent for members of the public does not exceed 10 million for the airborne pathway (40 CFR 61 Subpart I)	Verify that the Federal facility has evaluated the potential for releases of radionuclides via airborne effluents using the COMPLY code. Verify, if necessary, that the Federal facility has used the AIRDOS-PC or similar EPA approved computer code to demonstrate that the annual effective dose equivalent to the public does not exceed 10 million, and submitted the required reports Verify that the facility has documented the AIRDOS-PC input parameters, with justification for those used

Compliance Category: **Environmental Radiation Protection**	
Regulatory Requirements:	**Reviewer Checks:**
ER 7 Federal facilities must ensure that the annual average concentration of radioactive materials released in gaseous effluents at the boundary of an unrestricted area do not exceed the values specified in Table 2 of Appendix B in 10 CFR Part 20	Verify whether the Federal facility has evaluated releases of radioactive materials and demonstrated that the concentration does not exceed specified values at the boundary to unrestricted areas Verify whether the techniques used to estimate releases and calculate concentrations at the boundary to unrestricted areas are appropriate Verify whether effluent air sampling techniques used to demonstrate compliance with the specified limits are performed in accordance with appropriate methodologies (e g , ANSI N42 18, ANSI N13 1, Regulatory Guide 8 25)
ER 8 Federal facilities that generate radioactive waste must dispose of licensed material only by transfer to an authorized recipient, by decay-in-storage, or by release in effluents (10 CFR Part 20 Subpart K)	Verify whether the Federal facility has identified all radioactive waste streams and that all liquid wastes disposed of by the sanitary sewer meet the requirements specified in ER 5 , and gaseous effluents meet the requirements specified in ER 7 Verify whether the Federal facility is licensed to perform decay-in-storage as a means of disposing of radioactive waste and that all conditions specified in the license regarding decay-in-storage are met Verify that the Federal facility transfers all other radioactive wastes regarding land disposal to an authorized recipient, and follows all of the recipient's manifesting and labeling requirements
ER 9 Federal facilities are required to develop a Decommissioning Funding Plan and file a Statement of Intent with the NRC or Agreement State to ensure for decontamination and decommissioning of facilities (10 CFR 30 35, 40 36, 70 25).	Verify the Federal facility has developed a decommissioning cost estimate based on their Radioactive Material License's possession limits and the extent of the use of their facilities Verify that the Federal facilities have filed a Statement of Intent with the NRC or Agreement State which states that the funds will be budgeted as needed Verify that the decommissioning cost estimate is reviewed and updated, as significant changes occur (e g , change in extent of facility use or addition of radionuclides, to the Radioactive Material License) or at least every five years upon renewal
ER 10 Federal facilities that possess radioactive material must conduct operations such that the annual total effective dose equivalent to a member of the public does not exceed 100 millirem, and conduct surveys of radiation levels and radioactive materials in effluents to demonstrate compliance with the dose limit to the public (10 CFR Part 20, Subpart D)	Verify that the Federal facility has demonstrated that areas where radioactive materials are used, stored, received, and held for disposal, the radiation levels in unrestricted areas do not exceed 2 millirem per hour and/or 50 millirem per year Verify that the Federal facility has measured or has a system in place to determine the concentration of radioactive materials disposed of in gaseous and liquid effluents and that they do not exceed the values listed in 10 CFR Part 20, Appendix B, Table 3 at the boundary to unrestricted areas (See ER 2)

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