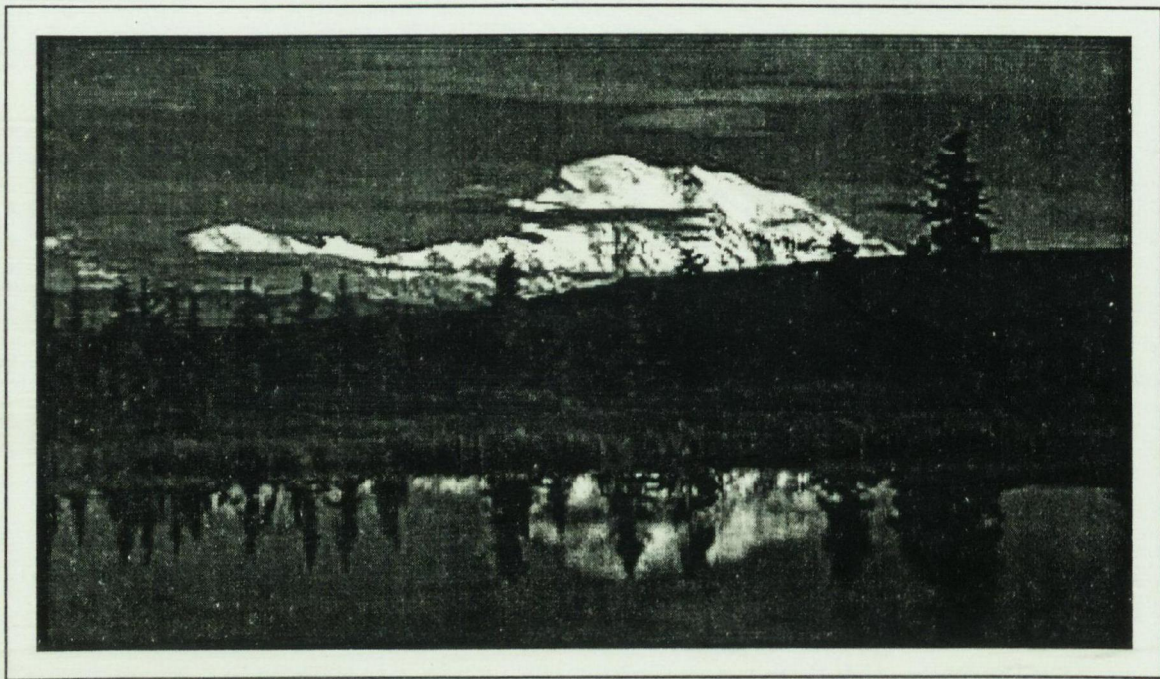


Pollution Prevention for Compliance and Enforcement Officers



October 27, 1997

Sponsored by:
United States Environmental Protection Agency, Region 8
in conjunction with
The National Enforcement Training Institute

Pollution Prevention for Compliance and Enforcement Officers

**USPEA, Region 8
October 27, 1997**

Agenda

8:30 - 8:45	Registration
8:45 - 9:00	Course Welcome
9:00 - 9:10	Course Overview
9:10 - 9:35	What is Pollution Prevention?
9:35 - 9:50	Exercise 1
9:50 - 10:00	Break
10:00 - 10:15	How Does Pollution Prevention Apply?
10:15 - 10:45	Identifying Pollution Prevention Opportunities During a Facility Visit
10:45 - 11:00	Exercise 2
11:00 - 11:10	Break
11:10 - 11:30	Pollution Prevention Patterns
11:30 - 11:45	Discussing P2 with Facility Representatives
11:45 - 12:00	Pollution Prevention Information Resources
12:00 - 1:00	Lunch
1:00 - 1:25	Cost Implications of P2
1:25 - 1:40	Exercise 3
1:40 - 1:50	Pollution Prevention and the Regulatory Spectrum
1:50 - 2:00	Pollution Prevention Through Compliance Assistance
2:00 - 2:10	Using Pollution Prevention to Come Into Compliance
2:10 - 2:20	Break

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2:20 - 2:50	Pollution Prevention in Enforcement: Supplemental Environmental Projects
2:50 - 3:20	Exercise 4
3:20 - 3:35	Negotiating a SEP
3:35 - 3:45	Break
3:45 - 4:15	Exercise 5

Pollution Prevention for Compliance and Enforcement Officers

**USEPA Region 8
October 27, 1997**

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REGISTRATION FORM

COURSE NAME & NUMBER: _____

COURSE DATE(S): _____ COURSE LOCATION: _____

Have you registered for a NETI Course since January 1, 1997? ☐ Yes ☐ No

REGISTRANT INFORMATION

NAME: _____

SOCIAL SECURITY NUMBER*: _____

*Where the employee identification number is your Social Security Number, collection of this information is authorized by Executive Order 9367. Furnishing the information on this form, including your Social Security Number, is voluntary, but failure to do so may effect the maintenance of your registration information. If you choose not to provide your SSN, please provide some other nine-digit number. Otherwise, NETI cannot process your registration.

AGENCY/ORGANIZATION: _____

ADDRESS: _____

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EPA Headquarters employees must include their mailcodes. This will allow NETI to quickly communicate with you through inter-office mail.

TELEPHONE: _____

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FAX: _____

EMPLOYER: Please check the appropriate box.

☐ Federal ☐ State ☐ Local ☐ Tribal ☐ Other

ENVIRONMENTAL PROGRAM IN WHICH YOU CURRENTLY WORK?

Please check the appropriate box (check only one).

☐ Air ☐ Multi-media ☐ RCRA ☐ Superfund ☐ Toxics & Pesticides ☐ Water ☐ Other

JOB CLASSIFICATION: Please check the most appropriate box. (Check only one).

☐ Inspector ☐ Paralegal ☐ Technical ☐ Env. Prot Spec. ☐ Prosecutor ☐ Other

Investigator: ☐ Civil or ☐ Criminal Attorney: ☐ Civil or ☐ Criminal

POSITION: Please check the appropriate box.

☐ Supervisor ☐ Non-Supervisor

Years of experience in current position: _____

Please fax or mail your completed registration form to:
The National Enforcement Training Institute ♦ U.S. Environmental Protection Agency
401 M St., S.W. (2235A) ♦ Washington, D.C. 20460 ♦ Phone: 202-564-2430 ♦ Fax: 202-564-0075



Pollution Prevention For Compliance and Enforcement Officers

USEPA Region 8
October 27, 1997

This form is to be completed by the trainee following completion of the training course. A rating of 1 indicates little or no value or poor quality. A rating of 5 indicates high value or high quality.

WORKSHOP EVALUATION FORM
Instructors:

Please include comments in each blank:

1. Objectives (clear, appropriate)?
2. Content (organized, relevant)?
3. Speaker (knowledgeable, responsive)?
4. Delivery (lively, stimulating, clear, fluid)?
5. Visual Aids (helpful, well-designed)?
6. Handouts (helpful, well-designed)?
7. Application (useful on the job)?
8. Overall Rating (satisfying, commendable)?

Check appropriate box:

Poor				Excellent
1	2	3	4	5
Poor				Excellent
1	2	3	4	5
Poor				Excellent
1	2	3	4	5
Poor				Excellent
1	2	3	4	5
Poor				Excellent
1	2	3	4	5
Poor				Excellent
1	2	3	4	5
Poor				Excellent
1	2	3	4	5

Other comments (e.g., training weaknesses/strengths, suitability of course length, adequacy of facility):

Name (optional):
Department/organization:

Pollution Prevention for Compliance and Enforcement Officers

Course Overview



Course Objectives

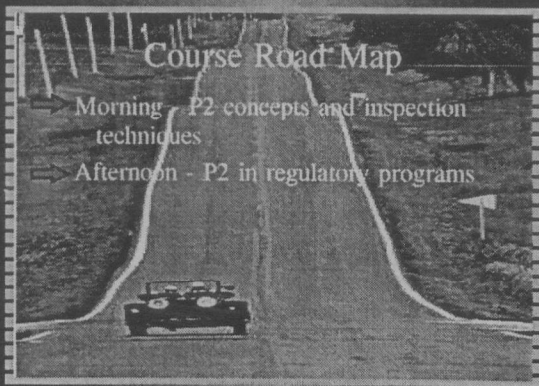
- Understand basic P2 concepts
- Recognize when P2 will benefit a regulated facility
- Evaluate P2 projects

Course Approach

- Lectures on concepts, theories and policies
- Examples
- Exercises to reinforce ideas presented in lectures and examples
- Discussion

Course Road Map

- Morning - P2 concepts and inspection techniques
- Afternoon - P2 in regulatory programs



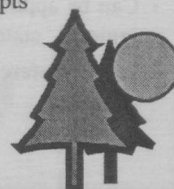
Pollution Prevention for Compliance and Enforcement Officers

What is Pollution Prevention?



Objectives

- Understand P2 definitions
- Review P2 techniques
- Review multi-media concepts
- Discuss P2 benefits



Overview

- Definition
- P2 goals
- The environmental management hierarchy
- P2 benefits
- Example
- Summary

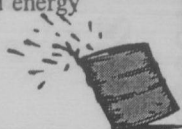
Definition

Pollution prevention is a multi-media environmental management approach that emphasizes the elimination of environmental impacts at the source

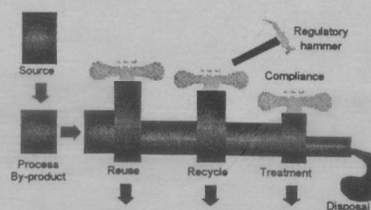


Pollution Prevention Goals

- Reduce or eliminate hazardous and solid waste generation
- Achieve or approach zero discharge of chemicals to air and water
- Conserve raw materials and energy
- Protect ecosystems



The Environmental Management Hierarchy



Pollution Prevention for Compliance and Enforcement Officers

Source Reduction

- Focuses on eliminating sources of environmental damage
- Can be applied at the facility, municipal, regional, state and national levels
- Is the preferred environmental protection approach

Source Reduction Targets

- Raw material and energy usage
- Hazardous and solid waste generation
- Chemical releases to the air
- Discharges to POTWs and surface waters
- Sources of groundwater contamination
- Sources of storm water contamination
- Activities that destroy ecosystems

Source Reduction Techniques

- Process efficiency improvements
- Material substitutions
- Inventory control
- Improved housekeeping
- Preventive Maintenance
- In-process recycling or reuse



Pollution Prevention Benefits

- Reduce costs
- Improve process operations
- Meet or exceed regulatory compliance requirements
- Improve health and safety
- Increase environmental protection

Summary

Pollution Prevention:

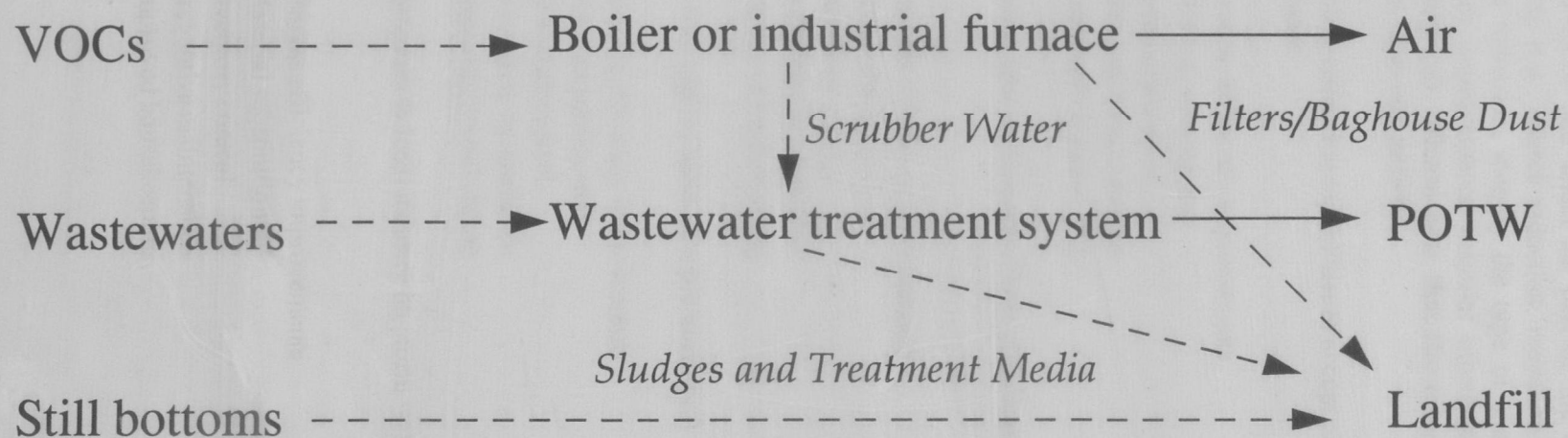
- Provides increased environmental protection
- Is multi-media in nature
- Reduces costs and burden for regulated community

Organic Chemical Manufacturing

Process Wastes:

Treatment Systems:

Disposal Method:



EXERCISE 1

Using the P2 Definition

The purpose of this exercise is to practice using the environmental management hierarchy to classify waste management activities. Read each of the activities below and select the part of the environmental management hierarchy that corresponds to the activity (*i.e.*, source reduction, recycling, treatment or disposal). If the scenario is an example of source reduction, identify the type of source reduction technique that is being used (*i.e.*, process efficiency improvements, material substitution, inventory control, preventive maintenance or improved housekeeping). **Please note that the examples are not necessarily clear-cut; some examples may have more than one answer.**

1. A suburban community establishes additional recycling collection capabilities to accept plastic containers, yard waste, and household hazardous waste.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

2. A petroleum refinery uses spent caustic from a process as a substitute for basic chemical substances used to neutralize acidity in waste water treatment.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

3. A local garage replaces its conventional paint guns with high volume, low pressure spray guns.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

4. A community sanitary district provides a training program to local industry on storm water protection techniques.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

5. A manufacturing plant adds a scrubber to control the release of particulate emissions to the air.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

6. An industrial vehicle maintenance facility purchases a crusher for used oil filters.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

7. An office complex uses biodegradable, non-toxic cleaners in all janitorial activities.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

8. A warehouse changes its inventory procedures so that new incoming materials are placed behind existing stock on the storage shelves.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

9. A wood re-manufacturer leaves stain and solvent containers uncovered to allow contents to dry prior to disposal of cans.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

10. A photofinishing operation purchases silver recovery equipment.

- | | |
|---|--|
| <input type="checkbox"/> Source reduction | <input type="checkbox"/> Process efficiency improvements |
| <input type="checkbox"/> Recycling | <input type="checkbox"/> Material substitution |
| <input type="checkbox"/> Treatment | <input type="checkbox"/> Inventory control |
| <input type="checkbox"/> Disposal | <input type="checkbox"/> Preventive maintenance |
| | <input type="checkbox"/> Improved housekeeping |

Pollution Prevention for Compliance and Enforcement Officers

How Does Pollution Prevention Apply?



Objectives

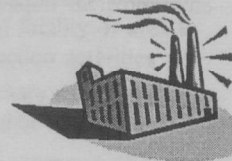
- Review the use of P2 in program implementation
- Discuss program-specific considerations

Overview

- The regulated community
- Direct releases
- Hazardous and solid wastes
- Planning
- Reporting

The Regulated Community

- Private sector
 - large manufacturing and production facilities
 - small facilities
- Government
 - Federal
 - State
 - local
- Tribes



Direct Releases

Addresses permitted discharge of chemicals to the environment

- Traditional approach results in releases at approved discharge limits
- P2 reduces loadings through:
 - process modifications at facility level
 - education at the community level

Hazardous and Solid Waste

Controls treatment and disposal of hazardous and solid wastes

- Traditional approach results in transfers of chemicals to TSDF or landfill
- P2 reduces waste transfer at source



Pollution Prevention for Compliance and Enforcement Officers

Planning

- Requires facilities to consider impacts in the planning process
- Traditional approach identifies impact and control approach
 - P2 modifies approach to minimize impacts

Reporting

- Requires tracking of releases and transfers
- Traditional approach is to characterize and document releases
 - P2 reduces reporting by eliminating waste streams

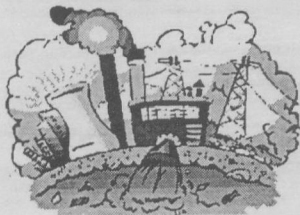


Summary

- Regulated community faces environmental requirements
- P2 meets requirements and reduces environmental impacts

Pollution Prevention for Compliance and Enforcement Officers

Identifying Pollution Prevention Opportunities During a Facility Visit



Objectives

- Understand techniques to identify P2 opportunities
- Discuss useful information for evaluating P2 opportunities
- Identify specific activities that will support P2 opportunity identification

Overview

- Definitions
- Activities prior to a facility visit
- Activities during a facility visit
- Activities subsequent to a facility visit

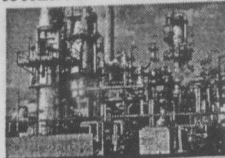


Definitions

- A P2 opportunity is any environmental impact that might be reduced through source reduction activities
- A P2 opportunity assessment is the systematic review of facility or area to identify source reduction activities
- A P2 plan is a summary of all source reduction activities that exist for a facility, corporation or area

Activities Prior to a Facility Visit

- Research facility
- Review P2 information sources
- Talk with other regulators
- Talk with technical assistance program staff



Activities During a Facility Visit

- Talk with facility staff
- Collect documentation
- Observe process
- Build an understanding
- Analyze information and observations

Pollution Prevention for Compliance and Enforcement Officers

Talk with Facility Staff

- Environmental manager
- Production manager/engineer
- Workers
- Maintenance



Collect Documentation

Examples of Useful Information and Sources

Information:	Sources of Information:
Waste Generation	Manifests and management records
Chemical Releases	EPCRA reporting, permits
Material Uses	Procedures, flow diagrams
Material Usage	Purchasing records, utility records
Activities	Observations, flow diagrams and facility activity descriptions

Observe Process

- Inspect processes, work areas, grounds and material/waste storage areas
- Verify information provided by facility staff
- Identify points of generation
- Identify points of release

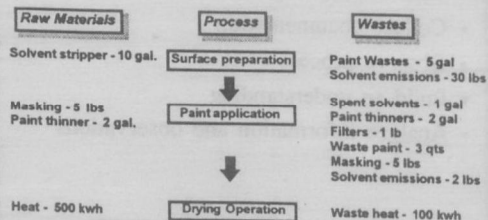


Build an Understanding

- Evaluate facility plans
- Ask about history of facility and process updates
- Develop or verify process flows as you walk through the facility
- Observe procedures in action
- Note obvious opportunities

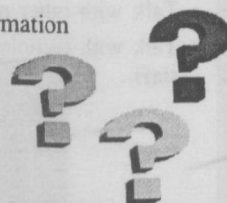
Analyze Information and Observations

- Combine data with the process flow diagram to characterize process steps



Activities Subsequent to a Facility Visit

- Refer facility to technical assistance program
- Provide technical information
- Reply to questions
- Document findings



Pollution Prevention for Compliance and Enforcement Officers

Summary

- As a regulator, you can support the regulated community in identifying P2 opportunities
- Opportunities to help occur before, during and after facility visits
- Information collected throughout this process will support future regulatory activities

EXERCISE 2

IDENTIFYING POLLUTION PREVENTION OPPORTUNITIES

Activity Description

Acme Metals and Re-manufacturing, a local salvage and refurbishment yard, is located on six acres of land at the crossroads of Route 43 and Hunter Valley Road. The other boundaries of the facility are Trout stream and Smith farm (See Figure 1 below). All scrap vehicles and metals are piled on asphalt or gravel and are open to the weather. Activities that occur at the facility are performed on a concrete pad, at the crusher or in a small re-manufacturing building. Activities include:

- Vehicle salvage and crushing
- Fluids recovery and recycling (including collection of oils in a 1000-gallon underground storage tank)
- Parts recovery and cleaning (using four contract solvent sinks)
- Chrome electroplating on re-manufactured on reformed parts
- Chrome removal on parts that will be re-plated
- Paint stripping by sanding and solvent wipe
- Painting

These activities were identified by a neighborhood group that is concerned that Acme may be contaminating the Trout stream.

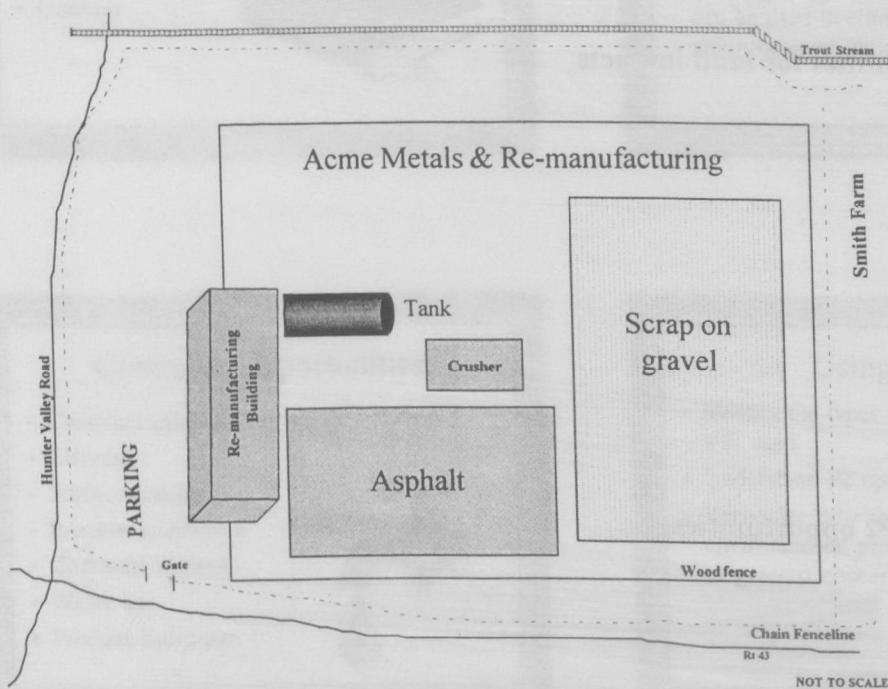


Figure 1. Acme Metals and Re-manufacturing

Based upon this description and Figure 1, identify the environmental concerns or P2 opportunities that exist at this facility.

- 1. P2 opportunities for potential air releases**
- 2. P2 opportunities for water releases**
- 3. P2 opportunities for land impacts**
- 4. Any other P2 opportunities**

Pollution Prevention for Compliance and Enforcement Officers

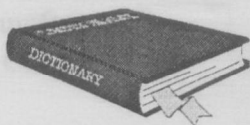
Pollution Prevention Patterns

Objectives

- Discuss similarities between types of operations
- Review environmental impact patterns that can be resolved by common P2 options
- Answer question: "I'm not an engineer; so how do I do this stuff?"

Overview

- Definitions
- Common opportunities
- Using patterns
- Summary
- Example



Definitions

- A **P2 opportunity** is any environmental impact that might be reduced through source reduction activities
- A **P2 option** is a source reduction technique, technology or procedure that can be used to eliminate or reduce an environmental impact or issue

Common Opportunities

- Chemical mixing
- Cleaning
- Surface coating
- Process scheduling
- Chemical storage
- Water use
- Product finishing



Using Patterns

- Identify the types of resources facilities will need
- Understand P2 options that might apply
- Recognize new approaches for environmental protection tied to processes of greatest concern

Pollution Prevention for Compliance and Enforcement Officers

Summary

- With practice you will see activities in terms of operations and opportunities
- Common P2 options may apply across industry types
- Your role is to identify opportunities

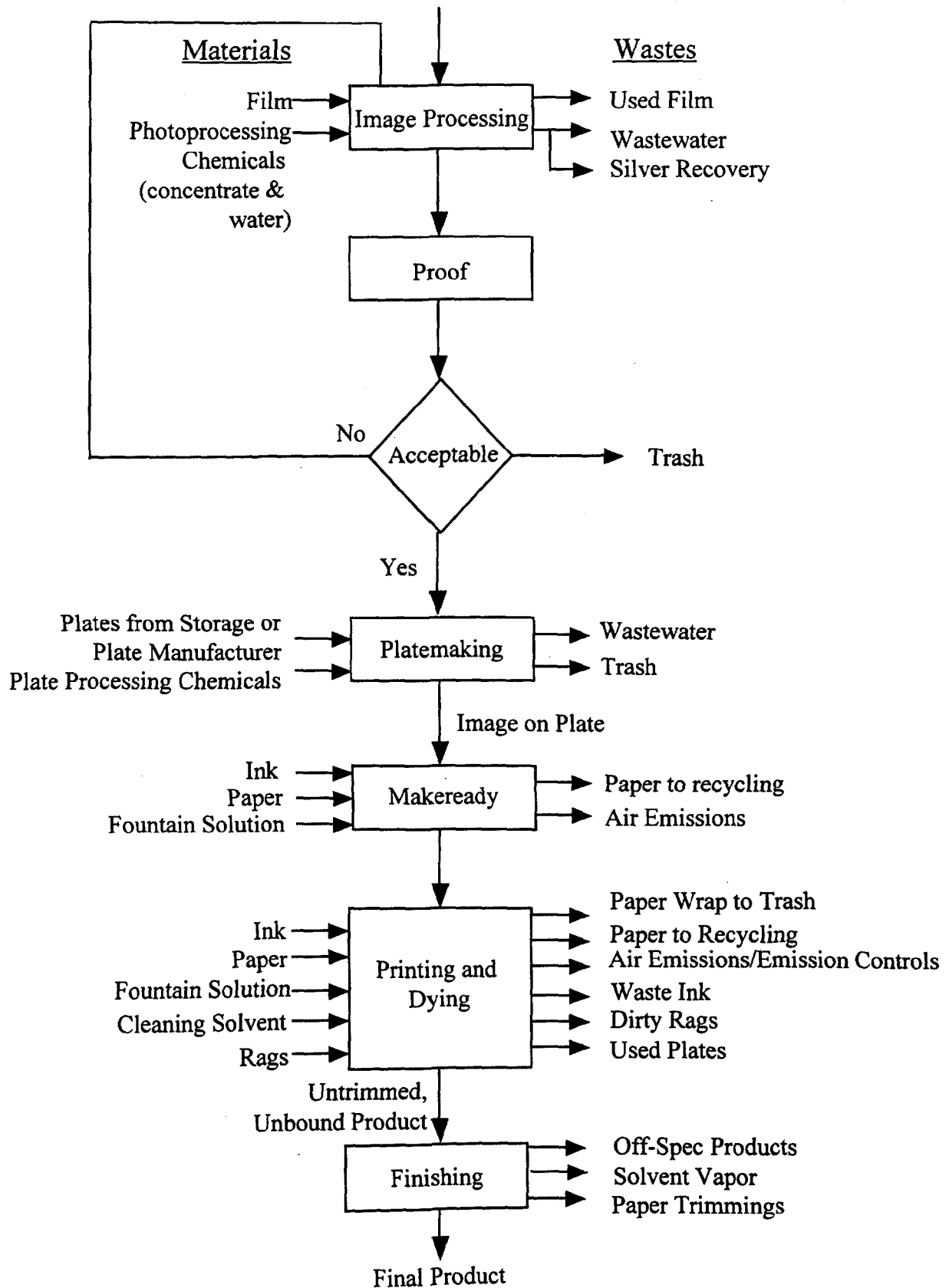
Example

Identify processes that rely upon:

- Solvent cleaning?
- Surface preparation?
- Surface coating?
- Water?



General Flowsheet for Lithographic Printing Artwork, Copy, or Other Image



Pollution Prevention for Compliance and Enforcement Officers

Discussing P2 with Facility Representatives



Objectives

- Study approaches for promoting P2 in the regulated community
- Understand regulated community perspectives on P2



Overview

- Importance of communication
- Perspectives
- Barriers to pollution prevention
- Approach

Importance of Communication

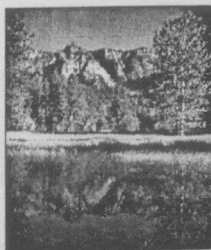
- Every contact with the regulated community is an opportunity
- The right questions can initiate P2 activity
- Communication can build trust



Perspectives

Company's decision to pursue P2 is made in the context of:

- Cost
- Compliance
- Liability
- Reputation and image
- Competing demands
- Productivity



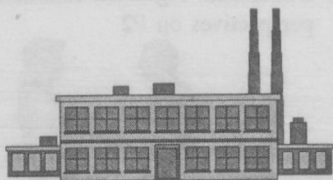
Barriers to Pollution Prevention

- Company may lack:
 - Experienced staff
 - Technical information and understanding
 - Underlying costs for current environmental approach
- Company staff may not want to change process that works

Pollution Prevention for Compliance and Enforcement Officers

Approach

- Breaking through
- Learning about the facility



Breaking Through

Use open-ended questions that will make the person think:

- "Why do you use that chemical? Are there others?"
- "How much does that material cost? What are the disposal costs?"
- "Where does that vent go?"
- "How much energy does this system use daily?"
- "How long has this process been running in this configuration?"

Learning about the Facility

Use question sessions to your advantage:

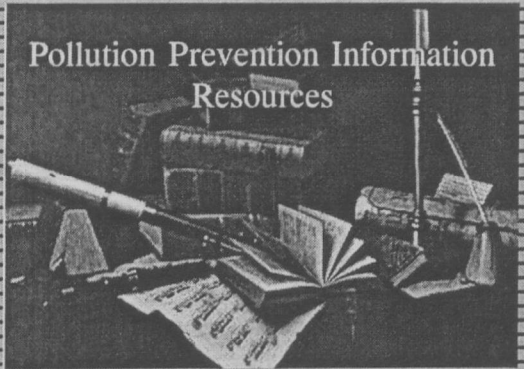
- Goal is to know enough to make decisions and ask questions
- Use their explanations and responses to enhance your understanding
- Encourage them to apply their expertise

Summary

- Discussion is critical to building an understanding of impacts and opportunities
- Question sessions can be used to spark interest in P2 alternatives
- Dialogue is critical throughout process

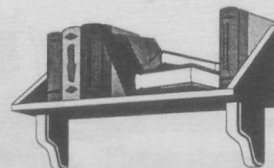
Pollution Prevention for Compliance and Enforcement Officers

Pollution Prevention Information Resources



Objectives

Provide an overview of pollution prevention information resources



Overview

- Websites
- Compliance assistance centers
- Publications
- Technical assistance extensions

Websites

- EnviroSenSe (<http://es.inel.gov>)
- EPA Homepage (<http://www.epa.gov>)



Compliance Assistance Centers

- Automotive
- Printing
- Agriculture
- Small Business
- Metal Finishing

Publications

- Pollution Prevention News
- Industrial Sector Notebooks
- P2 Review

Pollution Prevention News	
Section 1: Automotive	Section 2: Agriculture
Section 3: Small Business	Section 4: Metal Finishing
Section 5: Compliance Assistance Centers	Section 6: Publications
Section 7: Websites	Section 8: Technical Assistance Extensions

Pollution Prevention for Compliance and Enforcement Officers

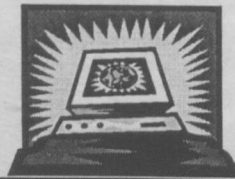
Technical Assistance Extensions

- Universities
- Small business assistance
- State assistance programs
- Hotlines



Summary

- P2 information is readily available
- Sources are available for you and the regulated community





Automotive Service & Repair Compliance Assistance Center - GREENLINK™

OVERVIEW

As a commercial/industrial sector, automotive service and repair shops constitute the largest small quantity generators of hazardous waste in the United States. These shops also may be subject to a variety of other environmental regulations, including those affecting underground storage tanks, air emissions, and wastewater discharge. Automotive service and repair shops throughout the United States can now take advantage of a *national compliance information assistance center*, known as GreenLink™.

In a joint undertaking, EPA's Office of Compliance and the Coordinating Committee for Automotive Repair (CCAR), a consortium of 38 industry affiliates, have developed a centralized, multi-accessible information system on compliance requirements, technology updates, and pollution prevention programs. The Center also provides referrals to state compliance and technical assistance providers. The goal of GreenLink™ is to improve compliance by helping the automotive service and repair community identify flexible, common sense ways to comply with the many environmental requirements that automotive businesses are subject to on a daily basis.

TECHNICAL SUBJECTS COVERED

GreenLink™ provides information on a variety of topics, including:

- | | |
|-------------------------------------|--|
| ■ Used Oil Management | ■ Hazardous Waste Identification |
| ■ Floor Drains (Stormwater) | ■ Emergency Spill Procedures |
| ■ Antifreeze | ■ Part Solvents |
| ■ Asbestos | ■ Motor Vehicle Air Conditioning Repair |
| ■ Underground Storage Tanks | ■ Air Emissions, Fuels and Vehicle Tampering |
| ■ Pollution Prevention Alternatives | ■ Paints and Thinners |

ACCESSING THE CENTER

By using a variety of communications technologies, GreenLink™ is available to anyone 24 hours a day, 365 days a year. A user can call the toll-free number to get voice, facsimile, or mailed information or use the Internet or bulletin board services (*e.g.*, COMPUSERVE, AMERICA ON-LINE) to access GreenLink's™ computerized information system containing the same

information that is available through the toll-free number. In addition, GreenLink™ is capable of linking to other States' Internet home pages that can provide similar state information, as these home pages become available. GreenLink's™ phone number is 1-888-GRN-LINK (476-5465). The Internet address is <http://www.ccar-greenlink.org>.

GreenLink™ PRODUCTS & SERVICES

- *Plain-language Materials.* User-friendly materials that provide information about compliance requirements, pollution prevention, and technical assistance resources for use by regional and state assistance and educational programs, trade associations, individual businesses, citizens, and local governments.
- *Links between Pollution Prevention and Compliance Goals.* Information related to the automotive service and repair industry to help reduce pollution and increase use of the latest pollution prevention technologies.
- *Referral Directory.* A directory of federal and state governments, universities, and industry sources that can provide assistance and information.
- *Training and Education Directory.* An industry directory providing a current calendar of available environmental courses and providers.
- *Multi-media consolidated checklist.* A checklist allowing inspectors to easily and efficiently determine the compliance status of any automotive service and repair shop. The checklist also can be used by individual shop owners as a self-audit tool.
- *Environmental Curriculum Modules.* Individual modules will walk a shop owner or technician through the appropriate statute, regulation, health issue, and environmental importance of a given auto service activity.

CONTACTS

For further information, contact Everett Bishop, U.S. EPA (202-564-7032) or Sherman Titens, CCAR (816-561-8388).

The overriding mission of the Office of Compliance at EPA Headquarters is to improve compliance with environmental laws. The Office of Compliance achieves this by setting national priorities, developing and implementing innovative compliance monitoring techniques, collecting and analyzing compliance data, promoting unique and varied compliance assistance to the regulated community, and supporting enforcement activity. This Fact Sheet is one in a series, intended to provide general information regarding the Office of Compliance activities.



Printing Compliance Assistance Center

PRINTERS' NATIONAL ENVIRONMENTAL ASSISTANCE CENTER (PNEAC)

OVERVIEW

EPA's Office of Compliance and Pollution Prevention Policy staff have partnered with industry and state environmental experts to create an environmental assistance center for the printing industry. The Printers' National Environmental Assistance Center (PNEAC) is a comprehensive resource, linking trade, governmental, and university service providers to efficiently provide the most current and complete compliance and pollution prevention information to the printing industry. Working in collaboration with printing trade associations and other printing industry experts, regulators, and technical assistance providers, PNEAC seeks to improve printers' compliance with environmental regulations and reduce their waste and emissions by developing and delivering a variety of environmental information resources for the printing community.

PARTNERS

Printing Industries of America
Graphic Arts Technical Foundation
Screenprinting and Graphic Imaging
Association International
Gravure Association of America
Flexographic Technical Association
Council of Great Lakes Governors
National Pollution Prevention Roundtable
Center for Hazardous Materials Research

Environmental Defense Fund
Flexible Packaging Association
National Institute of Standards and Testing
U.S. Environmental Protection Agency
U. of Wisconsin-Extension, Solid &
Hazardous Waste Education Center
Waste Management and Resource
Center, Ill. Dept of Natural Resources

ACCESSING THE CENTER

PNEAC aims to be a multi-accessible telecommunications-based center that will be available via a 1-800 number, e-mail, fax, and a web site. The Center currently is accessible via the Internet at address: <http://www.hazard.uiuc.edu/pneac/pneac.html>.

PRODUCTS AND SERVICES

- *The PNEAC World Wide Web home page*, regularly updated and expanded with current news, providing summaries of regulatory initiatives and requirements for printers, compliance policies and guidelines, pollution prevention case studies, sources of additional information and expertise, schedules of conferences and training events, answers to common questions, and a place to post questions to industry compliance and pollution prevention experts.
- *Fact sheets* on a broad range of topics from ink recycling to alternatives for shop towels and press cleaners.
- *Participant manual and video* from the *Green and Profitable Printing* video conference.
- *PRINTECH and PRINTREG listservs*, which provide electronic links to technical information and expertise on pollution prevention technologies and regulatory issues of concern to printers and government agencies.
- *Model training packages* on printing processes, regulatory issues, and pollution prevention strategies.
- *800 number and fax-back service*.
- *Clearinghouse of information*, including summaries of regulations (federal and selected states), "best in class" reports and manuals, checklists, and other guides.
- *Environmental information and assistance focus group meetings* conducted to determine the needs of small printers.

CONTACTS

- Graphic Arts Technical Foundation-Gary Jones (412-621-6941)
- Printing Industries of America-Ben Cooper (703-519-8114)
- Illinois Waste Management and Research Center-Gary Miller (217-333-8940) and Deb Kramer (312-265-2036)
- University of Wisconsin-Wayne Pferdehirt (608-265-2361) and Tom Blewett (608-262-0936)
- EPA - Doug Jamieson (202-564-7041)

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Agriculture Compliance Assistance Center

AGRICULTURE COMPLIANCE ASSISTANCE CENTER (AG CENTER)

OVERVIEW

The U.S. Environmental Protection Agency (EPA) Office of Compliance, with the support of the U.S. Department of Agriculture (USDA), has developed a national Agriculture Compliance Assistance Center (Ag Center) to provide a base for "first-stop shopping" for the agriculture community. The Ag Center provides a central location for obtaining comprehensive, easy-to-understand information about approaches to compliance that are both environmentally protective and agriculturally sound. The Ag Center seeks to improve compliance by helping the agricultural community identify flexible, common sense ways to comply with the many environmental requirements that affect their business. Initial efforts will focus on providing information about EPA's requirements.

INFORMATION ACCESS

The Ag Center will rely heavily on existing sources of agricultural information and established distribution mechanisms. The Ag Center is designed so growers, livestock producers, other agribusinesses and agricultural information/education providers can access its resources easily -- through telephone, fax, mail, and Internet. The Internet address is: <http://es.inel.gov/oeca/ag/aghmpg.html>.

The Ag Center is coordinated from EPA's Kansas City regional office. This gives it direct access to a large segment of the agricultural community and first-hand information on factors that affect the compliance of producers and agribusinesses.

INTEGRATING WITH OTHER AGRICULTURAL AGENCIES

Although USDA and other agricultural agencies provide educational and technical information, assistance in complying with environmental requirements has not been as readily accessible. The Ag Center will work with USDA and other federal and state agencies to provide the agricultural community with a definitive source for environmental compliance information.

The Ag Center plans to provide information on a variety of topics, including:

- | | |
|--|--|
| ■ Pesticides | ■ Animal waste management |
| ■ Non-point source pollution | ■ Agricultural worker protection |
| ■ Groundwater, surface water and drinking water protection | ■ Wetlands protection |
| | ■ Concentrated Animal Feeding Operations (CAFOs) |

In addition, the Ag Center will support regional and state regulatory agencies in their efforts to provide compliance assistance to local agricultural communities.

AG CENTER PRODUCTS & SERVICES

- ***Plain-Language Materials.*** User-friendly materials that consolidate information about compliance requirements, pollution prevention, and technical assistance resources for use by regional and state assistance and educational programs, trade associations, individual businesses, citizens, and local governments.
- ***Links between Pollution Prevention and Compliance Goals.*** Information related to agriculture to help reduce pollution and increase use of the latest pollution prevention methods and technologies.
- ***Identify Ways to Reduce Compliance Costs.*** Identification of common sense, flexible methods of reducing the costs of meeting environmental requirements, including identification of barriers to compliance.
- ***Internet Home Page.*** A home page regularly updated and expanded with current news, compliance policies and guidelines, pollution prevention information, sources of additional information, and expertise and summaries of regulatory initiatives and requirements.

CONTACT

Ginah K. Mortensen
EPA's Agriculture Compliance Assistance Center
726 Minnesota Avenue, Kansas City, KS 66101
Telephone: (913) 551-7207
Fax: (913) 551-7270

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Small Business Compliance Assistance Centers

Overview The Office of Compliance (OC) - in partnership with industry, academic institutions, environmental groups, and other federal and state agencies - has established national Compliance Assistance Centers for four specific industry sectors heavily populated with small businesses that face substantial federal regulation. These sectors are printing, metal finishing, automotive services and repair, and agriculture. OC is working on four new centers for: manufacturers of printed wiring boards, small chemical manufacturers, municipalities, and transportation.

Products & Services The purpose of the Centers is to improve compliance of the customers they serve by increasing their awareness of the pertinent federal regulatory requirements and by providing the information that will enable them to achieve compliance. The Centers accomplish this by offering the following:

- ❖ **"First-Stop Shopping"** - serve as the first place that small businesses and technical assistance providers go to get comprehensive, easy to understand compliance information targeted specifically to industry sectors.
- ❖ **"Improved Information Transfer"** - via the Internet and other means, create linkages (1) between the small business community and providers of technical and regulatory assistance and (2) amongst the providers themselves to share tools and knowledge and prevent duplication of efforts.
- ❖ **"Compliance Assistance Tools"** - develop and disseminate plain-English guides, consolidated checklists, fact sheets, and other tools where needed by small businesses and their information providers.
- ❖ **"Links Between Pollution Prevention and Compliance Goals"** - provide easy access to information and technical assistance on technologies to help minimize waste generation and maximize environmental performance.
- ❖ **"Information on Ways to Reduce the Costs of Compliance"** - identify technologies and best management practices that reduce pollution while saving money.

Existing Centers **NATIONAL METAL FINISHING RESOURCE CENTER (NMFRC).** NMFRC provides technical assistance and information on environmental compliance and pollution prevention to the metal finishing industry. Contacts: National Center for Manufacturing Science-Paul Chalmer (313-995-4911); EPA -Scott Throwe (202-564-7013); Internet: <http://www.nmfrc.org>

PRINTER'S NATIONAL COMPLIANCE ASSISTANCE CENTER (PNEAC). PNEAC provides compliance assistance and pollution prevention information to the printing industry. Contact: Illinois Hazardous Waste Research and Information Center-Gary Miller (217-333-8942); EPA - Doug Jamieson (202-564-7041); Internet <http://www.hazard.uiuc.edu/pneac/pneac.html>

GREENLINK™ – THE AUTOMOTIVE COMPLIANCE INFORMATION ASSISTANCE CENTER. GreenLink™ provides compliance assistance to the automotive service industry. To access the center to get voice, facsimile, or mailed information, call the toll-free number at 1-888-GRN-LINK, or contact the web site at <http://www.ccar-greenlink.org>. Contacts: U.S. EPA, Everett Bishop (202) 564-7032; and CCAR, Sherman Titens (816) 561-8388.

THE NATIONAL AGRICULTURE COMPLIANCE ASSISTANCE CENTER. The Center provides information to help producers of agricultural commodities and their supporting businesses meet their environmental requirements; prevent pollution before it occurs; and reduce costs by identifying flexible, common-sense ways to achieve compliance. Contacts: U.S. EPA, Ginah Mortensen, Telephone: (913) 551-7207; Fax: (913) 551-7270; Internet <http://es.inel.gov/oeca/ag/aghmpg.html>

Future Centers **Chemical Manufacturers:** Emily Chow (202-564-7071).
Printed Wiring Board Manufacturers: Keith Brown (202-564-7124).
Municipalities: Wendy Miller (202-564-7102) or John Dombrowski (202-564-7036).
Transportation Industry: Virginia Lathrop (202-564-7057).

General Contact For general information regarding EPA's compliance assistance centers, contact Lynn Vendinello at (202) 564-7066.

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National Metal Finishing Resource Center

OVERVIEW

The National Metal Finishing Resource Center (NMFRC) is the most substantial, comprehensive environmental compliance, technical assistance, and pollution prevention information source available to the metal finishing industry. The NMFRC seeks to improve industry compliance with environmental regulations, and heighten industry awareness of their environmental responsibilities by providing compliance assistance and information to the user via an Internet Web Site. The Web Site casts information in a way that makes it accessible to a range of users and establishes convenient and user-friendly delivery mechanisms. The NMFRC benefits not only metal finishers, but also the regulatory and technical assistance communities. It is a one-stop, electronically-linked source for all the information users need on an occasional or regular basis.

PARTNERS

United States Environmental Protection Agency
National Institute of Standards and Technology -- Manufacturing Extension Partnership
National Center for Manufacturing Sciences
National Pollution Prevention Roundtable
National Association of Metal Finishers
American Electroplaters and Surface Finishers Society
Metal Finishers Supplier Association

ACCESSING THE CENTER

The center provides assistance and information through the Internet to clients nationwide. The Internet address is: <http://www.nmfrc.org>.

PRODUCTS AND SERVICES

The NMFRC provides a variety of products and services to the industry, including:

- ◆ **Regulatory Information** -- The NMFRC provides compliance information across environmental media, including federal regulations, policies, and guidance.

PRODUCTS AND SERVICES (Continued)

- ◆ **Interpretive Guidance** -- The NMFRC posts all applicable regulatory determinations made by EPA and its regions.
- ◆ **Performance and Cost Comparisons Across Technology Options** -- The NMFRC provides users with cost comparisons when selecting among various technology options, and identifies any associated risks or performance data.
- ◆ **Pollution Prevention Case Studies** -- The NMFRC is available for users to explore how pollution prevention opportunities can be used to achieve compliance in regulatory requirements as well as go beyond compliance.
- ◆ **Technical Forums** -- The NMFRC allows users to post questions to a forum moderator, and obtain feedback from peers having faced similar compliance or performance problems.
- ◆ **Vendor Information** -- The NMFRC directory provides information on vendor location, the equipment and materials each provides, and contact information.
- ◆ **Links to Local Technical Assistance Providers, Trade Associations and Technical Societies** -- The NMFRC electronically links state, local, and other types of environmental and technical assistance programs. These programs provide a comprehensive local network for hands-on assistance to metal finishing facilities. The NMFRC also provides a central access point for information on the activities of the major trade associations and technical societies in the industry.
- ◆ **User Defined Services** -- The NMFRC continuously takes feedback from users to better tailor services to their needs.

CONTACTS

For further information contact: National Center for Manufacturing Science- Paul Chalmer (313-995-4911) or U.S. EPA-Scott Throwe (202-564-7013).

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Enviro\$ense

<http://es.inel.gov>

or, <http://www.epa.gov/envirosense>

Help Line: (703) 908-2007

Funded by the Strategic Environmental Research and Development Program (SERDP) and an interagency partnership of the Environmental Protection Agency (EPA), Department of Defense (DoD) and Department of Energy (DOE). Implemented through the assistance of the National Pollution Prevention Roundtable (NPPR).



EPA System Managers:

- Myles Morse (202) 260-3161
morse.myles@epamail.epa.gov
- Louis Paley (202) 564-2613
paley.louis@epamail.epa.gov

Office of Enforcement and Compliance Assurance Contact:

- Jonathan Packman (202) 564-2617
packman.jonathan@epamail.epa.gov
<http://www.epa.gov/envirosense/oeca>

Federal Facilities Contact:

- Isabelle Lacayo (202) 564-2578
layaco.isabelle@epamail.epa.gov

You are welcome to become a partner in Enviro\$en\$. If you have information or comments to share, please contact the Webmaster.

Webmaster: web-info@envirosense.com

Hosting the following home pages:



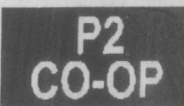
NPPR
National Pollution
Prevention Roundtable



AIPP
American Institute for
Pollution Prevention



EPA Compliance Assistance
Centers



Pollution Prevention
Cooperative

Awards:



United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Research and Development

March 1997



Common Sense Solutions to Environmental Problems



World Wide Web Address

<http://es.inel.gov>

<http://www.epa.gov/envirosense>

What is EnviroSenSe?

- EnviroSenSe is a free, public environmental information exchange system that provides users with pollution prevention (P2) solutions, compliance and enforcement assistance information, and innovative technological insights.
- EnviroSenSe strives to be the cutting edge of P2 knowledge by building on the work of a wide array of resources and allowing users to draw upon the experiences of federal agencies, state and local organizations, manufacturers, suppliers, researchers and others.
- The network's primary goal is to provide a one-stop-shopping service for those who seek P2 information. The system emphasizes material that can help small businesses in meeting environmental requirements.

Here are just a few of the resources you can access by clicking on a button.



Compliance and Enforcement.

Keep current with the latest policy and guidance news, information on new regulations, and compliance assistance available from several compliance assistance centers, industry sector notebooks, and other sources.

FFLEX. If you are a federal government employee, you can obtain and customize environmental audit protocols for your organization from FFLEX (Federal Facilities Environmental Leadership Exchange).

SEPs. Find out what some companies have done to meet EPA requirements using Supplemental Environmental Projects (SEPs).

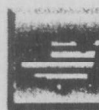
Sector Notebooks. Access and download comprehensive air, water, and land pollutant data for any of 18 industrial sectors including information on industrial processes, regulations, pollutant release data, and innovative programs.



Technical/Research and Development Information.

EPA-Funded Research Projects, Grants, and Fellowships. Have easy access to EPA interagency research funding opportunities as well as past and present research projects and programs through the National Center for Environmental Research and Quality Assurance (NCERQA).
<http://www.epa.gov/envirosense/ncerqa>

P2 Case Studies. See how companies have successfully implemented pollution prevention measures in P2 Case Studies.



Pollution Prevention Programs in the USA.

EPA P2 Partners for the Environment. Obtain profiles and technical documents of EPA's P2 partnership programs such as:

- 33/50
- Design for the Environment (DfE)
- Common Sense Initiative
- Green Lights
- WasteWiSe
- Energy Star
- Procurement Programs

Current P2 Activities. Review the latest P2 activities at the White House, the Department of Agriculture, and a dozen other federal organizations.



Solvent Substitution Data Systems.

The Solvent Umbrella. Examine an integrated set of databases that allows you to access solvent alternative information, including:

- EPA's Solvent Alternatives Guide (SAGE)
- Idaho National Environmental Engineering Laboratory's (INEEL) Hazardous Solvent Substitution Data System (HSSDS)
- INEEL's Solvent Handbook Data System (SHDS)
- Ozone Depleting Substance (ODS) and Solvent Alternatives Databases
- EPA's EnviroSenSe Integrated Vendor Database.



International Resources.

Keep abreast of events and technologies in the international community through the Ozone/Action Information Clearinghouse or dozens of other international and country-specific information resources.



Links to Other Systems.

Easily access numerous other information resources such as:

- Defense Environmental Network and Information Exchange (DENIX)
- DOE Pollution Prevention Clearinghouse (EPIC)
- National Pollution Prevention Roundtable (NPPR)
- Environmental Protection Agency
- American Institute for Pollution Prevention (AIPP)
- Material Exchange Systems
- Federal, Regional, and State Agencies
- Academic Environmental Programs
- Environmental Research Projects
- Links to P2 web sites via the State and Regional Internet Cooperative.



News, Resources, Contacts, and Funding.

Vendor Information. Research vendor information from the extensive Illinois

Waste Management Research Center (IWMRC) Vendor Database.



Search.

Find P2 solutions within EnviroSenSe.

- Search over 23 datasets including the Illinois Waste Management Research Center's TechInfo and VendInfo databases.
- Search participating regional and state indexed web sites.
- Focus searches on industrial sectors.



DoD/Joint Service.

Look at DoD's extensive P2 programs and information resources:

- Access information on model P2 Plans.
- Search the Joint Service P2 Library database.

Pollution Prevention for Compliance and Enforcement Officers

Cost Implications of P2

Objectives

- Review environmental cost accounting considerations and techniques
- Discuss cost considerations



Overview

- Environmental cost accounting
- Definitions
- Limitations of traditional methods
- Principles
- Payback analysis
- Net present value analysis

Environmental Cost Accounting

Goes by many names:

- Activity Based Costing
- Total Cost Assessment
- Life Cycle Costing
- Total Cost Accounting
- Cost Benefit Analysis
- Net Present Value Analysis

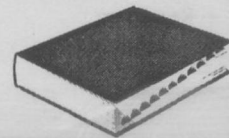


Definition of Total Cost Accounting

Total cost accounting is a procedure used to calculate the total cost of a product or process including long-term benefits and liabilities, indirect costs, environmental impacts, and other costs not typically assigned to the product or process.

Definitions

- Capital costs
- Operating costs
- Payback period
- Net present value



Pollution Prevention for Compliance and Enforcement Officers

Limitations of Traditional Methods

- Traditional accounting and investment analysis methods "stack the deck" against pollution prevention investments by:
 - excluding certain categories of costs/savings
 - evaluating costs over too short a time horizon

Principles

- Assign costs to the activities, processes or products that generate them
- Evaluate costs/savings over a long time horizon
- Include intangibles



Payback Analysis

- Determine capital costs
- Determine current operating costs
- Determine future operating costs
- Calculate payback period



Inventory of Potential Capital Costs

- | | |
|-----------------------------------|------------------------|
| • Purchased equipment | • Planning/Engineering |
| • Materials | • Start-up/Training |
| • Utility systems and connections | • Permitting |
| • Site preparation | • Working Capital |
| • Construction/Installation | • Contingency |
| | • Salvage Value |

Inventory of Potential Operating Costs

- | | |
|-------------------------|-----------------------------|
| • Direct Materials | • Insurance |
| • Direct Labor | • Future liability |
| • Utilities | • Fines/penalties |
| • Waste Management | • Cost of legal proceedings |
| • Regulatory Compliance | • Personal injury |
| | • Revenues |

Calculate Payback Period

$$\text{Payback} = \frac{\text{capital costs}}{(\text{current costs} - \text{future costs})}$$



Pollution Prevention for Compliance and Enforcement Officers

Net Present Value Analysis

- Calculate capital costs
- Calculate future operating costs in nominal dollars
- Discount future operating costs
- Add capital costs and discounted future operating costs
- Compare NPV with alternatives

Summary

- Total cost accounting provides a tool for evaluating alternatives
- Total cost accounting incorporates "non-traditional" costs
- Payback and net present value analysis both widely used

Exercise 3 - Simple Payback Calculation

1. A local university currently uses a petroleum distillate solvent sink to clean parts at the power plant. A contractor services the sink and disposes of the spent solvent. The contractor charges \$112 each time the solvent in the sink is changed. The contractor changes the solvent once per month. A small aqueous-based parts washer, with enough capacity to meet the shop's needs, costs \$2,750. The annual cost to operate the parts washer is \$150. Calculate the payback period for this opportunity.

Start-up costs:

Additional Cost Considerations:

Net current costs:

Net future costs:

$$\text{Pay back} = \frac{\text{start-up costs}}{\text{net current costs} - \text{net future costs}}$$

$$= \underline{\hspace{2cm}}$$

$$= \underline{\hspace{1cm}} \text{ yrs}$$

2. A city transportation maintenance garage currently generates and disposes of 3,600 gallons of antifreeze per year at a cost of \$15,000. Replacement of disposed antifreeze costs the facility an additional \$13,500 per year. An antifreeze recycler costs \$12,000 and has an annual operational cost of \$1,000. Assume that the antifreeze recycler will allow the shop to reduce antifreeze purchases and waste disposal by 50 percent. Calculate the payback period for this opportunity.

Start-up costs:

Additional Cost Considerations:

Net current costs:

Net future costs:

$$\text{Pay back} = \frac{\text{start-up costs}}{\text{net current costs} - \text{net future costs}}$$

$$= \underline{\hspace{2cm}}$$

$$= \underline{\hspace{1cm}} \text{ yrs}$$

3. A local printer currently uses cleaning products that contain EPA-17 chemicals. The EPA-17 cleaner costs \$15 per gallon and the printer uses 110 gallons per year. Disposal costs for the cleaner are \$8 per gallon and the shop disposes of 30 gallons per year. The owner is investigating the possibility of using a petroleum-based substitute for the EPA-17 cleaner. The substitute costs \$18 per gallon and he will need 80 gallons per year. The substitute cleaner is used in a self-contained sink that costs \$500. Disposal charges for the cleaner are \$5 per gallon and the sink will be changed two times per year, generating 40 gallons of waste each time. Calculate the payback period for this opportunity.

Start-up costs:

Additional Cost Considerations:

Net current costs:

Net future costs:

$$\text{Pay back} = \frac{\text{start-up costs}}{\text{net current costs} - \text{net future costs}}$$

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Pollution Prevention for Compliance and Enforcement Officers

Pollution Prevention and the Regulatory Spectrum

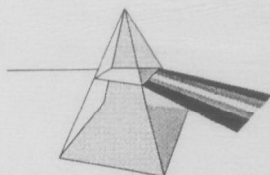


Objectives

- Understand the role of the regulator in promoting P2
- Understand the policies that can be used to promote P2

Overview

- Role of the regulator
- The regulatory spectrum



Role of the Regulator

- Discuss general P2 concepts, benefits and approaches
- Provide contact for local or state technical assistance services
- Identify P2 opportunities
- Evaluate P2 plans, permit conditions and projects
- Observe facility attitude towards environment and pollution prevention
- Document all findings

The Regulatory Spectrum

- Permitting
- Compliance assistance
- Coming into compliance
- Enforcement (using Supplemental Environmental Projects)

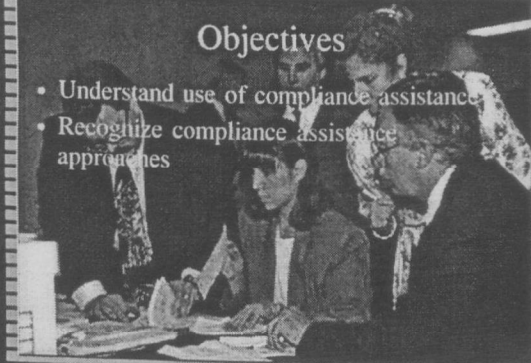
Pollution Prevention for Compliance and Enforcement Officers

Promoting Pollution Prevention through Compliance Assistance



Objectives

- Understand use of compliance assistance
- Recognize compliance assistance approaches



Overview

- Definition
- Policy
- Approaches
- Likely candidates

Definition

Compliance assistance is information or advice provided by regulators. It is:

- Voluntary
- Provided during inspections



Policy

For facilities that participate in compliance assistance programs:

- Violations will be documented (depending on seriousness)
- Self-disclosure (usually within 90 days) will be taken into account
- Return to compliance is required

Approaches

- Provide materials, training, e-mail or seminars to regulated community:
- In response to a specific inquiry
- As part of a sector-based compliance assistance programs
- Upon initiation of the permitting process
- As part of routine compliance activities
- During inspections

Pollution Prevention for Compliance and Enforcement Officers

Likely Candidates

- Small operations
- Small businesses
- Less advanced facilities
- Cooperative businesses



Summary

Compliance assistance:

- Provides support to facilities trying to comply
- Builds trust
- Should be used with discretion

Pollution Prevention for Compliance and Enforcement Officers

Using Pollution Prevention to Come into Compliance

Objectives

- Discuss use of pollution prevention when a facility is out of compliance
- Understand policy

Overview

- Policy
- Approach
- Evaluation
- When to Use



Policy

For a non-compliant facility:

- Regulator may provide additional time for a return to compliance if a P2 solution is proposed
- Regulator and facility must agree to conditions
- Project must yield an aggregate gain in environmental protection

Approach

- Regulator or facility proposes use of policy
- Facility identifies and develops P2 project
- Regulator and facility negotiate agreement that includes interim milestones and fall back position



Evaluation

When applying this policy, the regulator should:

- Consider the seriousness of violation
- Determine that the proposed project will return the facility to compliance
- Characterize the additional environmental benefit that will be obtained

Pollution Prevention for Compliance and Enforcement Officers

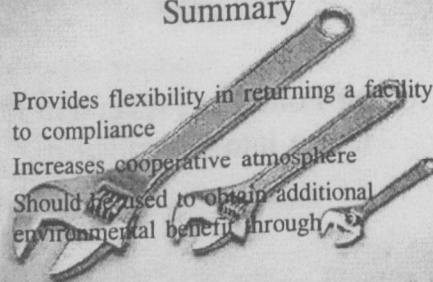
When to Use

- Recurring patterns of violations
- Add-on controls are needed
- Viable P2 options are available



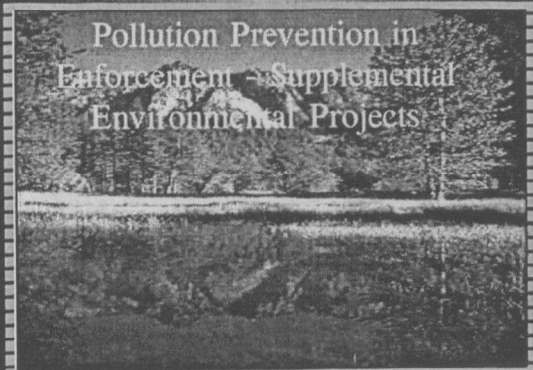
Summary

- Provides flexibility in returning a facility to compliance
- Increases cooperative atmosphere
- Should be used to obtain additional environmental benefit through



Pollution Prevention for Compliance and Enforcement Officers

Pollution Prevention in Enforcement - Supplemental Environmental Projects



Objectives

- Review the Supplemental Environmental Projects (SEP) policy
- Understand the use of SEPs in promoting P2 solutions

Overview

- Definition
- Policy goals
- SEP Categories
- Nexus
- Procedures



Definition

A supplemental environmental project is:

- a component of an enforcement action that mitigates a portion of the fine
- a project not legally required that exceeds compliance requirements
- an environmentally beneficial project (preferably a P2 solution)

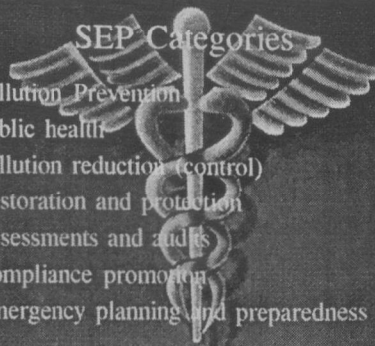


Policy Goals

- Maintain strong penalty policy
- Encourage P2 alternatives
- Voluntary and selective

SEP Categories

- Pollution Prevention
- Public health
- Pollution reduction (control)
- Restoration and protection
- Assessments and audits
- Compliance promotion
- Emergency planning and preparedness



Pollution Prevention for Compliance and Enforcement Officers

Nexus

The SEP must be related to the violation:

- Directly to the source
- Within the geographic area or ecosystem
- Other facilities with same problems
- Other pollutants or processes of concern



Procedures

- Establish a penalty
- Evaluate SEP
- Determine allowable mitigation



Establish a Penalty

- Penalty = economic benefit plus gravity component
- BEN software
- Will vary depending on your policies and enforcement posture

Evaluate SEP

- Process characterization
- Environmental impacts
- Economics
- Nexus issues
- Environmental justice
- Schedule



Calculate Allowable Mitigation

- With an SEP included in the agreement, remaining fine should:
 - Recover economic benefit plus 10 percent of the gravity or
 - 25 percent of the gravity component **whichever is greater**
- PROJECT software can be used to calculate value of the SEP activity (contact Jonathan Libber at (202) 564-6011)

Summary

- SEPs policy is an enforcement tool that provides flexibility
- SEPs should result in additional environmental protection
- SEPs are voluntary
- Discretion lies with the regulator

EXERCISE 4

EVALUATING PROPOSED SEPs

The inspection at Stoneybrook Manufacturing Company resulted in 10 major notices of violation. After fruitless negotiations with the managers, you decide to take enforcement action against the company. Stoneybrook has a fairly good track record of implementing pollution prevention projects. The company expresses an interest in pursuing a SEP with pollution prevention conditions and proposes the following project. Read the project description and answer the questions.

Proposed SEP Projects

Violations - Improper hazardous waste storage and unpermitted releases of xylene from the batch mixing area. Project - find an alternative to xylene for cleaning the mixing tanks and fluid transfer lines.

Excerpt from a letter from Stoneybrooks' lawyers addressed to you:

Stoneybrook's engineers propose testing 2 alternative solvent cleaners and improving the system currently used to recover the solvent after it rinses the equipment. Specifically, we will test 2 solvents that do not contain EPA 17 listed chemicals. We will identify the alternatives by working with vendors and our trade association. We will apply the alternative solvent the same way we are currently applying the xylene. Should these products not prove to be acceptable alternatives, we will continue to use xylene.

Currently we flush the mixing tanks and fluid transfer lines once with xylene. The contaminated xylene is collected and drummed for disposal as hazardous waste. It is only used once prior to disposal. We will develop a closed loop recovery system for the alternative solvent that enables us to filter out the contaminants on-site and re-use the solvents more than once. We will investigate the feasibility of initially flushing the dirty tanks and hoses with used solvent and then completing the wash with fresh solvent.

1. Write five questions you would ask concerning the technical viability of the project as proposed:

2. What schedule would you propose?

Pollution Prevention for Compliance and Enforcement Officers

Negotiating a SEP

Objectives

- Review negotiation approaches
- Discuss projects that are likely to succeed

Overview

- The scenario
- Information needs
- Picking winners
- Establishing a schedule
- Discretion



The Scenario

- Knowing the players
- Understanding the case
- Recognizing barriers

Knowing the Players

- Size of facility
- Size of corporation
- Attitude of management and staff
- Expertise of management and environmental staff



Understanding the Case

- Compliance history
- Approach to resolving enforcement action
- Technical feasibility of approach



Pollution Prevention for Compliance and Enforcement Officers

Recognizing Barriers

- Insufficient capital
- Non-viable technologies
- Entrenched culture
- Lack of management support
- Animosity



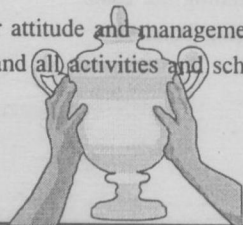
Information Needs

- Project goals and objectives
- Technical information on facility and project
- Cost information
- Approach and schedule



Picking Winners

- Evaluate probability that SEP is technically feasible
- Consider attitude and management support
- Understand all activities and schedules



Establishing a Project Schedule

- Milestones
- Fall back positions
- Return to compliance
- Authority to monitor
- Reporting
- Project end

Discretion

- SEPs are a tool for the regulator
- You should reject ill-conceived proposals
- Goal is to mitigate fines for increased environmental protection



Summary

- Information in a SEP should be complete
- SEP proposal should convince regulator that project will succeed
- Be careful but not paranoid

Examples of P2 Evaluation Questions Raised in Negotiating a SEP

The following list contains examples of the questions enforcement officers would typically raise when evaluating a pollution prevention SEP proposal. The questions enable compliance officers to determine whether proposed projects meet the criteria used in evaluating SEP proposals (see the SEP Checklist attached to the Revised Interim SEP policy dated May 1995). The questions cover four major areas: technical feasibility, environmental feasibility, economic feasibility and implementation.

1. Does the SEP appear technically feasible?

For both the current process and the proposed project, request the following information:

- A process flow diagram showing all major production steps;
- Estimate of current annual production or follow-through for the facility as a whole;
- MSDS of all relevant chemicals and quantities used and purchase costs;
- Descriptions of waste streams and environmental impacts as well as quantities and waste management costs (i.e., for each product of concern entering a process, determine the percent disposed of through wastewater, as air emissions, as solid waste, etc.);
- Product information/ technical specifications for proposed new equipment or procedures; and
- Description of infrastructure modifications that may be necessary to implement the proposed p2 option (e.g., rewiring electrical systems).

2. Will the project result in cross-media transfers of toxins?

Request descriptions of waste streams and environmental impacts as well as quantities and waste management costs (i.e., for each product of concern entering a process, determine the percent disposed of through wastewater, as air emissions, as solid waste, etc.).

3. How innovative is the proposed SEP?

Request estimates of whether the proposed modification is innovative or involves off-the-shelf technologies, give examples of other facilities that have successfully performed similar modifications.

4. What are the SEP's anticipated environmental benefits?

Highlight the environmental benefits associated with the proposed p2 option including:

- Reductions of toxic substances of concern (e.g., ozone depleting substances, EPA 17 chemicals, extremely hazardous substances, EPCRA 313 chemicals);
- Energy or water reductions;
- Reductions of air emissions;
- Reductions of wastewater;
- Reductions of hazardous or solid wastes; and
- Reductions of overall facility impacts (land management, non-point sources pollution, wetlands, etc.).

5. Will the proposed projects have any bearing on environmental justice?

6. What are the anticipated cost savings?

Request the information presented in Exhibit 1 from the facility in order to estimate cost savings resulting from project implementation:

Exhibit 1 Examples of Cost Information

Direct Costs	Indirect Costs	Liability Costs
Capital expenditures <ul style="list-style-type: none"> • Buildings • Equipment and installation • Utility connections • Project engineering Operation and Maintenance Recurring Expenses or Revenues <ul style="list-style-type: none"> • Raw materials • Labor • Waste disposal • Water and energy • Value of recovered material 	Administrative costs Regulatory compliance costs <ul style="list-style-type: none"> • Permitting • Recordkeeping and reporting • Monitoring • Manifesting • Insurance 	Penalties Fines Personal injury Property damage Remediation

7. How will the proposed project be implemented?

Exhibit 2 shows examples of the kind of information that may be included in the implementation plan.

Exhibit 2 Model Implementation & Tracking Plan

Tasks	Organization Responsible For Implementing The Task	Deadline	Actual Completion Date	Indicator That Task Was Completed On Time
Purchase equipment	Environmental, Purchasing Depts.	1/15/95	1/14/95	Receipt from equipment vendor or purchase order
Receive equipment	Shipping and Receiving, Shop supervisor	2/28/95	3/10/95	Invoice from Shipping and Receiving Dept.
Install equipment	Shop supervisor	3/15/95	3/14/95	Photographs of equipment in use, receipts for chemicals used to operate the equipment

EXERCISE 5

ACE MANUFACTURING

ACE manufacturing is a small firm located in an economically disadvantaged neighborhood in a large city in your state. It is a minority-owned small business that manufactures metal and composite components. ACE manufacturers components that are used in the Space Shuttle and the B2 Bomber. A recent inspection uncovered the following areas of concern:

1. ACE generates hazardous wastes from electroplating, metal cleaning and composite manufacturing wastes. The electroplating wastes contain high concentrations of silver. The cleaning and composite wastes contain 1,1,1-Trichloroethane (TCA) (from cleaning activities) and methyl ethyl ketone (MEK) (from composite manufacturing). The environmental manager could not produce complete manifests for disposal of 3 months of wastes (about 9 drums of waste). The environmental manager was on disability leave and the established procedures were not followed. He assures you that the same waste hauler was used. Further, the hazardous waste storage area does not have proper secondary containment, drums are apparently mislabeled and the storage area also contains a variety of small containers of paints, solvents and oils.
2. Last year, ACE received and then processed an additional 25 drums of MEK from its NASA contracting partner. These drums put the facility over the 10,000 pound threshold for reporting under the Emergent Planning and Community Right-to-Know Act Section 313 (Toxic Release Inventory). The facility did not file a Form R for MEK. The environmental manager did not realize that a submission for even a one-time exceedance was required.
3. The facility exceeded its discharge limits for silver to the local POTW on one occasion. The facility reported the exceedance to the POTW and the state. The spike was due to a slow bleed of the silver plating bath solution when the solution was spent and needed to be replaced.

In general, the facility environmental manager has worked very hard to stay in compliance. Past problems have been dealt with in a timely fashion. However, the problem with silver discharge limits has occurred before and the facility has still not found an adequate system to keep the discharge within permitted limits. It seems that facility management is unwilling to provide the adequate resources needed for the environmental manager to establish the proper treatment system.

After several rounds of discussions, your multi-media team proposes the following fines for the facility:

1. RCRA violations \$12,500. Primary concern is that the 9 drums of wastes were not properly manifested or transported. The environmental manager eventually produces copies of manifests demonstrating that the drums were disposed of at a permitted TSDF.
2. EPCRA violation \$50,000 for failing to report under TRI. Given the facilities use rates, it is unlikely that this violation could occur again. However, the facility was in clear violation of the reporting requirements.
3. CWA violation \$8,500 for exceeding discharge limits.

The environmental manager proposes activities to come into compliance or mitigate the fine as part of a fine settlement discussion. The corrective actions and SEP is described in more detail below. Your job is to evaluate the entire proposal including the SEP (using the provided checklist) and determine the best course of action for the state. In reviewing the SEP you should:

1. Make an initial determination as to whether or not the SEP is appropriate and complete.
2. Develop any questions you might have for the environmental manager concerning the SEP.
3. Propose a fine mitigation for the proposed SEP.

ACE PROPOSED ACTIVITIES AND SEP

ACE proposes the following activities to return to compliance and mitigate as much of the fine as possible (under the Federal SEP policy):

Actions to Return to Compliance:

ACE recognizes that its sloppy handling of wastes and improper management of the electroplating bathes have created a problem. ACE has identified the following activities and actions as a means for ensuring future compliance with all applicable environmental requirements. ACE also invites EPA back within the month to inspect its new hazardous waste accumulation point and speak with its new alternate environmental managers. Specific actions that ACE has completed or is in the process of completing include the following:

Silver discharges exceeding permitted levels:

The cause of silver discharge above permitted levels is the bleed of spent silver plating bath solution into the wastewater treatment system. The waste water treatment includes metal exchange and electrolytic recovery. ACE will discontinue any bleeds of plating bath solutions into the waste water treatment stream. Rather, these wastewaters will be drummed, manifested and shipped off-site for silver recovery.

Hazardous waste accumulation area:

The facility has already purchased a portable, enclosed hazardous waste accumulation building. The building has built-in secondary containment. The building has been placed upon the concrete pad where the current area was located. The building will be locked and the fence surrounding the area will be locked.

Paperwork and reporting issues:

The facility believes that the lapse in reporting was due to the environmental manager's absence. To eliminate the potential for this type of problem in the future, the facility has sent two of its production engineers to two-week hazardous waste management training courses. The engineers who work during the day and evening shifts will act as alternates for the environmental manager and serve to oversee hazardous waste management during their shifts.

The facility quality assurance will also conduct bi-monthly inspections (unannounced) of the hazardous waste storage area and will review all hazardous waste manifests prior to shipment of wastes. The facility quality assurance officer will attend the two-week hazardous waste manager course within two months of this submission.

Proposed SEP

ACE proposes to replace its current composite manufacturing system with a new gravity fed composite manufacturing system. The current system (see figure 1) relies upon methyl ethyl ketone (MEK) as a means for flowing polymer powder in between strands of carbon fiber. The fibers and polymer are then melded together with pressure and heat to form the composite. MEK is driven off (for recovery) by the preheat system which is part of the prepreg unit.

The replacement system will eliminate the use of MEK throughout the process (and cut usage at the facility by approximately 95%). The new process (see figure 2) will rely upon gravity and compressed air to insert polymer dust into the carbon matrix. The matrix and polymer will then be compressed and heated to form the composite. The new system will eliminate 95% of the MEK used at the facility annually (approximately 6500 pounds).

The system will cost ACE manufacturing roughly \$200,000 to change over. The cost breakdown for the project is as follows:

Start-up costs:

1. New composite pre-preg unit \$125,000
2. Installation \$25,000
3. New air compressor \$8,500
4. New power (440V) \$1,500
5. Training for users \$8,500
6. New fittings to integrate new unit with existing production line \$20,500
7. Removal of old system \$11,000 (labor of staff)

Cost benefits associated with new system:

1. Sale of old equipment \$57,000
2. Reduce MEK usage \$12,000/yr.
3. Reduced hazardous waste disposal costs \$5,000/yr.
4. Reduced labor for chemical and hazardous waste management \$7,500/yr.

ACE has reviewed system performance records and has talked with other manufacturers who have installed the gravity system. ACE is convinced that the system will work with their manufacturing process. Further, NASA and the Air Force have approved the new system to meet the technical specifications of the shuttle and B2 programs.

ACE has contacted the manufacturer of the equipment who promises that the equipment can be provided within 90 days of ordering. ACE will issue a purchase order, depending on the amount of fine mitigation, as soon as the state accepts the SEP. ACE proposes that mitigation of the EPCRA fine would make the project more economically viable for their operations. ACE projects that the new equipment can be on-line within 90 days of purchase.

Figure 1: Current Process

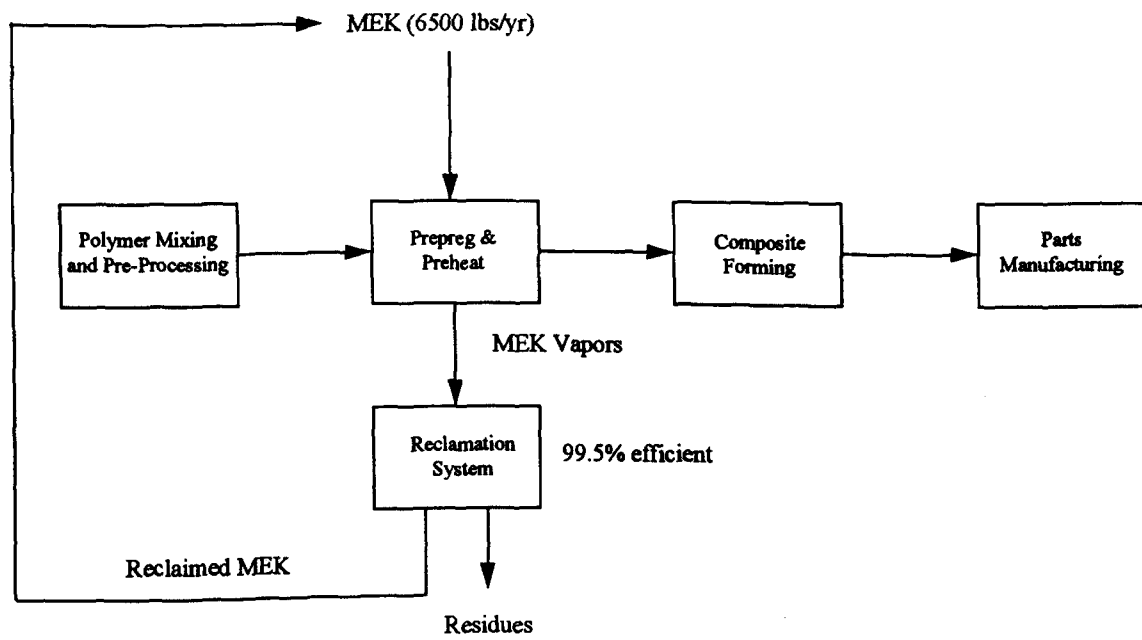
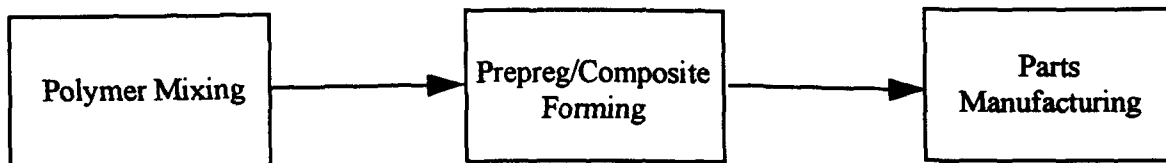


Figure 2: Future Process



Supplemental Environmental Project Submission Inventory

SEP Element	Completeness	
	Sufficient	Insufficient ⁵
<input type="checkbox"/> Project Goals	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Process Descriptions:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Flow chart of current activity	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Flow chart of future activity ⁶	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mass balance information	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Description of SEP:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Nexus of SEP to original violations	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Expected environmental benefits	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Approach to Implementing SEP:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> List of activities	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Schedule	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Staffing of project	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SEP Economic Information:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SEP project costs	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Current operating costs ⁷	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Future operational costs ⁸	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/> Information Developed by Enforcement Personnel
--

<input type="checkbox"/> Fall-back Position if SEP Fails or is not Completed	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Rationale for Accepting SEP	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Discussion of Environmental Justice Issues	<input type="checkbox"/>	<input type="checkbox"/>

⁵ If insufficient, either identify questions that will be asked of the submitter or reject SEP proposal.

⁶ Applicable if SEP directly impacts operation

⁷ Applicable if SEP directly impacts operation and cost of operation

⁸ Applicable if SEP directly impacts operation and cost of operation

Supplemental Environmental Project Submission Inventory

SEP Element	Completeness	
	Sufficient	Insufficient ¹
<input type="checkbox"/> Project Goals	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Process Descriptions:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Flow chart of current activity	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Flow chart of future activity ²	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mass balance information	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Description of SEP:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Nexus of SEP to original violations	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Expected environmental benefits	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Approach to Implementing SEP:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> List of activities	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Schedule	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Staffing of project	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SEP Economic Information:	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SEP project costs	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Current operating costs ³	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Future operational costs ⁴	<input type="checkbox"/>	<input type="checkbox"/>
<div><input type="checkbox"/> Information Developed by Enforcement Personnel</div>		
<input type="checkbox"/> Fall-back Position if SEP Fails or is not Completed	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Rationale for Accepting SEP	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Discussion of Environmental Justice Issues	<input type="checkbox"/>	<input type="checkbox"/>

¹ If insufficient, either identify questions that will be asked of the submitter or reject SEP proposal.

² Applicable if SEP directly impacts operation

³ Applicable if SEP directly impacts operation and cost of operation

⁴ Applicable if SEP directly impacts operation and cost of operation

APPENDIX A

Clean P 2 Assessment

for

C.M. Almy & Son, Inc.



March 10, 1997

Center for Technology Transfer

190 Riverside Street

Portland, Maine 04103-1073

Phone 780-1744 FAX 780-1547

The CLEAN-P2 Pollution Prevention Pilot Project is based on a partnership between the United States Environmental Protection Agency (Region 1 EPA-New England), the Maine Department of Environmental Protection (DEP), and the Center for Technology Transfer (CTT) and its industry partners. The CLEAN-P2 program including the assessment conducted at the Baker Company is supported by the USEPA through grant No. ME 070102004.

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SECTION 1 - Introduction

Background and Purpose

USEPA-New England has initiated a pollution prevention and waste minimization project in Maine and New Hampshire entitled CLEAN-P2. This is a pilot project intended to measure the potential for improved environmental performance and compliance through a technical assistance program which offers enforcement relief to participating companies.

In Maine, the Center for Technology Transfer (CTT) has been contracted by EPA to implement the CLEAN-P2 project in partnership with the Maine Department of Environmental Protection (DEP). CTT's role in CLEAN-P2 is to manage the overall project, develop assessment protocols, assemble multi-disciplinary technical assistance teams, and lead facility-wide, multi-media pollution prevention assessments. In conducting these assessments, DEP will work with CTT to provide resources to identify and evaluate environmental regulatory compliance issues. DEP and CTT will work together to develop a CLEAN-P2 assessment report for each of the companies that is assessed.

One of the companies that requested to have a CLEAN-P2 assessment conducted at their facility was C.M. Almy & Son. The scope of the CLEAN-P2 assessment conducted at C.M. Almy includes:

- A one-day assessment of C.M. Almy's metal finishing operation conducted by a multi-disciplinary assessment team. The assessment included reviewing and refining process flow diagrams, reviewing and refining data on material inputs and losses, identifying compliance deficiencies, reviewing and refining activity-based costs, and identifying potential P2 opportunities.
- Compile and analyze data/information collected as part of the assessment. Information collected during the assessment was reviewed to allow completion of process flow diagrams and materials accounting spreadsheets, and to develop additional information to evaluate pollution prevention opportunities.
- Prepare CLEAN-P2 Assessment. This report includes a compilation and analysis of process data such as material inputs, wastes, and environmental costs as well as well as an evaluation of environmental compliance, and identification of pollution prevention opportunities.
- Identify One Project That Takes C.M. Almy "Beyond Compliance". When a company improves its operations such that the environment is impacted less than if that company merely complied with the necessary regulations it is said to go "beyond compliance". One of the requirements of CLEAN-P2 participants is that they select at least one project that is technically and economically feasible that will take them

beyond compliance, and then implement that project to demonstrate its overall impact.

Facility Description and History

C.M. Almy & Son, Inc (C.M. Almy) manufactures high quality, hand made liturgical artifacts including metal objects and vestments. This assessment was limited to the metalware products part of the business. C.M. Almy employs a total of approximately 100 persons, 12 of these being in the metalware area. Metal products that C.M. Almy manufactures include brass candle holders, silver and gold plated chalices, plates and other objects. The processes that are employed to make these products include metal cutting, machining, annealing, sanding, buffing, welding, engraving, electroplating, and lacquering.

CLEAN-P2 Assessment Team

The CLEAN-P2 assessment at C.M. Almy & Sons, Inc. included the following team members:

- Peter Moulton, Maine DEP
- Mark Arienti, CTT
- Stanley Eller, CTT
- David McCaskill, Maine DEP
- Chris Rushton, Maine DEP
- Don Albert, Maine DEP
- Carl Trottier, Precision Screw Machine Products

From C.M. Almy, Mr. Michael Fendler, President, Mr. Charles Sprague, Manager of the metals shop, and Ms. Barbara Hamilton participated in the assessment. Mr. Sprague led the team on the facility walk-through, and all three answered questions and provided information on the facility and the manufacturing operations.

SECTION 2 - Process Analysis

Process Description

C.M. Almy's metalware shop includes the following processes: machining, annealing, soldering, buffing, electroplating, lacquer coating and assembly. Figure 1 presents an overall process flow diagram for the metalworking shop. Although the CLEAN-P2 assessment addresses environmental compliance in the entire metalware shop, the process analysis presented below focuses on the metal finishing processes, electroplating and lacquering. Detailed process flow diagrams for these processes are presented in Figures 2 and 3.

Most of the metalware that C.M. Almy produces uses brass as a base metal which is then silver, gold or nickel plated or lacquered. The overall electroplating process also includes alkaline cleaning, acid pickling, copper strike, silver strike, and rinsing as intermediate processes. Another integral part of the overall plating process is recovery of plating chemicals from drag-out rinses that follow each of the electroplating plating tanks. Recovery is achieved using a vacuum distillation unit that takes metal-bearing rinsewater and distills it to produce distilled water and a concentrated metal-bearing solution. The distilled water is sent back to the rinse and the metal-bearing solution is used to replenish the plating bath.

The lacquer coating process involves spraying the part with lacquer and sometimes involves stripping of lacquer when refinishing old parts. Because of the high VOC content of the lacquer, Almy has tried to identify a water-based substitute. However, although C. M. Almy has tried many water-based substitutes none have been able to adhere properly.

Material Inputs and Losses

An important type of information necessary to identify compliance and pollution prevention opportunities is the amount and type of material inputs and losses such as solid, liquid, and gaseous by-products or wastes. The primary materials used and losses generated in the general metalworking operations and presented in Table-1. Materials used and losses generated in the plating and lacquer coating processes are listed in Tables 2 & 3. The sources of the numbers listed in these tables are: (a) data from an Environmentally Conscious Manufacturing (ECM) assessment conducted by C.M. Almy in 1995; (b) responses to a questionnaire filled out by C.M. Almy prior to the CLEAN-P2 assessment (see Appendix A); and (c) additional information collected on the day of the CLEAN-P2 assessment. Some important points to make about material use and waste include:

- Most of the numbers presented in Tables 1, 2 and 3 are not precise numbers based on analytical measurements or mass balances. They are rough, order-of-magnitude ($\pm 30\%$) amounts based on manifests, purchase orders, container sizes, etc.
- The plating processes generate a small amount of hazardous wastes including approximately 40 gallons per year of spent cyanide-containing plating solution, 50

lbs/yr of spent cyanide-containing filters, and 10 gallons of waste acid solution. These wastes are generated as follows:

- * The spent plating solution is generated when the silver strike, silver plate or copper strike bath reach a level of contamination which makes them ineffective. All of these baths have a lifespan of greater than one year and as much as 6 years.
- * The filters operate continuously in all of the cyanide-based plating baths to remove organic contaminants and particulates. The filter media, which can be either carbon or polypropylene, is replaced on average about once a month as it becomes saturated with contaminants.
- Approximately 750 gallons per day (gpd) of water is used in the metalware shop, 650 of which is used in flowing rinses in the plating operation. This very small amount of water use is a result of several pollution prevention actions taken by C.M. Almy in the last few years including:
 - * elimination of unnecessary flowing rinses following alkaline cleaning and following the silver plate still rinse;
 - * installation of flow restrictors
 - * installing valves on the individual rinses to shut them off when parts are not being plated
 - * installation of covers on the plating tanks to minimize evaporation
 - * installation of the distillation unit as mentioned above
- Wastewater from the plating operation, discharged to the Town of Pittsfield sewer system, is somewhat less than 650 gallons per day used. The primary reason for this is that some water evaporates from the baths.
- Vapors from the plating tanks, primarily consisting of water vapor but also possibly containing small amounts of plating bath constituents, are ventilated to the outside. These vapors are generated only while the tanks are in operation. The tanks are covered when not in operation.
- The lacquer coating process generates approximately 400 lbs/yr of volatile organic compound (VOC) emissions per year based on the amount of lacquer and thinner used.
- The lacquer stripping process formerly used methylene chloride whose use resulted in hazardous air emissions and hazardous solid waste. Approximately 1.5 years ago, C.M. Almy identified an alternative lacquer stripping substance called MagiSol produced by Chute Chemical. The used MagiSol stripping solution was recently tested and found to be non-hazardous waste according to RCRA characteristics.

- For parts cleaning in the buffing operation, C.M. Almy uses an aqueous cleaning chemical called Penatone. Rinsing after cleaning with Penatone results in approximately 100 gallons per day of wastewater. Formerly, C.M. Almy used a vapor degreasing process which used approximately 500 gallons per year of 1,1,1-trichloroethane (TCA). The relatively new aqueous cleaning process has resulted in the elimination of TCA.
- Scrap brass from the staging, machining, annealing, sanding, and fabrication areas is collected for recycling at approximately \$0.80/lb or \$0.30/lb depending on the purity of the scrap material.
- The buffing process generates a considerable amount of dust that is captured in a cyclone/baghouse and disposed of as solid waste.

Activity-Based Costs

The evaluation of process economics is extremely important in helping to determine where the most fruitful pollution prevention alternatives lie. An activity-based costing table for the electroplating operation was prepared as part of the ECM assessment conducted in 1995. This table (Table 5) lists all of the waste streams from the silver plating process across the top. Activities that occur at the facility related to environmental compliance, waste treatment, storage or disposal are listed in the left-hand column. By summing up all the activity-based costs for each waste stream, it is possible to determine which waste streams are the most costly and therefore the most desirable to minimize or eliminate.

The numbers presented in Table 4 are rough, order-of-magnitude ($\pm 30\%$) costs based on the approximate amount of time or materials used in an activity and average unit costs for the activity. An empty box in Table 4 is an indication that the assessment team felt that the cost for that particular activity was insignificant or that data was not available.

Conclusions and observations from the numbers presented in Table 4 include:

- The distillation unit requires labor and electricity to operate. Depreciation of capital to purchase the unit is another cost. These costs are off-set, however, by the savings associated with reduced wastewater monitoring. Prior to installation of this unit, C.M. Almy conducted weekly monitoring at a cost of approximately \$6,500 per year.
- The most expensive waste stream from the silver plating process is the used cyanide-containing filters. In addition to hazardous waste disposal, costs for managing this waste stream include hazardous material training, reporting/manifesting, and labeling.
- The second most expensive waste stream is the flowing rinses. These rinses, which generate approximately 600 gpd of wastewater, are discharged to the city sewer system. Major costs are associated with sewer disposal fees and the cost of semi-annual monitoring.

- Other costs are associated with disposal of spent plating and cleaning solutions. The costs presented here are average annual costs based on the fact that each plating bath is disposed of only once every few years.

In summary, although C.M. Almy generates several hazardous waste streams from their plating process, they have greatly minimized the amount of these waste streams and their associated costs over the last few years.

SECTION 3 - Compliance Evaluation

RCRA / Hazardous Waste

Hazardous Waste on Site During the 30 September 1996 Site Visit

The hazardous waste observed in the flammable storage room during the 30 September 1996 visit consisted of the following:

- One 30 gallon closed container with 35-40 pounds(dry) of used wipes and filters contaminated with cyanide.
- Two 5 gallon containers of liquid cyanide waste. Both the dry and liquid cyanide waste were stored on a containment pallet to contain the hazardous waste in case of a leak or a spill.
- One 5 gallon container of liquid from the acid plating bath sitting on the floor.

The other potentially hazardous waste observed was the partially full 55 gallon drum of lacquer stripper (MagiSol) which may be hazardous due to its low flash point. C.M. Almy sent a sample of the lacquer stripper waste out for TCLP and flash point analysis on October 12, 1996. The test results indicated that the waste is not hazardous.

C.M. Almy has a cold storage building located opposite the loading dock on the other side of Ruth Road. It contains only cardboard and other raw materials used by C.M. Almy that are not affected by cold temperatures. The cold storage building was not visited as part of this assessment so neither hazardous waste issues nor other issues were addressed for this building.

Hazardous Waste Generator Status

The waste stored in the flammable storage room would amount to around 165 lbs/75 kgs. This is well within the **Small Quantity Generator (SQG)** status. However, to maintain this SQG status C.M. Almy must generate less than 100 kilograms of waste per month which is equivalent to approximately 25 gallons of waste with a density of 8.9 lb/gallon, that of C.M. Almy's plating bath liquids.

C.M. Almy must periodically "change out" (empty and dispose of) a plating bath and replace it with new solution. For any one bath, this occurs less frequently than once per year. Nonetheless, the waste generated in this change out is classified as hazardous. C.M. Almy does not generally measure the exact volume of waste that is disposed of when a plating bath is changed out, but if the plating bath was filled to the top, it would be approximately 33 gallons.

In order to maintain its small quantity generator status, C.M. Almy must ensure that amount of liquid removed from a plating bath for disposal in any one month is less than 25 gallons. This would amount to approximately a 13 inch depth in the plating tank.

If C. M. Almy exceeds the 25 gallons threshold, they would have to comply with all the requirements of a **Large Quantity Generator**, including, but not limited to the following:

- Obtaining an EPA ID number (already done - MED 985 467 356)
- Personnel training in the recognition and handling of hazardous waste
- Contingency plan
- 90 day storage (hazardous waste must be shipped off site within 90 days of it being generated)
- Additional storage requirements and record keeping for the hazardous waste/flammable storage room
- For a complete list of the LQG standards refer to the "*State of Maine Handbook for Hazardous Waste Generators and Chapter 850 - Hazardous Waste Management Rules.*"

Air Emissions

At this time C.M. Almy & Son is not subject to state air licensing regulations. Observations and explanations follow:

- No incinerator or municipal waste combustor exists at the facility. The existence of either an incinerator or municipal waste combustor may cause CM Almy & Son to be subject to federal emissions standards. Statutory authority for this item comes from 38 MRSA §590.
- Total boiler capacity is 3.3 million BTU's per hour INPUT, much less than the 10 million BTU's per hour threshold. The Department of Environmental Protection regulates boiler emissions under Chapter 115 "MAJOR AND MINOR SOURCE AIR EMISSION LICENSE REGULATION" through the Bureau of Air Quality's licensing program. Chapter 115 was recently revised and became effective October 6, 1996. Statutory authority for this item comes from 38 MRSA §590.

- Many of the plating baths have vapors that volatilize from the surface of the baths and are exhausted to the outside via exhaust slots (lip exhausts) that sit above the baths. The slot above each individual plating bath or tank is controlled by a manual damper in the PVC exhaust duct above each of the plating lines. A negative pressure is established and continually maintained in the PVC exhaust. Consequently, the plating line operator is able to control vapor in the breathing zone through use of the manual damper. Since the size of the plating baths are so small (approximately 28 gallons) any air emissions from these tanks will be well below the threshold which would cause an air regulation to come into affect. Examples of reporting thresholds are 200 lbs per year of cyanide and 200 lbs per year of hydrochloric acid for the State of Maine Hazardous Air Pollutants (HAP's) reporting via Chapter 137 "EMISSION STATEMENTS".
- Almy & Son has one paint spray booth. In this paint spray booth, a vinyl lacquer is sprayed onto the finished product to form a protective coating (primarily to prevent tarnishing). Both the lacquer and the lacquer thinner (reducer) presently used contain volatile organic compounds (VOC's). The state standard for control of VOC's in paint coating operations is Chapter 129, "SURFACE COATING FACILITIES". Although the operation (surface coating) is controlled by this state regulation, the emission limits for companies that coat "miscellaneous metal products" only apply if VOC emissions exceed 15 lbs/day. Companies that emit less than 15 lbs/day of VOC's are required to submit an Initial Certification Report, keep monthly records of coatings use, and to store all VOC-containing materials in vapor tight containers.

Based on purchasing records for October 1995 through September 1996, C.M. Almy used no more than 20 gallons of lacquer and 44 gallons of lacquer thinner. The VOC contents of these materials are as follows:

- Lacquer: 5.67 lbs VOC per gallon
- Lacquer Thinner 6.58 lbs VOC per gallon

Based on these numbers, C.M Almy emitted 403 lbs of VOC's over this period which is equivalent to 1.7 lb/day using 240 working days. C.M. Almy submitted their Initial Certification Report in 1995 as required by Chapter 129.

Clean Water Act

Wastewater Requirements

The discharge of wastewater from an industrial source, including metal finishing facilities such as C.M. Almy, is generally covered by the Federal Clean Water Act or the Safe Drinking Water Act. It may also be covered by the Maine Department of Environmental Protection, Title 38, Chapter 3, Protection & Improvement of Waters statutes or the Maine Department of Human Services subsurface wastewater disposal rules, Chapter 241.

These Federal and State regulations target three types of industrial discharges: direct discharges to surface waters; indirect discharges, which include any wastewater from an industrial facility that is discharged to a municipal wastewater treatment plant, also known as a publicly-owned treatment works (POTW); and, underground discharges of wastewater which include septic systems.

C.M. Almy discharges sanitary and industrial process wastewater to the Pittsfield Wastewater Treatment Facility. Therefore, C.M. Almy is an indirect discharger. The Federal pretreatment regulations apply to the indirect discharge of the industrial wastewater. Federal pretreatment requirements can be broken down into two types: requirements for general industry (known as general pretreatment standards) and requirements for specific industries (known as categorical pretreatment standards). Both the Federal general pretreatment standards and categorical pretreatment standards apply to C.M. Almy's discharge of industrial process wastewater. The Pittsfield Wastewater Treatment Facility is not required to administer a pretreatment program. However, C. M. Almy should contact Pittsfield Waste Water Treatment Authority and make sure all required local permits are obtained.

Monitoring and recordkeeping requirements for indirect dischargers are contained in 40 CFR Section 403.12. The records for all samples must be maintained for at least three years. These records must include:

- date, place, method, and time of sampling and the names of the person(s) taking the sample;
- date(s) the laboratory performed the analyses and the analytical methods used;
- laboratory that performed the analysis; and
- results of the analyses.

It appears that C.M. Almy is monitoring its industrial process for the required pollutants and that there were no monitoring and recordkeeping deficiencies noted during the site visit on September 30, 1996.

Note: The U.S. Environmental Protection Agency (EPA) is the administering agency for the Federal pretreatment regulations and can be contacted at (617) 565-9078 for more information on pretreatment compliance.

Stormwater Requirements

Certain industrial facilities which discharge stormwater must apply for coverage under a Federal stormwater permit. A facility must obtain a stormwater National Pollutant Discharge Elimination System (NPDES) permit if the answer to all three of the following questions is YES:

1. Do you have a storm water discharge?

YES - C.M. Almy does have a positive collection system and it does culminate in both pipes and ditches.

2. Does the point source discharge to regulated waters?

YES - The collection system discharges to the Sebasticook River.

3a. Are you considered an industrial activity subject to the regulations?

YES - The facility is a Standard Industrial Code (SIC) 2389 and 3471.

3b. Is there exposure or potential exposure of raw materials, finished products, by-products or material handling equipment to storm water? The stormwater regulations indicate that loading and unloading is one of the items defined as material handling.

There is a storm drain and ditch that conveys stormwater from the truck loading and unloading area. Raw materials and products are handled in this area. Therefore, one could say there is potential exposure of raw materials to stormwater. However, under normal circumstances there is no potential for these materials to be exposed to stormwater. All trucks unloading materials back up to the loading dock so the materials go directly into the building without being exposed to the weather. In addition, all the raw materials and products handled in this area are enclosed in containers. Furthermore, all trash dumpsters and other waste and material handling equipment is indoors.

CM Almy has the choice of either obtaining a stormwater permit or not obtaining a permit. A conservative approach will lead CM Almy to obtain a stormwater permit. A more typical approach would be for CM Almy not to apply for a permit. If this is the case, it is highly recommended that C.M. Almy document why the permit is unnecessary.

CM Almy should decide whether or not to obtain a stormwater permit and then perform the necessary actions. The requirements are explained later in the paragraphs labeled "Stormwater" under Regulatory Compliance Alternative in SECTION 4 - Identification/Evaluation of P2 Alternatives.

Site Development

The Department of Environmental Protection regulates major developments and activities on the land that substantially affect the environment. This includes the construction of buildings, parking lots, roads, paved areas, or other areas that are not revegetated, that occupy a total ground area in excess of 3 acres as well as developments in excess of 20 acres, metallic mineral mining, and subdivisions. Construction activities completed before October 15, 1973 are generally not included in the 3 acre calculation.

The following is a table of the site location development at C.M. Almy, Pittsfield, Maine:

Development	Area	Construction Date
Building No. 1	11,415 ft ²	1968
Expansion	5,824 ft ²	1972
Expansion	6,039 ft ²	1976
Expansion	17,071 ft ²	1981
Expansion	494 ft ²	1987
Cold Storage Building	3,200 ft ²	1984
Parking/Roads	49,916 ft ²	1990
Total	93,959 ft² 2.16 acres	43,560 ft² = 1 acre

Based on the site location development history provided, the facility does not require a Site Location of Development permit.

The shoreland zone generally covers all land within 250 feet of the normal high waterline of any great pond, river or saltwater body, within 250 feet of the upland edge of a coastal or freshwater wetland, or within 75 feet of the high-water line of a stream, unless a local municipality has adopted provisions to further increase the limits of this zone. C.M. Almy does have buildings within the shoreland zone.

C.M. Almy should contact the Local Code Enforcement Officer or the Local Planning Board to determine compliance with any applicable local shoreland zoning regulations.

The Natural Resources Protection Act (NRPA) protects coastal wetlands, sand dunes, freshwater wetlands, great ponds, rivers, streams, brooks, fragile mountain areas, and significant wildlife areas. It protects these areas from unreasonable impact, degradation, or destruction such as those that can occur during construction projects.

No construction was occurring and no current erosion was obvious so Natural Resources Protection Act (NRPA) regulations were not considered. Should any of the following activities occur in, on, over, or adjacent to a protected natural resource (such as the Sebasticook River) then C. M. Almy should contact the DEP to obtain a permit. Activities requiring a permit include:

- **dredging, bulldozing, removing , or displacing of soil, sand, vegetation, or other materials**
- **draining or otherwise dewatering**
- **filling.**

Fuel Storage Management / Underground Storage Tanks

According to DEP records C.M. Almy replaced an existing 2000 gallon oil tank with a cathodically protected 2000 gallon tank around April 25, 1986. During this time all tank installations were governed by the April 5, 1986 version of *Chapter 691-Regulations for Registration, Installation, Operation and Abandonment of Underground Oil Storage Facilities*.

The following observations are based on the September 30, 1996 site visit and an office file review:

- The 2000 gallon UST did not have any leak detection monitoring as required by Section 6(C)9(5) of the April 5, 1986 version of Chapter 691. This section requires that consumptive use tanks in excess of 1100 gallons must have either groundwater monitoring where technically practicable(a minimum of two wells - one at each end - and monitored weekly with the results kept in a log) or secondary containment .
- If monitoring wells were chosen as the leak detection option then a 3 gallon spill bucket would need to be installed around the fill pipe or an approved automatic shutoff device to control spills during delivery must be employed. It should be noted that a vent whistle is not considered to be an automatic shutoff device but rather an overfill alarm.
- While the fact the vent was only a few inches above grade is not in itself a violation this practice could lead to water infiltration and possible internal corrosion. The UST's current cathodic protection system (as do most) only protects against external corrosion.
- The results of the October 31, 1995 cathodic protection testing by certified underground tank installer Michael Knapp seems to indicate that the cathodically protected tank and associated vent and fill pipes are being protected from corrosion.
- The copper suction and return lines seem to be sleeved in ABS plastic piping per Chapter 691.

To bring this facility into compliance C. M. Almy has two choices: 1) Install monitoring wells and monitor the wells weekly. 2) Remove the underground heating oil tanks and (presumably) install heating oil tanks inside the building.

SECTION 4 - Identification/Evaluation of P2 Alternatives

Regulatory Compliance Alternatives

Hazardous Waste

C.M. Almy would like to maintain their status as a small quantity generator (SQG). In order to do this, C.M. Almy will need to track the amount of hazardous waste that they generate per month. In particular, they will need to measure the amount of waste generated during a plating bath change out. The amount must be kept below 25 gallons to stay below the large quantity generator threshold of 100 kg (220 lbs) in a month. In those months where close to 25 gallons of plating waste is generated, no other hazardous waste could be generated.

If C.M. Almy is not able to stay below the 100 kg (220 lbs) threshold, they will need to review the LQG compliance requirements (summarized in Section 3 and itemized in detail in the attached DEP Handbook for Hazardous Waste Generators) and fill any compliance gaps in their existing hazardous waste management system. Since C.M. Almy already has an EPA Generator number, provides secondary containment for their waste storage area, and conducts daily inspections, the additional LQG requirements would not be great.

Underground Storage Tank (UST)

As indicated in Section 3.0, C.M. Almy's fuel oil storage is not in compliance with Maine's UST regulations. To bring the facility into compliance C.M. Almy has two alternatives: 1) Install monitoring wells around the UST and monitor the wells weekly as required under Chapter 691; or 2) Remove the underground heating oil tank and install a heating oil tank(s) inside the building.

Based on the fact that this system was installed soon after the law came into effect and only has a single-walled (as opposed to double-walled) tank and piping with no leak detection, C.M. Almy's best alternative may be to move their oil storage inside to an aboveground system. The National Fire Protection Code 31 allows up to 660 gallons of storage inside a building (without special building requirements) while the Maine Board of Oil and Solid Fuel rules allow 990 gallons of storage. If C.M. Almy stays under a single tank of 660 gallons aboveground or an aggregate of 1320 gallons, no federal Spill Prevention Control and Countermeasure (SPCC) plan would be required. (However, a general facility spill plan is recommended.)

Stormwater

As indicated in Section 3, a conservative interpretation of the Federal Stormwater regulations would say that there is potential exposure of raw materials and products at C.M. Almy's loading dock and therefore a stormwater permit is required. In reality, all of the material that goes through the loading dock is enclosed in a container and therefore the material itself is not actually exposed to stormwater.

If C.M. Almy were to take the conservative route and apply for a stormwater permit, then it should submit a Notice of Intent (NOI) to be covered by the **Multi-Sector General Permit** which EPA required companies to submit by March 29, 1996. It does not make sense to apply for the **Baseline General Permit** because all Baseline General Permits will expire in September of 1997. All companies having Baseline General Permits will then be required to apply for the Multi-Sector General Permits.

C M Almy's **Multi-Sector General Permit** will cover two SIC Codes, 2389 (Apparel) and 3471 (Electroplating, Plating and Polishing). The requirements for both SIC codes must be met, and many are similar, but, in general it is the requirements of the 3471 SIC Code that demand more effort and cost from CM Almy. The Multi-Sector General Permit for both SIC codes requires a Stormwater Pollution Prevention Plan (SWPP) for which EPA has issued significant guidance. Some of the basic requirements of the SWPP include: a pollution prevention team; an annual site evaluation; and industry specific best management practices. Further, a company in the 3471 SIC Code is required to conduct quarterly stormwater monitoring in the second year, and also in the fourth year of the permit if the second year monitoring results exceed benchmark limits. The monitoring must include collection of stormwater samples and analysis for aluminum, zinc, and nitrate+nitrite nitrogen. Quarterly visual stormwater monitoring would also be required under the multi-sector permit.

However, if CM Almy has a high level of comfort that there is no potential for a stormwater discharge then C M Almy may choose not to obtain a permit. If CM Almy chooses not to obtain a permit, then it should retain a record on-site documenting why the company does not need a stormwater permit. This record does not need to be submitted to the EPA or to the State. In drafting this document, CM Almy should refer to the "EPA Summary Guidance on Developing P2 Plans and Best Management Practices". They may also want to include in this document such items as a list of materials received through the loading dock, spill control and prevention practices, and housekeeping practices. Please note that this document need not be long and its preparation need not be burdensome.

Pollution Prevention Alternatives

As part of the assessment, the team identified and discussed several pollution prevention alternatives. Some of the alternatives listed below have already been evaluated by C.M. Almy and ruled out as technically or economically impractical. They are still included here, however, to document that they have been considered.

- Minimize/Eliminate dumping of plating baths - Depending on the specific plating tank, disposal of each tank currently occurs once every 1 to 6 years as the level of contamination gets too high to allow the bath to operate effectively. This is standard plating industry practice. The baths are already filtered on a continuous basis to extend bath life by removing organic and particulate contamination. Because they

are small tanks and disposal is not very frequent, the cost savings of eliminating or minimizing disposal would only be at most \$500/yr.

- Substitute an Aqueous Based Lacquer - C.M. Almy has experimented with a number of aqueous lacquers and found none that will adhere sufficiently well to C.M. Almy's parts. The problem appears to be that their aqueous cleaner (which they installed a few years ago to replace trichloroethane vapor degreaser) does not clean the parts well enough to allow proper adhesion. The Toxic Use Reduction Institute (TURI) in Lowell, MA has a surface cleaning laboratory that may be able to assist C.M. Almy find a better cleaner. Contact Carol LeBlanc at (508) 934-3275.
- Non-cyanide Plating Chemistry - C.M. Almy has been looking for a non-cyanide silver plating bath. Technic, Inc. in Providence Rhode Island has developed a non-cyanide plating chemistry. C.M. Almy has tried this chemistry on their parts, but testing has shown that it can not provide the durability and brightness that C.M. Almy needs.
- Minimize overflow rate in rinse tanks - C.M. Almy has already cut water use in flowing rinses by placing flow restrictors on the water lines and by allowing flow only when parts are being plated. Other methods of reducing flow include counterflow rinsing and spray rinsing. Spray rinsing may not work well at C.M. Almy because most of the plated objects are cups which would be difficult to rinse effectively. Counterflow rinsing may reduce flow, but would require extra tanks and space. In addition, because water flow is already so low, the additional reduction may not provide a significant benefit.
- Find recycle/reuse outlet for nylon from machining candles - Approximately 100 lb/month of nylon scrap is generated from the candle production process. This amount is too small amount for most recyclers to try to take advantage of.

One potential source is Crowe Rope that may be able to use the nylon in their product once it is up and running. Another possible source is the Maine Materials Exchange which is sponsored by the Maine Chamber of Commerce. The contact for this organization is Harold Arndt at 865-6621.

- Replace paper towels with cloth rags in plating room - Approximately 1 case/ week of paper towels is used. These towels are disposed of after one use. Cloth rags could be used as a replacement for paper towels and the cloth rags could be reused. Scrap gloves from the buffing room could be used as the source of the rags.

Section 5 - Implementation

The CLEAN-P2 Project Agreement that C.M. Almy signed on 8/26/96 outlines the commitments that C.M. Almy, the U.S. EPA, and the DEP made as part of the CLEAN-P2 project. Two of the major items that C.M. Almy committed to under this agreement were to:

- Address any areas of non-compliance identified during the assessment (through pollution prevention where possible).
- Implement one or more pollution prevention alternatives identified in the CLEAN-P2 assessment that go beyond compliance.
- Develop a pollution prevention action plan which lists all the P2 projects recommended in the CLEAN-P2 assessment report.

This section of the CLEAN-P2 assessment report lists the recommended actions that C.M. Almy will undertake to meet these obligations.

Compliance-Based Actions

Compliance issues identified during the assessment were described in Section 3. The actions that C.M. Almy will take in response to these compliance issues are described below.

Hazardous Waste

In the months when C.M. Almy changes out a plating bath solutions, their waste generation approaches the SQG/LQG threshold of 100 kilograms (220 lbs) of hazardous waste. C.M. Almy does not object to complying with the Large Quantity Generator requirements, but they would rather not have the stigma of a "Large Quantity Generator of Hazardous Waste" if at all possible. Therefore, C.M. Almy will monitor and keep records of the amount of hazardous waste generated per month to ensure that it is below the 100 kg (220 lbs) threshold. This monitoring will ensure that the volume of plating bath generated for disposal in any one month is less than 25 gallons.

Underground Storage Tank

C.M. Almy's underground heating oil tank (UST) was found not to be fully in compliance with Maine's UST regulations. To come into compliance, C.M. Almy has agreed to remove the UST and replace it with an above ground storage tank(s) located inside the building. The AST will be installed according to applicable standards as provided to C.M. Almy as part of this assessment.

Stormwater

CM Almy does not need an industrial stormwater permit. Documentation for this conclusion will be prepared and kept in CM Almy's files. In preparing the document,

CM Almy should refer to the "EPA Summary Guidance on Developing P2 Plans and Best Management Practices". They may also want to include in this document such items as a list of materials received through the loading dock, spill control and prevention practices, and housekeeping practices.

"Beyond Compliance" Projects

The motivation for "Beyond Compliance" projects should be to prevent pollution or in some other way minimize releases, or the potential for releases, to the environment. These motivation for projects must not solely be to meet environmental compliance requirements.

Installation of Aboveground Fuel Storage

The minimum requirement for C.M. Almy to come into compliance with the UST regulations would be to install monitoring wells around the tank. C.M. Almy has agreed to go beyond this minimal standard of compliance by removing the UST and replacing it with an aboveground tank located inside the building. By installing the tank inside, C.M. Almy will be virtually eliminating the potential for release of oil into the environment that exists with USTs.

Schedule

The CLEAN-P2 agreement specifies the schedule for correcting areas of non-compliance. Generally, C.M. Almy has up to 90 days following this report to implement corrective measures for non-compliance issues. An additional 90 days may be allowed in certain cases if the corrective measures are outlined in a written agreement. An example of this is the underground oil tank removal. Because this report is being issued in early 1997 and the most convenient time for the removal is during the annual, 2 week shutdown in July, additional time beyond 90 days will be allowed and incorporated into the written agreement. Finally, up to one year is allowed if the corrective measures involve pollution prevention.

Based on these general guidelines, the following schedule will apply:

Action	Date (from CLEAN report completion)
Monitor/track hazardous waste generation on a monthly basis	Was initiated in December 1996
Remove UST and replace with AST	180 days
Prepare stormwater documentation	90 days

Attachments

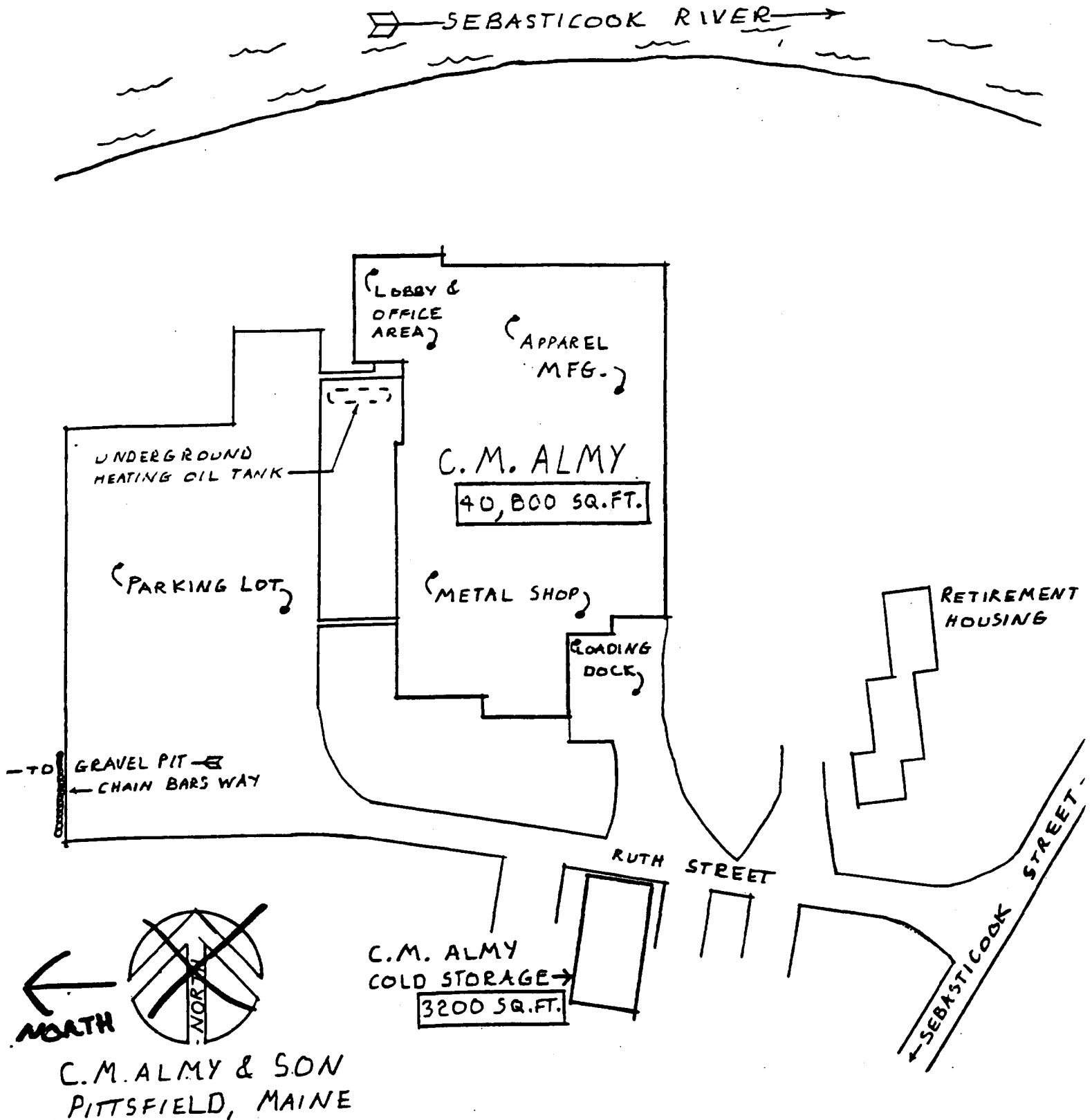
C M Almy & Son

Clean P² Assessment

Attachments

C. M. Almy & Son

Table 1	Materials Accounting Table - Overall Operation
Table 2	Materials Accounting Table - Silver Plating Operation
Table 3	Materials Accounting Table - Lacquer Process
Figure 1	Overall Process Flow Diagram
Figure 2	Silver Plating Process Flow Diagram



SITE PLAN FOR CLEAN-P2 PILOT PROJECT
ASSESSMENT 30 SEP 96

FROM FLOOD ASSESSMENT STUDY MAP - ACHERON
ENGINEERING SERVICES - SEPT. 17, 1987

DRAWN BY: PT MOULTON
DATE: JAN 1977
SCALE: 1" = 80'

SHEET 1 OF 1

Figure 3. Lacquer Process Flow Diagram

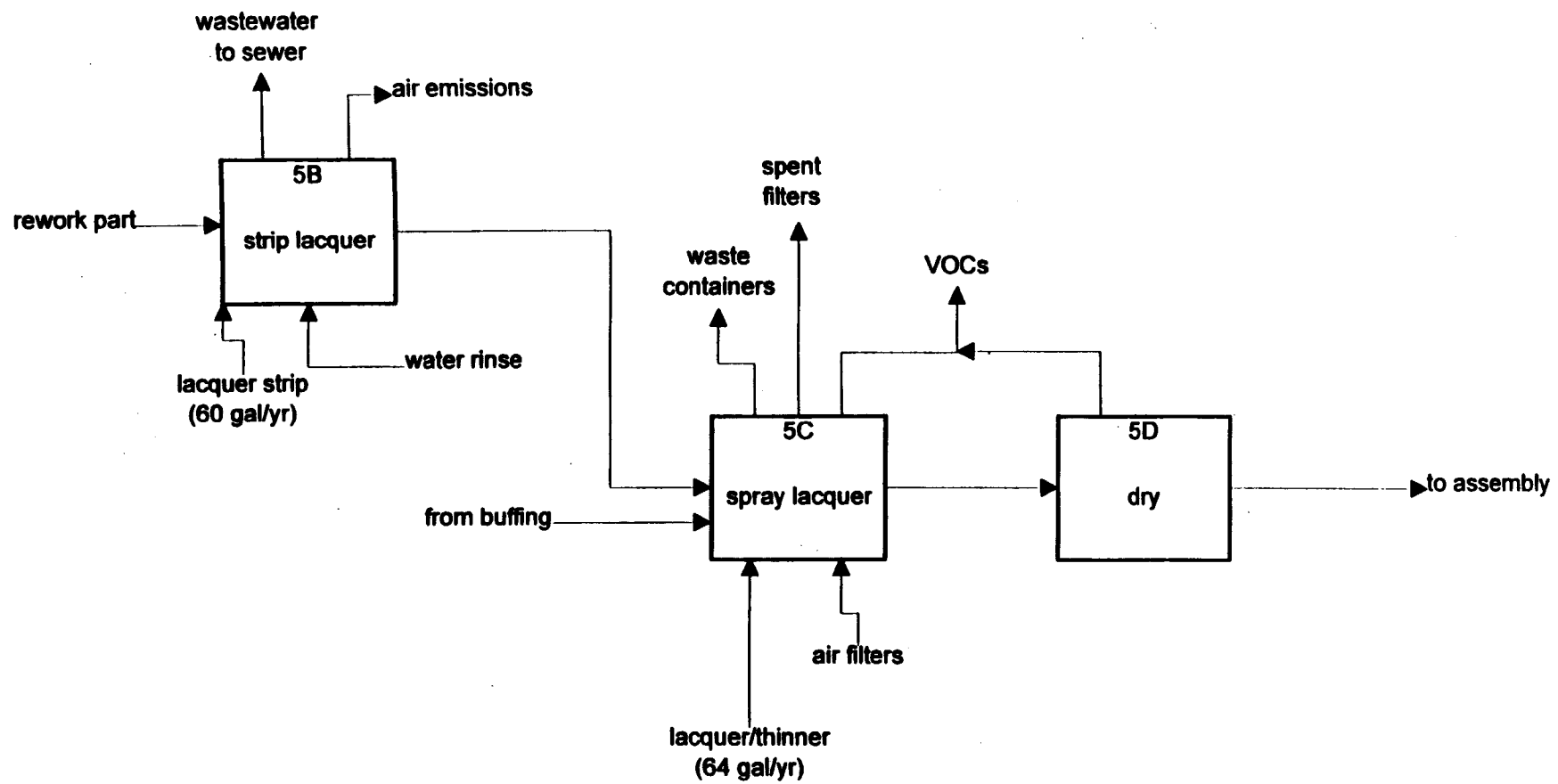


Table 1 - Materials Accounting Table						
Overall Operation						
Process Step/ Unit Operation	Raw Materials	Amount (per month)	Unit Cost (\$)	Waste Materials	Amount (per month)	Unit Cost (\$)
Staging	Brass	900 lbs	3.5/lb	Scrap brass	220 lbs (a)	(0.80/lb)
Machining	paraffin-soap Kool-cut Speedi-dry Hydraulic Oil (Mobil)			Scrap brass used speedi-dry contaminated brass Waste hydraulic oil	220 lbs (a)	
Annealing	quench water propane	15 gal/day		waste quench water	15 gal/day	
Sanding	sanding belts	600 belts/yr	6/belt	used belts dust/sweepings	600 belts/yr 100 lb (recycled)	(0.30/lb)
Fabrication	solder flux solder super pickle Sodium bicarbonate	1 gall/yr 3 spools/yr 6 gal/yr 75 lbs/yr		smoke wastewater	40 gal/2 wks	
Finishing	see detail					
Assembly/Packaging						
(a) total from machining and staging						

Table 2 - Materials Accounting Table Silver Plating Operation						
Process Step/ Unit Operation	Raw Materials	Amount	Cost (Unit or total)	Waste Materials	Amount	Cost (Unit or total)
Alkaline clean	Penatone	4 gal 0.3 gpm	14.20/gal	Penatone solution dump evaporation	50 gal	
Electroclean	NaOH solution water rinse	29 lbs 0.3 gpm	4/lb	NaOH dump evaporation rinsewater	50 gal 0.3 gpm	
Acid clean	15% HCL solution water rinse	28 gallon bath 0.3 gpm		acid dump evaporation rinsewater	10 gal/yr 0.3 gpm	700 (total)
Copper Strike	CuCN and KCN copper anodes Flo-King filter (still rinse)	50-60 lbs/yr 8/yr		evaporation/fumes spent filter rinsewater	8/yr (15 lbs)	(1,200/yr) (a)
Silver strike	KCN and AgCN Flo-King filter	8/yr		spent plating solution spent filter evaporation/fumes	10 gal/yr (b) 8/yr (15 lbs)	(1,200/yr) (a) (1,200/yr) (a)
Silver Plate	KCN and AgCN Flo-King filter silver anodes (still rinse)	12/yr		spent plating solution spent filter evaporation/fumes rinsewater	30 gall/yr (b) 12/yr (20 lbs)	(1,200/yr) (a) (1,200/yr) (a)
Wipe	paper towels	1 case/wk		waste paper towels	1 case/wk	
(a) Total of all waste streams denoted (b) amount averaged per year based on actual disposal only once every 2 to 4 years						

			Table 3			
			Materials Accounting Table			
			Lacquer Process			
Process Step/ Unit Operation	Raw Materials	Amount	Cost (Unit or total)	Waste Materials	Amount	Cost (Unit or total)
Strip	Magisol Stripper	60 gal/yr		Waste water/solvent		
	Water rinse	0.3 gpm		Air emissions		
Lacquer	Acrylic	20 gal/yr		Air emissions	404 lbs/yr	
	Thinner	44 gal/yr		Empty containers		
	Air filters			Spent air filters		
Dry	Coated Part			Air Emissions	included above	

Figure 1. Overall Process Flow Diagram

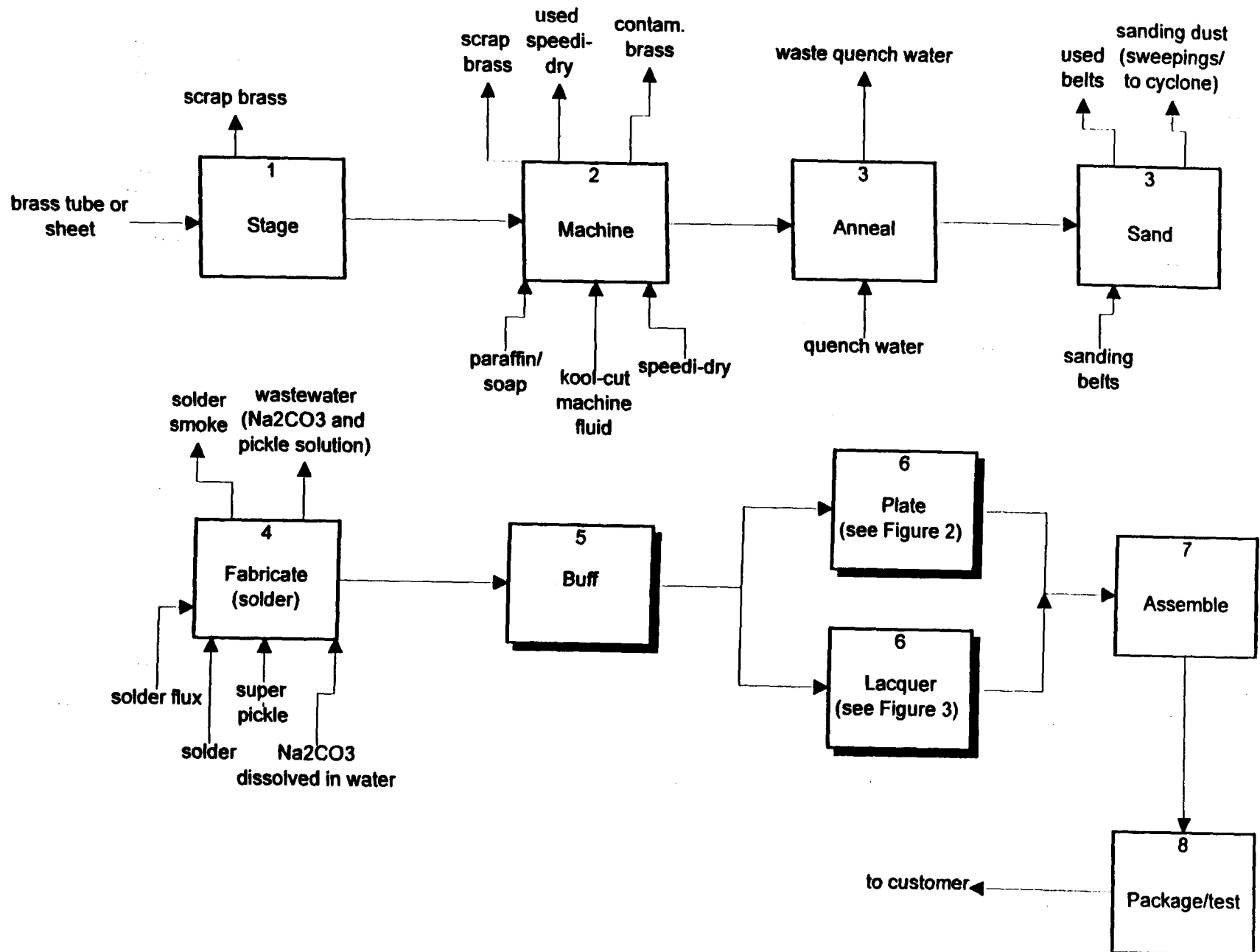
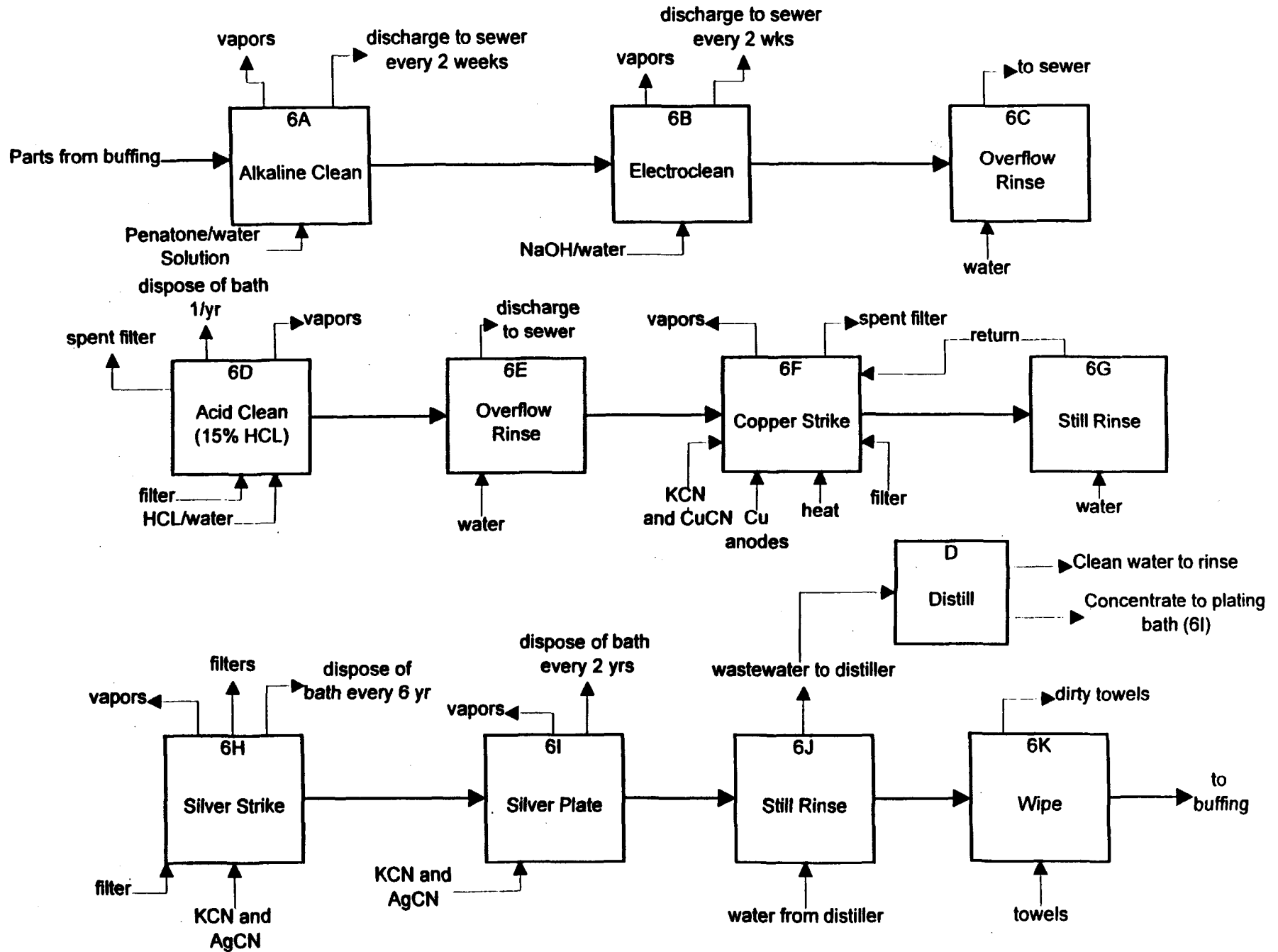


Figure 2. Silver Plating Process Flow Diagram



APPENDIX B



Model Consent Agreement and Final Order

Explanatory text is indicated in bracketed italics type, preceded by the word Note. Placeholder text in which fact specific information should be inserted is indicated in bracketed text.

August 1995 revision.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION
BEFORE THE ADMINISTRATOR

In the Matter of)

)
[Respondent's Name]) Docket No.
[Respondent's Address])

)
Respondant)

CONSENT AGREEMENT AND ORDER

Complainant, the United States Environmental Protection Agency ("EPA"), having filed the Complaint herein on [date] against Respondent [Respondent's Name], the Parties herein; and Complainant and Respondent having agreed that settlement of this matter is in the public interest, and that entry of this Consent Agreement and Order without further litigation is the most appropriate means of resolving this matter;

NOW, THEREFORE, before the taking of any testimony, upon the pleadings, without adjudication of any issue of fact or law, and upon consent and agreement of the Parties, it is hereby Ordered and Adjudged as follows:

I. PRELIMINARY STATEMENT

1. EPA initiated this proceeding for the assessment of a civil penalty, pursuant to [statute and regulations].
2. The Complaint alleges that Respondent [describe conduct] in violation of [relevant legal requirements].
3. Respondent filed an Answer and requested a hearing pursuant to [statute and regulations].
4. This Consent Agreement and Order shall apply to and be binding upon Respondent, its officers, directors, servants, employees, agents, successors and assigns, including, but not limited to, subsequent purchasers.
5. Respondent stipulates that EPA has jurisdiction over the subject matter alleged in the Complaint and that the Complaint states a claim upon which relief can be granted against Respondent. Respondent waives any defenses it might have as to jurisdiction and venue, and, without admitting or denying the factual allegations contained in the Complaint, consents to the terms of this Consent Agreement and Order.
6. Respondent hereby waives its right to a judicial or administrative hearing or appeal on any issue of law or fact set forth in the Complaint.

II. TERMS OF SETTLEMENT

7. Pursuant to section _____ of [statute], the nature of the violations, Respondent's agreement to perform a SEP and other relevant factors, EPA has determined that an appropriate civil penalty to settle this action is in the amount of [_____] dollars (\$_____).
- [Note: In order to avoid conflicts with the Miscellaneous Receipts Act, the civil penalty provisions must be drafted separately from the provisions for implementation of the SEP.]
8. Respondent consents to the issuance of the Consent Agreement hereinafter recited and consents for the purposes of settlement to the payment of the civil penalty cited in the foregoing paragraph and to the performance of the Supplemental Environmental Project.
- [Note: Remember that the Respondent must consent to the issuance of the Final Order and the performance of the SEP]
9. Within thirty (30) days of receiving a copy of this Consent Agreement and Order signed by the EPA Regional Administrator, Region , Respondent shall submit a cashier's or certified check, to the order of the "Treasurer, United States of America," in the amount of [_____] dollars (\$_____), to:
- EPA -- Region _____
P.O. Lock Box _____
[address]
- Respondent shall provide a copy of the check to:
- Regional Hearing Clerk
[Regional Address]
- and
- [Attorney Name and Address]
- Interest and late charges shall be paid as specified in Paragraph 21 herein.
10. The penalty specified in Paragraph 7, above, shall represent civil penalties assessed by EPA and shall not be deductible for purposes of Federal taxes.
11. [Description of the SEP]
- a. Respondent shall complete the following supplemental environmental project ("SEP"), which the parties agree is intended to secure significant environmental or public health protection and improvements. Within thirty (30) days of receiving a copy of this Consent Agreement signed by the Regional Administrator, Respondent shall [brief description of SEP].
- b. Respondent shall complete the SEP as follows: [Identify key components of the SEP; a milestone schedule may be appropriate if implementation will take longer than 6 months]. The SEP is more specifically described in the scope of work (hereinafter, the "Scope of Work"), attached hereto as Exhibit A and incorporated herein by reference.
- [Note: Ensure that the description of the project to be performed is clear, complete and specific. Almost all the details of the project should be set forth in the CAFO or scope of work; negotiations over the type and scope of the SEP must be completed prior to finalization of the CAFO.]
12. [If applicable] [New chemical not more toxic than eliminated chemical] Respondent anticipates that the facility will use [new chemical] as a substitute for [eliminated chemical] in the new systems constituting the SEP. In no event, however, shall any substitute chemical be used in connection with the SEP which is more toxic or hazardous than [new chemical], as such characteristics are described on the material safety data sheet (MSDS) for [new chemical] attached hereto as Exhibit B.]

13. [Cost of SEP] The total expenditure for the SEP shall be not less than [e.g., \$x to purchase the equipment and \$y to operate the equipment each year for z years], in accordance with the specifications set forth in the Scope of Work. Respondent shall include documentation of the expenditures made in connection with the SEP as part of the SEP Completion Report.

14. [Certification that SEP is not otherwise required]
Respondent hereby certifies that, as of the date of this Consent Agreement, Respondent is not required to perform or develop the SEP by any federal, state or local law or regulation; nor is Respondent required to perform or develop the SEP by agreement, grant or as injunctive relief in this or any other case.
Respondent further certifies that it has not received, and is not presently negotiating to receive, credit in any other enforcement action for the SEP.

[Note: This language emphasizes that the SEP is not required by any other law (federal, state or local); nor is it required by any other agreement, grant or as injunctive relief in the instant or any other case. In addition, the language precludes Respondent from attempting to obtain double credit for the same project. Also, Respondent cannot be allowed to "bank" projects (i.e. Respondent is not to be given credit for projects it has already commenced or completed in advance of the enforcement action by EPA.)]

15. [SEP Reports]
- a. SEP Completion Report Respondent shall submit a SEP Completion Report to EPA by [construction/installation completion date]. The SEP Report shall contain the following information:
 - i. A detailed description of the SEP as implemented;
 - ii. A description of any operating problems encountered and the solutions thereto;
 - iii. Itemized costs, documented by copies of purchase orders and receipts or canceled checks;
 - iv. Certification that the SEP has been fully implemented pursuant to the provisions of this Consent Agreement and Order; and
 - v. A description of the environmental and public health benefits resulting from implementation of the SEP (with a quantification of the benefits and pollutant reductions, if feasible).
 - b. Periodic Reports Respondent shall submit any additional reports required by the Scope of Work to EPA in accordance with the schedule and requirements recited therein. (Note: For any SEP where implementation is expected to exceed one year, EPA should require submission of periodic reports by Respondent).
 - c. Respondent agrees that failure to submit the SEP Completion Report or any Periodic Report required by subsections a) and b) above shall be deemed a violation of this Consent Agreement and Order and Respondent shall become liable for stipulated penalties pursuant to paragraph 20 below.
 - d. Respondent shall submit all notices and reports required by this Consent Agreement and Order to [specify name and address] by first class mail.
16. [If applicable] [EPA right to inspect] Respondent agrees that EPA may inspect the facility at any time in order to confirm that the SEP is being undertaken in conformity with the representations made herein.

[Note: Consistent with the provisions below for Failure to Complete SEP and EPA To Judge Achievement of SEP, this language provides vehicle for EPA to exercise its discretion in determining if SEP has been completed satisfactorily and whether stipulated penalties should be assessed.]

17. [If applicable:] [Respondent must use SEP] Respondent shall continuously use or operate the

systems installed as the SEP for not less than [number] year(s) subsequent to installation, and Respondent shall not reinstate the use of [toxic chemical] at any time.

18. [Document retention and certification] Respondent shall maintain legible copies of documentation of the underlying research and data for any and all documents or reports submitted to EPA pursuant to this Consent Agreement, and Respondent shall provide the documentation of any such underlying research and data to EPA within seven days of a request for such information. In all documents or reports, including, without limitation, the SEP Report, submitted to EPA pursuant to this Consent Agreement, Respondent shall, by its officers, sign and certify under penalty of law that the information contained in such document or report is true, accurate, and not misleading by signing the following statement:
- I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.
19. [EPA acceptance of SEP Report]
- a. Following receipt of the SEP Report described in paragraph 15 above, EPA will do one of the following: (i) accept the SEP Report; (ii) reject the SEP Report, notify the Respondent, in writing, of deficiencies in the SEP Report and grant Respondent an additional thirty (30) days in which to correct any deficiencies; or (iii) reject the SEP Report and seek stipulated penalties in accordance with paragraph 20 herein.
 - b. If EPA elects to exercise option (ii) above, EPA shall permit Respondent the opportunity to object in writing to the notification of deficiency or disapproval given pursuant to this paragraph within ten (10) days of receipt of such notification. EPA and Respondent shall have an additional thirty (30) days from the receipt by the EPA of the notification of objection to reach agreement. If agreement cannot be reached on any such issue within this thirty (30) day period, EPA shall provide a written statement of its decision to Respondent, which decision shall be final and binding upon Respondent. Respondent agrees to comply with any requirements imposed by EPA as a result of any such deficiency or failure to comply with the terms of this Consent Agreement and Order. In the event the SEP is not completed as contemplated herein, as determined by EPA, stipulated penalties shall be due and payable by Respondent to EPA in accordance with paragraph 20 herein.
20. [Stipulated Penalties for Failure to Complete SEP/Failure to spend agreed-on amount]
- a. In the event that Respondent fails to comply with any of the terms or provisions of this Agreement relating to the performance of the SEP described in paragraph 11 above and/or to the extent that the actual expenditures for the SEP do not equal or exceed the cost of the SEP described in paragraph 13 above, Respondent shall be liable for stipulated penalties according to the provisions set forth below:
 - i. Except as provided in subparagraph (ii) immediately below, for a SEP which has not been completed satisfactorily pursuant to this Consent Agreement and Order, Respondent shall pay a stipulated penalty to the United States in the amount of \$ [50 - 100 percent of the amount by which the settlement penalty was mitigated on account of the SEP].
 - ii. If the SEP is not completed satisfactorily, but the Respondent: a) made good faith and timely efforts to complete the project; and b) certifies, with supporting documentation, that at least 90 percent of the amount of money which was required to be spent was expended on the SEP, Respondent shall not be liable for any stipulated penalty.
 - iii. If the SEP is satisfactorily completed, but the Respondent spent less than 90 percent of the amount of money required to be spent for the project, Respondent shall pay a stipulated penalty to the United States in the amount of \$[10 - 25 percent of the

amount by which the settlement penalty was mitigated on account of the SEP].

- iv. If the SEP is satisfactorily completed, and the Respondent spent at least 90 percent of the amount of money required to be spent for the project, Respondent shall not be liable for any stipulated penalty.
- v. For failure to submit the SEP Completion Report required by paragraph 15(a) above, Respondent shall pay a stipulated penalty in the amount of \$[amount] for each day after [date in paragraph 15] until the report is submitted.
- vi. For failure to submit any other report required by paragraph 15(b) above, Respondent shall pay a stipulated penalty in the amount of \$[amount] for each day after the report was originally due until the report is submitted.
- b. The determinations of whether the SEP has been satisfactorily completed and whether the Respondent has made a good faith, timely effort to implement the SEP shall be in the sole discretion of EPA.
- c. Stipulated penalties for subparagraphs (v) and (vi) above shall begin to accrue on the day after performance is due, and shall continue to accrue through the final day of the completion of the activity.
- d. Respondent shall pay stipulated penalties within fifteen (15) days of receipt of written demand by EPA for such penalties. Method of payment shall be in accordance with the provisions of paragraph 9 above. Interest and late charges shall be paid as stated in paragraph 21 herein.
- e. Nothing in this agreement shall be construed as prohibiting, altering or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this agreement or of the statutes and regulations upon which this agreement is based, or for Respondent's violation of any applicable provision of law.

[Note: Language included for payment of an additional penalty for non-completion of SEP or failure to expend amount of funds committed to in Consent Agreement must not appear to give EPA a choice between: 1) collection of an additional penalty; or 2) additional SEP expenditures by Respondent. Such a provision might appear to give EPA control or discretion over the use of penalty dollars. Unlike a SEP, all assessed penalty dollars must be deposited in the Treasury.]

21. Payment Provisions: Pursuant to 31 U.S.C. Section 3717, EPA is entitled to assess interest and penalties on debts owed to the United States and a charge to cover the cost of processing and handling a delinquent claim. Interest will therefore begin to accrue on a civil or stipulated penalty if it is not paid by the last date required. Interest will be assessed at the rate of the United States Treasury tax and loan rate in accordance with 4 C.F.R. Section 102.13(c). A charge will be assessed to cover the costs of debt collection, including processing and handling costs and attorneys fees. In addition, a non-payment penalty charge of six (6) percent per year compounded annually will be assessed on any portion of the debt which remains delinquent more than ninety (90) days after payment is due. Any such non-payment penalty charge on the debt will accrue from the date the penalty payment becomes due and is not paid. 4 C.F.R. Section 102.13(d) and (e).

[Note: Penalty and interest provisions and recovery of attorneys fees may vary by statute. If appropriate, substitute a statute-specific collection authority in this paragraph. The maximum non-payment penalty charge is six (6) percent unless a statute specifically provides otherwise.]

22. [Public statements must acknowledge enforcement action]
Any public statement, oral or written, in print, film, or other media, made by Respondent

making reference to the SEP shall include the following language, "This project was undertaken in connection with the settlement of an enforcement action taken by the U.S. Environmental Protection Agency for violations of [citation to legal requirements violated]."

23. [No relief from compliance; no endorsement by EPA]
This Consent Agreement and Order shall not relieve Respondent of its obligation to comply with all applicable provisions of federal, state or local law, nor shall it be construed to be a ruling on, or determination of, any issue related to any federal, state or local permit, nor shall it be construed to constitute EPA approval of the equipment or technology installed by Respondent in connection with the SEP under the terms of this Agreement.
24. [Force Majeure--if appropriate and requested by Respondent]
a. If any event occurs which causes or may cause delays in the completion of the SEP as required under this Agreement, Respondent shall notify Complainant in writing within 10 days of the delay or Respondent's knowledge of the anticipated delay, whichever is earlier. The notice shall describe in detail the anticipated length of the delay, the precise cause or causes of the delay, the measures taken and to be taken by Respondent to prevent or minimize the delay, and the timetable by which those measures will be implemented. The Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Failure by Respondent to comply with the notice requirements of this paragraph shall render this paragraph void and of no effect as to the particular incident involved and constitute a waiver of the Respondent's right to request an extension of its obligation under this Agreement based on such incident.
- b. If the parties agree that the delay or anticipated delay in compliance with this Agreement has been or will be caused by circumstances entirely beyond the control of Respondent, the time for performance hereunder may be extended for a period no longer than the delay resulting from such circumstances. In such event, the parties shall stipulate to such extension of time.
- c. In the event that the EPA does not agree that a delay in achieving compliance with the requirements of this Consent Agreement and Order has been or will be caused by circumstances beyond the control of the Respondent, EPA will notify Respondent in writing of its decision and any delays in the completion of the SEP shall not be excused.
- d. The burden of proving that any delay is caused by circumstances entirely beyond the control of the Respondent shall rest with the Respondent. Increased costs or expenses associated with the implementation of actions called for by this Agreement shall not, in any event, be a basis for changes in this Agreement or extensions of time under section (b) of this paragraph. Delay in achievement of one interim step shall not necessarily justify or excuse delay in achievement of subsequent steps.
25. Respondent hereby agrees that any funds expended in the performance of the SEP shall not be deductible as a business expense for purposes of Federal taxes. In addition, Respondent hereby agrees that, within thirty (30) days of the date it submits its Federal tax reports for the calendar year in which the above-identified SEP is completed, it will submit to EPA [identify EPA official] certification that any funds expended in the performance of the SEP have not been deducted from Federal taxes.
- [Note: If Respondent is not willing to agree to this provision, omit it but then the after-tax cost of the SEP should be used in the Calculation of the Cost of the SEP. See page 12 of the Interim Revised SEP Policy.]
26. This Consent Agreement and Order constitutes a settlement by EPA of all claims for civil penalties pursuant to [cite statute] for the violations alleged in the Complaint. Nothing in this Consent Agreement and Order is intended to nor shall be construed to operate in any way to resolve any criminal liability of the Respondent. Compliance with this Consent Agreement and

Order shall not be a defense to any actions subsequently commenced pursuant to Federal laws and regulations administered by EPA, and it is the responsibility of Respondent to comply with such laws and regulations.

27. Each undersigned representative of the parties to this Consent Agreement certifies that he or she is fully authorized by the party represented to enter into the terms and conditions of this Consent Agreement and to execute and legally bind that party to it.
28. Each party shall bear its own costs and attorneys fees in connection with the action resolved by this Consent Agreement and Order.

For Complainant:

For Respondent:

_____, Director
_____, Division

_____, President

U.S. Environmental Protection
Agency, Region __

_____, Company

Date: _____

Date: _____

Assistant Regional Counsel

_____, Esq.

Date: _____

[Firm Name]

Date: _____

III. ORDER

The foregoing Consent Agreement is hereby approved and incorporated by reference into this Order. The Respondent is hereby ordered to comply with the terms of the above Consent Agreement, effective immediately.

Date: _____

[Regional Administrator or delegatee]
[Title]
U.S. Environmental Protection Agency
Region __

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