

BACKGROUND DOCUMENT

RESOURCE CONSERVATION AND RECOVERY ACT
SUBTITLE C - HAZARDOUS WASTE MANAGEMENT

SECTION 3004 - STANDARDS APPLICABLE TO OWNERS AND
OPERATORS OF HAZARDOUS WASTE TREATMENT,
STORAGE, AND DISPOSAL FACILITIES

SECTION 264.15 STANDARDS FOR INSPECTION

SECTION 265.15 INTERIM STATUS STANDARDS FOR INSPECTION

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF SOLID WASTE

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I. INTRODUCTION

This is one of a series of background documents accompanying promulgation of the first set of regulations issued under Subtitle C of the Resource Conservation and Recovery Act (RCRA). These regulations represent EPA's initial efforts to control hazardous wastes from the point of generation through transportation, treatment, and storage, to the point of ultimate disposal.

This document, and the others in this series, attempt to explain why the regulations were developed and why they have come to be written the way they are. In so doing, EPA addresses the (a) Congressional mandate for regulation, (b) the need for the regulation based on threats and impacts to human health and the environment, (c) precedents set by state and other federal regulations, and, perhaps most importantly, (d) analysis of and response to the many comments received on the proposed version of these regulations which was published in the Federal Register on December 18, 1978.

This background document is limited to the requirements for the conduct of inspections at treatment, storage, and disposal facilities. The general approach to the inspection regulations has changed from designation of explicit requirements in the proposed regulations to a general requirement that owners or operators develop an inspection schedule tailored to the individual facility. The reasons for this change are explained later in the comment analysis section. The general requirement that an inspection schedule be developed is

complemented by specific minimum inspection requirements which are contained in the regulations for each facility type (i.e., landfills, incinerators, etc.). These minimum requirements must be made part of the inspection schedule for the appropriate kinds of facilities. The specific minimum requirements are discussed in the background documents dealing with the relevant facility type rather than here.

The proposed inspection regulations (December 18, 1978) were to be required during both the interim status period and during full status (after permitting). Interim status regulations are in force between the effective date of the regulations (normally, six months after promulgation) and the receipt or denial of a permit as required by Section 3005 of RCRA. As a general guideline the Agency used the following criteria to decide which requirements should be in force during the interim status period:

- (a) implemetable by the regulated community within the six-month period between the time regulations are promulgated and their effective date
- (b) requires no large capital expenditures for items which require approval as part of the permitting process
- (c) implementable directly by the regulated community without the need for consultation with or interpretation by the Agency

There were exceptions made to these criteria with good reason in other sections of these regulations, but all of the inspection requirements meet these general criteria. Thus, these regulations are incumbent upon facilities during the interim status period as well as during the permitting phase.

II. RATIONALE FOR REGULATION

Section 3004 of RCRA states:

" . . . standards shall include . . . requirements respecting . . . (2) satisfactory reporting, monitoring, and inspection" (emphasis added).

Inspections are intended to serve as a preventive measure, to help avert the release of contaminants that could adversely affect public health and the environment. When such incidents occur, they are often the result of the deterioration and subsequent failure of equipment or structures. Such problems include dike failures resulting from erosion, and leaking tanks and drums caused by corrosion. Equipment malfunctions can also create pollution incidents. For example, level controls or sump pumps may break down, causing an overflow. Failure of monitoring equipment makes it possible that a pollution incident will occur which would go undetected. Natural deterioration or vandalism may impair the security system so that unauthorized people could enter the facility. Malfunction of safety and emergency equipment such as fire extinguishers can render operators helpless in an emergency. Many of these conditions can be detected before deterioration or before a malfunction results in an actual pollution incident--but only if someone notices that something has gone wrong. Even operator errors, another major cause of pollution incidents, could often be detected in time to prevent real damage, if someone were looking for such problems. Examples of operator errors that could easily be corrected if detected include flushout

and drain valves left open on tanks after cleanup, improperly set valves on emergency bypass systems, and alarm systems which have not been reset. Many of these mistakes occur in the course of routine maintenance (for example, cleaned out parts may not be tightly sealed, inactivated alarms may not be reactivated, etc.). Periodic, routine inspection of critical equipment would ensure that someone is looking for faulty or deteriorating equipment, dangerous conditions caused by operator mistakes, and spills.

Routine inspections are not a new concept. They have become commonplace in industry and are widely used to promote safe worksite conditions, identify areas for preventive maintenance of machinery, and to assure that inventory supplies are adequate. The visual inspection regulations proposed on December 18, 1978 (43 FR 243-59004), were intended to cause the owners and operators of hazardous waste management facilities to extend preventive techniques to cover facilities, structures, and practices which, if they fail, could damage or harm human health or the environment.

The State of Minnesota in its hazardous waste regulations has recognized the value of preventive inspections and has adopted requirements for inspecting storage areas, tanks, etc.⁽¹⁾ Other states require facilities to submit an operating plan which includes procedures that will ensure that the facility complies with permit conditions. Periodic inspections are often a component of these operating plans but are not usually specifically required by state regulations.

III. SUMMARY OF PROPOSED REGULATION

The proposed regulation called for hazardous waste facilities to conduct daily visual inspections of seven specific areas of the facility and its operations and to record the results of these inspections in the facility's daily operating log. The daily inspection requirement could be relaxed for certain aspects of the facility's operation, if the owner or operator could demonstrate that less stringent procedures would still adequately protect human health and the environment. The seven mandated inspection points were: (1) storage areas, (2) dikes, (3) operating and monitoring equipment, (4) emergency response equipment, (5) fences and barriers, (6) vegetation, and (7) active areas for fugitive air emissions.

IV. SUMMARY, ANALYSIS, AND RESPONSE TO THE COMMENTS RECEIVED ON THE PROPOSED REGULATIONS

Issue #1: The Agency should not prescribe which items must be inspected

a. Summary of Comments

1. It is best to let the management of a facility decide which of its facility's components to inspect.
2. Inspection of some of the listed items in the standard is inappropriate for certain facilities (e.g., inspection of a pile of goethite).
3. For some of the listed items, inspection is of questionable value for any facility. For example:
 - visually inspecting fugitive air emissions is too imprecise to be meaningful
 - inspecting vegetation for damage from facility waste requires training in botany, a qualification

which the personnel of waste management facilities do not usually have

- rust and corrosion are normal; they do not warrant noting each rust spot, since only severe rust and corrosion present a problem

4. On the other hand, the list omits items which should be inspected in many facilities. It may be difficult to enforce inspection of those items as long as the requirements remain in the form of a list. Therefore, the inspection requirements should be rewritten simply as a performance standard.

b. Response to Comments

The Agency agrees that some of the listed items are inappropriate for certain types of facilities, and that--in many cases--the list may not include all the items that should be inspected in order to adequately protect human health and the environment. There is a wide variety of conditions which might harm human health and the environment, which could be detected during routine inspections. They are not the same for each facility and will seldom be exactly the same for any two facilities although the Agency expects that similar facilities can reap benefits from similar inspection activities. Within each facility, the specific areas that appropriately should be inspected depend upon the processes, equipment, structures, and instrumentation used, and to a lesser degree on operating procedures, location of the facility, and types and volumes of waste. Because of his intimate familiarity with these facets of his operation, the facility owner or operator is in the best position to initially decide which areas of his operation could benefit from scheduled

inspections. The Agency will review the operator's proposed schedule of inspections to ensure that it is adequately protective. The Agency believes that its function should be not so much to dictate in the regulations exactly what things must be done, but rather to ensure in the permitting process that what the facility proposes to do, adequately protects human health and the environment.

To decide what facilities must do, on a case-by-case basis, the Agency, as a result of these comments, has changed its regulatory strategy for inspections. Instead of the Agency listing all of the items which must be inspected, the owner or operator will be required to draw up an inspection schedule tailored to the facility. The schedule will contain those items which the owner or operator determines could benefit from inspections. The schedule will provide a structure to ensure effective and efficient inspections, and will help to ensure that important items are not overlooked or put off. The Agency will review this schedule as part of its permit review process and will judge whether it provides adequate protection to human health and the environment. As a result of its experience reviewing other schedules, the Agency should be in a position to help management to optimize the efficiency and effectiveness of their schedule. The Agency will not be able to provide this assistance to facilities in interim status because there will be too many demands on Agency personnel to evaluate permits for other facilities and to "start up" the other facets of this complex regulatory program.

Thus, during interim status, owners and operators will be required to develop the plan, but they will not be required to submit it to the Agency for review until Part B of the permit application is called for by the Agency.

While inspection plans must be developed on a facility specific, case-by-case basis, the Agency is aware that not all owners and operators and personnel are equally knowledgeable about potential problems at their facilities. To ensure that no obvious problem areas are overlooked, and to ensure that plans are implemented consistently, the Agency is specifying certain inspection points for specific types of facilities (landfills, incinerators, etc.). Although these inspection points will have to be included in all inspection schedules for applicable facilities, they will seldom, if ever, constitute a wholly adequate inspection plan in and of themselves. The Agency believes that virtually every facility will have its own specific inspection points which must be identified and included in the schedule. The inclusion of minimum requirements, however, will help assure the neighboring public that the facility is conducting inspections adequate to protect their health and property. Because the requirements are specific to types of facilities, they are included with specific facility standards, and the rationale for them is covered in the background documents that relate to those operations.

A final point. The Agency agrees that inspecting for fugitive air emissions, vegetation kills, and minor rust spots may often be unproductive. Some facilities simply have no potential for fugitive emissions or vegetation kills because of design, wastes handled, and/or location. However, unusual odors, the unexpected presence of smoke, and recently killed plants and trees can all be signs of trouble. Moreover, these are signs that can be detected by most employees--they do not require special training in botany or other fields. Further, rust is a problem only in specific locations and then, normally, only if severe. Therefore, the Agency insists that facility management inspect for the three items above wherever they are relevant.

Issue #2: The requirement for daily inspections is unnecessary and burdensome

a. Summary of Comments

1. Frequency of inspection should be based on:

- (i) The probability and potential seriousness of the failure of the components of the facility to be inspected. For example,
 - storage areas, dikes, fences and vegetation should only have to be inspected weekly because they are not subject to sudden change
 - "low" hazard operations should only have to be inspected monthly
- (ii) The number of truckloads of waste that are received at a facility (i.e., the more truckloads, the more frequent should be inspections).

- (iii) The type of facility. For example, one commenter argued that treatment and storage facilities should be exempted from the visual inspection requirements, since they are "active businesses," where any signs of possible damage will be seen by the personnel operating them.
 - (iv) The type of waste (and its degree of hazard) handled at the facility. For example, mining waste operations should not be subject to the daily inspection requirement.
 - (v) The remoteness of the facility. For example, a few commenters argued that it would be extremely burdensome and costly to require daily inspections of oil production facilities, since they are often remote, and may use their disposal sites only infrequently.
2. The requirement for daily inspections could lead to superficial inspections.
 3. The Regional Administrator should have the authority to waive or modify the daily frequency requirement as he considers appropriate.
 4. Several comments called for alternative inspection frequencies--for example, daily inspection of monitoring equipment, weekly inspection of dikes, and monthly inspection of fences and equipment corrosion. Another comment urged that facilities not be required to inspect when they are not in operation (i.e., when closed for a holiday or for the weekend).

b. Response to Comments

The Agency agrees that an absolute requirement for daily inspection in all cases will result in unnecessary inspections and could lead to their becoming superficial. Corrosion and erosion normally occur so slowly that deterioration can be detected long before failure occurs. Therefore, such structures as dikes, fences, and tank walls need not be inspected daily. In other situations, if

the facility has containment structures (such as may surround tanks to catch overflow), redundant equipment (such as spare pumps for critical applications), or automatic fail-safe devices (such as automatic feed cutoff systems triggered by incinerator flameouts or combustion chamber temperatures), inspection may not be necessary as frequently to prevent damage that would result from a failure. In these cases, however, inspections may be necessary to be sure that redundant and automatic equipment and alarms are in working order. The Agency agrees, therefore, that inspection frequencies should be based on the potential for damage to occur from a failure, and on rate of deterioration.

The Agency also agrees that, in most cases, the probability that problems will occur at a facility which is closed for the weekend or a holiday is small. Most of the problems such as equipment malfunctions, operator errors, and spills do not normally occur if the equipment is not running. This is a facility-specific situation, however, and in the case of prolonged shutdowns, deterioration such as corrosion and erosion will continue. Equipment and structures susceptible to corrosion and erosion should, therefore, be inspected even during shutdowns. Similarly, nonattended (automatic) facilities should be inspected periodically, if a failure of any equipment components could lead to environmental contamination or a human health hazard.

The Agency does not agree that the relative seriousness of potential incidents should be a consideration in determining the frequency of inspections. The Agency cannot agree that any damage to human health or the environment should be allowed to occur as a result of equipment malfunction or deterioration, or as a result of operator error, when it can be prevented by inspections. The only benefit to reducing the frequency of inspections is a reduction in the cost of performing the inspections. The Agency's mandate in the RCRA (Section 3004) is to "promulgate regulations . . . as may be necessary to protect human health and the environment." It says nothing of basing decisions on costs or economics. Therefore, while the Agency agrees that its regulations must be practical, protecting the human health cannot be traded off against cost, so long as the requirements meet a test of practicality. In any event the Agency believes that routine inspections do not represent a major expense, and in most cases will reduce costs. Early detection will normally preclude the need for more costly repairs, replacement, or cleanup at a later date when the situation has become more serious. For these reasons, the volume of waste managed (number of truckloads), the hazardousness of the waste, the type of facility, and the remoteness of the facility should not be factors in determining the frequency of inspections, except insofar as these items may increase or decrease the probability that damage (serious or not serious) will occur.

Frequency of inspections should be based primarily on the probability that an environmental or human health hazard will occur if a problem (malfunction or deterioration) goes undetected. The time delay between a malfunction and a health or environmental impact may also be a factor, as might the rate of deterioration (corrosion, etc.) where applicable. Unfortunately, determining probability of hazard occurrence, time delay, and rate of deterioration requires personal judgment. Also, these factors vary from facility to facility depending on design, operation, and wastes managed, thus the need for flexibility in the development of a facility specific inspection schedule.

The Agency disagrees that personnel at facilities that actively and routinely receive and process wastes would "notice" any problems and that, therefore, these facilities should be exempt from the inspection requirements. Operators would not note the malfunction of many of the items to be inspected (fire extinguishers, for example), unless they were specifically looking for the problem. Looking for other potential problems such as tank corrosion or dike erosion, is usually outside the normal job functions of operating employees. Unless someone is specifically required to inspect the facility for these problems, they are likely to go undetected for months, unless a failure occurs.

The Agency agrees that absolute adherence to daily inspections could lead to superficial inspections. Because many conditions would

not change except over long periods, there would be a natural tendency on the part of inspectors to pass over these items.

The interim status standards have been designed to stand alone, with no interaction between the regulated community and the Agency. As previously discussed, this is because of the personnel demands that the permit process and other aspects of the regulatory program place on the Agency. As a result, EPA cannot accommodate the suggestion that the Regional Administrator have authority to waive or modify these requirements during interim status. However, during the permitting process, the Agency will review facilities' inspection schedules. Because the schedules are to be facility-specific except for a few fundamental requirements, these regulations provide a great deal of flexibility which was not present in the proposed regulations. This added flexibility, coupled with the elimination of mandatory daily inspections, eliminates the need for waiver provisions.

To sum up, as a result of comments, the Agency has modified the inspection standard for interim status to allow owners and operators to schedule inspections according to their perception of the rate of deterioration and on their perception of whether an environmental or human health incident is likely to occur if a malfunction goes undetected. Thus, different frequencies of inspection can be adopted for different inspection points. In some cases, EPA has specified minimum acceptable frequencies for certain facilities. These have been included in the sections of the subpart which spell out the

requirements for specific kinds of facilities, and are discussed in the corresponding background documents. Inspection frequencies must be spelled out by the owner or operator in the inspection schedule.

Issue #3: Change "owner/operator" to "owner/operator or responsible designee(s)."

a. Summary of Comments

The owner or operator may not physically be onsite at all times. Therefore, the language "owner/operator" should be changed to "owner/operator or responsible designee(s)."

b. Response to Comments

The background document to the proposed visual inspection section states that "the term 'owners and operators' refers to owners of hazardous waste management facilities as well as operators, supervisory personnel or other qualified personnel designated by the owner to perform certain inspection duties." Since there is no language in the regulations precluding it, owners or operators have the option of using agents or designees to carry out their responsibilities. However, the owner or operator is responsible to see that requirements for which he is designated are in fact carried out in accordance with the regulations.

Issue #4: Remediating any deficiencies noted during visual inspection

a. Summary of Comments

The visual inspection section of the regulation should specify that if any deficiencies are noted during the inspection, repairs must be made promptly.

b. Response to Comments

The background document to the proposed visual inspection section states that "these types of incidents should be immediately remedied before their effects are compounded and result in a condition which adversely affects human health and the environment." However, this requirement was not stated in the regulations themselves. The Agency agrees that it makes little sense to identify problems unless they are speedily corrected. After all, the entire purpose of the inspection regulations is to prevent or minimize problems by early detection. Therefore, the revised inspection standards require that any damage or unsafe condition detected be corrected before it can result in a pollution incident. Where a pollution incident is imminent or has already occurred, repair must be accomplished immediately and noted in the inspection record.

Issue #5: Recording the results of the visual inspection

a. Summary of Comments

1. Requiring a log notation of the results of the inspection is needless paperwork.
2. The operating log should include the identity of the person making the inspection; this will make it possible to determine at some future time who was responsible for the inspection.

b. Response to Comments

The Agency believes that recordkeeping is a sound management practice. The inspection record will enable the Agency management or other regulatory agencies to pinpoint when a difficulty arose,

and perhaps assist in estimating the danger to public health and the environment from a given incident. The requirement that a record be kept will help ensure that inspections are carried out carefully and are not conveniently forgotten or reduced to a superficial exercise. The Agency believes that it will not be necessary to refer to these records after three years, because any malfunctions and deterioration that are not corrected will probably result in obvious damage within that period; thus the three-year requirement for retaining the record. As an incidental benefit, the record of inspection may help management keep track of troublesome items, keep on top of needed repairs, and perhaps assess the reliability of their equipment.

The Agency agrees that it may be important to know who made an inspection. For example, during an emergency or an investigation it may be necessary to discuss the extent or characteristics of a problem noted on the log with the inspector who observed it. Similarly, the date and time of the inspection may prove useful in any future investigation, in that they may relate to the extent and nature of the problem.

We have added the date and nature of actions taken in response to inspection observations to the information required on the inspection log. This record will document the facility's response. In the event of a human health or environmental incident, this requirement should assist the regulatory agencies in reconstructing a chain of events. It will also help to ensure that repairs are made promptly,

and not postponed or forgotten. As an incidental benefit, this record should assist management in observing how effective and responsive their maintenance program is to specific problems.

Issue #6: Duplication of other regulations

a. Summary of Comments

The visual inspection of certain components of facilities is already required under existing regulations (e.g., the inspection of certain monitoring equipment under OSHA's safety regulations). Therefore, it is unnecessary to regulate these components under RCRA.

b. Response to Comments

The Agency does not intend to duplicate the requirements of other acts. In view of the flexibility that these regulations now allow for the owner and operator to tailor his or her own inspection schedule, it should be possible to develop one inspection schedule to serve the requirements of all regulatory programs. The Agency is not aware of any other programs that specifically cover any significant requirements of these regulations. In any case, an owner or operator would be in compliance with these requirements if he met more stringent requirements of another regulatory program.

V. REVISED REGULATION LANGUAGE

§264.15 General inspection requirements (General Status)

- (a) The owner or operator must inspect his facility for malfunctions and deterioration, operator errors, and discharges which may be causing--or may lead to--(1) release of hazardous waste constituents to the environment or (2) a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.
- (b) (1) The owner or operator must develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.
- (2) He must keep this schedule at the facility.
- (3) The schedule must identify the types of problems (e.g., malfunctions or deterioration) which are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, eroding dike, etc.).
- (4) The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.
- [Comment: Part 122, Subpart B, of this Chapter requires the inspection schedule to be submitted with Part B of the permit application. EPA will evaluate the schedule along with the rest of the application to ensure that it adequately protects human health and the environment. As part of this review, EPA may modify or amend the schedule as may be necessary.]
- (c) The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where

a hazard is imminent or has already occurred, remedial action must be taken immediately.

- (d) The owner or operator must record inspections in an inspection log or summary. He must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

§265.15 General inspection requirements (Interim Status)

- (a) The owner or operator must inspect his facility for malfunctions and deterioration, operator errors, and discharges which may be causing--or may lead to--(1) release of hazardous waste constituents to the environment or (2) a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.
- (b)
 - (1) The owner or operator must develop and follow a written schedule for inspecting all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.
 - (2) He must keep this schedule at the facility.
 - (3) The schedule must identify the types of problems (e.g., malfunctions or deterioration) which are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, eroding dike, etc.).
 - (4) The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the items and frequencies called for in §§265.174, 265.194, 265.226, 265.347, 265.377, and 265.403.

- (c) The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.

- (d) The owner or operator must record inspections in an inspection log or summary. He must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

REFERENCES

- (1) 6MCAR §4.9004(C)(3b), Minnesota Code of Agency Rules, Pollution Control Agency, June 18, 1979.

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