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Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

EPA Office of Compliance

Notice

The statements in this document are intended solely as guidance to aid regulated entities in complying with the regulations. The guidance is not a substitute for reading the regulations and understanding all the requirements as it applies to your facility. This guidance does not constitute rulemaking by the U.S. EPA and may not be relied on to create a substantive or procedural right or benefit enforceable, at law or in equity, by any person. U.S. EPA may decide to update this guide without public notice to reflect changes in U.S. EPA's approach to implementing the regulations or to clarify and update text. To determine whether U.S. EPA has revised this document and/or to obtain copies, contact U.S. EPA's Center for Environmental Publications at 1(800) 490-9198. Additional information regarding U.S. EPA Hotlines and further assistance pertaining to the specific rules discussed in this document can be found at the end of the *Key Compliance Requirements* located in Section II. **The contents of this document reflect regulations issued as of March 12, 2000.**

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Table of Contents

Notice ..... inside cover
Acknowledgement ..... inside cover

Section 1: Introduction
Background ii
Who Should Use These Protocols? ii
U.S. EPA's Public Policies that Support Environmental Auditing iii
How To Use the Protocols iv
The Relationship of Auditing to Enviornmental Management Systems vi

Section II: Audit Protocol
Applicability 1
Review of Federal Legislation 1
State and Local Regulations 3
Key Compliance Requirements 3
Key Terms and Definitions 4
Typical Records to Review 12
Typical Physical Features to Inspect 12
List of Acronyms and Abbreviations 12
Index for Checklist Users 15
Checklist 17

Appendices
Appendix A: Open Dumping A1
Appendix B: Compliance Dates for Municipal Solid Waste Landfills B1
Appendix C: Municipal Solid Waste Landfill Units Exempt from Compliance with 40 CFR 258 ..... C1
Appendix D: Design Criteria Concentration Values D1
Appendix E: Constituents for Detection Monitoring E1
Appendix F: List of Hazardous Inorganic and Organic Constituents F1
Appendix G: User Satisfaction Questionnaire and Comment Form ..... G

Section I
Introduction

Background

The Environmental Protection Agency (U.S. EPA) is responsible for ensuring that businesses and organizations comply with federal laws that protect the public health and the environment. U.S. EPA's Office of Enforcement and Compliance Assurance (OECA) has begun combining traditional enforcement activities with more innovative compliance approaches including the provision of compliance assistance to the general public. U.S. EPA's Office of Compliance Assistance was established in 1994 to focus on compliance assistance-related activities. U.S. EPA is also encouraging the development of self-assessment programs at individual facilities. Voluntary audit programs play an important role in helping companies meet their obligation to comply with environmental requirements. Such assessments can be a critical link, not only to improved compliance, but also to improvements in other aspects of an organization's performance. For example, environmental audits may identify pollution prevention opportunities that can substantially reduce an organization's operating costs. Environmental audits can also serve as an important diagnostic tool in evaluating a facility's overall environmental management system or EMS.

U.S. EPA is developing 13 multi-media Environmental Audit Protocols to assist and encourage businesses and organizations to perform environmental audits and disclose violations in accordance with OECA's Audit and Small Business Policies. The audit protocols are also intended to promote consistency among regulated entities when conducting environmental audits and to ensure that audits are conducted in a thorough and comprehensive manner. The protocols provide detailed regulatory checklists that can be customized to meet specific needs under the following primary environmental management areas:

- Generation of RCRA Hazardous Waste
- Treatment Storage and Disposal of RCRA Hazardous Waste
- EPCRA
- CERCLA
- Clean Air Act
- Clean Water Act
- Safe Drinking Water Act
- TSCA
- Universal Waste and Used Oil
- Managing Nonhazardous Solid Waste
- Pesticides Management (FIFRA)
- Management of Toxic Substances (e.g., PCBs, lead-based paint, and asbestos)
- RCRA Regulated Storage Tanks

Who Should Use These Protocols?

U.S. EPA has developed these audit protocols to provide regulated entities with specific guidance in periodically evaluating their compliance with federal environmental requirements. The specific application of this particular protocol, in terms of which media or functional area it applies to, is described in Section II under "Applicability".

The Audit Protocols are designed for use by individuals who are already familiar with the federal regulations but require an updated comprehensive regulatory checklist to conduct environmental ***compliance*** audits at regulated facilities. Typically, compliance audits are performed by persons who are not necessarily media or legal experts but instead possess a working knowledge of the regulations and a familiarity with the operations and practices of the facility to be audited. These two basic skills are a prerequisite for adequately identifying areas at the facility subject to environmental regulations and potential regulatory violations that subtract from the organizations environmental performance. With these basic skills, audits can be successfully conducted by persons with various educational backgrounds (e.g., engineers, scientists, lawyers, business owners or operators). These protocols are not intended to be a substitute for the regulations nor are they intended to be instructional to an audience seeking a primer on the requirements under Title 40, however, they are designed to be sufficiently detailed to support the auditor's efforts.

The term "Protocol" has evolved over the years as a term of art among the professional practices of auditing and refers to the actual working document used by auditors to evaluate facility conditions against a given set of criteria (in this case the federal regulations). Therefore these documents describe "what" to audit a facility for rather than "how" to conduct an audit. To optimize the effective use of these documents, you should become familiar with basic environmental auditing practices. For more guidance on how to conduct environmental audits, U.S. EPA refers interested parties to two well known organizations: The Environmental Auditing Roundtable (EAR) and the Institute for Environmental Auditing (IEA).

Environmental Health and Safety Auditing Roundtable
35888 Mildred Avenue
North Ridgeville, Ohio 44039
(216) 327-6605

The Institute for Environmental Auditing
Box 23686
L'Enfant Plaza Station
Washington, DC 20026-3686

U.S. EPA's Public Policies that Support Environmental Auditing

In 1986, in an effort to encourage the use of environmental auditing, U.S. EPA published its "Environmental Auditing Policy Statement" (see 51 FR 25004). The 1986 audit policy states that "it is U.S. EPA policy to encourage the use of environmental auditing by regulated industries to help achieve and maintain compliance with environmental laws and regulation, as well as to help identify and correct unregulated environmental hazards." In addition, U.S. EPA defined environmental auditing as "a systematic, documented, periodic, and objective review of facility operations and practices related to meeting environmental requirements." The policy also identified several objectives for environmental audits:

- verifying compliance with environmental requirements,
- evaluating the effectiveness of in-place environmental management systems, and
- assessing risks from regulated and unregulated materials and practices.

In 1995, U.S. EPA published "Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations" which both reaffirmed and expanded its 1986 audit policy. The 1995 audit policy offers major incentives for entities to discover, disclose and correct environmental violations. Under the 1995 policy, U.S. EPA will not seek gravity-based penalties or recommend criminal charges be brought for violations that are discovered through an "environmental audit" (as defined in the 1986 audit policy) or a management system reflecting "due diligence" and that are promptly disclosed and corrected, provided that other important safeguards are met. These safeguards protect health and the environment by precluding policy relief for violations that cause serious environmental harm or may have presented an imminent and substantial endangerment.

In 1996, U.S. EPA issued its "Final Policy on Compliance Incentives for Small Businesses". The policy is intended to promote environmental compliance among small businesses by providing them with special incentives to participate in U.S. EPA compliance assistance programs. Similar to the U.S. EPA Audit Policies, the Small Business Policy also encourages small businesses to conduct environmental audits, and then to promptly disclose and correct violations.

More information on U.S. EPA's Small Business and Audit/Self-Disclosure Policies are available by contacting U.S. EPA's Enforcement and Compliance Docket and Information Center at (202) 564-2614 or visiting the U.S. EPA web site at: http://es.EPA.gov/oeca/polguid/polguid 1.html

How to Use The Protocols

Each protocol provides guidance on key requirements, defines regulatory terms, and gives an overview of the federal laws affecting a particular environmental management area. They also include a checklist containing detailed procedures for conducting a review of facility conditions. The audit protocols are designed to support a wide range of environmental auditing needs; therefore several of the protocols in this set or sections of an individual protocol may not be applicable to a particular facility. To provide greater flexibility, each audit protocol can be obtained electronically from the U.S. EPA Website (www.EPA.gov/oeca/ccsmd/profile.html). The U.S. EPA Website offers the protocols in a word processing format which allows the user to custom-tailor the checklists to more specific environmental aspects associated with the facility to be audited.

The protocols are not intended to be an exhaustive set of procedures; rather they are meant to inform the auditor, about the degree and quality of evaluation essential to a thorough environmental audit. U.S. EPA is aware that other audit approaches may also provide an effective means of identifying and assessing facility environmental status and in developing corrective actions.

It is important to understand that there can be significant overlap within the realm of the federal regulations. For example, the Department of Transportation (DOT) has established regulations governing the transportation of hazardous materials. Similarly, the Occupational Safety and Health Administration (OSHA) under the U.S. Department of Labor has promulgated regulations governing the protection of workers who are exposed to hazardous chemicals. There can also be significant overlap between federal and state environmental regulations. In fact, state programs that implement federally mandated programs may contain more stringent requirements that are not included in these protocols. There can also be multiple state agencies regulating the areas covered in these protocols. The auditor also should determine which regulatory agency has authority for implementing an environmental program so that the proper set of regulations is consulted. Prior to conducting the audit, the auditor should review federal, state and local environmental requirements and expand the protocol, as required, to include other applicable requirements not included in these documents.

Review of Federal Legislation and Key Compliance Requirements:

These sections are intended to provide only supplementary information or a "thumbnail sketch" of the regulations and statutes. These sections are not intended to function as the main tool of the protocol (this is the purpose of the checklist). Instead, they serve to remind the auditor of the general thrust of the regulation and to scope out facility requirements covered by that particular regulation. For example, a brief paragraph describing record keeping and reporting requirements and the associated subpart citations will identify and remind the auditor of a specific area of focus at the facility. This allows the auditor to plan the audit properly and to identify key areas and documents requiring review and analysis.

State and Local Regulations:

Each U.S. EPA Audit Protocol contains a section alerting the auditor to typical issues addressed in state and local regulations concerning a given topic area (e.g., RCRA and used oil). From a practical standpoint, U.S. EPA cannot present individual state and local requirements in the protocols. However, this section does provide general guidance to the auditor regarding the division of statutory authority between U.S. EPA and the states over a specific media. This section also describes circumstances where states and local governments may enact more stringent requirements that go beyond the federal requirements.

U.S. EPA cannot overemphasize how important it is for the auditor to take under consideration the impact of state and local regulations on facility compliance. U.S. EPA has delegated various levels of authority to a majority of the states for most of the federal regulatory programs including enforcement. For example, most facilities regulated under RCRA, and/or CWA have been issued permits written by the states to ensure compliance with federal and state regulations. In turn, many states may have delegated various levels of authority to local jurisdictions. Similarly, local governments (e.g., counties, townships) may issue permits for air emissions from the facility. Therefore, auditors are advised to review local and state regulations in addition to the federal regulations in order to perform a comprehensive audit.

Key Terms and Definitions:

This section of the protocol identifies terms of art used in the regulations and the checklists that are listed in the "Definitions" sections of the Code of Federal Regulations (CFR). It is important to note that not all definitions from the CFR may be contained in this section, however; those definitions which are commonly repeated in the checklists or are otherwise critical to an audit process are included. Wherever possible, we have attempted to list these definitions as they are written in the CFR and not to interpret their meaning outside of the regulations.

The Checklists:

The checklists delineate what should be evaluated during an audit. The left column states either a requirement mandated by regulation or a good management practice that exceeds the requirements of the federal regulations. The right column gives instructions to help conduct the evaluation. These instructions are performance objectives that should be accomplished by the auditor. Some of the performance objectives may be simple documentation checks that take only a few minutes; others may require a time-intensive physical inspection of a facility. The checklists contained in these protocols are (and must be) sufficiently detailed to identify any area of the company or organization that would potentially receive a notice of violation if compliance is not achieved. For this reason, the checklists often get to a level of detail such that a specific paragraph of the subpart (e.g., 40 CFR 262.34(a)(1)(i)) contained in the CFR is identified for verification by the auditor. The checklists contain the following components:

- **"Regulatory Requirement or Management Practice Column"**
  The "Regulatory Requirement or Management Practice Column" states either a requirement mandated by regulation or a good management practice that exceeds the requirements of the Federal regulations. The regulatory citation is given in parentheses after the stated requirement. Good management practices are distinguished from regulatory requirements in the checklist by the acronym (MP) and are printed in italics.

- **"Reviewer Checks" Column:**
  The items under the "Reviewer Checks:" column identify requirements that must be verified to accomplish the auditor's performance objectives. (*The key to successful compliance auditing is to verify and document site observations and other data.)* The checklists follow very closely with the text in the CFR in order to provide the service they are intended to fulfill (i.e., *to be used for compliance auditing)*. However, they are not a direct recitation of the CFR. Instead they are organized into more of a functional arrangement (e.g.,

record keeping and reporting requirements vs. technical controls) to accommodate an auditor's likely sequence of review during the site visit. Wherever possible, the statements or items under the "Reviewer Checks" column, will follow the same sequence or order of the citations listed at the end of the statement in the "Regulatory Requirement" column.

- **"NOTE:" Statements**
  "Note:" statements contained in the checklists serve several purposes. They usually are distinguished from "Verify" statements to alert the auditor to *exceptions or conditions* that may affect requirements or to referenced standards that are not part of Title 40 (e.g., American Society for Testing and Materials (ASTM) standards). They also may be used to identify options that the regulatory agency may choose in interacting with the facility (e.g., permit reviews) or options the facility may employ to comply with a given requirement.

- **Checklist Numbering System**:
  The checklists also have a unique numbering system that allows the protocols to be more easily updated by topic area (e.g., RCRA Small Quantity Generator). Each topic area in turn is divided into control breaks to allow the protocol to be divided and assigned to different teams during the audit. This is why blank pages may appear in the middle of the checklists. Because of these control breaks, there is intentional repetition of text (particularly "Note" Statements) under the "Reviewer Checks" column to prevent oversight of key items by the audit team members who may be using only a portion of the checklist for their assigned area.

Updates:

Environmental regulations are continually changing both at the federal and state level. For this reason, it is important for environmental auditors to determine if any new regulations have been issued since the publication of each protocol document and, if so, amend the checklists to reflect the new regulations. Auditors may become aware of new federal regulations through periodic review of Federal Register notices as well as public information bulletins from trade associations and other compliance assistance providers. In addition, U.S. EPA offers information on new regulations, policies and compliance incentives through several Agency Websites. Each protocol provides specific information regarding U.S. EPA program office websites and hotlines that can be accessed for regulatory and policy updates.

U.S. EPA will periodically update these audit protocols to ensure their accuracy and quality. Future updates of the protocols will reflect not only the changes in federal regulations but also public opinion regarding the usefulness of these documents. Accordingly, the Agency would like to obtain feedback from the public regarding the format, style and general approach used for the audit protocols. The last appendix in each protocol document contains a user satisfaction survey and comment form. This form is to be used by U.S. EPA to measure the success of this tool and future needs for regulatory checklists and auditing materials.

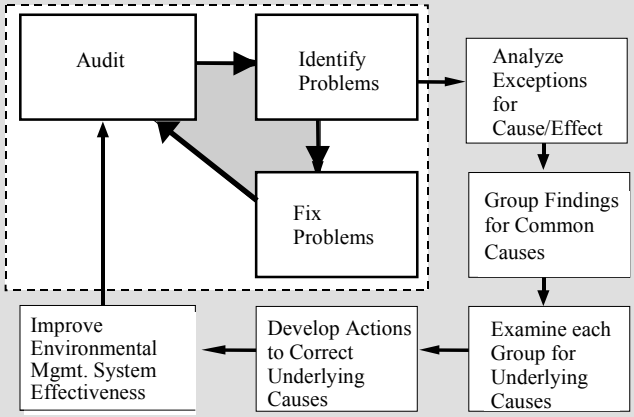
The Relationship of Auditing to Environmental Management Systems

An environmental auditing program is an integral part of any organization's environmental management system (EMS). Audit findings generated from the use of these protocols can be used as a basis to implement, upgrade, or benchmark environmental management systems. Regular environmental auditing can be the key element to a high quality environmental management program and will function best when an organization identifies the "root causes" of each audit finding. Root causes are the primary factors that lead to noncompliance events. For example a violation of a facility's wastewater discharge permit may be traced back to breakdowns in management oversight, information exchange, or inadequate evaluations by untrained facility personnel.

As shown in Figure 1, a typical approach to auditing involves three basic steps: conducting the audit, identifying problems (audit findings), and fixing identified deficiencies. When the audit process is expanded, to identify and correct root causes to noncompliance, the organization's corrective action part of its EMS becomes more effective. In the expanded model, audit findings (exceptions) undergo a root cause analysis to identify underlying causes to noncompliance events. Management actions are then taken to correct the underlying causes behind the audit findings and improvements are made to the organizations overall EMS before another audit is conducted on the

facility. Expanding the audit process allows the organization to successfully correct problems, sustain compliance, and prevent discovery of the same findings again during subsequent audits. Furthermore, identifying the root cause of an audit finding can mean identifying not only the failures that require correction but also successful practices that promote compliance and prevent violations. In each case a root cause analysis should uncover the failures while promoting the successes so that an organization can make continual progress toward environmental excellence.

Figure 1 - Expanded Corrective Action Model



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Section II
Audit Protocol

Applicability

This audit protocol applies to facilities that collect, treat and dispose of solid non-hazardous waste regulated under Subtitle D of the Resource Conservation and Recovery Act (RCRA). For facilities that generate, manage or dispose of hazardous wastes under Subtitle C of RCRA, U.S. EPA has provided guidance and audit checklists in two separate documents. Generators of hazardous waste are referred to the U.S. EPA document titled; *Protocol for Conducting Environmental Compliance Audits of Hazardous Waste Generators* (Document No. EPA-305-B-98-005). Facilities that treat, store or dispose of hazardous wastes under RCRA are referred to the U.S. EPA Document titled; *Protocol for Conducting Environmental Compliance Audits of Treatment, Storage and Disposal Facilities under the Resource Conservation and Recovery Act* (Document Number EPA-305-B-98-006).

Not all checklist items will be applicable to a given facility. Guidance is provided under the checklist to direct the auditor to the regulations typically applicable to most facilities that collect and/or dispose of non-hazardous solid waste.

There are numerous environmental regulatory requirements administered by federal, state, and local government. Each level of government may have a major impact on areas at the facility that are subject to the audit. Auditors are advised to review federal, state and local regulations in order to perform a comprehensive audit.

Review of Federal Legislation

Resource Conservation and Recovery Act (RCRA)
The Resource Conservation and Recovery Act (RCRA) of 1976, which amended the Solid Waste Disposal Act, addresses non-hazardous (Subtitle D) and hazardous (Subtitle C) waste management activities. RCRA has since been amended by the Used Oil Recycling Act of 1980 (UORA) and The Hazardous and Solid Waste Amendments (HSWA) of 1984. The HSWA amendments greatly expanded the requirements and coverage of RCRA and added Subtitle I, which governs underground storage tanks (USTs).

Subtitle D of RCRA (40 CFR 240-258) establish standards and guidelines for solid waste collection and disposal programs, as well as recycling programs. The regulations also establish criteria for design, operation, maintenance, and closure for municipal solid waste landfills. In addition, the regulations provide requirements for thermal processing (incineration) and resource recovery facilities. Under Subtitle D of RCRA, the regulation of non-hazardous waste is the responsibility of the states, however, U.S. EPA has established minimum criteria for prescribing best practical controls and monitoring requirements for solid waste disposal facilities.

Impacts from Subtitle D on facility audits may be direct if the facility operates a solid waste incinerator or manages an on-site solid waste landfill. The impacts on auditing may also be indirect, coming into play as a result of a facility's use of an off-site solid waste disposal facility. Typically units such as solid waste landfills and non-hazardous waste incinerators are regulated through state-issued permits.

Many businesses and organizations may have numerous operations that result in the generation and management of different types of solid and hazardous waste. These operations may be subject to specific parts of RCRA, depending on the type of waste generated, its management (e.g., stored, transported), and its disposal. Most RCRA requirements are not industry specific but apply to any entity that generates, transports, treats, stores, or disposes of both hazardous and non- hazardous waste. The following are some other important RCRA regulatory requirements:

- **Identification of Solid and Hazardous Wastes** (40 CFR Part 261) delineates the procedure every generator must follow in determining whether the material in question is considered a hazardous waste or solid waste or is exempted from regulation.

- **Standards for Generators of Hazardous Waste** (40 CFR Part 262) establish the responsibilities of hazardous waste generators. These include obtaining an U.S. EPA identification number, preparing a manifest, ensuring proper packaging and labeling, meeting standards for waste accumulation units, and meeting record keeping and reporting requirements. Providing they meet additional requirements described in 40 CFR 262.34, generators may accumulate hazardous waste for up to 90 days (or 180 or 270 days depending on the amount of waste generated and the distance the waste will be transported).

- **Land Disposal Restrictions** (LDRs) (40 CFR Part 268) are regulations prohibiting the disposal of hazardous waste on land without prior treatment. Under the LDR program, materials must meet LDR treatment standards prior to placement in a RCRA land disposal unit (landfill, land treatment unit, waste pile, or surface impoundment). Generators of waste subject to the LDR must provide notification of such to the designated TSD facility to ensure proper treatment prior to disposal.

- **Used Oil Management Standards** (40 CFR Part 279) impose management requirements affecting the storage, transportation, burning, processing, and re-refining of the used oil. For parties that merely generate used oil, regulations establish storage standards. For a party considered a used oil processor, re-refiner, burner, or marketer (one who generates and sells off-specification used oil directly to a used oil burner), additional tracking and paperwork requirements must be satisfied.

- **Tanks and Containers**, as well as any unit, used to store, treat, or dispose of hazardous waste, are regulated under RCRA. Tanks and containers used to store hazardous waste with a high volatile organic concentration must meet emission standards under RCRA. Regulations (40 CFR Part 264-265, Subpart CC) require generators to test the waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units. These regulations apply to all facilities that store such waste, including large quantity generators accumulating waste prior to shipment offsite.

- **Underground Storage Tanks** containing petroleum and hazardous substances are regulated under Subtitle I of RCRA. Subtitle I regulations (40 CFR Part 280) contain tank design and release detection requirements, as well as financial responsibility and corrective action standards for USTs. The UST program also includes upgrade requirements for existing tanks that must be met by December 22, 1998.

- **Boilers and Industrial Furnaces** (BIFs) that use or burn fuel containing hazardous waste must comply with design and operating standards. BIF regulations (40 CFR Part 266, Subpart H) address unit design, provide performance standards, require emissions monitoring, and restrict the type of waste that may be burned.

The Clean Air Act (CAA)

The Clean Air Act (CAA) and its amendments, including the Clean Air Act Amendments (CAAA) of 1990, are designed to "protect and enhance the nation's air resources so as to promote the public health and welfare and the productive capacity of the population." The CAA consists of six sections, known as Titles, which direct U.S. EPA to establish national standards for ambient air quality and for U.S. EPA and the states to implement, maintain, and enforce these standards through a variety of mechanisms. Under the CAAA, many facilities will be required to obtain permits for the first time. State and local governments oversee, manage, and enforce many of the requirements of the CAAA. CAA regulations appear at 40 CFR Parts 50-99.

Under Title I, U.S. EPA is authorized to establish New Source Performance Standards (NSPS), which are new stationary sources falling within particular industrial categories. Promulgated as 40 CFR Part 60, NSPSs are based on the pollution control technology available to that category of industrial source. NSPSs affect new sources that are to be constructed or existing sources that undergo modifications after the applicable deadlines. Under this part of the CAA, regulations have been promulgated (see 40 CFR 60.750 through 60.759) concerning the control, monitoring, and reporting of emissions from municipal solid waste landfills (MSWLFs). Since most MSWLFs will be impacted by these NSPSs, a checklist section outlining these requirements has been developed for this protocols. Other requirements of the CAA are included in another U.S. EPA document titled; *Protocol for Conducting*

Environmental Compliance Audits Under the Clean Air Act. Environmental Auditors should also be alert for other applications of the federal regulations not covered by this protocol. For example, storm water run-off associated with landfills may be regulated under the storm water provisions of the Clean Water Act. U.S. EPA has also developed separate audit protocol documents for these requirements.

State/Local Regulations

The federal government sets minimum national standards for municipal solid waste disposal in 40 CFR 258, but state and local governments are responsible for implementing and enforcing waste programs. Currently U.S. EPA has delegated its authority to implement various provisions of RCRA to all states, except Alaska, Hawaii, Iowa, and two U.S. territories. States are required to develop their own programs based on the federal regulations. Most states and municipalities have already developed their own regulations governing the permitting, licensing, and operations of landfills, incinerators, and source separation/recycling programs.

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

Key Compliance Requirements

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

Recycling
Facilities should participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical. Businesses and other organizations employing over 100 office workers are required to recover high-grade paper. Residential facilities at which more than 500 families reside are required to recycle newspapers. Any facility generating 10 tons or more of waste corrugated containers per month is required to segregate or collect them separately for recycling (40 CFR 246.200-1 and 246.202-1).

Open Dumping
40 CFR 257 details the criteria for determining whether or not an activity would be considered an open dump for the purposes of state solid waste management planning under RCRA. See Appendix A of this document for a list of the criteria that a facility or practice must meet in order for it to not be considered an open dump.

Municipal Solid Waste Landfills (MSWLFs)
MSWLFs must meet restrictions for location, the types of waste to be placed in them, emissions from the MSWLF, and the types of monitoring required. Limitations, design criteria, and closure requirements vary depending on whether it is a new or existing MSWLF (40 CFR 258 and 40 CFR 60.750 through 60.759).

Thermal Processing Facilities
Thermal processing facilities that are designed to process or are processing 50 tons or more per day of municipal solid wastes must be operated in a manner that prevents water and/or air contamination. Additionally, there must be an operating plan that specifies procedures and precautions to be taken if unacceptable wastes are delivered to or

left at the thermal processing facility. The residue and solid waste resulting from the thermal processing must be disposed of in a manner that prevents environmental damage (40 CFR 240).

For further information regarding the RCRA regulations, contact U.S. EPA's RCRA/UST, Superfund and EPCRA hotline at 800-424-9346 (or 703-412-9810 in the D.C. area) from 9 a.m. to 6 p.m., Monday through Friday.

This U.S. EPA hotline provide up-to-date information on regulations developed under RCRA, CERCLA (Superfund), and the Oil Pollution Act. The hotline can assist with Section 112(r) of the Clean Air Act (CAA) and Spill Prevention, Control, and Countermeasure (SPCC) regulations. The hotline also responds to requests for relevant documents and can direct the caller to additional tools that provide a more detailed discussion of specific regulatory requirements.

Key Terms and Definitions

Active Collection System
A gas collection system that uses gas mover equipment (40 CFR 60.751).

Active Landfill
A landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future (40 CFR 60.751).

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

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

Alley Collection
The collection of solid waste from containers placed adjacent to or in an alley (40 CFR 243.101).

Agricultural Solid Waste
The solid waste that is generated by the rearing of animals, and the producing and harvesting of crops or trees (40 CFR 243.101).

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

Bottom Ash
The solid material that remains on a hearth or falls off the grate after thermal processing is complete (40 CFR 240.101(b)).

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

Carryout Collection
Collection of solid waste from a storage area proximate to the dwelling unit(s) or establishment (40 CFR 243.101)

Closed Landfill
A landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification (40 CFR 60.751).

Closure
That point in time when a landfill becomes a closed landfill (40 CFR 60.751).

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

Collection Frequency
The number of times collection is provided in a given period of time (40 CFR 243.101).

Commercial Solid Waste
All types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes (40 CFR 243.101, 258.2, and 40 CFR 60.751).

Compactor Collection Vehicle
A vehicle with an enclosed body containing mechanical devices that convey solid waste into the main compartment of the body and compress it into a smaller volume of greater density (40 CFR 243.101)

Construction and Demolition Wastes
The waste building materials, packaging, and rubble resulting from the construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings, and other structures (40 CFR 243.101).

Controlled Landfill
Any landfill at which collection and control systems are required under 40 CFR 60.750 - 759 as a result of the nonmethane organic compounds (NMOC) emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted (40 CFR 60.751)

Corrugated Container Waste
Discarded corrugated boxes (40 CFR 246.101).

Curb Collection
Collection of solid waste placed adjacent to a street (40 CFR 243.101).

Design Capacity
The weight of solid waste of a specified gross calorific value that a thermal processing facility is designed to process in 24 h of continuous operation; usually expressed in tons per day (40 CFR 240.101(d)).

Design Capacity (In relation to air quality restrictions)
The maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the state, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million m^3, the calculation must include a site specific density, which must be recalculated annually (40 CFR 60.751)

Disposal Facility
All contiguous land and structures, other appurtenances and improvements on the land used for disposal of solid waste (40 CFR 60.751).

Emission Rate Cutoff
The threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required (40 CFR 60.751).

Enclosed Combustor
An enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered and enclosed combustor (40 CFR 60.751).

EPA
United States Environmental Protection Agency.

Existing MSWLF Unit
Any MSWLF unit that is receiving solid waste as of the appropriate dates specified in 40 CFR 258.1(e) (see Appendix B of this document). Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management (40 CFR 258.2).

Facility
All contiguous land and structures, other appurtenances and improvements on the land used for the disposal of solid waste (40 CFR 258.2).

Flare
An open combustor without enclosure or shroud (40 CFR 60.751).

Fly Ash
Suspended particles, charred paper, dust, soot, and other partially oxidized matter carried in the products of combustion (40 CFR 240.101).

Food Waste
The organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage (40 CFR 243.101).

Garbage
In relation to solid waste coming from outside the continental United States, it is all waste material derived in whole or in part from fruits, vegetables, meats, or other plant or animal material, and other refuse of any character whatsoever that has been associated with any such material on board any means of conveyance, and including food scraps, table refuse, galley refuse, food wrappers, or packaging materials, and other waste materials from stores, food preparation areas, passengers; or crews quarters, dining rooms, or any other areas or means of conveyance. It also means meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed (7 CFR 330.400(b)).

Gas Mover Equipment
The equipment used to transport landfill gas through the header system (40 CFR 60.751).

Ground Water
Water below the land surface in a zone of saturation (40 CFR 258.2).

Hazardous Waste
A waste or combination of wastes of a solid, liquid, contained gaseous, or semisolid form which may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, taking into account the toxicity of such waste, its persistence and degradability in nature, its potential for accumulation or concentration in tissue, and other factors that may otherwise cause or contribute to adverse acute or chronic effects on the health of persons or other organisms (40 CFR 243.101).

High-Grade Paper
Letterhead, dry copy papers, miscellaneous business forms, stationary, typing paper, tablet sheets, and computer printout paper and cards, commonly sold as "white ledger", "computer printout" and "tab card" grade by the wastepaper industry (40 CFR 246.101).

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Household Waste
Any solid waste, (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use-recreation areas) (40 CFR 258.2 and 40 CFR 60.751).

Indian Lands or Indian Country
This means (40 CFR 258.2):
1. all land within the limits of any Indian reservation under the jurisdiction of the U.S. Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation;
2. all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of the state; and
3. all Indian allotments, the Indian titles to which have not been extinguished, including rights of way running through the same.

Indian Tribe
Any Indian tribe, band, nation, or community recognized by the Secretary of the Interior (SOI) and exercising substantial governmental duties and powers on Indian lands (40 CFR 258.2).

Industrial Solid Waste
The solid waste generated by industrial processes and manufacturing (40 CFR 243.101 and 40 CFR 246.101).

Industrial Solid Waste (In relation to MSWLF)
Solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/byproducts; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste (40 CFR 258.2 and 40 CFR 60.751).

Infectious Waste
This includes (40 CFR 243.101):
1. equipment, instruments, utensils, and formites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies;
2. laboratory wastes, such as pathological specimens (e.g., all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organisms) attendant thereto;
3. surgical operating room pathologic specimens and disposable fomites attendant thereto, and similar disposable materials from outpatient areas and emergency rooms.

Infectious Waste
This includes (40 CFR 246.101):
1. equipment, instruments, utensils, and fomites (any substance that may harbor or transmit pathogenic organisms) of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies;
2. laboratory wastes, such as pathological specimens (e.g. all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites attendant thereto;

3. surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.

Institutional Solid Waste
Solid wastes generated by educational, health care, correctional and other institutional facilities (40 CFR 243.101).

Interior Well
Any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfill waste is not an interior well (40 CFR 60.751).

Landfill
An area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under 40 CFR 257.2 (40 CFR 60.751).

Lateral Expansion
A horizontal expansion of the waste boundaries of an existing municipal solid waste landfill unit. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill (40 CFR 258.2 and 40 CFR 60.751).

Leachate (In relation to MSWLF)
This is a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste (40 CFR 258.2).

Mining Wastes
Residues which result from the extraction of raw materials from the earth (40 CFR 243.101).

Modification
An increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on the permitted design capacity as of May 30, 1991 (40 CFR 60.751).

Municipal Solid Wastes
Residential and commercial solid wastes normally generated within a community (40 CFR 240.101).

Municipal Solid Waste Landfill
An entire disposal facility in a contiguous geographical space, where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (40 CFR 257.2) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion (40 CFR 60.751).

Municipal Solid Waste Landfill Emissions
Gas generated by the decomposition of organic waste deposited in an MSWLF or derived from the evolution of organic compounds in the waste (40 CFR 60.751).

Municipal Solid Waste Landfill (MSWLF) Unit
A discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile. It may also receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, and existing MSWLF unit, or a lateral expansion (40 CFR 258.2).

New MSWLF Unit
Any MSWLF unit that has not received wastes prior to October 9, 1993, or prior to October 9, 1997 if the MSWLF unit disposes of less than 20 tons of municipal solid waste daily, based on an annual average and the MSWLF unit serves either (40 CFR 258.2):

1. a community that experiences an annual interruption of at least 3 consecutive months of surface transportation that prevents access to a regional waste management facility or
2. a community that has no practicable waste management alternative and the landfill is located in an area that annually receives less than or equal to 25 in. of precipitation.

Nondegradable Waste
Any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals (40 CFR 60.751).

Open Burning (In relation to MSWLF)
The combustion of solid waste without (40 CFR 258.2):

1. control of combustion air to maintain adequate temperature for efficient combustion
2. containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and
3. control of the emission of the combustion products.

Open Burning
Burning of solid wastes in the open, such as in an open dump (40 CFR 240.101(r)).

Open Dump
A land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers (40 CFR 240.101).

Operator
The person(s) responsible for the overall operation of a facility or part of a facility (40 CFR 258.2).

Owner
The person(s) who owns a facility or part of a facility (40 CFR 258.2).

Passive Collection System
A gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment (40 CFR 60.751).

Residential Solid Waste
The wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes (40 CFR 243.101).

Rubbish
A general term for solid waste, excluding food wastes and ashes, taken from residences, commercial establishments, and institutions (40 CFR 243.101).

Run-off
Any rainwater, leachate, or other liquid that drains over land from any part of a facility (40 CFR 258.2).

Run-on
Any rainwater, leachate, or other liquid that drains over land onto any part of a facility (40 CFR 258.2).

Sanitary Landfill
A land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day (40 CFR 240.101).

Satellite Vehicle
A small collection vehicle that transfers its load into a larger vehicle operating in conjunction with it (40 CFR 243.101).

Saturated Zone
That part of the earth's crust in which all voids are filled with water (40 CFR 258.2).

Scavenging
The uncontrolled and unauthorized removal of materials at any point in the solid waste management system (40 CFR 243.101).

Separate Collection
Collection of recyclable materials which have been separated at the point of generation and keeping those materials separated from other collected solid waste in separate compartments of a single collection vehicle or through the use of separate collection vehicles (40 CFR 246.101).

Sludge
The accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved materials in irrigation return flows or other common water pollutants (40 CFR 243.101).

Sludge
Any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant (40 CFR 258.2 and 40 CFR 60.751)

Solid Waste
Any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 USC 1342, or source, special nuclear, or byproduct material as defined by the *Atomic Energy Act* of 1954, as amended (68 Statute 932) (40 CFR 258.2).

Solid Waste
Any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility
and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the *Atomic Energy Act of 1954*, as amended (42 U.S.C 2011 et seq.) (40 CFR 60.751).

Solid Waste
Garbage, refuse, sludges, and other discarded solid materials, including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common

water pollutants. Unless specifically noted otherwise, the term ``solid waste'' as used in these guidelines shall not include mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes (40 CFR 243.101).

Solid Waste Storage Container
A receptacle used for the temporary storage of solid waste while awaiting collection (40 CFR 243.101).

Source Separation
The setting aside of recyclable materials at their point of generation by the generator (40 CFR 246.101).

Special Wastes
Nonhazardous solid wastes requiring handling other than that normally used for municipal solid wastes (40 CFR 240.101).

State
Any of the several states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (40 CFR 258.2)

State Director
The chief administrative officer of the lead state agency responsible for implementing the state permit program for 40 CFR part 257, subpart B and 40 CFR part 258 regulated facilities (40 CFR 258.2).

Stationary Compactor
A powered machine which is designed to compact solid waste or recyclable materials, and which remains stationary when in operation. (40 CFR 243.101).

Storage
The interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal (40 CFR 243.101).

Street Wastes
Materials picked up by manual or mechanical sweepings of alleys, streets, and sidewalks; wastes from public waste receptacles; and material removed from catch basins (40 CFR 243.101).

Sufficient Density
Any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in 40 CFR 60 (40 CFR 60.751).

Sufficient Extraction Rate
A rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower (40 CFR 60.751).

Thermal Processing
Processing of waste material by means of heat (40 CFR 240.101).

Transfer Station
A station at which solid wastes are concentrated for transport to a processing facility or land disposal site. A transfer station may be fixed or mobile (40 CFR 243.101).

Uppermost Aquifer
The geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary (40 CFR 258.2).

Vector
A carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another (40 CFR 240.202 and 243.101).

Waste Management Unit Boundary
A vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer (40 CFR 258.2).

Typical Records To Review

- Record of current nonhazardous solid waste management practices
- Estimated generation rates
- Documentation of locations (map) and descriptions of all nonhazardous waste storage, and disposal sites
- Records of operational history of all active and inactive disposal sites
- State and federal inspection reports
- Environmental monitoring procedures or plans
- Records of resource recovery practices, including the sale of materials for the purpose of recycling
- Solid waste removal contracts and inspection records
- Operating record for onsite MSWLFs
- Groundwater monitoring well data
- Regional solid waste management plan
- Financial assurance documents

Typical Physical Features To Inspect

- Incineration and land disposal sites (active and inactive)
- Construction debris areas
- Waste receptacles
- Solid waste vehicle storage and washing areas
- Compost facilities
- Transfer stations
- Recycling centers

List of Acronyms and Abbreviations

ANSI	American National Standards Institute
C	centigrade
CAA	Clean Air Act
CAFR	comprehensive annual financial report
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
CPA	certified public accountant
CWA	Clean Water Act
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
ft^3	cubic feet
gal	gallon
h	hour
ha	hectare
in.	inches
kg	kilogram
LEL	lower explosive limit
m	meter

m^3	cubic meters
MBtu	million British thermal units
MCL	maximum contamination level
mg	milligram
Mg	megagram
mi	miles
µg	microgram
min	minute
mo	month
MP	management practice
MSWLF	municipal solid waste landfill
MW	megawatt
NMOC	nonmethane organic compounds
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O_2	oxygen
OSHA	Occupational Safety and Health Act
PCB	polychlorinate biphenyls
PL	Public Law
ppmv	parts per million by volume
PQL	practical quantitation limits
RCRA	Resource Conservation and Recovery Act
s	second
SDWA	Safe Drinking Water Act
SIC	Standard Industrial Classification
SOI	Secretary of the Interior
SPCC	spill prevention, control, and countermeasure
tpd	tons per day
TSDF	treatment storage and disposal facility
UIC	underground injection control
USC	U.S. Code
USDA	U.S. Department of Agriculture
U.S. EPA	United States Environmental Protection Agency
UST	underground storage tank
yr	year

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Index for Checklist Users

	Refer To:	
Category	**Checklist Item**	**Page Number:**
General	SO.1.1 through SO.1.3	17
Storage/Collection of Solid Waste	SO.10.1 through SO.10.6	19
Recycling	SO.25.1 through SO.25.4	23
Non-Municipal Solid Waste Landfill Sites and Facilities	SO.30.1 through SO.30.2	25
Municipal Solid Waste Landfills		
Location Restrictions	SO.50.1 through SO.50.6	27
Design Criteria	SO.60.1 through SO.60.4	31
Operating Criteria	SO.70.1 through SO.70.11	33
Emissions	SO.80.1 through SO.80.8	37
Groundwater Monitoring Criteria	SO.90.1 through SO.90.12	47
Closure Criteria	SO.100.1 through SO.100.5	57
Postclosure Care Requirements	SO.110.1 and SO.110.3	59
Financial Responsibility	SO.120.1 through SO.120.13	61
Thermal Processing Facilities	SO.140.1 through SO.140.8	83
Disposal of Refuse From Outside the United States	SO.150.1	93

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Checklists

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.1 **GENERAL**	
SO.1.1. The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), interagency agreements, or equivalent state enforcement actions is required to be examined.	Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions. (NOTE: For those open items, indicate what corrective action is planned and milestones established to correct problems.)
SO.1.2. Facilities are required to comply with all applicable federal regulatory requirements not contained in this checklist.	Determine if any new regulations have been issued since the finalization of this document. If so, annotate checklist to include new standards. Determine if the facility has activities or facilities that are regulated but not addressed in this checklist. Verify that the facility is in compliance with all applicable and newly issued regulations.
SO.1.3. Facilities are required to comply with state and local regulations concerning non-hazardous waste.	Verify that the facility is complying with state and local requirements. Verify that the facility is operating according to permits issued by the state or local agencies. (NOTE: Issues typically regulated by state and local agencies include: – license or permit requirements for existing onsite landfills – requirements for filing a closure plan for onsite landfills specifying monitoring and inspection procedures – design and operation specifications for solid waste receptacles – disposal of solid waste off-site only at licensed or permitted facilities – design and policy procedures of thermal processing of solid waste – analysis for hazardous properties of ash residues and sludge from air pollution control devices at coal-fired facility heating plant operations before sale or disposal – handling and disposal of medical, pathological, and infectious waste – recycling requirements – disposal of household wastes

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	– yard waste – disposal of used tires.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.10 **STORAGE/COLLECTION OF SOLID WASTE**	(NOTE: By calling 1-800-CLEAN-UP you can identify where to take paper, metal cans, glass bottles, tires, and other materials to be recycled for any town or city in the United States.)
SO.10.1. All solid wastes and all materials separated for recycling are required to be stored according to specific guidelines (40 CFR 243.100(b) and 243.200-1).	(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.) Verify that all solid wastes are stored so as not cause a fire, health or safety hazard. Verify that all solid waste containing food wastes are stored securely in covered or closed containers which are nonabsorbent, leakproof, durable, easily cleaned if reused, and designed for safe handling. Verify that solid waste containers are of an adequate size and number to contain all food waste, rubbish, and ashes generated between collections. Verify that bulky wastes are stored so as not to create a nuisance and to avoid the accumulation of solid waste and water in and around the bulky items. Verify that reusable containers that are emptied manually are capable of being serviced without the collector coming into contact with the waste. Verify that waste containers used for the storage of solid waste (or materials which have been separated for recycling) meet the standards established by ANSI for waste containers as follows: – Waste Containers--Safety Requirements, 1994, American National Standards Institute, ANSI Z245.30-1994 – Waste Containers--Compatibility Dimensions, 1996, American National Standards Institute, ANSI Z245.60-1996. (NOTE: Copies may be obtained from American National Standards Institute, 11 W. 42nd Street, New York, NY 10036.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.10.2. All facilities are required to operate their collection systems in a manner to protect the health and safety of personnel associated with the operation (40 CFR 243.100(b) and 243.201-1).	Verify that the collection system is operated safely. (NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)
SO.10.3. Collection equipment is required to be maintained according to certain standards if such equipment is considered to be operating in interstate or foreign commerce (40 CFR 243.100(b) and 243.202-1(a)).	(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.) Verify that all vehicles used for the collection and transportation of solid waste meet all applicable standards established by the federal government including: – *Motor Carrier Safety Standards* (49 CFR 390 through 396) – *Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce* (40 CFR 202) – *Federal Motor Vehicle Safety Standards* (49 CFR 500 through 580) (Federally owned collection equipment only).
SO.10.4. All collection equipment is required to meet specific criteria (40 CFR 243.100(b), 243.202-1(b) and 243.202-1(d)).	(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.) Verify that all vehicles used for the collection and transportation of solid wastes or materials separated for recycling are enclosed and have suitable covers to prevent spillage. Verify that collection equipment used for the collection, storage, and transportation of solid waste (or materials separated for recycling) meet the following ANSI standards: – Mobile Refuse Collection and Compaction Equipment--Safety Requirements, 1992, American National Standards Institute, ANSI Z245.1-1992 – Stationary Compactors--Safety Requirements, 1997, American National Standards Institute, ANSI Z245.2-1997. (NOTE: A copy may be obtained from American National Standards Institute, 11

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	W. 42nd Street, New York, NY 10036.)
SO.10.5. Solid wastes or materials separated for recycling are required to be collected according to a certain schedule (40 CFR 243.100(b) and 243.203-1).	(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.) Verify that solid wastes which contain food wastes are collected at a minimum of once during each week. Verify that bulky wastes are collected at a minimum of once every 3 mo. Verify that all wastes are collected with sufficient frequency to inhibit the propagation or attraction of vectors and the creation of nuisances.
SO.10.6. Solid waste is required to be collected in a safe, efficient manner (40 CFR 243.100(b) and 243.204-1).	(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.) Verify that solid wastes or materials separated for recycling are collected in a safe and efficient manner. Verify that the collection vehicle operator immediately cleans up any spillage caused by his operations.

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.25 **RECYCLING**	
SO.25.1. *Facilities should participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical (MP).*	*Verify that a solid waste reduction program exists.* *Verify that recycling programs are in compliance with applicable state or local requirements.* *Verify that reusable or marketable materials are collected at regular intervals.*
SO.25.2. Office facilities of over 100 office workers are required to recover high-grade paper (40 CFR 246.200-1).	Determine if there are over 100 office workers. Verify that high-grade paper is separated at the source of generation. Verify that high-grade paper is separately collected. Verify that high-grade paper is sold for recycling.
SO.25.3. Facilities at which more than 500 families reside are required to recycle newspapers (40 CFR 246.201-1).	Determine if there are more than 500 families residing onsite. Verify that used newspapers are separated at the source of generation. Verify that used newspapers are separately collected. Verify that used newspapers are sold for recycling.
SO.25.4. Facilities generating 10 tons or more of waste corrugated containers per month are required to segregate/separately collect for recycling (40 CFR 246.202-1).	Determine if the facility generates 10 tons or more of waste corrugated containers per month. Verify that waste corrugated containers are collected separately. Verify that waste corrugated containers are sold for the purposes of recycling.

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.30 **NON-MUNICIPAL SOLID WASTE LANDFILL SITES AND FACILITIES**	
SO.30.1. Open dumping is prohibited (40 CFR 257.1(a)(2)).	Verify that open dumping is not practiced. (NOTE: See Appendix A in this document for a description of what constitutes open dumping.)
SO.30.2. *Facilities should survey for and be aware of old disposal sites (MP).*	*Determine if there are any old disposal sites by interviewing personnel.* *Determine whether a records review has been done to identify former disposal sites.*

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.50** **Location Restrictions**	(NOTE: See Appendix B in this document for a list of compliance dates for nonexempt MSWLFs. See Appendix C of this document for a list of MSWLFs that are exempt from meeting the standards found in 40 CFR 258, except for the standards for final cover in 40 CFR 258.60(a), see checklist item SO.100.1.)
SO.50.1. Specific limitations must be met regarding the location of new, existing, or lateral expansions of MSWLFs within 10,000 ft (3048 m) of any airport runway end used by turbojet aircraft or within 5000 ft (1524 m) of any airport runway end used by only piston- type aircraft (40 CFR 258.10(a) through 258.10(c) and 258.16).	Verify that it has been demonstrated that the MSWLF is designed and operated so as to not pose a bird hazard to aircraft. Verify that the Federal Aviation Administration (FAA) and the affected airport have been notified as to the presence of a new MSWLF or a lateral expansion within a five-mile radius of any airport runway. Verify that the demonstration has been placed in the operating record and the State Director has been notified that it has been placed in the operating record. Verify that existing MSWLF units that cannot make this demonstration, are closed by October 9, 1996, unless a maximum 2-yr delay is approved by the State Director.
SO.50.2. Specific limitations must be met regarding the location of new, existing, and lateral expansions of MSWLFs in 100 yr floodplains (40 CFR 258.11(a) and 258.16).	Verify that it has been demonstrated that the MSWLF will not restrict the flow of the 100-yr flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste so as to pose a hazard to human health and the environment. Verify that existing MSWLF units that cannot make this demonstration, are closed by October 9, 1996, unless a maximum 2-yr delay is approved by the State Director.
SO.50.3. Limitations regarding the location of new MSWLFs and lateral expansions in wetland (40 CFR 258.12(a)(1) through 258.12(a)(3) and 258.16).	Verify that if there are plans to place a MSWLF or a lateral expansion in a wetlands, it has been demonstrated to the State Director that the construction of the MSWLF will not: – cause or contribute to violations of any applicable state water quality standard – violate any applicable toxic effluent standard or prohibition – jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat protected under the Endangered Species Act – violate any requirement under the *Marine Protection, Research, and Sanctuaries Act* of 1973.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that it has been demonstrated that the integrity of the MSWLF will not cause or contribute to significant degradation of wetlands. Verify that the MSWLF has the ability to protect ecological resources by addressing the following factors: – erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the MSWLF unit – erosion, stability, and migration potential of dredged and fill materials used to support the MSWLF unit – the volume and chemical nature of the wastes managed in the MSWLF – impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste – the potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment – any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.
SO.50.4. Specific limitations must be met regarding the location of new MSWLFs and lateral expansions in fault areas that have had displacement in Holocene time (40 CFR 258.13(a) and 258.16).	Verify that if there are plans to construct a MSWLF or lateral expansions within 200 ft (60 m) of a fault, it has demonstrated to the State Director that an alternative setback distance of less than 200 ft (60 m) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment.
SO.50.5. Specific limitations must be met regarding the placement of new MSWLFs and lateral expansions in seismic impact zones (40 CFR 258.14(a) and 258.16).	Verify that if there are plans to construct a MSWLF or lateral expansion in a seismic impact zone, it has demonstrated to the State Director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. Verify that the demonstration has been placed in the operating record and the State Director has been notified that it has been placed in the operating record.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.50.6. Specific limitations must be met regarding the location of new, existing, or lateral expansion of MSWLFs in unstable areas (40 CFR 258.15(a) and 258.16).	Verify that if there are plans to construct a MSWLF or lateral expansion in an unstable area, it has been demonstrated to the State Director that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components will not be disrupted. Verify that the following criteria, at a minimum, are considered in judging whether or not an area is unstable: – onsite or local soil conditions that may result in significant differential settling – onsite or local geologic or geomorphic features – onsite or local human-made features or events (both surface and subsurface). Verify that the demonstration has been placed in the operating record and the State Director has been notified that it has been placed in the operating record. Verify that existing MSWLF units that cannot make this demonstration are closed by October 9, 1996, unless a delay is approved by the State Director.

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.60** **Design Criteria**	
SO.60.1. New MSWLFs and lateral expansions are required to meet specific design criteria (40 CFR 258.1(f)(1), 258.1(f)(3), and 258.40(a)).	Verify that the MSWLF is of an approved design that ensures that the concentration values listed in Appendix D of this document are not exceeded in the uppermost aquifer at the relevant point of compliance. Verify that the MSWLF has a composite liner and a leachate collection system that is designed and constructed to maintain less than a 30 cm depth of leachate over the liner. (NOTE: The design must be approved by the implementing authority (state or U.S. EPA).) (NOTE: Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average, are exempt from these requirements as long as there is not groundwater contamination and the unit serves one of the following: – a community that experiences an annual interruption of at least 3 consecutive months of surface transportation that prevents access to a regional waste management facility – a community that has no practicable waste management alternative and the landfill unit is located in an area that annually receives less than or equal to 25 in. of precipitation.) (NOTE: See checklist items SO.60.3 and SO.60.4 for requirements pertaining to exempted MSWLFs.)
SO.60.2. Run-on/run-off control systems at MSWLFs are required to meet specific design requirements (40 CFR 258.26).	Verify that the run-on control system is designed and maintained to prevent flow onto the active portion of the landfill during the peak discharge from a 25-yr storm. Verify that the run-off control system from the active portion of the landfill is designed and maintained to collect and control at least the water volume resulting from a 24-h, 25-yr storm. Verify the run-off does not cause a discharge of pollutants into waters of the United States, including wetlands, that causes noncompliance with the CWA or NPDES requirements.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.60.3. MSWLFs which are otherwise exempted from design requirements must comply with design requirements when groundwater contamination is present (40 CFR 258.1(f)(3)).	Determine if groundwater contamination is present at the exempted facility. Verify that, if contamination is present, the design requirements in 40 CFR 258.40 (see checklist item SO.60.1) are met. (NOTE: New MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average, are exempt from these requirements as long as there is not groundwater contamination and the unit serves one of the following: – a community that experiences an annual interruption of at least 3 consecutive months of surface transportation that prevents access to a regional waste management facility – a community that has no practicable waste management alternative and the landfill unit is located in an area that annually receives less than or equal to 25 in. of precipitation.)
SO.60.4. Owners/operations of MSWLFs which are exempted from design requirements must place information in the operating record supporting this exemption (40 CFR 258.1(f)(2)).	Verify that owners/operations of MSWLFs which are exempted from design requirements have placed information in the operating record supporting this exemption.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.70** **Operating Criteria**	
SO.70.1. MSWLFs are subject to requirements pertaining to procedures for excluding hazardous wastes from the landfills (40 CFR 258.20(a)).	Verify that the MSWLF has a program for detecting and preventing the disposal of regulated hazardous wastes, as defined in 40 CFR 261, and polychlorinated biphenyls (PCB) wastes that includes the following: – random inspections of incoming loads, unless other steps are taken to ensure incoming loads do not contain hazardous wastes or PCBs wastes – records of any inspections – training of personnel to recognize hazardous wastes and PCB wastes – notification of State Director of authorized states or the U.S. EPA regional administrator if a regulated hazardous waste or PCB waste is discovered.
SO.70.2. MSWLFs are subject to requirements pertaining to cover materials (40 CFR 258.21).	Verify that all MSWLF units have solid waste covered with 6 in. of earthen material, or another approved material at an alternative thickness, at the end of each operating day or more frequently, if necessary, in order to control disease vectors, fires, odors, blowing litter, and scavenging. (NOTE: Alternative cover material and thickness must be approved by the appropriate authority and a temporary waiver may be granted by the appropriate authority under particular extreme climatic conditions.)
SO.70.3. MSWLFs are subject to requirements pertaining to the control of disease vectors (40 CFR 258.22(a)).	Verify that, at the MSWLF, there is prevention or control of onsite populations of disease vectors using techniques appropriate for the protection of human health and the environment.
SO.70.4. MSWLFs are subject to specific requirements pertaining to the production and monitoring of methane gases (40 CFR 258.23(a), 258.23(b), 258.23(e)).	Verify that, at the MSWLF, the concentration of methane gas generated by the MSWLF does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components). Verify the concentration of methane gas at the MSWLF property boundary does not exceed the lower explosive limit for methane. Verify that the MSWLF implements a routine methane monitoring program of a

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	type and frequency that is based on the following factors: – soil conditions – hydrogeological conditions surrounding the MSWLF – hydraulic conditions surrounding the MSWLF – locations of MSWLF structures and property boundaries. Verify that monitoring occurs quarterly at a minimum. (NOTE: The Director of an approved state may establish alternate monitoring frequencies.)
SO.70.5. MSWLFs are subject to notification criteria pertaining to excessive methane gas releases (40 CFR 258.23(c)).	Verify that, if methane gas monitoring detects levels of gas exceeding the allowed limits, the following measures are taken: – immediately take all necessary steps to ensure protection of human health – the State Director is notified, of the protective measures and of the excess levels – within 7 days of detection, the level of methane gas detected and the steps taken to protect human health is noted in the operating record – within 60 days of detection, a remediation plan for the methane gas release is placed in the operating record and the State Director is notified that the plan has been implemented. (NOTE: The Director of an approved state may establish alternative schedules for demonstrating compliance with these requirements.)
SO.70.6. MSWLFs are required to control emissions (40 CFR 258.24).	Verify that there is no open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup. Verify that none of the MSWLF units violate any applicable requirements developed under a State Implementation Plan (SIP) approved by U.S. EPA under section 110 of the Clean Air Act, as amended.
SO.70.7. MSWLFs are subject to access limitations (40 CFR 258.25).	Verify that public access to the MSWLF is controlled and unauthorized vehicular traffic and illegal dumping of wastes is prevented through the use of artificial barriers, natural barriers, or both.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.70.8. MSWLFs are subject to surface water control requirements (40 CFR 258.27).	Verify that the MSWLF does not cause a discharge of pollutants into waters of the United States, including wetlands, that causes noncompliance with the CWA or NPDES requirements. (NOTE: This includes discharges of a nonpoint source of pollution that violates any approved area-wide or state-wide water quality management plan.)
SO.70.9. The disposal of liquids at MSWLFs is restricted (40 CFR 258.28).	Verify that bulk or non containerized liquid waste is not placed in MSWLF unless: – the waste is household waste other than septic waste – the liquid waste is in a small container similar in size to that normally found in household waste – the container holding the waste is designed to hold liquids for use other than storage – the waste is leachate or gas condensate derived from the MSWLF (as long as the MSWLF is designed with a composite liner and leachate collection system). Verify that if the waste is leachate or gas condensate derived from a MSWLF designed with composite liner and leachate collection system, it is demonstrated to the State Director that the MSWLF is of such a design and the demonstration is recorded in the operating record.
SO.70.10. MSWLFs are required to maintain records (40 CFR 258.29(a) and 258.29(c)).	Verify that the following records are retained in an operating record near the MSWLF or at an approved alternate location: – any location restriction demonstration required by 40 CFR 258 Subpart B – inspection records, training procedures, and notification procedures – gas monitoring results from monitoring and any remediation plans – any MSWLF unit design documentation for placement of leachate or gas condensate in MSWLF – any demonstration, certification, finding, monitoring, testing, or related analytical data – closure and postclosure care plans and any monitoring, testing, or related analytical data – any information demonstrating compliance with small community exemption – any cost estimate and financial assurance documentation required by 40 CFR 258.70 through 258.74 (see checklist items SO.120.1 through SO.120.13). Verify that the State Director is notified when the above listed documents have

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	been placed in or added to the operating record. (NOTE: The State Director of an approved state can set alternative schedules for recordkeeping and notification requirements.)
SO.70.11. MSWLF records are subject to inspection by certain authorities (40 CFR 258.29(b)).	Verify that all information in the operating record is furnished upon request from the State Director and is available at all times for inspection by the State Director.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.80** **Emissions**	(NOTE: These requirements apply to MSWLFs that started construction, reconstruction, modification on or after May 30, 1991. For the purpose of these requirements, physical or operational changes made to an existing MSWLF in order to comply with 40 CFR 60 Subpart Cc (the State Plan) are not considered construction, reconstruction, or modification. Activities require by or conducted pursuant to a CERCLA, RCRA, or state remedial action are not considered construction, reconstruction, or modification (40 CFR 60.750).)
SO.80.1. MSWLFs with a design capacity of less than 2.5 million Mg by mass or 2.5 million m^3 by volume are required to submit an initial design capacity report (40 CFR 60.752(a) and 60.757(a)).	Verify that an initial design capacity report has been submitted: – no later than June 10, 1996 for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996 – 90 days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996. Verify that the report contains the following information: – a map or plot of the landfill providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit – the maximum design capacity of the landfill (if specified in the permit, a copy of the permit may be submitted) – if done, the calculation and relevant parameters used to determine maximum design capacity. Verify that an amended design capacity report is submitted within 90 days of an increase in the maximum design capacity to or above 2.5 million Mg or 2.5 million m^3.
SO.80.2. MSWLF with a design capacity =/> 2.5 million Mg by mass or 2.5 million m^3 by volume are required to calculate NMOC emissions and report them (40 CFR 60.752(b)(1) and 60.757(b)).	Verify that if the calculated NMOC emission rate is < 50 Mg/yr, an annual report is submitted to the U.S. EPA or authorized regulatory agency. Verify that the annual report contains an annual or 5-yr estimate of the NMOC emission rate and is submitted no later than: – June 10, 1996 for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1999 – 90 days after the date of commenced construction, modification, or reconstruction for landfills that commenced construction, modification, or reconstruction one or after March 12, 1996.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	(NOTE: The initial report may be submitted with the initial design capacity report.) Verify that the NMOC emission rate is recalculated annually. Verify that the rate report includes all the data, calculations, sample reports, and measurements used to estimate the annual or 5-yr emissions. (NOTE: MSWLFs are exempt from the requirements of this checklist item after the installation of a collection and control system in compliance with 40 CFR 60.752(b)(2) (see checklist items SO.80.3, SO.80.4, SO.80.5) as long as the collection and control system is in operation and in compliance.)
SO.80.3. If the NMOC emissions rate is equal to or greater than 50 Mg/yr, a collection and control system design plan must be submitted which meets specific parameters (40 CFR 60.752(b)(2)(i) and 60.757(c)).	Verify that the collection and control system design plan is submitted to U.S. EPA or the authorized regulatory agency within 1 yr of the first NMOC emissions rate report documenting an emission rate equal to or greater than 50 Mg/yr. Verify that the plan includes any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of these regulations. (NOTE: This is not required if the NMOC emission rate is recalculated after Tier 2 or Tier 3 NMOC sampling and analysis results in a rate less than 50 Mg/yr. In that case, annual NMOC reporting resumes.) Verify that the revised NMOC emission rate report with the Tier 2 recalculated emission rate based on NMOC sampling and analysis is submitted within 180 days of the first calculated exceedance of 50 Mg/yr. Verify that the revised NMOC emission rate report with the Tier 3 recalculated emission rate based on NMOC sampling and analysis is submitted within 1 yr of the first calculated exceedance of 50 Mg/yr.
SO.80.4. If the NMOC emissions rate is equal to or greater than 50 Mg/yr, a collection and control system must be installed which meets specific parameters (40 CFR 60.752(b)(2)(ii), 60.752(b)(2)(iii) and 60.753).	Verify that a collection and control system is installed within 30 mo after the first annual report in which the emission rate =/> 50 Mg/yr unless Tier 2 or Tier 3 sampling demonstrated the emission rate is < 50 Mg/yr. Verify that the collection system is operated with negative pressure at each wellhead except under the following conditions: – a fire or increased well temperature – use of a geomembrane or synthetic cover – a decommissioned well.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that instances of positive pressure that occur as efforts to avoid a fire are recorded and the records submitted with the annual report. Verify that an active collection system: – is designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment – collects gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of: – 5 yr or more if active – 2 yr or more if closed or at final grade – collects gas at a sufficient extraction rate – is designed to minimized offsite migration of subsurface gas. Verify that a passive collection system: – is designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment – collects gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of: – 5 yr or more if active – 2 yr or more if closed or at final grade – is designed to minimized offsite migration of subsurface gas – is installed with liners on the bottom and all sides in all areas in which gas is to be collected. Verify that each interior wellhead in the collection system is operated with a landfill gas temperature less than 55 C and with either a nitrogen level less than 20 percent or an O_2 level less than 5 percent. (NOTE: A higher operating temperature, nitrogen, or O_2 value may be established at a particular well if there is supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.) Verify that the collection system is operated so that the methane concentration is 500 ppm above background at the surface of the landfill. (NOTE: To determine if the methane level is exceeded, surface testing shall be done around the perimeter of the collection area along a pattern that traverses the landfill at 30 m intervals and where visual observations, such as distressed vegetation and cracks or seeps in the cover, indicate elevated concentrations of

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	landfill gas.) Verify that all the collected gas is routed to a control system that: – is an open flare – is a control system designed and operated to reduce NMOC by 98 weight percent or when an enclosed combustion device is used, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 ppmv, dry basis as hexane at 3 percent O_2, such that: – if a boiler or process heater is used as the control device, the landfill gas stream is introduced into the flame zone – the control device is operated within the parameter ranges established during the initial or most recent performance test – routes the collected gas to a treatment system that processes the collected gas for subsequent sale or use. Verify that, if the collection or control system is inoperable, the gas mover system is shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere are closed within 1 h. Verify that the control or treatment system is operating at all times the collected gas is routed to the system. Verify that if monitoring demonstrates operational requirements are not met, corrective actions are taken.
SO.80.5. Under certain conditions the collection and control system may be capped or removed (40 CFR 60.752(b)(2)(v)).	Verify that collection and control systems are capped or removed from service only if all of the following are met: – the landfill will no longer accept solid waste and it is to be permanently closed – the collection and control system have been in operation a minimum of 15 yr – the calculated NMOC gas produced by the landfill is less than 50 Mg/yr on three successive test dates that are no less than 90 days apart and no more than 180 days apart.
SO.80.6. Monitoring is required to be done according to specific parameters (40 CFR 60.756).	Verify that if the facility has an active collection system, there is a sampling port and a thermometer or other temperature measuring device at each wellhead and the following are done on a monthly basis: – measure the gauge pressure in the gas collection header – monitor nitrogen or O_2 concentration in the landfill gas – monitor temperature of the landfill gas.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**

	Verify that facilities using an enclosed combustor calibrate, maintain, and operate the following equipment according to the manufacturers specifications:
	
	– a temperature monitoring device equipped with a continuous recorder and having an accuracy of +/- 1 percent of the temperature being measured expressed in degrees Celsius or +/- 5 C, whichever is greater (this device is not required for boilers or process heaters with design heat input capacity greater than 44 MW)
	– a gas flow rate measuring device that provides a measurement of gas flow to or bypass of the control device by either:
	  – installing, calibrating and maintaining a gas flow rate measuring device that records the flow to the control device at least every 15 min
	  – securing the bypass line valve in the closed position with a car seal or a lock and key type configuration.
	
	Verify that if an open flare is being used, the following equipment is installed, calibrated, and operated according to manufacturers specifications:
	
	– a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame
	– a device that records flow to or bypass the flame by either:
	  – installing, calibrating, and maintaining a gas flow rate measuring device that records the flow to the control device at least every 15 min
	  – securing the bypass line valve in the closed position with a car seal or a lock and key type configuration.
	
	Verify that a visual inspection of the car seal or closure mechanism on a bypass line valve is done at least once a month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.
	
	Verify that if compliance is demonstrated by using a device other than an open flame or enclosed combustor, approval has been received from U.S. EPA or the authorized regulatory agency.

SO.80.7. Several reports are required to be submitted pertaining to the operation and/or closure of the MSWLF (40 CFR 60.757(d) through 60.757(g)).	Determine if the MSWLF has stopped accepting waste. Verify that a closure report was submitted to U.S. EPA or the authorized regulatory agency within 30 days of the last waste being accepted. (NOTE: If a closure report has been submitted, no additional wastes may be placed into the landfill without filing a notification or modification.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that an equipment removal report is submitted to U.S. EPA or the authorized regulatory agency 30 days prior to removal or cessation of operation of the control equipment and the reports contains the following: – a copy of the closure report – a copy of the initial performance test report demonstrating that the 15 yr mini mum control period has expired – dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 Mg/yr or greater of NMOC. Verify that when an active collection system is used, annuals reports of the following recorded information are submitted to U.S. EPA or the authorized regulatory agency: – value and length of time for exceedance of applicable monitored parameters – description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow – description and duration of all periods when the control device was not operating for a period exceeding 1 h and length of time the control devices was not operating – all periods when the collection system was not operating in excess of 5 days – the location of each exceedance of the 500 ppm methane concentration and the concentration recorded at each location for which an exceedance was noted in the previous month – the date of installation and the location of each well or collection system expansion. Verify that the following information is included in initial performance test reports: – a diagram of the collection system showing collection system positioning, including all wells, horizontal collectors, surface collectors, or other gas extraction devices, the locations of any areas excluded from collection and the proposed sites for the future collection system expansion – the data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based – the documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable materials – the sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area – the provisions for increasing gas mover equipped capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	move the maximum flow rate expected over the life of the landfill – the provisions for the control of offsite migration.
SO.80.8. Certain records pertaining to emissions are required to be kept at MSWLFs with a design capacity of less than 2.5 million Mg by mass or 2.5 million m^3 by volume (40 CFR 60.758).	Verify that the following records are kept onsite for at least 5 yr and are up to date and readily accessible: – maximum design capacity – current amount of solid waste in place – year by year waste acceptance rate. (NOTE: The above records may be kept offsite if they are retrievable within 4 h. Either paper or electronic formats are acceptable.) Verify that up-to-date and readily accessible records of the following information are kept for the life of the control equipment as measured during the initial performance test or compliance determination: – demonstration of compliance by the collection system for: – the maximum expected gas generation flow rate – the density of wells, horizontal collectors, surface collectors, or other gas extraction devices – demonstration of compliance by the control system for: – the average combustion temperature measured every 15 min and averaged over the same time period of the performance test – the percent reduction of NMOC achieved by the control device – demonstration of compliance by the use of a boiler or process heater of any size including a description of the location at which the collected gas vent stream is introduced into the boiler of process heater over the same time period of the performance testing – demonstration of compliance by the use of an open flame including: – all visible emission readings, best content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test – continuous records of the flare pilot flame or flare flame monitoring and record of all periods of operations during which the pilot flame of the flare fame is absent. Verify that for controlled landfills the following records are kept for 5 yr: – continuous records of the equipment operating parameters – periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	(NOTE: The following are exceedances which are to be recorded: – for enclosed combustors, except for boilers and process heaters with design heat input capacity of 44 MW (150 MBtu/h) or greater, all 3-h periods of operation during which the average combustion temperature was more than 28 C below the average combustion temperature during the most recent performance test at which compliance was determined – for boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone.) Verify that the following are kept for 5 yr: – continuous records of the indication of flow to the control device of the indication of bypass flow – records of monthly inspections of car seals or lock and key configurations used to seal by pass lines. Verify that if a boiler or process heater with a design heat input capacity of 44 MW or greater is used, up-to-date, readily accessible records of all periods of operation are maintained. Verify that if an open flame or flare pilot flame is used, up to date, readily accessible continuous records of the flame or flare pilot flame monitoring and records of all periods of operation in which the flame or flare pilot flame is absent are maintained. Verify that, for the life of the collection system, a plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector is maintained. Verify that up-to-date, readily accessible records of the installation date and location of all newly installed collectors is maintained. Verify that readily accessible documentation is available of the nature, date of deposition, amount, and location of asbestos containing or nondegradable waste excluded from collection as well as any unproductive areas excluded from collection. Verify that for at least 5 yr, up-to-date, readily accessible records are kept of all collection and control system exceedances of the operational standards, the reading the subsequent month, whether or not the second reading is an exceedance, and the location of each exceedance. Verify that landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million Mg or 2.5 million ft^3, keep readily accessible, onsite records of the

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	annual recalculation of site-specific density, design capacity, and the supporting documentation. (NOTE: Offsite records may be maintained if they are retrievable within 4 h. Either paper copy or electronic formats are acceptable.)

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.90 Groundwater Monitoring Criteria**	
SO.90.1. MSWLFs are required to comply with groundwater monitoring schedules (40 CFR 258.50(c) and 258.50(e)).	Verify that groundwater monitoring complies with the following schedule: – existing MSWLFs and lateral expansions less than 1 mi from a drinking water intake (surface or subsurface) were in compliance with groundwater monitoring requirements by October 9, 1994 – existing MSWLFs and lateral expansions greater than 1 mi but less than 2 mi from a drinking water intake (surface or subsurface) were in compliance with these groundwater monitoring requirements by October 9, 1995 – existing MSWLFs and lateral expansions greater than 2 mi from a drinking water intake (surface or subsurface) were in compliance with these groundwater monitoring requirements by October 9, 1996 – new MSWLFs are in compliance with the groundwater monitoring requirements before waste can be place in the unit. (NOTE: The Director of an approved state may approve of alternate schedules.) (NOTE: Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average, are exempt from the requirements for 40 CFR 258.50 through 258.59 as long as there is no evidence of groundwater contamination and the unit serves one of the following: – a community that experiences an annual interruption of at least 3 consecutive months of surface transportation that prevents access to a regional waste management facility – a community that has no practicable waste management alternative and the landfill unit is located in an area that annually receives less than or equal to 25 in. of precipitation.) Verify that MSWLFs that are otherwise exempted but which have evidence of groundwater contamination comply with groundwater monitoring requirements by October 9, 1997.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.90.2. Groundwater monitoring systems at MSWLFs are subject to requirements (40 CFR 258.51(a), 258.51(c), and 258.51(d)(2)).	Verify that the groundwater monitoring system complies with the following requirements: – it consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer – it represents the quality of background groundwater that has not been affected by leakage from a MSWLF – it represents the quality of groundwater passing the relevant point of compliance specified by the State Director or at the waste management unit boundary – monitoring wells are cased in a manner that maintains the integrity of the monitoring well bore hole – it is certified by a qualified groundwater scientist or approved by the State Director (within 14 days of this certification, the owner or operator has notified the State Director that certification has been placed in the operating record). (NOTE: When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing units, the downgradient monitoring system may be installed at the closest practicable distance hydraulically down gradient from the relevant point of compliance specified by the State Director.) Verify that the state has been notified that the design, installation, development, and decommission of any monitoring wells, plezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record. Verify that the monitoring wells and measurement, sampling, and analytical devices are operated and maintained so that they perform to design specifications throughout the life of the monitoring program.
SO.90.3. Groundwater sampling and analysis at MSWLFs is subject to requirements (40 CFR 258.53(a) and 258.53(c) through 258.53(g)).	Verify that groundwater monitoring sampling and analysis procedures are designed to ensure monitoring results provide an accurate representation of groundwater quality at the background and downgradient well. Verify that the sampling procedures and frequency are protective of human health and the environment. Verify that groundwater elevations are measured in each well immediately prior to purging, and that it has been determined the rate and direction of groundwater flow each time groundwater is sampled.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that groundwater elevations in wells which monitor the same waste management area are measured within a period of time short enough to avoid temporal variation in groundwater flow that could preclude accurate determination of groundwater flow rate and direction. Verify that a background groundwater quality has been established in a hydraulically upgradient or background well for each of the monitoring parameters or constituents required by its monitoring program. Verify that the number of samples collected to establish groundwater quality data is consistent with the approved statistical procedures. Verify that the operating plan specifies one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent: – an analysis of variance – a tolerance or prediction interval procedure – a control chart approach – an equivalent statistical test method.
SO.90.4. Detection monitoring at MSWLFs is subject to specific requirements (40 CFR 258.54(a) and 258.54(b)).	Verify that, at a minimum, a detection monitoring program includes the constituents listed in Appendix E of this document. Verify that monitoring occurs at least semiannually during the active life of the MSWLF (including closure) and during the postclosure period. Verify that a minimum of four independent samples from each well (background and downgradient) are collected and analyzed for the constituents listed in Appendix E of this document during the first semiannual sampling event. Verify that at least one sample from each well (background and downgradient) is collected and analyzed during subsequent semiannual sampling events. (NOTE: The Director of an approved state may delete some constituents and establish an alternate test.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.90.5. MSWLFs are subject to requirements pertaining to the detection of groundwater contamination (40 CFR 258.54(c)).	Verify that in the event that there is a statistically significant increase over back ground for one or more of the constituents listed in Appendix E of this document, the following steps are taken: – within 14 days of the finding, a notice is placed in the operating record indicating which constituents have shown statistically significant changes from background levels – the State Director is notified that the finding has been placed in the operating record – within 90 days an assessment monitoring program is established. (NOTE: The facility may demonstrate that a source other than the MSWLF caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This demonstration report must be certified by a qualified groundwater scientist or approved by the State Director and be placed in the operating record.)
SO.90.6. MSWLFs are subject to requirements pertaining to assessment monitoring programs (40 CFR 258.55(a) through 258.55(c)).	Verify that an assessment monitoring program is established whenever a statistically significant increase over background has been detected for one or more of the constituents listed in Appendix E of this document. Verify that within 90 days of establishing an assessment monitoring program, and annually thereafter, the groundwater is sampled and analyzed for all constituents identified in Appendix F of this document. Verify that a minimum of one sample from each downgradient well is collected and analyzed during each sampling event. Verify that for any constituent detected in the downgradient wells as a result of the complete analysis (see Appendix F of this document), a minimum of four independent samples from each well (background and downgradient) is collected and analyzed to establish back ground for the constituents. (NOTE: The Director of an approved state may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of constituents during the active life (including closure) and post closure care of the unit.)
SO.90.7. MSWLFs are subject to notification requirements pertaining to assessment monitoring (40 CFR 258.55(d) and 258.55(e)).	Verify that after obtaining the results from the initial or subsequent sampling events required, the following steps are taken: – within 14 days a notice is place in the operating record identifying the Appendix F constituents that have been detected (see Appendix F of this document)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	– the State Director is notified that the notice has been placed in the record – within 90 days, and on at least a semiannual basis thereafter, the background and downgradient monitoring wells are resampled and analyses conducted for all constituents (see Appendix E of this document) and for those constituents (see Appendix F of this document) that are detected in the assessment monitoring program – the results of these analyses are placed in the operating record. – at least one sample from each well (background and downgradient) is collected and analyzed during these sampling events. (NOTE: The Director of an approved state may specify an alternate monitoring frequency.) Verify that if the concentrations of all constituents (see Appendix F of this document) are shown to be at or below background values, using an approved statistical procedure, for two consecutive sampling events, the State Director is notified of the finding and detection monitoring is reinstituted.
SO.90.8. MSWLFs are subject to notification requirements pertaining to noncompliance with the groundwater protection standard (40 CFR 258.55(g) and 258.55(h)).	Verify that if during detection monitoring one or more constituents (see Appendix F of this document) are detected at statistically significant levels above the groundwater protection standards specified according to the following, the State Director and all appropriate local government officials are notified and a notice is placed in the operating record: – for constituents that have a maximum contamination level (MCL) listed in the *Safe Drinking Water Act* (SDWA), use the MCL for that constituent – for constituents that are not included in the SDWA, use the background level established for that constituent in the detection monitoring program – for constituents for which the background level is higher than the MCL identified in the SDWA, use the background concentration. Verify that the following steps are also taken: – the nature and extent of the release is investigated by the installation of additional monitoring wells – at least one additional monitoring well is installed at the MSWLF boundary in the direction of contamination migration – notification of all persons who own land or reside on land that directly overlies any part of the plume of contamination that has migrated offsite – initiation of an assessment of corrective measures within 90 days. (NOTE: The facility may demonstrate that a source other than the MSWLF caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	groundwater quality. This demonstration report must be certified by a qualified groundwater scientist or approved by the State Director and be placed in the operating record.)
SO.90.9. MSWLFs are subject to criteria for assessing potential groundwater remediation actions (40 CFR 258.56).	Verify that within 90 days of finding constituents (see Appendix F of this document) at significant levels exceeding the groundwater protection standards, an assessment of potential remedial actions is made and includes the following: – analysis of effectiveness of potential corrective measures in meeting all the requirements and objectives of the remedy, such as: – the performance, reliability, ease of implementation, and potential impacts of potential remedies – the time required to begin and complete the remedy – the cost of the remedy implementation – state and local permit requirements affecting remediation – discussion of corrective measures with the public or interested parties.
SO.90.10. The selection of remedial measures for groundwater contamination is subject to specific criteria (40 CFR 258.57(a) through 258.57(c)).	Verify that corrective measures are selected according to the following criteria: - they are protective of human health and the environment - they attain the groundwater protection standard as specified under 40 CFR 258.55 (h) or (i) - they control the source(s) of releases so as to reduce or eliminate further releases of constituents (see Appendix F of this document) into the environment - they comply with the standards for management of wastes as specified in 40 CFR 258.58(d) Verify that the following evaluation factors are considered when selecting a remedy to meet the standards of 40 CFR 258.57(b): – long and short-term effectiveness and protectiveness of the potential remedy along with the degree of certainty that the remedy will prove successful based on the following: – magnitude of reduction of existing risks – magnitude of residual risks in terms of further releases of wastes following remediation – type and degree of long-term management (including monitoring operation and maintenance) – short term risks to community, workers, or the environment during implementation – time period until full protection is achieved – potential for exposure of humans and environmental receptors to remaining wastes – long-term reliability of the engineering and institutional controls, and

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	– potential need for replacement of the remedy – the effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors: – the extent to which the containment practices will reduce further releases – the extent to which treatment technologies may be used – the ease or difficulty of implementing a potential remedy based on the following factors: – the degree of difficulty associated with constructing the technology – the expected operational reliability of the technologies – the need to coordinate with and obtain necessary approvals and permits – the availability of necessary equipment and specialists, and – the available capacity of needed treatment, storage and disposal services – the practical capability of the owner or operator, including a consideration of technical and economic capability – the degree to which community concerns are addressed by a potential remedy(s). Verify that the State Director is notified within 14 days of selecting a remedy, and that the selection and the reason for its selection are noted in the operating record. Verify that remedial activities take place within a reasonable time period
SO.90.11. Groundwater remediation activities are required to meet specific scheduling requirements (40 CFR 258.57(d)).	Verify that the initiation of remedial activities occurs within a reasonable period of time depending on: – extent and nature of contamination – practical capabilities of remedial technologies – availability of treatment or disposal capacity for wastes managed during the implementation period – desirability of utilizing technologies not currently available, but that may offer significant advantages over existing methods – potential risks to human health and the environment – resource value of the aquifer involved – practicable capability of the MSWLF – other relevant factors.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**

SO.90.12. Corrective action programs are required to be implemented according to specific parameters (40 CFR 258.58).	Verify that, based on the established schedule for initiation and completion of activities, the facility:
	
	– establishes and implements a corrective action groundwater monitoring program that:
	  – at a minimum meets the assessment monitoring requirements of 40 CFR 258.55 (see checklist items SO.90.7 through SO.90.9)
	  – indicates the effectiveness of the selected corrective action remedy
	  – demonstrates compliance with groundwater protection standards
	– implements selected corrective action program
	– takes any interim measure necessary to ensure the protection of human health and the environment.
	
	Verify that the following factors are considered in determining whether interim measures are necessary:
	
	– time required to develop and implement a final remedy
	– actual or potential exposure of nearby populations or environmental receptors
	– actual or potential contamination of drinking water supplies or sensitive ecosystems
	– further degradation of the ground-water that may occur if the remedial action is not initiated expeditiously
	– weather conditions
	– risks of fire or explosions, or potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system, and
	– other situations that may pose threats to human health or the environment.
	
	Verify that if it is determined that compliance is not being achieved with the selected remedy, another method or technique is selected that can practicably achieve compliance.
	
	Verify that if compliance cannot be practicably achieved with currently available methods, the following occurs:
	
	– certification of a qualified groundwater scientist or approval of a State Director of an approved state substantiating this claim is obtained
	– alternate measures are implemented to control exposure of humans or the environment to residual contamination as necessary to protect human health and the environment
	– measures are implemented for control of the sources of contamination, or for removal of decontamination of equipment, units, devices, or structures that are:
	  – technically practicable

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	– consistent with the overall objective of the remedy – the State Director is notified within 14 days that a report justifying the alternative measures prior to implementation has been placed in the operating record. Verify that all solid wastes managed in relation to a remedy or an interim measure are managed as follows: – in a manner that is protective of human health and the environment – in a manner that complies with applicable RCRA requirements. (NOTE: Selected remedies shall be considered complete when: – the owner or operator complies with the established ground-water protection standards at all points within the plume of contamination that lie beyond the ground-water monitoring well system – compliance with the ground-water protection standards has been achieved by demonstrating that concentrations of the constituents listed in Appendix F of this document have not exceeded the ground-water protection standards for a period of three consecutive years using the statistical procedures and performance standards in 40 CFR 258.53(g) and 258.53 (h) – all actions required to complete the remedy have been satisfied. (NOTE: The Director of an approved state may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of constituents listed in Appendix F of this document have not exceeded the ground-water protection standards taking into consideration: – extent and concentration of the releases – behavior characteristics of the hazardous constituents in the ground-water – accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy – characteristics of the ground-water.) Verify that, upon completion of the remedy, the owner or operator notifies the State Director within 14 days that a certification that the remedy has been completed in compliance with the requirements of 40 CFR 258.58(e) has been placed in the operating record. Verify that the certification is signed by the owner or operator and by a qualified ground-water scientist or approved by the Director of an approved state. (NOTE: When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed, the owner or operator is released from the requirements for financial assurance for corrective action under 40 CFR 258.73 (see checklist item SO.120.3).

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.100** **Closure Criteria**	
SO.100.1. MSWLFs are subject to specific final cover design requirements (40 CFR 258.60(a) and 258.60(b)).	Determine if there are plans to close a MSWLF. Verify that the final cover is designed to minimize infiltration and erosion according to the following criteria: – it has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater then 1 x 10^{-4} cm/s, whichever is less – it minimizes infiltrations through the closed MSWLF by use of an infiltration layer that contains a minimum 18 in. of earthen material – it minimizes erosion of the final cover by the use of an erosion layer that contains a minimum 6 in. of earthen material that is capable of sustaining native plant growth. (NOTE: The Director of an approved state may approve alternate final cover design.)
SO.100.2. MSWLFs are subject to specific closure plan requirements (40 CFR 258.60(c)).	Verify that a written closure plan has been prepared that includes the following information: – a description of the final cover, and methods and procedures to be used to install the cover – an estimate of the largest area of the MSWLF unit ever requiring a final cover any time during its active life – an estimate of the maximum inventory of wastes ever onsite over its active life – a schedule for completing all activities necessary to satisfy closure requirements.
SO.100.3. MSWLFs are subject to specific closure notification requirements (40 CFR 258.60(d)).	Verify that the State Director has been notified of the intent to close the MSWLF. Verify that the notice of intent to close has been placed in the operating record.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.100.4. MSWLFs are subject to specific closure criteria (40 CFR 258.60(f) and 258.60(g)).	Verify that closure activities begin no later than 30 days after the date the MSWLF receives the final receipt of waste, or no later than 1 yr after the most recent receipt of waste if the unit has remaining capacity. Verify that closure activities of each MSWLF unit are completed within 180 days following the beginning of closure.
SO.100.5. MSWLFs are subject to specific post-closure notification requirements (40 CFR 258.60(h) and 258.60(i)).	Verify that the State Director is notified that a certification, signed by an independent registered professional engineer, has been completed and placed in the operating record. Verify that a notation is recorded on the deed to the landfill facility property, (or equivalent instrument examined in a title search), that the property has been used as a landfill, and its use is restricted. Verify that the notation is placed in the operating record, and the State Director is notified of its placement.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.110** **Postclosure Care Requirements**	
SO.110.1. MSWLFs are subject to specific post closure care requirements (40 CFR 258.61(a)).	Verify that postclosure care of a MSWLF is conducted in the following manner for 30 yr: – maintains the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and to prevent run-on and run-off from eroding or otherwise damaging the final cover – maintains and operates the leachate collection system – monitors the groundwater and maintains the groundwater monitoring system – maintains and operates the gas monitoring system.
SO.110.2. MSWLFs are subject to specific post-closure plan criteria (40 CFR 258.61(c) and 258.61(d)).	Verify that a written postclosure plan has been prepared that includes the following information: – a description of the monitoring and maintenance activities – the name, address, and telephone number of the person or office to contact about the facility during the postclosure period – a description of the planned uses of the property during the postclosure period. Verify that the postclosure plan has been placed in the operating record and the State Director has been notified of its placement.
SO.110.3. MSWLFs are subject to specific post-closure certification requirements (40 CFR 258.61(e)).	Verify that following completion of the postclosure care period, a certification signed by an independent registered professional engineer is completed, placed in the operating record, and the State Director is notified of its placement.

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
MUNICIPAL SOLID WASTE LANDFILLS **SO.120** **Financial Responsibility**	(NOTE: See Appendix B of this document for a list of compliance dates for nonexempt MSWLFs. See Appendix C for a list of MSWLFs that are exempt from meeting the standards found in 40 CFR 258, except for the standards for final cover in 40 CFR 258.60(a), see checklist item SO.100.1.)
SO.120.1. Owners and operators of MSWLF are required to meet specific requirements for financial assurance for closure (40 CFR 258.70 and 258.71).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the owner or operator has a detailed written estimate, in current dollars, of the cost of hiring a third party to close the largest area of all MSWLF units ever requiring a final cover as required under 40 CFR 258.60 (see checklist items SO.100.1 through SO.100.5) at any time during the active life in accordance with the closure plan. Verify that the owner or operator notifies the State Director that the estimate has been placed in the operating record. Verify that the cost estimate equals the cost of closing the largest area of all MSWLF units ever requiring a final cover at any time during the active life when the extent and manner of their operation would make closure the most expensive, as indicated by the closure plan. Verify that, during the active life of the MSWLF unit, the owner or operator annually adjusts the closure cost estimate for inflation. Verify that the owner or operator increases the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or MSWLF unit conditions increase the maximum cost of closure at any time during the remaining active life. (NOTE: The owner or operator may reduce the closure cost estimate and the amount of financial assurance provided if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the MSWLF unit. The owner or operator must notify the State Director that the justification for the reduction of the closure cost estimate and the amount of financial assurance has been placed in the operating record.) Verify that the owner or operator of each MSWLF unit establishes financial assurance for closure of the MSWLF unit in compliance with 40 CFR 258.74 (see checklist items SO.120.4 through SO.120.13).

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that the owner or operator provides continuous coverage for closure until released from financial assurance requirements by demonstrating compliance with 40 CFR 258.60(h) and 258.60(i) (see checklist item SO.100.5).
SO.120.2. Owners and operators of MSWLF are required to meet specific requirements for financial assurance for post-closure care (40 CFR 258.70 and 258.72).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the owner or operator has a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care for the MSWLF unit in compliance with the post-closure plan. Verify that the post-closure cost estimate used to demonstrate financial assurance accounts for the total costs of conducting post-closure care, including annual and periodic costs as described in the post-closure plan over the entire post-closure care period. Verify that the owner or operator notifies the State Director that the estimate has been placed in the operating record. Verify that the cost estimate for post-closure care is based on the most expensive costs of post-closure care during the post-closure care period. Verify that, during the active life of the MSWLF unit and during the post-closure care period, the owner or operator annually adjusts the post-closure cost estimate for inflation. Verify that the owner or operator increases the post-closure care cost estimate and the amount of financial assurance provided if changes in the post-closure plan or MSWLF unit conditions increase the maximum costs of post-closure care. (NOTE: The owner or operator may reduce the post-closure cost estimate and the amount of financial assurance provided if the cost estimate exceeds the maximum costs of post-closure care remaining over the post-closure care period. The owner or operator must notify the State Director that the justification for the reduction of the post-closure cost estimate and the amount of financial assurance has been placed in the operating record.) Verify that the owner or operator of each MSWLF unit establishes, in a manner in accordance with 40 CFR 258.74 (see checklist items SO.120.4 through SO.120.13), financial assurance for the costs of post-closure care as required under 40 CFR 258.61(see checklist items SO.110.1 through SO.110.3).

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that the owner or operator provides continuous coverage for post-closure care until released from financial assurance requirements for post-closure care by demonstrating compliance with 40 CFR 258.61(e) (see checklist item SO.110.3).
SO.120.3. Owners and operators of MSWLF are required to meet specific requirements for financial assurance for corrective action (40 CFR 258.70 and 258.73).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that an owner or operator of an MSWLF unit required to undertake a corrective action program under 40 CFR 258.58 (see checklist item SO.90.12) has a detailed written estimate, in current dollars, of the cost of hiring a third party to perform the corrective action in accordance with the required program. Verify that the corrective action cost estimate accounts for the total costs of corrective action activities as described in the corrective action plan for the entire corrective action period. Verify that the owner or operator notifies the State Director that the estimate has been placed in the operating record. Verify that the owner or operator annually adjusts the estimate for inflation until the corrective action program is completed. Verify that the owner or operator increases the corrective action cost estimate and the amount of financial assurance provided if changes in the corrective action program or MSWLF unit conditions increase the maximum costs of corrective action. (NOTE: The owner or operator may reduce the amount of the corrective action cost estimate and the amount of financial assurance provided if the cost estimate exceeds the maximum remaining costs of corrective action. The owner or operator must notify the State Director that the justification for the reduction of the corrective action cost estimate and the amount of financial assurance has been placed in the operating record.) Verify that the owner or operator of each MSWLF unit required to undertake a corrective action program under 40 CFR 258.58 (see checklist item SO.90.12) establishes, in a manner in accordance with 40 CFR 258.74 (see checklist items SO.120.4 through SO.120.13), financial assurance for the most recent corrective action program. Verify that the owner or operator provides continuous coverage for corrective action until released from financial assurance requirements for corrective action by demonstrating compliance with 40 CFR 258.58(f) and 258.58(g).

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.120.4. When using a trust fund, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(a), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that, when using a trust fund: – the trustee is an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency – a copy of the trust agreement is placed in the facility's operating record. Verify that payments into the trust fund are made annually by the owner or operator over the term of the initial permit or over the remaining life of the MSWLF unit, whichever is shorter, in the case of a trust fund for closure or post-closure care, or over one-half of the estimated length of the corrective action program in the case of corrective action for known releases. (NOTE: This period is referred to as the pay-in period.) Verify that, for a trust fund used to demonstrate financial assurance for closure and post-closure care, the first payment into the fund is at least equal to the current cost estimate for closure or post-closure care except as provided in 40 CFR 258.74(k) (see final NOTE statement at the end of this checklist item), divided by the number of years in the pay-in period. Verify that the amount of subsequent payments is determined by the following formula: Next Payment = [CE - CV]/Y where CE is the current cost estimate for closure or post-closure care (updated for inflation or other changes), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period. Verify that, for a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund is at least equal to one-half of the current cost estimate for corrective action, except as provided in 40 CFR 258.74(k) (see final NOTE statement at the end of this checklist item), divided by the number of years in the corrective action pay-in period. Verify that the amount of subsequent payments is determined by the following

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	formula: Next Payment = [RB - CV]/Y where RB is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period. Verify that the initial payment into the trust fund is made before the initial receipt of waste, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected. Verify that, if the owner or operator establishes a trust fund after having used one or more alternate mechanisms, the initial payment into the trust fund is at least the amount that the fund would contain if the trust fund were established initially and annual payments made in accordance with 40 CFR 258.74(a).. (NOTE: The owner or operator, or other person authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, post-closure care, or corrective action, and if justification and documentation of the cost is placed in the operating record. The owner or operator must notify the State Director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.) (NOTE: The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance or if he is no longer required to demonstrate financial responsibility.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.120.5. When using a surety bond guaranteeing payment or performance, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(b), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. (NOTE: An owner or operator may demonstrate financial assurance for closure or post-closure care by obtaining a payment or performance surety bond. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond.) Verify that the bond is effective before the initial receipt of waste in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected. Verify that the owner or operator notifies the State Director that a copy of the bond has been placed in the operating record. Verify that the surety company issuing the bond is, at a minimum, among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. Verify that the penal sum of the bond is in an amount at least equal to the current closure, post-closure care or corrective action cost estimate, whichever is applicable except as provided in 40 CFR 258.,74(k) (see final NOTE statement at the end of this checklist item). Verify that under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond. Verify that the owner or operator establishes a standby trust fund meeting the requirements of 40 CFR 258.74(a) (see checklist item SO.120.4) except for the requirements for initial payment and subsequent annual payments. Verify that payments made under the terms of the bond are deposited by the surety directly into the standby trust fund. Verify that payments from the trust fund are approved by the trustee. (NOTE: Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the surety cancels the bond, the owner or operator must obtain alternate financial assurance.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	(NOTE: The owner or operator may cancel the bond only if alternate financial assurance is substituted or if the owner or operator is no longer required to demonstrate financial responsibility.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.6. When using an irrevocable stand-by letter of credit, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(c), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that the letter of credit is effective before the initial receipt of waste in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected. Verify that the owner or operator notifies the State Director that a copy of the letter of credit has been placed in the operating record. Verify that the issuing institution is an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency. Verify that a letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: name, and address of the facility, and the amount of funds assured, is included with the letter of credit in the operating record. Verify that the letter of credit is irrevocable and issued for a period of at least 1 yr in an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable, except as [provided in 40 CFR 258.74(k) (see final NOTE statement at the end of this checklist item). Verify that the letter of credit provides that the expiration date will be

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	automatically extended for a period of at least 1 yr unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. Verify that, if the letter of credit is canceled by the issuing institution, the owner or operator obtains alternate financial assurance. (NOTE: The owner or operator may cancel the letter of credit only if alternate financial assurance is substituted or if the owner or operator is released from the financial assurance requirements.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.7. When using insurance, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(d), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that the insurance is effective before the initial receipt of waste in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected. Verify that, at a minimum, the insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states. Verify that the owner or operator notifies the State Director that a copy of the insurance policy has been placed in the operating record. Verify that the closure or post-closure care insurance policy guarantees that funds will be available to close the MSWLF unit whenever final closure occurs or to provide post-closure care for the MSWLF unit whenever the post-closure care

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	period begins, whichever is applicable. Verify that the policy also guarantees that once closure or post-closure care begins, the insurer is responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy. Verify that the insurance policy is issued for a face amount at least equal to the current cost estimate for closure or post-closure care, whichever is applicable, except as provided in 40 CFR 258.74(k) (see NOTE at the end of this checklist item). (NOTE: The term face amount means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.) (NOTE: An owner or operator, or any other person authorized to conduct closure or post-closure care, may receive reimbursements for closure or post-closure expenditures, whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or post-closure care, and if justification and documentation of the cost is placed in the operating record. The owner or operator must notify the State Director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.) Verify that each policy contains a provision allowing assignment of the policy to a successor owner or operator. (NOTE: Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.) Verify that the insurance policy provides that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. Verify that the automatic renewal of the policy, at a minimum, provides the insured with the option of renewal at the face amount of the expiring policy. (NOTE: If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation.) Verify that, if the insurer cancels the policy, the owner or operator obtains alternate financial assurance.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	(NOTE: For insurance policies providing coverage for post-closure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Treasury for 26-week Treasury securities.) (NOTE: The owner or operator may cancel the insurance policy only if alternate financial assurance is substituted or if the owner or operator is no longer required to demonstrate financial responsibility.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.8. When using a corporate financial test, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(e), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that the owner or operator satisfies one of the following three conditions: – a current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's – a ratio of less than 1.5 comparing total liabilities to net worth – a ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities. Verify that the tangible net worth of the owner or operator is greater than: – the sum of the current closure, post-closure care, corrective action cost estimates and any other environmental obligations, including guarantees,

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	covered by a financial test plus $10 million, except as provided in 40 CFR 258.74(e)(1)(ii)(B) – $10 million in net worth plus the amount of any guarantees that have not been recognized as liabilities on the financial statements provided all of the current closure, post-closure care, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements, and subject to the approval of the State Director. Verify that the owner or operator has assets located in the United States amounting to at least the sum of current closure, post-closure care, corrective action cost estimates and any other environmental obligations covered by a financial test. Verify that the owner or operator places all of the following items into the facility's operating record: – a letter signed by the owner's or operator's chief financial officer that: – lists all the current cost estimates covered by a financial test, including, but not limited to, cost estimates required for municipal solid waste management facilities under 40 CFR 258, cost estimates required for underground injection control (UIC) facilities under 40 CFR 144, if applicable, cost estimates required for petroleum underground storage tank facilities under 40 CFR 280, if applicable, cost estimates required for PCB storage facilities under 40 CFR 761, if applicable, and cost estimates required for hazardous waste treatment, storage, or disposal facilities (TSDFs) under 40 CFR 264 and 265, if applicable – provides evidence demonstrating that the firm meets the requirements of the financial component of the corporate financial test (40 CFR 258.74(e)(1) (NOTE: If the owner or operator no longer meets the requirements of 40 CFR 258.74(e)(1), he must, within 120 days, perform all of the following: – obtain alternate financial assurance – place the required submissions for that assurance in the operating record – notify the State Director that the owner or operator no longer meets the criteria of the financial test and that alternate assurance has been obtained.) – a copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. (NOTE: To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion, disclaimer of opinion, or other qualified

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	opinion will be cause for disallowance, with the potential exception for qualified opinions provided in the next sentence. The Director of an approved state may evaluate qualified opinions on a case-by-case basis and allow use of the financial test in cases where the Director deems that the matters which form the basis for the qualification are insufficient to warrant disallowance of the test. If the Director of an approved state does not allow use of the test, the owner or operator must provide alternate financial assurance.) (NOTE: If the chief financial officer's letter providing evidence of financial assurance includes financial data showing that owner or operator satisfies the ratio requirement for total liabilities to net worth or for net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities that are different from data in the audited financial statements or data filed with the SEC, then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the chief financial officer's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.) Verify that, if the chief financial officer's letter provides a demonstration that the firm has assured for environmental obligations, the letter includes a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements, how these obligations have been measured and reported, and that the tangible net worth of the firm is at least $10 million plus the amount of any guarantees provided. Verify that the items required under the recordkeeping and reporting requirements of the corporate financial test are placed in the operating record and that the State Director is notified that these items have been placed in the operating record before the initial receipt of waste in the case of closure of postclosure care, or no later than 120 days after the corrective action remedy has been selected. Verify that the owner or operator annually updates the information in the operating record and places updated information in the operating record within 90 days following the close of the owner or operator's fiscal year. (NOTE: The Director of a state may provide up to an additional 45 days for an owner or operator who can demonstrate that 90 days is insufficient time to acquire audited financial statements.) (NOTE: The owner or operator is no longer required to comply with these

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	requirements when: – he substitutes alternate financial assurance that is not subject to these recordkeeping and reporting requirements – he is released from the requirements of 40 CFR 258.74.) (NOTE: The Director of an approved state may, based on a reasonable belief that the owner or operator is no longer in compliance, require at any time the owner or operator to provide reports of its financial condition in addition to or including current financial test documentation.) Verify that, when calculating the current cost estimates for closure, post-closure care, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test, the owner or operator includes cost estimates required for municipal solid waste management facilities, as well as cost estimates required for the following environmental obligations, if it assures them through a financial test: – obligations associated with UIC facilities under 40 CFR 144 – petroleum underground storage tank (UST) facilities under 40 CFR 280 – Polychlorinated Biphenyl (PCB) storage facilities under 40 CFR 761 – hazardous waste TSDFs under 40 CFR 264 and 265. (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.9. When using a local government financial test, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(f), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that the owner or operator satisfies one of the following: – if the owner or operator has outstanding, rated, general obligation bonds that

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	are not secured by insurance, a letter of credit, or other collateral or guarantee, it has a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard and Poor's on all such general obligation bonds – the owner or operator satisfies each of the following financial ratios based on the owner or operator's most recent audited annual financial statement: – a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05 – a ratio of annual debt service to total expenditures less than or equal to 0.20. Verify that the owner or operator prepares its financial statements in conformity with Generally Accepted Accounting Principles for governments and has its financial statements audited by an independent certified public accountant (or appropriate state agency). (NOTE: A local government is not eligible to assure its obligations under these requirements if it meets one of the following: – is currently in default on any outstanding general obligation bonds – has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard and Poor's – operated at a deficit equal to five percent or more of total annual revenue in each of the past two fiscal years – receives an adverse opinion, disclaimer of opinion, or other qualified opinion from the independent certified public accountant (or appropriate state agency) auditing its financial statement.) (NOTE: The Director of an approved state may evaluate qualified opinions on a case-by-case basis and allow use of the financial test in cases where the Director deems the qualification insufficient to warrant disallowance of use of the test.) (NOTE: The following terms used in 40 CFR 258.74(f) (this checklist item) are defined as follows: – deficit equals total annual revenues minus total annual expenditures – total revenues include revenues from all taxes and fees but does not include the proceeds from borrowing or asset sales, excluding revenue from funds managed by local government on behalf of a specific third party – total expenditures include all expenditures excluding capital outlays and debt repayment – cash plus marketable securities is all the cash plus marketable securities held by the local government on the last day of a fiscal year, excluding cash and marketable securities designated to satisfy past obligations such as pensions – debt service is the amount of principal and interest due on a loan in a given time period, typically the current year.)

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**

	Verify that the local government owner or operator places a reference to the closure and post-closure care costs assured through the financial test into its next comprehensive annual financial report (CAFR) after the effective date of this section or prior to the initial receipt of waste at the facility, whichever is later.
	
	Verify that disclosure includes the nature and source of closure and post-closure care requirements, the reported liability at the balance sheet date, the estimated total closure and post-closure care cost remaining to be recognized, the percentage of landfill capacity used to date, and the estimated landfill life in years.
	
	Verify that a reference to corrective action costs is placed in the CAFR not later than 120 days after the corrective action remedy has been selected.
	
	(NOTE: For the first year the financial test is used to assure costs at a particular facility, the reference may instead be placed in the operating record until issuance of the next available CAFR if timing does not permit the reference to be incorporated into the most recently issued CAFR or budget. For closure and post-closure costs, conformance with Government Accounting Standards Board Statement 18 assures compliance with this public notice component.)
	
	Verify that the local government owner or operator places the following items in the facility's operating record:
	
	– a letter signed by the local government's chief financial officer that:
	  – lists all the current cost estimates covered by a financial test
	  – provides evidence and certifies that the local government meets the conditions for the financial component of the local government financial test
	  – certifies that the local government meets the conditions of public notice requirements and cost calculations
	– the local government's independently audited year-end financial statements for the latest fiscal year (except for local governments where audits are required every 2 yr where unaudited statements may be used in years when audits are not required), including the unqualified opinion of the auditor who must be an independent, certified public accountant or an appropriate state agency that conducts equivalent comprehensive audits
	– a report to the local government from the local government's independent certified public accountant (CPA) or the appropriate state agency based on performing an agreed upon procedures engagement relative to the financial ratios required under the financial component of the local government financial test (NOTE: The CPA or state agency's report should state the procedures performed and the CPA or state agency's findings.)
	– a copy of the CAFR or certification that the requirements of General Accounting Standards Board Statement 18 have been met.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	Verify that the items specified under the recordkeeping and reporting requirements of the local government financial test are placed in the facility operating record as follows: – in the case of closure and post-closure care, or prior to the initial receipt of waste at the facility – in the case of corrective action, not later than 120 days after the corrective action remedy is selected. Verify that the local government owner or operator updates the information in the facility operating record and places the updated information in the operating record within 180 days following the close of the owner or operator's fiscal year. (NOTE: The local government owner or operator is no longer required to meet the reporting or recording keeping requirements when: – the owner or operator substitutes alternate financial assurance – the owner or operator is released from the requirements of 40 CFR 258.74.) Verify that the local government satisfies the requirements of the financial test at the close of each fiscal year. Verify that, if the local government owner or operator no longer meets the requirements of the local government financial test it must, within 210 days following the close of the owner or operator's fiscal year, obtain alternative financial assurance, places the required submissions for that assurance in the operating record, and notify the State Director that the owner or operator no longer meets the criteria of the financial test and that alternate assurance has been obtained. (NOTE: The Director of an approved state, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of the local government financial test, may require additional reports of financial condition from the local government at any time. If the Director of an approved state finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of the local government financial test, the local government must provide alternate financial assurance in accordance with 40 CFR 258.74.) (NOTE: The portion of the closure, post-closure, and corrective action costs for which an owner or operator can assure is determined as follows: – if the local government owner or operator does not assure other environmental obligations through a financial test, it may assure closure, post-closure, and corrective action costs that equal up to 43 percent of the local government's total annual revenue – if the local government assures other environmental obligations through a

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	financial test, including those associated with UIC facilities under 40 CFR 144.62, petroleum UST facilities under 40 CFR 280, PCB storage facilities under 40 CFR 761, and hazardous waste TSDF under 40 CFR 264 and 265, it must add those costs to the closure, post-closure, and corrective action costs it seeks to assure under 40 CFR 258.74(f). The total that may be assured must not exceed 43 percent of the local government's total annual revenue – the owner or operator obtains an alternate financial assurance instrument for those costs that exceed these limits.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.10. When using a corporate guarantee, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(g), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that the guarantor is the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. Verify that the guarantor meets the requirements for owners or operators in 40 CFR 258.74(e) and complies with the terms of the guarantee. Verify that a certified copy of the guarantee is placed in the facility's operating record along with copies of the letter from the guarantor's chief financial officer and accountants' opinions. Verify that if the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the guarantor's chief financial officer describes the value received in consideration of the guarantee.

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**

	Verify that, if the guarantor is a firm with a "substantial business relationship" with the owner or operator, the letter describes this "substantial business relationship" and the value received in consideration of the guarantee.
	
	Verify that the guarantee is effective and all required submissions placed in the operating record before the initial receipt of waste in the case of closure and post-closure care, or in the case of corrective action no later than 120 days after the corrective action remedy has been selected.
	
	Verify that the terms of the guarantee provide that:
	
	– if the owner or operator fails to perform closure, post-closure care, and/or corrective action of a facility covered by the guarantee, the guarantor will do one of the following:
	  – perform, or pay a third party to perform, closure, post-closure care, and/or corrective action as required (performance guarantee)
	  – establish a fully funded trust fund in the name of the owner or operator (payment guarantee)
	– the guarantee remains in force for as long as the owner or operator must comply with the applicable financial assurance requirements unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the State Director (NOTE: Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the State Director, as evidenced by the return receipts.)
	– if notice of cancellation is given, the owner or operator, within 90 days following receipt of the cancellation notice by the owner or operator and the State Director, obtains alternate financial assurance, places evidence of that alternate financial assurance in the facility operating record, and notifies the State Director (NOTE: If the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide that alternate assurance within 120 days of the cancellation notice, obtain alternative assurance, place evidence of the alternate assurance in the facility operating record, and notify the State Director.)
	
	Verify that, if a corporate guarantor no longer meets the requirements for the financial component of the corporate financial test, the owner or operator, within 90 days, obtains alternative assurance, places evidence of the alternate assurance in the facility operating record, and notifies the State Director.
	
	Verify that, if the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor provides that alternate assurance within the next 30 days.
	
	(NOTE: The owner or operator is no longer required to comply with these

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	requirements when one of the following occurs: – he substitutes alternate financial assurance – he is released from the requirements under 40 CFR 258.74.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.11. When using a local government guarantee, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(h), and 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. Verify that the guarantor meets the requirements of the local government financial test and complies with the terms of a written guarantee. Verify that the guarantee is effective before the initial receipt of waste or before the effective date of 40 CFR 258.74, whichever is later, in the case of closure, post-closure care, or no later than 120 days after the corrective action remedy has been selected. Verify that the guarantee provides that: – if the owner or operator fails to perform closure, post-closure care, and/or corrective action of a facility covered by the guarantee, the guarantor will do one of the following: – perform, or pay a third party to perform, closure, post-closure care, and/or corrective action as required – establish a fully funded trust fund in the name of the owner or operator – the guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the State Director (NOTE: cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the State Director, as evidenced by the return receipts – if a guarantee is canceled, the owner or operator, within 90 days following

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	receipt of the cancellation notice by the owner or operator and the State Director, obtains alternate financial assurance, places evidence of that alternate financial assurance in the facility operating record, and notifies the State Director. Verify that, if the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor provides that alternate assurance within 120 days following the guarantor's notice of cancellation, places evidence of the alternate assurance in the facility operating record, and notifies the State Director. Verify that the owner or operator places a certified copy of the guarantee along with the following items into the facility's operating record before the initial receipt of waste in the case of closure, post-closure care, or no later than 120 days after the corrective action remedy has been selected: – a letter signed by the local government's chief financial officer that: – lists all the current cost estimates covered by a financial test – provides evidence and certifies that the local government meets the conditions for the financial component of the local government financial test – certifies that the local government meets the conditions of public notice requirements and cost calculations – the local government's independently audited year-end financial statements for the latest fiscal year (except for local governments where audits are required every 2 yr where unaudited statements may be used in years when audits are not required), including the unqualified opinion of the auditor who must be an independent, certified public accountant or an appropriate state agency that conducts equivalent comprehensive audits – a report to the local government from the local government's independent certified public accountant (CPA) or the appropriate state agency based on performing an agreed upon procedures engagement relative to the financial ratios required under the financial component of the local government financial test (NOTE: The CPA or state agency's report should state the procedures performed and the CPA or state agency's findings) – a copy of the CAFR or certification that the requirements of General Accounting Standards Board Statement 18 have been met. (NOTE: The owner or operator is no longer required to maintain the recordkeeping and reporting document required for the local government guarantee when: – the owner or operator substitutes alternate financial assurance – the owner or operator is released from the requirements of 40 CFR 258.74 in accordance with 40 CFR 258.71(b), 258.72(b), or 258.73(b).) Verify that, if a local government guarantor no longer meets the requirements of

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	40 CFR 258.74(f) (see checklist item SO.120.9), the owner or operator, within 90 days, obtains alternative assurance, places evidence of the alternate assurance in the facility operating record, and notifies the State Director. Verify that, if the owner or operator fails to obtain alternate financial assurance within that 90-day period, the guarantor provides that alternate assurance within the next 30 days. (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.12. When using a state-approved mechanism, owners and operators of MSWLF are required to meet specific requirements for financial assurance (40 CFR 258.70, 258.74(i) through 258.74(k)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the mechanisms used to demonstrate financial assurance ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed. (NOTE: An owner or operator may satisfy the financial assurance requirements by obtaining any other mechanism that meets the criteria specified in 40 CFR 258.74(1) (see checklist item SO.120.13), and that is approved by the Director of an approved state. (NOTE: If the State Director either assumes legal responsibility for an owner or operator's compliance with the closure, post-closure care and/or corrective action requirements, or assures that the funds will be available from state sources to cover the requirements, the owner or operator will be in compliance with 40 CFR 258.74.) (NOTE: An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action by establishing more than one mechanism per facility, except that mechanisms guaranteeing performance rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action

COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
	may be provided by a combination of mechanisms rather than a single mechanism.)
SO.120.13. Regardless of the financial assurance instrument used, certain criteria must be met (40 CFR 258.70 and 258.74(l)).	(NOTE: These requirements apply to owners and operators of all MSWLF units, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.) Verify that the language in the mechanisms specified in 40 CFR 258.74(a) through 258.74(j) (see checklist items SO.120.4 through SO.120.12), ensure that the instruments satisfy the following criteria: – the financial assurance mechanisms ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases when needed – the financial assurance mechanisms ensure that funds will be available in a timely fashion when needed – the financial assurance mechanisms are obtained by the owner or operator by the effective date of these requirements or prior to the initial receipt of solid waste, whichever is later, in the case of closure and post-closure care, and no later that 120 days after the corrective action remedy has been selected, until the owner or operator is released from the financial assurance requirements – the financial assurance mechanisms are legally valid, binding, and enforceable under state and federal law.

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
SO.140 **THERMAL PROCESSING**	(NOTE: The prescribed guidelines are applicable to thermal processing facilities designed to process or which are processing 50 tons or more per day of municipal-type solid wastes. The application of this capacity criterion will be interpreted to mean any facility designed to process or actually processing 50/24 tons or more per hour. However, the guidelines do not apply to hazardous, agricultural, and mining wastes because of the lack of sufficient information upon which to base recommended procedures.)
SO.140.1. Owners/operators of thermal processing facilities are required to determine what wastes are acceptable and special handling procedures (40 CFR 240.100(a), 240.200-1, and 240.201-1).	Verify that, in consultation with the responsible regulatory agencies, the owner/operator determines what wastes shall be accepted and identifies any special handling required. (NOTE: In general, only wastes for which the facility has been specifically designed shall be accepted; however, other wastes may be accepted if it has been demonstrated to the responsible regulatory agency that they can be satisfactorily processed within the design capability of the facility or after appropriate facility modifications.) Verify that, using information provided to them by the waste generator/owner, the responsible regulatory agency and the facility owner/operator jointly determine specific wastes to be excluded and identify them in the plans. Verify that the generator/owner of excluded wastes consults with the responsible regulatory agency in determining an alternative method of disposal for excluded wastes. (NOTE: The criteria used in considering whether a waste is unacceptable shall include the facility's capabilities, alternative methods available, the chemical and biological characteristics of the waste, environmental and health effects, and the safety of personnel. Disposal of pesticides and pesticide containers shall be consistent with the Federal Environmental Pesticides Control Act of 1972 (Pub. L. 92-516) and recommended procedures promulgated thereunder.)
SO.140.2. Owners/operators of thermal processing facilities are required consider certain parameters for site selection (40 CFR 240.100(a), 240.202-1).	Verify that site selection and utilization is consistent with public health and welfare, and air and water quality standards and adaptable to appropriate land-use plans.
SO.140.3. Owners/operators	Verify that a plan for the design of new facilities or modifications to existing

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
of thermal processing facilities are required to have a plan for the design of new facilities or modifications (40 CFR 240.100(a), 240.203-1).	facilities is prepared or approved by a professional engineer. Verify that a list of major considerations and the rationale for the decision on each consideration is approved by the responsible regulatory agency prior to authorization for construction. Verify that the information remains available for review.
SO.140.4. Owners/operators of thermal processing facilities are required to meet certain requirements for air and water quality (40 CFR 240.100(a), 240.204-1, and 240.205-1).	Verify that all waters discharged from the facility are sufficiently treated to meet the most stringent of applicable water quality standards, established in accordance with or effective under the provisions of the Federal Water Pollution Control Act, as amended. Verify that emissions do not exceed applicable existing emission standards established by the U.S. EPA (as published in 40 CFR 52, 60, 61 and 76) under the authority of the CAA, as amended, or state or local emission standards effective under that Act, if the latter are more stringent.
SO.140.5. Owners/operators of thermal processing facilities are required to meet certain operational requirements (40 CFR 240.100(a), 240.206-1, 240.207-1, 240.209-1, 240.210-1, and 240.211-1).	Verify that conditions are maintained that are unfavorable for the harboring, feeding, and breeding of vectors. Verify that the incinerator facility is designed and operated at all times in an aesthetically acceptable manner. Verify that incinerators are designed, operated, and maintained in a manner to protect the health and safety of personnel associated with the operation of the facility. (NOTE: Pertinent provisions of the Occupational Safety and Health Act of 1970 (Pub. L. 91-596) and regulations promulgated thereunder shall apply.) Verify that the thermal processing facility is operated and maintained in a manner that assures it will meet the design requirements. Verify that an operations manual describing the various tasks to be performed, operating procedures, and safety precautions for various areas of the facility is developed and is readily available for reference by plant personnel. Verify that the owner/operator of the thermal processing facility provides records and monitoring data as required by the responsible agency.
SO.140.6. Owners/operators	Verify that residue and other solid waste products resulting from a thermal

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
of thermal processing facilities are required to meet certain requirements for the disposal of residue and other solid waste products (40 CFR 240.100(a), 240.100(c), and 240.208-1).	process are disposed of in an environmentally acceptable manner. (NOTE: Where land disposal is employed, practices must be in conformance with the U.S. EPA's Guidelines for the Land Disposal of Solid Wastes.)
SO.140.7. *Owners and operators of thermal processing facilities should follow recommended design procedures (MP).*	*(NOTE: These recommended procedures are based on the texts of 40 CFR 240.200-2, 240.201-2, 240.202-2, 240.203-2, 240.204-2, 240.205-2, 240.206-2, 240.208-2, 240.209-2, 240.211-2.)* *Verify that, if the facility is designed to handle special wastes, special areas are provided where appropriate for storage while they await processing.* *(NOTE: In addition to the residential and commercial wastes normally processed at municipal-scale incinerators, certain special wastes might be considered for processing. These include: Certain bulky wastes (e.g., combustible demolition and construction debris, tree stumps, large timbers, furniture, and major appliances), digested and dewatered sludges from waste water treatment facilities, raw sewage sludges, and septic tank pumpings.)* *Verify that provisions for storing, handling, and removing hazardous or excluded wastes inadvertently left at the facility are considered in design.* *(NOTE: Examples of wastes which should be considered for exclusion from the facility include: Hazardous wastes, very large carcasses, automobile bodies, dewatered sludges from water treatment plants, and industrial process wastes.)* *Verify that, whenever possible, thermal processing facilities are located in areas zoned for industrial use and having adequate utilities to serve the facility.* *Verify that the site is accessible by permanent roads leading from the public road system.* *Verify that environmental factors, climatological conditions, and socioeconomic factors should be given full consideration as site selection criteria.* *Verify that the types, amounts (by weight and volume), and characteristics of all solid wastes expected to be processed are determined by survey and analysis.* *Verify that the gross calorific value of the solid wastes to be processed is determined to serve as a basis for design.* *Verify that resource recovery in the form of heat utilization or direct recovery of*

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
	materials is considered in the design. *Verify that the facility is designed to be compatible with the surrounding area, easy to maintain, and consistent with the land use of the area.* *Verify that employee convenience facilities and plant maintenance facilities are provided and adequate lighting provided throughout the facility.* *Verify that the corrosive and erosive action of once-through and recirculated process waters is controlled either by treating them or by using materials capable of withstanding the adverse effects of the waters.* *Verify that facility design capacity considers such items as waste quantity and characteristics, variations in waste generation, equipment downtime, and availability of alternate storage, processing, or disposal capability.* *Verify that facility systems and subsystems are designed to assure standby capability in the event of breakdown.* *Verify that provision for standby water and power is also considered.* *Verify that instrumentation is provided to determine such factors as:* – *the weight of incoming and outgoing materials (the same scale system may be used for both)* – *total combustion airflow rates* – *underfire and overfire airflows and the quantitative distribution of each* – *selected temperatures and pressures in the furnace, along gas passages, in the particulate collection device, and in the stack* – *electrical power and water consumption of critical units* – *rate of operation.* *Verify that the smoke density, the concentration of carbon monoxide, or the concentration of hydrocarbons in the stack gases is monitored and measurement of the pH is considered for effluent waters.* *Verify that continuously recording instrumentation is used as much as possible.* *Verify that audible signals are provided to alert operating personnel of critical operating unit malfunctions.* *Verify that sampling capability is designed into the facility so that each process stream can be sampled, and the utilities required to do so are close at hand.* *Verify that the sampling sites are so designed that personnel can sample safely without interfering with normal plant operations.*

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
	Verify that a laboratory is included in the design, or provision is made for laboratory analyses to be performed by an outside source acceptable to the responsible regulatory agency. *Verify that effluent waters are not discharged indiscriminately and consideration is given to onsite treatment of process and waste waters before discharge.* *Verify that recirculation of process waters is considered.* *Verify that air emissions requirements are met by using appropriate air pollution control technology.* *Verify that all emissions, including dust from vents, are controlled.* *Verify that thermal processing facilities are designed for ease of cleaning and areas favorable for breeding of vectors are avoided.* *Verify that the facility should be designed so that it is physically attractive and the tipping, residue discharge, and waste salvage areas are screened from public view, and the grounds landscaped.* *Verify that thermal processing facilities are designed so as to allow for removal from the site of residue or other solids in a manner that protects the environment.* *Verify that attention is given to the safety of operators and vehicles through the provision of safety devices.* *Verify that fire control equipment is provided.* *Verify that methods and/or equipment for removal of an injured person from the storage pit are available.* *Verify that continuously recording instrumentation is used as much as possible.*
SO.140.8. *Owners and operators of thermal processing facilities should follow recommended operational procedures (MP).*	*(NOTE: These recommended procedures are based on the texts of 40 CFR, 240.200-3, 240-201-3, 240.204-3, 240.205-3, 240.206-3, 240.208-3, 240.209-3, 240.210-3, 240.211-3.)* *Verify that storage areas for special wastes are clearly marked.* *Verify that facility personnel are thoroughly trained in any unusual handling required by acceptance of special wastes.* *Verify that regular users of the facility are given a list of excluded materials and*

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
	the list is also displayed prominently at the facility entrance. *Verify that, if a regular user persists in making unacceptable deliveries, he is barred from the installation and reported to the responsible regulatory agency.* *Verify that the operating plan specifies the procedures and precautions to be taken if unacceptable wastes are delivered to the facility or are improperly left there.* *(NOTE: Operating personnel should be thoroughly trained in such procedures.)* *Verify that, when monitoring instrumentation indicates excessive discharge contamination, appropriate adjustments is made to lower the concentrations to acceptable levels.* *Verify that, in the event of an accidental spill, the local regulatory agency is notified immediately.* *Verify that, when monitoring instrumentation indicates excessive emissions, appropriate adjustments are made to lower the emission to acceptable levels.* *Verify that a housekeeping schedule is established and maintained.* *Verify that, as a minimum, the housekeeping schedule provides for cleaning the tipping and residue areas as spillages occur, emptying the solid waste storage area at least weekly, and routinely cleaning the remainder of the facility.* *Verify that solid waste and residue are not allowed to accumulate at the facility for more than one week.* *Verify that a routine housekeeping and litter removal schedule is established and implemented so that the facility regularly presents a neat and clean appearance.* *Verify that solid wastes that cannot be processed by the facility are removed from the facility at least weekly.* *(NOTE: Open burning or open dumping of this material should be prohibited.)* *Verify that the furnace operator visually observes the quality of the bottom ash at least twice per shift and record in the operating log the estimated percentage of unburned combustibles.* *Verify that, if residue or fly ash is collected in a wet condition, it is drained of free moisture.* *Verify that transportation of residue and fly ash is by means that prevent the loads*

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
	from shifting, falling, leaking, or blowing from the container. *Verify that detailed procedures are developed for operation during such emergency situations as power failure, air or water supply failure, equipment breakdowns, and fire and that these procedures are posted in prominent locations, implemented by the staff as required, and upgraded and revised periodically.* *Verify that approved respirators or self-contained breathing apparatus are available at convenient locations and their use is reviewed periodically with facility personnel.* *(NOTE: Information on respirators or self-contained breathing apparatus can be obtained from the Appalachian Laboratory for Occupational Respiratory Disease, National Institute for Occupational Safety and Health, Morgantown, W. Va.)* *Verify that training in first aid practices and emergency procedures is given to all personnel.* *Verify that personal safety devices such as hard hats, gloves, safety glasses, and footwear are provided for facility employees.* *Verify that, if a regular user or employee persistently poses a safety hazard, he is barred from the facility and reported to the responsible agency.* *Verify that the facility supervisor is experienced in the operation of the type of facility designed or, in the case of an innovated design, be adequately trained by responsible personnel in the operation of the facility.* *Verify that alternate and standby disposal and operating procedures are established for implementation during emergencies, air pollution episodes, and shutdown periods.* *Verify that, upon completion of facility construction, provision is made for instruction of the staff in proper operation and maintenance procedures.* *Verify that a routine maintenance schedule is established and followed.* *Verify that as-built engineering drawings of the facility are provided at the conclusion of construction of the facility.* *(NOTE: As-built engineering drawings should be updated to show modifications by the owner as changes are made. These drawing should be readily available and, a schematic showing the relationships of the various subsystems should also be available.)*

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
	Verify that key operational procedures are prominently posted. *Verify that equipment manuals, catalogs, spare parts lists, and spare parts are readily available at the facility.* *Verify that training opportunities for facility operating personnel are provided.* *Verify that extensive monitoring and recordkeeping is practiced during the first 12 to 18 mo of operation of a new or renovated facility, during periods of high air pollution, and during periods of upset conditions at the facility.* *(NOTE: During other periods of more normal operation of the facility, less extensive monitoring and record keeping may be practiced if approved by the responsible agency.)* *Verify that operating records are kept in a daily log and include as a minimum:* – *the total weight and volume (truck capacities may be used for volume determination) of solid waste received during each shift, including the number of loads received, the ownership or specific identity of delivery vehicles, the source and nature of the solid wastes accepted* – *furnace and combustion chamber temperatures recorded at least every 60 min and as changes are made, including explanations for prolonged, abnormally high and low temperatures* – *rate of operation, such as grate speed* – *overfire and underfire air volumes and pressure and distribution recorded at least every 60 min and as changes are made* – *weights of bottom ash, grate siftings, and fly ash, individually or combined, recorded at intervals appropriate to normal facility operation* – *estimated percentages of unburned material in the bottom ash* – *water used on each shift for bottom ash quenching and scrubber operation (NOTE: Representative samples of process waters should be collected and analyzed as recommended by the responsible regulatory agency.)* – *power produced and utilized each shift (NOTE: If steam is produced, quality, production totals and consumption rates should be recorded.)* – *auxiliary fuel used each shift* – *gross calorific value of daily representative samples of bottom ash, grate siftings, and fly ash. (Sampling time should be varied so that all shifts are monitored on a weekly basis.)* – *emission measurements and laboratory analyses required by the responsible regulatory agency* – *complete records of monitoring instruments* – *problems encountered and methods of solution.* *Verify that an annual report is prepared which includes at least the following*

COMPLIANCE CATEGORY NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS**
	information: – *minimum, average, and maximum daily volume and weight of waste received and processed, summarized on a monthly basis* – *a summary of the laboratory analyses including at least monthly averages* – *number and qualifications of personnel in each job category; total manhours per week; number of state certified or licensed personnel; staffing deficiencies; and serious injuries, their cause and preventive measures instituted* – *an identification and brief discussion of major operational problems and solutions* – *adequacy of operation and performance with regard to environmental requirements, the general level of housekeeping and maintenance, testing and reporting proficiency, and recommendations for corrective actions* – *a copy of all significant correspondence, reports, inspection reports, and any other communications from enforcement agencies.* *Verify that methodology for evaluating the facility's performance is developed and evaluation procedures recommended by the U.S. EPA are used whenever possible.*

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COMPLIANCE CATEGORY: NON-HAZARDOUS SOLID WASTE MANAGEMENT	
REGULATORY REQUIREMENT OR MANAGEMENT PRACTICE:	**REVIEWER CHECKS:**
SO.150 **DISPOSAL OF REFUSE FROM OUTSIDE THE UNITED STATES**	
SO.150.1. Garbage from outside the United States which is on or unloaded from vessels or aircraft arriving in the United States and certain territories and possessions is subject to inspection and disposal requirements to prevent dissemination of pests and diseases (7 CFR 330.400(d), 330.400(g)(1), and 300.400(g)(2)).	Verify that garbage on or unloaded from vessels or aircraft arriving in the places listed below complies with inspection and disposal requirements: – the United States from any place outside of the United States – the continental United States from Hawaii or any territory or possession – any territory or possession from any other territory or possession or Hawaii – Hawaii from any territory or possession. Verify that in arriving vessels and aircraft: – the garbage is contained in tight leakproof covered receptacles inside guard rails on vessels – the garbage is removed in tight, leakproof covered containers under direction of U.S. Department of Agriculture (USDA) inspector to an approved facility for incineration, sterilization, or grinding into an approved sewage system, or – the garbage is removed for other handling and under supervision approved by the USDA. Verify that the approval has been received from administrator, Animal and Plant Health Inspection Service, USDA for use of sewage system for disposal.

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Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix A:
Open Dumping (40 CFR 257.1 through 257.3-8)

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Open Dumping
(40 CFR 257.1 through 257.3-8)

Unless the following are met, a land disposal site is considered an open dump that is prohibited under section 4005 of RCRA:

1. Facilities or practices in floodplains shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a hazard to human life, wildlife, or land or water resources.

2. Facilities or practices do not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife. Nor does it result in the destruction of or adverse modification of the critical habitat.

3. The facility does not cause a discharge of pollutants into the waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES). It also does not cause a discharge of dredged materials or fill materials or cause nonpoint source pollution of waters of the United States that violated applicable legal requirements.

4. The facility or practice does not contaminate an underground drinking water source beyond the solid waste boundary or beyond a specified alternative boundary established by the state.

5. When solid waste is applied within 1 m (3 ft) of the surface of land used for the production of food chain crops the following are done:
    a. the pH of the solid waste and soil mixture is 6.5 or greater at the time of each solid waste application, except for solid waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less
    b. the annual application of cadmium from solid waste does not exceed 0.5 kg/ha
    c. the cumulative application of cadmium from solid wastes does not exceed:

Soil Cation Exchange Capacity (meq/100g)	**Maximum Cumulative Application (kg/ha)**	
	Background Soil pH less than 6.5	**Background Soil pH more than 6.5**
Less than 5	**5**	**5**
5 to 15	**5**	**10**
More than 15	**5**	**20**

d. when the background pH is less than 6.5, the cumulative application does not exceed the levels below provided the pH of the solid waste and soil mixture is adjusted to and maintained at 6.5 or greater whenever food-chain crops are grown:

Soil Cation Exchange Capacity (meq/100g)	Maximum Cumulative Application (kg/ha)
Less than 5	**5**
5 to 15	**10**
More than 15	**20**

6. When solid waste is applied within 1 m (3 ft) of the surface of land only the production of animal feed is allowed, providing the following are done:
    a. the pH of the solid waste and soil mixture is 6.5 or greater at the time of each solid waste application, or at the time the crop is planted, whichever occurs later, and the pH level is maintained whenever food chain crops are grown
    b. there is a facility operating plan that demonstrates how the animal feed will be distributed to preclude ingestion by humans
    c. future property owners are notified that the property has received solid waste at high cadmium application rates and of the restrictions regarding the use of the property.

7. Solid waste containing concentrations of PCBs equal to or greater than 10 mg/kg (dry weight) is incorporated into the soil when applied to land used for producing animal feed, including pasture crops. Incorporation is not required if it is assured that the PCB content is less than 0.2 mg/kg (actual weight) in animal feed or less than 1.5 mg/kg (fat basis) in milk.

8. The onsite population of disease vectors is minimized through the periodic application of cover material or other techniques as appropriate so as to protect public health.

9. Sewage sludge that is applied or incorporated into the soil is treated by a process to significantly reduce pathogens prior to application or incorporation. Public access is controlled for at least 12 mo and grazing by animals whose products are consumed by humans is prevented for at least 1 mo.

10. Septic tank pumpings that are applied or incorporated into the soil is treated by a process to significantly reduce pathogens prior to application or incorporation unless public access is controlled for at least 12 mo and grazing by animals whose products are consumed by humans is prevented for at least 1 mo.

11. There is no open burning of residential, commercial, institutional, or industrial solid waste. (This does not apply to the infrequent burning of agricultural wastes in the field, silvicultural wastes for forest management purposes, landclearing debris, diseased trees, debris from emergency cleanup operations, and ordnance.)

12. The concentrations of explosive gases does not exceed:
    a. 25 percent of the LEL for the gases in the facility structures (excluding gas control or recovery system components)
    b. the LEL for the gases at the property boundary.

13. The site is not a fire hazard.

14. There is not uncontrolled public access.

15. Facilities or practices where putrescible wastes that may attract birds and which occurs within 10,000 ft (3,9048 m) of any airport runway used by turbo jet aircraft or within 5,000 feet (1524 meters) of any airport runway used only by piston-type aircraft does not pose a bird hazard to aircraft.

(NOTE: These requirements do not apply to the following:

1. agricultural wastes, including manure and crop residues, returned to the soil as fertilizers or soil conditioners
2. overburden resulting from mining operations intended for return to the mining site.
3. land application of domestic sewage or treated domestic sewage
4. location and operation of septic tanks
5. solid or dissolved materials in irrigation return flows
6. industrial discharges which are point sources subject to NPDES
7. source, special nuclear or by-product material as defined by the *Atomic Energy Act*
8. hazardous waste disposal facilities which are subject to regulation
9. disposal of solid waste by underground well injection
10. municipal solid waste landfill units
11. use or disposal of sewage sludge on the land when it is used or disposed of in accordance with 40 CFR 503.)

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Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix B:
Compliance Dates for Municipal Solid Waste Landfills and 40 CFR 258 (40 CFR 258.1(e))

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Compliance Dates for Municipal Solid Waste Landfills and 40 CFR 258 (40 CFR 258.1(e))

In general compliance with 40 CFR 258 is required by October 9, 1993. The following is a list of MSWLFs which have had their compliance deadline with 40 CFR 258 extended.

1. April 9, 1994 for existing MSWLF units or a lateral expansion of an existing MSWLF that meets the following conditions:
    a. the MSWLF unit disposed of 100 tons per day or less of solid waste during a representative period prior to October 9, 1993
    b. the unit does not dispose of more than an average of 100 tons per day of solid waste each month between October 9, 1993 and April 9, 1994
    c. the MSWLF is located in a state that has submitted an application for permit program approved by the U.S. EPA by October 9, 1993, is located in the state of Iowa, or is located on Indian Lands or Indian Country
    d. the MSWLF is not on the National Priorities List (NPL) as found in appendix B of 40 CFR 300.

2. The compliance date has been extended for existing MSWLF unit or lateral expansion if an existing MSWLF units receiving flood-related waste from the federally-designated areas within the major disasters declared for the states of Iowa, Illinois, Minnesota, Wisconsin, Missouri, Nebraska, Kansas, North Dakota, and South Dakota by the President during the summer of 1993:
    a. Until April 9, 1994 if the state in which the MSWLF is located has determined that the MSWLF unit is needed to receive flood-related wastes from a federally designated disaster area.
    b. Until October 9, 1994 if the MSWLF has an extension and the state in which the MSWLF is located has determined that the MSWLF unit is needed to receive flood-related wastes from a federally designated disaster area.

3. October 9, 1995 for new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average.

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Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix C:
Municipal Solid Waste Landfill Units Exempt From Compliance With 40 CFR 258 (40 CFR 258.1(c) and 258.1(d))

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Municipal Solid Waste Landfill Units Exempt From Compliance With 40 CFR 258 (40 CFR 258.1(c) and 258.1(d))

1. MSWLFs that did not receive waste after October 9, 1991.

2. Existing MSWLF units or a lateral expansion of an existing MSWLF that received waste after October 9, 1991 but stopped receiving waste before April 9, 1994 that meet the following conditions:
    a. the MSWLF unit disposed of 100 tons per day or less of solid waste during a representative period prior to October 9, 1993
    b. the unit does not dispose of more than an average of 100 tons per day of solid waste each month between October 9, 1993 and April 9, 1994
    c. the MSWLF is in a state that has submitted an application for permit program approved by the U.S. EPA by October 9, 1993, is in the state of Iowa, or is on Indian Lands or Indian Country
    d. the MSWLF is not on the National Priorities List (NPL).

    (NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) by October 9, 1994, the unit is required to meet all the requirements found in 40 CFR 258.)

3. Existing MSWLF units or lateral expansions if an existing MSWLF unit is receiving flood-related waste from the federally-designated areas within the major disasters declared for the states of Iowa, Illinois, Minnesota, Wisconsin, Missouri, Nebraska, Kansas, North Dakota, and South Dakota by the President during the summer of 1993 and receive waste after October 9, 1991 but stops receiving waste before the date designated by the state.

    (NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) within 1 yr of the date designated by the state, the unit is required to meet all the requirements in 40 CFR 258.)

4. New MSWLF units, existing MSWLF units and lateral expansions that dispose of less than 20 tons of municipal solid waste daily, based on an annual average that receive waste after October 9, 1991 but stopped receiving waste before October 9, 1997.

    (NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) by October 9, 1998, the unit is required to meet all the requirements of 40 CFR 258.)

5. MSWLF units that receive waste after October 9, 1991 but stop receiving wastes before October 9, 1993.

    (NOTE: If these units have not installed a final cover according to the standards in 40 CFR 258.60(a) by October 9, 1994, the unit is required to meet all the requirements of 40 CFR 258.)

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Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix D:
Design Criteria Concentration Values (40 CFR 258.40)

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Design Criteria Concentration Values
(40 CFR 258.40)

Chemical	MCL (mg/L)
Arsenic	0.05
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethand	0.005
1,1-Dichloroethylene	0.007
Endrin	0.0002
Fluoride	4.0
Lindane	0.004
Lead	0.05
Mercury	0.002
Methoxychlor	0.1
Nitrate	10.0
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloromethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl Chloride	0.002

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Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix E:
Constituents for Detection Monitoring (40 CFR 258, Appendix I)

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Constituents for Detection Monitoring[1] (40 CFR 258, Appendix I)

Common name[2]	CAS RN[3]
Inorganic Constituents	
(1) Antimony	(Total)
(2) Arsenic	(Total)
(3) Barium	(Total)
(4) Beryllium	(Total)
(5) Cadmium	(Total)
(6) Chromium	(Total)
(7) Cobalt	(Total)
(8) Copper	(Total)
(9) Lead	(Total)
(10) Nickel	(Total)
(11) Selenium	(Total)
(12) Silver	(Total)
(13) Thallium	(Total)
(14) Vanadium	(Total)
(15) Zinc	(Total)
Organic Constituents	
(16) Acetone	67-64-1
(17) Acrylonitrile	107-13-1
(18) Benzene	71-43-2
(19) Bromochloromethane	74-97-5
(20) Bromodichloromethane	75-27-4
(21) Bromoform; Tribromomethane	75-25-2
(22) Carbon disulfide	75-15-0
(23) Carbon tetrachloride	56-23-5
(24) Chlorobenzene	108-90-7
(25) Chloroethane; Ethyl chloride	75-00-3
(26) Chloroform; Trichloromethane	67-66-3
(27) Dibromochloromethane; Chlorodibromomethane	124-48-1
(28) 1,2-Dibromo-3-chlorpropane; DBCP	96-12-8
(29) 1,2-Dibromoethane; Ethylene dibromide; *EDB*	106-93-4
(30) o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
(31) p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
(32) trans-1,4-Dichloro-2-butene	110-57-6
(33) 1,1-Dichloroethane; Ethylidene chloride	75-34-3
(34) 1,2-Dichloroethane; Ethlyene dichloride	107-06-2
(35) 1,1-Dichloroethylene; 1-1-Dichloroethene; Vinylidene chloride	75-35-4
(36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2
(37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
(38) 1,2-Dichlorpropane; Propylene dichloride	78-87-5
(39) cis-1,3-Dichlorpropene	10061-01-5
(40) trans-1,3-Dichlorpropene	10061-02-6
(41) Ethylbenzene	100-41-4
(42) 2-hexanone; Methyl butyl ketone	591-78-6
(43) Methyl bromide; Bromomethane	74-83-9
(44) Methyl chloride; Chloromethane	74-87-3
(45) Methylene bromide Dibromomethane	74-95-3

Common name[2]	CAS RN[3]
(46) Methylene chloride; Dichloromethane	75-09-2
(47) Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
(48) Methyl iodide; Iodomethane	74-88-4
(49) 4-Methyl-2-pentanone; Methyl isobutyl isobutyl ketone	108-10-1
(50) Styrene	100-42-5
(51) 1,1,1,2-Tetrachloroethane	630-20-6
(52) 1,1,2,2-Tetrachloroethane	79-34-5
(53) Tetrachloroethylene; Tetracholorethene; Perchloroethylene	127-18-4
(54) Toluene	108-88-3
(55) 1,1,1-Trochlorethane; Methylchloroform	71-55-6
(56) 1,1,2-Trichloroethane	79-00-5
(57) Trichloroethylene; Trichlorethene	79-01-6
(58) Trichlorofluoromethane; CFC-11	75-69-4
(59) 1,2,3-Trichloropropane	96-18-4
(60) Vinyl acetate	108-05-4
(61) Vinyl chloride	75-01-4
(62) Xylenes	1330-20-7

[1]This list contains 47 volatile organics for which possible analytical procedures provided in U.S. EPA Report SW-846, *Test Methods for Evaluating Solid Waste*, third edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix F:
List of Hazardous Inorganic and Organic Constituents
(40 CFR 258, Appendix II)

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List of Hazardous Inorganic and Organic Constituents[1] (40 CFR 258, Appendix II)

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
Acenaphthene	83-32-9	8100	200
		8270	10
Acenaphthylene	208-96-8	8100	200
		8270	10
Acetone	67-64-1	8260	100
Acetonitrile; Methyl cyanide	75-05-8	8015	100
Acetophenone	98-86-2	8270	10
2-Acetylaminofluorene; 2-AAF	53-96-3	8270	20
Acrolein	107-02-8	8030	5
		8260	100
Acrylonitrile	107-13-1	8030	5
		8260	200
Aldrin	309-00-2	8080	0.05
		8270	10
Allyl chloride	107-05-1	8010	5
		8260	10
4-Aminobiphenyl	92-67-1	8270	20
Anthracene	120-12-7	8100	200
		8270	10
Antimony	(Total)	6010	300
		7040	2000
		7041	30
Arsenic	(Total)	7060	10
		7061	20
Barium	(Total)	6010	20

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		7080	1000
Benzene	71-43-2	8020	2
		8021	0.1
		8260	5
Benzo[a]anthracene; Benzanthracene	56-55-3	8100	200
		8270	10
Benzo[b]fluoranthene	205-99-2	8100	200
		8270	10
Benzo[k]fluoranthene	207-08-9	8100	200
		8270	10
Benzo[ghi]perylene	191-24-2	8100	200
		8270	10
Benzo[a]pyrene	50-32-8	8100	200
		8270	10
Benyl alcohol	100-51-5	8270	20
Beryllium	(Total)	6010	3
		7090	50
		7091	2
alpha-BHC	319-84-6	8080	0.05
		8270	10
beta-BHC	319-85-7	8080	0.05
		8270	20
delta-BHC	319-86-8	8080	0.1
		8270	20
gamma-BHC; Lindane	58-89-9	8080	0.05
		8270	20

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
Bis(2-chloroethoxy)methane	111-91-1	8110	5
		8270	10
Bis(2-chloroethyl)ether; Dichloroethyl ether	111-44-4	8110	3
		8270	10
Bis-(2-chlor-1-methyl) ether; 2, 2-Dichloro-diisopropyl ether; DCIP, See note 6	108-60-1	8110	10
		8270	10
Bis(2-ethylhexyl) phthalate	117-81-7	8060	20
Bromochloromethane; Chlorobromomethane	74-97-5	8021	0.1
		8260	5
Bromodichloromethane; Dibromochloromethane	75-27-4	8010	1
		8021	0.2
		8260	5
Bromoform; Tribromomethane	75-25-2	8010	2
		8021	15
		8260	5
4-Bromophenyl phenyl ether	101-55-3	8110	25
		8270	10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	8060	5
		8270	10
Cadmium	(Total)	6010	40
		7130	50
		7131	1
Carbon disulfide	75-15-0	8260	100
Carbon tetrachloride	56-23-5	8010	1
		8021	0.1
		8260	10

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
Chlordane	See NOTE 7	8080	0.1
		8270	50
p-Chloroaniline	106-47-8	8270	20
Chlorobenzene	108-90-7	8010	2
		8020	2
		8021	0.1
		8260	5
Chlorobenzilate	510-15-6	8270	10
p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7	8040	5
		8270	20
Chloroethane; Ethyl chloride	75-00-3	8010	5
		8021	1
		8260	10
Chloroform; Trichloromethane	67-66-3	8010	0.5
		8021	0.2
		8260	5
2-Chloronaphthalene	91-58-7	8120	10
		8270	10
2-Chlorophenol	95-57-8	8040	5
		8720	10
4-Chlorophenyl phenyl ether	7005-72-3	8110	40
		8270	10
Chloroprene	126-99-8	8010	50
		8260	20
Chromium	(Total)	6010	70
		7190	500

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		7191	10
Chrysene	218-01-9	8100	200
		8270	10
Cobalt	218-01-9	8100	200
		6010	70
		7200	500
		7201	10
Copper	(Total)	6010	60
		7210	200
		7211	10
m-Cresol; 3-methylphenol	108-39-4	8270	10
o-Cresol; 2-methlphenol	95-48-7	8270	10
p-Cresol; 4-methylphenol	106-44-5	8270	10
Cyanide	57-12-5	9010	200
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	8150	10
4,4-DDD	72-54-8	8080	0.1
		8270	10
4,4-DDE	72-55-9	8080	0.05
		8270	10
4,4-DDT	50-29-3	8080	0.1
		8270	10
Diallate	2303-16-4	8270	10
aDibenz[a,h]anthracene	53-70-3	8100	200
		8270	10
Dibenzofuran	132-64-9	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	8010	1

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8021	0.3
		8260	5
1,2-Dibromo-30chloropropane; DBCP	96-12-8	8011	0.1
		8021	30
		8260	25
1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4	8011	0.1
		8021	10
		8260	5
Di-n-butyl phthalate	84-74-2	8060	5
		8270	10
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	8010	2
		8020	5
		8021	0.5
		8120	10
		8260	5
		8270	10
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	8010	5
		8020	5
		8021	0.2
		8120	10
		8120	10
		8260	5
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	8010	2
		8020	5
		8021	0.1
		8120	15

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8260	5
		8270	10
3,3-Dichlorobenzidine	91-94-1	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	8260	100
Dichlorodifluoromethane; CFC 12;	75-71-8	8021	0.5
		8260	5
1,1-Dichloroethane chloride	75-34-3	8010	1
		8021	0.5
		8260	5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	8010	0.5
		8021	0.3
		8260	5
1,1-Dichloroethylene; 1,1-Dichloroethane; Vinylidene chloride	75-35-4	8010	1
		8021	0.5
		8260	5
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2	8021	0.2
		8260	5
trans-1,2-Dichloroethylene trans-1,2-Dichloroethene	156-60-5	8010	1
		8021	0.5
		8260	5
2,4-Dichlorophenol	120-83-2	8040	5
		8270	10
2,6-Dichlorophenol	87-65-0	8270	10
1,2-Dichloropropane; Propylene dichloride	78-87-5	8010	0.5
		8021	0.05

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8260	5
1,3-Dichloropropane; Trimethylene dichloride	142-28-9	8021	0.3
		8260	5
2,2-Dichloropropane; Isopropylidene chloride	594-20-7	8021	0.5
		8260	15
1,1-Dichloropropene	563-58-6	8021	0.2
		8260	5
cis-1,3-Dichloropropene	10061-01-5	8010	20
		8260	10
trans-1,3-Dichloropropene	10061-02-6	8010	5
		8260	10
Dieldrin	60-57-1	8080	0.05
		8270	10
Diethyl phthalate	84-66-2	8060	5
		8270	10
0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	8141	5
		8270	20
Dimethoate	60-51-5	8141	3
		8270	20
p-(Dimethylamino)azobenzene	60-11-7	8270	10
7,12-Dimethylbenxz[a]anthracene	57-97-6	8270	10
3,3-Dimethylbenzidine	119-93-7	8270	10
2,4-Dimethlphenol; m-Xylenol	105-67-9	8040	5
Dimethyl phthalate	131-11-3	8060	5
		8270	10
m-Dinitrobenzene	99-65-0	8270	20

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
4,6-Dinitro-o-cresol 4,6-Dinitro-2-methylphenol	534-52-1	8040	150
		8270	50
2,4-Dinitrophenol	51-28-5	8040	150
		8270	50
2,4-Dinitrotoluene	121-14-2	8090	0.2
		8270	10
2,6-Dinitrotoluene	606-20-2	8090	0.1
		8270	10
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	8150	1
		8270	20
Di-n-octyl phthalate	117-84-0	8060	30
		8270	10
Diphenylamine	122-39-4	8270	10
Disulfoton	298-04-4	8140	2
		8141	0.5
		8270	10
Endosulfan I	959-98-8	8080	0.1
		8270	20
Endosulfan II	33213-65-9	8080	0.05
		8270	20
Endodulfan sulfate	1031-07-8	8080	0.5
		8270	10
Endrin	72-20-8	8080	0.1
		8270	20
Endrin aldehyde	7421-93-4	8080	0.2
		8270	10

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
Ethylbenzene	100-41-4	8020	2
		8221	0.05
		8260	5
Ethyl methacrylate	97-63-2	8015	5
		8260	10
		8270	10
Ethyl methanesulfonate	62-50-0	8270	20
Famphur	52-85-7	8270	20
Fluoranthene	206-44-0	8100	200
		8270	10
Fluorene	86-73-7	8100	200
		8270	10
Heptachlor	76-44-8	8080	0.05
		8270	10
Heptachlor epoxide	1024-57-3	8080	1
		8270	10
Hexachlorobenzene	118-74-1	8120	0.5
		8270	10
Hexachlorobutadiene	87-68-3	8120	0.5
		8120	5
		8260	10
		8270	10
Hexachlorocyclopentadiene	77-47-4	8120	5
		8270	10
Hexachloroethane	67-72-1	8120	0.5
		8260	10

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8270	10
Hexachloropropene	188-71-7	8270	10
2-Hexanone; Methyl butyl ketone	591-78-6	8260	50
Indenol(1,2,3-cd)pyrene	193-39-5	8100	200
		8270	10
Isopbutyl alcohol	78-83-1	8015	50
		8240	100
Isodrin	465-73-6	8270	20
		8260	10
Isophorone	78-59-1	8090	60
		8270	10
Isosafrole	120-58-1	8270	10
Kepone	143-50-0	8270	20
Lead	(Total)	6010	400
		7420	1000
		7421	10
Mercury	(Total)	7470	2
Methacrylonitrile	126-98-7	8015	5
		8260	100
Methapyrilene	91-80-5	8270	100
Methoxychlor	72-43-5	8080	2
		8270	10
Methyl bromide; Bromomethane	74-83-9	8010	20
		8021	10
Methyl chloride; Chloromethane	74-87-3	8010	20
		8021	0.3

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
3-Methylcholanthrene	56-49-5	8270	10
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	8015	10
		8260	100
Methyl iodide; Iodomethane	74-88-4	8010	40
		8260	10
Methyl methacrylate	80-62-6	8015	2
		8260	30
Methyl methanesulfonate	66-27-3	8270	10
2-Methylnaphthalene	91-57-6	8270	10
Methyl parathion; Parathion methyl	298-00-0	8140	0.5
		8141	1
		8270	10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	8015	5
		8260	100
Methylene bromide; Dibromomethane	74-95-3	8010	15
		8021	20
		8260	10
Methylene chloride; Dichloromethane	75-09-2	8010	5
		8021	0.2
		8260	10
Naphthalene	91-20-3	8021	0.5
		8100	200
		8260	5
		8270	10
1,4-Naphthoquinone	130-15-4	8270	10
1-Naphthylamine	134-32-7	8270	10

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
2-Naphthylamine	91-59-8	8270	10
Nickel	(Total)	6010	150
		7520	400
o-Nitroaniline; 2-Nitroaniline	88-74-4	8270	50
m-Nitroaniline; 3-Nitroanile	99-09-2	8270	50
p-Nitroaniline; 4-Nitroaniline	100-01-6	8270	20
Nitrobenzene	98-95-3	8090	40
		8270	10
o-Nitrophenol; 2-Nitrophenol	88-75-5	8040	5
		8270	10
p-Nitrophenol; 4-Nitrophenol	100-02-7	8040	10
		8270	50
N-Nitrosodi-n-butylamine	924-16-3	8270	10
N-Nitrosodiethylamine	55-18-5	8270	20
N-Nitrosodimethylamine	62-75-9	8070	2
N-Nitrosodiphenylamine	86-30-6	8070	5
N-Nitrosodipropylamine; dipropylamine;	621-64-7	8070	10
N-Nitroso-N-Di-n-propylnitrosamine	86-30-6	8070	10
N-Nitrosomethylethalamine	10595-95-6	8270	10
N-Nitrosopiperidine	100-75-4	8270	20
N-Nitrosopyrrolidine	930-55-2	8270	40
5-Nitro-o-toluidine	99-55-8	8270	10
Parathion	56-38-2	8141	0.5
		8270	10
Pentachlorobenzene	608-93-5	8270	10
Pentachloronitrobenzene	82-68-8	8270	20

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
Pentachlorophenol	87-86-5	8040	5
		8270	50
Phenacetin	62-44-2	8270	20
Phenanthrene	85-01-8	8100	200
		8270	10
Phenol	108-95-2	8040	1
p-Phenylenediamine	106-50-3	8270	10
Phorate	298-02-2	8140	2
		8141	0.5
		8270	10
Polychlorinated biphenyls (PCBs); Aroclors	see NOTE 8	8080	50
		8270	200
Pronamide	23950-58-5	8270	10
Propionitrile; Ethyl cyanide	107-12-0	8015	60
		8260	150
Pyrene	129-00-0	8100	200
		8270	10
Safrole	94-59-7	8270	10
Selenium	(Total)	6010	750
		7740	20
		7741	20
Silver	(Total)	6010	70
		7760	100
		7761	10
Silvex; 2,4,5-TP	93-72-1	8150	2
Styrene	100-42-5	8020	1

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8021	0.1
		8260	10
Sulfide	18496-25-8	9030	4000
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	8150	2
1,2,4,5-Tetrachlorobenzene	95-94-3	8270	10
1,1,1,2-Tetrachloroethane	630-20-6	8010	5
		8021	0.05
		8260	5
1,1,2,2-Tetrachloroethane	79-34-5	8010	0.5
		8021	0.1
		8260	5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4	8010	0.5
		8021	0.5
		8260	5
2,3,4,6-Tetrachlorophenol	58-90-2	8270	10
Thallium	(Total)	6010	400
		7840	1000
		7841	10
Tin	(Total)	6010	40
Toluene	108-88-3	8020	2
		8021	0.1
		8260	5
o-Toluidine	95-53-4	8270	10
Toxaphene	See NOTE 9	8080	2
1,2,4-Trichlorobenzene	120-82-1	8021	0.3
		8120	0.5

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8260	10
		8270	10
1,1,1-Trichloroethane; Methylchloroform	71-55-6	8010	0.3
		8021	0.3
		8260	5
1,1,2-Trichloroethane	79-00-5	8010	0.2
		8260	5
Trichloroethylene; Trichloroethene	79-01-6	8010	1
		8021	0.2
		8260	5
Trichlorrofluoromethane; CFC-11	75-69-4	8010	10
		8021	0.3
		8260	5
2,4,5-Trichlorophenol	95-95-4	8270	10
2,4,6-Trichlorophenol	88-06-2	8040	5
		8270	10
1,2,3-Trichloropropane	96-18-4	8010	10
		8021	5
		8260	15
0,0,0-Triethyl phosphorothioate	126-68-1	8270	10
sym-Trinitrobenzene	99-35-4	8270	10
Vanadium	(Total)	6010	80
		7910	2000
		7911	40
Vinyl acetate	108-05-4	8260	50
Vinyl chloride; Chloroethene	75-01-4	8010	2

Common Name[2]	CAS RN[3]	Suggested methods[4]	PQL (μg/L)[5]
		8021	0.4
		8260	10
Xylene (total)	See NOTE 10	8020	5
		8021	0.2
		8260	5
Zinc	(Total)	6010	20
		7950	50
		7951	0.5

NOTES:

1. The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and Practical Quantitation Limits (PQL)) are given for informational purposes only. See also footnotes 4 and 5.

2. Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

3. Chemical Abstracts Service registry number. Where "Total" is entered, all species in the ground water that contain this element are included.

4. Suggested Methods refer to analytical procedure numbers used in U.S. EPA Report SW-846 *Test Methods for Evaluating Solid Waste*, third edition, November 1986, as revised, December 1987. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

5. PQLs are the lowest concentrations of analytes in ground waters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 mL samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

6. This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service (CAS) applies to its noncommercial isomer, Propane, 2,2"-oxybis[2-chloro-(CAS RN 39638-32-9).

7. Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57- 74-9 and CAS RN 12789-03-6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 μg/L by method 8270.

8. Polychlorinated biphenyls (CAS RN 1336-36-3): This category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28- 2), Aroclor 1232 (CAS RN11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

9. Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

10. Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p- xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7). PQLs for method 8021 are 0.2 for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 μg/L by method 8020 or 8260.

Protocol for Conducting Environmental Compliance Audits of Facilities Regulated under Subtitle D of RCRA

Appendix G:
User Satisfaction Questionnaire and Comment Form

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User Satisfaction Survey

(OMB Approval No. 1860.01)
Expires 9/30/2001

We would like to know if this Audit Protocol provides you with useful information. This information will be used by EPA to measure the success of this tool in providing compliance assistance and to determine future applications and needs for regulatory checklists and auditing materials.

1. Please indicate which Protocol(s) this survey applies to:

   Title:_____

   EPA Document Number:_____

2. Overall, did you find the Protocol helpful for conducting audits:

   Yes ___ No___

   If not, what areas of the document are difficult to understand?

3. How would you rate the usefulness of the Protocol(s) for conducting compliance audits on a scale of 1-5?

   1 = not useful or effective, 3 = somewhat useful/effective, 5 = very useful/effective

Low		Medium		High	
1	2	3	4	5	Introduction Section
1	2	3	4	5	Key Compliance Requirements
1	2	3	4	5	Key Terms and Definitions
1	2	3	4	5	Checklist

4. What actions do you intend to take as a result of using the protocol and/or conducting the audit? Please check all that apply.

   ____ Contact a regulatory agency
   ____ Contact a compliance assisstance provider (e.g., trade association, state agency, EPA)
   ____ Contact a vendor
   ____ Disclose violations discovered during the audit under EPA's audit Policy
   ____ Disclose violations discovered under EPA's Small Business Policy
   ____ Obtain a permit or certification
   ____ Change the handling of a waste, emission or pollutant
   ____ Change a process or practice
   ____ Purchase new process equipment
   ____ Install emission control equipment (e.g., scrubbers, wastewater treatment)
   ____ Install waste treatment system (control technique)
   ____ Implement or improve pollution prevention practices (e.g., source reduction, recycling)
   ____ Improve organizational auditing program
   ____ Institute an Environmental Management System
   ____ Improve the existing Environmental Management System (e.g., improve training, clarify standard operating procedures, etc.)
   ____ Other _____

5. What, if any, environmental improvements will result from the actions to be taken (check all that apply)?

____ reduced emissions
____ waste reduction
____ reduced risk to human health and the environment due to better management practices
____ reduced quantity and toxicity of raw materials
____ water conservation
____ energy conservation
____ conserved raw materials
____ conservation of habitat or other environmental stewardship practice: _____
____ other: _____
____ no environmental improvements are likely to result from the use of this document

6. How did you hear about this document?
____ trade association
____ state technical assistance provider
____ EPA internet homepage or website
____ document catalog
____ co-worker or business associate
____ EPA, state, or local regulator
____ other (please specify) _____

7. In order to understand your response, we would like to know what function you perform with respect to environmental compliance and the size of your organization.

____ Company Personnel
____ Environmental Auditor
____ Corporate Level
____ Plant-level
____ Legal
____ Environmental Manager
____ Operator - (e.g., Pollution Control Equipment
____ Other: _____
_____

____ Trade Association
____ National
____ Regional
____ Local
____ Manager
____ Information Specialist

____ Compliance Assistance Provider
____ EPA
____ State
____ State Small Business Assistance
____ Local
____ Other _____
_____

____ Regulatory Personnel
____ State
____ Local
____ EPA

____ Vendor/Consultant
____ Environmental Auditor
____ Environmental Engineer/Scientist
____ Attorney

8. How many employees are located at your facility (including full-time contractors?)

___ 0 - 9 ___ 10 - 49 ___ 50 - 100 ___ 101-500 ___ More than 500

Optional (Please Print)

Name: _____Address:_____

Title:_____City:_____State:_____

Zip code:_____

Organization Name:_____

Phone: (__)_____E-mail:_____

Please return all pages (1 thru 3) of this survey by folding pages 1 and 2 into page 3 and using the preprinted, pre-stamped address on the reverse side of page 3. If you have accessed this document electronically from one of EPA's web sites, simply e-mail this questionnaire to: satterfield.richard@epa.gov.

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