KEY (for internal Agency use only)
▶ = Permitting/Corrective Action
▶ = Engineering
▶ = Chemistry
▶ = Financial Assurance
▶ = Geology

Hazardous Waste "Part B" Operating Permit Application
Miscellaneous Unit Module

The following link to guidance is for informational purposes only. Please do not include guidance with the permit application submittal.

Resource Conservation and Recovery Act (RCRA) Training Module: Miscellaneous and Other Units | US EPA

Add the permit application module information below where designated in the base checklist (sequentially).

C. WASTE CHARACTERISTICS

C-1g ▶ ▶ Waste in Miscellaneous Treatment Units: 40 CFR 270.23(d)

For any miscellaneous unit treating hazardous waste, provide a report or a demonstration of the effectiveness of the treatment based on laboratory or field data.

D. PROCESS INFORMATION

D-8 ▶ ▶ Miscellaneous Units: 40 CFR 264.601, 40 CFR 270.23

Identify all miscellaneous units that treat, store or dispose of hazardous waste at the facility, but do not fit the current definition of container, tank, surface impoundment, waste pile, land treatment unit, landfill, incinerator, boiler, industrial furnace or underground injection well. A miscellaneous unit may include (but is not limited to) any of the following:

- Geologic repositories other than injection wells (such as underground salt formations, mines, or caves, either for the purpose of disposal or long-term retrievable storage);
- Deactivated missile silos, other than injection wells or tanks;
- Thermal treatment units other than incinerators, boilers, or industrial furnaces (such as combustion and noncombustion units such as molten salt pyrolysis, calcination, wet-air oxidation, and microwave destruction);
- Units open burning and open detonating (OB/OD) explosive wastes;
- Certain chemical/physical/biological treatment units; and
- Mobile units using technologies that are covered under other subparts of 40 CFR 264, such as incineration or treatment in containers, are excluded from this section. However, those units listed above that are mobile, are covered.

Examples of units not defined as miscellaneous units include:

- Treatment, storage, disposal in units currently regulated under 40 CFR 264;
- Open burning of nonexplosive hazardous waste;
- Units excluded from permitting under 40 CFR 264 and 270 (such as POTW and ocean disposal activities);
- Placement of hazardous waste underground that is regulated under 40 CFR 146 (UIC program); and
- RD&D units covered under 40 CFR 270.65.

D-8a ▶ ▶ Description of Miscellaneous Units: 40 CFR 270.23(a)

Provide a detailed description of the unit. Include the physical characteristics, materials of construction and dimensions of the unit. Provide detailed plans and engineering reports that describe how the unit will be located, designed, constructed, operated, maintained, monitored, and inspected. Include a detailed process description. Provide information on specific design and operating standards that mitigate site-specific risks such as potential releases or potential reactions among wastes or between wastes and containment structures.

D-8b ▶ ▶ Waste Characterization: 40 CFR 264.601(a)(1), 40 CFR 264.601(b)(1), 40 CFR 264.601(c)(1)

Provide information on the volume and concentration of the waste to determine release potential. Provide the physical and chemical characteristics of the waste in order to determine (1) the toxicity of the waste; (2) the ability of the waste to be contained, immobilized, degraded or attenuated or to migrate in various soils and materials; (3) the probability of reactions taking place among wastes or between wastes and liners or other containment structures; and (4) the potential of the waste to react or evaporate to form gaseous, aerosol, or particulate products that enter the atmosphere.

D-8c ▶ ▶ Treatment Effectiveness: 40 CFR 270.23(d)

For each treatment unit, a report must be submitted demonstrating the effectiveness of the treatment based on laboratory, bench scale, pilot scale, or field data.

D-8d ▶ ▶ Environmental Performance Standards for Miscellaneous Units

Environmental performance standards must be established and maintained to protect human health and the environment. For each media of concern (groundwater and subsurface environment; surface water, wetlands, and soil surface; air), performance standards must be based on the following information and assessments:

- Assessment of the potential pathways of exposure of humans and environmental receptors to hazardous waste or hazardous constituents and the potential magnitude and nature of such exposures;
- Evaluation of how the migration of waste constituents in the media is prevented; and
- Information on the type of waste managed, types of technologies, types and quantities of emissions or releases, and extent of migration or dispersion of the media in various media.

For guidance on conducting an exposure assessment refer to the September 24, 1986 Federal Register notice "Guidance for Exposure Assessments" and the "RCRA Facility Investigation (RFI) Guidance, Vol I," Section 8, Health and Environment Assessment.

D-8d(1) Protection of Groundwater and Subsurface Environment:
40 CFR 264.601(a), 40 CFR 270.23(b) and (c)

D-8d(1)(a) Environment Assessment: 40 CFR 264.601(a), 40 CFR 270.23(b) and (c)

The applicant must assess the potential for release to groundwater or the subsurface environment. Both the saturated and unsaturated zones must be considered in evaluating the potential for subsurface migration. This assessment must consider the following factors:

- Waste characteristics and volume, including potential for migration through soils, liners, or other containing structures (40 CFR 264.601(a)(1));
- Hydrologic and geologic characteristics of the unit and surrounding area (40 CFR 264.601(a)(2));
- Existing groundwater quality, including other sources of contamination and their cumulative impact on the groundwater (40 CFR 264.601(a)(3));
- Quantity and direction of groundwater flow (40 CFR 264.601(a)(4));
- Proximity to and withdrawal rates of current and potential groundwater users (40 CFR 264.601(a)(5));
- Regional land use patterns (40 CFR 264.601(a)(6));
- Potential for deposition or migration of waste constituents into subsurface physical structures and the root zone of vegetation (40 CFR 264.601(a)(7));
- Potential for human health risks caused by exposure to waste constituents (40 CFR 264.601(a)(8));
- Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents (40 CFR 264.601(a)(9)); and
- Potential magnitude and nature of exposure of humans or environmental receptors to hazardous waste or hazardous constituents (40 CFR 270.23(c)).

D-8d(1)(b) Performance Standards: 40 CFR 264.601, 40 CFR 270.23(b)

Based on the assessments, performance standards must be developed and maintained. These must include: (1) design and operating requirements; (2) detection and monitoring requirements of 40 CFR 264.602; and (3) requirements for response to release of hazardous waste or hazardous constituents from the unit. Performance standards may include appropriate standards from 40 CFR 264 Subparts I through O, 40 CFR 270, and 40 CFR 146.

D-8d(2) Protection of Surface Water, Wetlands, and Soil Surface:
40 CFR 264.601(b), 40 CFR 270.23(b) and (c)

D-8d(2)(a) Environmental Assessment: 40 CFR 264.601, 40 CFR 270.23(b) and (c)

The applicant must assess the potential for release to surface water, wetlands, or soil surface. This assessment must consider the following factors:

- Waste characteristics and volume (40 CFR 264.601(b)(1));
- Effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration (40 CFR 264.601(b)(2));

- Hydrologic characteristics of the unit and the surrounding area (40 CFR 264.601(b)(3));
- Topography of the surrounding area and hydrologic unit characteristics (40 CFR 264.601(b)(3));
- Regional precipitation patterns (40 CFR 264.601(b)(4));
- Quantity, quality, and direction of groundwater flow (40 CFR 264.601(b)(5));
- Proximity of the unit to surface waters (40 CFR 264.601(b)(6));
- Current and potential uses of nearby surface waters (40 CFR 264.601(b)(7));
- Established water quality standards for surface waters (40 CFR 264.601(b)(7));
- Existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils (40 CFR 264.601(b)(8));
- Regional land use patterns (40 CFR 264.601(b)(9));
- Potential for human health risks caused by exposure to waste constituents (40 CFR 264.601(b)(10));
- Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents (40 CFR 264.602(b)(11));
- Meteorologic assessment (40 CFR 270.23(b)); and
- Potential magnitude and nature of exposures of humans or environmental receptors to hazardous waste constituents (40 CFR 270.23(c)).

D-8d(2)(b) Performance Standards: 40 CFR 264.601

Based on the assessments, performance standards must be developed and maintained. These must include (1) design and operating requirements (structures that should be considered include liners, dikes, diversion ditches, and cut-off walls); (2) detection and monitoring requirements of 40 CFR 264.602; and (3) requirements for responses to releases of hazardous waste or hazardous constituents from the unit.

Performance standards may include appropriate standards from 40 CFR 264 Subparts I through O, 40 CFR 270, and 40 CFR 146.

D-8d(3) Protection of the Atmosphere: 40 CFR 264.601(c), 40 CFR 270.23(b) and (c)

D-8d(3)(a) Environmental Assessment: 40 CFR 264.601(c), 40 CFR 270.23(b) and (c)

The applicant must assess the potential for release to the air. This assessment must consider the following factors:

- Waste characteristics and volume, including potential for emission and dispersal of gases, aerosols, and particulates (40 CFR 264.601(c)(1));
- Effectiveness and reliability of systems and structures to reduce or prevent emissions (40 CFR 264.601(c)(2));
- Operating characteristics of the unit (may include restrictions of operations during certain weather conditions) (40 CFR 264.601(c)(3));
- Atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area (should include wind rose, frequency of inversions, evaporation rates, annual and 24-hour rainfall data, and seasonal temperatures) (40 CFR 264.601(c)(4));
- Existing air quality, including other sources of contamination and their cumulative impact on the air (40 CFR 264.601(c)(5));
- Potential for human health risks caused by exposure to waste constituents (40 CFR 264.601(c)(6));

- Potential for damage to domestic animals, wildlife, crops, vegetation and, physical structures caused by exposure to waste constituents (40 CFR 264.601(c)(7)); and
- Potential magnitude and nature of exposure of humans or environmental receptors to hazardous waste or hazardous constituents (40 CFR 270.23(c)).

A recommended air pathway assessment methodology includes the following steps:

- Obtain source characterization information;
- Select release constituents;
- Calculate emission estimates;
- Calculate concentration estimates at unit boundary using standard dispersion models;
- Compare concentration results to health-based criteria in RFI Guidance, Vol I, Section 8; and
- Conduct monitoring to confirm results.

D-8d(3)(b) Performance Standards: 40 CFR 264.601

Based on the assessments, performance standards must be developed and maintained. These must include: (1) design and operating requirements; (2) detection and monitoring requirements of 40 CFR 264.602; and (3) requirements of responses to releases of hazardous waste or hazardous constituents from the unit.

Performance standards may include appropriate standards from 40 CFR 264 Subparts I through O, 40 CFR 270, and 40 CFR 146.

D-8e ▶▶ Monitoring, Analysis, Inspection, Response, Reporting, and Corrective Action: 40 CFR 264.602

D-8e(1) Elements of a Monitoring Program: 40 CFR 264.602

A monitoring program must include procedures for sampling, analysis, and evaluation of data, suitable response procedures, and a regular inspection schedule. The following elements must be included:

- Location of monitors;
- Constituents to be monitored and frequency of monitoring;
- Procedures to maintain integrity of monitoring devices;
- Sample collection and preservation;
- Analytical methods;
- Applicable procedures for evaluation of data; and
- Appropriate response procedures.

D-8e(2) Air Monitoring Alternatives: 40 CFR 264.602

For situations in which ambient air monitoring would be unsafe or impractical, possible alternatives may include analysis of waste, emission measurements, and periodic monitoring with portable detectors. Describe in detail any alternatives proposed to meet the air monitoring requirements.

F. ▶ ▶ PROCEDURES TO PREVENT HAZARDS

F-2b(8) Miscellaneous Unit Inspections: 40 CFR 270.14(b)(5), 264.602

Provide an inspection program that ensures compliance with the standards specified in D-8.

I. ▶ CLOSURE PLANS, POST-CLOSURE PLANS, AND FINANCIAL REQUIREMENTS

I-1e(3) ▶ Closure of Disposal Units/Contingent Closures: 40 CFR 270.14(b)(13), 270.17(f), 270.18(h), 270.21(e), 264.228(a)(2), 264.228(c)(1)(i), 264.258(c), 264.258(c)(1)(i), 264.310(a), 264.601

Closure plans for all waste piles, landfills, surface impoundments, and miscellaneous units in which wastes or contaminated materials are to remain at closure must describe how the unit will be closed, including a description of the final cover to be established and its expected performance. Contingent closure plans for tanks, surface impoundments, and waste piles also must provide these descriptions.

I-1e(11) ▶ Closure of Miscellaneous Units: 40 CFR 270.23(a)(2)

Show that at closure, all hazardous waste and hazardous waste residues will be removed from the treatment process or equipment, discharge control equipment, and discharge confinement structures, and that the unit be decontaminated. Description of the sampling/test procedures or other means used to ensure that no contamination remains on, in or around the units and associated equipment and structures. If any wastes, wastes residues or contaminated materials or soils will remain after closure, provide plans for closing the miscellaneous unit as a disposal unit [I-1e(2)] and provide post-closure plans [I-2].

I-2 ▶ Post-Closure Plan/Contingent Post-Closure: 40 CFR 270.14(b)(13), 270.17(f), 270.18(h), 270.20(f), 270.21(e), 270.23(a)(3), 264.118, 264.197(b), 264.197(c)(2), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.280(c), 264.310(b), 264.603

Submit a copy of the most recent post-closure plan or, if applicable, the contingent post-closure plan. Landfill, surface impoundment, waste pile, and tank post-closure plans should address items I-2a, b, c, f, g; land treatment unit post-closure plans, items I-2d, f, g; miscellaneous units should address items I-2a, b, c, e, f, and g.

I-2a Inspection Plan: 40 CFR 264.118(a), 264.197(b), 264.197(c)(2), 264.226(d)(2), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.303(c), 264.310(b)

Describe the inspections to be conducted during the post-closure care period, their frequency, the inspection procedure, and the logs to be kept. The following items, as applicable, must be included in the inspection plan:

- Security control devices;
- Erosion damage;
- Cover settlement, subsidence and displacement;
- Vegetative cover condition;
- Integrity of run-on and run-off control measures;
- Cover drainage system functioning;
- Leachate collection/detection and removal system;
- Gas venting system;
- Well condition; and
- Benchmark integrity.

The rationale for determining the length of time between inspections should be provided.

I-2b ▶ Monitoring Plan: 40 CFR 264.118(b)(1), 264.197(b), 264.197(c)(2), 264.226(d)(2), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.303(c), 264.310(b)

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting the following operations and evaluating the data gathered:

- Groundwater monitoring; and
- Leachate collection/detection and removal.

I-2c ▶ Maintenance Plan: 40 CFR 264.118(b)(2), 264.197(b), 264.197(c)(2), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.310(b)

Describe the preventative and corrective maintenance procedures, equipment procedures, equipment requirements and material needs. Include the following items in the maintenance plan, as applicable:

- Repair of security control devices;
- Erosion damage repair;
- Correction of settlement, subsidence and displacement;
- Mowing, fertilization and other vegetative cover maintenance;
- Repair of run-on and run-off control structures;
- Leachate collection/detection system maintenance;
- Well repair/replacement; and
- Protect and maintain surveyed benchmarks.

Describe the rationale to be used to determine the need for corrective maintenance activities.

I-2e ▶ Post-Closure Care for Miscellaneous Units: 40 CFR 270.23(a)(3), 264.603

Specify procedures in the post-closure plan for miscellaneous units that are disposal units or treatment or storage units where contaminated soils or groundwater cannot be completely removed or decontaminated that ensures performance standards established per 40 CFR 264.601 will be maintained through the post-closure period. Include the prevention of any releases to groundwater or subsurface environment; surface water or wetlands or on the soil surface; or to air, as appropriate.

I-2f Post-Closure Security: 40 CFR 264.117(b) and (c)

Indicate whether hazardous wastes will remain exposed after completion of partial or final closure or access by the public or domestic livestock may pose a hazard to human health. Demonstrate that for property where hazardous wastes remain after partial or final closure, post-closure use must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the facility's monitoring system.

I-2g Post-Closure Contact: 40 CFR 264.118(b)(3)

Provide the name, address, and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period.