

2014-LTR-1014

Attachment 12

[Permit Attachment KK]

Air Emissions

**SECTION D
PROCESS INFORMATION**

**SECTION D-8
AIR EMISSIONS CONTROL**

ATTACHMENT KK (PERMIT)

MIXED WASTE FACILITY
RCRA/TSCA PERMIT APPLICATION

Pacific EcoSolutions, LLC PFNW-R
RICHLAND, WASHINGTON

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SECTION D-8, AIR EMISSIONS CONTROL

ACRONYM LIST

GVB	GASVIT™ Building
HAZMAT	Hazardous Materials
LDAR	Leak Detection and Repair
MWF	Mixed Waste Facility
<u>MWTH</u>	<u>Mixed Waste Thermal Building</u>
P&ID	Process and Instrumentation Diagrams
ppmw	Parts per million by volume
RCRA	Resource Conservation and Recovery Act
STB	Stabilization Building
VOC	Volatile Organic Compounds

Pacific EcoSolutions, LLC PFNW-R *Mixed Waste Facility*

D-8 AIR EMISSIONS CONTROL

D-8A PROCESS VENTS

[806(4)j, 110, 690, 40 CFR 270.24, §264.1130 - 264.1134 (Subpart AA)]

D-8a(1) Applicability of Subpart AA Standards

[690, 40 CFR 270.24(b), 264.1030, 264.1034(d), 264.1035(b)2]

Subpart AA, Air Emission Standard for Process Vents, applies to process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppm by weight (ppmw). ~~These standards apply primarily to liquid wastes, with more than 10 ppm volatile organic compounds (VOCs) as measured using Method SW-846-8260 or an equivalent method.~~

~~Process vents for two processes for treating liquids and solids conducted in the MWF potentially conform to the definition of distillation found in 40 CFR 264.1131. These processes are the dryer system (TP-8) in the STB and the evaporator (GV-11-EVP-1103) in the GVB. Air flow from the dryer to the stabilization process vent is shown in the Process Flow Diagram for Line 100, included as drawing 31001-P-003. GASVIT™ scrubber bottom waste flow's into the evaporator and air flow from the evaporator into the GVB building confinement exhaust is shown on the P&ID titled Secondary Waste Treatment (GV-11), Drawing 31001-P-081.~~

D-8a(1)(a) Process Vents Subject to Subpart AA Standards

Only the process vent for the dryer system TP-8 is potentially subject to Subpart AA standards, ~~but is exempt from controls under this subpart and is explained later in Section D-8 a(2). The process vent is collocated with the dryer in Room 8 of the STB since it could be considered as an air stripping operation. TP-08 process is currently permitted, but it was never constructed. PFNW-R does not intend to construct this dryer at this time.~~

~~The dryer is located in the northeast corner of the STB as shown on drawing 31001-M-100 sheet 3, Stabilization and Equipment Layout. The dryer is described in Section D-11 as well as in Attachment 5, Process Engineering Description for the Stabilization Building. The dryer will operate for less than 7,000 hours each year and process less than 360 metric tons of liquid waste annually.~~

D-8a(1)(b) Process Vents Not Subject to Subpart AA

~~The evaporator in the GVB is not subject to Subpart AA controls. The evaporator is located in Room 1 of the GVB. The location of the evaporator is also shown on the stabilization and GASVIT™ equipment layout, Drawing 31001-M-100 sheet 4. The evaporator does not fit the definition of a thin film evaporator and is therefore not regulated under Subpart AA controls. (Text deleted.)~~

~~(Paragraph deleted. Space intentionally left blank.)~~

~~The MWF does not have any vents that meet the definition of “process vent” as described in 40CFR 264.10311. Therefore, there are no affected vents at the MWF that are subject to Subpart AA.~~

D-8a(1)(c) Re-evaluating Applicability of Subpart AA Standards

[690, 40 CFR [270.24(b)(3), 264.1030]

~~An annual re-evaluation of the applicability of Subpart AA Standards will be conducted in accordance with 40 CFR §264.1034(d)(2). (Text deleted.) The evaluation will be maintained in the facility operating record.~~

~~In addition to the annual re-evaluation, (Text deleted.) immediate re-evaluation of the applicability of Subpart AA standards when the new processor equipment is purchased.~~

- ~~1. operating records indicating that the concentration of organic vapors in the scrubber blowdown exceeded 10 ppm, and~~
- ~~2. a proposed change in operating procedures that would allow processing of liquids or solids in the evaporator with organic vapor concentrations greater than 10 ppm.~~

~~As for the annual re-evaluation, records of these event driven re-evaluations will be maintained in the facility operating record. (Text deleted. Space intentionally left blank.)~~

~~The applicability of Subpart AA will be re-evaluated whenever there is a change in the unit operation or a new unit is constructed.~~

D-8a(2) Process Vents - Demonstrating Compliance

[806(4)(j), 110, 690, 270.24, 264.1030 - 264.1035]

D-8a(2)(a) The Basis for Meeting Limit/Reductions

[806(4)(j)(ii), 110, 690, 270.24(b), 264.1032, 264.1034(c), 264.1035(b)(2) and (b)(3)]

~~The MWF operates such that the total air emissions from the dryer process vent subject to Subpart AA regulations meets limits without air pollution control devices. The dryer produces less than the limit of 3 lb/hr (see Calculation Sheet D-2i-028 in Attachment 13). Since the dryer process vent is the only affected vent, the MWF meets the requirements of Subpart AA found in 40 CFR 264.1032(a)(1) without control devices.~~

~~There are no affected process vents at the MWF that are subject to Subpart AA. Hence, this section is not applicable.~~

D-8a(2)(b) Demonstrating Compliance via Selected Method

[806(4)(j)(ii), 110, 690, 270.24(b), 264.1032, 264.1034(c), 264.1035(b)(2) and (b)(3)]

~~There are no affected process vents at the MWF that are subject to Subpart AA. Hence, this section is not applicable. Engineering calculations demonstrating that the dryer produces less than 3 lb./hr total air emissions are included in Attachment 13, Calculations.~~

~~Average annual emissions rates for the dryer are expected to be several times lower than those documented in the emissions source report. To estimate emissions, a concentration of 10 percent by weight volatile organic carbon was assumed for waste treated in the dryer, whereas the majority of waste processed in the STB and in the dryer will have organic concentrations much less than 1 percent by weight. Wastes containing more than 1 percent by weight organics are primarily treated by the GASVIT™ system in the GVB. Wastes treated in the dryer system, TP-8, are materials consisting primarily of inorganic solids (e.g. soils and sludges), debris (e.g., construction materials) or aqueous inorganic solutions (e.g. rinsate from drum washing operations). Water vapor from the dryer is condensed and collected for reuse either for rinsing operations or as an additive for the stabilization processes.~~

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D-8a(2)(c) Design Information and Operating Parameters for Closed Vent Systems and Control Devices

[806(4)(j)(iv), 110, 690, 270.24(d), §264.1032(b), 264.1033, §264.1034, 264.1035(b)(3) and (b)(4), 264.1035(c)]

~~There are no affected process vents at the MWF that are subject to Subpart AA. Hence, this section is not applicable.~~

~~The closed vent system and condenser serving the dryer are exempt from regulation under Subpart AA. Therefore, no design information or operating parameters are provided or referenced here. The closed vent system and condenser are described elsewhere in this application.~~

D-8a(2)(d) Re-evaluating Compliance with Subpart AA Standards

[806(4)(j)(ii), 690, 270.24(b), §264.1030, 264.1034(c), 264.1035(b)(2)]

~~A re-evaluation of the applicability of Subpart AA Standards to the dryer system TP-8 will consist of an annual update of the engineering calculations based on measurements of the initial organic vapor content of the wastes processed in the dryer. Documentation to support the calculations will include data on total organic vapor concentrations in wastes entering the dryer and of the total volume of waste processed by the dryer during the previous year. The applicability of Subpart AA to the MWF will be re-evaluated whenever there is a change in unit operation or a new unit is constructed.~~

~~In addition to the annual re-evaluation, compliance will be re-evaluated whenever:~~

- ~~1. operating records indicate that the monthly average processing rate exceeds 2,500 pounds per day of waste through the dryer,~~
- ~~2. operating records indicate that on average more than 3 pounds an hour of organic vapors are entering the dryer with the wastes, or~~
- ~~3. a proposed change in operating procedures would allow processing of liquids or solids with organic vapor concentrations greater than 10 percent by weight.~~

D-8B EQUIPMENT LEAKS

[806(4)(k), 110, 690, 691, 270.25, §264.1050 - 264.1064 (Subpart BB), 264.1033, §264.1034(c), 264.1035(b) and (c)]

D-8b(1) Applicability of BB Standards

[806(4)(k), 691, 110, 270.25, §264.25, 264.1050, 264.1063]

Subpart BB standards are applicable to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight that are managed in units subject to the permitting requirements of 40 CFR 270.

D-8b(1)(a) Equipment Subject to Subpart BB

[806(4)(k), 110, 690, 691, 270.25, 264.1050, 264.1063]

Equipment is defined at 40 CFR 264.1031 as each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or drain line, or flange, and any control devices or systems which contacts hazardous wastes with organic concentrations of at least 10% by weight. In addition, such equipment if operated for less than 300 hours per year is exempt as long as the MWF maintains recordkeeping identifying such units in accordance with 40 CFR 1064.(g)(6). All equipment associated with the liquid feed lines running from the GASVIT™ liquid feed tank 0205 shown in Drawing 31001-P-072-01 to the GASVIT™ process chamber shown on drawing 31001-P-072-05 contacts liquids containing at least 10 percent by weight organic content and is subject to Subpart BB standards. The liquid feed tank and pumps are located within the HAZMAT Enclosure, which is Room 4 in the GVB. The GASVIT™ process chambers are located in Rooms 1 and 2 of the GVB.

As shown on the Stabilization and GASVIT™ equipment layout, Drawing 31001-M-100, sheet 3 and 4, the liquid feed tank is located in the northwest corner of the GVB, near the GASVIT™ process chamber. The second process chamber, not shown on the drawing, will eventually be located in the vacant area shown on the western side of the GVB and labeled unit B area. The layout of unit B will be a mirror image of the layout for GASVIT™ unit 1 shown on the eastern side.

Currently, No other equipment, as defined above, contacts hazardous waste containing at least 10% by weight organic content. The organic content of wastes will be measured using SW846 Method 8240, which is one of the methods listed in 40 CFR 264.1063(d)(2).

Equipment subject to Subpart BB is listed in Attachment 9, Instrument/Equipment Lists for the GASVIT™ Building. The two liquid feed pumps, PMP 209 and 210, indicated on the drawing are listed in the equipment tables and the valves indicated on the drawing are listed in the valve tables. This

~~equipment will be purchased after the permit is issued. A final list of equipment subject to Subpart BB will be submitted at least 30 days prior to the demonstration test.~~

~~Based on current information for anticipated waste streams, the feeder pumps will be in both light liquid service and heavy liquid service, as defined in 40 CFR. An open ended valve, as defined in 40 CFR 264.1031, provides access for sample collection from the waste streams between the liquid feed tank and the feeder pumps. This open ended valve is subject to the capping requirements of 40 CFR 264.1056. The liquid feeder system will not operate in gas or vapor service.~~

D-8b(1)(b) Re-evaluating the Applicability of Subpart BB Standards

[691(1), 110, 264.1063(d)-(g), 264.1064(k)]

~~An annual re-evaluation of the applicability of Subpart BB Standards to the equipment within the MWF will be conducted in accordance with 40 CFR 264.1063(d)-(g). Documentation to support the demonstration will include data on total organic vapor concentrations in wastes entering the various processing units. The evaluation report will be in the facility operating record.~~

~~In addition to the annual re-evaluation, circumstances that would prompt an immediate re-evaluation of the applicability of Subpart AA standards to a piece of equipment, for example the dryer system TP-08, include:~~

- ~~1. operating records indicating that the concentration of organic vapors in the waste entering equipment other than the GASVIT™ liquid feed system exceed 10 percent by weight,~~
- ~~2. a proposed change in operating procedures that would allow processing of liquids or solids in the STB with organic vapor concentrations greater than 10 percent by weight.~~

~~As for the annual re-evaluation, records of these event driven re-evaluations will be maintained in the facility operating record. Organic vapor concentrations in the waste streams will be measured with SW-8260A or an equivalent method.~~

~~An applicability review will be conducted for units currently not subject to Subpart BB when:~~

- ~~1. Operating records indicate that the concentration of organics in waste entering the unit exceeds 10% by weight; or~~
- ~~1-2. A proposed change in operating procedures that would allow processing of wastes with organic contents of greater than 10% by weight.~~

D-8b(2) Demonstrating Compliance with Subpart BB Standards for Equipment Leaks

D-8b(2)(a) Procedures for Identifying Equipment Location and Method of Compliance, Marking Equipment, and Ensuring Records are Up-to-date

[806(4)(k), 691, 270.25 264.1050 - 264.1064]

This regulation is not applicable as currently the MWF does not have any equipment that is subject to 40 CFR 264, Subpart BB.

~~Procedures for identifying equipment location and method of compliance, marking equipment, and ensuring records are up to date are described in the RCRA Leak Detection and Repair (LDAR) Plan, included with Attachment 19. The LDAR plan will be revised and updated after equipment is purchased and the facility built. The revised plan will be resubmitted at least 30 days prior to the demonstration test.~~

~~All equipment subject to Subpart BB is located in Rooms 1, 2 and 4 of the GVB. The location of each item of equipment subject to Subpart BB is part of the equipment profile described in Section 4.1 of the LDAR plan and will be illustrated on a set of isometric piping drawings to be submitted at least 30 days prior to demonstration test. The system for ensuring that each piece of equipment subject to Subpart BB standards is physically marked to distinguish it readily from other equipment is described in Section 5.2 of the plan.~~

~~Procedures for ensuring that the records and logs required by 40 CFR 264.1064 are kept and updated in the operating record are described in Section 6 of the LDAR plan. The plan includes procedures to establish and update the information required for each piece of equipment subject to standards in Subpart BB, including:~~

- ~~(I) the equipment's identification number and the hazardous management area location indicated in the basic data file and on the corresponding isometric drawing~~
- ~~(II) the type of equipment indicated in the basic data file~~
- ~~(III) the range of percent weight of total organics in the hazardous waste stream and the state of the hazardous waste at the inlet to the equipment indicated in the history file~~
- ~~(IV) the hazardous waste state at the equipment indicated by the suffix attached to the specific process lines numbers on the P&IDs for the GASVIT™ liquid feeders~~

~~(V) — the method of compliance, either monthly leak detection or dual mechanical seals, will be indicated in the facility operating record~~

~~The LDAR plan also includes procedures to establish and update a log as part of the facility operating record with lists of equipment identification numbers for:~~

- ~~(I) — all equipment subject to the standards in 40 CFR 264.1052 through 40 CFR 264.1060, (listed in Section 5.1 of the LDAR);~~
- ~~(II) — pressure relief devices required to comply with 40 CFR 264.1054(a), (listed in Section 5.1 of the LDAR plan);~~
- ~~(III) — equipment in vacuum service;~~
- ~~(IV) — valves subject to 40 CFR 264.1057(g) and (h) that are either "unsafe to monitor" as designated under 40 CFR 264.1064(h)(1) or "difficult to monitor" as designated under 40 CFR 264.1064(h)(2), and~~
- ~~(V) — equipment designated for "no detectable emissions" under 40 CFR 264.1052(e), 40 CFR 264.1053(I), and 40 CFR 264.1057(f).~~

~~The log for equipment designated for "no detectable emissions" will also include the designation of this equipment signed by the owner or operator.~~

~~The LDAR plan also includes procedures to establish and update a log as part of the facility operating record for pumps and compressors with dual mechanical seal systems 40 CFR 264.1052(d) and 40 CFR 264.1053(e)], which are included in Section 5.1 of the plan. The log will include recording for each pump and compressor:~~

- ~~(I) — the criteria described in Section 7.1 of the LDAR plan that indicate failure of the seal system, the barrier fluid system, or both 40 CFR 264.1052(d)(5)(ii) and 40 CFR 264.10264.1053(e)(2)]~~
- ~~(II) — any changes to the initially established criteria and the reasons for those changes.~~

~~The LDAR plan also includes procedures to establish and update a log with two lists of valves subject to 40 CFR 264.1057(g) and (h) as part of the facility operating record. The log will include the following for valves on the lists:~~

- (I) ~~for each valve designated as unsafe to monitor, the information described in Section 7.5 of the LDAR Plan will be recorded, including the identification number, an explanation of why the valve is unsafe to monitor, and the plan for monitoring the valve~~
- (II) ~~for each valve designated as difficult to monitor, information similar to that described in Section 7.5 of the LDAR Plan will be recorded, including the identification number, an explanation of why the valve is difficult to monitor, rather than unsafe to monitor, and the plan for monitoring the valve~~

~~The LDAR plan, in Section 6.4 describes procedures to establish and update an inspection log that include equipment subject to Subpart BB standards, including identification and repair of leaking equipment in the facility operating record.~~

~~The LDAR Plan, Section 7.7 also includes procedures to establish and update a log as part of the facility operating record for equipment that is exempt from the Subpart BB requirements. The log will include:~~

- (I) ~~for each unit with equipment that is exempt, an analysis determining the design capacity of the hazardous waste management unit in which the equipment is located and a statement listing the hazardous waste influent to and effluent from the hazardous waste management unit and an analysis determining whether these hazardous wastes are heavy liquids.~~
- (II) ~~for each piece of equipment that is exempt, an up-to-date analysis including supporting information and data used to make the determination. The supporting documentation required by 40 CFR 264.1063(d)(3) will be included when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used.~~

D-8b(2)(b) Demonstrating Compliance with D-8b(1)(a) and (2)(a) Procedures

[806(4)(k), 691, 270.25, 264.1050 - 264.1059]

This regulation is not applicable as currently the MWF does not have any equipment that is subject to 40 CFR 264, Subpart BB.

~~This permit application has demonstrated compliance with the procedures in D-8b(1)(a) and (2)(a) by providing the following:~~

- (i) ~~a description of the management unit, the liquid feed lines for the GASVIT™ system, Part 264 Subpart BB applies, including the approximate location within the facility, Rooms 1, 2, and 4 of the GVB; and~~
- (ii) ~~a complete description of the records, logs, and lists in the LDAR plan and of the facility plot plan or layout in Drawing 31001-M-100-004 described under D-3b(2)(a)(iii)(A) through (F) identifying equipment subject to Subpart BB standards (LDAR Section 5.1), the method of compliance with leak detection and repair standards (LDAR Section 5.1.1), and equipment exempt from those standards (LDAR Plan 7.7).~~

~~Updates of the information submitted with this permit application and described in items (i) and (ii) above will be provided after the equipment is purchased and the facility is built. These updates will be provided at least 30 days prior to the start of the demonstration test. Updates will include the following items, most of which are described in the LDAR plan:~~

- ~~1. facility plot plan~~
- ~~2. process and instrumentation diagrams (P&IDs) LDAR Section 6.1~~
- ~~3. isometric piping arrangement drawings LDAR Section 6.2~~
- ~~4. the initial facility operating record LDAR Section 6.3~~
- ~~5. the inspection log LDAR Section 6.4~~
- ~~6. a log of valves unsafe to monitor LDAR Section 7.5~~
- ~~7. a log of valves difficult to monitor;~~
- ~~8. a list of equipment subject to the requirements of Subpart BB LDAR Section 7.6~~
- ~~9. exemption information LDAR Section 7.7.~~

~~All information discussed in this section will be kept in the MWF operating record and updated as necessary.~~

D-8b(2)(c) Closed Vent Systems or Control Devices: Showing Compliance with Emission Reduction Standards

[806(4)(k), 110, 690, 691, 270.25, 40 CFR 264.1033 - 264.1035, 264.1050 - 264.1055, 264.1059, 264.1060, 264.1063]

This regulation is not applicable as currently the MWF does not have any equipment that is subject to 40 CFR 264, Subpart BB.

The liquids feeder lines and equipment included in the GASVIT™ system do not include closed-vent systems or control devices as defined at 40 CFR 264.1031.

Although no additional controls are required, PEcoS has provided a HAZMAT enclosure that fulfills many of the functions of a closed-vent system. The liquid feed tank, the liquid feeder pumps, valves, the open-ended valve for sampling, and flanges are all located in GVB Room 4, the HAZMAT enclosure. The enclosure is directly vented to the building ventilation exhaust system through HEPA and carbon filters.

D-8C TANKS AND CONTAINERS
[40 CFR 270.2, 270.15, 270.16]

D-8c(1) Applicability of Subpart CC Standards
[40 CFR 264.1080, 264.1082]

Subpart CC regulations do not apply to the MWF since its waste management units are solely used for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act. This exemption is provided at WAC 173-303-692(1)(b)(vi) and 40 CFR 264.1080(b)(6).

The Mixed Waste Facility (MWF) will utilize tanks and containers as part of the waste management activities. The U.S. Environmental Protection Agency has developed standards under 40 CFR 264, Subpart CC, for air emissions for tanks, surface impoundments, and containers. These standards set design, work practice, and emissions control requirements associated with this equipment. There is no surface impoundment for the proposed MWF. The Subpart CC applicability, requirements, and compliance demonstration procedures for tanks and containers are discussed in the following sections:

D-8c(1)(a) Tanks

Subpart CC includes emissions control and other requirements applicable to tanks in hazardous waste service. The MWF will treat a wide range of wastes streams in the Stabilization Building and the GASVIT™ Building in fixed roof tanks. The tanks in waste service for the MWF are presented on Table D-8-1. Wastes streams with high organic compositions will be treated in the GASVIT™ process. For the Stabilization Building, the tanks will contain wastes with lower organic concentrations.

Under §264.1082(c), tanks or containers with an average volatile organic (VO) concentration less than 500 parts per million by weight (ppmw), or 0.050 weight percent, are exempt from the Subpart CC requirements. As shown on Table D-8-1, three of the MWF tanks contain fluids with concentrations less than 500 ppmw (0.05%) VO and are exempt from the control requirements of this rule. The other tanks have average VO concentrations in excess of this exemption and are required to implement emissions control measures under §264.1084.

This regulation is not applicable to tanks at the MWF since the MWF is exempt from Subpart CC standards.

D-8c(1)(b) Containers

This regulation is not applicable to containers at the MWF since the MWF is exempt from Subpart CC standards.

~~Table D-8-2 presents a summary of all the containers utilized for the proposed facility. Most containers are used in multiple areas of the facility. Under §264.1080(b)(2) containers with a volume less than 0.1 cubic meters (m³) are exempt from the Subpart CC requirements, excluding recordkeeping and non-conformance reporting. Based on this exemption, the containers presented on Table D-8-2 are categorized as exempt/nonexempt based on this size cutoff. The nonexempt containers are required to adopt the control measures identified in §264.1086.~~

~~**D-8c(2) Tank Systems and Containers Standard**~~

~~**D-8c(2)(a) Tanks**~~

~~Based on their volumes and maximum organics vapor pressures, the non-exempt tanks are required to implement a Level 2 control measure as defined under §264.1084. After considering the available emissions control options, the emissions from these tanks will be routed through a closed-vent system to a control device. The MWF will collect all tank vapors in a closed system and treat the vapors with a control device. Multiple carbon adsorption systems, all of which achieve 95 percent or greater removal of the volatile organics, have been selected as the control devices. Both the Stabilization Building and the GASVIT™ Building will have carbon adsorption systems for organic emissions control. The closed-vent systems and control devices are designed and operated in accordance with the requirements under §264.1087.~~

~~The nonexempt tanks are a fixed roof design with hard pipe tank filling. The tank vents are tied to the closed-vent systems. Each tank is equipped with a manway for access to the tank interior to perform routine maintenance as necessary. These openings are covered and remain closed except during the actual maintenance. The tanks are constructed of materials that are well suited to the wide range of characteristics of the waste to be managed.~~

~~Whenever the tanks are in hazardous waste service, the manways are closed and the vessels are vented to the closed system and control device except when the tanks are inspected, routine maintenance is conducted, waste sampling is conducted, or when accumulated sludge is removed. These short periods of control downtime are allowed under §264.1084(g)(2).~~

~~**D-8c(2)(b) Carbon Adsorption Systems**~~

~~Each building will have two carbon adsorption systems in series to ensure a high level of emissions control. Each system consists of two fixed carbon beds. For each building, the tank vents will be tied into the building ventilation system. The combined uncontrolled streams will be routed to the carbon adsorption systems. The operation of each building's adsorption system has the vent stream routed through the online carbon bed of the first adsorption system and then~~

through the online bed of the second system. The first bed removes the bulk of the organic contaminants with the second bed used as a final polishing step. Once monitoring of the first bed has detected a measurable increase in the concentration of VOs, valving will be adjusted to redirect the vent streams into the online bed of the second adsorption system. The offgas from this bed will then be routed to the fresh bed in what was the first system. Two carbon beds will always be online to control the building ventilation exhaust streams. The spent carbon removed from the adsorber will be thermally treated in the GASVIT™ system.

With the selection of carbon adsorption systems for the tank control measures, standards are present for the adsorbers defined under §264.1087. The design of the closed vent system does not include full system bypasses of the carbon adsorbers, therefore, the §264.1087 system bypass requirements do not apply.

The carbon adsorbers are designed to achieve 95 percent by weight removal of the total organic content of the inlet vapor as required under §264.1087(c)(1), except during periods of routine maintenance or system malfunction. The 95 percent removal includes the emissions associated with the carbon adsorption and carbon disposal as stated under §264.1087(c)(5)(v).

Following the initial startup of the control device, all activated carbon will be replaced with fresh carbon in accordance with the requirements included under §264.1033(h)(1). The carbon systems will be a fixed bed design. No regeneration will be conducted to reclaim the carbon. The carbon replacement will follow the procedures under §264.1033(h)(1) for non-regenerating carbon systems, which allow carbon replacement when carbon breakthrough is indicated by regular monitoring. The monitoring conducted is discussed below under Section D-8e(3)(a).

All carbon removed from the systems will be managed as described under §264.1033(n). The spent carbon is a hazardous waste and will be removed from a carbon bed and treated in the MWF GASVIT™ unit. This carbon treatment corresponds to destruction in a hazardous waste incinerator.

No more than 240 hours per year are allowed for routine maintenance of the control device. Any control device malfunctions will be corrected as soon as is practicable after their occurrence in order to minimize excess air emissions.

The performance requirements that the carbon adsorption units achieve the required 95 percent removal of the volatile organics is demonstrated by design analysis as allowed under §264.1035(b)(4)(iii). The design analysis incorporates the following information including the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis establishes the design outlet organic concentration level, the capacity of the carbon bed, the type and working capacity of activated carbon used, and the design carbon replacement interval based on the total carbon working capacity of the adsorber and the MWF operating schedule. The carbon adsorption systems design analyses are maintained in the MWF construction records.

D-8e(2)(e) — Closed Vent Systems

Subpart CC identifies standards for closed systems and control devices under §264.1087, which references the process vent RCRA requirements for closed vent systems under §264.1033. In conformance with these standards, the closed vent system will collect all tank vapors and route the gases to a control device. The carbon adsorption systems will have no bypasses, therefore, all collected emissions will be routed to the control equipment. The closed vent systems will be operated in a manner to avoid venting vapors to the carbon adsorption systems during periods of planned maintenance or control device malfunction, unless the venting must occur due to safety considerations.

The closed vent systems are designed to meet the closed system requirements defined under §264.1033(k). In conformance with these requirements, the closed vent system will be designed to operate below atmospheric pressure. The closed vent system is equipped with pressure gauges to verify that the systems for both the Stabilization and GASVIT™ Buildings operate at the required negative pressure.

~~D-8c(2)(d) — Containers~~

Emissions standards for the nonexempt containers are included under §264.1086. The containers to be used by the MWF have a wide range in sizes as well as the composition of the waste. With one exception, the containers standards define either a Level 1 or a Level 2 control based on container design capacity and whether the waste is classified as light liquid. The exception is Container Level 3 standards for containers having a design capacity greater than 0.1m³ and used for treatment of a hazardous waste by a waste stabilization process.

Level 1 control options under §264.1086(e)(1) include:

- (1) A container that meets the applicable Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as specified in §264.1086(f);
- (2) A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container; or,
- (3) An open top container in which an organic vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere.

Level 2 control options under §264.1086(d)(1) include:

- (1) A container that meets the applicable DOT regulations on packaging hazardous materials for transportation as specified in §264.1086(f);
- (2) A container that operates with no detectable organic emissions as defined in 40 CFR 265.1081 and determined in accordance with the procedure specified in §264.1086(g);

- (3) ~~A container that has been demonstrated within the preceding 12 months to be vapor-tight by using 40 CFR part 60, appendix A, Method 27, in accordance with the procedure specified in §264.1086(h).~~

Level 3 control options under §264.1086(e)(1) include:

- (1) ~~A container that is vented directly through a closed-vent system to a control device in accordance with the requirements of (e)(2)(ii) of this section.~~
- (2) ~~A container that is vented inside an enclosure which is exhausted through a closed-vent system to a control device in accordance with the requirements of paragraphs (e)(2)(i) and (e)(2)(ii) of this section.~~

~~Because the waste composition is highly variable for those wastes that exceed the 500 ppmv composition exemption, all wastes are assumed to be light liquid for the purposes of defining the control levels. For the MWF containers with sizes between 0.1 m³ and 0.46 m³, Level 1 control is required. For the larger containers, Level 2 control measures are required. For containers used for the stabilization of hazardous wastes in System TT-03, Container Level 3 control measures are required. Therefore, the MWF containers will meet the §264.1086(e)(1)(i) Level 1, §264.1086(d)(1)(i) Level 2 control measures, and §264.1086(e)(1)(i) Level 3 control measures. The applicable DOT regulations will be met for each container type as is required under §264.1086(f).~~

~~All waste will be transferred in and out of containers in a manner that minimizes the generation of air emissions as required under §264.1086(e) and §264.1086(d). Any emissions from open containers will be captured and treated by the building ventilation system. When waste is in the containers, all covers and closure devices will be installed and secured except when waste is added or removed from the containers. The closure devices will be promptly secured after the container is opened to add or remove waste. The closure devices will be opened when it is necessary to perform routine activities other than waste transfer including measuring the container depth, collecting a sample of the waste, or other similar activities. Once the routine activity is completed, the closure devices will be promptly secured. The containers are not equipped with pressure relief valves or other spring-loaded safety equipment. Therefore, the standards for these devices are not applicable to the MWF containers.~~

~~**D-8c(3) — Tank Systems and Containers — Demonstrating Compliance**~~

~~The procedures proposed for demonstrating compliance with the regulatory limits identified in D-8c(2) for tanks, carbon adsorption systems, closed-vent systems, and containers are presented in the following subsections.~~

~~**D-8c(3)(a) — Inspection and Monitoring Requirements and Procedures**~~

~~The MWF will conduct inspection and monitoring activities defined under various sections of the RCRA code. As described under §264.1088, a written plan documenting the schedule and scope of the Subpart CC inspections and monitoring requirements will be developed and~~

incorporated in the facility leak detection and repair plan required under §264.15. The equipment specific requirements are discussed in the following subsections:

~~D-8c(3)(a)(i) Tanks~~

~~The general tank inspection requirements are defined under §264.1087(g)(3) for Level 2 tanks using closed vent systems and control devices. Following construction and prior to startup of the tank systems, the fixed roof and the manway covers will be visually inspected for defects that could result in air emissions. The inspector will look for cracks, holes, tears, and other defects. These inspections will be performed at least once a year. The results of the inspections are documented in the plant operating records as required under the recordkeeping provisions under §264.1089(b).~~

~~D-8c(3)(a)(ii) Carbon Adsorption Systems~~

~~The §264.1033(h) subsection defines requirements for carbon replacement for carbon adsorption systems that do not regenerate the carbon bed directly onsite. PEcoS will utilize volatile organic (VO) monitoring systems for the carbon adsorption systems for each building. The monitoring will be conducted continuously using a flame ionization detector. Bed breakthrough occurs when the rolling 24 hour average VO concentration is 20 ppm above the background level. The background level is established by measuring a four hour average of the VO reading at the outlet of a freshly charged carbon bed. Once breakthrough has been indicated in the first carbon bed for each system, the valving will be adjusted to route the uncontrolled vent stream from the first online bed to the second online bed. Fresh carbon will replace carbon in the spent bed, which then becomes the second online bed. PEcoS will also meet the general inspection requirements for the carbon adsorption systems defined under §264.1088.~~

~~D-8c(3)(a)(iii) Closed Vent Systems~~

~~The closed vent system will be monitored following the requirements identified in §264.1033(l). Under §264.1033(l)(2), the closed vent systems will receive an initial visual inspection before the startup that will be repeated at least every year. The visual inspection will include checks for defects that could result in fugitive air emissions. The types of defects include visible cracks, holes, or gaps in ductwork or piping or loose connections. Any defects will be repaired as defined under §264.1033(l)(3). The results of these inspections will be recorded as required under §264.1035(e)(3).~~

~~D-8c(3)(a)(iv) Containers~~

~~Inspections of containers will be conducted as required under §264.1086(e)(4) and §264.1086(d)(4) and §264.1086(e)(4). All containers of hazardous waste received by the MWF facility will be inspected for visible cracks, holes, gaps, or other openings into the container interior. For containers that are used onsite for waste management purposes, the containers and closure devices will be visually inspected after the first filling with additional inspections completed once every 12 months. Any container defects will be repaired as required under §264.1086. Inspections and monitoring of closed vent systems required to comply with Level 3~~

container standards will be conducted as specified in §264.1087. The results of the inspections will be maintained in the plant operating records as required under §264.1088.

~~D-8e(3)(b) — Corrective Action And Repair Requirements~~

~~D-8e(3)(b)(i) — Tanks~~

~~In the event of detection of a defect during the tank fixed roof and closure device inspections, a first attempt at repair will be completed within 5 calendar days following the defect detection. The repair will be completed within 45 calendar days of finding the defect, unless the tank cannot be removed from service because no alternate tank capacity is available. If this condition arises, the repair will be completed the next time the process is shut down. All repair attempts and completed repairs will be documented in the facility operating log.~~

~~D-8e(3)(b)(ii) — Carbon Adsorption and Closed Vent Systems~~

~~Any detectable emissions from the closed vent system require repair under §264.1033(l)(3) as soon as practicable. The first attempt at repair must be made no later than 5 calendar days after the emission is detected, and emissions controlled no later than 15 calendar days after detection. This 15 day window can be exceeded if the defect repair is technically infeasible without a process shutdown. The repair shall be completed during the next process shutdown. A record of all defects and repairs will be maintained in the facility operating log as required under §264.1035.~~

~~D-8e(3)(b)(iii) Containers~~

~~In the event that an opening into a container is identified during the initial inspections for those containers received onsite, a first effort for repair will be attempted no later than 24 hours after detection. The repair will be completed no later than 5 days after detection of the defect. If the repair cannot be completed within the allotted period, the waste shall be removed from the container and the container will not be used until the repair is completed. A record of all defects and repairs will be maintained in the facility operating log as required under §264.1088.~~

~~D-8e(3)(e) — Recordkeeping Requirements~~

~~PEcoS' recordkeeping system is designed to comply with the extensive requirements of Subpart CC for the MWF's tanks, carbon adsorption systems, closed vent systems, and containers. Except for the air pollution control equipment design documentation and the tank systems design certifications, the records defined under §264.1089 will be maintained for a minimum of three years. The design documentation for the air pollution control equipment and tank systems shall be maintained in the operating record until the equipment is replaced or no longer in service.~~

~~D-8C(3)(C)(I) — DESIGN DOCUMENTATION AND CERTIFICATION~~

~~PEcoS is required to maintain records that demonstrate that the tanks, closed vent systems, and air pollution control equipment meet applicable design requirements. The specific design related records are discussed in the following subsections.~~

~~D-8e(3)(e)(i)(A) — Tanks~~

~~All hazardous waste storage tanks are required under §264.192, Subpart J, to document and certify that the tank systems have sufficient structural integrity and are well suited to store hazardous waste. An independent assessment of this design prior to construction is completed for new tank systems. The assessment must consider such factors as the foundation, structural support, seams, connections, pressure controls, compatibility with stored wastes, and corrosive protection to ensure that the tank system will not collapse, rupture, or fail. In addition, a second tank systems assessment is completed during construction of the tank system to ensure proper installation of the equipment prior to use. Both assessments must be completed by an independent, qualified installation inspector or professional engineer.~~

~~The MWF facility will maintain on file at the facility the written statements by tank systems assessors that attest that the tank systems were properly designed and constructed.~~

~~D-8e(3)(e)(i)(B) — Closed Vent and Carbon Adsorption Systems~~

~~PEcoS is required to maintain documentation for the closed vent system and the carbon adsorption units that includes a certification stating that the carbon adsorption systems are designed to operate at the performance levels documented in the design analysis required under §264.1035(b)(4). The documentation for the closed vent system and the carbon adsorption units will also include the results of the design analysis demonstrating that the control devices operate as is required and the equipment meets all applicable specifications.~~

~~D-8e(3)(e)(ii) Facility Operating Records~~

~~The facility must maintain operating records for the tanks, carbon adsorption systems, closed-vent systems, non-exempt containers, and exempt containers. These records are described in the following subsections:~~

~~D-8e(3)(e)(ii)(A) — Tanks~~

~~For the tanks using the carbon adsorption systems for the Level 2 control requirements, the MWF will record tank identification numbers and the records of inspections. The inspections data will include the dates of inspections and the following information required for each defect identified:~~

- ~~• The location of the defect;~~
- ~~• A description of the defect;~~
- ~~• The date of detection of the defect; and,~~
- ~~• The corrective action taken to repair the defect.~~

~~In the event that a repair of the defect is delayed in accordance with the Subpart CC provision, the reason for the delay and the expected date for repair of the defect will be recorded.~~

~~D-8e(3)(e)(ii)(B) — Carbon Adsorption Systems~~

~~As stated previously, the carbon adsorption systems are limited to a maximum of 240 hours per year of routine maintenance, during which the tank emissions are not required to achieve the 95 percent volatile organic emissions control level. Specific data to demonstrate the time required for routine maintenance will be recorded following the requirements defined under §264.1089(e)(1)(v). The MWF is responsible for recording on a semi-annual basis the planned maintenance activities and previous maintenance activities for the carbon adsorption systems. The planned routine maintenance for the next 6 month period shall include a description of the maintenance to be conducted, the planned frequency of the maintenance, and the lengths of the maintenance periods. The completed maintenance during the previous 6 months shall include a description of the type of maintenance performed, and the total number of hours during the 6 months that the adsorbers did not meet 95 percent control of the tank emissions.~~

~~Under §264.1089(e)(1)(vi), the MWF will also record information concerning unexpected control device system malfunctions when the 95 percent control requirements would not be met. The information to be recorded will include the occurrence and duration of each malfunction of the control device system, the duration of periods when the control device is not operating properly, and the actions taken during these malfunctions to restore the control equipment to its normal operation.~~

~~PEcoS will also maintain records for the management of the carbon removed from the spent carbon beds. The records will include the date of the carbon removal, the date of carbon treatment in the GASVIT™ unit, and the amount of fresh carbon added to the carbon bed. All other records of inspections and maintenance for the tanks will be maintained in the facility operating records.~~

~~D-8e(3)(e)(ii)(C) — Closed Vent Systems~~

~~The results of the closed vent systems inspections, defects identification, and repairs will be documented in the facility operating record as required under §264.1033(1)(3). Records of any maintenance will also be maintained.~~

~~D-8e(3)(e)(ii)(D) — Containers~~

~~Records will be maintained to document the container inspections, both initial and annual, and the results of any repair required to eliminate openings into the interior of the container.~~

~~D-8e(3)(e)(ii)(E) — Exempted Containers and Tanks~~

~~As required under §264.1089(f)(1), records will be maintained for the exempted containers documenting the information used to determine that the stored waste is under the §264.1082(e)(1) average VO concentration of 500 ppmw. The site is required to maintain records documenting the basis for the 500 ppmw concentration exclusion. Records will be maintained of the results of analyzing waste compositions including the date, time, and location that each waste sample was collected.~~

D-8c(3)(d) — Reporting Requirements

A number of possible waste streams to be treated by the MWF are exempt from Subpart CC requirements because the wastes have volatile organic concentrations that fall below the 500 ppmw exemption. In the event that an exempted waste stream is received and handled in an exempt container, and the wastes are subsequently found to have concentrations in excess of the 500 ppmw exemption, the EPA Regional Administrator will receive a report identifying these occurrences, as required under §264.1090(a). A report shall be prepared and submitted that identifies the following information:

- The MWF EPA identification number;
- The facility name and address;
- A description of the noncompliance event and the cause;
- The dates of the noncompliance; and,
- The actions taken to correct the noncompliance and prevent the recurrence of the noncompliance.

The report will be signed and dated by an authorized representative of the MWF.

Because the MWF will use air pollution control devices for compliance with the tanks standards under Subpart CC, a semiannual report must be prepared and submitted to the EPA Regional Administrator as defined under §264.1090(b). This report is required to document each occurrence in the previous 6 months when the carbon adsorption units are not operated continuously for 24 hours or longer in noncompliance with §264.1035(e)(4). The semiannual report is not required if the site had no 24-hour period or longer where a control device operated in noncompliance with the applicable operating values defined in §264.1035(e)(4).

D-8d Miscellaneous Units

The Mixed Waste Facility (MWF) will utilize miscellaneous units as part of the waste management activities. As required by RCRA 40 CFR 264.600-600 (Subpart X), the U.S. Environmental Protection Agency regulates these units under 40 CFR 264.1080 Subpart CC, Emissions Standards for Tanks, Surface Impoundments and Containers. To comply with Subpart CC regulations, no actions in addition to those described in previous sections are required. All components of the miscellaneous units are either tanks and containers discussed in previous sections or are exempt from the Subpart CC regulations.

D-8d(1) Applicability of Subpart CC Standards

PEcoS addressed Subpart CC requirements for all tanks and containers at the mixed waste facility in Section D-8e of this attachment. This section addresses Subpart CC requirement for miscellaneous that are neither tanks nor containers.

The miscellaneous units that are neither tanks nor containers include the Feed Prep System (GV-01), the Process Vent System (GV-09), and the Secondary Waste Treatment System (GV-11).

~~Subpart CC standards are potentially applicable to these units only during the Demonstration Test described in Attachment 3 to this permit application. The Demonstration Test will be conducted prior to any operations with mixed wastes.~~

Pursuant to 40 CFR 264.1080(b)(6), the requirements of Subpart CC, Air Emission Standards for Tanks, Surface Impoundments, and Containers, do not apply to a waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act.

~~Except during the demonstration test period, the GASVIT™ system process will be used solely to treat and stabilize a wide variety of low level mixed wastes. During the demonstration test period the GASVIT™ system will treat non-radioactive volatile organics potentially subject to Subpart CC regulations. Miscellaneous treatment units at the MWF handle solely re radioactive mixed waste. Hence, Subpart CC requirements do not apply to them.~~

~~D-8d(1)(a) Feed Prep System (GV-01)~~

~~Solid wastes are sorted in the Feed Prep System before being processed by the GASVIT™ system. Once solid waste containers are inspected and accepted for processing by the GASVIT™ system, they are sent to either the sort box or sort table. Generally, PCB-contaminated wastes are sent to the sorting box and all other solid wastes are sent to the sorting table. The sorted wastes are then sent to the shredder where the solids are reduced to a pre-selected size.~~

~~The equipment components comprising the Feed Prep System are presented in Table D-8-3. The solid waste shredder, the sort table, and the sort box were not covered in earlier sections of this attachment. However, these components are used only to process radioactive mixed wastes. There will not be any hazardous wastes processed in the Feed Prep System before or during the Demonstration Test. Therefore, Subpart CC will not be applicable to this equipment.~~

~~D-8d(1)(b) Process Vent System (GV-09) - Reserved~~

~~The Process Vent System collects fugitive emissions from the waste handling preparation areas. A list of equipment included in the Process Vent System is shown in Table D-8-4. Vapor and dust are captured at the point of generation and transported through a high velocity exhaust system to a control system consisting of a bag house and a carbon absorption system before being discharged. The bag house controls solids emissions from the Feed Prep System. As mentioned above, the Feed Prep System will not be processing any hazardous waste before or during the Demonstration Test. Therefore, Subpart CC will not be applicable to the baghouse. The carbon bed system is covered under the Subpart CC compliance plan for closed vent systems, Section D-8-C, and meets the requirements under 40 CFR 264.1087 for control devices used to control air emissions. is currently not operating. All treatment units were removed and RCRA-closed. The process vent system will be included when PFNW-R requests a new permit modification to install future processes.~~

~~D-8d(1)(c) Secondary Waste Treatment System (GV-11)~~

~~The syngas by-product discharged from the GASVIT™ process chamber is a mix of hydrogen,~~

carbon monoxide, steam, acid gases, particulates, low-temperature vaporized metals, and potential products of incomplete reaction. A three-stage process consisting of a filter and two scrubbers, separates out nearly all of the syngas impurities prior to converting the purified gas into water and carbon dioxide.

The Secondary Waste Treatment System treats the blowdown from the syngas scrubbers. Water rejected from the filters and liquid/solid separators in the syngas scrubbers spray loops is processed through the evaporator where the waste water is evaporated off and then condensed for reuse by the scrubbers. The concentrate is collected and sent off site for disposal.

Table D-8-5 lists the equipment included in the Secondary Waste Treatment System. The tanks and containers listed in Table D-8-5 were addressed in Section D-8C. The condenser and evaporator have not been previously addressed.

As the secondary waste treatment system manages waste from a thermal treatment unit that is functionally equivalent to a hazardous waste incinerator, the system is exempt from Subpart CC requirements as specified in 40 CFR 24.1082(e)(2)(vii).

During testing conducted in April 2000 to demonstrate equivalency of the GASVIT™ system to incineration, the average volatile organic (VO) concentration of the scrubber blowdown entering the units was much less than 500 ppmw at the point of origin (blowdown from the scrubber system). Since the average VO concentration at the point of waste origination was less than 500 ppmw, the miscellaneous units in the Secondary Waste Treatment System are also exempted from the Subpart CC requirements pursuant to 40 CFR 264.1082(e)(1).

Table D-8-1. Mixed Waste Facility Tanks

Building	Tank Description	Tank Volume		Maximum Organic Composition (weight %)	Maximum Organic Vapor Pressure		Design Control Level	Emissions Controls
		(gal)	(m3)		(psi)	(kPa)		
GASVITTM Stabilization	GV-2 Liquid Feed Tank	375	1.42	90	0.13	8.65E-01	Level-2	Carbon System
	GV-11 Scrubber Bottoms Waste Tank	1,200	4.54	<0.05	N/A	N/A	Exempt	-
	GV-11 Scrubber Distillate Tank	1,200	4.54	<0.05	N/A	N/A	Exempt	-
	TP-6 Liquid Holding Tank #1	1,200	4.54	1.28	5.52E-04	3.81E-03	Level-2	Carbon System
	TP-6 Liquid Holding Tank #2	1,200	4.54	1.28	5.52E-04	3.81E-03	Level-2	Carbon System
	TP-04 Liquid Treatment Tank #1	1,200	4.54	1.28	5.52E-04	3.81E-03	Level-2	Carbon System
	TP-04 Liquid Treatment Tank #2	1,200	4.54	1.28	5.52E-04	3.81E-03	Level-2	Carbon System
	TT-03 Mix Tank	85	0.32	1	5.52E-04	3.81E-03	Level-2	Carbon System
	TT-06 Wash Tank for Tote-Bin Washer	425	1.61	<0.05	N/A	N/A	Exempt	-

Table D-8-2. Mixed Waste Facility Containers

Container Category	Container-Description	Volume	Permit-Status ¹
Small Containers	Plastic Carboys	1-gallon	Exempt
		2-gallons	Exempt
		5-gallons	Exempt
	Stainless-Steel Carboys	1-gallon	Exempt
		2-gallons	Exempt
		5-gallons	Exempt
	Plastic Bottles	0.5-gallon	Exempt
		1-gallon	Exempt
		4-gallons	Exempt
Drums	Steel Drum, Open-Top	5-gallons	Exempt
		20-gallons	Exempt
		30-gallons	Nonexempt
		55-gallons	Nonexempt
		85-gallons	Nonexempt
	Steel Drum, Closed-Top	5-gallons	Exempt
		20-gallons	Exempt
		30-gallons	Nonexempt
		55-gallons	Nonexempt
		85-gallons	Nonexempt
	Stainless-Steel Drum, Open-Top	30-gallons	Nonexempt
		55-gallons	Nonexempt
	Stainless-Steel Drum, Closed-Top	30-gallons	Nonexempt
		55-gallons	Nonexempt
	HDPE Drum, Open-Top	30-gallons	Nonexempt
55-gallons		Nonexempt	
HDPE Drum, Closed-Top	30-gallons	Nonexempt	
	55-gallons	Nonexempt	
Intermediate Bulk Container	Steel, Steel Hopper Bottom Tote	62 cubic feet	Nonexempt
	Steel, Stainless-Steel Hopper Bottom Tote	62 cubic feet	Nonexempt
	Stainless-Steel Liquid Tote	350-gallons	Nonexempt
	HDPE Liquid Tote	330-gallons	Nonexempt
B-25 Boxes	Micro-encapsulated Waste Containers	96 cubic feet	Nonexempt
	Stabilized Waste Containers	96 cubic feet	Nonexempt
	6-Drum Storage Box	96 cubic feet	Nonexempt
	64 and 96 ft ³ general storage boxes	64 & 96 cubic feet	Nonexempt
ISO Containers (Seavans)	20-Foot Seavan	1,440 cubic feet	Nonexempt
	40-Foot Seavan	2,880 cubic feet	Nonexempt

¹Exempted based on volume less than 0.1 m³ (3.5 ft³ or 26.4 gallons)

TABLE D-8-3

Feed-Prep System Components (GV-01)

Solid Waste Shredder
Sort Table
Sort Box
Examination Area
Examination Area Vent Hood
Examination Area Waste Container
Sort Box Metal Collection Drum
Sort Table Vent Hood
Sort Table Metal Collection Drum
Batch Feed Cannister

TABLE D-8-4

Process Vent System Components (GV-09)

Feed and Shredder Vent Bag House
Carbon Bed Filter
Blower

Table D-8-5

Secondary Waste Treatment System Components (GV-11)

Scrubber Bottom Waste Tank
Waste Water Evaporator
Condensate Drum
Condenser
Distillate Tank
Distillate Pump