NEWMOA

RCRA 101:

Requirements for Hazardous Waste Tanks

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Course Overview

- What are Tanks?
- Regulations
  - Subpart J Requirements (264.190- 264.200)
  - Part B information requirements: 270.16 and 270.27
- Policy Interpretations

- Discussion!

What is a Tank?

According to 40 CFR 260.10:

- *Tank* means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

- *Tank system* means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

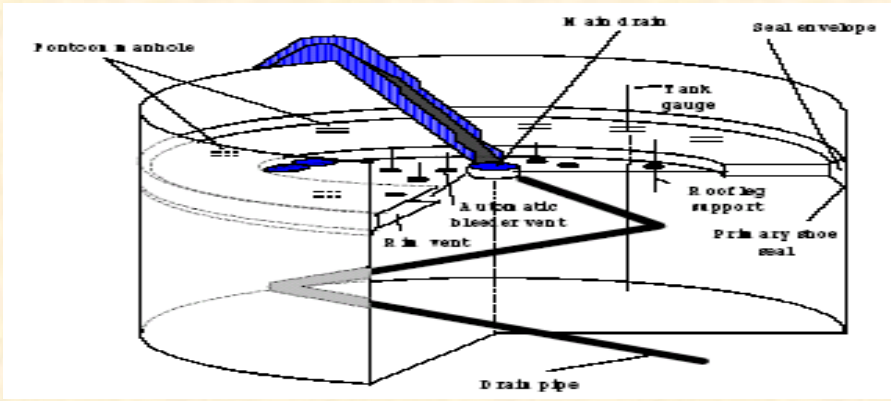
- *Ancillary equipment* means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal onsite, or to a point of shipment for disposal off site.

Hazardous Waste Tanks

- Tanks are used for the storage, accumulation, and or treatment of of hazardous waste.

- Tanks used by hazardous waste TSDFs and generators are subject to the Subpart J standards of parts 264/265.

Hazardous Waste Storage in Tank Systems



"Tank" means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

Parking Lot Test

Aboveground Tanks

90-Day Storage Tank

Tanks?

Tank Types

- Aboveground - entire surface is completely above plane of adjacent surrounding surface
- Onground tank - bottom of tank on same level as adjacent surrounding surface
- Inground tank - base below plane of ground level; not completely buried
- Underground tank - entire surface area below ground level

Subpart J Requirements

- Applicability (264.190)
- Integrity Assessments (264.191)
- Design and Installation (264.192)
- Containment and detection of releases (264.193)
- General operating requirements (264.194)
- Inspections (264.195)
- Response to leaks or spills (264.196)
- Closure and post-closure (264.197)
- Ignitable and reactive wastes (264.198)
- Incompatible wastes (264.199)
- Air emission standards (264.200)

Section D. Process Information - Tanks

Permit Application Review

RCRA I.D. No.: _____ Facility Name: _____ Page D-1 of D-3

CHECKLIST FOR REVIEW OF FEDERAL RCRA PERMIT APPLICATIONS

SECTION D. PROCESS INFORMATION - TANKS

Section and Requirement		Federal Regulation	Review Consideration[a]	Location in Application[b]	See Attached Comment Number[c]
D-2	Tank Systems	270.16; 264.191 - 194			
D-2a	Tank Systems Descriptions	270.14(b)(1)	Describe type (aboveground, underground) and specific location of each tank.		
D-2a(1)	Dimensions and Capacity of each Tank	270.16(b)			
D-2a(2)	Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls	270.16(c); 264.194(b)			
D-2a(3)	Diagram of Piping, Instrumentation, and Process Flow	270.16(d)			
D-2a(4)	Ignitable, Reactive, and Incompatible Wastes	270.16(j); 264.17(b); 264.198,199	Demonstrate that waste is stored or treated in a way that protects against ignition or reaction.		
D-2b	Existing Tank Systems				
D-2b(1)	Assessment of Existing Tank System's Integrity	270.16(a); 264.191	A written tank assessment must be certified by an independent, qualified, registered professional engineer.		
D-2c	New Tank System				
D-2c(1)	Assessment of New Tank System's Integrity	270.16(a),(e); 264.192(a)	A written tank assessment must be certified by an independent, qualified, registered professional engineer.		
D-2c(2)	Description of Tank System Installation and Testing Plans and Procedures	270.16(f); 264.192(b) - (e)	A new tank installation must be inspected by an independent, qualified, installation inspector or registered professional		

D2_TANKS.WPD

Reviewer: _____

Checklist Revision Date (December 1997)

Tank System Checklist Items

Requirement	Description
(A) Written Assessment of Structural Integrity and Suitability of Tank § 270.305.(a); § 267.191	Provide a written assessment which proves that the tank system(s) at your facility has sufficient structural integrity, and is able to store and treat hazardous waste. The assessment must be certified by an independent, qualified registered professional engineer, and should must include the following information:
Tank Design Standards § 267.191(a)	The design standard(s) for the construction of tank(s) and/or the ancillary equipment
Waste characteristics § 267.191(b)	A description of the hazardous characteristics of the waste(s) to be handled
Corrosion Protection for New Tanks Systems or Existing Tank Components in Contact with Soil or Water § 267.191(c) (1-2)	For new tank systems at your facility, in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, provide a determination by a corrosion expert of the: (1) Factors affecting the potential for corrosion (2) Type and degree of external corrosion protection needed to ensure tank system integrity during use of the tank system or component.
Structural Design Considerations § 267.191(d)(1-3)	Design considerations to ensure that: (1) Tank foundations will maintain the load of a full tank. (2) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is located in a saturated zone or is located within a seismic fault zone subject to the standards of Sec. 267.18(a). (3) Tank systems will withstand the effects of frost heave.

Tank System Checklist Items (cont')

Requirement	Description
(B) Dimensions and Capacity of Each Tank § 270.305(b)	Provide documentation describing the dimensions and capacity of each tank.
(C) Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls § 270.305(c)	Provide a detailed plan describing the feed systems, safety cutoff, bypass systems, and pressure controls (e.g., vents).
(D) Diagram of Piping, Instrumentation, and Process Flow for Each Tank System § 270.305(d)	Provide a diagram of piping, instrumentation, and process flow for each tank system.
(E) Description of Materials and Equipment used to Provide External Corrosion Protection. § 270.305(e); 267.191(c)	Provide a description of materials and equipment used to provide external corrosion protection.
Factors Affecting the Potential for Corrosion § 270.305; 267.191(c)(1)	Provide a description of factors affecting the potential for corrosion [such as soil moisture content, soil pH, soil sulfide level, soil resistivity, structure to soil potential, influence of nearby underground metal structures (e.g., piping), existence of stray electric current, existing corrosion- protection measures (e.g., coating, cathodic protection)].

Tank System Checklist Items (cont')

Requirement	Description
(F) New Tank Systems ***§ 270.305(f); § 267.192; § 267.194***	Provide a detailed description of how all new tanks systems will be installed at your facility to meet the requirements of § 267.192 and § 267.194.
Handling and Inspection Procedures § 267.192(a)(1-6)	Provide a detailed description demonstrating you followed proper handling procedures to prevent damage to a new tank system during installation. Before placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, registered professional engineer, must inspect the system for the presence of any of the following items: (1) Weld breaks; (2) Punctures; (3) Scrapes of protective coatings; (4) Cracks; (5) Corrosion; (6) Other structural damage or inadequate construction/installation.
Handling and Inspection Procedures § 267.192(b)	Provide a detailed description of how you plan to remedy all discrepancies before the tank system is placed in use.
Protection of Ancillary Equipment § 267.194(a)	Provide a detailed description of how you plan to support and protect ancillary equipment against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.
Installation of Corrosion Protection System § 267.194(b)	Provide a detailed description of the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under § 267.191(c), to ensure the integrity of the tank system during use. Include documentation that an independent corrosion expert supervised the installation of a corrosion protection system that is field fabricated to ensure proper installation.

Tank System Checklist Items (cont')

Requirement	Description
(***G) Secondary Containment System*** ***§ 270.305(g); § 267.195; § 267.196***	Provide a detailed description of how your tank system(s) secondary containment system meets, or will meet, the design, construction and operational requirements of § 267.195; § 267.196.
Prevention of Migration of Wastes or Accumulated Liquid § 267.195(a) (1-2)	Provide detailed plans and description of how the secondary containment systems will be: (1) Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system; and (2) Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.
Design and Construction of Secondary Containment System § 267.195(b)(1-4)	Provide a detailed description of how the design and construction of the secondary containment system for each tank system at your facility will prevent releases to the environment. The description should document that the containment system(s) is (are): (1) Constructed of or lined with materials that are compatible with the wastes(s) to be placed in the tank system and has sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic). (2) Placed on a foundation or base that provides support to the secondary containment system, resists pressure gradients above and below the system, and is capable of preventing failure due to settlement, compression, or uplift; (3) Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time; (4) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. You must remove spilled or leaked waste and accumulated precipitation from the secondary containment system within 24 hours or as promptly as possible to prevent harm to human health and the environment.

The Permit Application for RCRA Tanks

- Detailed tank system description
  - Materials of construction, dimensions, capacity
  - Piping, instrumentation, and process flow diagrams
  - Feed system, bypass, and cutoff control descriptions
  - Overflow and spill prevention protocols
  - Secondary containment description
  - Corrosion protection detail, if tank system is in contact with soil or water
  - Site conditions that could impact tank performance
- Tank integrity and suitability assessment certified by an independent, qualified, registered professional engineer

Pause for questions

Secondary Containment Systems for Tanks

- New tank systems: before being brought into service
  - Includes tanks and components that are reinstalled or replaced
  - Certain exemptions and variance from this requirement
- Existing tank systems: within 2 years after becoming subject to RCRA or when the tank is 15 years old, whichever is later
- Secondary containment is required before facilities can **newly use** an existing tank to managed hazardous waste

40 CFR 264.193(a)-(f)

Performance Standards for Secondary Containment

- Design, installation, and operation to prevent migration of wastes or liquids outside of tank system to soil, groundwater, or surface water at any time during use of system

- System capable of detecting and collecting releases until materials removed (detection within 24 hours; removal within 24 hours of detection)

- Secondary containment must be able to contain 100 percent of the volume of the largest tank and the precipitation from a 25-year, 24-hour rainfall event

Secondary Containment for Ancillary Equipment

- Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, double-walled piping) that meets the requirements of paragraphs (b) and (c) of this **section except for:**
  - (1) Aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis;
  - (2) Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis;
  - (3) Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis; and
  - (4) Pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices) that are visually inspected for leaks on a daily basis.

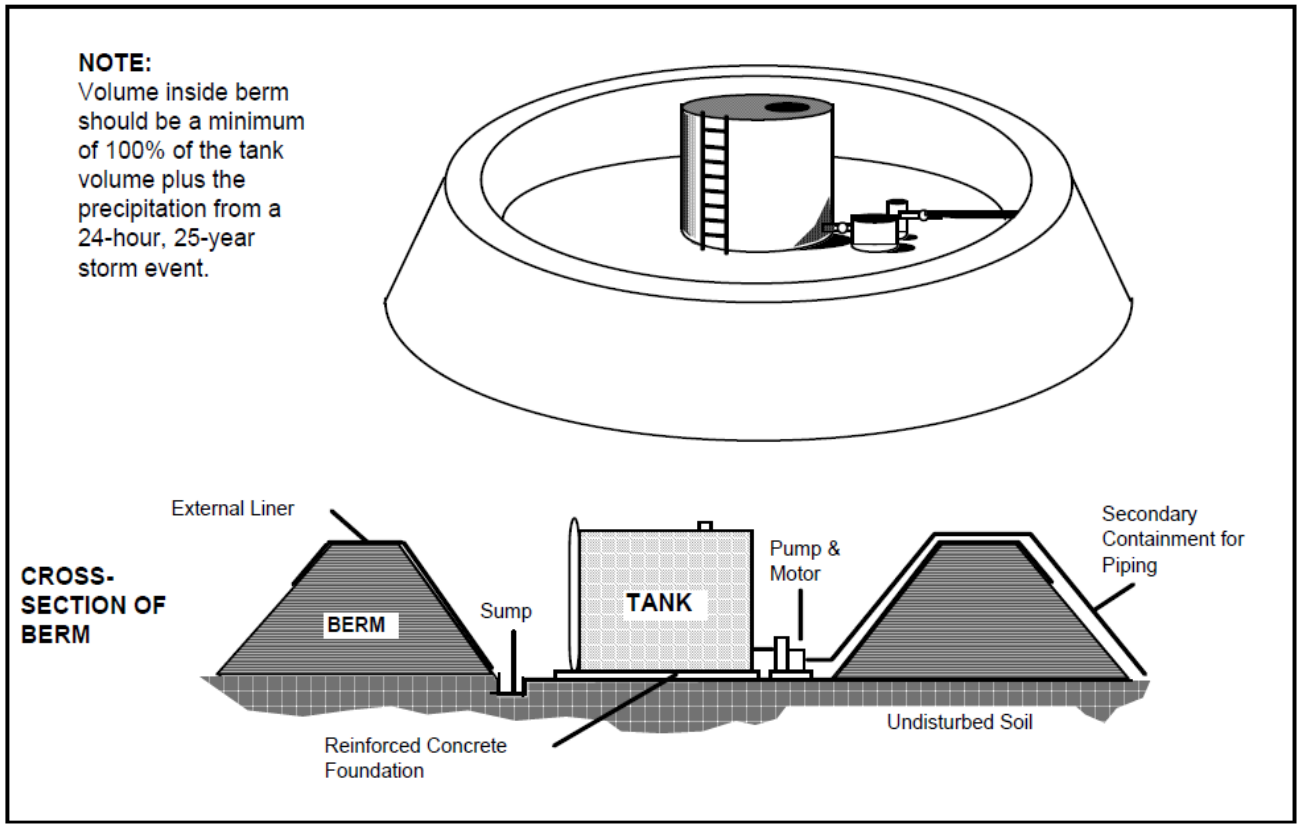
40 CFR 264.193(f)

Options for Secondary Containment

- External liner system
- Vault
- Double-walled tank
- Equivalent device
  - Containment building
- Variance

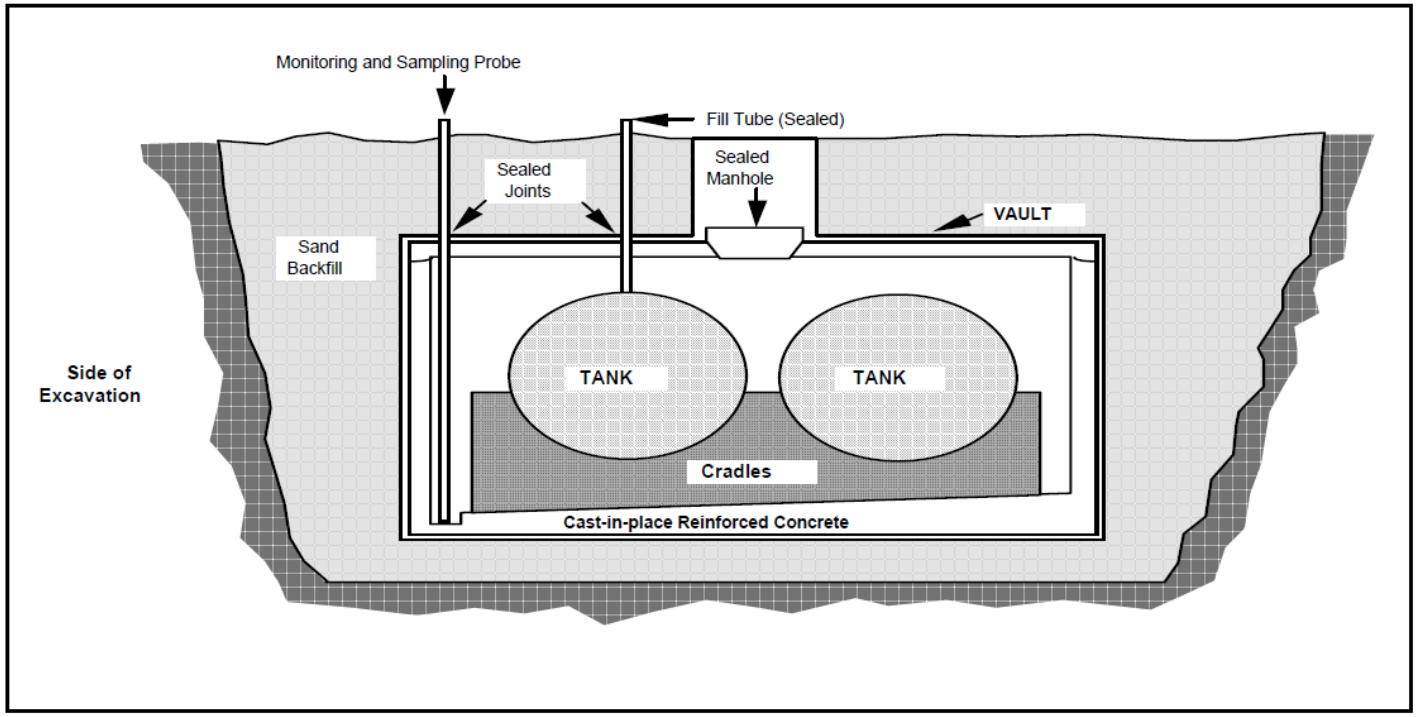
External Liner Systems

Figure 2
ABOVEGROUND TANK WITH EXTERNAL LINER
(adapted from OSWER Directive 9483.00-1)



Vaults

Figure 3
TANKS IN A VAULT
(adapted from OSWER Directive 9483.00-1)



Double-walled Tank

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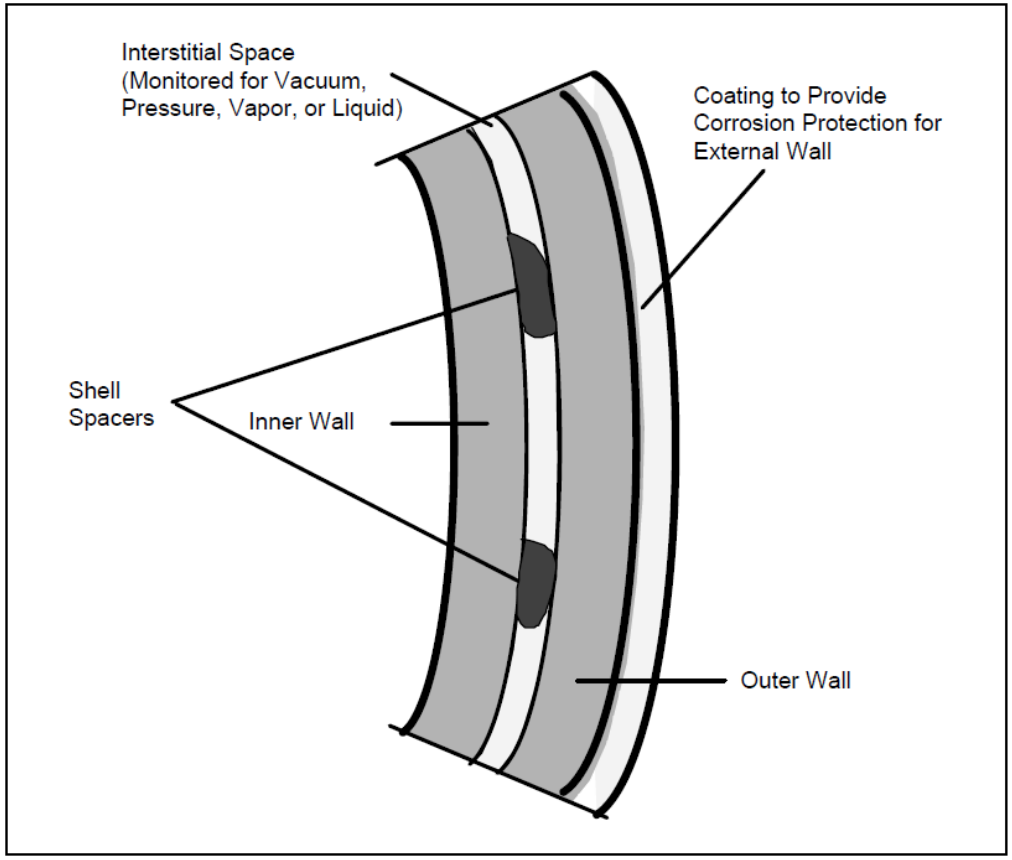
Figure 4
CROSS-SECTION: DOUBLE-WALLED TANK
(adapted from OSWER Directive 9483.00-1)



Variance from Secondary Containment Requirements

- Two Types
  - Technology-based
  - Risk-based
- Demonstration based on:
  - Equivalent protection of groundwater and surface water
  - No substantial present or potential hazard
  - No free liquids; location inside building

Example Permit Conditions - Permitted and Prohibited Waste Identification

- The Permittee may [*specify store and/or treat*] a total volume of [*specify number*] gallons of hazardous waste in [*specify number*] tanks, subject to terms of this permit and as follows:
- The Permittee is prohibited from storing or treating hazardous waste not identified below

Tank No.	Capacity (Gallons)	Tank Dimensions	Secondary Containment Required	Hazardous Waste Description	Hazardous Waste No.
Tank System A: CG-105	8,000	8 ft. (diam) x 21 ft.	In place	Waste organic solvents	F005
Tank System B: CG-107	8,000	8 ft. (diam) by 21 ft.	Due by 9/31/91	Wastewater treatment sludge	F006
GC-108	10,000	10 ft. (diam) x 17 ft.	Due by 10/15/91	Wastewater treatment sludge	F006

Operating Requirements

- The Permittee shall not place hazardous waste or treatment reagents in a tank system if they could cause failure of tank, ancillary equipment, or containment system
- The Permittee shall prevent spills and overflows from tank or containment systems using the equipment, controls, and procedures described in Attachment [*insert attachment number and title*]
- Standard Operating Procedures should be provided in the Part B Permit Application for attachment to the Permit; once attached, these documents become part of the legal contract between regulatory agency and the Permittee

40 CFR 264.194

Miscellaneous Permit Conditions

- The Permit should detail required inspection frequencies for tanks, components, monitors, alarms, and cathodic protection systems
  - Inspection checklists from the Part B Permit Application can be included as a Permit Attachment
- The Permittee shall notify the agency of any tank systems or components found to be leaking or unfit for use within 24 hours
  - A follow-up report on risks and responses shall be provided to the agency within 30 days
- The Permittee shall maintain all tank system engineer certifications, tank integrity test results, and leak test results on site for a period of XX years.

Inspection Schedules and Procedures

- Inspect overfill controls according to schedule.
- Inspect the following tank system components daily:
  - Above-grade portions of system for corrosion/release detection.
  - Data from monitoring/leak detection equipment to ensure system operating according to design.
  - Construction materials and externally accessible portion of system (e.g., secondary containment system) for erosion/release detection.
- Inspect the cathodic protection system.
  - Confirm proper operation of the system within 6 months of initial installation and annually thereafter.

Inspection Schedules and Procedures

Table 1
INSPECTION REQUIREMENTS WITH FULL SECONDARY CONTAINMENT
(adapted from OSWER Directive 9483.00-1)

Regulation	Inspection Requirement	Time Frame
§264.195(a) §265.195(a)(1)	Overfill controls	Develop schedule and procedures for permitted tanks Each operating day* for interim status
§264.195(b)(1) and (2) §265.195(a)(2) and (3)	Visual inspection of aboveground portion of the tank to detect corrosion or releases Analysis of monitoring and leak detection data (e.g., pressure or temperature gauges, monitoring wells, and leak detection devices)	Each operating day*
§264.195(b)(3) §265.195(a)(4)	Construction materials and externally accessible portions of tank and secondary containment system to detect erosion or signs of releases (e.g., wet spots, dead vegetation)	Each operating day*
§264.195(c)(1) §265.195(b)(1)	Proper operation of cathodic protection system	Within six months of initial installation and annually thereafter
§264.195(c)(2) §265.195(b)(2)	Sources of impressed current	Bimonthly

*EPA has clarified that "each operating day" has been defined as "every day the tank is in operation (i.e., storing or treating hazardous waste) and not necessarily just on days the facility is open for business."

Inspection Schedules and Procedures

Table 2
INSPECTION REQUIREMENTS WITHOUT FULL SECONDARY CONTAINMENT
(adapted from OSWER Directive 9483.00-1)

Regulation	Inspection Requirements	Time Frame
§264.193(i)(1) §265.193(i)(1)	For unenterable underground tanks: a leak test that meets the requirements in §264.191(b)(5), or another method as approved by the implementing agency	Annually
§264.193(i)(2) §265.193(i)(2)	For enterable underground tanks: a procedure to conduct a leak test that meets requirements in §264.191(b)(5) or have the overall condition of the tank system assessed by an independent, qualified, registered, professional engineer	On a schedule to be approved by the implementing agency for permitted tanks Annual for interim status tanks
§264.193(i)(3) §265.193(i)(2)	For ancillary equipment: a leak test or other integrity assessment as approved by the implementing agency	Annually
§264.193(i)(4) §265.193(i)(3)	A record of the results of all the above assessments must be maintained on file at the facility	
§264.193(i)(5) §265.193(i)(4)	Tank systems found to be leaking or unfit for use must comply with §264/265.196 : "response to leaks or spills and disposition of leaking or unfit-for-use tank system"	Immediately

Response to Leaks or Spills

- In the event of a leak or spill from the tank or secondary containment system, or if the tank system becomes unfit for continued use, the Permittee shall :
  - **Stop** hazardous waste flow into the system
  - **Inspect** the system to determine the cause of release
  - **Remove waste** and accumulated precipitation from the system within 24 hours of release detection
  - **Contain and remediate** visible releases to the environment
  - Initiate **formal RCRA closure, or repair** the tank system and/or affected components before returning the system to service – repairs must be certified

Permittee Reaction to Leaks/Spills

- The Permit should provide specific direction of expected responses to leaking tanks and components:
  - For release that has not damaged tank system integrity, make necessary repairs to fully restore system integrity prior to return to service
  - For release from the primary tank system to secondary containment, repair primary system prior to returning to service
  - For release from components without secondary containment that cannot be visually inspected or are located below grade, provide secondary containment prior to returning component to service
  - For release from above-grade component without secondary containment which can be visually inspected, repair tank system prior to returning to service

Response to Leaks or Spills

Table 3
REQUIRED RESPONSES TO TANK SYSTEM RELEASES
(adapted from OSWER Directive 9483.00-1)

Type of Release	Required Actions	Citation
Spill with no damage to secondary containment	Remove released waste and repair, if necessary	§264/265.196(e)(2)
Leak from tank system to secondary containment	Repair tank system	§264/265.196(e)(3)
Aboveground leak from tank system with no secondary containment	Repair tank system and implement visual inspection. Note: Replaced components qualify as new tank system components regulated under §§264/265.192 and .193	§264/265.196(e)(4)
Underground or inaccessible leak from tank system with no secondary containment	Repair tank system and install secondary containment for the entire component, per §§264.192 and 264.193 requirements	§264/265.196(e)(4)
Leak from secondary containment	Repair or replace secondary containment. New components must meet §§264.192 and 264.193 requirements	51 FR 25456; July 14, 1986
Leak from tank system secondary containment requiring major repair	Repair tank system or secondary containment, obtain certification as appropriate and adequacy from an independent, qualified, registered, professional engineer	51 FR 25456; July 14, 1986

Reporting Requirements

- The Permittee shall report all leaks or spills from tanks or secondary containment to the Regional Administrator within 24 hours of detection
  - *No report is required if volume of hazardous waste is less than 1 pound; or immediately contained/cleaned up.*
  - *No report is required if release is contained by secondary containment.*

Reporting Requirements (cont'd)

- Each report should provide the following information to the Regional Administrator within 30 days of detecting a leak or spill from the tanks or secondary containment:
  - *Likely migration route.*
  - *Characteristics of surrounding soil, including:*
    - *Soil composition,*
    - *Geology/hydrogeology,*
    - *Climate.*
    - *Monitoring/sampling results associated with release.*
    - *Proximity of downgradient drinking water sources, surface water, and populated areas, and*
    - *Description of response actions planned or taken.*

Additional Recordkeeping and Reporting Requirements

- Submit to Regional Administrator certifications of major repairs to correct leaks within 7 days of returning tank system to service
- Obtain and keep at facility written statements by certifying personnel regarding design and installation of tank system
- Maintain at facility written assessments of tank system integrity
- Maintain record of leak test and integrity test results at facility

Special Tank Provisions for Ignitable or Reactive Wastes

- The Permittee shall not place ignitable or reactive waste in tank or secondary containment systems unless:
  - The waste is treated before or immediately after placement in the tank system so that it is no longer ignitable or reactive, or
  - The tank is protected from any material or conditions which might cause ignition or reaction; or
  - The tank system is used solely for emergencies.
- The Permittee will maintain a distance of XX feet between the waste management area and any public ways, streets, alleys or adjoining property lines that can be built upon.

Special Tank Provisions for Incompatible Wastes

- Incompatible wastes, or incompatible wastes and materials shall not be placed in the same tank system or secondary containment system unless specified procedures are followed which comply with 40 CFR 264.17(b) and 40 CFR 264.199(a).
- Hazardous waste shall not be placed in a tank system that has not been decontaminated that previously held an incompatible waste unless precautions in 40 CFR 264.17(b) are met.

Closure and Post-Closure Care

- At closure of the tank systems covered by the permit, the Permittee shall follow the Closure Plan procedures provided in Attachment [*attachment number*], Closure Plan and Post-Closure Plan, of this permit.
- Contingent closure and post-closure care procedures in the Closure Plan and Post-Closure Plan must be followed if it is demonstrated that not all contamination can be practically removed or decontaminated.

Note that a Contingent Post-Closure Plan is required at permit issuance if no secondary containment system is present.

Pause for Questions

Management Procedures and Air Emission Controls

Permit Application Review

- The permit applicant must also provide information describing operating methods to prevent tank overfill and to prevent spills and leaks while transferring wastes to or from the tank system. Specific operating requirements are found in 40 CFR Part 264.194
- Procedures to manage ignitable, reactive, or incompatible wastes in tanks must be included in the Part B permit application. Specific requirements are found in 40 CFR Parts 264.198 and 264.199
- Subpart CC requirements regarding air emissions from tanks are discussed in 40 CFR 264.1084
  - Information to be included in the permit application is enumerated in Subpart O, Subpart CC Air Emission Standards, of the federal review checklist

RCRA Organic Air Emission Standards

- The owner or operator shall manage all hazardous waste placed in a tank in accordance with the applicable requirements of subparts AA, BB, and CC of 40 CFR 264/265.

Subpart CC – Air Emission Standards for Tanks

- Applies to owner/operators of facilities that treat, store, or dispose of hazardous waste in:
  - tanks (and other units),
  - "90-day" accumulation tanks (or containers) per 40 CFR § 262.17(a) (formerly § 262.34(a)), and
  - miscellaneous HWMUs subject to permitting standards, as deemed appropriate.

Subpart CC – Some of the Exemptions

- A waste management unit (e.g., tank) into which hazardous waste was placed before **December 6, 1996**, as long as no hazardous waste is added to the units on or after December 6, 1996;
- A tank (or surface impoundment) in which the owner or operator has **stopped adding hazardous waste** and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan,
- A tank with a process vent, as **defined in 40 CFR § 264/265.1031**,

Subpart CC – Some of the Exemptions (cont.)

- If a hazardous waste has an average **VO concentration less than 500 parts per million by** weight (ppmw) at the point of waste origination, and
- If the hazardous waste **organic content has been reduced by a treatment process** to the extent described in 40 CFR § 264.1082(c)(2) or § 265.1083(c)(2) prior to placement in the waste management unit.

Subpart CC – Tank Types

- **Level 1 Units**
  - Meet maximum organic vapor pressure limits based on size of tank
  - No heating above the temperature at which vapor pressure was determined
  - No waste stabilization
- **Level 2 Units**
  - All tanks that do not meet the definition of a Level 1 tank

40 CFR Sections 264.1084 and 265.1085

Subpart CC – Level 1 Tank Requirements

- Fixed roof
- Closure device or closed vent system connected to control device on all openings
- Conservation vents allowed to maintain internal tank pressure
- Inspections: initially and annually

40 CFR Sections 264.1084(c) and 265.1085(c)

Subpart CC – Level 2 Tank Requirements

- Comply with one of the following:
  - Fixed roof and internal floating roof
  - External floating roof
  - Fixed roof vented through a closed-vent system to a control device
  - Pressure tank
  - Enclosure vented through a closed-vent system to an enclosed combustion device
- Inspections: specific to type of tank

40 CFR Sections 264.1084(d) and 265.1085(d)

Subpart CC – Recordkeeping & Reporting Requirements

Recordkeeping (*40 CFR Sections 264.1089 and 265.1090):*

- All records are placed in operating record (e.g., waste determination procedures, verification of exempt units).
- All records must be kept for a minimum of three years

Reporting *(40 CFR Sections 264.1090):*

- Only permitted facilities report
- Report all instances of noncompliance for exempt units (when compliance with Subpart CC would have been required)
- Semi-annual report describing instances where:
  - Control devices were in noncompliance for 24 hours, or
  - Visible emissions were present for five minutes or more without an operating flare

Subpart BB – Equipment Leak Requirements for Tanks

- **Equipment leaks** from:
  - Tanks subject to permitting or interim status
  - Tanks associated with recycling units at a permitted or interim status facility
  - LQG accumulation units (e.g., tanks)
- **Equipment** includes valves, pumps, compressors, pressure relief devices, open-ended valves or lines, sampling ports, flanges or other connectors
  - Containing or contacting hazardous waste with organic concentrations of at least 10 parts ppmw for more than 300 hours in a calendar year

40 CFR Sections 264.1050 and 265.1050

Subpart BB – Equipment Leak Requirements for Tanks (cont.)

- Equipment must be **marked** in a way that it can be readily distinguished from other pieces of equipment
- **Leak Detection and Repair** (LDAR)
  - Monitoring and inspection requirements to detect leaks for each type of equipment
  - Specified timeframe to repair leaks after detection

40 CFR Parts 264 and 265, Sections 1052 through 1062

Subpart AA – Process Vents

- In situations where tanks are connected to or equipped with a closed-vent system to a control device, Subpart CC refers the owner or operator of the relevant tanks to Subpart AA via 40 CFR §264.1087(b) and (c)/265.1088(b) and (c). *
- Subpart AA applies to process vents associated certain operations (e.g., distillation, fractionation) managing hazardous waste **with organic concentrations of at least 10 part per million weight** (ppmw).
- The owner or operator must either:
  - Reduce the total organic emissions from **affected process vents at the facility below 1.4 kg/h (3 lb/h) and 2.8 Mg/yr (3.1 tons/yr)**; or
  - Reduce, by use of a control device, **total organic emissions from all affected process vents at the facility by 95 weight percent.**

Miscellaneous – RCRA Online

12998: tank integrity assesment not required for new tanks

13192: new tank installation must be certified

12953: tanks and ancillary equipment design, mentions welded flanges

13005: ancillary equipment: pressurized piping with auto shut-off exempt from secondary containment, even if other than welded connections used. But, 1988 FR says Agency believes it 'prudent' that welded should be used in these cases.

12868: video monitoring for daily inspections

14463: containment buiding can provide secondary containment

14632: building and floor may meet secodary containment requirements

12104: parking lot test evaluation described

14200: Baghouse silo not a tank

Miscellaneous – RCRA Online

Secondary Containment related correspondence

13195: daily visual inspection, leak detection and on ground tanks

12701: leak detection requirements

14249: concrete and coatings

14395: concrete and coatings

13152: concrete

12973: secondary containment for piping systems

Resources

- Introduction to Tanks (EPA) 530-K-05-018

https://www.epa.gov/sites/production/files/2015-07/documents/tanks05.pdf

- Technical Resource Document for the Storage and Treatment of Hazardous Waste in Tank Systems (1986; EPA 530-SW-86-044)

https://nepis.epa.gov/Exe/ZyPDF.cgi/20014OYP.PDF?Dockey=20014OYP.PDF

- Hazardous Waste Tank Systems Inspection Manual (1988; OSWER 9938)

https://nepis.epa.gov/Exe/ZyPDF.cgi/9100M719.PDF?Dockey=9100M719.PDF

Resources

- Technical Review Guidance Resource Compendium for Permits 2010
  - https://www.epa.gov/sites/production/files/2016-03/documents/compendium.pdf
- Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF) Regulations A User-Friendly Reference Document for RCRA Subtitle C Permit Writers and Permittees (TSD Tool Kit):
  - https://www.epa.gov/sites/production/files/2018-12/documents/hazardous_waste_tsdf_regulations_user_friendly_reference_document_nov_2018.pdf
- 40 CFR 270.16 - Specific Part B Information Requirements for Tank Systems
  - http://www.ecfr.gov/cgi-bin/text-idx?SID=8dd86673acac482a2f08526e967edc6e&mc=true&node=se40.27.270_116&rgn=div8
- 40 CFR 264.190-200 (Subpart J) is available via eCFR at:
  - http://www.ecfr.gov/cgi-bin/text-idx?SID=8dd86673acac482a2f08526e967edc6e&mc=true&node=sp40.26.264.j&rgn=div6

Resources

- Protocol for Conducting Environmental Compliance Audits of Storage Tanks Under RCRA, March 2000 (EPA/300/B-00/006).
- Questions and Answers Regarding the July 14, 1986 Hazardous Waste Tank Regulatory Amendments (October 1987; OSWER Directive 9483.00-3)
- Model permits containing information on tanks:
  - Draft RCRA Model Standardized Permit at: https://www.epa.gov/sites/production/files/2016-03/documents/model.pdf
  - South Carolina Model Permit at: https://www.epa.gov/sites/production/files/2016-03/documents/sc-model.pdf
- Hazardous Waste Generator Regulations Compendium Volume 6: *Generator Treatment in Tanks and Containers (March 2021)* https://www.epa.gov/sites/production/files/2021-03/documents/generator_compendium_generator_treatment_in_tanks_and_containers.pdf

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