



TREATMENT & STORAGE FACILITY INSPECTION - TANK SYSTEM

Revision: 08/23/2016
WASTE & MATERIALS
MANAGEMENT PROGRAM

This Inspection Form Supplement, used in conjunction with the TREATMENT AND STORAGE FACILITY INSPECTION REPORT, is for the inspection of facilities that are accumulating hazardous waste in licensed tank(s) at the facility.

Section 1: Assessment of an Existing Tank System's Integrity

A. If the tank was installed before March 1, 1991 and does not meet the secondary containment requirements in Section 3, there is a written assessment, certified by a PE, on file at the facility that determines the tank system is adequately designed and has sufficient structural strength and compatibility with the wastes to be stored or treated so that it will not collapse, rupture or fail. Date of the assessment: _____ If the tank was installed after March 1, 1991, go to Section 2.	<input type="text"/>	664.0191(1) <input type="text"/>
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B. The written assessment considers ALL of the following: 1. Design standards for construction of the tank and ancillary equipment. 2. Hazardous characteristics for the wastes handled. 3. Corrosion protection measures. 4. The age of the tank system, either documented or estimated. ____ Results of a leak test, internal inspection or other tank integrity examination.	<input type="text"/>	664.0191(2) <input type="text"/>
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Section 2: Design and Installation of a New Tank System

A. If the tank was installed after March 1, 1991, written statements regarding the certification of the design of the tank and the supervision of its installation are kept at the facility. If the tank was installed before March 1, 1991, go to Section 3.	<input type="text"/>	664.0192(7) <input type="text"/>
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B. Ancillary equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.	<input type="text"/>	664.0192(5) <input type="text"/>
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C. Corrosion protection is provided to ensure the integrity of the tank system.	<input type="text"/>	664.0192(6) <input type="text"/>
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D. Underground components are completely backfilled with noncorrosive, porous and homogenous material that is compacted so the tank and piping are fully and uniformly supported.	<input type="text"/>	664.0192(3) <input type="text"/>
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Section 3: Containment & Detection of Releases

A. The tank system meets BOTH of the following (NR 664.0190(1)). If YES, go to Section 4. 1. Located inside a building with an impermeable floor. 2. Stores or treats hazardous waste that does not contain free liquids.	<input type="text"/>	<input type="text"/> <input type="text"/>
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B. The secondary containment system meets ALL of the following: 1. Constructed of or lined with materials that are compatible with the wastes placed in the tank. 2. Has sufficient strength and thickness to prevent failure due to pressure gradients, physical contact with the waste, climatic conditions and stresses of daily operation. 3. Placed on a foundation or base that provides support to the secondary containment system and is capable of preventing failure due to settlement, compression or uplift. 4. Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills or precipitation.	<input type="text"/>	664.0193(3) <input type="text"/>
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C. The leak detection system is designed and operated to detect EITHER of the following: 1. The failure of either the primary or secondary containment structure. 2. The presence of a release within 24 hours or the earliest practicable time if a release cannot be detected within 24 hours.	<input type="text"/>	664.0193(3) <input type="text"/>
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D. Spilled waste and accumulated precipitation are removed from the secondary containment system within 24 hours or in a timely manner if removal within 24 hours cannot be accomplished.	<input type="text"/>	664.0193(3)(d) <input type="text"/>
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Section 3: Containment & Detection of Releases

<p>E. External liner system meets ALL of the following:</p> <ol style="list-style-type: none"> 1. Designed or operated to contain 100% of the capacity of the largest tank. 2. Designed or operated to prevent run-on or infiltration of precipitation unless the collection system has capacity to contain precipitation from a 25 year, 24 hour storm. 3. Free of cracks and gaps. 4. Designed and installed to surround the tank completely and cover all surrounding earth likely to come in contact with the waste. 	<p>664.0193(5)(a)</p>
<p>F. Vault system meets ALL of the following:</p> <ol style="list-style-type: none"> 1. Designed and operated to contain 100% of the capacity of the largest tank. 2. Designed or operated to prevent run-on or infiltration of precipitation unless the collection system has capacity to contain precipitation from a 25 year, 24 hour storm. 3. Constructed with chemical resistant water stops in place at all joints. 4. Provided with an impermeable interior coating or lining that is compatible with the stored waste and will prevent migration of waste into the concrete. 5. Provided with a means to protect against the formation of and ignition of vapors within the vault if ignitable or reactive waste is stored or treated. 6. Provided with an exterior moisture barrier or otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure. 	<p>664.0193(5)(b)</p>
<p>G. Double-walled tank meets ALL of the following:</p> <ol style="list-style-type: none"> 1. Designed as an integral structure so that the outer shell contains any release from the inner tank. 2. If constructed of metal, protected from corrosion of the primary tank interior and of the external surface of the outer shell. 3. Provided with a built-in continuous leak detection system capable of detecting a release within 24 hours or at the earliest practicable time. 	<p>664.0193(5)(c)</p>
<p>H. The Department approved an equivalent type of secondary containment device if the device is not an external liner, vault system or double-walled tank.</p>	<p>664.0193(4)(d)</p>
<p>I. All ancillary equipment has secondary containment (trench, jacketing, double walled piping) except for the following when they are visually inspected for leaks on a daily basis:</p> <ol style="list-style-type: none"> 1. Aboveground piping, excluding flanges, joints, valves and other connections. 2. Welded flanges, welded joints and welded connections. 3. Sealless or magnetic coupling pumps and sealless valves. 4. Pressurized aboveground piping systems with automatic shut-off devices (excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices). 	<p>664.0193(6)</p>
<p>J. If the tank system does not meet the above secondary containment system requirements, the owner or operator has complied with the following:</p> <ol style="list-style-type: none"> 1. For non-enterable underground tanks, conduct a leak test at least annually. 2. For other than non-enterable underground tanks, conduct a leak test OR have a PE develop a schedule and procedure for assessing the overall condition of the tank system at a frequency to be determined by the operating conditions of the tank system. 3. For ancillary equipment, conduct a leak test or other integrity assessment at least annually. 4. The results of the assessments are maintained in the facility file. 	<p>664.0193(9)</p>

Section 4: General Operating Requirements

<p>A. Hazardous waste or treatment reagents that are placed into the tank system will not cause the tank, ancillary equipment or containment system to rupture, leak, corrode, or otherwise fail.</p>	<p>664.0194(1)</p>
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Section 4: General Operating Requirements

B. The following controls and practices are used to prevent spills and overflows from the tank or containment system: 1. Spill prevention controls (check valves or dry disconnect couplings). 2. Overfill prevention controls (level sensing devices, high level alarms, automatic feed cutoff or bypass to a standby tank). 3. Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind actions or precipitation.		664.0194(2)
C. The facility clearly marks each tank, or records in the operating record, ALL of the following information: 1. A description of the tank contents. 2. The quantity of each hazardous waste received. 3. The date each period of accumulation begins.		668.50(1)(b)2
D. Hazardous waste is stored in tanks for less than one year.		668.50(2)
E. If waste is stored in tanks for more than one year, the facility can prove that storage was necessary to facilitate proper recovery, treatment or disposal.		668.50(3)

Section 5: Inspections

A. Overfill control equipment (waste-feed cutoff systems, bypass systems and drainage systems) is inspected according to their facility's inspection schedule.		664.0195(1)
B. ALL of the following are inspected at least once each operating day: 1. Aboveground portions of the tank system to detect corrosion or releases of waste. 2. Data gathered from monitoring and leak detection equipment (pressure or temperature gauges, monitoring wells) to ensure that the tank system is operated according to its design. 3. The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system, to detect erosion or signs of hazardous waste releases (wet spots, dead vegetation).		664.0195(2)
C. Cathodic protection systems are inspected according to BOTH of the following: 1. The proper operation of the cathodic protection system is confirmed within 6 months of the initial installation and annually thereafter. 2. All sources of impressed current are inspected and/or tested at least every other month.		664.0195(3)
D. The inspection results are documented in the operating record.		664.0195(4)

Section 6: Response to Leak and Spills

A. There has been a spill or leak from the tank system or containment system. If NO, go to Section 7.		
B. The tank system or secondary containment system was removed from service immediately.		664.0196
C. The flow of hazardous waste into the tank system or secondary containment system was stopped immediately and the system was inspected to determine the cause of the release.		664.0196(1)



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Section 6: Response to Leak and Spills

D. If the release was from the tank system, the owner or operator performed BOTH of the following: 1. Removed as much waste as necessary to prevent further releases. 2. Allowed inspection and repair of the tank system within 24 hours after detection or at the earliest practicable time.	<input type="checkbox"/>	664.0196(2)(a) <input type="text"/>
E. If material was released to a secondary containment system, all released material was removed within 24 hours or in a timely manner to prevent harm to human health and the environment.	<input type="checkbox"/>	664.0196(2)(b) <input type="text"/>
F. The owner or operator did ALL of the following: 1. Conduct a visual inspection of the release. 2. Prevent further migration of the spill to soils or surface water. 3. Remove and properly dispose of any visible soil or surface water contamination.	<input type="checkbox"/>	664.0196(3) <input type="text"/>
G. The release was reported to the Department within 24 hours of its detection, except when less than one pound was released and the material was contained and cleaned up immediately.	<input type="checkbox"/>	664.0196(4) <input type="text"/>
H. Written report was submitted to the Department within 30 days of detecting the release.	<input type="checkbox"/>	664.0196(4)(c) <input type="text"/>
I. The following actions were taken: 1. If the integrity of the tank system was not damaged, the system was returned to service after cleanup and repairs. 2. If the leak was from the tank system into secondary containment, the system was repaired before the tank was returned to service. 3. If the leak was from a component that did not have secondary containment, either secondary containment was provided or repairs were made if the component can be visually inspected.	<input type="checkbox"/>	664.0196(5) <input type="text"/>
J. If major repairs were made to the tank system, a PE certification was obtained and submitted to the Department within 7 days of returning the tank system to use.	<input type="checkbox"/>	664.0196(6) <input type="text"/>

Section 7: Special Requirements for Ignitable, Reactive or Incompatible Wastes

A. Ignitable, reactive or incompatible waste is stored or treated in tanks. If NO, go to Section 8.	<input type="checkbox"/>	<input type="text"/>
B. The waste is treated or mixed before or immediately after placed in a tank system so that ALL of the following apply: 1. Extreme heat, pressure, fire, explosions or reactions are not produced. 2. Uncontrolled toxic or flammable fumes or gases are not produced. 3. The structural integrity of the tank system is not damaged. 4. Other means are taken so human health or the environment is not threatened. 5. The waste no longer meets the definition of ignitable or reactive waste.	<input type="checkbox"/>	664.0198(1)(a) <input type="text"/>
C. Ignitable or reactive waste is stored or treated in a way to protect it from any material or conditions that may cause the waste to ignite or react.	<input type="checkbox"/>	664.0198(1)(b) <input type="text"/>
D. The tank system is only used to treat or store ignitable or reactive waste during an emergency.	<input type="checkbox"/>	664.0198(1)(c) <input type="text"/>
E. Buffer zone requirements between the tanks and any public ways or adjoining property lines are in compliance with the NFPA standards in the Flammable and Combustible Liquids Code.	<input type="checkbox"/>	664.0198(2) <input type="text"/>



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Section 7: Special Requirements for Ignitable, Reactive or Incompatible Wastes

F. The tank system is decontaminated before adding an incompatible waste.		664.0199(2)

Section 8: Subchapter CC Level 1 Standards - Fixed Roof Tanks

A. Hazardous waste tanks are excluded from subch. CC requirements because of BOTH of the following (NR 664.1082(3)(a)): 1. The average VO concentration at the point of origination is <500 ppmw for all hazardous waste entering the tank. 2. The initial determination of the average VO concentration is reviewed and updated at least once every 12 months.		
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B. Waste determinations for excluded tanks are made according to ALL of the following: 1. The initial determination of the average VO concentration for the waste stream was made before the material was placed in the tank. 2. A new waste determination is performed whenever changes to the source generating the waste stream likely causes the average VO concentration to increase to >= 500 ppmw. 3. The average VO concentration is determined by direct measurement or by knowledge. Note: See NR 665.1084(1)(c) for direct measurement procedures and NR 665.1084(1)(d) for using knowledge.		664.1083(1)
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C. For each waste determination, the date, time and location of each waste sample collected are maintained in the facility records.		664.1089(6)(a)

D. Tanks are excluded from CC requirements because they are used to store or treat hazardous waste from organic peroxide manufacturing processes (NR 664.1080(4)). Note: Certain records are to be maintained. Refer to NR 664.1089(9) for more information.		
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E. Hazardous waste tanks are excluded from CC requirements because of the following (NR 664.1080(2)): 1. Waste is no longer added to the tank and closure has been implemented or completed. 2. The tank is used solely to store or treat on-site remediation wastes generated through NR 700 or RCRA corrective action activities OR radioactive mixed wastes in accordance with NRC requirements. 3. The tank is equipped with air emission controls operating in accordance with the Clean Air Act requirements AND the facility records include a certification signed by the owner or operator and the specific air program compliance requirements for the unit. 4. If an enclosure is used as the air emission control, the enclosure is in compliance with the enclosure and control device requirements unless the tank bulk feeds to an incinerator. 5. The tank has a process vent subject to Subch. AA requirements.		
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F. Hazardous waste tanks are excluded from CC regulation because of any of the following (NR 664.1082(3)): 1. The organic content of all waste entering the tank has been reduced by an organic destruction or removal process described in NR 664.1082(3). 2. The hazardous organic constituents placed in the tank are treated to meet LDR standards. 3. The tank is in an enclosure that vents to a control device and bulk feeds to an incinerator.		
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G. All tanks are excluded from subch. CC requirements. If YES, go to Section 9.		



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Section 8: Subchapter CC Level 1 Standards - Fixed Roof Tanks

<p>H. The maximum organic vapor pressure of the hazardous waste managed in a fixed roof tank is less than the maximum organic vapor pressure limit for the tank's design capacity category as follows (NR 664.1084(2)(a)). If NO, go to Question ZA.</p> <ol style="list-style-type: none"> 1. Tank design capacity is $\geq 40,000$ gallons and the maximum organic vapor pressure limit for the tank is 0.75 psi (5.2 kPa). 2. Tank design capacity is between 20,000 to 40,000 gallons and the maximum organic vapor pressure limit for the tank is 4.0 psi (27.6 kPa). 3. Tank design capacity is $<20,000$ gallons and the maximum organic vapor pressure limit for the tank is 11.1 psi (76.6 kPa). 		664.1084(2)(a)
<p>I. The maximum organic vapor pressure of the hazardous waste managed in the tank is determined according to ALL of the following:</p> <ol style="list-style-type: none"> 1. The maximum organic vapor pressure is determined before the waste is first placed in the tank. 2. A new determination is performed when changes to the hazardous waste could cause the maximum organic vapor pressure to increase to or exceed the maximum vapor pressure for the tank design capacity. 3. The maximum organic vapor pressure was determined by either direct measurement or knowledge. <p>Note: See NR 665.1084(1)(c) for direct measurement procedures and NR 665.1084(1)(d) for using knowledge.</p>		664.1084(3)(a)
<p>J. If the maximum organic vapor pressure was determined by direct measurement, ALL of the following information is maintained in the facility records:</p> <ol style="list-style-type: none"> 1. The date and time of sample collection. 2. The analytical method and results. 		664.1089(2)(b)
<p>K. If the maximum organic vapor pressure was determined by direct measurement, a copy of the written sampling plan is on file.</p>		664.1083(3)(c)
<p>L. If the maximum organic vapor pressure was determined by knowledge, the facility records include the information used as the basis for knowing that the maximum organic vapor pressure limit of the hazardous waste is less than the maximum vapor pressure limit listed for the applicable tank design capacity category.</p>		664.1083(3)(d)
<p>M. The tank is equipped with a fixed roof and closure devices to form a continuous barrier over the entire surface area of the hazardous waste in the tank.</p>		664.1084(3)(b)
<p>N. The fixed roof is EITHER of the following:</p> <ol style="list-style-type: none"> 1. A separate cover installed on the tank (a removable cover mounted on an open-top tank). 2. An integral part of the tank structural design (horizontal cylindrical tank equipped with a hatch). 		664.1084(3)(b)1
<p>O. The fixed roof is installed in a manner so there are no cracks, holes, gaps or other open spaces visible between the roof section joints or between the interface of the roof edge and tank wall.</p>		664.1084(3)(b)2
<p>P. Each opening in the fixed roof and any manifold system for the fixed roof is EITHER of the following:</p> <ol style="list-style-type: none"> 1. Equipped with a closure device that, when closed, has no visible cracks, holes, gaps or other open spaces. 2. Connected by a closed-vent system to a control device that is operating whenever hazardous waste is managed in the tank, except during routine inspections and maintenance. 		664.1084(3)(b)3
<p>Q. The closure devices and fixed roof are made of materials that minimize the release of hazardous waste to the atmosphere and maintain the integrity of the roof and closure devices.</p>		664.1084(3)(b)4



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Section 8: Subchapter CC Level 1 Standards - Fixed Roof Tanks

R. Each closure device is secured in the closed position and the fixed roof installed except when inspections and maintenance are performed or tank sludge is removed.		664.1084(3)(c)1
S. If the tank is equipped with a pressure relief device which vents to the atmosphere, the pressure relief device is operated according to BOTH of the following: 1. There are no detectable organic emissions (<500 ppmv) when the pressure relief device is closed. 2. The pressure relief device is only opened during normal operations to maintain the tank internal pressure according to tank design specifications.		664.1084(3)(c)2
T. Safety devices are only opened when necessary to avoid unsafe conditions.		664.1084(3)(c)3
U. The fixed roof and closure devices are visually inspected at least once every year for the following defects, at a minimum, that could result in air pollutant emissions: 1. Visible cracks, holes or gaps in the roof sections or between the roof and tank wall. 2. Damaged seals or gaskets on closure devices. 3. Broken or missing hatches, access covers, caps or other closure devices.		664.1084(3)(d)
V. If inspections are conducted at intervals longer than one year, the fixed roof or closure device has been designated as "unsafe to inspect and monitor".		664.1084(12)
W. If the fixed roof or closure device has been designated as "unsafe to inspect and monitor", ALL of the following information is recorded in a log: 1. The identification numbers for the roof or closure device with covers that are designated as "unsafe to inspect and monitor". 2. A written explanation stating the reasons why the roof or closure device is unsafe to visually inspect or monitored. 3. A written plan and schedule for inspecting and monitoring the roof or closure device as frequently as practical when a worker can gain safe access.		664.1089(7)
X. First efforts of repair are made within 5 calendar days of detection and completed no later than 45 calendar days of detection unless repair is delayed.		664.1084(11)
Y. Repair is delayed until the next time the process or unit generating the waste stops operation because the tank must be emptied for repair and there is no alternate tank capacity.		664.1084(1)
Z. Inspection records are maintained for at least 3 years and include ALL of the following: 1. Tank ID#. 2. Date of inspection. 3. Location and description of the defect. 4. Date the problem was detected and the corrective action taken. 5. The reason repair was delayed and the date of completion, if applicable.		664.1084(3)(d)4



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Section 8: Subchapter CC Level 1 Standards - Fixed Roof Tanks

ZA. The facility manages hazardous waste in any of the following tanks (NR 664.1084(2)(b)). If YES, complete the Subch. CC Level 2 and 3 Standards for Containers and Tanks inspection form.

1. Hazardous waste in the tank has a maximum organic vapor pressure greater or equal to the maximum limit for the tank's design capacity category as stated in Question H.
2. Tank is used for a waste stabilization process.
3. Hazardous waste in the tank is heated to a temperature greater than the temperature at which the vapor pressure was determined.
4. Tank has a fixed roof with an internal floating roof.
5. Tank has an external floating roof.
6. Tank is subject to subch. CC and vented to a control device.
7. Tank is a pressure tank.
8. Tank is located inside an enclosure.

ZB. If the facility managed hazardous waste with an average VO concentration >500 ppmw or without adequate reduction of the organic content by an organic destruction or removal process in a tank exempt from subch. CC level 1 standards, a written report was submitted to the department within 15 calendar days of the time the owner or operator becomes aware of the occurrence which includes ALL of the following information:

1. The facility name, address and EPA identification number.
2. A description of the noncompliance event.
3. The cause and dates of the noncompliance.
4. The actions taken to correct the noncompliance.
5. The actions taken to prevent the reoccurrence of the noncompliance.

	664.1090(1)

ZC. If hazardous waste with an organic vapor pressure exceeding the maximum organic vapor pressure limit for the tank design capacity has been placed in a tank with level 1 standards, a written notification was submitted to the department within 15 calendar days of the time the owner or operator becomes aware of the occurrence that contains, at a minimum, the following information:

1. The facility name, address and EPA identification number.
2. A description of the noncompliance event.
3. The cause and dates of the noncompliance.
4. The actions taken to correct the noncompliance.
5. The actions taken to prevent the reoccurrence of the noncompliance.

	664.1090(2)

ZD. If hazardous waste is transferred from one tank to another tank subject to level 1 or level 2 standards, continuous hard-piping or another closed system that does not allow exposure of hazardous waste to the atmosphere is used, except under any of the following conditions:

1. The average VO concentration at the point of waste origination is <500 ppmw and is determined at least once every 12 months.
2. Hazardous waste has been treated to a specified concentration by an organic or biological destruction or removal process.
3. The organic constituents of the hazardous waste placed in the tank are treated to meet the LDR treatment standards.

	664.1084(10)

Section 9: Facility Status Evaluation

A. The facility conducts hazardous waste activities other than tank storage or treatment. If YES, complete the appropriate inspection forms (container storage, universal waste, used oil, etc.)
