County of San Diego

DEPARTMENT OF ENVIRONMENTAL HEALTH
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HAZARDOUS WASTE TANK SYSTEMS

To: Hazardous waste generators and treatment facilities
Contractors and Professional Engineers

The California Department of Toxic Substances Control finalized regulations in 1997 that impact operators and owners of hazardous waste tank systems. The regulations address the design, operation, and maintenance of hazardous waste tanks. The County of San Diego enforces these regulations and the operation of tank systems that manage hazardous waste. The regulations emphasize secondary containment of hazardous waste tank systems and a reliable leak prevention and detection program. Tank users must also maintain documentation onsite to demonstrate compliance with the State regulations. This guidance factsheet summarizes the regulations that require independent professional engineers, licensed in California, to design, test, and certify the hazardous waste tank system.

This factsheet consist of 5 parts:

Contact the Hazardous Materials Division at **(619) 338-2222** if you have questions regarding the local regulation of hazardous waste tank systems.

"Environmental and public health through leadership, partnership and science"

Assessment of Existing Tank System's Integrity

Applicability:

Those existing hazardous waste tank systems, without proper secondary containment and leak detection, are required to have integrity assessments for the tank, piping, and ancillary equipment by an independent professional engineer. Existing tanks systems lacking adequate secondary containment must be assessed before installing secondary containment. Tank operators/owners, which elect to close an existing tank system because it is not feasible or cost effective to retrofit with secondary containment, must go through the required tank system closure procedures and written notification to the County of San Diego Department of Environmental Health. The Department of Environmental Health has a "*Hazardous Waste Tank Plan Check Application/Inspection program"* in place to pre-approve the tank decommissioning plans and associated closure activities.

What is an Integrity Assessment?

It's a visual inspection and any physical and electronic testing to certify an "existing tank system" without 100% secondary containment is fit to manage hazardous waste.[1] All assessment procedures and results must be certified by an independent, qualified, California-registered professional engineer. [2] The assessments were due on or before January 24, 1998 and annually thereafter.

The assessment shall be kept on file at the facility until closure of the facility and shall be valid for a period of one year from the date the assessment was certified. Until the tank system is supplied with the required secondary containment, the integrity assessment is necessary on an annual basis. The assessment shall determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be transferred, stored or treated and to ensure that it will not collapse, rupture, or fail. Specifically, the integrity assessment report must include the information as listed in the California Code of Regulations (CCR) Title 22, sections 66265.191(b) and (g) and 66270.11(d).

At a minimum, the assessment must evaluate the following:

1) Design standard(s), if available, according to which the tank and ancillary equipment were constructed;[3]
2) Hazardous characteristics of the waste(s) that have been or will be handled;
3) Existing corrosion protection measures;
4) Documented age of the tank system, if available, (otherwise, an estimate of the age); and
5) Results of the leak test, internal inspection, or other tank integrity examination such that…
   (A) For non-enterable underground tanks, this assessment shall consist of a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects, and,
   (B) For other than non-enterable underground tanks and for ancillary equipment, this assessment shall be either a leak test, as described above, or an internal inspection and/or other tank integrity examination certified by an independent, qualified, professional engineer, registered in California, in accordance with section 66270.11(d) that addresses cracks, leaks, corrosion, and erosion.

For existing, non-RCRA tank systems, the assessment report must also include: [4]

1) Tank configuration (i.e., horizontal, vertical), and gross capacity (in gallons);
2) Design standard(s), if available, according to which the tank and ancillary equipment were constructed and all of the following information;
   (A) Material of construction;
   (B) Material thickness and the method used to determine the thickness;

(C) Description of tank system piping (material, diameter);
(D) Description of any internal and external pumps; and
(E) Sketch or drawing of tank including dimensions.

3) Documented age of the tank system, if available, otherwise, an estimated of the age based on owner or operator knowledge;

4) Description and evaluation of the adequacy of any leak detection equipment;

5) Description and evaluation of any corrosion protection equipment;

6) Description and evaluation of any spill prevention or overfill equipment;

7) Hazardous characteristics of the waste(s) that have been or will be handled;

8) Description of any structural damage or inadequate construction or installation such as cracks, punctures, or damaged fittings. All discrepancies shall be documented in the assessment and remedied before the tank system is certified for use.

9) Results of a leak test, internal inspection, or other tank system integrity examination including the type of integrity examination performed (i.e., ultrasonic, internal examination, volumetric tank test, pipeline pressure test). Tank system integrity or leak test requirements must be in compliance with all local requirements. Prior to conducting a tank system integrity test or leak test, contact local agency staff for local requirements.

10) Estimated remaining service life of the tank system based on findings of items (1) through (9) listed above.

If, as a result of the integrity assessment, the existing tank system is found to be leaking or unfit for use, the owner or operator shall comply with additional requirements, including but not limited to: cease the operation of the tank system; reporting the results to the County of San Diego, Hazardous Materials Division; and implement corrective actions in accordance with Title 22 CCR, section 66265.196 e.g..Response to Leaks or Spills and Disposition of Leaking or Unfit-for-Use Tank Systems.

Design and Installation of New Tank Systems or Components

Applicability:

New hazardous waste tank systems and/or components must be designed and certified by a qualified professional engineer. An installation inspector or the professional engineer must inspect the installation of the tank system to ensure the work was done properly. The engineer must be independent from the tank operator/owner. New tank systems must have the proper secondary containment and leak detection equipment installed before operating the tank. The engineer would generally be involved prior to (e.g..design stage) and during construction/installation. Once certified, the engineer's assessment report is a legal document that attests to the system's design and installation. This report must be kept onsite for inspector's review upon request. The County of San Diego Department of Environmental Health has a "*Hazardous Waste Tank Plan Check Application/Inspection program"* in place to pre-approve construction plans and installation prior to tank operation.

What is a "new " tank system Engineer's Assessment?[5]

An assessment of a "new" tank system is performed prior to and during the installation of a new tank system used to manage hazardous waste; however, if the operator were doing any of the following they would also have an assessment conducted:

- During retrofitting, upgrading, or expansion of existing tank systems;
- Replacement of a major system component;
- Moving or re-installing existing tank equipment;

- Any existing tank system or components not previously used for hazardous waste management, which will be used for hazardous waste accumulation, transfer, or treatment.
- Similar to the integrity assessment for existing tanks, an independent, qualified, California-registered professional engineer must certify the report before the new tank system is placed into operation. A written record of the results of the engineer's assessment must be kept on file at the tank facility.

Specifically, the engineer's assessment report must include the information as listed in the California Code of Regulations (CCR) Title 22, sections 66265.192(a), (b), (c), (d), (e), (f), and (k).[6]

This assessment shall include, at a minimum, the following information:

1) Design standard(s) according to which the tank(s) and ancillary equipment are or will be constructed;

2) Hazardous characteristics of the waste(s) to be handled;

3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system is or will be in contact with the soil or with water, a determination by a corrosion expert of:

    A) Factors affecting the potential for corrosion, including but not limited to:

        1. Soil moisture content;
        2. Soil pH;
        3. Soil sulfides level;
        4. Soil resistivity;
        5. Structure to soil potential;
        6. Influence of nearby underground metal structures (e.g., piping);
        7. Stray electric current; and,
        8. Existing corrosion-protection measures (e.g., coating, cathodic protection), and

    B) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

        1. Corrosion-resistant materials of construction such as special alloys or fiberglass-reinforced plastic;
        2. Corrosion-resistant coating (such as epoxy or fiberglass) with cathodic protection (e.g., impressed current or sacrificial anodes); and
        3. Electrical isolation devices such as insulating joints and flanges;

4) For underground tank system components that are likely to be affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

5) Design considerations to ensure that:

    (A) Tank foundations will maintain the load of a full tank;
    (B) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone; and
    (C) Tank systems will withstand the effects of frost heave.

For new, non-RCRA tank systems or components, the assessments shall also include all of the following information: [7]

1) Tank configuration (i.e., horizontal, vertical), material of construction, and gross capacity (in gallons).

2) Design standard(s), if available, according to which the tank and ancillary equipment were or will be constructed and all of the following information;

(A) Material of construction;
(B) Material thickness and the method used to determine the thickness;
(C) Description of tank system piping (material, diameter);
(D) Description of any internal and external pumps; and
(E) Sketch or drawing of tank including dimensions.

3) Documented age of the tank system (if tank was previously used), if available, (otherwise, an estimate of the age).

4) Description and evaluation of any leak detection equipment.

5) Description and evaluation of any corrosion protection equipment, devices, or material.

6) Description and evaluation of any spill prevention or overfill equipment.

7) Description and evaluation of secondary containment for the tank system (secondary containment must meet minimum standards as specified in subsections (j)(1) through (j)(3) of section 66265.192), including applicable secondary containment for ancillary equipment as required in subsection 66265.193(f).

8) Hazardous characteristics of the waste(s) that have been or will be handled.

9) Prior to placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, professional engineer, registered in California, either of whom is trained and experienced in the proper installation of tank systems, shall inspect the system or component for the presence of any of the following items and document in writing the results of the inspection:

(A) Weld cracks or breaks;
(B) Scrapes of protective coatings;
(C) Corrosion;
(D) Any structural damage or inadequate construction or installation such as cracks, punctures, damaged fittings. All discrepancies shall be documented in the assessment and remedied before the tank system is placed in use.

10) All new tanks and ancillary equipment shall be tested for tightness prior to being placed in use. The results of the test(s) shall be documented in this assessment. Tank system integrity or leak test requirements must be in compliance with all local requirements. Prior to conducting a tank system integrity test or leak test, contact local agency staff for local requirements.

11) Estimated remaining service life of the tank system based on the findings of items (I) through (X) listed above.

FOOTNOTES

[1] **"Existing tank system"** or "existing tank component" means a tank system or component that is used for the transfer, storage or treatment of hazardous waste and that is in operation, or for which installation has commenced on or **prior to** the dates indicated below:

(a) **July 14, 1986**, for tanks containing RCRA hazardous wastes, unless:

(1) the owner or operator is a conditionally exempt small quantity generator as defined in 40 CFR section 261.5, or a 100 to 1,000 kg per month generator as defined in 40 CFR section 265.201, or

(2) the owner or operator is not subject to regulation in 40 CFR part 264 or part 265 pursuant to an exemption in 40 CFR section 264.1 or section 265.1;

(b) **July 1, 1991** for:

(1) tanks containing only non-RCRA hazardous wastes, and

(2) tanks containing RCRA hazardous wastes, if:

(A) the owner or operator is a conditionally exempt small quantity generator as defined in 40 CFR section 261.5, or a 100 to 1,000 kg per month generator as defined in 40 CFR section 265.201, or

(B) the owner or operator is not subject to regulation in 40 CFR part 264 or part 265 pursuant to an exemption in 40 CFR section 264.1 or section 265.1, but the owner or operator is subject to the standards of article 10 of chapter 14 or article 10 of chapter 15 of Title 22 CCR.

[2] **Certification**. Any person signing a tank system certification should make the following certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

[3] **"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 offsite.

[4] **"Non-RCRA hazardous waste"** means all hazardous waste regulated in the State, other than RCRA hazardous waste, as defined in Title 22 CCR. A hazardous waste is presumed to be a RCRA hazardous waste, unless it is determined pursuant to section CCR Title 22 section 66261.101 that the hazardous waste is a non-RCRA hazardous waste. **"RCRA hazardous waste"** means all waste identified as a hazardous waste in Part 261 (commencing with section 261.1) of subchapter I of chapter 1 of Title 40 of the Code of Federal Regulations and appendices thereto.

[5] **New tank system"** or "new tank component" means a tank system or component that will be used for the transfer, storage or treatment of hazardous waste and for which installation (as defined under "Existing tank system" in this section) has commenced **after** the dates indicated below; except, however, for purposes of sections 66264.193(g) and 66265.193(g), a new tank system is one for which construction commences after the dates indicated below: (See also "Existing tank system.")

(a) **July 14, 1986**, for tanks containing RCRA hazardous wastes, unless:

(1) the owner or operator is a conditionally exempt small quantity generator as defined in 40 CFR section 261.5, or a 100 or 1,000 kg per month generator as defined in 40 CFR section 265.201, or

(2) the owner or operator is not subject to regulation in 40 CFR part 264 or part 265 pursuant to an exemption in 40 CFR section 264.1 or section 265.1;

(b) **July 1, 1991** for:

(1) tanks containing only non-RCRA hazardous wastes, and

(2) tanks containing RCRA hazardous wastes, if:

(A) the owner or operator is a conditionally exempt small quantity generator or a 100 to 1,000 kg per month generator, or

(B) the owner or operator is not subject to regulation in 40 CFR part 264 or part 265 pursuant to an exemption in 40 CFR section 264.1 or section 265.1, but the owner or operator is subject to the standards of article 10 of chapter 14 or article 10 of chapter 15 of Title 22 CCR.

[6] The owner or operator of a **new** tank system shall ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, professional engineer, registered in California, either of whom is trained and experienced in the proper installation of tank systems, shall inspect the system or component. New tank systems or components and piping that are placed underground and that are backfilled shall be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is carefully installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported. All new tanks and ancillary equipment shall be tested for tightness prior to being covered, enclosed or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system shall be performed prior to the tank system being covered, enclosed, or placed in use. Ancillary equipment shall be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction. The owner or operator shall provide the type and degree of corrosion protection necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated shall be supervised by an independent corrosion expert to ensure proper installation.

[7] The assessment shall be valid for a maximum period of five (5) years or the remaining service life of the tank system, as stated in the engineer's assessment, whichever is less. New tank systems that have been assessed pursuant to subsections (a) through (g) of section 66265.192 CCR Title 22 prior to June 1, 1995 are not required to be reassessed pursuant to subsection 66265.192(k) for a period of five years from the date of the assessment or June 1, 2000, whichever is the earlier date. If changes have been made to the tank system or new components have been added to the tank system subsequent to an assessment conducted prior to June 1, 1995, the tank system shall be reassessed pursuant to subsection 66265.192(k).

Key Definitions from CCR Title 22, Division 4.5, section 66260.10

"Aboveground tank" means a device meeting the definition of "tank" in section 66260.10 and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.

"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 offsite.

"Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, recycled or disposed of.

"Corrosion expert" means a person who, by reason of that person's knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

"Decontaminate" means to make free of wastes that are hazardous pursuant to the criteria in chapter 11 of this division.

"Dike" means an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids or other materials.

"Fixed Treatment Unit" means any equipment which performs a treatment as defined in this section and which is permanently stationed, or which is periodically assembled for use, at a single facility for the purpose of performing treatment, regardless of the period or frequency of treatment.

"Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure. Free liquids are determined by using the paint filter test (EPA Method No. 9095), as modified in section 66264.314(b) of this division.

"Freeboard" means the vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained therein.

"Functionally equivalent component" means a component which performs the same function or measurement and which meets or exceeds the performance specifications of another component.

"Hard-piping" means pipe or tubing that is manufactured and properly installed in accordance with relevant standards and good engineering practices.

"Hazardous waste" means a hazardous waste as defined in section 66261.3 of this division. "Hazardous waste" includes extremely hazardous waste, acutely hazardous waste, RCRA hazardous waste, non-RCRA hazardous waste and special waste.

"Hazardous waste management unit" is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, a waste transfer area, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

"Inner liner" means a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste.

"Installation inspector" means a person who, by reason of, that person's knowledge of the physical sciences and the principles of engineering, acquired by a professional education and related practical experience, is qualified to supervise the installation of tank systems.

"Leak-detection system" means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (e.g., daily visual inspections for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

"Management" or "hazardous waste management" means the handling, storage, transportation, processing, treatment, recovery, recycling, transfer and disposal of hazardous waste.

"Nonwastewaters" means, for the purposes of chapter 18 of this division, wastes that do not meet the criteria for wastewaters found in the definition of "wastewaters" in this section.

"Onground tank" means a device meeting the definition of "tank" in this section that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

"Partial closure" means the closure of a hazardous waste management unit in accordance with the applicable closure requirements of chapters 14 and 15 of this division at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile or other hazardous waste management unit, while other units of the same facility continue to operate or will be placed in operation in the future.

"Permit-by-rule" means a provision of these regulations stating that a facility or activity is deemed to have a permit if it meets the requirements of the provision.

"Reclaimed" means that a material is processed to recover a usable product, or that it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents.

"Recyclable material" means a hazardous waste that is capable of being recycled, including, but not limited to, any of the following: (a) a residue; (b) a spent material, including, but not limited to, a used or spent stripping or plating solution or etchant; (c) a material that is contaminated to such an extent that it can no longer be used for the purpose for which it was originally purchased or manufactured; (d) a byproduct listed in section 66261.31 or section 66261.32; (e) any retrograde material that has not been used, distributed or reclaimed through treatment by the original manufacturer or owner by the later of the following dates: (1) one year after the date when the material became a retrograde material; (2) if the material has been returned to the original manufacturer, one year after the material is returned to the original manufacturer.

"Release" means: (a) Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

"Repaired" means that equipment is adjusted, or otherwise altered, to eliminate a leak. [For the purposes of chapters 14 and 15]

"Secondary containment" for tanks shall include one or more of the following devices pursuant to *Title 22 CCR Section 66265.193(d)*:

(1) a liner (external to the tank);
(2) a vault;
(3) a double-walled tank; or

(4) an equivalent device as approved by the Department; see CCR section 66265.193(m) for examples.

"Spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

"Sump" means any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serves to collect hazardous waste for transport to hazardous waste storage, treatment or disposal facilities.

"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 transfer, storage or treatment tank and its associated ancillary equipment and containment system.

"Totally enclosed treatment facility" means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

"Treatment" means any method, technique, or process which changes or is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or removes or reduces its harmful properties or characteristics for any purpose including, but not limited to, energy recovery, material recovery or reduction in volume.

"Underground tank" means a device meeting the definition of "tank" in this section which is substantially or totally beneath the surface of the ground.

"Unfit-for-use tank system" means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of transferring, storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

"Vault units" are generally built in the ground with concrete floors and walls. Pursuant to *Title 22 CCR Section 66265.193(e)* they shall be:

(A) designed or operated to contain 100 percent of the capacity of the largest tank within its boundary;

(B) designed or operated to prevent run-on and infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity, in addition to that required in subsection (e)(2)(A) of this section, to contain run-on and infiltration. Such additional capacity shall be sufficient to contain run-on and infiltration of precipitation from a 25-year, 24-hour rainfall event;

(C) constructed with chemical-resistant water stops in place at all joints (if any);

(D) provided with an impermeable interior coating or lining that is compatible with the waste being transferred, stored or treated and that will prevent migration of waste into the concrete;

(E) provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being transferred, stored or treated:

1. meets the definition of ignitable waste under section 66262.21 of this division, or

2. meets the definition of reactive waste under section 66261.23 of this division and may form an ignitable or explosive vapor; and

(F) provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

"Wastewater treatment unit" means a device which: (a) is part of a wastewater treatment facility which is subject to regulation under either section 402 (33 U.S.C. section 1317) or 307(b) (33 U.S.C. section 1342) of the Federal Clean Water Act; **and** (b) receives and treats or stores an influent wastewater which is a hazardous waste as defined in chapter 11 of this division, or that generates and accumulates a wastewater treatment sludge which is a hazardous waste as defined in chapter 11 of this division, or treats or stores a wastewater treatment sludge which is a hazardous waste as defined in chapter 11 of this division; **and** (c) meets the definition of tank or tank system in this section.

Questions and Answers:

1. Can you explain the major difference between "existing" and "new" tank systems?

In summary a new tank system subject to California's hazardous waste regulation (e.g..non-RCRA regulated) is a tank system installed after July 1, 1991. An existing tank system was installed and operated before July 1, 1991.

2. What is a sump and when are they subject to the tank regulations?

A sump is defined in Title 22 CCR 66260.10 and is any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serves to collect hazardous waste for transport to hazardous waste storage, treatment or disposal facilities. If a hazardous waste generator intentionally uses a sump to collect and manage hazardous waste onsite, then the sump is a tank and subject to regulation.
However, if a sump is in place as an emergency containment unit, designed to contain and collect an unplanned release or spill, the sump is serving as a secondary containment device [see also Title 22 CCR 66265.190(b)]. Since the sump's purpose is for an emergency or secondary containment, it is not a hazardous waste tank, provided it is emptied and cleaned out as soon as possible (usually immediately or within 24 hours of a spill depending on the circumstances). A sump serving as a secondary containment device must be provided with a means of leak detection to alert the operator as to a leak or spill of hazardous waste from a tank system.

3. Can you explain what aboveground piping is and how it is regulated?

Aboveground piping connected to a hazardous waste tank is regulated and is subject to some regulations (as ancillary equipment). Aboveground piping is installed completely above the surface of the ground and all sides of piping, flanges, valves, pump connections, etc. are readily and easily accessible for visual inspection by the tank operator. Daily visual inspections of the aboveground piping are a feasible means of leak detection and must be documented in the facility logs by the tank operator.

4. Does aboveground piping need to have secondary containment?

Usually the aboveground piping does not require secondary containment unless it is a pressurized system without an automatic shut off device installed and operational on the piping run. In this situation the piping must have secondary containment installed [see also Title 22 CCR 66265.193(f)]. Example of an automatic shut off device include; excess flow check valves, flow metering shutdown devices, or "loss of pressure actuated shut-off device".

5. What if there is underground piping used on a portion of the tank system?

Underground piping must have the proper secondary containment installed and a means of reliable leak detection in place and operational. Underground leaks from hazardous substance tanks have been a source of major contamination of the environment and groundwater in California.

6. What are the major components of a tank system?

In general hazardous waste tank systems include 3 parts:
a. the primary tank equipment where the waste is accumulated, stored, transferred, or treated,
b. the secondary containment device or unit,.
c. the ancillary equipment [eg..piping, trench drains, pumps, valves, etc].

7. What are some common errors in the Engineer's Assessment Reports submittals?

The engineer's assessment reports must be detailed and address all requirements listed in Title 22 CCR sections 66265.191 and 66265.192. Reports missing the following information may be deemed insufficient by the local regulatory agency:

- Tank system drawings and schematics are missing or not legible.
- Tank configuration and gross capacity not explained.
- The leak detection system/program is not explained or lacks clarity.
- The 100% secondary containment (eg..berm unit) calculations are missing or in error.
- The tank and/or piping manufacturer specifications are missing or not explained.
- The leak test for new construction is undocumented or missing results.
- Spill controls and overfill prevention is not explained or missing.

- Corrosion protection measures for steel components are missing or unexplained.
- Presence of groundwater pressures on the subsurface components is not addressed.
- Types and thickness of coating materials for concrete construction is missing.
- Lining materials used for tanks is not explained or missing.
- Types of hazardous waste handled not explained.
- Hazardous waste compatibility with materials of construction not addressed or explained.
- Description and evaluation of secondary containment missing or incomplete.
- Controls in place to prevent flooding, run-on, where exposed to precipitation not explained or missing.

8. The facility uses an aboveground storage tank, with 100% containment and leak detection, to store used oil and/or contaminated antifreeze. Does the professional engineer's assessment report prepared by an independent engineer need to be obtained in this situation?

For aboveground tanks storing used oil and antifreeze waste, the engineer's assessment report requirement may be conditionally waived by the Hazardous Materials Division (HMD) if the tank system meets certain conditions and was installed under permit/approval by the local fire marshal. A form is available from the HMD to request the waiver and the form lists the terms and conditions to be met.

Scenarios:

Example A: The waste generator uses a tank system to collect and store hazardous waste and their tank was installed in 1990 without adequate secondary containment.
The generator must perform an integrity assessment of the tank system and determine if it is still fit for use. If it passes the integrity assessment, secondary containment must be installed in accordance with all local agency requirements. The independent engineer that performs the initial integrity assessment can design a secondary containment and leak detection system and monitor the installation and final certification of the retrofitting work.

Example B: A tank operator has a combination system whereby they have some underground piping and aboveground tanks to accumulate and treat hazardous waste onsite prior to discharge to the sewer. The tanks have 100% secondary containment but the underground piping does not. The tank berm areas show signs of deterioration and the original coating on the concrete is worn away and cracked.
The operator should evaluate the following:

1. If economically feasible, have the underground piping integrity assessed and if it passes, retrofit with secondary containment and leak detection. If secondary containment is too costly, close the underground piping under oversight by the local CUPA agency and address any corrective actions (e.g.…release to the environment).
2. Redesign the ancillary equipment (e.g..piping to be completely aboveground with a leak detection program/system in place and operational. The redesign would require an independent professional engineer's certification per section 66265.192 Title 22 CCR.
3. Evaluate the deterioration at the tank berm areas to determine the integrity of the secondary containment, cause(s) of the deterioration, and potential release of waste constituents into the environment. Repair and recoat the deteriorated berm areas under supervision by an independent engineer if determined to be a major modification or significant repair [see also Title 22 CCR 66265.196]. Report any release into the environment to State and CUPA agencies in accordance with Title 22 CCR 66265.196(e) requirement and other applicable laws.

Example C: A hazardous waste tank system was installed in 1993 and may have proper secondary containment and some leak detection in place but the tank operator is not sure if it is okay per Title 22 CCR regulation. The operator has no independent engineer's assessment report available.
The operator needs to organize all available tank records, specifications, and as-built drawings and have an independent professional engineer certify the tank system in accordance with Title 22 CCR 66265.192-193 criteria. The final Engineer's Assessment Report, assuming it meets the regulatory requirements, should certify the tank system, secondary containment, and leak detection program, and substantiate the operation of the tank system.