



Ohio Administrative Code

Rule 3745-55-92 Design and installation of new tank systems or components.

Effective: September 5, 2010

(A) Owners or operators of new tank systems or components must obtain and submit to the director, at time of submittal of "Part B" information, a written assessment, reviewed and certified by a qualified professional engineer, in accordance with paragraph (D) of rule 3745-50-42 of the Administrative Code, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the director to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

- (1) Design standard(s) according to which tank(s) and/or the ancillary equipment are constructed;
- (2) Hazardous characteristics of the waste(s) to be handled;
- (3) For new systems or components 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, a determination by a corrosion expert of:
 - (a) Factors affecting the potential for corrosion, including but not limited to:
 - (i) Soil moisture content;
 - (ii) Soil pH;
 - (iii) Soil sulfides level;
 - (iv) Soil resistivity;



- (v) Structure to soil potential;
 - (vi) Influence of nearby underground metal structures (e.g., piping);
 - (vii) Existence of stray electric current; and
 - (viii) 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:
- (i) Corrosion-resistant materials of construction such as special alloys, fiberglass-reinforced plastic, etc.;
 - (ii) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and
 - (iii) Electrical isolation devices such as insulating joints, flanges, etc.
- [Comment: The practices described in the "National Association of Corrosion Engineers (NACE)" standard, "Recommended Practice (RP-02-85) - Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the "American Petroleum Institute (API)" publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in providing corrosion protection for tank systems.]
- (4) For underground tank system components that are likely to be adversely 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 dislodgement where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of rule 3745-54-18 of the Administrative Code; and

(c) Tank systems will withstand the effects of frost heave.

(B) The owner or operator of a new tank system must 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 a qualified professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system for the presence of any of the following items, and all discrepancies must be remedied before the tank system is covered, enclosed, or placed in use:

(1) Weld breaks;

(2) Punctures;

(3) Scrapes of protective coatings;

(4) Cracks;

(5) Corrosion; and

(6) Other structural damage or inadequate construction/installation.

(C) New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is 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.



(D) All new tanks and ancillary equipment must 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 must be performed prior to the tank system being covered, enclosed, or placed into use.

(E) Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

[Comment: The piping system installation procedures described in "American Petroleum Institute (API)" publication 1615 (November 1979), "Installation of Underground Petroleum Storage Systems," or ANSI standard B31.3, "Petroleum Refining Piping," and ANSI standard B31.4, "Liquid Petroleum Transportation Piping System," may be used, where applicable, as guidelines for proper installation of piping systems.]

(F) The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under paragraph (A) (3) of this rule, or other corrosion protection if the director believes other corrosion protection is 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 must be supervised by an independent corrosion expert to ensure proper installation.

(G) The owner or operator must obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system in accordance with the requirements of paragraphs (B) to (F) of this rule, that attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (B) and (D) of this rule, were performed. These written statements must also include the certification as required in paragraph (D) of rule 3745-50-42 of the Administrative Code.