

CONCRETE STORAGE TANK COVER SLOPE AND PONDING

Rule Affected: Title 30 Texas Administrative Code (30 TAC) §290.43(c)

Background:

The first rule revision to stipulate that storage tank covers must be sloped to prevent the collection of water was published in 1967. In 1988, the rules were revised to require tanks be designed and erected so no water ponding occurs at any point and no area of the storage tank roof have a slope of less than 0.75 inches per foot.

The purpose of the sloped roof requirement is to protect the structural integrity of the tank by preventing significant and prolonged incidents of standing rainwater. Standing water adds unnecessary weight and leads to external corrosion of the tank cover. External corrosion can potentially allow contaminants to infiltrate the tank and compromise the stored water's quality. Although concrete tank covers are generally not prone to corrosion, the added weight of ponding water and the potential for the introduction of contaminants are still concerns.

Guidance:

The PWS must submit a condition assessment of their GST to TROT for review. If the condition of the GST does not look suitable for an approval of a long-term exception request, a temporary exception may be considered to provide the PWS time to make repairs or provide an adequate cover slope. An exception can be granted for existing concrete tank covers with a positive roof slope of less than 0.75 inches per foot provided that the items below are fulfilled:

1. Within 12 hours following each rain event, the water system staff must inspect the roof to ensure no water ponding has occurred. If ponding has occurred, corrective action must be initiated by the water system operator to remove the excess water from the roof. A record of monitoring and completed corrective actions following rain events must be kept on file for at least two years and made available for review by TCEQ staff upon request.
2. The public water system (PWS) must conduct visual inspections of the ground storage tank (GST) for surface cracks on at least an annual basis. These inspection records must be kept on file for at least two years and made available for review by TCEQ staff upon request.
3. Surface cracks greater than 1/32-inch in width shall be repaired with a high-pressure epoxy injection grouting system. Any acceptable method of repair must be compliant with *American Water Works Association (AWWA) D110 Section 5.14* (see also *American Concrete Institute [ACI] 350R—Environmental Engineering Concrete Structures*). The surface of the crack shall then be finished flush with the adjacent surfaces and should not have indentations. The repair work shall be guaranteed by the repair contractor against failure of the epoxy bond in the repair areas for a minimum

period of one year. A record of any repair activities must be retained for a period of at least two years in accordance with 30 TAC §290.46(f)(3)(A)(vi) and must be made available for review by TCEQ staff upon request.

4. In small areas of honeycombed or spalled concrete (pits), the repair of the defect must include the application of non-shrink aggregate grout bonded to the concrete with an epoxy bonding agent. The minimum material strength used in the repair shall equal or exceed that specified for the concrete. The surface of the pit shall then be finished flush with the adjacent surfaces and shall show no indentations. The repair work shall be guaranteed by the repair contractor against failure of the epoxy bond in the repair areas for a minimum period of one year. A record of any repair activities must be retained for a period of at least two years in accordance with 30 TAC §290.46(f)(3)(A)(vi) and must be made available for review by TCEQ staff upon request.

Finalized and Approved by:

Joel Klumpp, Plan and Technical Review Section Manager _____

If no formal expiration date has been established for this staff guidance, it will remain in effect until superseded or canceled.

Revision History:

Date	Action	Action by
xx/xx/2009	Approved	Elston Johnson
12/05/2012	Revised	David Williams
08/14/2013	Revised	Yadhira Resendez
09/23/2013	Approved	Ada Lichaa
07/20/2016	Revised	Yadhira Resendez
07/27/2016	Approved	Joel Klumpp