

Chemical Storage and Feed Facilities Checklist

Texas Commission on Environmental Quality
Water Supply Division
Plan Review Team MC-159
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Public Water System I.D. No. _____
TCEQ Log No. P- _____

The following list is a brief outline of the "Rules for Public Water Systems", 30 TAC Chapter 290 regarding proposed Chemical Storage and Feed facilities. Sealed plans, engineering calculations, and specifications meeting, but not limited to, the minimum requirements cited here shall be prepared under the supervision of a Texas licensed professional engineer and submitted to TCEQ for approval. This list is not a substitute for the rules and this checklist cannot be accepted in lieu of the required engineering submittals. Failure to submit the following items may delay project approval. Copies of the rules may be obtained from Texas Register, 1019 Brazos St, Austin, TX, 78701-2413, Phone: (512) 463-5561 or downloaded from the website: <http://www.tceq.texas.gov/rules/indxpdf.html>

1. The calculations for sizing feed pump(s) and chemical storage tank(s) must be submitted to demonstrate that a project meets chemical feed and storage capacity requirements. [§290.39(e)(8)]
2. Chemical storage facilities shall be designed to ensure a reliable supply of chemicals to the feeders, minimize the possibility and impact of accidental spills, and facilitate good housekeeping. [§290.42(f)(1)]
3. Bulk storage facilities at the plant shall be adequate to store at least a 15-day supply of all chemicals needed to comply with minimum treatment technique and maximum contaminant level (MCL) requirements. The capacity of these bulk storage facilities shall be based on the design capacity of the treatment plant. However, the executive director may require a larger stock of chemicals based on local resupply ability. [§290.42(f)(1)(A)]
4. Day tanks shall be provided to minimize the possibility of severely overfeeding liquid chemicals from bulk storage facilities. Day tanks will not be required if adequate process control instrumentation and procedures are employed to prevent chemical overfeed incidents. [§290.42(f)(1)(B)]
5. Every chemical bulk storage facility and day tank shall have a label that identifies the facility's or tank's contents and a device that indicates the amount of chemical remaining in the facility or tank. [§290.42(f)(1)(C)]
6. Dry chemicals shall be stored off the floor in a dry room that is located above ground and protected against flooding or wetting from floors, walls, and ceilings. [§290.42(f)(1)(D)]
7. Bulk storage facilities and day tanks must be designed to minimize the possibility of leaks and spills. [§290.42(f)(1)(E)]
 - a) The materials used to construct bulk storage and day tanks must be compatible with the chemicals being stored and resistant to corrosion. [§290.42(f)(1)(E)(i)]
 - b) Except as provided in this clause, adequate containment facilities shall be provided for all liquid chemical storage tanks. [§290.42(f)(1)(E)(ii)]
 - i) Containment facilities for a single container or for multiple interconnected containers must be large enough to hold the maximum amount of chemical that can be stored with a minimum freeboard of six vertical inches or to hold 110% of the total volume of the container(s), whichever is less. [§290.42(f)(1)(E)(ii)(I)]
 - ii) Common containment for multiple containers that are not interconnected must be large enough to hold the volume of the largest container with a

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- minimum freeboard of six vertical inches or to hold 110% of the total volume of the container(s), whichever is less. [§290.42(f)(1)(E)(ii)(II)]
- iii) The materials used to construct containment structures must be compatible with the chemicals stored in the tanks. [§290.42(f)(1)(E)(ii)(III)]
 - iv) Incompatible chemicals shall not be stored within the same containment structure. [§290.42(f)(1)(E)(ii)(IV)]
 - v) No containment facilities are required for hypochlorite solution containers that have a capacity of 55 gallons or less. [§290.42(f)(1)(E)(ii)(V)]
 - vi) On a site-specific basis, the executive director may approve the use of double-walled tanks in lieu of separate containment facilities. [§290.42(f)(1)(E)(ii)(VI)]
8. Chemical transfer pumps and control systems must be designed to minimize the possibility of leaks and spills. [§290.42(f)(1)(F)]
9. Piping, pumps, and valves used for chemical storage and transfer must be compatible with the chemical being fed. [§290.42(f)(1)(G)]

Feed Facilities

10. Chemical feed and metering facilities shall be designed so that chemicals shall be applied in a manner which will maximize reliability, facilitate maintenance, and ensure optimal finished water quality. [§290.42(f)(2)]
11. Each chemical feeder that is needed to comply with a treatment technique or MCL requirement shall have a standby or reserve unit. Common standby feeders are permissible, but generally, more than one standby feeder must be provided due to the incompatibility of chemicals or the state in which they are being fed (solid, liquid, or gas). [§290.42(f)(2)(A)]
12. Chemical feed equipment shall be sized to provide proper dosage under all operating conditions. [§290.42(f)(2)(B)]
13. Devices designed for determining the chemical feed rate shall be provided for all chemical feeders. [§290.42(f)(2)(B)(i)]
14. The capacity of the chemical feeders shall be such that accurate control of the dosage can be achieved at the full range of feed rates expected to occur at the facility. [§290.42(f)(2)(B)(ii)]
15. Chemical feeders shall be provided with tanks for chemical dissolution when applicable. [§290.42(f)(2)(B)(iii)]
16. Chemical feeders, valves, and piping must be compatible with the chemical being fed. [§290.42(f)(2)(C)]
17. Chemical feed systems shall be designed to minimize the possibility of leaks and spills and provide protection against backpressure and siphoning. [§290.42(f)(2)(D)]
18. If enclosed feed lines are used, they shall be designed and installed so as to prevent clogging and be easily maintained. [§290.42(f)(2)(E)]
19. Dry chemical feeders shall be located in a separate room that is provided with facilities for dust control. [§290.42(f)(2)(F)]
20. Coagulant feed systems shall be designed so that coagulants are applied to the water prior to or within the mixing basins or chambers so as to permit their complete mixing with the water. [§290.42(f)(2)(G)]
- a) Coagulant feed points shall be located downstream of the raw water sampling tap. [§290.42(f)(2)(G)(i)]
 - b) Coagulants shall be applied continuously during treatment plant operation. [§290.42(f)(2)(G)(ii)]
21. Chlorine feed units, ammonia feed units, and storage facilities shall be separated by

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22. solid, sealed walls. [§290.42(f)(2)(H)]
Chemical application points shall be provided to achieve acceptable finished water quality, adequate taste and odor control, corrosion control, and disinfection.
[§290.42(f)(2)(I)]