

SUBCHAPTER M: SAFETY
§§217.321 - 217.333
Effective December 4, 2015

§217.321. Safety Design of a Wastewater Treatment Facility.

(a) The safety aspects of a wastewater treatment facility design must be based on *Design of Municipal Treatment Plants*, WEF Manual of Practice No. 8, 5th edition, 2009, published by the Water Environment Federation. Other safety design guidelines may be used only if submitted in the design submittal and approved in writing by the executive director.

(b) Occupational safety and health hazards, and risks to workers and the public, must be addressed in the design of collection system and wastewater treatment facility equipment and processes.

(c) The design of a wastewater treatment facility must incorporate processes that use the least hazardous and least toxic chemicals and the smallest amounts of those chemicals that will effectively treat and disinfect the influent so that the effluent and sludge meet the requirements in the associated wastewater permit, and do not degrade the water quality in a receiving stream or cause accumulation of hazardous or toxic chemicals in a land application area.

(d) Where applicable, a design must follow the guidelines pursuant to 29 Code of Federal Regulations, Part 1910.

Adopted November 4, 2015

Effective December 4, 2015

§217.322. Safety and Security Audits.

(a) Safety Audit.

(1) The owner of a wastewater treatment facility must conduct an annual safety audit of the wastewater treatment facility and collection system that evaluates injuries and incidents during the prior year in order to determine the locations, causes, types of injuries, and jobs being performed when the injuries or incidents occurred.

(A) For the purposes of this subchapter, an injury is harm or damage to an individual that results in any of the following: death, time away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness.

(B) For the purposes of this subchapter, an incident is harm or damage to an individual that results in first aid.

(2) The annual safety audit must identify the locations and jobs associated with injuries and incidents and the owner must develop a corrective action plan with a reasonable risk-based schedule for implementing corrective actions to address the causes of the injuries and incidents.

(3) The owner must complete corrective actions according to the schedule in the owner's risk-based corrective action plan.

(b) Security Audit.

(1) The owner of a wastewater treatment facility must conduct an annual security audit of the wastewater treatment facility and collection system.

(2) The annual security audit must be based on the *Asset Based Vulnerability Checklist for Wastewater Utilities (2002)* by the Association of Metropolitan Sewerage Agencies. An equivalent security audit protocol may be used, but only if approved in writing by the executive director.

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§217.323. Hazardous Operation and Maintenance.

(a) An owner shall perform a job safety analysis to identify potentially hazardous situations for a new or altered wastewater treatment unit or collection system unit before construction begins.

(b) For those identified potentially hazardous tasks, a list must be prepared for each task that identifies the necessary:

- (1) tools, equipment, and supplies;
- (2) fixed and portable lifting equipment;
- (3) fixed and portable monitoring equipment;
- (4) personal protective equipment and clothing;
- (5) warning signs and guards; and
- (6) first-aid supplies.

(c) The tools at a wastewater treatment facility must be sufficient to:

- (1) allow workers to safely and properly operate equipment;
- (2) perform required preventive maintenance, in compliance with the manufacturers' minimum requirements;
- (3) make repairs; and
- (4) maintain processes, pumps, motors, blowers, compressors, laboratory instrumentation, and other equipment.

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§217.324. Chemical Handling.

(a) An owner must make available personal protective equipment for breathing, eyes, face, head, and extremities, as well as all other equipment recommended by the Safety Data Sheet, for all individuals that will handle any chemical known to pose a potential health risk. The owner must train the wastewater treatment facility staff in the use of the equipment.

(b) A wastewater treatment facility that uses any chemical must be designed to provide eye washing and showering systems within each chemical work area for immediate emergency use. The specifications must reference a recognized national reference standard, such as American National Standards Institute Z358.1, for placement and installation of eye wash stations and showers.

(c) All personal protective equipment and chemical neutralizers must be immediately accessible outside a chemical storage area.

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§217.325. Railings, Ladders, Walkways, and Stairways.

(a) A guard rail with an opening that is designed to provide access must have a removable chain across the opening when the opening is not in use.

(b) An open valve box, pit, tank, or basin with walls that extend less than 4.0 feet above ground must have a railing that extends from the top of the walls to at least 4.0 feet above ground level. The railing must be capable of preventing an individual from falling into the open valve box, pit, tank, or basin.

(c) Equipment and work areas that are more than 4.0 feet above or below ground level must be designed with a permanent stairway for access unless the work area is a manhole or a similar confined space.

(d) A ladder must have flat safety tread rungs and must extend at least 3.5 feet out of a vault.

(e) A walkway above an open tank must have a toe board at least four inches tall that is designed to prevent a person from slipping off the walkway. Owners and engineers should refer to 29 Code of Federal Regulations, Part 1910, Subpart D, for additional guidance on walking and working surfaces.

(f) Walkways, steps, landings, and ladder rungs must have a non-slip finish. The vertical rise between adjacent steps on a stairway must not exceed 9.5 inches. Stairways must be designed with no horizontal gap between the tread run of adjacent steps.

(g) An overhead pipe or other overhead obstruction must have at least a 7.0-foot clearance, unless the pipe or obstruction is padded to prevent head injury and has a warning sign.

(h) Basins with vertical walls terminating more than 4.0 feet above or below ground level must be designed with a stairway for access.

(i) Guard rails on walkways shall have adequate clearance space for maintenance operations.

(j) Clarifiers must have grating across the discharge pipe in the launder or stop bars across the launder before the discharge pipe to prevent an individual from entering the discharge pipe from the clarifier.

(k) All guard rails, railings, ladders, walkways, and associated appurtenances must be designed and constructed to ensure the safety of individuals at the wastewater treatment facility.

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§217.326. Electrical and Fire Code Compliance.

(a) The electrical elements of a wastewater treatment facility and collection system must conform to local electrical codes. If the wastewater treatment facility or collection system is located in an area that does not have a local electrical code, the

electrical elements must comply with the most recent edition of the National Fire Protection Association 70 National Electrical Code® at the time of installation.

(b) The wastewater treatment facility and collection system must conform to local fire codes. If the wastewater treatment facility is located in an area that does not have a local fire code, the wastewater treatment facility and collection system must comply with the most recent edition of National Fire Protection Association 1 Fire Code® at the time of installation.

(c) Electrical elements must be protected from environmental hazards with a housing. Environmental hazards include moisture, extreme temperatures, and pests.

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§217.327. Non-Potable Water.

Each hydrant and outlet for non-potable water must have signs in both English and Spanish reading "NON-POTABLE WATER, DO NOT DRINK" and "NO BEBA EL AGUA."

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§217.328. Wastewater Treatment Facility Access Control.

(a) A wastewater treatment facility must be completely enclosed by an intruder-resistant fence.

(1) The intruder resistant fence must have a locked gate at each access point.

(2) The intruder-resistant fence must be at least 6.0 feet tall, and the bottom of the fence must be close enough to surface grade to prevent human access.

(3) The intruder-resistant fence must be constructed of wood, concrete, masonry, or metal. Other materials may be used, but only if approved in writing by the executive director.

(4) The top of the intruder-resistant fence must have at least three strands of barbed wire. A fence that is at least 8.0 feet tall does not require barbed wire. The top of an intruder-resistant fence may have outwardly-directed iron bars spaced on four-inch centers instead of barbed wire.

(5) A five-strand barbed wire fence may be used in a rural area for fencing lagoons or overland-flow plots, but only if approved in writing by the executive director.

(b) A wastewater treatment facility must have hazard signs on the outward facing side of the fence, stating "DANGER - NO TRESPASSING" in English and Spanish. At least one clearly visible and legible hazard sign must be placed on each gate and each side fence.

(c) A wastewater treatment facility must be accessible by truck during all weather conditions, including a 25-year, 24-hour rainfall event, and must have at least one all-weather access road with the driving surface situated above the 100-year flood plain.

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§217.329. Color Coding of Pipes.

(a) A new wastewater treatment facility must have color-coded pipes in accordance with subsection (e) of this section.

(b) A new wastewater treatment facility must have detectable underground warning tape for each non-metallic underground pipe.

(c) An existing wastewater treatment facility must color-code and install detectable underground warning tape for each pipe installed as part of an alteration.

(d) A non-potable water pipe must be painted purple and be stenciled "NON-POTABLE WATER, DO NOT DRINK" and "NO BEBA EL AGUA."

(e) A wastewater treatment facility design must use the following color-coding for pipes:

- (1) sludge - brown;
- (2) natural gas - red;
- (3) potable water - light blue;
- (4) chlorine - yellow;
- (5) sulfur dioxide - lime green with yellow bands;
- (6) sewage - grey;

- (7) compressed air - light green;
- (8) heated water - blue with 6 inch red bands spaced 30 inches apart;
- (9) power conduit - in compliance with the National Fire Protection Association 70 National Electrical Code®;
- (10) reclaimed water – purple with black lettering;
- (11) gray water – purple with yellow writing;
- (12) instrument air - light green with dark green bands;
- (13) liquid alum - yellow with orange bands;
- (14) alum (solution) - yellow with green bands;
- (15) ferric chloride - brown with red bands;
- (16) ferric sulfate - brown with yellow bands;
- (17) polymers - white with green bands;
- (18) ozone - stainless steel with white bands;
- (19) raw water - tan; and
- (20) effluent after clarification - dark green.

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§217.330. Drinking Water Supply Connections.

(a) A connection between a drinking water supply system and any part of a wastewater treatment facility or collection system must be made through an air gap or a reduced-pressure backflow assembly (RPBA) in accordance with American Water Works Association (AWWA) Standard C511-97 or AWWA Manual M14.

(b) Each RPBA must be tested and passed annually by a commission licensed backflow prevention assembly tester. If an RPBA fails an annual test, it must be repaired or replaced, and then retested by a commission licensed backflow prevention assembly tester.

(c) RPBA test results and maintenance records must be retained at the wastewater treatment facility for at least three years.

(d) Vacuum breakers are required on all potable water spigots.

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§217.331. Freeze Protection.

A horizontal surface subject to freezing temperatures and water accumulation must be sloped to prevent ice formation.

Adopted August 6, 2008

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§217.332. Noise Levels.

(a) An area accessed by individuals must be designed to comply with 29 Code of Federal Regulations §1910.95.

(b) Removable noise attenuation equipment, such as removable mufflers or removable noise-reducing panels, must remain attached to the equipment at all times to reduce noise, unless the noise attenuation equipment is removed for maintenance activities.

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§217.333. Confined Spaces.

(a) A design must, to the extent practicable, avoid creating confined spaces as defined in 29 Code of Federal Regulations §1910.146.

(b) A ventilating manhole must be equipped with a connection for a portable ventilator.

(c) A confined space entry must be conducted according to the requirements of 29 Code of Federal Regulations §1910.146.

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