h. Water used for sodium fluoride dissolution shall be softened if hardness exceeds 75 mg/L as calcium carbonate.

i. Fluoride solutions shall be injected at a point of continuous positive pressure unless a suitable air gap is provided.

j. The electrical outlet used for the fluoride feed pump should have a nonstandard receptacle and shall be interconnected with the well or service pump, or have flow pacing as allowed by the state health officer,

k. Saturators should be of the upflow type and be provided with a meter and backflow protection on the makeup water line.

l. Consideration shall be given to providing a separate room for fluorosilicic acid storage and feed.

3. Secondary control systems for fluoride chemical feed devices shall be provided as a means of reducing the possibility for overfeed; these may include flow or pressure switches, break boxes, or other devices.

4. Personal protective equipment as outlined in §207.D of this Part shall be provided for operators handling fluoride compounds. Deluge showers and eye wash devices shall be provided at all fluorosilicic acid installations.

5. Dust control requirements are as follows.

a. Provision shall be made for the transfer of dry fluoride compounds from shipping containers to storage bins or hoppers in such a way as to minimize the quantity of fluoride dust which may enter the room in which the equipment is installed. The enclosure shall be provided with an exhaust fan and dust filter which places the hopper under a negative pressure. Air exhausted from fluoride handling equipment shall discharge through a dust filter to the outside atmosphere of the building.

b. Provision shall be made for disposing of empty bags, drums or barrels in a manner which will minimize exposure to fluoride dusts. A floor drain should be provided to facilitate the washing of floors.

6. Equipment shall be provided for measuring the quantity of fluoride in the water. Such equipment shall be subject to the approval of the state health officer.

H. Activated carbon is a potentially combustible material requiring isolated storage.

1. Storage facilities should be:

a. fire proof; and

b. equipped with explosion-proof electrical outlets, lights and motors in areas of dry handling.

2. Bags of powdered carbon should be stacked in rows with aisles between in such a manner that each bag is accessible for removal in case of fire.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

Subchapter B. Pumping Facilities

§211. General

A. Pumping facilities shall be designed to maintain the sanitary quality of pumped water.

B. Subsurface pits or pump rooms and inaccessible installations should be avoided.

C. No pumping station shall be subject to flooding, unless critical components are protected from damage or contamination by inundation.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§213. Site Protection

A. The station's critical components that could be damaged or contaminated by inundation shall be:

1. elevated to a minimum of two foot above the 100-year flood elevation, or protected to such elevations including the use of a levee system;

2. readily accessible at all times unless permitted to be out of service for the period of inaccessibility;

3. graded around the station so as to lead surface drainage away from the station;

4. protected to prevent vandalism and entrance by animals or unauthorized persons. The pump station should be located within a secure area such as a locked building or fenced area;

5. labeled such that the pumps and valves in the station are tagged to correspond to the maintenance record and for proper identification.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§215. Pumping Stations

A. Both raw and finished water pumping stations shall:

1. be of durable construction, fire and weather resistant;

2. have any underground structure waterproofed

3. have all floors slope to a suitable drain in such a manner that the quality of the potable water will not be endangered;

4. provide a suitable outlet for drainage without allowing discharge across the floor, including pumping glands, vacuum air relief valves, etc.

B. A suction well is a component(s) designed to facilitate the suction of water by way of pump excluding intake structures, ground storage tanks and clearwells. Suction wells shall:

1. be watertight;

2. have floors sloped to permit removal of water and settled solids;

3. be covered or otherwise protected against contamination; and

4. have two pumping compartments or other means to allow the suction well to be taken out of service for inspection maintenance or repair.

C. Equipment servicing pump stations shall:

1. provide adequate facilities or other means for servicing or removal of pumps, motors or other heavy equipment; and

2. have openings in floors, roofs or wherever else needed for removal of heavy or bulky equipment.

D. Stairways or ladders shall:

1. be provided between all floors, and in dry pits or compartments which must be entered; and

2. conform to the applicable requirements of the state and local building codes.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§217. Pumps

A. Where necessary to meet minimum system requirements such as pressure, at least two pumping units shall be provided. With any pump out of service, the remaining pump or pumps shall be capable of providing the maximum design capacity of that station.

B. The pumping units shall:

1. have ample capacity to supply the peak demand against the required distribution system pressure without dangerous overloading;

2. be driven by prime movers able to meet the maximum horsepower condition of the pumps;

3. be provided with readily available spare parts and tools;

4. be served by control equipment that has proper heater and overload protection for air temperature encountered.

C. Prime water must not be of lesser sanitary quality than that of the water being pumped. Means shall be provided to prevent either backpressure or backsiphonage backflow. When an air-operated ejector is used, the screened intake shall draw clean air from a point at least 10 feet above the ground or other source of possible contamination, unless the air is filtered by an apparatus approved by the state health officer. Vacuum priming may be used.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§219. Booster Pumps

A. Booster pumps shall be located or controlled so that:

1. they will not produce negative pressure in their suction lines;

2. pumps taking suction from storage tanks shall be provided adequate net positive suction head;

3. pumps taking suction from ground storage tanks shall be equipped with automatic shutoffs or low pressure controllers as recommended by the pump manufacturer;

4. automatic or remote control devices shall have a range between the start and cutoff pressure which will prevent excessive cycling; and

5. a bypass is available.

B. Inline Booster Pumps. In addition to the other requirements of this section, inline booster pumps shall:

1. be accessible for servicing and repairs;

2. maintain inlet pressure installed in the distribution system as required in §237.A of this Part under all operating conditions;

3. maintain at least 20 psig (140 kPa) in the suction line under all operating conditions with automatic shutoff or low pressure controller, unless otherwise acceptable to the state health officer; and

4. have a bypass.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§221. Automatic and Remote Controlled Stations

A. All automatic stations shall:

1. be provided with automatic signaling apparatus which will report when the station is out of service; and

2. be electrically operated and controlled and shall have signaling apparatus of proven performance if remotely controlled.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§223. Appurtenances

A. Valves. Each pump shall have:

1. an isolation valve on the intake and discharge side of the pump to permit satisfactory operation, maintenance and repair of the equipment;

2. a positive-acting check valve on the discharge side between the pump and the shut-off valve;

a. If foot valves are necessary, they shall have a net valve area of at least 2 ½ times the area of the suction pipe and they shall be screened.

b. Surge relief valves or slow acting check valves if used shall be designed to minimize hydraulic transients.

B. Piping. In general, piping shall:

1. be designed so that the friction losses will be minimized;

2. not be subject to contamination;

3. have watertight joints;

4. be protected against surge or water hammer and provided with suitable restraints where necessary; and

5. be designed such that each pump has an individual suction line or that the lines shall be so manifolded that they will insure similar hydraulic and operating conditions.

C. Gauges and meters. The station shall have a flow rate indicator and totalizing meter, and a method of recording the total water pumped and station water pressure. Each pump:

1. shall have a standard pressure gauge on its discharge line;

2. shall have a compound gauge on its suction line;

D. Water Seals. Water seals shall not be supplied with water of a lesser sanitary quality than that of the water being pumped. Where pumps are sealed with potable water and are pumping water of lesser sanitary quality, the seal shall:

1. be provided with either an approved reduced pressure principle backflow preventer or a break tank open to atmospheric pressure; and

2. where a break tank is provided, have an air gap of at least six inches or two pipe diameters, whichever is greater, between the feeder line and the flood rim of the tank.

E. Controls. Pumps, their prime movers and accessories, shall be controlled in such a manner that they will operate at rated capacity without dangerous overload. Where two or more pumps are installed, provisions shall be made for alternations.

1. Motors shall be equipped with a non-reversing ratchet or other mechanical means to prevent backspin. If mechanical means are not provided, provisions shall be made to prevent energizing the motor in the event of a backspin cycle.

2. Electrical controls shall be located at least two feet above the 100-year flood elevation, but in no case less than two feet above the ground surface.

3. Equipment shall be provided or other arrangements made to prevent surge pressures from activating controls which switch on pumps or activate other equipment outside the normal design cycle of operation.

F. Standby Power. To ensure continuous service when the primary power has been interrupted, a power supply shall be provided from a standby or auxiliary source where necessary to maintain minimum 20 psig pressure throughout the system based on systems average hourly demand during the peak annual day.

1. If standby power is provided by onsite generators or engines, the fuel storage:

a. shall have a minimum supply of 72 hours; and

b. the fuel line must be designed to protect the water supply from contamination (see §137).

G. When automatic pre-lubrication of pump bearings is necessary and an auxiliary power supply is provided, design shall assure that pre-lubrication is provided when auxiliary power is in use, or that bearings can be lubricated manually before the pump is started.

H. All oil or grease lubricants which come into contact with the potable water shall be listed in NSF/ANSI Standard 60.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

Subchapter C. Finished Water Storage

§225. General

A. The materials and designs used for finished water storage structures shall provide stability and durability as well as protect the quality of the stored water.

B. Steel structures shall be constructed in accordance with the American Water Works Association (AWWA) standards, incorporated by reference into these rules (see §277 for referenced standards) concerning steel tanks, standpipes, reservoirs, and elevated tanks wherever they are applicable. Other materials of construction are acceptable when properly designed to meet the requirements of this Subchapter.

C. Sizing. The following criteria applies to the sizing of storage facilities.

1. Storage facilities should have sufficient capacity, as determined from engineering studies, to meet domestic demands, and where fire protection is provided, fire flow demands.

2. The minimum storage capacity (or equivalent capacity) for systems not providing fire protection shall be equal to the average daily consumption.

a. This requirement may be reduced when the source and treatment facilities have sufficient capacity with standby power to supplement peak demands of the system.

3. Excessive storage capacity should be avoided to prevent potential water quality deterioration problems.

D. Location of reservoirs. The following criteria applies to the location of reservoirs.

1. Ground level reservoirs shall be protected from contamination to a point two feet above the 100-year flood elevation requirements and from groundwater infiltration. Sewers, drains, standing water, and similar sources of possible contamination must be kept at least 50 feet from the reservoir. Gravity sewers constructed of water main quality pipe, pressure tested in place without leakage, may be used at distances greater than 20 feet but less than 50 feet.

2. The bottom of ground level reservoirs and standpipes should be placed at the normal ground surface. If the bottom of a storage reservoir shall be below the normal ground surface, at least 50 percent of the water depth must be above grade.

3. The top of a partially buried storage structure shall not be less than two feet above normal ground surface. Clearwells constructed under filters may be exempted from this requirement when the design provides adequate protection from contamination.

E. Protection from contamination. All finished water storage structures shall have suitable watertight roofs which exclude birds, animals, insects, and excessive dust. The installation of appurtenances, such as antenna, shall be done in a manner that ensures no damage to the tank, coatings or water quality, or corrects any damage that occurred.

F. Protection from trespassers. Fencing, locks on access manholes, and other necessary precautions shall be provided to prevent trespassing, vandalism, and sabotage. Consideration should be given to the installation of high strength, cut resistant locks or lock covers to prevent direct cutting of a lock.

G. Drains. No drain on a water storage structure may have a direct connection to a sewer or storm drain. The design shall allow draining the storage facility for cleaning or maintenance without causing loss of pressure in the distribution system.

H. Stored Water Age. Finished water storage designed to facilitate fire flow requirements and meet average daily consumption shall be designed to minimize stagnation and/or stored water age.

1. Consideration shall be given to separate inlet and outlet pipes, mechanical or similar mixing, or other acceptable means to prevent poor water circulation and long detention times that can lead to loss of disinfectant residual, microbial growth, formation of disinfectant byproducts, taste and odor problems, and other water quality problems.

I. Overflow. Water storage structure overflow shall comply with the following.

1. All water storage structures shall be provided with an overflow which is brought down to an elevation between 12 and 24 inches above the ground surface, and discharges over a drainage inlet structure or a splash plate. No overflow may be connected directly to a sewer or a storm drain. All overflow pipes shall be located so that any discharge is visible.

2. Certain pre-stressed concrete tanks having an overflow opening installed on the top or side of the tank shall not be required to have an internal overflow pipe as long as each opening is covered with an "eyelid" that prevents contamination of the water in the tank. The discharge from such overflow openings shall still be required to discharge over a splash plate large enough to prevent erosion of the tank's foundation or any other support structures. Caution shall be taken to ensure that any overflow down the outside of the tank will not affect electrical or cause other safety concerns.

a. When an internal overflow pipe is used on elevated tanks, it should be located in the access tube. For vertical drops on other types of storage facilities, the overflow pipe should be located on the outside of the structure.

b. The overflow for a ground-level storage reservoir shall open downward and be screened with twenty- four mesh non-corrodible screen. The screen shall be installed within the overflow pipe at a location least susceptible to damage by vandalism.

c. The overflow for an elevated tank shall open downward and be screened with a four mesh, non- corrodible screen to keep out animals or insects. The screen should be installed within the overflow pipe at a location least susceptible to damage by vandalism.

d. The overflow pipe shall be of sufficient diameter to permit waste of water in excess of the filling rate.

J. Access. Finished water storage structures shall be designed with reasonably convenient access to the interior for cleaning and maintenance. At least two (2) manholes shall be provided above the waterline at each water compartment where space permits.

1. Elevated Storage or Dome Roof Structures shall comply with the following.

a. At least one of the access manholes shall be framed at least four inches above the surface of the roof at the opening. They shall be fitted with a solid water tight cover which overlaps the framed opening and extends down around the frame at least two inches, shall be hinged on one side, and shall have a locking device.

b. All other manholes or access ways shall be bolted and gasketed according to the requirements of the state health officer, or shall meet the requirements of Subparagraph a of this Paragraph.

2. Ground Level or Flat Roof Structures shall comply with the following.

a. Each manhole shall be elevated at least 24 inches above the top of the tank or the finished grade of the surrounding ground, whichever is higher.

b. Each manhole shall be fitted with a solid water tight cover which overlaps a framed opening and extends down around the frame at least two inches. The frame shall be at least four inches high. Each cover shall be hinged on one side, and shall have a locking device.

K. Vents. Finished water storage structures shall be vented. The overflow pipe shall not be considered a vent. Open construction between the sidewall and roof is not permissible. The vents:

1. shall prevent the entrance of surface water and rainwater;

2. shall exclude birds and animals;

3. should exclude insects and dust, as much as this function can be made compatible with effective venting;

4. shall, on ground-level structures, open downward with the opening at least 24 inches above the roof and be covered with twenty-four mesh non-corrodible screen. The screen shall be installed within the pipe at a location least susceptible to vandalism;

5. shall, on ground storage tanks, open downward with the opening at least 24 inches above the finished grade of the surrounding ground and be covered with twenty-four mesh non-corrodible screen. The screen shall be installed within the pipe at a location least susceptible to vandalism; and

6. shall, on elevated tanks and standpipes, open downward, and be fitted with either four mesh non-corrodible screen, or with finer mesh non-corrodible screen in combination with an automatically resetting pressure-vacuum relief mechanism, as required by the state health officer.

L. Roof and sidewalls. The roof and sidewalls of all water storage structures shall be watertight with no openings except properly constructed vents, manholes, overflows, risers, drains, pump mountings, control ports, or piping for inflow and outflow. Particular attention shall be given to the sealing of roof structures which are not integral to the tank body.

1. Any pipes running through the roof or sidewall of a metal storage structure must be welded, or properly gasketed. In concrete tanks, these pipes shall be connected to standard wall castings

which were poured in place during the forming of the concrete. These wall castings should have seepage rings imbedded in the concrete.

2. Openings in the roof of a storage structure designed to accommodate control apparatus or pump columns, shall be curbed and sleeved with proper additional shielding to prevent contamination from surface or floor drainage.

3. Valves and controls should be located outside the storage structure so that the valve stems and similar projections will not pass through the roof or top of the reservoir.

4. The roof of the storage structure shall be well drained. Downspout pipes shall not enter or pass through the reservoir. Parapets, or similar construction which would tend to hold water and snow on the roof, will not be approved unless adequate waterproofing and drainage are provided.

5. The roof of concrete reservoirs with earthen cover shall be sloped to facilitate drainage. Consideration should be given to installation of an impermeable membrane roof covering.

6. Reservoirs with pre-cast concrete roof structures must be made watertight with the use of a waterproof membrane or similar product.

M. The material used in construction of reservoirs shall be acceptable to the state health officer. Porous material, including wood and concrete block, are not suitable for potable water contact applications.

N. Safety must be considered in the design of the storage structure. The design shall conform to applicable laws and regulations of the area where the water storage structure is constructed.

1. Ladders, ladder guards, balcony railings, and safely located entrance hatches shall be provided where applicable.

2. Elevated tanks with riser pipes over eight inches in diameter shall have protective bars over the riser openings inside the tank.

3. Confined space entry requirements shall be considered.

O. Freezing. Finished water storage structures and their appurtenances, especially the riser pipes, overflows, and vents, shall be designed to prevent freezing which will interfere with proper functioning.

1. Equipment used for freeze protection that will come into contact with the potable water shall meet NSF/ANSI Standard 61 or be approved by the state health officer.

2. If a water circulation system is used, it is recommended that the circulation pipe be located separately from the riser pipe.

P. Internal Catwalk. Every catwalk over finished water in a storage structure shall have a solid floor with sealed raised edges, designed to prevent contamination from shoe scrapings and dirt.

Q. Silt stop. The discharge pipes from water storage structures shall be located in a manner that will prevent the flow of sediment into the distribution system. Removable silt stops should be provided.

R. Grading. The area surrounding a ground-level structure shall be graded in a manner that will prevent surface water from standing within 50 feet of it.

S. Painting and/or cathodic protection. Proper protection shall be given to metal surfaces by paints or other protective coatings, by cathodic protective devices, or by both.

1. Paint systems shall meet NSF/ANSI Standard 61 and be acceptable to the state health officer. Interior paint must be applied, cured, and used in a manner consistent with the NSF/ANSI approval. After curing, the coating shall not transfer any substance to the water which will be toxic or cause taste or odor problems. Prior to placing in service, an analysis for volatile organic compounds is advisable to establish that the coating is properly cured. Consideration should be given to 100 % solids coatings.

2. Wax coatings for the tank interior shall not be used on new tanks or in the rehabilitation of existing tanks. Old wax coating must be completely removed before using another tank coating.

3. Cathodic protection should be designed and installed by competent technical personnel, and a maintenance contract should be provided.

T. Disinfection. Finished water storage structures shall be disinfected in accordance with AWWA Standard C652-11 (see Table 277).

1. If bacteriological testing for coliform organisms is negative and chlorine residuals are at acceptable distribution system levels, the storage tank may be placed into service. If such testing shows the presence of coliform bacteria, the tank cannot be placed into service and repeat samples shall be taken until two consecutive samples, taken at 24-hour intervals, are negative. The tank shall not be placed into service until the sample results are satisfactory.

2. Disposal of heavily chlorinated water from the tank disinfection process shall be in accordance with Paragraph 4.3.5.1 of AWWA Standard C652-11 or in accordance with the requirements of the Louisiana Department of Environmental Quality (LDEQ) or other state or federal authorities, whichever is stricter.

U. Smooth-nosed sampling tap(s) or similar non-threaded stainless steel sampling taps shall be provided to facilitate collection of water samples for both bacteriological and chemical analyses. The sample tap(s) shall be easily accessible.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§227.Treatment Plant Storage

A. The applicable design standards of §225 shall be followed for plant storage.

B. Filter washwater tanks. Filter washwater tanks shall be sized, in conjunction with available pump units and finished water storage, to provide the backwash water required by §177.A.10 of this Part. Consideration shall be given to the backwashing of several filters in rapid succession.

C. Clearwell. Clearwell storage should be sized, in conjunction with distribution system storage, to relieve the filters from having to follow fluctuations in water use.

1. When finished water storage is used to provide disinfectant contact time (see §179.C) special attention shall be given to tank size and baffling (see §227.C.2)

2. To ensure adequate disinfectant contact time, sizing of the clearwell should include extra volume to accommodate depletion of storage during the nighttime for intermittently operated

filtration plants with automatic high service pumping from the clearwell during non-treatment hours.

3. An overflow and vent shall be provided.

a. A minimum of two clearwell compartments shall be provided.

D. Finished or treated water must not be stored or conveyed in a compartment adjacent to untreated or partially treated water when the two compartments are separated by a single wall, unless approved by the state health officer.

E. Unless otherwise allowed by the state health officer, other treatment plant storage tanks/basins such as detention basins, backwash reclaim tanks, receiving basins and pump wet-wells for finished water shall be designed as finished water storage structures.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§229. Hydropneumatic Tank Systems

A. Pressure tanks shall meet ASME code requirements or an alternative approved by the state health officer. Any alternative must be rated to at least 1.5 times the maximum discharge pressure of the pump.

B. Location. The tank shall be located above normal ground surface.

C. System sizing. The following criteria applies to the sizing of hydropneumatic systems.

1. The capacity of the wells and pumps in a hydropneumatic system shall be at least five times the average daily demand expressed in gallons per minute.

2. The gross volume of the hydropneumatic tank, in gallons, shall be at least ten times the capacity of the largest pump, rated in gallons per minute. For example, a 250 gpm pump shall be a minimum of 2,500 gallon pressure tank, unless other measures (e.g., variable speed drives in conjunction with the pump motors) are provided to meet the maximum demand.

3. Sizing of hydropneumatic storage tanks must consider the need for disinfectant contact time.

D. The hydropneumatic tank(s) shall have bypass piping to permit operation of the system while the tank is being repaired or painted.

E. Appurtenances. Each tank shall have an access manhole, a drain, and control equipment consisting of a pressure gauge, water sight glass, automatic or manual air blow-off, means for adding air, and pressure operated start-stop controls for the pumps.

1. A pressure relief valve shall be installed and be capable of handling the full pumpage rate of flow at the pressure vessel design limit.

2. Where practical the access manhole should be 24 inches in diameter. The water sight glass shall not be mandatory if an automated control to maintain the proper water-to-air ratio in the tank is provided.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§231. Distribution System Storage

A. The applicable design standards of §225 of this Part shall be followed for distribution system storage.

B. Pressures. The maximum variation between high and low levels in storage structures providing pressure to a distribution system should not exceed 30 feet. The minimum working pressure in the distribution system shall be 20 psi gauge and the normal working pressure should be approximately 60 to 80 psi gauge. When static pressures exceed 100 psi gauge, pressure reducing devices shall be provided on mains or as part of the meter setting on individual service lines in the distribution system.

C. Drainage. Finished water storage structures which provide pressure directly to the distribution system shall be designed so they can be isolated from the distribution system and drained for cleaning or maintenance without causing a loss of pressure in the distribution system. The storage structure drain shall discharge to the ground surface with no direct connection to a sewer or storm drain.

D. Level Controls. Adequate controls shall be provided to maintain levels in distribution system storage structures. Level indicating devices should be provided at a central location.

1. Pumps should be controlled from tank levels with the signal transmitted by telemetering equipment when any appreciable head loss occurs in the distribution system between the source and the storage structure.

2. Altitude valves or equivalent controls may be required for second and subsequent structures on the system.

3. Overflow and low-level warnings or alarms should be located where they will be under responsible surveillance 24 hours a day.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

Subchapter D. Distribution System Piping and Appurtenances

§233. General

A. All potable water distribution systems shall be designed, constructed, and maintained so as to prevent leakage of water due to defective materials, improper jointing, corrosion, settling, impacts, freezing, or other causes.

B. Valves and blow-offs shall be provided so that necessary repairs can be made with a minimum interruption of service.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§235. Materials

A. Standard and Material Selection. Standard and material selection shall comply with the following.

1. Any solder or flux which is used in the installation or repair of any public water system or any plumbing in a residential or nonresidential facility providing water for human consumption shall be lead free (*i.e.*, shall not contain more than 0.2 percent lead).

2. Any pipe, pipe fitting, plumbing fitting, fixture, and any other appurtenance which is used in the installation or repair of any public water system or any plumbing in a residential or nonresidential facility providing water for human consumption shall be lead free (*i.e.*, shall not contain more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, fixtures, and any other appurtenances).

3. The lead free requirements referenced in §235.A.1 and 2 of this Subchapter shall not apply to:

a. leaded joints necessary for the repair of existing cast iron pipes;

b. pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or,

c. toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, fire hydrants, service saddles, or water distribution main gate valves that are 2 inches in diameter or larger.

B. Water Piping Quality. Quality of the piping materials shall comply with the following:

1. All potable water pipes, pipe related products and materials that join or seal pipes and pipe related products shall be evaluated and listed as conforming with a national consensus product (or material) standard, ASTM, AWWA, NSF/ANSI Standard 61, and/or NSF/ANSI 372.

2. Any solder or flux which is used in the installation or repair of any public water system or any plumbing in a residential or nonresidential facility providing water for human consumption shall be lead free (*i.e.*, shall not contain more than 0.2 percent lead).

3. The lead free requirements referenced in §235.B.2 of this Subchapter shall not apply to:

a. leaded joints necessary for the repair of existing cast iron pipes;

b. pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or,

c. toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, fire hydrants, service saddles, or water distribution main gate valves that are 2 inches in diameter or larger.

C. Permeation by organic compounds. Where distribution systems are installed in areas contaminated by organic compounds and such organic compounds are detected at levels that are known to pose a health risk:

1. pipe and joint materials which do not allow permeation of the organic compounds shall be used; and

2. non-permeable materials shall be used for all portions of the system including hydrant leads and service connections.

D. Used materials. Water mains which have been used for the purpose of conveying potable water may be reused provided they meet the materials standard of §235 and have been restored substantially to their original condition.

E. Manufacturer approved transition joints shall be used between dissimilar piping materials.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§237. Distribution System Design

A. The system shall be designed to maintain a minimum pressure of 20 psig (140 kPa) at ground level at all points in the distribution system under all conditions of flow.

B. The minimum size of water main which provides for fire protection and serving fire hydrants shall be six-inch diameter. Larger size mains will be required if necessary to allow the withdrawal of the required fire flow while maintaining the minimum residual pressure specified in §237 of this Subchapter.

C. The minimum size of water main in the distribution system where fire protection is not to be provided shall be a minimum of three (3) inch diameter. Any departure from minimum requirements shall be justified by hydraulic analysis and future water use, and may be considered only in special circumstances.

D. Dead end mains shall be equipped with a means to provide adequate flushing. No flushing device shall be directly connected to any sewer.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§239. Valves

A. Valve spacing shall not exceed one mile except for transmission mains 24" or larger.

B. Valve spacing shall not exceed five miles for transmission mains 24" or larger.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§241. Hydrants

A. Hydrant leads. The hydrant lead shall be at least as large as the hydrant. For new construction and hydrant replacement, auxiliary valves shall be installed on all hydrant leads.

B. Hydrant drainage. Where hydrant drains are not plugged, a gravel pocket or dry well shall be provided unless the natural soils will provide adequate drainage.

1. Hydrant drains shall not be connected to sanitary sewers or located within 6 feet of sanitary sewers, storm sewers, or storm drains and where allowed, shall be above the seasonal groundwater table.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§243. Air Relief Valves

A. At points in water mains where air can significantly accumulate provisions shall be made to remove the air by means of air relief valves.

B. When used, the open end of an air relief pipe from automatic valves shall be extended to at least one foot above grade and provided with a screened, downward-facing elbow.

C. Discharge piping from air relief valves shall not connect directly to any storm drain, storm sewer, or sanitary sewer.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§245. Installation of Water Mains

A. Specifications for installation of water mains shall incorporate the applicable provisions of the AWWA standards and/or manufacturer's recommended installation procedures including those specifications and requirements for bedding, cover and blocking requirements.

B. Installed pipe shall be pressure tested and leakage tested in accordance with the appropriate AWWA Standards.

C. New, cleaned and repaired water mains shall be disinfected in accordance with AWWA Standard C651 (Disinfecting Water Mains) and are subject to the following additional provisions:

1. Water from new water mains shall not be furnished for consumer's use until tests performed by a laboratory certified by the state health officer have shown the new water mains to be free from contamination by coliform bacteria (following EPA approved procedures prescribed in Standard Methods for the Examination of Water and Wastewater, Nineteenth Edition).

2. After cutting into or repairing existing mains, the water shall be tested by a laboratory certified by the state health officer for coliform bacteria (following EPA approved procedures prescribed in Standard Methods for the Examination of Water and Wastewater, Nineteenth Edition) to determine the effectiveness of the disinfection procedure unless an alternate method is approve by the state health officer. If the direction of flow is unknown, then samples shall be taken on each side of the main break. If samples are E. coli/fecal coliform positive then the state health officer shall be notified. If samples are total coliform positive, then corrective action must be taken, and daily sampling shall continue until two consecutive samples are negative.

3. Samples shall not be collected from the new facilities until such new facilities have been disinfected as prescribed herein, and the chlorinated water thoroughly flushed from the system until such chlorine measurements are no higher than those generally prevailing in the distribution system.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§247. Separation Distances from Contamination Sources

A. Parallel installation. Water mains shall be laid at least 6 feet horizontally from any existing or proposed gravity sanitary or storm sewer, septic tank, or subsoil treatment system. This distance shall be measured edge to edge.

1. In cases where it is not practical to maintain a 6 foot separation, the state health officer may allow deviation on a case-by-case basis, if supported by data from the design engineer.

B. Crossings. Where water mains cross sewers, either above which is the preferred method, or below the sewer:

1. the water main shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer.

2. there shall be one full length of water pipe so that both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required by the state health officer.

C. Exception. When it is impossible to obtain the minimum specified separation distances, the state health officer shall specifically approve any variance from the requirements of §247.A and §247.B of this Subchapter and the following methods of installation may be used:

1. Installation of the water main closer to a sewer, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the gravity sewer.

2. The sewer materials shall be water works grade 150 psi (1.0 Mpa) pressure rated pipe meeting AWWA standards or pipe approved by the state health officer and shall be pressure tested to ensure water tightness.

D. Force Mains. There shall be at least a 6 foot horizontal separation between water mains and sanitary sewer force mains. This measurement shall be from edge to edge. There shall be an 18 inch vertical separation at crossings as required in §247 of this Subchapter.

E. Sewer manholes. No water pipe shall pass through or come in contact with any part of a sanitary sewer manhole and shall be located at least 6 feet from sanitary sewer manholes.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§249. Surface Water Crossings

A. Above-water crossings or above-grade piping, if present shall be:

1. adequately supported and anchored,

2. protected from vandalism,

3. protected from foreseeable sources of damage

4. protected from freezing by water velocity, heating trace systems and thermal insulation or other effective method; and

5. shall be placed so as to be accessible for repair or replacement.

B. Underwater crossings if present:

1. shall have over it a minimum cover of five feet unless otherwise approved by the state health officer; and

2. when crossing water courses which are greater than 15 feet in width measured at low flow, the following shall be provided:

a. the pipe shall be of special construction, having flexible, restrained or welded watertight joints;

b. valves shall be provided at both ends of water crossings within one half mile for less than 24 inch mains or within 2.5 miles for 24 inch for larger mains so that the section can be isolated for testing or repair; the valves shall be easily accessible, and not subject to flooding under normal conditions. All other mains, services, taps, hydrants, or other devices located inside of the limits of these isolation valves shall also have easily accessible isolation valve;

c. permanent taps or other acceptable means to allow the use of a small meter to determine leakage and obtain water samples on each side of the valve closest to the supply source. Combination taps for both an air relief valve and a pressure tap are permissible provided the assemble meets the above criteria and the air relief valve can be isolated during the testing of the crossing.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§251. Interconnections

A. The approval of the state health officer shall be obtained for interconnections between potable water supplies.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§253. Water Services and Plumbing

A. Water services and plumbing shall conform to the applicable provisions of the State Uniform Construction Code, LAC 17:I.

B. Where permitted by the water supplier, booster pumps that are used to draw water from a water supply distribution system or are placed in a system to increase the line pressure, shall not reduce the pressure at the customer connection to less than 20 psi (pounds per square inch) gauge.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§255. Water Loading Stations

A. Water loading stations present special problems since the fill line may be used for filling both potable water vessels and other tanks or contaminated vessels.

B. For the purposes of preventing contamination of both the public water supply and any potable water vessels being filled, the following shall apply to the use and operation of water loading stations:

1. there shall be no backflow to the public water supply;

2. the piping arrangement shall be such as to prevent contamination from a hauling vessel being transferred to subsequent station users (see Figure 255); and

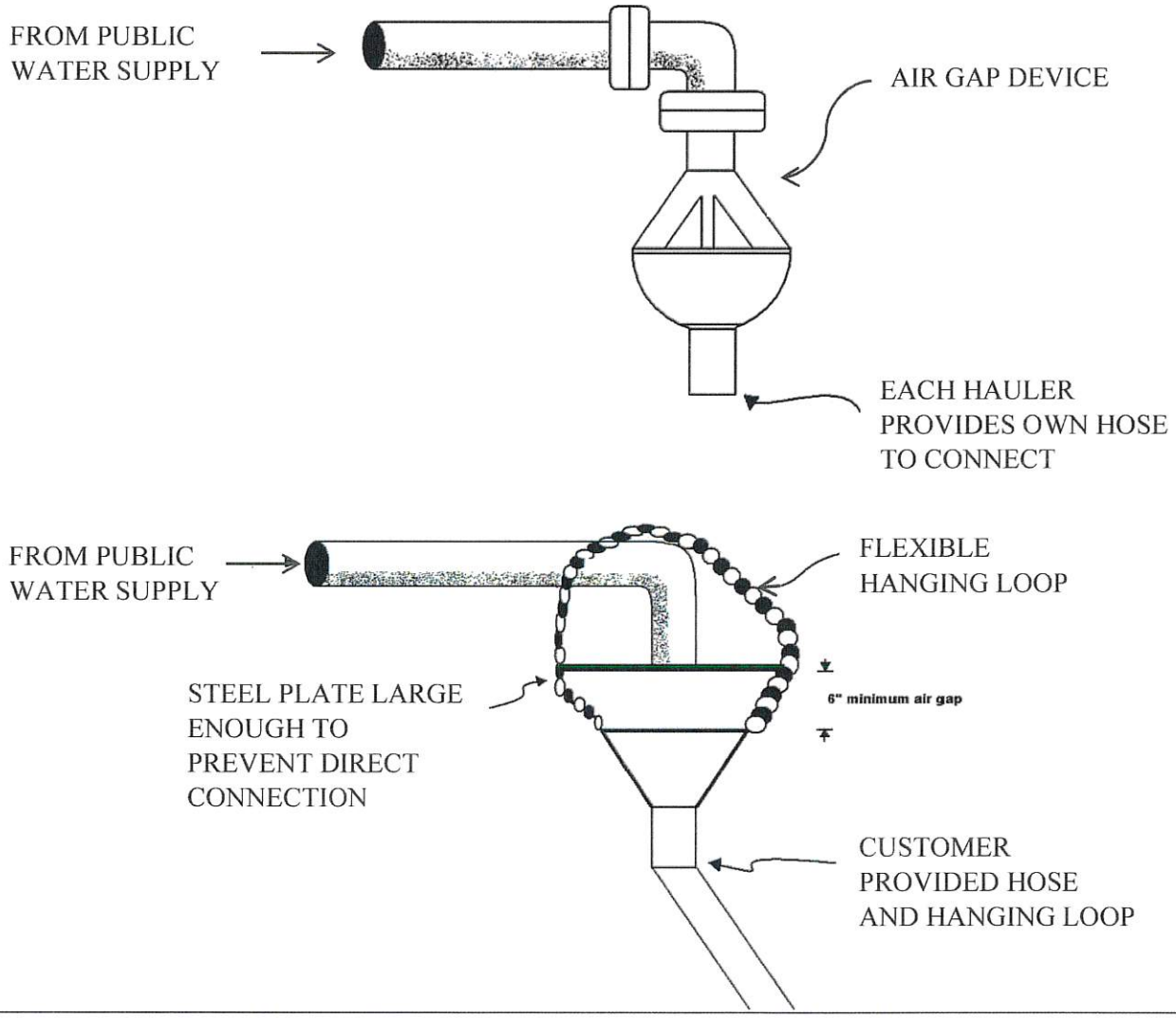
3. any and all portable hoses used for filling of water containers or other acceptable water vessels:

a. shall be fitted with a metal disk at the nozzle of the hose to prevent contact of nozzle with ground or floors.

b. shall be protected from dirt and contamination by storage in a tightly enclosed cabinet or acceptable storage container when not in use, and

c. shall be disinfected prior to use.

Figure 255. Acceptable Filling Device for Water Loading Station



AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

Subchapter F. Waste Residuals

§257. General.

A. All waste discharges shall be in accordance with all federal, state and/or local laws and ordinances. The requirements provided here shall, therefore, be considered minimum requirements as federal, state, and/or local water pollution control authorities may have more stringent requirements.

B. Provisions shall be made for proper disposal of water treatment plant wastes such as:

1. sanitary and laboratory wastes;
2. clarification sludge;
3. softening sludge;
4. iron sludge;
5. filter backwash water;
6. backwash sludge; and
7. brines, including softener and ion exchange regeneration wastes and membrane wastes.

C. Some regulatory agencies consider discharge from overflow pipes/outlets as discharge wastes. In locating sewer lines and waste disposal facilities, consideration shall be given to preventing potential contamination of the water supply.

D. Alternative methods of water treatment and chemical use should be considered as a means of reducing waste volumes and the associated handling and disposal problems.

E. Appropriate backflow prevention measures shall be provided on waste discharge piping as needed to protect the public water supply.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§259. Sanitary Waste

A. The sanitary waste from water treatment plants, pumping stations, and other waterworks installations shall receive treatment.

B. Waste from these facilities shall be discharged directly to a sanitary sewer system, when available and feasible, or to an adequate on-site waste treatment facility approved by the state health officer.

C. The appropriate federal, state, and local officials should be notified when designing treatment facilities to ensure that the local sanitary sewer system can accept the anticipated wastes.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§261. Brine Wastes

A. Waste from ion exchange, demineralization, and membrane plants, or other plants which produce a brine, may be disposed of by controlled discharge to a stream if adequate dilution is available. The Louisiana Department of Environmental Quality (hereinafter, LDEQ) may establish surface water quality requirements including rate of discharge and discharge parameters.

B. Except when discharging to large waterways, a surge tank of sufficient size should be provided to allow the brine to be discharged over a 24 hour period.

C. Where discharging to a sanitary sewer, a holding tank may be required to prevent the overloading of the sewer and/or interference with the waste treatment processes. The effect of brine discharge to sewage lagoons may depend on the rate of evaporation from the lagoons.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§263. Precipitative Softening Sludge

A. Sludge from plants using precipitative softening varies in quantity and in chemical characteristics depending on the softening process and the chemical characteristics of the water being softened. Recent studies show that the quantity of sludge produced is much larger than indicated by stoichiometric calculations. Sludge from plants using precipitative softening shall be treated and disposed of as follows.

1. Lagoons. The use of lagoons shall comply with the following.

a. Short term storage lagoons should be designed on the basis of 0.7 acres per million gallons per day per 100 mg/L of hardness removed based on a usable lagoon depth of 5 feet. This should provide about 2 ½ years storage. At least 2 but preferably more lagoons shall be provided in order to give flexibility in operation. An acceptable means of final sludge disposal shall be provided. Provisions shall be made for convenient cleaning.

b. Long term lagoons should have a volume of at least four times that for short term storage lagoons.

c. The design of both short term and long term lagoons should provide for:

i. location free from flooding;

ii. when necessary, dikes, deflecting gutters or other means of diverting surface water so that it does not flow into the lagoons;

iii. a minimum usable depth of 5 feet;

iv. adequate freeboard of at least 2 feet;

v. adjustable decanting device;

vi. effluent sampling point;

vii. adequate safety provisions,

viii. parallel operation; and

ix. subsurface infiltration may be acceptable if approved by the appropriate reviewing authority/authorities.

2. The application of liquid lime or dewatered sludge to farm land should be considered as a method of ultimate disposal. Approval from the LDEQ shall be obtained if required.

3. Mixing of lime sludge with activated sludge waste as a means of co-disposal.

4. Disposal at a landfill either as a solid or liquid if the landfill can accept such waste, depending on LDEQ requirements.

5. Mechanical dewatering of sludge may be considered. Pilot studies on a particular plant waste are recommended. Mechanical dewatering should be preceded by sludge concentration and chemical pre-treatment.

6. Calcination of sludge may be considered. Pilot studies on a particular plant waste are recommended.

7. Discharge of lime sludge to sanitary sewers should be avoided since it may cause both liquid volume and sludge volume problems at the sewage treatment plant. This method shall be used only when the sewerage system has the capability to adequately handle the lime sludge.

B. Lime sludge drying beds shall not be used as a method of treating and/or disposing of sludge.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§265. Alum Sludge

A. Alum sludge can be discharged to a sanitary sewer. However, initiation of this practice shall depend on obtaining approval from the owner of the sanitary sewerage system as well as from the state health officer before final designs are made.

B. Mechanical concentration may be considered. A pilot study is recommended before the design of a mechanical dewatering installation.

C. Freezing changes the nature of alum sludge so that it can be used for fill. Acid treatment of sludge for alum recovery may be a possible alternative.

D. Lagoons. Lagooning may be used as a method of handling alum sludge. Lagoon size can be calculated using total chemicals used plus a factor for turbidity. Lagoons shall be designed to produce an effluent satisfactory to the LDEQ LPDS.

1. Lagoons, in addition, should provide for:

a. a location free from flooding;

b. where necessary, dikes, deflecting gutters or other means of diverting surface water so that it does not flow into the lagoon;

c. a minimum usable depth of 5 feet;

d. adequate freeboard of at least 2 feet;

e. adjustable decanting device;

f. effluent sampling point;

g. adequate safety provisions, and

h. a minimum of two cells, each with appropriate inlet/outlet structures to facilitate independent filling/dewatering operations. . Lagoon size can be calculated using total chemicals used plus a factor for turbidity.

E. Mechanical dewatering may be used as a method of handling alum sludge.

1. The successful use of mechanical dewatering depends on the characteristics of the alum sludge produced, as determined by site specific studies.

2. Mechanical dewatering shall be preceded by sludge concentration and chemical pre-treatment.

F. Alum sludge may be disposed of by land application either alone, or in combination with other wastes where an agronomic value has been determined, and disposal has been approved by the LDEQ if required.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§267. "Red Water" Waste

A. Waste filter wash water from iron and manganese removal plants shall be properly disposed of in accordance with one of the following methods:

1. Sand filters. The sand filters should have the following features:

a. Total filter area shall be sufficient to adequately dewater applied solids. Unless the filter is small enough to be cleaned and returned to service in 1 day, two or more cells are required.

b. The "red water" filter shall have sufficient capacity to contain, above the level of the sand, the entire volume of wash water produced by washing all of the production filters in the plant, unless the production filters are washed on a rotating schedule and the flow through the production filters is regulated by true rate of flow controllers. Then sufficient volume shall be provided to properly dispose of the wash water involved.

c. Sufficient filter surface area should be provided so that, during any one filtration cycle, no more than 2 feet of backwash water will accumulate over the sand surface.

d. The filter shall not be subject to flooding by surface runoff or flood waters. Finished grade elevation shall be established to facilitate maintenance, cleaning and removal of surface sand as required. Flash boards or other non-watertight devices shall not be used in the construction of filter side walls.

e. The filter media should consist of a minimum of 12 inches of sand, 3 to 4 inches of supporting small gravel or torpedo sand, and 9 inches of gravel in graded layers. All sand and gravel should be washed to remove fines.

f. Filter sand should have an effective size of 0.3 to 0.5 mm and a uniformity coefficient not to exceed 3.5. The use of larger sized sands shall be justified by the designing engineer to the satisfaction of the state health officer.

g. The filter should be provided with an adequate under-drainage collection system to permit satisfactory discharge of filtrate.

h. Provision shall be made for the sampling of the filter effluent.

i. Overflow devices from "red water" filters shall not be permitted.

j. Where freezing is a problem, provisions should be made for freeze protection for the filters during the winter months.

k. "Red water" filters shall comply with the common wall provisions contained in §177 of this Part, which pertain to the possibility of contaminating treated water with unsafe water.

l. The state health officer shall be contacted for approval of any arrangement wherein a separate structure is not provided.

2. Lagoons. The lagoons shall have the following features:

a. be designed with a volume 10 times the total quantity of wash water discharged during any 24-hour period;

b. have a minimum usable depth of 3 feet;

c. have a length 4 times width, and the width at least 3 times the depth, as measured at the operating water level;

d. be designed such that the outlet is located at the end opposite the inlet;

e. have a weir overflow device at the outlet end with weir length equal to or greater than depth;

f. have provisions for the velocity to be dissipated at the inlet end; and

g. subsurface infiltration lagoons shall be acceptable only if approved by the appropriate reviewing authority/authorities.

3. Red water can be discharged to a community sewer. Approval of this method will depend on obtaining approval from the owner of the sewerage system as well as from the state health officer before final designs are made.

a. A surge tank is recommended to prevent overloading of the sewers.

b. Design shall prevent cross connections.

c. There shall be no common walls between potable and non-potable water compartments.

4. Red water may be discharged into surface water. However, the plant must have an NPDES (National Pollutant Discharge Elimination System) permit or other applicable discharge permit from the appropriate regulatory authority/authorities to dispose of backwash water into surface water.

5. Recycling of supernatant or filtrate from "red water" waste treatment facilities to the head end of an iron removal plant shall not be allowed except as approved by the state health officer.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§269. Waste Filter Wash Water

A. Backwash water from surface water treatment and lime softening plants should have suspended solids reduced to a level acceptable to the state health officer before being discharged to a backwash reclaim tank and recycled to the head of the plant.

1. The backwash reclaim holding tank shall:

a. contain the anticipated volume of waste water produced by the plant when operating at design capacity;

b. for plants having two filters, have a holding tank that will contain the total waste wash water from both filters calculated by using a 15 minute wash at 20 gallons per minute per square foot;

c. for plants having more than two filters, size the holding tank appropriately depending on the anticipated hours of operation.

B. Spent filter backwash water, thickener supernatant and liquids processes may be allowed by the state health officer to be recycled into the head of the plant, provided that:

1. compliance is achieved under the requirements of Subchapter G (Filter Backwash Recycling) of Chapter 11 (Surface Water Treatment Rule) of Part XII of this code;

2. the recycled water should be returned at a rate of less 10 percent of the instantaneous raw water flow rate entering the plant;

3. the recycled water should not be recycled when the raw water contains:

a. excessive algae,

b. when finished water taste and odor problems are encountered, or

c. when disinfection byproduct levels in the distribution system may exceed allowable levels.

d. Particular attention shall be given to the presence of protozoans such as *Giardia* and *Cryptosporidium* concentrating in the waste water stream;

4. Water utilities may need to treat filter waste water prior to recycling to reduce pathogen population and improve coagulation or avoid reclaiming filter wash water given the increased risk to treated water quality.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§271. Radioactive Materials

A. Radioactive materials include, but are not limited to:

1. granulated activated carbon (GAC) used for radon removal,

2. radium adsorptive filter media;

3. ion-exchange regeneration waste from radium removal;

4. manganese greensand backwash solids from manganese removal systems,

5. precipitative softening sludges, and

6. reverse osmosis concentrates where radiological constituents are present.

B. The buildup of radioactive decay products of radon shall be considered and adequate shielding, ventilation, and other safeguards shall be provided for operators and visitors.

C. These materials may require disposal as radioactive waste in accordance with Nuclear Regulatory Commission regulations. Necessary approval shall be obtained from the LDEQ prior to disposal of all radioactive wastes if required.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§273. Arsenic Waste Residuals

A. Arsenic-bearing wastes, including but not limited to, filter backwash water and sludge, and adsorptive filter media from arsenic treatment facilities may be considered hazardous.

B. Necessary approval from LDEQ must be obtained prior to disposal of arsenic residual wastes if required.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§275. Other Approved Methods of Handling Waste

A. LDH, in coordination with other regulatory agencies may review and approve other methods of handling waste that are not specifically discussed in this Subchapter.

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§277. Standards Reference Table

A. This Section contains the particular volume of standards or the specific standard with the designation, name and the edition of the standards cited within Chapters 1 and 2 of this Part. The particular designation/edition of the standards listed below shall be applied in relation to the citation within Chapter 1 and 2 of this Part.

Standard Designation	Section/Table
ACI 350-06, Code Requirements for Environmental Engineering Concrete Structures	179.H.4.a.iv
ASME Boiler & Pressure Vessel Code - Section VIII - Pressure Vessels - 2017	229.A
ASTM Volume 01.01 Steel—Piping, Tubing, Fittings - June 2017	235.B.1
ASTM Volume 01.02 Ferrous Castings, Ferroalloys - June 2017	235.B.1
ASTM Volume 04.05 Chemical-Resistant Nonmetallic Materials; Vitrified Clay Pipe; Concrete Pipe; Fiber-Reinforced Cement Products; Mortars and Grouts; Masonry; Precast Concrete - June 2017	235.B.1

Standard Designation	Section/Table
ASTM Volume 08.04 Plastic Piping Systems - June 2017	235.B.1
AWWA Full Set Standards – June 2017	
Chemicals	205.B, 209.G
Disinfection of Wells	151.A, 169.E.9.c
Disinfection of Water-Storage Facilities	151.A, 225.T, 225.T.2, 225.T3
Disinfecting Water Mains	151.A, 245.C
Granular Activated Carbon	177.A.6.c.iv, 177.A.6.c.iv.d
Granular Filter Material	177.A.6
Pipe and Accessories	235.B.1, 245, 247.C.2
Water Storage Tanks	225.B
Water Wells	169.F.2
EPA Alternative Disinfectants and Oxidants Guidance Manual - 1999	179.I.1
EPA Ultraviolet Disinfection Guidance Manual - 2006	179.H
NIOSH	207.B.1, 207.D.1
NSF/ANSI 60, Drinking Water Treatment Chemicals - Health Effects	169.H.3.c.i, 201.A, 201.E.1, 205.B, 209.G, 223.H
NSF/ANSI 61, Drinking Water System Components - Health Effects	169.H.1.c, 169.H.3.c.i, 179.I.1.a, 185.A, 225.O.1, 225.S.1, 235.B.1
NSF/ANSI 372, Drinking Water System Components - Lead Content	235.B.1
Standard Methods for the Examination of Water and Wastewater, 19th edition	179.A, 245.C.1, 245.C.2

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

§279. Organization Reference Table

A. The following is a list by name and address of those agencies, associations, institutes and other entities that are referenced within Chapters 1 and 2 of this Part by name, initials or symbols. Further, other organizations may be listed, for convenience, whose technical and other services are made available as they may relate to the provisions contained within Chapters 1 and 2 of this Part.

ANSI	American National Standards Institute, Inc. 25 West 43rd Street, 4th Floor New York, New York 10036 Tel. (212) 642-4900; Fax (212) 398-0023 www.ansi.org
ASME	American Society of Mechanical Engineers Information Central - Orders/Inquiries P.O. Box 2300 Fairfield, New Jersey 07007-2300 Tel. (800) 843-2763 www.asme.org
ASTM International	American Society for Testing and Materials International 100 Barr Harbor Drive West Conshohocken, Pennsylvania 19428-2959 Tel. (610) 832-9500; Fax (610) 832-9555 www.astm.org

AWWA	American Water Works Association 6666 West Quincy Avenue Denver, Colorado 80235-3098 Tel. (303) 794-7711 or (800) 926-7337; Fax (303) 347-0804
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, Massachusetts 02169-9101 Tel. (617) 770-3000 or (800) 344-3555; Fax (800) 593-6372 www.nfpa.org
NSF	NSF International 789 N. Dixboro Road P.O. Box 130140 Ann Arbor, Michigan 48113-0140 Tel. (734) 769-8010 or (800) 673-6275; Fax (734) 769-0109 www.nsf.org

AUTHORITY NOTE: Promulgated in accordance with the provisions of R.S. 40:4.A.(8), 40:4.13.D.(1)(2) and 40:5.A.(2)(3)(5)(6)(7)(17).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 44:

Chapter 3. Water Quality Standards

§319. Significant Deficiencies Identified in Sanitary Surveys

A. – C. …

D. For all public water systems, the following have been determined by the state health officer to be significant deficiencies and shall be corrected in accordance with §319.B of this Part:

1. §105.A, 105.B or 105.~~C~~D of this Part;

D.2. – 14. …

15. For fluoride only, day tanks shall be provided where bulk storage of liquid chemical is provided, meet all the requirements of ~~section 5.1.10 of the Ten State Standards~~§203.J., hold no more than a 30 hour supply, and be scale mounted or have a calibrated gauge painted or mounted on the side if liquid levels can be observed in a gauge tube or through translucent sidewalls of the tank. In opaque tanks, a gauge rod extending above a reference point at the top of the tank, attached to a float can be used. The ratio of the area of the tank to its height shall be such that unit readings are meaningful in relation to the total amount of chemical fed during a day;

D.16. – 23. …

AUTHORITY NOTE: Promulgated in accordance with R.S. 40:4(A)(8), 40:13.D.(1)(2) and R.S. 40:5.A.(2)(3)(5)(6)(17)(20).

HISTORICAL NOTE: Promulgated by the Department of Health, Office of Public Health, LR 43:85 (January 2017)~~.~~, amended LR 44:

Public Hearing

LDH-OPH will conduct a public hearing at 1 pm on Wednesday, December 27, 2017, in Room 173 of the Bienville Building, 628 North 4th Street, Baton Rouge, LA. Persons attending the hearing may have their parking ticket validated when one parks in the 7-story Galvez Parking Garage which is located between N. 6th and N. 5th / North and Main Streets. (cater-corner and

across the street from the Bienville Building). All interested persons are invited to attend and present data, views, comments, or arguments, orally or in writing.

Request for Comments

Interested persons may submit written comments on the proposed rule. Such comments must be received no later than Friday, December 29, 2017 at COB, 4:30 p.m., and should be addressed to Amanda Laughlin, Chief Engineer, Engineering Services Section, Office of Public Health, P.O. Box 4489, Baton Rouge, LA 70821-4489, or faxed to (225) 342-7303. If comments are to be shipped or hand-delivered, please deliver to the Bienville Building, 628 N. 4th Street - Room 125, Baton Rouge, LA 70802.

Jimmy Guidry, MD, State Health Officer, LDH

and

Rebekah E. Gee, MD, MPH, Secretary, LDH

John Bel Edwards
GOVERNOR

Rebekah E. Gee MD, MPH
SECRETARY

State of Louisiana

Louisiana Department of Health
Office of Secretary

November 7, 2017

TO: The Honorable John A. Alario, Jr., President, Louisiana Senate
The Honorable Taylor F. Barras, Speaker of the House of Representatives
The Honorable Fred H. Mills, Jr., Chairman, Senate Health & Welfare Committee
The Honorable Frank A. Hoffmann, Chairman, House Health & Welfare Committee

FR: Rebekah E. Gee, M.D., M.P.H., Secretary

RE: **RULEMAKING – NOTICE OF INTENT**

In accordance with the provisions of the Administrative Procedure Act, (R.S. 49:950, *et seq.*), the state health officer acting through the Department of Health, Office of Public Health (LDH-OPH), proposes to promulgate a rule to amend Part XII (Water Supplies) of Title 51 (Public Health–Sanitary Code) of the Louisiana Administrative Code (LAC). This action is being taken pursuant to the rulemaking authority granted by R.S. 40:4, 40:4.13, and 40:5. The proposed rule is authorized under Act 292 and Act 488 of the Regular Legislative Sessions, 2013 and 2014, respectively. When effective, the proposed amendments to Part XII will assist LDH-OPH in ensuring the continued protection of the public health from contaminated drinking water through enforceable construction, operation and maintenance standards that address the proper design, operation and maintenance of public water systems.

These Louisiana standards were developed and approved by the *Louisiana Standards for Water Works Construction, Operation, and Maintenance Committee* (a.k.a., "water committee") which was initially created by Act 292 of 2013. The *Recommended Standards for Water Works, 2012 Edition* (commonly referred to as the "Ten State Standards") was used as the basis of this proposed rule and the text therein was modified by the water committee to develop a customized state version which, in certain instances, is more applicable to the South's climatic conditions and to Louisiana, in particular. The effective date of the final rule is proposed to be postponed until August 1, 2018 for the permitting of new public water systems or the modification to existing public water systems.

Attached, please find the Notice of Intent and required impact statements, including the summary page of the Fiscal & Economic Impact Statement. The Department plans to publish the notice of intent in the November 20, 2017 issue of the *Louisiana Register*.

RE: **RULEMAKING – NOTICE OF INTENT**

Should you have any questions, please contact Jimmy Guidry, State Health Officer, Louisiana Department of Health, at (225) 342-3417.

JG:AL:CB:cb

Attachments

cc: Jimmy Guidry, M.D., State Health Officer, LDH
Amanda Laughlin, Chief Engineer, Engineering Services Section, OPH
Parham Jabari, M.D., Assistant Secretary, OPH
Avis Richard-Griffin, LDH/OPH Rulemaking Liaison Officer

DEPARTMENT OF HEALTH

POVERTY IMPACT STATEMENT

(To be completed and submitted with the Notice of Intent in accordance with R.S. 49:953 (A)(1)(a)(viii) and 972)

Proposed Rule: Louisiana Standards for Water Works Construction, Operation and Maintenance [LAC 51:XII.101, 105, 107, 111-123, 125-163, 165-169, 171-191, 201-209, 211-223, 225-231, 233-255, 257-275, 277-279, 319]

Completed by: Caryn Benjamin Telephone Number: (225) 342-7499

Publish in the November 20, 2017 issue of the *Louisiana Register*.

(1) The effect on household income, assets, and financial security.

The proposed rule adopts new design and construction standards for public water systems effective August 1, 2018. The proposed rule may increase the monthly water bill for households if served drinking water by a public water system (PWS) that undergoes new contruction/renovations after August 1, 2018. The PWS may determine a need to increase their revenue collections (*i.e.*, increase water bills) to cover the increased constructions costs for certain projects that have more stringent requirements in the proposed rule. The increased costs associated with such new construction/renovations is inestimable as it would vary and be dependent upon the size and scope of the actual project being proposed. Therefore, the effect of the rule on households is unknown.

(2) The effect on early childhood development and preschool through postsecondary education development.

There will be no effect on childhood development and preschool through postsecondary education development.

(3) The effect on employment and workforce development.

The proposed rule will likely cause an increase in competition to hire Louisiana Licensed Professional Engineers to design drinking water infrastructure projects that comply with the new design regulations. The rule will require them to become knowledgeable of the new design regulations in order to receive a permit for constructing drinking water infrastructure projects. The rule requires plans and specifications submitted for a permit on/after August 1, 2018 (effective date of rule) to comply with the new design regulations. Construction of drinking water infrastructure projects submitted on/after August 1, 2018 could be delayed if the project does not comply with the new regulations. Delayed projects could adversely affect employment. Therefore, the effective date of the rule is proposed to be delayed several months from the anticipated date of the final rule publication to provide stakeholders time to become aware of and study the changes in the design standards.

(4) The effect on taxes and tax credits.

There will be no effect on taxes and tax credits

(5) The effect on child and dependent care, housing, health care, nutrition, transportation, and utilities assistance.

There will be no effect on child and dependent care, housing, health care, nutrition, transportation, and utilities assistance.

DEPARTMENT OF HEALTH

FAMILY IMPACT STATEMENT

(To be completed and submitted with the Notice of Intent in accordance with R.S. 49:953 (A)(1)(a)(viii) and 972)

Proposed Rule: Louisiana Standards for Water Works Construction, Operation and Maintenance [LAC 51:XII.101, 105, 107, 111-123, 125-163, 165-169, 171-191, 201-209, 211-223, 225-231, 233-255, 257-275, 277-279, 319]

Completed by: Caryn Benjamin Telephone Number: (225) 342-7499

Publish in the November 20, 2017 issue of the *Louisiana Register*.

(1) The effect on the stability of the family.

None

(2) The effect on the authority and rights of parents regarding the education and supervision of their children.

None

(3) The effect on the functioning of the family.

None

(4) The effect on the family earnings and family budget.

The proposed rule adopts new design and construction standards for public water systems effective August 1, 2018. There may be a slight increase in family budget due to increased monthly water bills if served drinking water by a public water system (PWS) that undergoes new contruction/renovations after August 1, 2018. The PWS may determine a need to increase their revenue collections (*i.e.*, increase water bills) to cover the increased constructions costs for certain projects that have more stringent requirements in the proposed rule. The increased costs associated with such new construction/renovations is inestimable as it would vary and be dependent upon the size and scope of the actual project being proposed. Therefore, the effect of the rule on family budget is unknown.

(5) The effect on the behavior and personal responsibility of children.

None

(6) The ability of the family or local government to perform the function as contained in the proposed rule.

None for family.

The proposed rule adopts new design and construction standards for public water systems effective August 1, 2018. Local governmental units which own/operate a PWS that undergoes new contruction/renovations after the August 1, 2018 may determine a need to increase their revenue collections (*i.e.*, increase water bills) to cover the increased design and construction costs for certain projects that have stricter rule requirements. The increased costs associated with such new construction/renovations is inestimable as it would vary and be dependent upon the size and scope of the actual project being proposed.