SUBCHAPTER A : GENERAL PROVISIONS
§238.1 and §238.2

§238.1. Purpose of Rules.

These sections are adopted by the Texas Natural Resource Conservation Commission pursuant to Texas Water Code, §§32, 33, 26.003, 26.011, 26.128 and 28.030, and Texas Civil Statutes, Article 8905. The sections of the Texas Water Code referenced in this section direct the commission to establish the level of quality to be maintained, and to control and protect the quality of the underground water in this state and to promulgate procedures and standards for plugging wells.

Adopted November 20, 1996 Effective December 18, 1996

§238.2. Definitions.

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

Abandoned well - A well that has not been used for six consecutive months. A well is considered to be in use in the following cases:

(A) a non-deteriorated well which contains the casing, pump, and pump column in good condition; or

(B) a non-deteriorated well which has been capped.

Annular space - The space between the casing and borehole wall.

Atmospheric barrier - A section of cement placed from two feet below land surface to the land surface when using granular sodium bentonite as a casing sealant or plugging sealant in lieu of cement.

Bentonite - A sodium hydrous aluminum silicate clay mineral (montmorillonite) commercially available in powdered, granular, or pellet form which is mixed with potable water and used for a variety of purposes including the stabilization of borehole walls during drilling, the control potential or existing high fluid pressures encountered during drilling below a water table, and to provide a seal in the annular space between the well casing and borehole wall.

Bentonite grout - A fluid mixture of sodium bentonite and potable water mixed at manufacturer's specifications to a slurry consistency which can be pumped through a pipe directly into the annular space between the casing and the borehole wall. Its primary function is to seal the borehole in order to prevent the subsurface migration or communication of fluids.

Capped well - A well that is closed or capped with a covering capable of preventing surface pollutants from entering the well and sustaining weight of at least 400 pounds and constructed in such a way that the covering cannot be easily removed by hand.

Casing - A watertight pipe which is installed in an excavated or drilled hole, temporarily or permanently, to maintain the hole sidewalls against caving, advance the borehole, and in conjunction with cementing and/or bentonite grouting, to confine the ground waters to their respective zones of origin, and to prevent surface contaminant infiltration.

(A) Plastic casing - shall be National Sanitation Foundation (NSF) or American Society of Testing Material (ASTM) F-480 minimum SDR 26 approved water well casing.

(B) Steel Casing - shall be ASTM A-53 Grade B or better and have a minimum weight and thickness of American National Standards Institute (ANSI) schedule 10.

(C) Monitoring wells may use other materials, such as fluoropolymer (Teflon), glass-fiber-reinforced epoxy, or various stainless steel alloys.

Cement - A neat portland or construction cement mixture of not more than seven gallons of water per 94-pound sack of dry cement, or a cement slurry which contains cement along with bentonite, gypsum or other additives; the well driller will adhere to the manufacturer's recommended water content for the mix.

Chemigation - A process whereby pesticides, fertilizers or other chemicals, or effluent from animal wastes are added to irrigation water applied to land or crops, or both, through an irrigation distribution system.

Completed Monitoring Well - A monitoring well which allows water from a single water-producing zone to enter the well bore, but isolates the single water-producing zone from the surface and from all other water-bearing zones by proper casing and/or cementing procedures. The single water-producing zone shall not include more than one continuous water-producing unit unless a qualified geologist or groundwater hydrologist has determined that all the units screened or sampled by the well are interconnected naturally.

Completed to Produce Undesirable Water - A completed monitoring well which is designed to extract water from a zone which contains undesirable water.

Completed Water Well - Sealing off access of undesirable water to the well bore by proper casing and/or cementing procedures.

Constituents - Elements, ions, compounds, or substances which may cause the degradation of the soil or ground water.

Council - Texas Water Well Drillers Advisory Council.

Dam - Any barrier across the bottom chord of the pipe which is of sufficient height to back water into the low-pressure drain outlet and prevent any flow (check valve seepage) back into the water supply.

Deteriorated well - A well, the condition of which will cause, or is likely to cause, pollution of any water in the state, including groundwater.

Dewatering well - An artificial excavation constructed to produce groundwater to cause a lowering of the water table or potentiometric surface. The term shall not include any dewatering well which is used for the production of, or to facilitate the production of, any mineral under a state regulatory program.

Dewatering well driller - A person, including an owner, operator, contractor, or drilling supervisor, who engages in the drilling, boring, coring, or construction of a dewatering well, but does not include a person who drills, bores, cores or constructs a dewatering well under the direct supervision of a licensed dewatering well driller and who is not primarily responsible for the drilling operation.

Driller - A water well driller, injection well driller, dewatering well driller, or monitoring well driller.

Dry Litter Poultry Facility - Fully enclosed poultry operation where wood shavings or similar material is used as litter.

Easy access - Access is not obstructed by other equipment and the fitting can be removed and replaced with a minimum of tools without risk of breakage of the attachment parts.

Edwards Aquifer Authority - A governmental agency and body politic and corporate of the State of Texas. The authority has all of the powers, rights, and privileges necessary to manage, conserve, preserve, and protect the Edwards Aquifer and to increase the recharge of, and prevent the waste or pollution of water in, the Edwards Aquifer.

Environmental soil borings - An artificial excavation constructed to measure or monitor the quality and quantity or movement of substances, elements, chemicals, or fluids beneath the surface of the ground. The term shall not include any well which is used in conjunction with the production of oil, gas, or any other minerals.

Examination fee - The non-refundable fee required of each applicant each time that applicant takes a commission examination.

Flapper - The clapper, closing, or checking device within the body of the check valve.

Foreign substance - Includes recirculated tailwater and may include instances where open-ditch water is treated when a pump discharge pipe is submerged in the ditch.

Freshwater - Water whose bacteriological, physical, and chemical properties are such that it is suitable and feasible for beneficial use.

Granular sodium bentonite - Sized, coarse ground, untreated, sodium based bentonite (montmorillonite) which has the specific characteristic of swelling in freshwater.

Groundwater Conservation District - Any district or authority created under Article III, Section 52, or Article XVI, Section 59 of the Constitution or under the provisions of Chapters 35 and 36, Texas Water Code that has the authority to regulate the spacing or production from water wells.

Injection well - Includes:

(A) an air conditioning return flow well used to return water used for heating or cooling in a heat pump to the aquifer that supplied the water;

(B) a cooling water return flow well used to inject water previously used for cooling;

(C) a drainage well used to drain surface fluid into a subsurface formation;

(D) a recharge well used to replenish the water in an aquifer;

(E) a saltwater intrusion barrier well used to inject water into a freshwater aquifer to prevent the intrusion of salt water into the freshwater;

(F) a sand backfill well used to inject a mixture of water and sand, mill tailings, or other solids into subsurface mines;

(G) a subsidence control well used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water; and

(H) a closed system geothermal well used to circulate water, other fluids, or gases through the earth as a heat source or heat sink.

Installer - An individual who installs or repairs water well pumps and equipment for hire or compensation. This term excludes the following from testing and licensing:

(A) A person who owns or is in control of property or the person's employee or a person not hired or compensated while acting on the person's behalf on the property the person owns or controls for the person's own use.

(B) Pump manufacturers and sellers of new and used pumps and/or pump equipment including pump distributors and pump dealers who do not install pumps and/or pump equipment.

Irrigation distribution system - A device or combination of devices having a hose, pipe. or other conduit which connects directly to any water well or reservoir connected to the well, through which

water or a mixture of water and chemicals is drawn and applied to land. The term does not include any hand held hose sprayer or other similar device which is constructed so that an interruption in water flow automatically prevents any backflow to the water source.

License fee - The fee to be paid by a successful applicant to become a licensed well driller and/or water well pump installer.

Licensed driller - Any person who holds a license issued by the State of Texas pursuant to the provisions of Chapter 32 of the Texas Water Code.

Licensed installer - A person who holds a license issued by the commission under Chapter 33 of the Texas Water Code.

Monitoring well - An artificial excavation constructed to measure or monitor the quality and/or quantity or movement of substances, elements, chemicals, or fluids beneath the surface of the ground. Included within this definition are environmental soil borings, piezometer wells, observation wells, and recovery wells. The term shall not include any well which is used in conjunction with the production of oil, gas, coal, lignite, or any other minerals.

Monitoring well driller - A person, including an owner, operator, contractor, or drilling supervisor, who engages in the drilling, boring, coring, or construction of a monitoring well.

Mud - A relatively homogenous; viscous fluid produced by the suspension of clay-size particles in water.

Person - An individual, firm, partnership, association, corporation, government, governmental subdivision, agency. or any other private legal entity.

Piezometer - A device so constructed and sealed as to measure hydraulic head at a point in the subsurface.

Piezometer well - A well of a temporary nature constructed to monitor well standards for the purpose of measuring water levels or used for the installation of piezometers resulting in the determination of locations and depths of permanent monitor wells.

Plugging - An absolute sealing of the well bore.

Pollution - The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Public water system - A system supplying water to a number of connections or individuals, as defined by current rules and regulations of the Texas Natural Resource Conservation Commission, Chapter 290.

Pump installation - The procedures employed in the placement, and preparation for operation, of equipment and materials used to obtain water from a well, including construction involved in establishing seals and safeguards as necessary to protect the water from contamination. The term includes repairs to an existing pump.

Qualified Groundwater Scientist - A scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in ground water hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgements regarding ground water monitoring, contaminant fate and transport, and corrective action.

Recovery Well - A well constructed for the purpose of recovering undesirable groundwater for treatment or removal of contamination.

Renewal fee - The annual fee paid by a previously registered well driller, or pump installer.

Sanitary well seal - A water tight device to maintain a junction between the casing and the pump column.

Subsidence district - Any district or authority created under Article III, Section 52, or Article XVI, Section 59, of the Texas Constitution that has the authority to regulate the spacing of or production from water wells solely for the purpose of controlling subsidence caused by withdrawal of water from underground water reservoirs or their subdivisions.

Undesirable water - Water that is injurious to human health and the environment or water that can cause pollution to land or the waters in the state.

Water or waters in the state - Groundwater, percolating or otherwise, lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all watercourses and bodies of surface water, that are wholly or partially inside or bordering the state or inside the jurisdiction of the state.

Water well - Any excavation constructed for the purpose of exploring for or producing groundwater. The term, however, shall not include any test or blast holes in quarries or mines, or any well or excavation for the purpose of exploring for, or producing oil, gas, or any other minerals unless the holes are used to produce groundwater. The term shall not include any injection water source well regulated by the Railroad Commission of Texas pursuant to the Natural Resources Code, §91.101.

Water well driller - Any person (including an owner, operator, contractor, or drilling supervisor) who engages in the drilling, boring, coring, or construction of any water well in this state. The term, however, shall not include any person who drills, bores, cores, or constructs a water well on his or her own property for his or her own use or a person who assists in the construction of a water well under the direct supervision of a licensed driller and is not primarily responsible for the drilling operations.

Water Well Drillers Advisory Council - An advisory council consisting of nine members appointed by the commissioners of the Texas Natural Resource Conservation Commission.

Well - A water well, injection well, dewatering well, monitoring well, piezometer well, observation well, or recovery well.

Well Report - A log recorded on forms prescribed by the commission, at the time of drilling showing the depth, thickness, character of the different strata penetrated, location of water-bearing strata, depth, size, and character of casing installed, together with any other data or information required by the commission. Each copy of a Well Report, other than a commission copy, shall include the name, mailing address, and telephone number of the commission.

Well pumps and equipment - Equipment and materials used to obtain water from a well, including the seals and safeguards necessary to protect the water from contamination.

SUBCHAPTER B : STATE WELL REPORTS AND REPORTING UNDESIRABLE WATER §238.31 and §238.32

§238.31. State Well Reports.

(a) Every licensed well driller who drills, deepens, or otherwise alters a well, within this state shall cause to be made and kept a legible and accurate State Well Report on forms supplied by the executive director. In areas under the jurisdiction of a local groundwater conservation district, the forms supplied by the district can be used instead.

(b) Every licensed well driller shall deliver or transmit by certified mail the original of the State Well Report to the commission, and shall deliver or send by first-class mail a photocopy to the local groundwater conservation district and a copy to the owner or person for whom the well was drilled, within 60 days from the completion or cessation of drilling, deepening, or otherwise altering a well.

(c) Every licensed well driller shall inform the owner or person having the well drilled, deepened, or otherwise altered that he or she may submit a written request both to the commission by certified mail and to the local groundwater conservation district in person or by first-class mail that the State Well Report be kept confidential and exempt from disclosure as a public record.

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§238.32. Reporting Undesirable Water or Constituents.

(a) Each licensed well driller shall inform, within 24 hours, the landowner or person having a well drilled, deepened, or otherwise altered or their agent when undesirable water or constituents have been encountered.

(b) The well driller shall submit to the executive director, to the local groundwater conservation district if required by the local authority, and to the landowner or person having the well drilled, deepened, or otherwise altered, on forms supplied by the executive director or by a local groundwater conservation district having jurisdiction, a statement signed by the well driller indicating that the landowner or person having the well drilled, deepened, or otherwise altered, has been informed that undesirable water or constituents have been encountered.

(c) The statement indicated in subsection (b) of this section must be submitted within 30 days after encountering undesirable water or constituents.

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SUBCHAPTER C : WELL DRILLING, COMPLETION, CAPPING AND PLUGGING §§238.41-238.51

§238.41. Responsibility.

(a) All well drillers and persons having a well drilled, deepened, or otherwise altered shall adhere to the provisions of this chapter prescribing the location of wells and proper drilling, completion, capping, and plugging.

(b) Where a landowner, or person having the well drilled, deepened, or otherwise altered, denies a licensed well driller access to the well to complete the well to established standards and thereby precludes the driller from performing his or her duties under the Texas Water Code and this chapter, the well driller shall file a statement within five days with the commission as prescribed in §§238.80-238.83 of this title (relating to Miscellaneous Provisions). The landowner or person authorizing the well work must complete the well to established standards within ten days of notification by the executive director.

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§238.42. Standards of Completion for Public Water System Wells.

Wells supplying a public water system shall be completed according to presubmitted plans approved by the commission under Chapter 290 of this title (relating to Water Hygiene).

(1) The water well driller shall to the best of his or her ability ascertain whether a well which is to be drilled, deepened, or otherwise altered is intended for use as part of a public water system and shall comply with all applicable rules and regulations of the commission under Chapter 290 of this title and any other local or regional regulations.

(2) By way of the State Well Report, the water well driller shall inform the commission of the well's intended use.

(3) The person having the well drilled, deepened, or otherwise altered is responsible for ascertaining that a well intended for use as a part of a public water system meets the current rules and regulations of the commission under Chapter 290 of this title and any other local or regional regulations.

(4) The executive director may file a complaint against a water well driller if the driller drills a well intended for part of a public water system that does not meet the existing rules and regulations of Chapter 290 of this title and any other local or regional regulations.

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§238.43. Location of New Wells.

(a) Water wells located within public well system sanitary easements must be constructed to public well standards.

(b) A well shall be located a minimum horizontal distance of 50 feet from any water-tight sewage and liquid-waste collection facility, except in the case of monitoring, dewatering, piezometer, and recovery wells which may be located where necessity dictates.

(c) Except as noted in §238.44(1) and §238.61 of this title, (relating to Standards of Completion for Wells and Chemical Injection, Chemigation and Foreign Substance Systems), a well shall be located a minimum horizontal distance of 150 feet from any concentrated sources of potential contamination such as, but not limited to, existing or proposed livestock or poultry yards, cemeteries, pesticide mixing/loading facilities, spray irrigation heads, and privies, except in the case of monitoring dewatering, piezometer, and recovery wells which may be located where necessity dictates. A well shall be located a minimum horizontal distance of 100 ft. from a septic system absorption field, a dry litter poultry facility and 50 feet from any property line provided the well is located at the minimum horizontal distance from the sources of potential contamination in this subsection.

(d) A well shall be located at a site not generally subject to flooding; provided, however, that if a well must be placed in a flood prone area, it shall be completed with a watertight sanitary well seal and steel casing extending a minimum of 36 inches above ground level.

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§238.44. Standards of Completion for Wells.

Wells shall be completed in accordance with the following specifications and in compliance with local groundwater conservation district or incorporated city ordinances:

(1) The annular space to a minimum of ten feet shall be three inches larger in diameter than the casing and filled from ground level to a depth of not less than ten feet below the land surface or well head with cement slurry or eight feet solid column of granular sodium bentonite topped with a two feet cement atmospheric barrier, except in the case of monitoring, dewatering, piezometer, and recovery wells when the water to be monitored, recovered, or dewatered is located at a more shallow depth. In that situation, the cement slurry or bentonite column shall only extend down to the level immediately above the monitoring, recovery, or dewatering level. Unless the well is drilled within the Edwards Aquifer or is set back in reference to spray irrigation heads, the distances given for separation of wells from sources of potential contamination in §238.43 (c) of this title (relating to Location of New Wells) may be decreased to a minimum of 50 feet provided the annular space is three inches larger than the casing and the cement slurry or bentonite column is emplaced under pressure to a minimum depth of 100 feet to surface. For wells less than 100 feet deep, the cement slurry or bentonite column shall be placed to the top of the producing layer. A well cemented to 100 feet or to the top of the producing layer may be located no closer than ten feet from a property line provided it remains at least 50 feet from any of the potential sources of contamination listed in §238.43 (c). In areas of shallow, unconfined groundwater aquifers, the cement or bentonite column need not be placed below the

static water level. In areas of shallow, confined groundwater aquifers having artesian head, the cement or bentonite column need not be placed below the top of the water-bearing strata.

(2) In all wells where plastic casing is used, except when a steel or polyvinyl chloride (PVC) sleeve or pitless adapter as described in paragraph (3) of this section, is used, a concrete slab or sealing block shall be placed above the cement slurry around the well at the ground surface.

(A) The slab or block shall extend at least two feet from the well in all directions and have a minimum thickness of four inches and should be separated from the well casing by a plastic or mastic coating or sleeve to prevent bonding of the slab to the casing.

(B) The surface of the slab shall be sloped to drain away from the well.

(C) The top of the casing shall extend a minimum of 12 inches above the land surface except in the case of monitoring wells when it is impractical or unreasonable to extend the casing above the ground. Monitoring wells shall be placed in a waterproof vault the rim of which extends two inches above the ground surface and a sloping cement slurry shall be placed 18 inches around and two feet below the base of the vault between the casing and the wall of the borehole so as to prevent surface pollutants from entering the monitoring well. The well casing shall have a locking cap that will prevent pollutants from entering the well. The annular space of the monitoring well shall be sealed with an impervious bentonite or similar material from the top of the interval to be tested to the cement slurry below the vault of the monitoring well.

(D) The well casing of a temporary monitoring well shall have a locking cap and the annular space shall be sealed 0 feet to 1 feet below ground level with an impervious bentonite or similar material; after 48 hours, the well must be completed or plugged in accordance with §238.44(2)(C) of this title (relating to Standards of Completion for Wells) and §238.48 of this title (relating to Well Plugging and Capping).

(E) The annular space of a closed loop injection well used to circulate water or other fluids shall be backfilled to the total depth with impervious bentonite or similar material.

(3) In wells where a steel or PVC sleeve is used:

(A) The steel sleeve shall be a minimum of 3/16 inches in thickness and/or the plastic sleeve shall be a minimum of Schedule 80 sun resistant and 24 inches in length, and shall extend 12 inches into the cement, except when steel casing or a pitless adapter as described in paragraph (2) of this section is used. The casing shall extend a minimum of 12 inches above the land surface, and the steel sleeve shall be two inches larger in diameter than the plastic casing being used; or

(B) A slab or block as described in paragraph (2)(A) of this section is required above the cement slurry except when a pitless adapter may be used. Pitless adapters may be used in such wells provided that:

(i) the adapter is welded to the casing or fitted with another suitably effective seal;

(ii) the annular space between the borehole and the casing is filled with cement to a depth not less than 20 feet below the adapter connection; and

(iii) in lieu of cement as described in clause (ii) of this subparagraph, the annular space may be filled with a solid column of granular sodium bentonite to a depth of not less than 20 feet below the adapter connection.

(4) All wells, especially those that are gravel packed, shall be completed so that aquifers or zones containing waters that differ in chemical quality are not allowed to commingle through the borehole-casing annulus or the gravel pack and cause quality degradation of any aquifer or zone.

(5) The well casing shall be capped or completed in a manner that will prevent pollutants from entering the well.

(6) Each licensed well driller drilling, deepening, or otherwise altering a well shall keep any drilling fluids, tailings, cuttings, or spoils contained in such a manner so as to prevent spillage onto adjacent property not under the jurisdiction or control of the well owner without the adjacent property owners written consent.

(7) Each licensed well driller drilling, deepening, or otherwise altering a well shall prevent the spillage of any drilling fluids, tailings, cuttings, or spoils into any body of surface water.

(8) Unless waived by written request from the landowner, a new, repaired, or reconditioned well or pump installation or repair on a well used to supply water for human consumption shall be properly disinfected. The well shall be properly disinfected with chlorine or other appropriate disinfecting agent under the circumstances. A disinfecting solution with a minimum concentration of 50 milligrams per liter (mg/l) (same as parts per million), shall be placed in the well as required by the American Water Works Association (AWWA), pursuant to ANST/AWWA C654-87 and the United States Environmental Protection Agency (EPA).

(9) Unless waived in writing by the landowner, after performing an installation or repair, the licensed installer shall disinfect the well by:

(A) treating the water in the well casing to provide an average disinfectant residual to the entire volume of water in the well casing of 50 mg/l. This may be accomplished by the addition of calcium hypochlorite tablets or sodium hypochlorite solution in the amounts shown in the attached Table 1 of ANSI/AWWA C654;

(B) circulating, to the extent possible, the disinfected water in the well casing and pump column; and

(C) pumping the well to remove disinfected water for a minimum of 15 minutes.

(D) If calcium hypochlorite (granules or tablets) is used, it is suggested that the installer dribble the tablets of approximately five-gram (g) size down the casing vent and wait at least 30 minutes for the tablets to fall through the water and dissolve. If sodium hypochlorite (liquid solution) is used, care should be taken that the solution reaches all parts of the well. It is suggested that a tube be used to pipe the solution through the well-casing vent so that it reaches the bottom of the well. The tube may then be withdrawn as the sodium hypochlorite solution is pumped through the tube. After the disinfectant has been applied, the installer should surge the well at least three times to improve the mixing and to induce contact of disinfected water with the adjacent aquifer. The installer should then allow the disinfected water to rest in the casing for at least twelve hours, but for not more than twenty-four hours. Where possible, the installer should pump the well for a minimum of 15 minutes after completing the disinfection procedures set forth above until a zero disinfectant residual is obtained. In wells where bacteriological contamination is suspected, the installer should inform the well or property owner that bacteriological testing may be necessary or desirable.

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§238.45. Standards of Completion for Water Wells Encountering Undesirable Water or Constituents.

(a) If a water well driller encounters undesirable water or constituents and the well is not plugged or made into a completed monitoring well, the licensed well driller shall see that the well drilled, deepened, or otherwise altered is forthwith completed in accordance with the following:

(1) When undesirable water or constituents are encountered in a water well, the undesirable water or constituents shall be sealed off and confined to the zone(s) of origin.

(2) When undesirable water or constituents are encountered in a zone overlying fresh water, the driller shall case the water well from an adequate depth below the undesirable water or constituent zone to the land surface to ensure the protection of water quality.

(3) The annular space between the casing and the wall of the borehole shall be cemented an adequate depth below the undesirable water or constituent zone to the land surface to ensure the protection of groundwater.

(4) When undesirable water or constituents are encountered in a zone underlying a fresh water zone, the part of the wellbore opposite the undesirable water or constituent zone shall be filled with cement to a height that will prevent the entrance of the undesirable water or constituents into the water well.

(b) The person who performs the well completion operation on a water well shall, within 30 days after completing the well, submit a well completion report to the executive director on forms supplied by the executive director and a copy of the report to the local groundwater conservation district.

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§238.46. Standards for Wells Producing Undesirable Water or Constituents.

(a) Wells completed to produce undesirable water or constituents shall be cased to prevent the mixing of water or constituent zones.

(b) The annular space between the casing and the wall of the borehole shall be cemented to the land surface.

(c) Wells producing undesirable water or constituents shall be completed in such a manner that will not allow undesirable fluids to flow onto the land surface except when appropriate state authorization is obtained.

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§238.47. Recompletions.

(a) The landowner shall have the continuing responsibility of insuring that a well does not allow the commingling of undesirable water or constituents and fresh water or the unwanted loss of water through the wellbore to other porous strata.

(b) If a well is allowing the commingling of undesirable water or constituents and fresh water or the unwanted loss of water, and the casing in the well cannot be removed and the well recompleted in accordance with the applicable rules, the casing in the well shall be perforated and squeeze cemented in a manner that will prevent the commingling or loss of water. If such a well has no casing then the well shall be cased and cemented, or plugged in a manner that will prevent such commingling or loss of water.

(c) The executive director or local groundwater conservation district may direct the landowner to take proper steps to prevent the commingling of undesirable water or constituents and fresh water, or the unwanted loss of water.

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§238.48. Well Plugging and Capping.

(a) It is the responsibility of the landowner or person having the well drilled, deepened, or otherwise altered, to cap or have capped, under standards set forth in §§238.44-238.51 of this title (relating to Well Drilling, Completion, Capping, and Plugging), any well which is open at the surface.

(b) It is the responsibility of the landowner or person having the well drilled, deepened, or otherwise altered to plug or have plugged a well which is abandoned under standards set forth in §238.49 of this title (relating to Standards for Plugging Wells).

(c) It shall be the responsibility of each licensed well driller to inform a landowner or person having a well drilled, deepened, or otherwise altered that the well must be plugged by the landowner, a licensed driller, or a licensed pump installer if it is abandoned under standards set forth in §238.49 of this title.

(d) It is the responsibility of the licensed well driller to see that any well which encounters undesirable water or constituents is plugged or is converted into a monitoring well under the standards set forth in §§238.41-238.51 of this title (relating to Well Drilling, Completion, Capping, and Plugging).

(e) The person that completes or plugs a well described in subsection (a), (b), or (d) of this section shall, within 30 days after completion or plugging is complete, submit a State Well Report or Plugging Report to the executive director on forms supplied by the executive director and a copy of the report mailed to the local groundwater conservation district.

(f) It shall be the responsibility of the driller of a newly drilled well or pump installer to place a cover over the boring or casing of any well that is to be left unattended with the pump removed. Well covers shall be capable of supporting a minimum of 400 pounds and constructed in such a way that they cannot be easily removed by hand.

Adopted November 20, 1996 Effective December 18, 1996

§238.49. Standards for Plugging Wells.

(a) If a well that does not contain any undesirable water or constituent zones is abandoned and deteriorating, all removable casing shall be removed from the well and the entire well pressure filled via a trimie pipe with cement from bottom up to the land surface.

(b) In lieu of the procedure in subsection (a) of this section, the well shall be pressure filled via a trimie tube with a bentonite grout (ten pounds per gallon mud or more with a marsh funnel viscosity of 50 seconds or equivalent) followed by a cement plug extending from land surface to a depth of not less than ten feet, or if the well to be plugged has 100 feet or less of standing water the entire well may be filled with a solid column of 3/8 inch or larger granular sodium bentonite hydrated at frequent intervals while strictly adhering to the manufacturers recommended rate and method of application. If a bentonite grout is used, the entire well from not less than two feet below land surface may be filled with the bentonite grout. The top two feet above any bentonite grout or granular sodium bentonite shall be filled with cement as an atmospheric barrier.

(c) Drillers may petition the executive director in writing for an alternative method of plugging a well. The petition should state in detail the alternative method proposed and all conditions applicable to the well that would make the alternative method preferable to those methods stated in subsection (a) and (b) of this section.

Adopted November 20, 1996 Effective December 18, 1996

§238.50. Standards for Plugging Wells That Penetrate Undesirable Water or Constituent Zones.

(a) If the use of a well that penetrates undesirable water or constituents is to be permanently discontinued, all removable casing shall be removed from the well and the entire well pressure filled with cement via a trimie tube from the bottom up to the land surface.

(b) In lieu of the procedure in subsection (a) of this section, either the zone(s) contributing undesirable water or constituents, or the fresh water zone(s) shall be isolated with cement plugs and the remainder of the wellbore filled with bentonite grout (ten pounds per gallon mud or more with a marsh funnel viscosity of 50 seconds or equivalent) to form a base for a cement plug extending from a depth of not less than two feet to the land surface, or if the section(s) of well bore to be filled with bentonite has 100 feet or less of standing water the section(s) may be filled with a solid column of 3/8 inch or larger granular sodium bentonite hydrated at frequent intervals while strictly adhering to the manufacturers recommended rate and method of application. If a bentonite grout is used, it should be set sufficiently to support the two-foot thick cement plug. The top two feet above any bentonite grout or granular sodium bentonite shall be filled with cement as an atmospheric barrier.

(c) Drillers may petition the executive director in writing for an alternative method of plugging a well. The petition should state in detail the alternative method proposed and all conditions applicable to the well that would make the alternative method preferable to those methods stated in subsections (a) and (b) of this section.

Adopted November 20, 1996 Effective December 18, 1996

§238.51. Standards For All Water Wells (drilled before June 1, 1983).

(a) Wells drilled prior to June 1, 1983, will be grandfathered without further modification unless the well is found to be a threat to public health and safety or to water quality. The following will be considered a threat to public health and safety or to groundwater quality:

(1) Annular space around the well casing is open at or near the land surface;

(2) An unprotected opening into the well casing that is above ground level;

(3) Top of well casing below known flood level and not appropriately sealed;

(4) Deteriorated well casing allowing commingling of aquifers or zones of water of different quality.

(b) If the annular space around the well casing is not adequately sealed as set forth in this section, it shall be the responsibility of each licensed driller or licensed pump installer to inform the landowner that the well is considered to be a deteriorated well and must be recompleted when repairs are made to the pump or well in accordance with this chapter, and the following specifications:

(1) The well casing shall be excavated to a minimum depth of four feet and the annular space shall be filled from ground level to a depth of not less than four feet below the land surface with cement. In areas of shallow, unconfined groundwater aquifers, the cement need not be placed below the static water level. In areas of shallow, confined groundwater aquifers having artesian head, the cement need not be placed below the top of the water bearing strata.

(2) A cement slab or sealing block shall be placed above the cement around the well at the ground surface except when a pitless adapter as described in §238.44(3)(B) of this title (relating to Standards of Completion for Wells) or a steel or plastic sleeve as described in §238.44(3)(A) of this title is used.

(A) The slab or block shall extend at least two feet from the well in all directions and have a minimum thickness of four inches.

(B) The surface of the slab shall be sloped to drain away from the well.

(C) The top of the casing shall extend a minimum of 16 inches above ground level or two feet above known flood level and unprotected openings into the well casing that are above ground shall be sealed water tight.

(3) If deteriorated well casing is allowing commingling of aquifers or zones of water of different quality and causing degradation of any water in the state including groundwater, the well shall be plugged according to §238.48 of this title (relating to Well Plugging and Capping) or repaired. Procedures for repairs shall be submitted to the executive director for approval prior to implementation.

(c) If a licensed well driller or pump installer finds any of the procedures described by this section to be inapplicable, unworkable, or inadequate, alternative procedures may be employed provided that the proposed alternative procedures will prevent injury and pollution and that the procedures shall be submitted to the executive director for approval prior to their implementation.

Adopted November 20, 1996 Effective December 18, 1996

SUBCHAPTER D : WATER DISTRIBUTION AND DELIVERY SYSTEMS AND CHEMICAL INJECTION, CHEMIGATION, AND FOREIGN SUBSTANCE SYSTEM §238.60 and §238.61

§238.60. Water Distribution and Delivery Systems.

(a) The well driller or pump installer shall inform the land owner and well owner that the land owner and well owner are responsible for complying with the rules and regulations under the standards set forth in this section.

(b) A buried discharge line between the pump discharge and the pressure tank or pressure system in any installation, including a deep well turbine or a submersible pump, shall not be under negative pressure at any time. With the exception of jet pumps, a check valve or an air gap shall be installed in a water line between the well casing and the pressure tank. Either a check valve or an air gap, as applicable, shall be required on all irrigation well pumps whenever a pump is installed or repaired. All wells shall have either a check valve, or an air gap as applicable.

(c) Wells shall be vented with watertight joints except as provided by subsection (b) of this section.

(1) Watertight joints, where applicable pursuant to the provisions of this rule, shall terminate at least two feet above the regional flood level or one foot above the established ground surface or the floor of a pump room or well room, whichever is higher.

(2) The casing vent shall be screened and point downward.

(3) Vents may be offset provided they meet the provisions of this rule.

(4) Toxic or flammable gases, if present, shall be vented from the well. The vent shall extend to the outside atmosphere above the roof level at a point where the gases will not produce a hazard.

Adopted November 20, 1996 Effective December 18, 1996

§238.61. Chemical Injection, Chemigation, and Foreign Substance Systems.

(a) The well driller or pump installer is to inform the land owner and well owner that the land owner and well owner are responsible for complying with the rules and regulations under the standards set forth in this section.

(b) All irrigation distribution systems or water distribution systems into which any type of chemical (except disinfecting agents) or other foreign substances will be injected into the water pumped from water wells shall be equipped with an in-line, automatic quick-closing check valve capable of preventing pollution of the ground water. The required equipment shall be installed on all systems whenever a pump is installed or repaired or at the time of a chemical injection, chemigation or foreign substance unit is added to a water delivery system or not later than January 1, 2000, if the well has a chemical injection, chemigation, or foreign

substance unit in the delivery system. The type of check valve installed shall meet the following specifications:

(1) The body of the check valve shall be constructed of cast iron, stainless steel, cast aluminum, cast steel, or of a material and design that provides a sturdy integrity to the unit and is resistant to the foreign substance being injected. All materials shall be corrosion resistant or coated to prevent corrosion. The valve working pressure rating shall exceed the highest pressure to which the valve will be subjected.

(2) The check valve shall contain a suitable automatic, quick-closing and tight-sealing mechanism designed to close at the moment water ceases to flow in the downstream or output direction. The device shall, by a mechanical force greater than the weight of the closing device, provide drip-tight closure against reverse flow. Hydraulic back pressure from the system does not satisfy this requirement.

(3) The check valve construction should allow for easy access for internal and external inspection and maintenance. All internal parts shall be corrosion resistant. All moving parts shall be designed to operate without binding, distortion, or misalignment.

(4) The check valve shall be installed in accordance with the manufacturer's specifications and maintained in a working condition during all times in which any fertilizer, pesticide, chemical, animal waste, or other foreign substance is injected into the water system. The check valve shall be installed between the pump discharge and the point of chemical injection or foreign substance injection.

(5) A vacuum-relief device shall be installed between the pump discharge and the check valve in such a position and in such a manner that insects, animals, floodwater, or other pollutants cannot enter the well through the vacuum-relief device. The vacuum-relief device may be mounted on the inspection port as long as it does not interfere with the inspection of other anti-pollution devices.

(6) An automatic low pressure drain shall also be installed between the pump discharge and the check valve in such a position and in such a manner that any fluid which may seep toward the well around the flapper will automatically flow out of the pump discharge pipe. The drain must discharge away from rather than flow into the water supply. The drain must not collect on the ground surface or seep into the soil around the well casing.

(A) The drain shall be at least three-quarter inch in diameter and shall be located on the bottom of the horizontal pipe between the pump discharge and the check valve.

(B) The drain must be flush with the inside surface of the bottom of the pipe unless special provisions, such as a dam made downstream of the drain, forces seepage to flow into the drain.

(C) The outside opening of the drain shall be at least two inches above the grade.

(7) An easily-accessible inspection port shall be located between the pump discharge and the check valve, and situated so the automatic low pressure drain can be observed through the port and the flapper can be physically manipulated.

(A) The port shall allow for visual inspection to determine if leakage occurs past the flapper, seal, seat, and/or any other components of the checking device.

(B) The port shall have a minimum four-inch diameter orifice or viewing area. For irrigation distribution systems with pipe lines too small to install a four-inch diameter inspection port, the check valve and other anti-pollution devices shall be mounted with quick disconnects, flange fittings, dresser couplings, or other fittings that allow for easy removal of these devices.

(8) Any check valve not fully meeting the specifications set forth in this section may on request be considered for a variance as given in §339.6 of this title (relating to Variance of Rules) if demonstrated to the satisfaction of the commission.

Adopted November 20, 1996 Effective December 18, 1996

SUBCHAPTER E : PUMP INSTALLATION AND TEMPORARY WELL PROTECTION §238.70

§238.70. Pump Installation.

(a) During any repair or installation of a water well pump, the licensed installer shall make a reasonable effort to maintain the integrity of ground water as to prevent contamination by elevating the pump column and fittings, or by other means suitable under the circumstances.

(b) This section shall include every type of connection device, including but not limited to, flange connections, hose-clamp connections, and other flexible couplings. Except as otherwise provided by this chapter, a pump shall be constructed so that no unprotected openings into the interior of the pump or well casing exist.

(1) A hand pump, hand pump head, stand, or similar device shall have a spout, directed downward.

(2) A power driven pump shall be attached to the casing or approved suction or discharge line by a closed connection. For the purposes of this section a closed connection is defined to be a sealed connection.

(c) The provisions of this section relating to the requirement of closed connections shall not apply to the following types of pumps and pumping equipment:

(1) sucker rod pumps and windmills; and

(2) hand pumps.

(d) A new, repaired, or reconditioned well, or pump installation or repair on a well used to supply water for human consumption shall be properly disinfected. The landowner may waive the disinfection process by submitting a written request to the driller or pump installer in accordance with §238.44 (7) or (8) of this title (relating to Standards of Completion for Wells).

Adopted November 20, 1996 Effective December 18, 1996

SUBCHAPTER F : MISCELLANEOUS PROVISIONS
§§238.80 - 238.83

§238.80. Minimum Standards.

(a) If the party having the well drilled, deepened, or otherwise altered, the licensed well driller, or the party plugging the well, finds any of the procedures prescribed by §§238.41-238.51 of this title (relating to Well Drilling, Completion, Capping, and Plugging) inapplicable, unworkable, or inadequate, combinations of the prescribed procedures or alternative procedures may be employed, provided that the proposed alternative procedures will prevent injury and pollution.

(b) Proposals to use combinations of prescribed procedures or alternative procedures shall be submitted to the executive director for approval prior to their implementation.

Adopted November 20, 1996 Effective December 18, 1996

§238.81. Field Inspection.

The executive director may initiate field inspection and investigation of well drilling, capping, plugging, or completion operations.

Adopted November 20, 1996 Effective December 18, 1996

§238.82. Plugging Responsibility.

A licensed well driller is responsible for assuring that a well which encounters undesirable water or constituents is plugged or completed forthwith pursuant to the following:

(1) Where a person having the well drilled, deepened, or otherwise altered denies a licensed driller access to a well which requires plugging or completion or otherwise precludes the driller from plugging or completing a well which has encountered undesirable water or constituents, the driller shall immediately file a signed statement with the executive director and provide a copy of the statement to the local groundwater conservation district.

(2) The statement shall indicate that:

(A) The driller, or person under his or her supervision, encountered undesirable water or constituents while drilling the well;

(B) The driller has informed the person having the well drilled, deepened, or otherwise altered that undesirable water or constituents were encountered and that the well must be plugged or completed pursuant to this chapter;

(C) The person having the well drilled, deepened, or otherwise altered has denied the driller access to the well;

(D) The reason, if known, for which access has been denied; and,

(E) If known, whether the person having the well drilled, deepened, or otherwise altered intends to have the well plugged or completed.

(3) Upon receipt of the statement described in paragraph (2) of this section:

(A) The executive director shall determine whether undesirable water or constituents have been encountered;

(B) If undesirable water or constituents were encountered, the executive director shall determine whether the person having the well drilled, deepened, or otherwise altered intends to have the well plugged or completed within 30 days;

(C) Where a person having the well drilled, deepened, or otherwise altered does not intend to have the well plugged or completed as required by commission rules, or where he or she does not have the well plugged or completed within the prescribed time period, the executive director shall file a complaint before the commission requesting that the person having the well drilled, deepened, or otherwise altered appear before the commission and show cause why the well should not be plugged or completed pursuant to commission rules.

Adopted November 20, 1996 Effective December 18, 1996

§238.83. Complaints.

The commission may assess an administrative penalty, reprimand a licensee, suspend or revoke a license, or take any appropriate action described in Chapters 70 and 80 of this title for violation of Chapters 32 and 33 of the Texas Water Code, or the rules of the commission.

Adopted November 20, 1996 Effective December 18, 1996