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Department of Natural Resources Office of Conservation Environmental Division

Advanced Notice of Rulemaking and Solicitation of Comments on Water Well Registration, Construction and Closure (LAC 56:Part 1)

The Department of Natural Resources, Office of Conservation is requesting comments on the following enumerated issues regarding Water Well Registration, Construction and Closure, LAC 56:Part 1.

As part of the ongoing government streamlining effort, Act 437 of the Regular Session of the Louisiana Legislature, 2009 transferred the responsibilities relating to water wells and water well drillers from the Department of Transportation and Development to The Department of Natural Resources. As part of this transfer, the databases maintained by both departments have been merged and modernized. The Department of Natural Resources began the current regulation update in September of 2010 by submitting 18 issues for public comment. Based on comments received, DNR has compiled suggested language intended to implement the best practices on those issues and again seeks input from industry and the public pertaining to the specific wording to be implemented.

Written comments concerning the proposed revisions are due no later than 4:30 p.m., May 20, 2011, and should be submitted to Gary Snellgrove, Office of Conservation, Environmental Division, P.O. Box 94275--Capitol Station, Baton Rouge, LA 70804-9275 or by Fax to (225) 342-3094. Persons commenting should reference this document as ENV 11-06.

Note: All modifications have been **highlighted**. Words in ~~struck through~~ type are deletions to the existing regulations, words underscored are additions.

Title 56

Part I. Water Wells

Chapter 1. Registering Water Wells

§101. Authorization

A. The Louisiana Department of Transportation and Development, Office of Public Works revised the rules, regulations and standards for water well registration, construction, plugging and abandonment, installation of control devices on free flowing wells and licensing of water well contractors and other drillers under the authority given in R.S. 38:2091-38:3098.8.

B. Effective January 1, 2010, in accordance with Act 437 of 2009, The Department of Natural Resources, Office of Conservation, hereafter referred to as "department," is

responsible for registering water wells and holes in Louisiana.

~~C. The rules, regulations and procedures, stated herein, will become effective on November 1, 1985 and supersede the rules, regulations and procedures in effect since July 1, 1975.~~

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:950 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:906 (March 2011).

§103. Purpose

A. The purpose of the rules, regulations and procedures for registering water wells and holes, stated herein, is to ensure that water wells and holes are properly constructed; to collect, catalog and store water well construction and drilling data; and to gather data on water resources of the state. The data obtained from the registration forms are stored on computer files and are readily available for use by hydrologists, engineers, geologists, drillers and others who are involved in the administration, development, protection, and the wise use of the ground water resources of the state.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:950 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§105. Registration of Water Wells and Holes Completed on or after November 1, 1985

A. The contractor who drills or constructs a well or hole on or after November 1, 1985 shall be responsible for registering that well or hole by submitting to the department a completed water well registration Form within 30 calendar days after completing such well or hole. Registration requirements shall apply to all water wells, regardless of yield or use, including but not limited to, public supply, domestic, irrigation/agriculture, power generation, rig-supply, observation, dewatering, monitoring, and heat pump supply wells, as well as test holes, abandoned pilot holes, and heat pump holes. For glossary of terms, refer to §113 of this Chapter.

B. Exemption from Registration. The following wells and holes shall be exempt from registration requirements:

1. wells producing saline water in connection with oil or gas production;
2. driven wells or wells dug by use of hand auger;

3. geotechnical boreholes.

C. Water Well Registration Long Form (DNR-GW-1). The Water Well Registration Long Form (DNR-GW-1) shall be used to register the following types of wells and holes:

1. community public supply wells;
2. noncommunity public supply wells;
3. industrial wells;
4. irrigation/agricultural wells;
5. power generation wells;
6. observation wells;
7. dewatering wells;
8. test holes.

For long form instructions see §117.

D. Water Well Registration Short Form (DNR-GW-1S). The Water Well Registration Short Form (DNR-GW-1S) shall be used to register the following types of wells and holes:

1. domestic wells;
2. rig-supply wells;
3. monitoring wells;
4. heat pump supply wells;
5. heat pump holes (closed loop system);
6. abandoned pilot holes.

For short form instructions see §119.

E. Submission of Water Well Registration Forms

1. The contractor who drills a well or hole shall complete and submit to the department the original copy of the Water Well Registration Form within 30 calendar days after each well or hole has been completed. The owner's copy shall be sent to the owner immediately after completion of the work and the contractor shall retain the contractor's copy for his files.

2. For registration purposes only, the department considers a well or hole completed when it is accepted by the owner or when the contractor has moved his equipment from the site, whichever comes first. Acceptance by the owner or removal of equipment from the site by the contractor does not imply, in any way, acceptance or approval by the state of Louisiana. The department, after reviewing applicable records and/or inspection of the well site, can cause the owner and/or the contractor to do whatever additional work is necessary to bring the well or hole up to standards. The expense for the additional work shall be borne by the owner or the contractor, as the case may be.

3. For the purpose of registering heat pump holes only, one form (DNR-GW-1S) Short Form per project (site) will suffice. Under item marked "remarks," materials and method used to seal the holes shall be indicated. Driller's log description of cuttings should be the typical formations encountered at the site.

4. Registration forms may be submitted to the department on a monthly basis as long as the 30-day limitation is not exceeded. Forms that are illegible, have incomplete items, lack a sketch or directions to the well, do not include latitudinal and longitudinal coordinates or have not been signed and dated will be rejected by the department and will be returned to the contractor for correction and resubmittal. It is the responsibility of the contractor to see to it that the submitted registration forms are actually received by the department.

5. Each registration form shall be personally signed and dated by the contractor who is responsible for drilling the well or hole. For convenience of the contractor, affidavits filed by the contractor to authorize office personnel to sign forms on his behalf will be accepted by the department.

6. Upon receipt of the registration forms, the department will review and process each form, including field inspection, if necessary, and will assign an identification number to each well after which the well is considered registered. The well data will then be entered into the computerized data file and, upon request, the owner and/or the contractor will be informed of the fact of registration and of the assigned identification number.

F. Copies of Available Data Which Shall Be Attached to Registration Forms. The water well contractor who is responsible for drilling a public supply, industrial or power generation water well or test hole, shall attach to the registration form copies of the following items (if available for transmittal) to the department:

1. electrical log or other borehole geophysical log;
2. mechanical analysis of the drill cuttings;
3. chemical analysis of the water;
4. aquifer test results.

G. Registration of Reworked Water Wells

1. Registered wells that are reworked (e.g., removing and replacing the screen; redeveloping the well) need not be registered a second time unless the screen setting is altered or a liner is installed inside the original casing. If the registered well, after reworking, obtains water from an aquifer different from that reported on the original registration form, another registration form shall be submitted by the contractor within 30 calendar days after completion of the work.

2. If an unregistered well is reworked, deepened or changed in any manner or if screen setting is altered, the proper registration form (DNR-GW-1 or DNR-GW-1S) shall be submitted to the department by the contractor no later than 30 calendar days after the work has been completed. Failure to file the proper registration form may result in enforcement actions including the assessment of civil penalties in accordance with the authority of the Commissioner of Conservation.

H. Registration of Subcontracted Water Wells. When a water well contractor agrees to construct a water well for a customer but subcontracts the work to another water well contractor, the following registration procedure shall govern:

1. the subcontractor who drills the well shall keep an accurate record of the pertinent data to be used in completing the registration form; however, the name and license number of the original contractor must be shown on the upper right-hand corner of the registration form, and it is the original contractor who is responsible for signing and transmitting the form to the department in accordance with the procedures outlined in §105.E. The subcontractor may write his or his company's name and license number at the space designated for "remarks."

I. Registration of Rig-Supply Water Wells

1. In order to register a rig-supply water well, each registration form must be accompanied by a copy of the "registered" permit plat reflecting the section, township, range and the distances from the section lines to the location of the well (oil, gas, injection, etc.). The plat will be used by the department to verify the latitude and longitude of the well. The water well contractor who drilled the water well shall obtain a copy of the plat from the company in charge of the drilling of the oil or gas well (lessee) or from the operator of the oil or gas drilling rig and shall attach it to the registration form for transmittal to the department. Alternatively, the water well contractor may send the registration form to the lessee with appropriate instructions for them to attach the plat to the registration form and transmit it to the department.

2. The lessee or the operator shall furnish the water well contractor with the required plat in a timely manner so that the 30-day limitation for water well registration is not exceeded.

J. Registration of Monitoring Wells. Although construction of monitoring wells for facilities regulated by the Department of Environmental Quality (DEQ) requires approval from DEQ prior to construction, they shall be registered with the Office of Conservation, like all other water wells, as part of the state's effort to catalog well sites and to collect and provide data on the geohydrological system. In order to register a monitoring well, the drilling contractor, in addition to completing all items on the Water Well Registration Short Form (DNR-GW-1S), must also

complete the spaces provided for the latitude and longitude of the well location, as well as the section, township and range.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:950 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:906 (March 2011).

§107. Registration of Water Wells Completed Prior to November 1, 1985

A. Because many water wells have already been inventoried by the department, the procedures for registering wells completed prior to November 1, 1985 are dependent on whether or not the wells have been inventoried and their records are available to the department.

B. Registration of Inventoried Water Wells Completed Prior to November 1, 1985 Whose Records Are Available to the Department

1. The department will obtain from available data a listing, by owner, of wells and pertinent data. A copy of the list will either be sent to the owner for checking and updating, or will be checked and updated by a representative of the department with assistance from the owner.

2. If the list is sent to the owner for checking and updating, the owner shall be responsible for updating the list by indicating the current status of each registered well, by adding wells not on the list and by indicating wells that have been abandoned. The owner shall then certify the list as current and correct and shall return the list to the department within 30 calendar days after receiving the list. When the corrected and certified list is received by the department, the wells added to the list by the owner shall be inventoried and registered by a representative of the department.

3. If, in the opinion of the department, a visit or telephone contact by a representative of the department is preferable and more convenient to the owner than sending a list of wells, a field visit or telephone contact will be made by a representative of the department. After the data are verified and the well locations are checked, any well not on the list will be inventoried and registered by the representative of the department.

4. Upon request, the owner will be sent an updated listing of registered wells for which he is responsible.

C. Registration of Water Wells Completed Prior to November 1, 1985 Which Have Not Been Inventoried and Whose Records Are Not Available to the Department

1. All wells used to supply a public water system regardless of yield, and all other water wells capable of producing more than 50,000 gallons per day, which were constructed on or after July 1, 1975, shall be registered by the owner by completing a water well registration long form (DNR-GW-1) for each well and sending them to the department for verification and registration within 90 calendar days after the effective date of these regulations.

2. The owner may register any uninventoried water well, not covered under Item A of the form, by completing an appropriate registration form and sending it to the department for verification and registration.

3. The department's representative may contact the owner to obtain well data and check and verify the location of wells that have not been inventoried and whose records are not on file with the department. After receiving the pertinent data and locating the wells, the department will register the wells accordingly.

4. The owner shall make available any needed data for registering uninventoried wells and shall permit access to the well sites. Upon request, the owner will be informed of the fact of registration and of the assigned identification number.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:951 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:907 (March 2011).

§109. Use of Information Obtained from Registration Forms

A. Information obtained from registration forms will be available to all persons upon request. The well data will be coded and entered into the department's computerized data file and will be integrated with water well data systems operated by other governmental agencies and research groups, as needed. Copies of the registration forms or computerized listings of the registered wells should fulfill the need of water districts, commissions or other state agencies; thus eliminating the need for a second set of registration forms.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:952 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§111. Enforcement Actions

A. Provisions addressing enforcement of this Chapter appear in R.S. 38:3096, as follows.

1. Whoever knowingly and willingly violates a provision of this Chapter, or a rule, regulation or order of the director or a board hereunder, shall be subject to a civil penalty of not more than \$1,000 a day for each day of violation and for each act of violation if a penalty for the violation is not otherwise provided in this Chapter.

a. The place of suit to recover this penalty shall be selected by the director or board, as may be appropriate, in the district court of the parish in which any one of the defendants resides, or in the district court of the parish where the violation took place.

b. Suit shall be at the direction of the director or board, as may be appropriate, and shall be instituted and conducted in his or its name by the attorney general or by the district attorney of the district under the direction of the attorney general.

2. Whoever knowingly and willfully aids or abets a person in the violation of a provision of this Chapter, or in any rule, regulation or order made hereunder shall be subject to the same penalties provided herein for the principal violator.

B. Falsification of Documents. Falsification of documents to evade regulations, as well as penalties for said falsifications, appears in R.S. 38:3095 as follows.

1. No person shall, for the purpose of evading this Chapter or any rule, regulation or order made thereunder:

a. make, or cause to be made, any false entry or statement of fact in any report required to be made by this Chapter, or by any rule, regulation or order made hereunder; or

b. make, or cause to be made, any false entry in an account, record or memorandum kept by any person in connection with the provisions of this Chapter or of any rule, regulation or order made thereunder; or

c. remove out of the jurisdiction of the state or destroy or mutilate, alter, or by any other means, falsify any book, record or the paper pertaining to the matters regulated by this Chapter, or by any rule, regulation or order made thereunder.

2. Whoever violates this Section shall be fined not more than \$5,000 or imprisoned not more than six months or both.

3. The penalty provision for falsification of documents required under the provisions of this Chapter are therefore criminal in nature and will be enforced through the district attorney having jurisdiction where said violation occurs. It should also be noted that

utilization of the United States Mail in the falsification of documents constitutes a violation of Title 18 of the United States Code (Mail Fraud), and such violations will be referred to the, appropriate United States Attorney.

C. Appeals. An alleged violator may appeal any order of the department by requesting a hearing. The hearing request must be made to the department, in writing, within 30 calendar days of the original order and must be sent by "Certified Mail-Return Receipt Requested." After receiving the request, the department will arrange a hearing to determine what other remedial action will serve to effect compliance with the rules and regulations.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:952 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§113. Definitions

A. Glossary of Terms. Letter in parentheses is the number of the reference found in §115 which is the source of the definition.

Abandoned Well—a well is considered to be abandoned if:

- a. its use has been permanently discontinued;
 - b. its pumping equipment has been permanently removed;
 - c. the well is in such a state of disrepair that it cannot be used to supply water, and/or has the potential for transmitting surface contaminants into the aquifer;
 - d. the well poses potential health or safety hazards;
- or
- e. the well is in such a condition that cannot be placed in the active, standby or inactive status.

Active Well—a well is considered to be active if it is an operating well used to supply water.

Annular Space—the space between the drill hole and the well casing.

Aquifer—a formation, group of formations, or a part of a formation that contains sufficient saturated material to yield significant quantities of water to wells. (E)

Aquifer Test—aquifer or pumping tests are made in water wells to obtain information about the performance and efficiency of the well being pumped, and/or to obtain data from which the hydraulic characteristics of the aquifer can be calculated. The test made to determine hydraulic characteristics of an aquifer is usually referred to as *aquifer test*.

Artesian (Confined Ground Water)—when the water level rises above the top of the aquifer which the well taps, the aquifer is assumed to be *artesian*. An artesian well flows only when the water level is above land surface. (E)

Assistant Secretary—the Assistant Secretary of the Office of Conservation, Department of Natural Resources, or his designee.

Bacteriological Analysis—this analysis, usually for drinking water, consists of a laboratory report indicating the presence or absence of coliform bacteria in a given water sample, as determined by laboratory procedure.

Bentonite Slurry—a mixture of bentonite and water, weighing not less than 9 pounds per gallon.

Casing—a tubular retaining structure, generally metal or PVC which is installed in a drilled, bored, driven, or augured hole to maintain the well opening.

Cement-Bentonite Slurry—a mixture of cement, bentonite and water, consisting of not more than 8 percent bentonite by dry weight of cement and a maximum of 10 gallons of water per sack (94 pounds) of cement. Additives, in the approved and proper ratio, may be added to the slurry if required.

Chemical Analysis—a chemical analysis is usually a report of dissolved minerals in the water and the water's physical properties, such as temperature and color. The minimum chemical properties that are usually determined are hardness, specific conductance, hydrogen-ion concentration (pH), dissolved solids, chloride, bicarbonate, iron, fluoride and nitrate.

Coarse Ground Bentonite—a processed bentonite used to seal well casings and to plug holes. Coarse ground bentonite is placed by pouring from surface or pumping from the bottom to surface. An approved inorganic polymer may be used to retard swelling of the bentonite.

Community Public Supply Water Well—a public supply well which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. A community public supply well may be owned by a municipality or community, a water district, a corporation, a private individual or by a local, state or federal governmental agency.

Contaminant—any undesirable physical, chemical, biological, or radiological substance or matter in water. (F)

Contamination—any introduction into water of microorganisms, chemicals, wastes, or waste-water in a concentration that makes the water unfit for its intended use. (D)

Contractor—the word *contractor* in these regulations is used to refer to any person, firm or corporation who is licensed to engage in the business of drilling, reworking or installing water wells, monitoring wells, heat pump wells or holes, geotechnical boreholes, and/or plugging and abandoning wells or holes, excluding oil and gas wells.

Department—the Louisiana Department of Natural Resources, Office of Conservation.

Dewatering Well—a water well installed to dewater an aquifer or lower a water table in order to allow construction or mining activities.

Disinfection—the killing of a large proportion of microorganisms in or on a substance with the probability that all pathogenic microorganisms will be killed.

Ditch—a man-made excavation dug to convey surface water for drainage purposes or irrigation.

Director or a Board—see *Assistant Secretary*.

Domestic Well—a water well used exclusively to supply the household needs of the owner/lessee and his family. Uses may include drinking, cooking, washing, sanitary purposes, lawn and garden watering and caring for pets.

Drawdown—the difference, usually in feet, between the static (nonpumping) water level and the pumping level in a well after the well has been pumped for a specified period of time.

Drill Cuttings—samples of the material obtained during drillings and are the source of lithologic information needed for proper selection of screen openings. A principal objective of drilling test holes is to obtain samples. (A)

Driller—see *Contractor*.

Drilling—the word *drilling* in these regulations is used to refer to the drilling, boring, coring, driving or augering of a well or hole.

Drilling Contractor—see *Contractor*.

Driller's Log—a driller's log is the driller's description of the geologic strata encountered, their thickness and depth. (A)

Drilling Mud—a fluid composed of water and clay (either native clay or a combination of native and commercial clays) used in drilling operations to remove cuttings from the hole, to clean and cool the bit, to reduce friction between the drill stem and the sides of the hole, to seal the sides of the hole, to prevent caving, bridging or loss of circulation, and to prevent the interchange of water between aquifers. When permitted, drilling mud may be used as filler or plugging material, provided it weighs not less than 9 pounds per gallon.

Electrical Log—a record of the resistivity of the subsurface formations and the contained fluid and

spontaneous potentials generated in the borehole, both plotted in terms of depth below some datum, such as land surface. Similar logs commonly made in boreholes are the induction logs. Other borehole geophysical logs that also may be available are the gamma ray, caliper and neutron logs.

Flood Prone Area—an area subject to a 100-year flood level as established by the administering agency for the Federal Flood Insurance Program.

Free Flowing Water Well—an artesian well which ~~is~~ allowed to flow, under natural conditions, at or above the ground surface.

Geopressured Aquifer—a term used for an aquifer, especially in the Gulf Coast Area, in which the fluid pressure exceeds the normal hydrostatic pressure of 0.465 pounds per square inch per foot of depth. (B)

Geotechnical Borehole—an exploratory borehole drilled, augured, bored or cored to obtain soil samples to be analyzed for chemical and/or physical properties.

Geothermal—pertaining to the internal heat of the earth.

Gravel-Packed Well—a well in which properly graded gravel or coarse sand is hydraulically placed in the area immediately surrounding the screen or slotted pipe used as a screen to increase the effective diameter of the well, to stabilize the aquifer and to prevent sand from entering the well.

Ground Water—water percolating below the earth's surface.

Health Hazard—any condition that may create a danger to public health and well being.

Heat Pump Hole—a hole drilled to install piping for an earth-coupled water source heat pump system, also known as a vertical closed-loop system.

Heat Pump Supply Well—a water well which supplies ground water to a heat pump heat exchanger.

Industrial Well—a well used to supply water for plants that manufacture, process or fabricate a product. The water may or may not be incorporated into the product being manufactured. The water is usually used to cool machinery, to provide sanitary facilities for employees, to air condition the plant, and water grounds at the plant. Water used for mining or processing ore, such as gravel, is included in the industrial category.

Inactive Well—a well is considered to be inactive if it is not presently operating but is maintained in such a way that it can be put back in operation with a minimum of effort to supply water.

Irrigation/Agricultural Well—a well used for irrigating cultivated plants, for watering stock, for crawfish and catfish farming, and for similar agricultural activities. Most irrigation wells supply water for farm crops, but this category also includes wells that are used for watering parks, golf courses, cemeteries and wells which are used exclusively for watering lawns in urban areas.

Lessee—see *Owner*.

Monitoring Well—a well used to obtain hydrologic and water quality data, usually installed at or near a known or potential source of ground water contamination.

Neat Cement—a mixture of cement and water, consisting of not more than 5 gallons of water per sack (94 pounds) of cement.

Noncommunity Public Supply Well—a public supply water well which serves either fewer than 15 service connections or fewer than 25 year-round residents or no year-round residents. Examples of the former case are small public water supplies for mobile home parks, subdivisions, etc. which fall below the 15 connections/25 persons criteria for community water supplies. The latter case includes public water supplies which serve no year-round residents, such as bars and lounges, motels, camps, office buildings, restaurants, rest stops, service stations, recreational facilities, schools, commercial establishments, etc.

Observation Well—a well used by the owner, by governmental agencies, or by an appropriate engineering or research organization to obtain information on the water resources of an area.

Owner—individual, corporation, association, partnership, institution or governmental agency who is either the legal owner of the property on which the well or hole is located or is holding a long-term lease on the property.

Permeability—a measure of the relative ease with which porous media can transmit a liquid under a potential gradient. Sands have a higher permeability than clays.

Pilot Hole—a hole drilled with the intent to install casing and to produce water. It is usually of a smaller diameter than the proposed well and has to be reamed to a larger diameter for the installation of casing and screen.

Plumbness—the variation with depth of the center line of the well from a vertical line drawn through the center of the well at the top of the casing. (C)

Pollution—a condition created by harmful or objectionable material in water. (D)

Potable Water—water whose bacteriological, physical and chemical properties make it suitable for human consumption.

Power Generation Well—a well used to supply water for generation of any type of power.

Private Well—see *Domestic Well*.

Public Supply Water Well—a well which provides water for drinking, cooking or washing use by the public, or transients, or by persons other than the immediate family of the owner of the supply. A public supply water well may be either a community water well or a noncommunity water well.

Pump-Down Method—a positive displacement method for placing grout or slurry material by pumping or forced injection by air pressure.

Pumping Test—see *Aquifer Test*.

Pumping Water Level—the water level in a well which is being pumped, usually expressed in feet above or below a specific datum, such as land surface.

PVC Well Casing—a polyvinyl chloride plastic pipe conforming to current AWWA Standard A-100 and/or ASTM F-480 Standard for water well casing.

Registered Permit Plat—a land surveyor's plat showing section, township, range, and the distances from the section lines to the location of the well (oil, gas, injection, etc). The permit plat is submitted to the Office of Conservation with the oil or gas well permit application.

Registered Well—an inventoried well that has been assigned an identification number by the department and whose records are available.

***Relief Well*—any well drilled for the sole purpose of relieving the hydrostatic pressure inside a levee system during times of high water.**

Reworking Water Well—rehabilitation or modification of a water well to increase its efficiency, restore its capacity, and/or improve its water quality. Methods of reworking water wells include removing and replacing the screen, regravelling the screen, placing a new screen within the old screen, placing a liner pipe within the old casing or redeveloping a well by surging, acidizing, jetting, etc.

Rig-Supply Well—a water well drilled at an oil or gas drilling site to supply water for drilling and/or other oil field related activities.

Saline Water—water with a dissolved solids content of 1,000 milligrams per liter (parts per million) or more.

Sanitary Seal—a suitable threaded, flanged, or welded water-tight cap or compression seal installed at the top of the wellcasing so as to prevent the entrance of contaminated water or other objectionable material into the well.

Sanitary Sewer—an underground conduit that conveys domestic, commercial or industrial sewage.

Screen—a structural tubular retainer, usually metal or PVC, used to support the hole in unconsolidated material with openings which are selected on the basis of adopted standards, and which allows sand free water to flow freely into the well in ample quantities and with a minimum loss of head. In agricultural wells, slotted pipe is sometimes used as a screen.

Seepage—the slow movement of water and/or other fluids through the soil into the subsurface.

Septic Tank—an underground water-tight tank which receives sewage.

Specific Capacity—the rate of discharge of water from a well divided by the drawdown of water level within the well for a specified period of continuous pumping of the well. It is usually expressed as "gallons per minute per foot of drawdown after (specified) hours of continuous pumping."

Standby Well—a well is considered to be a standby if it is used in emergencies or occasionally used to supply water.

Static Water Level—static water level is the nonpumping water level in a well that has not been in operation for a period of time and is usually expressed in feet above or below a specified datum, such as land surface.

Stream—a natural channel or water course which conveys surface and subsurface runoff.

Storm Sewer—an underground conduit used for covering surface water.

Subsidence—a local mass movement that involves principally the downward settling or sinking of the earth's surface with little or no horizontal motion. (B)

Subsurface Absorption Fields—an underground area containing a bedding of aggregate with distribution lines to permit disposal of septic tank effluent.

Test Hole—an **temporary** exploratory borehole drilled **for the sole purpose of obtaining to obtain** geologic, hydrologic and water quality data.

Test Well—see *Test Hole*.

Underground Injection—the subsurface placement of fluids by well injection. (F)

Underground Water—see *Ground Water*.

Uniformity Coefficient—the uniformity coefficient is the number expressing the ratio of the 40 percent size of the material to its 90 percent size. Size refers to the percentage by weight retained on a given sieve.

Vent (Breather Pipe)—a screened outlet at the upper end of the well casing to allow equalization of air pressure in the well and the escape of gases.

Water Well Contractor—see *Contractor*.

Well Cap—a removable, usually water-tight device used to cover an opening into the well casing and is threaded, bolted or otherwise attached to the casing to prevent easy entry by other than the owner and to prevent the entrance of any contaminant or other objectionable material into the well.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3098 -38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Highways, LR 1:969 (May 1975), amended LR 11:969 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:907 (March 2011).

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F. Public Law 93-523, 93rd Congress, December 16, 1974, 34p.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3098 -38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Highways, LR 1:969 (May 1975), amended LR 11:971 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§117. Water Well Registration (Long Form)

A. The Water Well Registration Long Form (DNR-GW-1) and detailed instructions for properly completing the form are available by contacting department staff at (225) 342-8244 or by accessing the department's website at www.dnr.louisiana.gov/gwater. The long form consists of a set of three copies. The first copy (marked DNR copy) is to be mailed by the water well contractor within 30 calendar days after the well has been completed to:

Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, La 70804-9275

B. The second copy of the form is to be retained by the water-well contractor for his files, and the third copy is to be given to the well owner immediately upon completion of the work. The commissioner will consider and encourages the electronic submission of registration, data or reports required under this Section.

C. Although most of the information needed to complete the form is available to the water well contractor, the following explanation will provide clarification of intent for selected items and uniformity of reporting.

D. Owner Information. List the name of the legal owner of the property on which the well is located or the person or company holding a long-term lease on the property. If the owner or lessee is an individual, list first and last names and middle initial of individual. List area code and telephone number of owner in the spaces provided.

1. Address. The address should be that of the owner. If the well is owned by an industry, the local address of the firm is preferred in order that additional data on the well may be easily obtained by the state or a regional water district or commission.

2. Owner's Well Number. Many cities, institutions, industrial plants, and large farms have their own system of designating or identifying wells by number and/or name. This information is useful when locating the well and should be entered on the form.

E. Well Location. List the parish where the well is located, including the nearest town, city, etc., and give directions to the well site. The location of the well should be described in detail and as accurately as possible so that the well can be easily located by the department's staff or field inspector. Please include a detailed map or sketch on the back of the original form, showing location of well with reference to roads, railroads, buildings, etc. Use an (X) to indicate location of the well. Show location of nearest existing well(s), if any nearby, by marking (Os), and approximate distance between wells. Determine the well's Global Positioning System (GPS) location and record the GPS longitude and latitude coordinates onto the form.

F. Well Information. Required data are available from water well contractor's and/or engineer's report.

G. Casing and Screen Information. Required data are available from water well contractor's and/or engineer's report. By type of screen indicate whether it is "bar lug" rib type, slotted pipe, etc. State whether casing is plastic or metal. Indicate the depth to which the annular space was cemented and state method of cementing.

H. Water Level and Yield Information. Most of the information entered on the form can usually be obtained from the water well contractor's or engineer's report. Except for "static water level," the terms need no explanation. Static water level is "the nonpumping water level in a well that has

not been in operation for a period of time and is usually expressed in feet above or below a specified datum, such as land surface." The owner should be able to provide information on proposed use and pumping rate.

I. Use of Well. The principal purpose for which water from the well is used should be indicated where appropriate on the form. If water is used for more than one purpose, only the principal or primary use should be shown. If the planned use of water is unknown or does not fit one of the specified uses, this should be noted in the space marked "other." Following are explanations of the terms used on the well registration form to indicate the principal use of water from a well.

1. Irrigation/Agricultural. Refers to the use of water to irrigate cultivated plants, to water stock, for crawfish and catfish farming, and for similar agricultural activities. Most irrigation wells supply water for farm crops, but this category also includes wells that are used for watering parks, golf courses, and cemeteries. Occasionally a home owner in an urban area has a well used solely for watering a lawn. This well also should be in the agricultural and irrigation category.

2. Industrial. Includes plants that manufacture, process or fabricate a product. The water may or may not be incorporated into the product being manufactured. Industrial water may be used to cool machinery, to provide sanitary facilities for employees, to air-condition the plant, and water grounds at the plant. Water used for mining or to process ore such as gravel pits is included in the industrial category. Planning and water-use needs can be implemented by dividing this category into the following standard industrial categories that predominate in Louisiana. Indicate the principal category of industrial use on the form where appropriate. The categories are defined as follows:

a. Food and Kindred Products. This group includes establishments manufacturing foods and beverages for human consumption and certain related products, such as manufactured ice, vegetable oils, animal fats and oils, and prepared feeds for animals and fowl.

b. Textile Mill Products. This major group includes establishments engaged in performing any of the following operations:

i. preparation of fiber and subsequent manufacturing of yarn, thread, braids, twine and cordage;

ii. manufacturing broad woven fabric, narrow woven fabric, knit fabric, and carpets and rugs from yarn;

iii. dyeing and finishing fiber, yarn, fabric, and knit apparel;

iv. coating, waterproofing, or otherwise treating fabric;

v. the integrated manufacture of knit apparel or other finished articles from yarn; and

vi. the manufacture of felt goods, lace goods, bonded-fiber fabrics, and miscellaneous textiles.

c. Lumber and Wood Products (except furniture). This major group includes sawmills, lath mills, shingle mills, cooperage stock mills, planning mills, and plywood and veneer mills engaged in producing lumber and wood basic materials; and establishments engaged in manufacturing finished articles made entirely or mainly of wood or wood substitutes.

d. Paper and Allied Products. This major group includes the manufacture of pulp from wood and other cellulose fibers and rags; the manufacture of paper and paperboard; and the manufacture of paper and paperboard into converted products such as paper coated paper bags, paper boxes and envelopes.

e. Chemicals and Allied Products. This major group includes establishments manufacturing products by predominantly chemical processes. Establishments classified in this major group manufacture three general classes of products:

i. basic chemicals such as acids, alkalies, salt, and organic chemicals;

ii. chemical products to be used in further manufacture such as synthetic fibers, plastic materials, dry colors, and pigments;

iii. finished chemical products to be used for ultimate consumption such as drugs, cosmetics and soaps; or to be used as materials or supplies in other industries such as paints, fertilizers, explosives. The mining of natural rock salt is classified in mining industries. Establishments primarily engaged in manufacturing nonferrous metals and high percentage ferroalloys are classified in the primary metals category and baking powder; other leavening compounds and starches in the food and kindred products category. Establishments primarily engaged in packaging, repackaging, and bottling of purchased chemical products are classified in traded industries of the standard industrial categories. Plastic materials and synthetic rubber are included in this category.

f. Petroleum Refining and Related Industries. This major group includes establishments engaged in petroleum refining, manufacturing paving and roofing materials, and compounding lubricating oils and greases from purchased materials. Establishments manufacturing and distributing gas to consumers are classified in public utilities industries, and those primarily engaged in producing coke and by-products in primary metals category.

g. Primary Metal Industries. This major group includes establishments engaged in the smelting and refining

of ferrous and non ferrous metals; in the manufacture of castings, forgings, and other basic products of ferrous and nonferrous metals, and in the manufacture of nails, spikes, and insulated wire and cable. This major group also includes the production of coke.

h. Other. Please name the principal industrial output from the industry if not listed in the industrial categories on the form.

3. Public Supply. Refers to a well which provides water for drinking, cooking, or washing use by the public or transients, or by persons other than immediate family of the owner of the supply. A public supply water well may either be a community water well or a noncommunity water well, as follows.

a. Community Public Supply Water Well. A public supply well which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. A community public supply well may be owned by a municipality or community, a water district, a corporation, a private individual or by a local, state or federal governmental agency.

b. Noncommunity Public Supply Well. A public supply water well which serves either fewer than 15 service connections or fewer than 25 year-round residents or no year-round residents. Examples of the former case are small public water supplies for mobile home parks, subdivisions, etc., which fall below the 15 connections/25 persons criteria for community water supplies. The latter case includes public water supplies which serve no year-round residents, such as bars and lounges, motels, camps, office buildings, restaurants, rest stops, service stations, recreational facilities, schools, commercial establishments, etc.

c. Because public supply use includes many categories of use, requirements for planning and water-use surveys require a further break-down of this use; thus, public supply use is divided into the following categories: (A list is provided on the registration form (refer to §117) so that the user may select the appropriate category of public supply use.)

d. Municipal. This category includes all wells used to supply the drinking, sanitation, and other needs of an urban area, e.g., Lake Charles, Ruston, etc. The well is generally owned by a utility company, a municipality or private individual.

e. Rural. The wells are used for the drinking, sanitation, and other needs of a rural area. Such systems generally are operated by a local water district or by private individuals.

f. Commercial

i. Wells that are used principally to supply a motel, hotel, restaurant, office complex, swimming pool, ice rink or other recreational facility; drive-in, trailer park or public summer camp.

ii. Where water is used commercially in the making of bottled drinks, the wells are in this category.

g. Therapeutic. Water that is used primarily for bathing and/or drinking and is purported to have therapeutic value is in this category. Water that is bottled and sold falls into this category, mainly because of its claimed therapeutic value.

h. Institutional/Government. Refers to wells used specifically in the maintenance and operation of an institution such as large schools, churches, universities, hospitals, rest homes, penal institutions, and other governmental installations.

i. Other. A well that is used for a purpose that does not fit into the above categories. Give details.

4. Power Generation. Refers to a well used to supply water for generation of any type or power.

5. Dewatering Well. This is a water well installed to de-water an aquifer or lower a water table in order to allow construction or mining activities.

6. Observation. Refers to a well used by the owner, by governmental agencies, or by an appropriate engineering or research organization to obtain information on the water resources of an area.

7. Test Hole. An exploratory borehole drilled to obtain geologic, hydrologic and water quality data.

8. Other. A well that is used for the purpose that does not fit into either the above categories or those listed on the short form (DNR-GW-1S).

J. Available Information. Please indicate where appropriate on the form whether the specified logs or data were collected; if so, attach copies to the registration form for transmittal to the department.

K. Abandonment Information. If the well is new, specify whether or not it replaces an existing well. The water well contractor is responsible for informing the owner of the well of state regulations requiring plugging of abandoned wells. This item is intended to serve as a reminder.

L. Remarks. This space can be used for presenting any other pertinent information, such as name of consulting engineer, screen openings, pump information, name of subcontractor, etc.

M. Driller's Log. Give a description of the materials encountered and depth. If space on front of the form is insufficient, continue driller's log on reverse side of original

form or attach a copy of the driller's log to the original form to be transmitted to the department.

1. After completing the form, list the name of the water well contracting company and the license number on the space provided. Sign and date the form and mail the original to the department at the address listed on the form within 30 calendar days after the well has been completed. The owner's copy shall be given to the owner immediately upon completion of the work. The contractor's copy shall be retained by the contractor for his files.

2. If there are any questions, please call or write:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275
Phone: (225) 342-8244

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3098-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Highways, LR 1:249 (May 1975), amended LR 11:971 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:907 (March 2011).

§119. Water Well Registration (Short Form)

A. The Water Well Registration Short Form (DNR-GW-1S) and detailed instructions for properly completing the form are available by contacting department staff at 225-342-8244 or by accessing the department's website at www.dnr.louisiana.gov/gwater. The short form consists of a set of three copies. The first copy (marked DNR copy) is to be mailed by the water well contractor within 30 calendar days after the well has been completed to: Louisiana Department of Natural Resources, Office of Conservation, P.O. Box 94275, Baton Rouge, LA 70804-9275.

B. The second copy of the form shall be retained by the water well contractor for his files and the third copy shall be given to the well owner immediately upon completion of the work. The commissioner will consider and encourages the electronic submission of registration, data or reports required under this section.

C. Although most of the information needed to complete the form is available to the water well contractor, the following explanation will provide clarification of intent for selected items and uniformity of reporting:

1. Use of Well. The principal purpose for which the well is used should be indicated by checking the appropriate box on the form. If the well is used for more

than one purpose, only the principal or primary use should be shown.

a. Domestic Well. A water well used exclusively to supply the household needs of the owner/lessee and his family. Uses may include drinking, cooking, washing, sanitary purposes, lawn and garden, watering and caring for pets.

b. Rig Supply Well. A water well drilled at an oil or gas drilling site to supply water for drilling and/or other field related activities.

c. Monitoring Well. A well used to obtain hydrologic and water quality data, usually installed at or near a known or potential source of ground water contamination.

d. Heat Pump Supply. A water well which supplies ground water to a heat pump heat exchanger.

e. Heat Pump Hole. A hole drilled to install piping (tubing) material for an earth-coupled water source heat pump system, also known as a vertical closed-loop system.

f. Abandoned Pilot Hole. A hole drilled with the intent to install casing and to produce water but had to be abandoned because of problems related to drilling operations or encountering unsatisfactory formations.

g. Other. A well used for a purpose that does not fit into either the above categories or those requiring a long form (DNR-GW-1).

2. Owner Information. List the name of the legal owner of the property on which the well is located or the person or company holding a long-term lease on the property. If the owner or lessee is an individual, list first and last names and middle initial of individual. List area code and telephone number of owner in the spaces provided.

3. Owner's Address. List full and correct address of the owner.

4. Owner's Well Number. List name or number the well owner has assigned to the well.

5. Well Information. List in appropriate spaces, completion date of well, depth of hole, depth of well, static water level, casing type, size and length, screen size, type and length, the depth to which the casing was cemented, and cementing method used.

6. Well Location. List the parish where the well is located, including the nearest town, city, etc., and give directions to the well site. The location of the well should be described in detail and as accurately as possible so that the well can be easily located by the department's staff or field inspector. Please include a detailed map or sketch on the back of the original form showing the location of the well with reference to roads, railroads, buildings, etc. Use an (X) to indicate location of the well. Show location of nearest existing well(s), if any nearby, by making (Os) and

approximate distance between wells. Determine the well's Global Positioning System (GPS) location and record the GPS longitude and latitude coordinates onto the form. For rig-supply wells, attach a "registered" permit plat (see §105.I) and for monitoring wells, complete spaces provided for the section, township and range (see §105.J).

7. Remarks. This space can be used for presenting any other information, such as screen openings, pump information, problems encountered during drilling, name and license number of water-well subcontractors, method and materials used to seal heat pump hole, etc.

8. Driller's Log. List in the space provided a description of the materials encountered and depth. If space on front of the form is insufficient, continue driller's log on reverse side of original form or attach a copy of the driller's log to the original form to be transmitted to the department.

9. Heat Pump Holes. List average depth of holes and number of holes drilled at the site. Indicate type of tubing material used by checking appropriate box. Method and materials used to seal holes shall be stated under item marked "remarks."

10. Abandonment Information. If the well is new, specify whether or not it replaces an existing well. The water well contractor is responsible for informing the owner of the well of state regulations requiring plugging of abandoned wells.

D. After completing the form, list the name of the water well contracting company and the license number on the spaces provided. Sign and date the form and mail the original to the department at the address listed on the form within 30 calendar days after the well has been completed. The owner's copy shall be given to the owner immediately upon completion of the work. The contractor's copy shall be retained by the contractor for his files.

E. If there are any questions or you need assistance, please call or write to:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275
Phone: (225) 342-8244

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3098-38:3098.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:974 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:908 (March 2011).

Chapter 3. Water Well Construction

§301. Preamble

A. As announced in the October 1985 issue of the *Louisiana Register*, the rules, regulations and standards for constructing water wells and holes were prepared by the Louisiana Department of Transportation and Development (DOTD), Office of Public Works, in accordance with R.S. 38:3091 through 38:3098.8. Effective January 1, 2010, in accordance with Act 437 of 2009, The Department of Natural Resources, Office of Conservation, hereafter referred to as *department*, is responsible for registering water wells and holes in Louisiana. ~~The rules, regulations and standards stated herein became effective on November 1, 1985 and supersede the rules, regulations and standards for water well construction which had been in effect since December 20, 1975.~~

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3098.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:952 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:909 (March 2011).

§303. Purpose

A. The purpose of the rules, regulations, and standards stated herein is to minimize the chances of contaminating the state's ground water resources via improperly constructed water wells and holes and to minimize health and safety hazards associated with construction of wells and holes. The rules, regulations and standards shall apply to all water wells and holes, including but not limited to, public supply, domestic, irrigation/agriculture, industrial, power generation, rig-supply, observation, dewatering, monitor, and heat pump supply, as well as pilot holes, test holes, geotechnical boreholes and heat pump holes (closed loop system). For glossary of terms refer to §113.A of this Part.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3098.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:952 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§305. Approval of Plans and Specifications for Public Water Supply Systems

A. R.S. 38:3094(A)(3), authorizes the department to:

"Establish regulations governing standards for the construction of all water wells drilled after the effective date of this Act..."

B. R.S. 40:4(A)(8), of Section 4 (Sanitary Code) states:

"In order to protect the public against disease from water supplied for drinking, culinary, and ablutionary purposes, the state health officer shall prepare and promulgate all rules and regulations necessary to insure that water supplied to the public by public water supplies is obtained from safe and sanitary sources and that such sources are properly protected; is treated, stored and conveyed in a safe and sanitary manner; and is safe and potable for human use..."

C. In accordance with these legislative directives, the rules, regulations and standards governing construction of public supply water wells were prepared by the DOTD in close cooperation with the Louisiana Department of Health and Human Resources, Office of Preventive and Public Health Services, and they are intended to eliminate duplication of efforts and requirements by the two agencies, thereby minimizing cost and optimizing operating efficiencies.

D. Part XII of the State Sanitary Code (LAC 51:XII) requires that no public water supply shall be constructed, operated or modified without review and approval of the state health officer. Detailed plans and specifications shall be submitted to the appropriate Department of Health and Hospitals regional office by the person having responsible charge for a municipally owned water supply or by the owner of a privately owned public water supply for review and approval before construction, modification, or operation of such system has commenced.

E. The water well contractor shall construct the well in accordance with the applicable provisions of this Chapter and shall submit a Water Well Registration Long Form (DNR-GW-1) to the department within 30 calendar days after completing the well, as required by Subsection B of the rules, regulations and procedures for registering water wells and holes.

F. All questions relating to the quality of water, as it pertains to its effect on human health, shall be referred by the owner, engineer or water well contractor to the following:

Department of Health and Hospitals
Office of Public Health
P. O. Box 4489
Baton Rouge, LA 70821-4489
Phone: (225) 342-7499

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3098.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:952 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended Department of Natural Resources, Office of Conservation, LR 37:909 (March 2011).

§307. Licensing Requirements

A. The following wells and holes shall be drilled or constructed by a licensed contractor (driller) who is duly

licensed by the department in accordance with the rules and regulations stated in LAC 46:LXXXIX:

1. all water wells, regardless of use or type;
2. monitoring wells;
3. heat pump wells and holes;
4. geotechnical boreholes;
5. test holes and pilot holes.

B. Additionally, reworking of water wells, as well as plugging and abandoning wells and holes, excluding oil and gas wells, shall also be undertaken by a licensed contractor.

C. Drillers operating in the State of Louisiana should, as a best management practice, carry minimum coverage for liability insurance for drilling operations engaged by their company.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:953 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§309. Registration Requirements

A. Every water well or hole drilled in the state of Louisiana shall be registered with the department in accordance with the requirements of LAC 56:I.Chapter 1.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:953 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§311. Variance Requests

A. Requests to vary from the rules, regulations and standards for constructing water wells and holes shall be addressed to the department as follows:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275
Phone: (225) 342-8244

B. The request must demonstrate that compliance is impractical and must outline a satisfactory alternative. The department may prescribe, in writing, alternate requirements that are equivalent to the regulations and standards stated herein relating to the protection of aquifer and prevention of ground water contamination.

C. Requests to vary from the provisions of the State Sanitary Code (LAC 51) relating to the sanitary features of the public supply water systems, and for questions related to

the quality of water as it pertains to human health, shall be addressed to the following:

Department of Health and Hospitals
Office of Public Health
P. O. Box 4489
Baton Rouge, LA 70821-4489
Phone: (225) 342-7499

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:953 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:910 (March 2011).

§313. Minimum Distance Requirements for Locating a Water Well

A. Provided that all other applicable rules and regulations are complied with, the minimum distance requirements for locating a water well shall be in accordance with the following Subsections.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:953 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§315. Location in Relation to Possible Sources of Contamination

A. The horizontal distance between any water well and any possible sources of contamination shall be as great as possible but in no case less than the following minimum distances.

Possible Sources of Contamination	Minimum Distance (in feet)
Septic Tanks	50
Storm or Sanitary Sewer	50 ¹
Cesspools, outdoor privies, oxidation ponds, subsurface absorption fields, pits, etc.	100 ²
Sanitary landfills, feed lots, manure piles, solid-waste dumps and similar installations	100
Another water well	25 ³
Drainage canal, ditch, stream pond or lake	50 ⁴

¹This distance may be reduced to 30 feet if the sewer is of cast iron with leaded joints or schedule 40 plastic pipe with water-tight joints.
²For domestic water wells, this distance may be reduced to 50 feet.
³This minimum distance requirement does not take into consideration the effects of interference from pumping nearby wells in the same aquifer.
⁴Horizontally measured from the water edge to the well at the highest water level which may have occurred in a 10 year period.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR

1:249 (May 1975), amended LR 11:953 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§317. Location in Relation to Levees

A. Wells or holes as defined in Part I, except relief wells, shall not be drilled within 250 feet of the levees [R.S. 38:225(6)]. The department interprets this statute to mean that the well or wells shall be at least 250 feet from the land side toe of the levee. For this agency to consider any exception to the above, written approval from the appropriate local authorities such as levee boards or the Corps of Engineers is necessary and should be submitted with the variance request.

B. When wells are to be drilled within 1,500 feet of any state or federal flood control levee or structure, the owner or driller must first obtain permission from the appropriate levee board. The Corps of Engineers requires that drilling commence and casing be set and cemented in place to a specified depth while the stage of the Mississippi River is below 11.0 feet National Geodetic Vertical Datum (NGVD) on the Carrollton Gage, New Orleans, Louisiana, unless a waiver to this restriction is granted. Requests to vary from their requirements must be sent to the appropriate levee board and the Corps of Engineers. For specific information concerning river stages and drilling wells near levees, the owner, engineer or water well contractor should contact the following:

U.S. Army, Corps of Engineers
New Orleans District
Box 60267
New Orleans, LA 70160
Phone: (504) 862-2204

U.S. Army, Corps of Engineers
Vicksburg District
Box 60
Vicksburg, MS 39180-0060
Phone: (601) 634-5000

C. Requirements for relief wells located within 250 feet from the land side toe of the levee include:

1. Written approval from the Corps of Engineers and the local levee authority, if applicable, and;

2. Minimum construction standards for grouting down to at least 10 feet from the ground surface and a one-way check valve.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:953 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§319. Location in Relation to Flood Water

A. Locations subject to flooding should be avoided, if possible. If a reasonable alternate site does not exist, the well may be constructed in flood-prone areas provided the top of the casing is at least 2 feet above the highest flood level

which may have occurred in a 10-year period but in no case less than 2 feet above the ground surface, except when located in coastal areas along the Gulf of Mexico prone to direct impact of storm surge events. Wells with a casing size of 4 inches or less located in coastal areas prone to direct impact of storm surge events shall be constructed with: a) well casing material strength of S/40 PVC or greater and a maximum casing height of 24 inches above ground surface; b) protective casing material strength of S/80 PVC or greater with a diameter size providing a minimum 3 inch space between the well casing outer diameter and the outer diameter of the protective casing; c) protective casing height of 20 to 22 inches above ground surface and a minimum depth below ground surface to 38 inches or greater; d) spacing between the protective casing and the well casing filled with Portland cement; and e) grouting down to a depth of at least 50 feet below ground surface.

B. Well piping shall be constructed with a check valve or other appropriate apparatus to prevent introduction of surface water into the casing in the event of damage to the external piping or pressure tanks.

C. All rig-supply water wells must be properly capped between the time the well is completed and the time the well is put into water production at the site. The cap shall be watertight and securely attached to prevent easy entry by other than the owner and to prevent the introduction of flood waters or contaminants into the well.

D. Flood information may be obtained from the U.S. Geological Survey or the administering agency of the Federal Insurance Program (i.e., municipality, police jury, regional planning authorities or the Department of Urban and Community Affairs).

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§321. Location in Relation to Buildings and Other Structures

A. A well shall be located far enough from a building to allow reworking or rehabilitation with a drilling rig. A well shall not be located below ground surface, such as in pits and basements, and shall not be located within the foundation of a building, except a building constructed solely to house pumping and water system equipment.

B. For rig supply wells, if the well is located on the constructed work pad for drilling operations or within the ring levee system, it must be constructed with a protective

cement slab and four corner posts. If the well is located outside the ring levee system and will be transferred for some other future use or will not be plugged and abandoned within six months of completion of associated oil and gas well drilling activity, it must be surrounded by four corner posts.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

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§323. Drilling and Construction

A. Geologic conditions in Louisiana permit the use of two methods of drilling: the rotary method and reverse circulation method. Regardless of the method used, every precaution should be taken to prevent ground water contamination during drilling operations.

B. Water used in drilling operations shall be potable or chlorinated to prevent contamination of water-bearing formations.

C. When drilling a hole the contractor shall:

1. record the hole diameter and any changes in size of hole;
2. record (driller's log) the depth and thickness of the formations penetrated;
3. record any unusual occurrences, such as loss of circulation, cave-ins, etc., (In the event the unusual occurrence is observable evidence of naturally occurring methane gas, natural gas or similar sub-surface gas, such as bubbling drilling mud or gas venting at the well bore or other nearby surface location or feature, the contractor shall report such event verbally to the Environmental Division of the Office of Conservation within twenty-four hours); and
4. collect representative samples (drill cuttings) from each potential aquifer.

D. The contractor shall properly maintain all materials, tools, and drilling equipment and shall take all measures necessary to minimize health and safety hazards and to prevent movement of surface water and contaminants into the drilled hole or well.

E. An approved portable toilet shall be located at the drilling site if other restroom facilities are not available.

F. The mud pit shall be so constructed and maintained as to minimize the contamination of the drilling mud.

G. During a temporary shutdown for more than 24 hours, safeguards shall be taken to prevent possible contamination and damage. The well or hole shall be covered or capped to

prevent entry by other than the contractor; it shall be clearly marked, and shall not be a safety hazard.

H. Alignment and Plumbness. The hole shall be drilled reasonably straight and plumb in order to:

- a. avoid encroachment on neighboring property;
- b. prevent intersection with other wells and holes;
- c. prevent damage to screen while being set;
- d. prevent damage to pumping equipment; and
- e. allow for lowering the pump to the desired depth.

I. The contractor shall exercise reasonably straight and plumb. Testing for plumbness and alignment are described in Section 8 and Appendix C of the current *American Water Works Association Standards for Water Wells* (AWWA A-100), as well as in Article 51 of the United States Environmental Protection Agency's *Manual of Water Well Construction Practices*.

J. Drilling of Test Holes and Pilot Holes

1. A test hole is usually drilled to the base of the fresh water or to the bottom of the sand to be tested. Test holes are drilled primarily to:

- a. determine the exact depth and thickness of the fresh-water bearing sands (aquifers);
- b. collect drill cuttings for determining screen slot openings and the best location for the screen; and
- c. collect quality and quantity of water data that can be used to design the well and select a pump and motor.

2. During the drilling operation, the contractor shall take the necessary precautions to provenprevent the contamination of any aquifer and the exchange of waters between aquifers.

3. When the drilling of a pilot hole or a test hole is temporarily suspended and the rig moves away from the drilling site, the hole shall be considered an abandoned hole unless drilling operations are resumed within 30 calendar days of the initial date of suspension of drilling or an extension, in writing, is granted by the department. During the "shut down" period, a mud column of sufficient weight and height shall be maintained in the hole at all times to prevent seepage of surface water and foreign materials into any aquifer and to prevent interaquifer movement of water. Additionally, the hole shall be capped and the immediate area shall be conspicuously marked to protect and warn the public. The cap shall be sufficiently strong and anchored to prevent easy and unintentional entry.

4. If the drilled test hole is deeper than the interval to be tested, the contractor shall use cement-bentonite slurry to set a plug extending from the bottom of the hole upward to a depth within 20 feet of the bottom of the proposed screen setting or to the top of clay or shale layer underlying the sand to be tested. A sufficient period of time shall be allotted for the cement to set before development begins. If sands were not penetrated below the bottom of the sand to be screened, heavy drilling mud or bentonite slurry may be used in lieu of cement-bentonite slurry to plug the bottom of the hole.

5. If another aquifer at a shallower depth is to be tested, the contractor shall use cement-bentonite slurry to set a plug extending upward from the top of the plug, previously placed in the bottom of the hole, to within 20 feet of the depth where the bottom of the test screen is to be set in the shallower aquifer, or to the top of the clay or shale layer underlying the shallower sand to be tested.

6. Abandoned pilot holes and test holes shall be plugged in accordance with requirements of §531, respectively.

K. Drilling of Heat Pump Holes (Closed Loop-System)

1. Heat pump holes shall be constructed in accordance with the pertinent provisions of this Chapter in order to protect freshwater aquifers from surface contamination and to prevent movement of water of objectionable quality from one aquifer to another.

2. Piping, casing or tubing materials shall conform to the applicable ASTM standards for polyvinyl chloride (PVC), polyethylene (PE), or polybutylene (PB) plastics and shall be installed and joined according to manufacturer's recommendations.

3. If used, antifreeze compounds shall be nontoxic and approved for use by the U.S. Environmental Protection Agency.

4. The entire depth of the closed loop heat pump holes shall be sealed in accordance with requirements of §531 within 30 calendar days after completion of drilling operations.

5. Service manifold should be protected from external forces as recommended by the manufacturer, designer and/or local building codes.

L. Drilling of Monitoring Wells

1. Monitoring wells shall be constructed in accordance with the pertinent provisions of this Chapter in order to protect freshwater aquifers from surface contamination and to prevent movement of water of objectionable quality from one aquifer to another.

2. To prevent the introduction of extraneous compounds into the formation water, the use of drilling mud in the monitoring wells is discouraged.

3. Monitoring wells shall be cased and the casing shall be strong enough to resist the forces imposed during and after installation, including reaction upon the casing by natural or foreign constituents or contamination.

4. The entire annular space of the monitoring wells shall be sealed with cement-bentonite slurry, unless specified otherwise by the Department of Environmental Quality (DEQ). Prior to cementing, flushing of the annular space with water will be necessary when obstructions are present or suspected. Coarse ground bentonite or bentonite pellets shall be placed between and the sand pack and the cement-bentonite slurry. The ground surface around the well shall be covered with a concrete slab at least 4 inches thick, extending at least 2 1/2 feet from the well in all directions. The surface of the slab shall be sloped to drain away from the well.

5. Monitoring wells shall be covered with a protective cover or cap.

6. Abandoned monitoring wells shall be plugged in accordance with requirements of §531.

Note: Construction of Monitoring Wells for facilities regulated by the department of Environmental Quality (DEQ) require approval from DEQ prior to construction.

M. Drilling of Geotechnical Boreholes

1. Boreholes shall be drilled in accordance with pertinent provisions of this Chapter in order to protect the fresh-water aquifers from surface contamination and to prevent movement of water of objectionable quality from one aquifer to another.

2. Geotechnical boreholes shall be plugged in accordance with requirements of §531 within 30 calendar days after the termination of drilling and sampling operations.

NOTE: Drilling of geotechnical boreholes for facilities regulated by the Department of Environmental Quality (DEQ) require special consideration by that department.

N. Reworking of Water Wells

1. Rehabilitation or modification of water wells shall be accomplished in accordance with the provisions of this Chapter of the rules, regulations and standards for water well drilling in order to protect the fresh-water aquifers from contamination.

O. The following operations shall be considered as reworking water wells and shall require a water well contractor's license.

1. removing and replacing screen;
2. replacing gravel pack around screen;
3. placing a new screen within the old screen;
4. placing a liner pipe within the old casing;

5. redeveloping a well by surging, adicizing, jetting, etc.

P. When a well is reworked or the sanitary seal is removed, the drop pipe, jet line or column pipe, pump/motor, etc., shall be cleaned and the well shall be disinfected in accordance with Chapter XII of the State Sanitary Code.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:954 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:910 (March 2011).

§325. Casing

A. An appropriate casing shall be installed in every water well to prevent the wall of the hole from collapsing, to house the pump, and to convey the water to the surface.

B. General Criteria. The selection of casing is dependent upon a number of factors that shall be considered when designing and installing a well. Following are some of the factors.

1. The casing shall be strong enough to resist the forces imposed during installation and other forces that can be expected after installation.

2. The casing shall be of adequate diameter to accommodate the pump and convey the required quantity of water.

3. Joints of metal casing shall have threaded couplings or be welded to ensure water tightness for the entire length of the casing.

4. The casing shall be reasonably plumb and straight. The plumbness and alignment of the casing shall be checked in accordance with accepted practices.

5. The casing shall be installed so as to seal off water-bearing formations that contain undesirable water and to prevent water from the surface and other aquifers from entering the well.

C. Materials. The casing materials commonly used in Louisiana are metal and plastic. Concrete, clay tile, wood, fiberglass, and other synthetic casings have been used in the past in some areas for specific applications.

D. Metal Casing. Steel is the material most frequently used for well casing in drilled wells. The three principal classifications of steel used for water well casing are as follows.

1. Standard and Line Pipe. This material shall meet one of the following standard specifications, including the latest revision thereof:

a. API Spec. 5A, "Specifications for Casing, Tubing and Drill Pipe;"

b. API Spec. 5L, "Specifications for Line Pipe;"

c. API Spec. 5LX, "Specifications for High-Test Line Pipe;"

d. ASTM A53, "Specifications for Pipe, Steel, Black and Hot Dipped, Zinc-Coated, Welded and Seamless Steel Pipe;"

e. ASTM A120 "Standard Specifications for Pipe, Steel, Black and Hot Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses;"

f. ASTM A134, "Standard Specifications for Pipe Steel, Fusion (Arc)—Welded Steel Pipe (Sizes NPS 16 and over);"

g. ASTM A135, "Standard Specifications for Electric-Resistant Steel Pipe;"

h. ASTM A139, "Standard Specifications for Electric-Fusion (Arc)—Welded Steel Pipe (Sizes 4 inches and over);"

i. ASTM A211, "Standard Specifications for Spiral-Welded Steel or Iron Pipe;"

j. AWWA C201, "AWWA Standard for Fabricated Electrically Welded Steel Pipe;"

k. AWWA C202, "Tentative Standard for Mill Type Steel Water Pipe;"

1. Underwriters Laboratories Standard 888.

2. Structural Steel. This material shall meet one of the following specifications of the American Society for Testing and Material, including latest revision thereof:

a. ASTM A36, "Standard Specification for Structural Steel;"

b. ASTM A242, "Standard Specification for High-Strength Low-Alloy Structural Steel;"

c. ASTM 570-79, "Standard Specifications for Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality;"

d. ASTM A283, "Standard Specifications for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars;"

e. ASTM A441, "Standard Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel."

(Abbreviations used are:

API—American Petroleum Institute;

ASTM—American Society for Testing and Materials;

AWWA—American Water Works Association.)

3. High Strength Carbon Steel. At present, there is no standard specification concerning this material; however, products are marked whose chemical and physical properties are similar. The material shall contain mill markings which will identify the manufacturer and specify that the material is well casing steel that complies with the chemical and physical properties as published by the manufacturer.

E. Plastic Casing. Thermoplastic well casing pipe may be used for well construction if it complies with the requirements and restrictions of this Section.

F. Pipe and Material Specifications

1. The thermoplastic well casing pipe and couplings shall be new polyvinyl chloride (PVC) material produced in accordance with the current AWWA Standard A-100 and ASTM F-480 standard, except that the impact standards of the current ASTM D-2241 may be substituted.

2. PVC material shall be designated as PVC 1120 or PVC 1220 and shall include an ultra-violet degradation inhibitor in its formulation.

3. Solvent cement shall conform to the current ASTM D-2564 standard.

4. Pipe may be joined by threaded joints, integral bell pipe or one piece couplings. Solvent-weld tapered bell and spigot joints shall meet current ASTM specification D-2672.

G. Casing Wall Thickness and Diameters

1. The pipe shall have a standard dimension ration (SDR) of 26, 21, or 17, and shall be equivalent to at least Schedule 40 or 80, depending upon use, construction techniques, depths and strength requirements.

2. Casing collapse pressures recommended by the manufacturer shall not be exceeded in any phase of well construction. Due consideration shall be given to extreme conditions that may result from the use of high density cement grouts, high pressure cement grouting and high temperature from the heat of hydration in cement grouts.

3. Where threaded joints are used, wall thickness shall not be less than the equivalent of Schedule 80.

H. Marking and Approval

1. The well casing pipe and couplings shall be marked in accordance with the current ASTM F-480 standard.

2. The well casing pipe, couplings, cement, primer and other compounds shall be evaluated and listed as conforming with both ANSI/NSF Standard 14 and ANSI/NSF Standard 61, approved for use as a well casing in potable water supplies by the National Sanitation Foundation (NSF) Testing Laboratories, Inc., Box 1468, Ann Arbor, Michigan 48106.

3. The pipe shall be marked with the nominal size standard dimension ration or schedule, type of material,

either the designation "PVC 1120" or "PVC 1220", the wording "well casing", designation "ASTM F-480", manufacturers name or trademark, and the NSF-WC designation.

I. Storage

1. The pipe and couplings shall be stored in a manner to minimize exposure to ultraviolet radiation.

2. The pipe shall be stored in a manner to prevent deformation, sagging or bending.

J. Assembly and Installation

1. Joining techniques, including procedures for cutting, joint cleaning and priming, application of solvent cement, assembly and hardening time for solvent cement joints, shall be in accordance with the manufacturer's recommendations, and/or ASTM Standard D2855.

2. The well casing shall not be subjected to excessive forces and it may not be driven, pushed or forced into the formation.

3. PVC casing may be used to any depth, provided that allowable head differential (AHD) and hydraulic collapse pressure resistance (HCPR) are not exceeded. The well casing diameter and SDR or schedule shall be selected based on Appendix "L" of AWWA Standard A-100 and/or the manufacturer's recommendations for collapse pressure under extreme conditions.

4. PVC casing shall not be allowed to support the weight of the pump/motor (excluding submersible and single-pipe jet pump) and its related piping. The pump/motor, etc. shall be supported on a concrete base provided therefor.

5. Exposed PVC casings shall be protected from ultra-violet degradation by appropriate coatings as recommended by the manufacturer.

K. Height of Casing. Well casing shall project at least one foot above ground level, pump-house floor, or the top of concrete slab. For wells in areas subject to flooding, refer to §319.A 403.1. The ground surface or concrete slab around the well shall be sloped to drain away from the well in all directions.

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§327. Screen

A. Every water well shall be provided with an appropriate screen. It shall be the responsibility of the driller to determine the type of screen required, screen

material, slot openings, entrance velocity, screen length and setting, and whether or not the well is to be gravel packed.

B. Type of Screen. The type of screen used is governed by cost, the contractor's experience with handling a specific type of screen, water quality, length of screen required, proposed well yield, and the required structural strength of the screen. The screen selected shall be strong enough to withstand external pressures and vertical load due to the weight of drill stem used to set the screen and the casing above the screen, if set in one continuous string.

C. Screen Material. The type of screen material is generally dependent upon cost and the quality of water to be pumped. If the water contains a relatively high concentration of carbon dioxide, dissolved solids or hydrogen sulfide, corrosion-resistant materials should be used in the construction of the screen. **If a corrosive environment is present,** the screen should be made entirely of the same material, and the lap or extension pipe (for not less than 5 feet) above the screen and blank pipe, if used, should be made of the same material as the screen. The likelihood of corrosion and encrustation can also be decreased by maintaining the entrance velocity within acceptable limits, 0.1 foot per second or less.

D. Among metal alloys available with varying degrees of corrosion resistance are the stainless steels which combine nickel and chromium with steel and the various copper-based alloys. Manufacturers can be expected to provide advice on the type of metal or metal alloys that should be used if supplied with the results of a water analysis. Nonmetal screens made of polyvinyl chloride (PVC) have been used as an alternative when corrosive conditions exist.

E. In contrast to "corrosive waters", encrusting waters are usually alkaline, have excessive carbonate hardness and contain iron and/or manganese. Encrustation, which reduces the open area of the screen and the specific capacity of the well, is the deposition of undesirable material about the screen openings. Efficient well development, which will decrease excessive head losses or pressure differentials across the face of the screen, will minimize the precipitation of encrusting minerals.

F. Screen Slot Openings. The selection of the screen openings, which shall be based on the results of mechanical analysis of the formation samples collected during drilling, is dependent upon the percentage of material that will be allowed to pass through the openings in the development process. Generally, the percentage of material that will be permitted to pass through the screen openings is related to the intended use of the water. Although proper screen selection and well development should eliminate the pumping of sand during normal operations, cyclic pumping and increased pumping rates sometimes cause a well to yield some sand. Sand pumping by wells used to supply public and domestic water systems cannot be tolerated, whereas some

sand in water used for irrigation is generally acceptable. Other factors involved in the selection of the slot openings are the uniformity of the material, the uniformity coefficient, the type of overlying sediments and the desired entrance velocity.

G. Properly designed slot openings should allow the water to flow freely from the formation into the pump area while preventing clogging and sanding.

H. Entrance Velocity. To minimize the potential for encrustation, corrosion and "sanding", the entrance velocity should not exceed 0.1 foot per second. The entrance velocity is calculated by dividing the yield expressed in cubic feet per second (gallons per minute divided by 448.8 equals cubic feet per second) by the total area of the screen openings in square feet. The total area of the screen openings is the area of the openings provided per foot of screen multiplied by the length of screen in feet. Most manufacturers provide tables listing the open area for screen diameter and slot openings.

I. Screen Length. The length of the screen is influenced by cost, aquifer thickness, desired well yield and the estimated pumping level. The screen length should represent a compromise between cost and well efficiency. Well yield is more effectively increased by increasing the length of the screen than by proportionally increasing the diameter.

J. Screen Setting. Installation of the screen should be based upon an evaluation of all data collected during drilling and a detailed interpretation of the driller's and geophysical logs, if available. Care should be exercised to avoid damaging any part of the screen and to ensure that the setting is correct.

K. Gravel Pack

1. If the interval to be screened consists of a fine uniform sand or consists of thin alternating layers of fine, medium and coarse sand, it may be desirable to gravel pack the screen. The objectives of gravel packing are to increase the permeability of the material in the zone immediately surrounding the screen, to minimize the chances of sand pumping, to reduce the entrance velocity at the face of the screen, to reduce the chances of error where a screen is set opposite alternating beds of sand of different grain size and clay, and to allow the installation of a small diameter screen in relatively thick aquifers.

2. If required, a properly graded gravel pack shall be selected based upon an evaluation of the sieve analysis for the sands in the formation. The uniformity coefficient (see §113 of this Chapter for glossary of terms) of the selected gravel pack material should be 2.5 or less. The gravel envelope, usually 3 to 8 inches thick, should consist of clean, well-rounded siliceous material that will permit the selection of screen openings that will retain 90

percent or more of the gravel pack material by size. Limestone and shale shall not be used as a gravel pack.

L. Formation Stabilization. If the hole drilled to accommodate the screen is much larger (4 inches or more) than the diameter of the well screen, it is sometimes necessary to stabilize the extension pipe with a material such as sand or gravel to prevent caving or slumping of silt, sand, and clay from above the aquifer. Formation stabilization should not be confused with gravel packing. In contrast to gravel packing, the material used as the formation stabilizer is not specially graded. In addition, commercially available equipment, such as shale packers or metal-petal baskets, are commonly used to prevent sloughing or caving into the producing formation.

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§329. Methods and Standards for Cementing the Annular Space

A.1. The methods and materials employed to cement the annular space between the well casing and the borehole generally depend upon:

- a. local geohydrologic conditions; and
- b. type of well construction.

2. The primary reasons for sealing, cementing or grouting the annular space are as follows:

- a. to protect the aquifer from surface contamination;
- b. to increase the life of the well by protecting the casing against exterior corrosion; and
- c. to prevent movement of water of objectionable quality from one aquifer to another.

B. Methods for Cementing the Annular Space. The following regulations shall apply to all water wells, regardless of use or type.

1. Annular space shall be sealed with cement-bentonite slurry, which is a mixture of cement, bentonite and water, consisting of not more than 8 percent bentonite by dry weight of the cement, and a maximum of 10 gallons of water per sack (94 pounds) of cement. Additives, in the approved and proper ratio, may be added to the slurry if required. If the slurry is to be prepared in the field, it is recommended that the bentonite be added after cement and water are thoroughly mixed. **Sodium bentonite with a minimum porosity of 10^{-8} may also be used.**

2. Neat cement, which is a mixture of cement and water consisting of not more than 5 gallons of water per sack (94 pounds) of cement, may be used in lieu of cement-bentonite slurry.

3. Cement-bentonite slurry shall be placed in the annular space in a continuous operation from bottom of the space to be cemented, up to the ground surface. Slurry shall be placed by the circulation or pump-down method unless specified otherwise. The pump-down method may include the "Halliburton" method, inner string cementing, or positive placement-exterior method. The selected method should ensure uniform coverage of slurry throughout the annular space.

4. A suitable cement retainer, packer, shale trap, boot or plug shall be secured to the casing at the appropriate depth to prevent leakage or migration of the slurry into the bottom of the well.

5. The cement-bentonite slurry shall fill a minimum annular space of 1 1/2 inches for 4-inch and smaller wells, and a minimum of 2 inches for 6-inch and larger wells. For cementing methods using a "tremie" or "grouting pipe" placed in the annular space, sufficient space should be provided to accommodate the tremie pipe.

6. If a conductor pipe is used, it shall be cemented in place and the annular space between the well casing and the conductor pipe shall be made watertight by grouting with cement-bentonite slurry from bottom of the conductor pipe to the ground surface.

7. If one or more sands between the ground surface and the production sand contain saline water and/or water of objectionable quality, the annular space between the well casing and the hole shall be sealed with cement-bentonite slurry, at a minimum, to a depth of not less than 20 feet below the deepest sand containing the water of objectionable quality unless full depth cementing is required by §329.C.

C. Standards for Cementing the Annular Space

1. Community public supply wells shall be cemented to their full depth from the top of the producing aquifer to the ground surface.

2. Noncommunity public supply wells shall be cemented from a minimum depth of 50 feet to the ground surface.

3. Industrial and power generation wells shall be cemented to their full depth from the top of the producing aquifer to the ground surface.

4. Observation wells shall be cemented from a minimum depth of 50 feet to the ground surface.

5. Irrigation/agricultural wells shall be cemented from a minimum depth of 10 feet to the ground surface,

using the pump-down or the gravity method with or without the tremie pipe.

6. Rig-supply wells shall be cemented from a minimum depth of 50 feet to the ground surface.

7. Monitoring wells shall be cemented along the entire length of the casing unless specified otherwise by the Department of Environmental Quality.

8. Dewatering wells, other than drive-point type, shall be cemented from a minimum depth of 50 feet to the ground surface.

9. Domestic wells shall be cemented from a minimum depth of 10 feet to the ground surface using the pump-down or the gravity method with or without the tremie pipe. A suitable cement retainer, such as a shale trap or boot, as required by §329.B.4, shall be attached to the casing at the 10-foot minimum depth. The use of empty cement sacks in lieu of shale trap or boot shall not be allowed. A long metal rod shall be used to rod the cement slurry to ensure uniform coverage around the casing.

10. Heat pump supply wells for private homes shall be cemented in accordance with requirements for domestic wells; for apartment buildings and other commercial establishments, in accordance with requirements for noncommunity public supply wells, and for industrial plants, in accordance with requirements for industrial wells.

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§331. Well Development and Disinfection

A. Purpose and Methods of Development. The principal purposes of well development are as follows:

1. to remove silt, sand, drilling mud, and other materials that may retard the flow of water toward and into the well;
2. to correct any damages to, or clogging of, the water bearing formation that may have occurred during drilling; and
3. to stabilize the material around the screen so that the well will yield clear "sand free" water.

B. The following methods used in developing, redeveloping or conditioning a well are acceptable:

1. surging with a plunger or piston while jetting using air lift;
2. jetting with water, also known as crosswashing;

3. backwashing or surging by alternately starting and stopping the pump;

4. using chemicals designed for developing or redeveloping a well;

5. over-pumping.

C. The use of explosives is prohibited. Water used for well development shall be potable or chlorinated to prevent contamination of water-bearing formations.

D. Criteria for Development

1. A well should be developed at a yield of 1.5 times the proposed pumping rate and, if possible, it should continue until the observed specific capacity is the same, or nearly the same, as the theoretical specific capacity. Adequately developed wells should be "sand free" and should have fewer encrustation problems if the operating pumping rate is about two-thirds the developed rate, the entrance velocity is 0.1 foot per second or less, and the head differential across the face of the screen is at a minimum.

2. The acceptable amount of sand per unit volume should be between recommended ratios of 1 ounce of sand per 8,000 gallons of water (about 1 milligram per liter) and one ounce per 100 gallons of water (80 milligrams per liter), depending on the use of water. Because of the possibility of damage by sand to plumbing fixtures and industrial equipment and products, the tolerance for sand in water used for public supply, domestic and most industrial purposes is low and should not exceed 5 milligrams per liter. Many wells that are used for public water supply systems have an acceptable ratio of "no sand." The well owner should specify the acceptable limits of the "sand free" water with equal consideration given to the use of the water, the desired production rate, costs, and well development.

E. Development of Gravel-Packed Wells. The successful development of a gravel-packed well is dependent upon the grading of the gravel, the method of development, and thickness of the skin of the relatively impervious drilling mud filter cake which is "plastered" on the wall of the hole and is between the water-bearing formation, and the emplaced gravel. Because it concentrates energy in small areas, the jetting or cross washing method is usually the most effective in developing gravel-packed wells.

F. Chemicals Used in the Development Process

1. Glassy polyphosphate chemicals, if used strictly in accordance with the manufacturer's recommendation, will aid in the development or redeveloping process by reducing the gel-like properties of the drilling mud and by dispersing the clay particles that are on the sand grains.

2. The appropriate ratio of chemicals to water in the well is usually specified by the manufacturer. The mixture should be allowed to stand in the well for at least one hour, or the period of time recommended by the manufacturer of the chemical, before development starts. It should be noted that the polyphosphate should not be allowed to remain in the well for too long (several days). If the chemicals converted to the glassy orthophosphate state, any clay in suspension could be deposited, perhaps out of reach of any further removal, resulting in permanent reduction in yield.

3. Chemicals used in the development process shall either meet the standards of the American Water Works Association or be approved for use by the U.S. Environmental Protection Agency (EPA).

4. Disinfection of Wells. All new wells and existing wells in which repair work has been done shall be disinfected before being put into use, in accordance with Chapter XII of the State Sanitary Code (LAC 51:XII), if water is to be used for drinking, cooking or washing purposes. Negative bacteriological analysis of water, performed by the Louisiana Department of Health and Hospitals, Office of Public Health (LDHH-OPH) Human Resources (DHHR), or by a laboratory certified by the state health officer, shall be required for all public supply and domestic water wells.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:958 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:910 (March 2011).

§333. Standards for Miscellaneous Appurtenances

A. Vent (Breather Pipe). Vents are required for all public supply water wells and are recommended for use on wells used for other purposes. Vents shall be so constructed and installed as to prevent the entrance of contaminants into the well. Vent openings shall be piped water-tight to a point at least 2 feet above the highest flood level which may have occurred in a 10-year period, but in no case less than 1 foot above the top of the well casing. Such vent openings and extensions thereof should not be less than 1/2 inch in diameter, with extension pipe firmly attached thereto. The openings of the vent pipes shall be turned downward and screened to prevent the entrance of insects, foreign matter and other contaminants. Vents will not be required when single-pipe jet pumps are used.

B. Sampling Tap. All public supply and domestic water wells shall be provided with a readily accessible faucet or tap on the well discharge line at the well head for the collection of water samples. The faucet or tap shall be of the smooth nozzle type and turned downward.

C. Concrete Slab

1. When concrete slabs are placed around water wells at ground surface, they should be at least 4 inches thick and extending at least 2 1/2 feet from the well in all directions. The surface of the slab shall be sloped to drain away from the well. The top of the casing shall be at least 1 foot above the top of the slab (see §319.A for flood prone areas). Prior to the slab installation, the contractor shall seal the annular space in accordance with §329. The placement of a slab shall not be considered a substitute for the placement of cement-bentonite slurry in the annular space between the hole and the casing.

2. For wells where a slab is not provided, the ground surface surrounding the well shall be compacted and graded to drain water away from the well.

D. Sanitary Seals. A water-tight sanitary seal shall be installed at the top of the casing for all water wells to prevent the entrance of contaminated water or other objectionable material into the well. Sanitary seals shall be constructed of a durable material such as cast iron, steel, aluminum, high impact plastic, neoprene, or a combination thereof. If a vent and/or an electrical conduit enter the well casing through the sanitary seal the openings shall be made water-tight.

E. Pump/Motor Base. To prevent transmission of vibration to the well casing, all surface-mounted pumps/motors (excluding submersible and single-pipe jet pumps/motors) shall be supported by a concrete base, pier or foundation. The well casing shall not be used to support the weight of the surface-mounted pump/motor, except as noted above. Foundations may either be split pier type or solid pedestal type. For solid pedestal foundations, the well casing shall project at least 1 inch above the level of the foundation.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:309.8.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:959 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:910 (March 2011)..

§335. Enforcement Actions

A. Provisions addressing enforcement of this Chapter appear in R.S. 38:3096-7.3, as follows.

1. Whoever knowingly and willfully violates a provision of this Chapter, or a rule, regulation, or order of the director or a board made hereunder, shall be subject to a civil penalty of not more than \$1,000 a day for each day of violation and for each act of violation if a penalty for the violation is not otherwise provided in this Chapter.

a. The place of suit to recover this penalty shall be selected by the director or board, as may be appropriate, in the district court of the parish of the residence of any one of the defendants, or in the district court of the parish where the violation took place.

b. Suit shall be at the direction of the director or board, as may be appropriate, and shall be instituted and conducted in his or its name by the attorney general or by the district attorney of the district under the direction of the attorney general.

2. Whoever knowingly and willfully aids or abets a person in the violation of a provision of this Chapter, or in any rule, regulation, or order made hereunder, shall be subject to the same penalties provided herein for the principal violator.

B. Falsification of Documents. Falsification of documents to evade regulations, as well as penalties for said falsifications, appears in R.S. 38:3095, as follows.

1. No person shall, for the purpose of evading this Chapter, or any rule, regulation, or order made thereunder:

a. make or cause to be made any false entry or statement of fact in any report required to be made by this Chapter or by any rule, regulation, or order made hereunder; or

b. make or cause to be made any false entry in an account, record, or memorandum kept by any person in connection with the provisions of this Chapter or of any rule, regulation or order made thereunder; or

c. remove out of the jurisdiction of the state, or destroy or mutilate, alter, or by any other means falsify any book, record, or other paper pertaining to the matters regulated by this Chapter or by any rule, regulation, or order made thereunder.

2. Whoever violates this Section shall be fined not more than \$5,000 or imprisoned not more than six months or both.

C. The penalty provision for falsification of documents required under the provisions of this ~~Chapter~~Part are therefore criminal in nature and will be enforced through the district attorney having jurisdiction where said violation occurs. It should also be noted that utilization of the United States Mail in the falsification of documents constitutes a violation of Title 18 of the United States Code (Mail Fraud), and such information will be referred to the appropriate United States attorney.

D. Appeals. An alleged violator may appeal any order of the department by requesting a hearing. The hearing request must be made to the department, in writing, within 30 calendar days of the original order and must be sent by "Certified Mail-Return Receipt Requested." After receiving the request, the department will arrange a hearing to

determine what other remedial action will serve to effect compliance with the rules and regulations.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3098.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:959 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

Chapter 5. Plugging and Sealing of Abandoned Water Wells and Holes

§501. Organization

A. As announced in the October 1985 issue of the *Louisiana Register*, the rules, regulations and standards, stated herein, were prepared by the Louisiana Department of Transportation and Development, Office of Public Works, in accordance with R.S. 38:3091-38:3097. Effective January 1, 2010, in accordance with Act 437 of 2009, The Department of Natural Resources, Office of Conservation, hereafter referred to as "department," is responsible for registering water wells and holes in Louisiana.

~~B. The rules, regulations and standards, stated herein, became effective on November 1, 1985 and supersede the rules, regulations, standards and methods for plugging and sealing of abandoned water wells and holes which had been in effect since September 1, 1975.~~

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:959 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:911 (March 2011).

§503. Purpose

A. The purpose of the rules, regulations and standards for plugging abandoned water wells and holes, stated herein, is to protect the ground water resources of the state from surface contamination, to prevent movement of water from one aquifer to another, to prevent the entrance of objectionable materials and wastes into aquifers via open or improperly sealed water wells and holes, and to minimize health and safety hazards associated with abandoned wells and holes.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§505. General Rules and Regulations

A. In 1972, the Louisiana Legislature enacted State Act 535, which authorized the authorizing agency to promulgate reasonable rules and regulations relating to the plugging of abandoned water wells. Section A-6 of this Act (R.S. 38:3094) states that the authorizing agency shall:

"Require that all abandoned wells be reported and sealed with approved standards and to establish such standards."

B. Accordingly, the rules, regulations and standards for plugging abandoned water wells and holes stated herein were prepared in response to this legislative directive and were developed in coordination with other state agencies that are also concerned with the protection of the water resources of the state. The regulations and standards are intended to provide for restoration, as nearly as possible, of those subsurface and surface conditions that existed prior to drilling, boring digging or augering activities; taking into account any changes that may have occurred as a result of "natural stresses."

C. These regulations and standards do not preempt but instead complement the rules and regulations of the Louisiana Department of Natural Resources, Office of Conservation, related to plugging and abandonment of oil, gas, saltwater, saltwater disposal, waste disposal and injection wells, and the rules and regulations of the Department of Environmental Quality related to plugging of monitoring wells and geotechnical boreholes associated with waste activities. These regulations and standards are also important as guidelines for other state agencies when promulgating and enforcing their plugging regulations and standards.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:911 (March 2011).

§507. Abandoned Water Wells and Holes That Shall Be Plugged

A. The rules, regulations and standards for plugging abandoned water wells and holes shall apply to all abandoned water wells and holes including, but not limited to, public supply, domestic, irrigation/agriculture, industrial, power generation, rig-supply, observation, dewatering, monitoring, and heat pump supply, as well as abandoned pilot holes, test holes, geotechnical boreholes, and heat pump holes (closed loop system). Abandoned or improperly plugged wells or holes could act as conduits for transmitting contaminants from the surface down to the water-bearing sands and thereby contaminate the state's ground water resources. For glossary of terms, refer to §113.A of this Part.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§509. Exemptions

A. In accordance with R.S. 38:3097, the following wells and holes are exempted from the provisions of the rules, regulations and standards stated herein:

1. saline-water wells associated with secondary recovery operations;
2. brine wells;
3. oil and gas wells and holes;
4. injection wells;
5. geothermal and geopressed holes associated with production of oil and gas; and
6. waste disposal wells.

B. Although the cited activities are not covered by R.S. 38:2094, they are not exempted or excepted by state law; therefore, persons, firms, corporations or others dealing with the cited activities should contact the appropriate regulating agencies for further information and should take any and all action necessary to protect the water resources of the state from contamination. The exclusion of these activities from these regulations does not in any way remove or establish legal liability for health and safety hazards, contamination, or pollution problems alleged to be caused by persons engaged in the activities cited in ~~the first paragraph~~ **Subsection A** of this Section.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§511. Licensing Requirements

A. State Act 715 of 1980 (R.S. 38:3098), as amended by State Act 313 of 1984, requires that every person, firm or corporation desiring to engage in the business of plugging and abandoning wells or holes, excluding oil and gas wells, in the state of Louisiana shall obtain a license from the department in accordance with the rules and regulations stated in LAC 46:LXXXIX.

B. Accordingly, plugging of abandoned water wells and holes must be conducted by a qualified contractor who is duly licensed by the department, with the following exceptions.

1. Nothing in this Chapter shall prevent a person who has not obtained a license, pursuant thereto, from plugging a domestic water well on his own or leased property which is his permanent residence, or was intended for use only for watering livestock on his farm; however, that person shall comply with all rules, regulations and standards for plugging such wells or holes, including the submission of plugging and abandonment forms.

2. In addition to the domestic wells referred to in §511.B.1, a person may plug an abandoned well or hole on his own or leased property provided that the person has the required equipment and knowledge for properly plugging the well or hole, in accordance with the rules, regulations, and standards stated herein, to the satisfaction of the department, and provided that the person has obtained departmental approval for plugging the well or hole himself, and provided that such approval is obtained prior to the beginning of the plugging operation. The owner shall complete and submit a Water Well Plugging and Abandonment Form (DNR-GW-2) to the department within 30 calendar days after completion of the plugging operation.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:911 (March 2011).

§513. Variance Requests

Editor's Note: The telephone number listed in §513.A has been changed to (225) 274-4172.*

A. Because of variable hydrologic conditions, differences in well construction, depth, and size, and the irregular occurrence of saltwater sands, the rules, regulations and standards stated herein cannot cover every possible situation. For cases where compliance with the rules, regulations, and standards stated **in this chapter herein** is impractical, the owner, engineer, or the water well contractor may request a variance and/or clarification on methods specified. Such requests shall be addressed to the department as follows:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275
Phone: (225) 342-5562

B. The request must be in writing, must demonstrate that compliance is impractical and must outline a satisfactory alternative. The department may prescribe, in writing, alternate requirements that are equivalent to the regulations and standards stated herein relating to the protection of aquifer and prevention of ground water contamination.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended Department of Natural Resources, Office of Conservation, LR 37:911 (March 2011).

§515. Submission of Water Well Plugging and Abandonment Forms (DNR-GW-2)

A. The contractor who plugs an abandoned well or hole shall complete and submit to the department the original copy of the Water Well Plugging and Abandonment Form (DNR-GW-2) within 30 calendar days after the completion of the work. The owner's copy shall be sent to the owner immediately after completion of the work, and the contractor shall retain the contractor's copy for his files. For reporting purposes only, the department considers the work completed when the work is accepted by the owner or when the contractor has moved his equipment from the site; whichever comes first. Acceptance by the owner or removal of equipment from the site by the contractor does not imply, in any way, acceptance or approval by the state of Louisiana. The department, after inspection of the site and records (refer to §523), can require the owner and/or the contractor to do whatever additional work is necessary to properly plug and seal a hole or well in accordance with the standards stated herein. The expense for the additional work shall be borne by the owner and/or the contractor, as the case may be.

B. For the purpose of reporting the plugging of abandoned geotechnical boreholes, the drilling contractor shall certify annually at license renewal time, that all boreholes drilled by his firm have been plugged in accordance with requirements of §531.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:960 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:911 (March 2011).

§516. Water Well Plugging and Abandonment Form (DNR-GW-2)

A. The Water Well Plugging and Abandonment form (DNR-GW-2) and detailed instructions for properly completing the form are available by contacting department staff at 225-342-8244 or by accessing the department's website at www.dnr.louisiana.gov/gwater. Form DNR-GW-2 consists of a set of three copies.

1. The first copy (marked DNR copy) is to be mailed by whoever plugs the well or hole within 30

calendar days after plugging operations have been completed to:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275

B. In regard to the other copies of the form, the following procedure shall be followed.

1. If the well is plugged by a water well contractor, he shall retain the second copy of the completed form for his files and shall give the third copy to the owner/lessee immediately upon completion of the plugging operation.

2. If the well is plugged by the owner/lessee (see §511), the second and third copies of the completed form shall be retained by the owner/lessee for his files.

C. The commissioner will consider and encourages the electronic submission of registration, data or reports required under this Section.

D. The following explanation will provide clarification of intent for selected items and uniformity of reporting.

1. **Owner Information.** List the name of the legal owner of the property on which the well is located or the person or company holding a long-term lease on the property. If the owner or lessee is an individual, list first and last names and middle initial of individual.

a. **Address.** The address should be that of the owner. If the well is owned by an industry, the local address of the firm is preferred in order that additional data on the well may be easily obtained by the state or a regional water district or commission.

b. **Owner's Well Number.** Many cities, institutions, industrial plants, and large farms have their own systems of designating or identifying wells by numbers and/or name. This information is useful when locating the well and should be entered on the form.

2. **Well Location.** List the parish where the well is located, including the nearest town, city, etc., and give directions to the well site. The location of the well should be described in detail and as accurately as possible so that the well can be easily located by the department's field inspector. Please include a detailed map or sketch on the back of the original form showing the location of the well with reference to roads, railroads, building, etc. Use an (X) to indicate location of the well. Show location of nearest existing well(s), if any nearby, by making (O's) and approximate distance between wells. Determine the well's Global Positioning System (GPS) location and record the GPS longitude and latitude coordinates onto the form. For rig-supply wells, attach a "registered" permit plat (see §105.I) and for monitoring wells, complete spaces provided for the section, township and range (see §105.J).

3. **Well Information.** Required data are available from water well contractor's or engineer's report.

4. **Plugging Procedure.** Describe, in detail, the method and materials used to plug the well or hole. Give amount of cement, bentonite, and water used. Give any other useful information, such as name of cementing company used, if any, sounded depth, any obstructions or problems encountered during plugging, size and length of casing removed or left in hole, etc. If necessary, attach another sheet or use reverse side of form to give details.

5. **Remarks.** Use this space to present any other pertinent information. For example, if the present owner is different than the person who had the well drilled, give the name of the initial owner.

E. Certification that the work was performed in accordance with applicable rules and regulations must be signed and dated or the form will be returned for proper completion.

F. If there are any questions, please call or write to:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275
Phone: (225) 342-5562

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:976 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:911 (March 2011).

§517. Responsibility of the Owner

A. Unless specified otherwise in the rules and regulations stated herein, it shall be the responsibility of the owner to have an abandoned water well properly plugged and sealed in accordance with methods and standards stated in §531 within 90 calendar days after abandonment. If the owner fails to plug an abandoned well within the 90-day time period, enforcement procedures, as outlined in §519, will be initiated by the department.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:961 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§519. Failure of the Owner to Plug an Abandoned Water Well

A. When the owner fails to plug an abandoned water well within the time period specified in §517, the

department, upon receiving information on the existence of such well, will order the owner to plug the well within 30 calendar days after receipt of the order.

B. If the owner fails to comply within the 30-day time period or does not offer, in writing, an acceptable alternative time interval for plugging the well, the owner will be considered in violation of R.S. 38:3094, which permits a civil penalty of not more than \$1,000 a day for each day of violation and for each act of violation.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:961 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§521. Responsibilities of the Contractor

A. The contractor who agrees to plug an abandoned well or hole for the owner shall be fully responsible for plugging the well or hole in accordance with the rules, regulations and standards stated herein. He is also responsible for completing and submitting a plugging and abandonment form (DNR-GW-2) to the department within 30 calendar days after completion of the plugging operation. The contractor shall also be responsible for informing the owner of the necessity of plugging and sealing any other water well or hole on the property that may have been previously abandoned or which may be abandoned in the future.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:961 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:912 (March 2011).

§523. Site Inspection by the Department Representatives

A. The department may order, at any time, that the site of an abandoned water well or hole be inspected by department representatives to determine whether the work has been satisfactorily completed in accordance with the standards stated herein and as stated on the Water Well Plugging and Abandonment Form (DNR-GW-2). The owner and/or the contractor shall make all records available to the representatives of the department and the owner shall allow representatives to enter the property and visit the site(s).

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:961 (October 1985), repromulgated by the Department of Transportation and Development, Office of

Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:912 (March 2011)..

§525. Availability of Water Well Data

A. The drilling and construction records for a water well or test hole may be obtained from the owner, from the water well contractor, and/or from ~~one of~~ the following governmental agencies:

Louisiana Department of Natural Resources
Office of Conservation
P.O. Box 94275
Baton Rouge, LA 70804-9275
Phone: (225) 342-8244

or

U.S. Geological Survey
Water Resources Division
Box 66492
Baton Rouge, LA 70896

B. Reports and/or information on hydrology, geology, the occurrence of saline water-bearing and fresh water-bearing sands and quality of water may be obtained from the above-named governmental agencies and/or the following:

Louisiana Geological Survey
3097 Energy, Coastal and Environmental Bldg.
Louisiana State University
Baton Rouge, LA 70803

C. C.

Information on monitoring wells may be obtained from the owner, the water well contractor, the engineer, the Department of ~~Transportation and Development~~ Natural Resources, as listed above, and/or from the following agency:

Department of Environmental Quality
Galvez Bldg.
602 North Fifth Street
Baton Rouge, LA 70802

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:961 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:912 (March 2011).

§527. Regulations for Determining Status of Wells or Holes and for Determining Plugging Responsibility

A. Following are the regulations for determining the status of a drilled, bored, cored, augered or driven water well or hole and for determining the party responsible for plugging abandoned wells and holes.

1. Active Status. A well is considered to be active if it is an operating well used to supply water.

2. Standby Status. A well is considered to be standby if it is used in emergencies or occasionally used to supply water.

3. Inactive Status. A well is considered to be inactive if it is not presently operating but is maintained in such a way that it can be put back in operation, with a minimum of effort, to supply water. Before a well can be put in inactive status, the owner shall present evidence to the department as to the condition of the well and as to his intentions to use the well in the future, as well as obtaining the department's written approval. As evidence of intentions, the owner shall be responsible for properly maintaining the well in such a way that:

a. the well and the annular space between the hole and casing shall have no defects that will permit the seepage of surface water into the well;

b. the well is clearly marked and is not a safety hazard;

c. the well is adequately capped in such a manner as to prevent easy entry by other than the owner;

d. the area surrounding the well is kept clear of waste and debris;

e. if the pump and/or motor have been removed for repair, replacement, etc., the well is adequately capped to prevent injury to people and to prevent the entrance of any contaminant or other objectionable material;

f. the well is not used for disposal or injection of trash, garbage, sewage, waste water and/or storm runoff; and

g. the well is easily accessible for routine maintenance and periodic inspection.

4. Abandoned Wells. A well is considered to be abandoned if its use has been permanently discontinued; its pumping equipment has been permanently removed; the well is in such a state of disrepair that it cannot be used to supply water and/or has the potential for transmitting surface contaminants into an aquifer; the well poses potential health or safety hazards, or the well is in such a condition that cannot be placed in the active, standby or inactive status. The owner of an abandoned well shall be responsible for plugging such a well in accordance with methods and standards stated in §531, within 90 calendar days from the initial date of abandonment. If the owner fails to plug an abandoned well within the 90-day time period, enforcement procedures, as outlined in §519, will be initiated by the department.

5. Abandoned Rig-Supply Water Wells

a. A water well drilled at an oil or gas drilling site to supply water for drilling activities shall be considered an

abandoned well immediately after the termination of the oil or gas drilling-operations and removal of the rig from the site. The company in charge of the drilling of the oil or gas well (lessee) shall be responsible for plugging the abandoned water well, in accordance with §531, within 30 calendar days after the termination of oil or gas drilling operations and removal of the rig from the site.

b. If the ownership of the water well is to be conveyed to the landowner in lieu of plugging and abandoning the well, the well must conform to the requirements for active or inactive status. The ownership transfer must be made through a legal document advising the landowner of his responsibilities and obligations to properly maintain the well, including the proper plugging of the well when it is abandoned and no longer needed for water production activities. The company (lessee) shall provide the department with a copy of the transfer document within 30 calendar days after the transfer of the ownership. Upon receiving the document, the department will send a letter to the new owner requesting well use information and advising him/her of the appropriate regulations. The owner is required to respond within 30 calendar days, stating intended use and requesting an appropriate status, as outlined in §527.

6. Observation Wells. A well is considered to be an observation well if it is used by the owner, by governmental agencies, or by an appropriate engineering or research organization to obtain information on the water resources of an area. Observation wells shall be covered with an appropriate cap or cover to prevent unauthorized use or entry and to prevent entry of contaminants. It shall be the responsibility of the owner, organization or agency making the observations to prevent entry of any foreign materials or water into observation wells and to keep the surrounding area clear of waste, water, debris and other materials.

7. A well shall not be used for any injection or recharge studies until a permit is obtained in accordance with existing orders rules and regulations of the Department of Natural Resources, Office of Conservation.

8. An inactive water well may be used as an observation well; however, when it is no longer needed for observation purposes and the owner does not intend to convert it to an active status, the well shall be considered abandoned. The owner shall be responsible for plugging the abandoned well in accordance with Methods and Standards, stated in §531, within 90 calendar days after abandonment, unless agreement with the agency or organization which used the well for observation clearly delegates the plugging responsibility to the agency or organization.

9. A well constructed solely for observation purposes by an owner, a governmental agency, or an engineering or research organization, must be converted to an active, inactive or standby status when no longer needed for observation purposes, otherwise it shall be considered abandoned. It shall be the responsibility of the owner, agency or organization who installed the well to plug the abandoned well in accordance with methods and standards, stated in §531, within 90 calendar days after abandonment.

10. Abandoned Pilot Holes and Test Holes

a. A pilot hole, drilled with the intent to install casing and produce water, shall be considered an abandoned hole immediately after the termination of the drilling operations if the hole is not cased and/or a well is not developed or constructed. It shall be the water-well contractor's responsibility to plug the abandoned hole, in accordance with §531, within 30 calendar days after the termination of the drilling operations.

b. A test hole, drilled to obtain geologic, hydrologic and water-quality data shall be considered an abandoned hole immediately after the completion of all testing operations. The agency or the contractor in charge of the exploratory work is responsible for plugging the abandoned hole in accordance with §531, within 30 calendar days after the termination of drilling operations.

11. Abandoned Geotechnical Boreholes. A hole, drilled, bored, cored or augered to obtain soil samples to be analyzed for chemical and/or physical properties shall be considered abandoned immediately after the completion of the drilling and sampling operations. It shall be the drilling contractor's responsibility to plug the abandoned hole in accordance with methods and standards stated in §531 within 30 calendar days after the termination of drilling and sampling operations.

12. Abandoned Heat Pump Holes (Closed Loop System). A hole drilled to install piping for an earth-coupled water source heat system shall be considered an abandoned hole if the piping is not installed and/or the hole is not plugged by the drilling contractor in accordance with methods and standards, stated in §531, within 30 calendar days after completion of drilling operations. It shall be the drilling contractor's responsibility to plug the abandoned hole in accordance with methods and standards, stated in §531, within 30 calendar days after the hole is considered abandoned.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:961 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§529. Plugging and Filler Materials

A. Plugging Material

1. It is recognized that no material is completely impervious; however, experience and tests have shown that cement-bentonite slurry has a low permeability, good sealing properties, and low shrinkage factor, so as to be preferred for use when plugging an abandoned water well or hole. Cement-bentonite slurry is a mixture of cement, bentonite, and water, consisting of not more than 8 percent bentonite by dry weight of the cement and a maximum of 10 gallons of water per sack (94 pounds) of cement. Additives, in the approved and proper ratio, may be added to the slurry, if required. If the slurry is to be prepared in the field it is recommended that the bentonite be added after cement and water are thoroughly mixed.

2. Neat cement, which is a mixture of cement and water, consisting of not more than 5 gallons of water per sack (94 pounds) of cement, may be used as plugging material in lieu of cement-bentonite slurry.

3. When permitted by the methods and standards stated in §531, heavy drilling mud or bentonite slurry, weighing not less than 9 pounds per gallon, may be used as plugging material. The plugging material shall be free of foreign and organic additives.

B. Filler Material. When permitted by the methods and standards stated in §531, heavy drilling mud or bentonite slurry, weighing not less than 9 pounds per gallon, coarse ground bentonite or clean sand may be used as filler material. The filler material shall be free of foreign and organic additives.

C. Calculations to Verify Adequacy of Plugging Materials. To assure an abandoned water well or hole is plugged and sealed properly and that there has been no "jamming" or "bridging" of the material, verification calculations and measurements shall be made by the contractor to determine whether the volume of the material placed in the well or hole at least equals the volume of the casing or hole plugged and/or filled. When bridge plugs are used, sufficient time shall be allowed for the material to set. Any measurements and calculations made in setting and verifying the location of the plug shall be made available to the department upon request. The department shall be solely responsible for determining whether a well or hole is satisfactorily plugged or sealed.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:962 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§531. Methods and Standards for Plugging Abandoned Water Wells and Holes

A. The following methods and standards shall be used for the plugging of abandoned water wells and holes. If there is a need for variance from these regulations and/or clarification is required, departmental approval shall be obtained in writing, before the plugging operation is begun. For variance requests, refer to §513.

B. Methods and Standards for Plugging Abandoned Water Wells. The following methods and standards shall apply to all abandoned water wells, regardless of use or type.

C. Removal of Obstructions from the Well. Before the plugging operation is begun, the drilling and construction records for the well should be obtained and studied (see §525). An investigation of the well shall be made to determine if there is any obstruction in the well that would interfere with the plugging operation. Any obstruction in the well shall be removed, using an acceptable method, before initiating the plugging operation.

D. Cutting off the Top of the Casing. In areas subject to subsidence and/or farming, the top of the casing shall be cut off a minimum of 3 feet below the surface of the ground before plugging operation begins. After filling the well with cement-bentonite slurry, the excavation above the top of the cement plug shall be filled with compacted soil to minimize future hazards to farming equipment, etc. In other areas, the top of the casing shall be cut off at or below the ground surface. Under no circumstances shall the top of the casing protrude above the surface of ground.

E. Plugging Material for the Screen. The screen or the area opposite the production aquifer (as in open hole construction) may be filled with filler materials specified in §529.B in lieu of cement-bentonite slurry.

F. Plugging Method. The entire well shall be plugged with cement-bentonite slurry from bottom of the well up to the ground surface using the pump-down method, preferably in one continuous operation. Placement of plugging material by pouring or dropping through the water shall not be permitted.

G. Annular Space. If the annular space of the abandoned well is not already sealed, the plugging material shall be brought up to the surface and allowed to spill over the top of the casing and into the annulus, sealing the annular space between the casing and the borehole. If the annular space is already sealed, the plugging material shall be brought up to the ground surface, unless specified otherwise.

H. Temporary Shut Down. When plugging of an abandoned water well or hole is temporarily suspended, such as overnight shut down or awaiting material, the well or hole shall be covered and the immediate area conspicuously marked to protect and warn the public. The cover shall be sufficiently strong and anchored to prevent easy or

unintentional entry. The well or hole shall be sealed to prevent the seepage of surface water and foreign material into the well or hole.

I. Areas of Confirmed Contamination. In areas of confirmed ground water or soil contamination, the entire well shall be plugged with cement-bentonite slurry. The annular space of the well, if not already sealed, shall be sealed by perforating or ripping the casing and forcing cement-bentonite slurry under pressure into the annular space and surrounding formation to prevent the entry of contaminated fluids into an aquifer and to prevent the movement of water from one aquifer to another.

J. Areas of Potential Contamination. In areas of potential ground water or soil contamination, the entire well shall be plugged with cement-bentonite slurry. It is recommended that the annular space of the well, if not already sealed, be perforated or ripped and cement-bentonite slurry forced under pressure into the annular space and surrounding formation to safeguard against any possible entry of contaminated fluids into an aquifer and to prevent the movement of water from one aquifer to another.

K. Plugging of Abandoned Water Well from Which Some or All of the Casing Has Been Removed

1. If the casing remaining is in the upper part of the well, the well shall be sounded to determine the amount, if any, of "cave in." The part of the hole filled with "cave in" material shall be reamed or drilled out of the original depth of the well and then the entire hole shall be plugged with cement-bentonite slurry from the bottom, up to the ground surface, using the pump-down method.

2. If the casing (including the screen) remaining is in the lower part of the well, the well and hole shall be completely filled with cement-bentonite slurry from the bottom up to the ground surface, using the pump-down method.

3. If all the casing and screen is removed, the hole for the entire original depth of the well shall be plugged with cement-bentonite slurry from the bottom, up to the ground surface, using the pumpdown method.

L. Plugging of Abandoned Monitoring Wells. The entire well shall be plugged with cement-bentonite slurry from bottom of the well, up to the ground surface, using the pump-down method.

NOTE: Plugging of abandoned monitoring wells associated with facilities regulated by the Department of Environmental Quality (DEQ) require approval from DEQ prior to actual plugging.

M. Plugging of Abandoned Dug or Augered Wells. Domestic dug or augered wells shall be plugged from bottom of the well up to the ground surface with cement-bentonite slurry or with local fill material such as silt,

sand, clay, native soil, or a mixture thereof. If local fill material is used, it should be allowed to settle, and then permanently capped with cement or compacted clay.

N. Plugging of Abandoned Holes. If the hole penetrates an aquifer containing saline water, the entire hole shall be plugged with cement-bentonite slurry from bottom of the hole, up to the ground surface using the pump-down method; otherwise, the hole shall be plugged in accordance with §531.O.-R.2

O. Plugging of Abandoned Pilot Holes

1. The entire hole shall be plugged with cement-bentonite slurry from bottom of the hole, up to the ground surface, using the pumpdown method.

NOTE: If an aquifer (see §113.A for definitions) is not penetrated, the hole shall be plugged with either cement-bentonite slurry or bentonite slurry from bottom of the hole, up to a depth of 25 feet below the ground surface and then the upper 25 feet of the hole shall be plugged with cement-bentonite slurry, using the pump-down method.

P. Plugging of Abandoned Test Holes. An abandoned test hole shall be plugged with cement-bentonite slurry from bottom of the hole, up to the ground surface, using the pump-down method. If the casing cannot be removed, in addition to plugging the entire casing with cement-bentonite slurry, the annular space must also be cemented as per requirements of §527 or as approved by the department.

Q. Plugging of Abandoned Geotechnical Boreholes

1. The entire hole shall be plugged with cement-bentonite slurry from bottom of the hole, up to the ground surface, using the pumpdown method; or

2. The hole shall be plugged with bentonite slurry from bottom of the hole, up to a depth of 25 feet below the ground surface and then the upper 25 feet of the hole shall be plugged with cement-bentonite slurry, using the pump-down method.

3. For boreholes of 25 feet or less, drill cuttings from the original hole may be used to plug the hole in lieu of cement-bentonite slurry, provided that an aquifer is not penetrated and provided that a concrete cylinder is pushed into the hole to form a permanent seal at the ground surface.

NOTE: Plugging of geotechnical borehole associated with facilities regulated by the Department of Environmental Quality (DEQ) require approval from that department prior to actual plugging.

R. Plugging of Heat Pump Holes (Closed Loop System)

1. The entire hole shall be plugged with cement-bentonite slurry from bottom of the hole, up to the bottom of the horizontal trench, using the pump-down method; or

2. The hole shall be plugged with bentonite slurry from bottom of the hole, up to a depth of 25 feet below the bottom of the horizontal trench and then the upper 25 feet of

the hole shall be plugged with cement-bentonite slurry, using the pump-down method.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:963 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:913 (March 2011).

§533. Enforcement Actions

A. Provisions addressing enforcement of this Chapter appear in R.S. 38:3096, as follows:

1. Whoever knowingly and willingly violates a provision of this Chapter, or a rule, regulation or order of the director or a board hereunder, shall be subject to a civil penalty of not more than \$1,000 a day for each day of violation and for each act of violation if a penalty for the violation is not otherwise provided in this Chapter.

a. The place of suit to recover this penalty shall be selected by the director or board, as may be appropriate, in the district court of the parish in which any one of the defendants resides, or in the district court of the parish where the violation took place.

b. Suit shall be at the discretion of the director or board as may be appropriate and shall be instituted and conducted in his or its name by the attorney general or by the district attorney of the district under the direction of the attorney general.

2. Whoever knowingly and willfully aids or abets a person in the violation of a provision of this Chapter, or in any rule, regulation or order made hereunder shall be subject to the same penalties provided herein for the principal violator.

B. Falsification of Documents. Falsification of documents to evade regulations, as well as penalties for said falsifications, appears in R.S. 38:3095 as follows.

1. No person shall, for the purpose of evading this Chapter or any rule, regulation or order made thereunder:

a. make, or cause to be made, any false entry or statement of fact in any report required to be made by this Chapter, or by any rule, regulation or order made hereunder; or

b. make, or cause to be made, any false entry in an account, record or memorandum kept by any person in connection with the provisions of this Chapter or of any rule, regulations or order made thereunder; or

c. remove out of the jurisdiction of the state or destroy or mutilate, alter, or by any other means, falsify any book, record, or of the paper pertaining to the matters

regulated by this Chapter, or by any rule, regulation or order made thereunder.

2. Whoever violates this Subsection shall be fined not more than \$5,000 or imprisoned not more than six months or both.

3. The penalty provision for falsification of documents required under the provisions of this Chapter are therefore criminal in nature and will be enforced through the district attorney having jurisdiction where said violation occurs. It should also be noted that utilization of the United States Mail in the falsification of documents constitutes a violation of Title 18 of the United States Code (Mail Fraud), and such violations will be referred to the appropriate United States attorney.

C. Appeals. An alleged violator may appeal any order of the department by requesting a hearing. The hearing request must be made to the department, in writing within 30 calendar days of the original order and must be sent by "Certified Mail/Return Receipt Requested". After receiving the request, the department will arrange a hearing to determine what other remedial action will serve to effect compliance with the rules and regulations.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:2091-R.S. 38:3097.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 1:249 (May 1975), amended LR 11:964 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

Chapter 7. Installing Control Devices on Free Flowing Water Wells

§701. Authorization

A. As announced in the October 1985 issue of the *Louisiana Register*, the rules and regulations, stated herein, were prepared by the Louisiana Department of Transportation and Development, Office of Public Works, in accordance with R.S. 38:3094(7)(A). Effective January 1, 2010, in accordance with Act 437 of 2009, The Department of Natural Resources, Office of Conservation, hereafter referred to as "department," is responsible for registering water wells and holes in Louisiana.

~~B. The rules and regulations, stated herein, became effective on November 1, 1985 and supersede the rules and regulations which had been in effect since June 1, 1977.~~

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:964 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005), amended by the Department of Natural Resources, Office of Conservation, LR 37:913 (March 2011).

§703. Purpose

A. The purpose of the rules and regulations, stated herein, is to conserve the ground water resources of the state by requiring that the owner install control devices on free flowing water wells (for glossary of terms, refer to §113.A of this Chapter) ~~producing in excess of 25,000 gallons per day. To accomplish this requirement,~~ the owner shall install a flow control device on each free flowing water well in accordance with the rules and regulations stated in this Section.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:964 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§705. General Rules and Regulations

A. The rules and regulations, stated herein, apply to all free flowing water wells ~~producing in excess of 25,000 gallons per day.~~ A free flowing well is an artesian well which is allowed to flow, under natural conditions, at or above the land surface.

B. Exemptions. The following water wells are exempt from the provisions of this Chapter:

1. free flowing water wells ~~in existence prior to January 1, 2012; however, wells reworked after January 1, 2012 shall not be exempt. producing 25,000 gallons per day or less;~~

2. water wells producing saline water in connection with oil and gas production.

~~C. Determination of Yield. The department will measure the yield of the free flowing water well at no cost to the owner. If the owner disagrees with the measurement made by the department and wishes to have a third party measure the yield, the costs shall be borne by the owner. The method used to measure the well yield shall be acceptable to the department.~~

~~D.—Wells In a State of Disrepair or Nonuse. If a water well is in such a state of disrepair that it cannot be used and a control device cannot be installed, it shall be considered abandoned and shall be plugged by the owner in accordance with the provisions of Chapter 5 of this Part, entitled "Rules, Regulations and Standards for Plugging Abandoned Water Wells and Holes".~~

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:965 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§707. Responsibility of the Owner

A. The owner shall be the party responsible for installing a flow control device on each free flowing water well ~~producing in excess of 25,000 gallons per day.~~

B. The owner shall allow representatives of the department to enter the property and visit the well site to ~~measure the well yield,~~ verify the installation of a control device, or inspect the completed work.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:965 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§709. Responsibility of the Department

~~A. The department will measure the yield of the free flowing water well at no cost to the owner.~~

~~B. It shall be in the sole responsibility of the department to determine whether a control device should be installed on a well.~~

~~C.~~—At the request of a parish police jury or other governmental entity, the department may make a survey to locate and report on the location of free flowing water wells.

D. The department may enter into a financial cooperative agreement with the parish police jury or other governmental entity to have control devices installed on ~~those~~ free flowing water wells ~~which produce over 25,000 gallons per day.~~

E. The department shall, in no way, be held responsible for a well "sanding up" or failing to yield water after a control device is installed on the well.

F. The department, upon receiving information on the existence of a free flowing water well, shall proceed as follows:

~~1. arrange to measure the yield of the well and determine whether a control device should be installed;~~

~~2. if a control device is required,~~ the department will issue an order to the owner to require the installation of a control device on the well within 90 calendar days from the date of the said order. When the installation of the control device is completed, the owner shall apprise the department, in writing, within 30 calendar days after completion of work.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:965 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§711. Failure of Responsible Party to Install a Control Device

A. If the owner fails to comply with the department's order concerning installation of a control device within the 90-day time period or does not offer, in writing, an acceptable alternative time interval for installing such a device, the owner will be considered in violation of R.S. 38:3094(A)(7), which permits a civil penalty of not more than \$1,000 a day for each day of violation and for each act of violation.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:965 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

§713. Enforcement Actions

A. Provisions addressing enforcement of this Chapter appear in Louisiana Revised Statute 38:3096, as follows.

1. Whoever knowingly and willfully violates a provision of this Section, or a rule, regulation, or order of the director or a board hereunder, shall be subject to a civil penalty of not more than \$1,000 a day for each day of violation and for each act of violation, if a penalty for the violation is not otherwise provided in this Section.

a. The place of suit to recover this penalty shall be selected by the director or board, as may be appropriate, in the district court of the parish of the residence of any one of the defendants, or in the district court of the parish where the violation took place.

b. Suit shall be at the direction of the director or board, as may be appropriate, and shall be instituted and conducted in his or its name by the attorney general or by the district attorney of the district under the direction of the attorney general.

c. Whoever knowingly and willfully aids or abets a person in the violation of a provision of this section, or in any rule, regulation, or order made hereunder, shall be subject to the same penalties provided herein for the principal violator.

B. Falsification of Documents. Falsification of documents to evade regulations, as well as penalties for said falsifications, appears in R.S. 38:3095 as follows.

1. No person shall for the purpose of evading this Chapter, or any rule, regulation, or order made thereunder:

a. make or cause to be made any false entry or statement of fact in any report required to be made by this Chapter or by any rule, regulation, or order made hereunder; or

b. make or cause to be made false entry in an account, record, or memorandum kept by any person in connection with the provisions of this Chapter or of any rule, regulation, or order made thereunder; or

c. remove out of the jurisdiction of the state, or destroy or mutilate, alter, or by any other means falsify any book, record, or other paper pertaining to the matters regulated by this Chapter or by any rule, regulation, or order made thereunder.

2. Whoever violates this Section shall be fined not more than \$5,000 or imprisoned not more than six months or both.

3. The penalty provisions for falsification of documents required under the provisions of this Chapter are therefore criminal in nature and will be enforced through the district attorney having jurisdiction where said violation occurs. It should also be noted that utilization of the United States Mail in the falsification of documents constitutes a violation of Title 18 of the United States Code (Mail Fraud), and such violations will be referred to the appropriate United States attorney.

C. Appeals. An alleged violator may appeal any order of the department by requesting a hearing. The hearing request must be made to the department, in writing, within 30 calendar days of the original order and must be sent by "Certified Mail-Return Receipt Requested". After receiving the request, the department will arrange a hearing to determine what other remedial action will serve to effect compliance with the rules and regulations.

AUTHORITY NOTE: Promulgated in accordance with R.S. 38:3094.

HISTORICAL NOTE: Promulgated by the Department of Transportation and Development, Office of Public Works, LR 11:965 (October 1985), repromulgated by the Department of Transportation and Development, Office of Public Works, LR 31:942 (April 2005).

Chapter 9. Construction of Geotechnical Boreholes and Groundwater Monitoring Systems

A chapter 9 will be added which will contain the latest version of the "Green Book".

James H. Welsh, Commissioner
Office of Conservation