FOR FILING

PERMANENT

ADMINISTRATIVE RULES WITH THE SECRETARY OF STATE

I HEREBY CERTIFY that the attached copy is a true, full and correct copy of PERMANENT rule(s) adopted on December 7, 1990 (Date)

by the Water Resources Department (Department) Water Resources Commission (Division)

to become effective upon Filing (Date)

The within matter having come before the Water Resources Department (Department) Water Resources Commission (Division)

all procedures having been in the required form and conducted in accordance with applicable statutes and rules and being fully advised in the premises.

Notice of Intended Action published in Secretary of State's Bulletin: NO ☐ YES ☒ Date Published: October 1, 1990

NOW THEREFORE, IT IS HEREBY ORDERED THAT the following action be taken: (List Rule Number(s) or Rule Title(s) on Appropriate Lines Below)

Adopted:
(New Total Rules)

Amended:
(Existing Rules) OAR Chapter 690-08-001, 690-230-005-140, 690-250-110

Repealed:
(Total Rules Only)

Administrative Rules of the Water Resources Department (Department) (Division)

DATED this 14th day of December, 19 90

By: William H. Young (Authorized Signature)

Title: Director

Statutory Authority: ORS Chapter 537

Chapter(s)

House Bill(s) ____, 19____ Legislature, or Senate Bill(s) 237, 19____ Legislature, Oregon Laws 19__

Subject Matter: Detail the pump testing of low-temperature geothermal injection wells. Define "substantial thermal alteration". Set a temperature below which low-temperature geothermal will not be protected from thermal interference caused by water use for other purposes.

Other Information Contact: Janet Koehler (Print Contact) Phone: 378-8456

CERTIFICATE AND ORDER
FOR FILING
PERMANENT
ADMINISTRATIVE RULES WITH THE SECRETARY OF STATE

I HEREBY CERTIFY that the attached copy is a true, full and correct copy of PERMANENT rule(s) adopted on December 7, 1990 (Date)

by the Water Resources Department (Department) Resource Management Division (Division)

to become effective upon filing (Date)

The within matter having come before the Water Resources Commission (Department) Resource Management Division (Division) after

proceedings having been in the required form and conducted in accordance with applicable statutes and rules and being fully advised in the premises

Notice of Intended Action published in Secretary of State's Bulletin NO ☐ YES ☒ Date Published: October 1, 1990

NOW THEREFORE, IT IS HEREBY ORDERED THAT the following action be taken: (List Rule Number(s) or Rule Title(s) on Appropriate Lines Below)

Adopted. (New Total Rules)

Amended. (Existing Rules) OAR Chapter 690-08, 690-230, 690-250

Repealed. (Existing Rules Only)

DEC 1990 SECRETARY OF STATE

Administrative Rules of the Water Resources Department (Department) Resource Management Division (Division)

Dated this 7th day of December 19 90

By William H. Young (Authorized Signer)

Title Director

Statutory Authority: ORS Chapter 537 of

Chapter(s) of Oregon Laws 19

See Bill(s) 19 Leg Session, or Senate Bill(s) 237 19 89 Legislature

Specific Matter: Detail the pump testing of low-temperature geothermal injection wells. Define "substantial thermal alteration". Set a temperature below which low-temperature geothermal use will not be protected from thermal interference caused by water use for other purposes.

Rule Coordinator Information Contact: Janet Kochler (Rule Coordinator) Phone: 378-8456

Oregon Administrative Rules
for
WELL CONSTRUCTION AND MAINTENANCE
Water Resources Department
Chapter 690
Division 200

INTRODUCTION

Basis for Regulatory Authority

690-200-005(1) The right to reasonable control of the ground waters of the State of Oregon has been declared to belong to the public. Through the provisions of the Ground Water Act of 1955, ORS 537.505 to 537.795, the Water Resources Commission has been charged with the administration of the rights of appropriation and use of the ground water resources of the state and the prevention of waste and contamination of all underground waters. This is primarily accomplished by the licensing of well constructors and the promulgation of rules governing well construction, alteration, abandonment, maintenance and use. Ultimately the landowner of the property where the well is constructed is responsible for the condition and use of the well.

(2) The following rules apply to all wells which are constructed for the purpose of locating or obtaining water as defined in ORS 537.515(7). Holes which are drilled for elevator shafts, fence posts, power poles, cathode protection, storm water disposal, pits created by removal of rock for construction and sumps are exempt from these rules. When natural flow of water occurs in holes not regulated under these rules, the Water Resources Commission may regulate under separate rules or statutes to protect the ground water from contamination or waste.

(3) In addition to regulating new well construction, alteration, abandonment and maintenance actions, the Water Resources Commission may impose conditions upon the use of any existing well as may be necessary to prevent waste, undue interference with other wells or contamination. Where necessary, the Commission may order discontinuance of use and proper abandonment of any well to accomplish the same objectives.

(4) Except for the Commission's power to adopt rules, the Commission may delegate to the Water Resources Director the xercise or discharge in the Commission's name of any power, duty or function of whatever character, vested in or imposed by law upon the Commission. The official act of the Director acting in the Commission's name and by the Commission's authority shall be considered to be an official act of the Commission. In these rules where it says Director, the Commission hereby delegates to the Director full authority to act in the Commission's name.

(5) Under the provisions of ORS 537.780, the Commission is authorized to adopt such procedural rules and regulations as deemed necessary to carry out its function in compliance with the Ground Water Law. In fulfillment of these responsibilities and to ensure the preservation of the public welfare, safety, and health, the Commission has established these rules and regulations as the minimum standards for the construction, alteration, abandonment and maintenance of wells in Oregon.

(6) The rules and regulations set forth herein shall become effective June 29,1988.

NOTE: If a well is to be constructed to supply a public or community water system, refer to Table III of these rules for information regarding regulations pertaining to municipal, public, community, and public utility water supply systems.

General Statement About the Standards

690-200-020(1) The rules and regulations set forth herein provide the minimum standards for the construction, maintenance, and abandonment of wells. After the effective date of adoption of these rules and regulations, no well shall be constructed, altered, or abandoned contrary to the provisions of these rules and regulations. Violation of these standards may result in enforcement under OAR chapter 690, Division 225, including suspension or revocation of a constructor's license, imposition of civil penalties on the landowner or constructor, action on a bond, or other sanctions authorized by law.

(2) Every well shall be designed and constructed to adapt to the existing local geologic and ground water conditions at the well site and shall fully utilize every natural protection to the ground water supply. If prior to or during construction the well constructor becomes aware that adherence to the following minimum well standards will not prevent or eliminate ground water contamination, waste, or loss of artesian pressure, the constructor shall request and obtain written approval from the Director to use construction methods, materials or standards to prevent or eliminate the contamination, waste, or loss. The request shall be in writing and submitted to the Director. Written approval from the Director must be obtained prior to completion of the well.

Special Area Standards

690-200-025 If at any time, the Commission finds that different or supplemental standards are required for the safe development of ground water from any particular ground water aquifer or area, special area standards for the construction and maintenance of wells within such areas may be adopted as rules by the Commission. In the absence of such special area standards, these rules constitute the sole administrative standards of the Water Resources Department governing construction, alteration, and abandonment of wells.

Restrictions on Well Construction and Use in Critical Ground Water Areas or Areas Withdrawn by Commission Order

690-200-027 The use of ground water is restricted in Critical Ground Water Areas or Withdrawal Areas established by Commission Order, under ORS 537.735 and 536.410. Before constructing a well, the constructor shall determine whether the proposed well site is within a Critical Ground Water or Withdrawal Area. (Refer to Map Figure 19, 1988.)

If the well is within a Critical Ground Water or Withdrawal Area, the constructor shall contact the watermaster for the county where the well is to be constructed for more information. (Refer to Appendix III.)

Construction of wells in violation of a critical ground water or withdrawal orders are subject to enforcement action as described in OAR 690 Division 225.

Public Safety

690-200-030 No well shall be constructed, maintained, or abandoned in such a manner as to constitute a health threat, or health hazard or a menace to public safety.

Wells Cannot be Used For Disposal of Contaminants

690-200-040 No well shall be used as a disposal pit for sewage, industrial waste, or other materials that could contaminate the ground water supply.

Definitions

690-200-050 The Water Resources Commission uses the definitions of the words listed below in the administration and enforcement of Oregon's Ground Water Law and the Rules and Regulations for the Construction and Alteration of Wells. No other definitions of these same words apply.

(1) "Abandonment, permanent": means to remove a well from service by completely filling it in such a manner that vertical movement of water within the well bore and within the annular space surrounding the well casing, is effectively and permanently prevented.

(2) "Abandonment, temporary": means to remove a drilling machine from a well site prior to putting the well into service or returning it to service or subsequent to completing or altering a well, or to remove a well from service with the intent of using it in the future.

(3) "Access Port": means a minimum 3/4-inch tapped hole and plug or a 3/4-inch capped pipe welded onto the casing in the upper portion of a well casing to permit entry of water-level measuring devices into the well.

(4) "Airline": means a water level measuring device consisting of a pressure gauge attached to an airtight line or pipe within the well bore extending from land surface to below the pumping level to allow the water level to be computed by measuring the stable air pressure remaining in the line after completely purging water from within the line.

(5) "Altering a well": means the deepening, reaming, casing, re-casing, perforating, re-perforating, installation of liner pipe, packers, seals, and any other material change in the design or construction of a well.

(6) "Annular Space": means the cylindrical space between the drillhole wall and the outer well casing.

(7) "Aquifer": means a geologic formation, group of formations, or part of a formation that contains saturated and permeable material capable of transmitting water in sufficient quantity to supply wells or springs; the terms water-bearing zone or water-bearing stratum are synonymous with the term aquifer.

(8) "Artesian Aquifer": means an aquifer in which ground water is under sufficient head to rise above the level at which it was first encountered whether or not the water flows at land surface. If the water level stands above land surface the well is a flowing artesian well.

(9) "Bored Well": means a well constructed with the use of earth augers turned either by hand or by power equipment.

(10) "Buried Slab Type Well": means a dug well in which well casing is used to case the upper hole. A slab, sealed with cement grout, is placed between the upper hole and lower drillhole, and the remainder of the annulus is filled with concrete.

(11) "Casing": means the outer tubing, pipe, or conduit, welded or screw coupled, and installed in the borehole during or after drilling to support the sides of the well and prevent caving, to shut off water, gas, or contaminated fluids from entering the hole, and to prevent waste of ground water. The term "casing" does not include slotted or perforated pipe, well screens, or liner pipe.

(12) "Casing Seal": means the watertight seal established in the well bore between the well casing and the drillhole wall to prevent the inflow and movement of surface water or shallow ground water in the well annulus, or to prevent the outflow or movement of water under artesian or hydrostatic pressures.

(13) "Clay": means a fine-grained, inorganic material having plastic properties and with a predominant grain size of less than 0.005 mm.

(14) "Commission": means the Water Resources Commission.

(15) "Committee": means the Ground Water Advisory Committee created by ORS 536.090.

(16) "Community Well": means a well, whether publicly or privately owned, which serves or is intended to serve more than three connections for residences or other connections for the purpose of supplying water for drinking, culinary, or household uses.

(17) "Confined Animal Feeding or Holding Area": Means the concentrated confined feeding or holding of animals or poultry, including but not limited to horse, cattle, sheep, swine feeding, dairy confinement areas, slaughterhouse or shipping terminal holding pens where the animal waste is allowed to build up on the ground and where the concentration of animals has destroyed the vegetative cover. Areas where animals and animal waste is confined in buildings are exempt.

(18) "Confining Formation": means the "impermeable" stratum immediately overlying an artesian (confined) aquifer.

(19) "Consolidated Formation": means materials that have become firm through natural rock-forming processes. It includes such materials as basalt, sandstone, hard claystone, conglomerate, and granite.

(20) "Contamination": means an impairment of water quality by chemicals, radionuclides, biologic organisms or other extraneous matter whether or not it affects the potential or intended beneficial use of water.

(21) "Department": means the Water Resources Department.

(22) "Director": means the Director of the Department or the Director's authorized deputies or officers.

(23) "Domestic Well": means a well used to serve no more than three residences for the purpose of supplying water for drinking, culinary, or household uses, and which is not used as a public water supply.

(24) "Drawdown": means the difference in vertical distance between the pumping level and the static water level in a well.

(25) "Drive Point Well": means a well constructed by driving into the ground a well-point fitted to the end of a pipe section or series of pipe sections.

(26) "Dug Well": means a well in which the excavation is made by the use of picks, shovels, spades or digging equipment such as backhoes, clam shell buckets, or sand buckets.

(27) "Figure": when used herein refers to an illustration and is made a part of the primary article and section by reference.

(28) "Filter Pack Well": means a well in which the area immediately surrounding the well screen or perforated pipe within the water-producing zone is filled with graded coarser material.

(29) "Ground Water Geologist": means an individual licensed by the state to practice geology.

(30) "Grout": means either approved cement or bentonite sealing material used to fill an annular space of a well.

(31) "Grout Pipe": means a pipe which is used to place grout at the bottom of the sealing interval of a well.

(32) "Hazardous Waste": means a substance as defined by ORS Chapter 466.005.

(33) "Hazardous waste disposal site": means a geographical site in which or upon which hazardous waste is disposed.

(34) "Hazardous waste storage site": means the geographical site upon which hazardous waste is stored.

(35) "Hazardous waste treatment site": means the geographical site upon which or a facility in which hazardous waste is treated.

(36) "Health Hazard": means a condition where there are sufficient concentrations of biological, chemical, or physical, including radiological, contaminants in the water that are likely to cause human illness, disorders, or disability. These include, but are not limited to naturally occurring substances, pathogenic viruses, bacteria, parasites, toxic chemicals, and radioactive isotopes. Sufficient concentrations of a contaminant include but are not limited to contaminant levels set by the Department of Environmental Quality and Oregon Health Division.

(37) "Health Threat": means a condition where there is an impending health hazard. The threat may be posed by, but not limited to: a conduit for contamination, or a well affecting migration of a contaminant plume, or the use of contaminated water. A well in which the well construction is not verified by a water well report or geophysical techniques may be considered a conduit for contamination in certain circumstances. Those circumstances include, but are not limited to: an unused and neglected well, a well that is permanently out of service, or a well for which no surface seal was required. A well in which the casing seal, sanitary seal, or watertight cap has failed, or was inadequately installed may be considered a conduit for contamination.

(38) "Impermeable": means a material that limits the passage of water.

(39) "Impermeable Sealing Material": Means neat cement, concrete or bentonite which is used to fill the open annulus between the lower and upper sealing intervals.

(40) "Jetted Well": means a well in which the drillhole excavation is made by the use of a high velocity jet of water.

(41) "Leakage": means leakage of surface and/or subsurface water around the well casing.

(42) "Liner Pipe": means the inner tubing pipe, or conduit installed inside the well casing or lower well bore, and used to protect against caving formations and is not permanently affixed to the drillhole wall or casing.

(43) "Lower Drillhole": means that part of the well bore extending below the surface seal interval in a well.

(44) "Mineralized Water": means any naturally occurring ground water containing an amount of dissolved chemical constituents limiting the beneficial uses to which the water may be applied.

(45) "Municipal or Quasi-Municipal Well": means a well owned by a municipality or nonprofit corporation that may be used as a community or public water supply.

(46) "Order": means any action satisfying the definition given in ORS Chapter 183 or any other action so designated in ORS Chapter 537.505 to 537.795.

(47) "Perched Ground Water": means ground water held above the regional or main water table by a less permeable underlying earth or rock material.

(48) "Permeability": means the ability of material to transmit fluid, usually described in units of gallons per day per square foot of cross-section area. It is related to the effectiveness with which pore spaces transmit fluids.

(49) "Person": includes individuals, corporations, associations, firms, partnerships, joint stock companies, public and municipal corporations, political subdivisions, the state and any agencies thereof, and the Federal Government and any agencies thereof.

(50) "Petcock Valve": is a valve used to contain pressure and when opened to drain the line or pipe.

(51) "Pitless Adaptor": means a commercially manufactured unit or device designed for attachment to one or more openings through a well casing, which will permit water service pipes to pass through the wall of a well casing or extension thereof and prevent entrance of contaminants into the well or water supply.

(52) "Pitless Unit": means a commercially manufactured unit extending the upper terminal of the well casing to above land surface, constructed and installed so as to prevent the entrance of contaminants into the well and to protect the ground water supply, conduct water from the well, and provide full access to the well and water system parts therein.

(53) "Porosity": means the ratio of the volume of voids in the geologic formation being drilled to the overall volume of the material without regard to size, shape, interconnection, or arrangement of openings.

(54) "Potable Water": means water which is sufficiently free from biological, chemical, physical, or radiological impurities so that users thereof will not be exposed to or threatened with exposure to disease or harmful physiological effects.

(55) "Potentiometric Surface": means the level to which water will rise in tightly cased wells.

(56) "Pressure Grouting": means a process by which a cement grout is confined within the drillhole or casing by the use of retaining plugs or packers and by which sufficient pressure is applied to drive the grout slurry into the annular space or zone to be grouted.

(57) "Public-At-Large": means a person not actively engaged in the well industry.

(58) "Public Well": means a well, whether publicly or privately owned other than a municipal well, where water is provided for or is available through the single user for public consumption including, but not limited to, a school, a farm labor camp, an industrial establishment, a recreational facility, a restaurant, a motel, or a group care home.

(59) "Pumping Level": means the level of the water surface in a well while it is being pumped or bailed.

(60) "Pump Test": means the procedure involving pumping water for a specified period of time to determine the yield characteristics of an aquifer.

(61) "Refusal to Renew": means a provision in an order that prohibits renewal of a well constructor's license, for a specified term not to exceed one year from the expiration date of the current license.

(62) "Respondent": means the person against whom an enforcement action is taken.

(63) "Revoke": means termination of a well constructor's license.

(64) "Rough Drilling Log": means a record kept on the well site of the information needed to complete the well report for the well being constructed.

(65) "Sand": means a detrital material having a prevalent grain size ranging from 2 millimeters to 0.06 millimeters.

(66) "Silt": means an unconsolidated clastic sediment composed predominantly of particles between 0.06 and 0.005 mm in diameter.

(67) "Static Water Level": means the stabilized level or elevation of the water surface in a well not being pumped.

(68) "Stratum": means a bed or layer of a formation that consists throughout of approximately the same type of consolidated or unconsolidated material.

(69) "Sump": means a hole dug to a depth of ten feet or less with a diameter greater than ten feet in which water is sought or encountered.

(70) "Suspension": means the temporary removal of the privilege to construct wells under an existing license for a period of time not to exceed one year.

(71) "Tremie Pipe": See Grout Pipe.

(72) "Unconsolidated Formation": means naturally occurring, loosely cemented, or poorly indurated materials including clay, sand, silt, and gravel.

(73) "Upper Drillhole": means that part of the well bore extending from land surface to the bottom of the surface seal interval.

(74) "Violation": means an infraction of any statute, rule, standard, order, license, compliance schedule, or any part thereof and includes both acts and omissions.

(75) "Water Level": See Static Water Level

(76) "Water Table": means the upper surface of an unconfined water body, the surface of which is at atmospheric pressure and fluctuates seasonally. The water table is defined by the levels at which water stands in wells that penetrate the water body.

(77) "Water Well": See Well

(78) "Well": means any artificial opening or artificially altered natural opening, however made, by which ground water is sought or through which ground water flows under natural pressure, or is artificially withdrawn or injected. This definition shall not include a natural spring, or wells drilled for the purpose of exploration or production of oil or gas. Prospecting or exploration for geothermal resources as defined in ORS 522.005 or production of geothermal resources derived from a depth greater than 2,000 feet as defined in ORS 522.055 is regulated by the Department of Geology and Mineral Industries.

(79) "Well Constructor": means any person who has a current, effective well constructor license issued in accordance with ORS 537.747(3).

(80) "Well Drilling Machine": means any power-driven percussion, rotary, boring, digging, or augering machine used in the construction or alteration of wells.

DIVISION 205

LICENSING

License or Permit Required to Construct Wells

690-205-005(1) Any person who constructs, alters or abandons wells for another person shall have a Well Constructor License.

(2) If a person advertises services and/or enters into contracts for the construction, alteration or abandonment of wells for another person, that person shall furnish a $4,000 Well Constructor Bond to the Water Resources Commission.

(3) A property owner who constructs, alters, or abandons a well on their own property shall have a Landowner Well Permit as described in OAR 690-205-040 for each well on which work is done.

Well Constructor License Examination

690-205-010 The Water Resources Department administers the written examination required under ORS 537.747. The Department schedules the examination on the second Monday of every month. The examination tests the applicants knowledge of:

(1) Oregon laws and administrative rules on the use of ground water, well constructor licensing requirements, the construction of wells and preparing and filing Well Reports;

(2) Groundwater geology, the occurrence and movement of ground water, and the design, construction and development of wells; and

(3) Types, uses and maintenance of drilling tools and equipment, drilling problems and corrective procedures, repair of faulty wells, sealing of wells and safety rules and practices.

Well Constructor License, Experience Requirements and Trainee Card

690-205-020(1) License. To qualify for a Well Constructor License, a person shall:

(a) Be at least 18 years old;

(b) Pass a written examination;

(c) Have the equivalent of one year (52 weeks) of experience on a minimum of fifteen wells during the previous 36 month period. The experience shall be in well construction, alteration, or abandonment. The following are acceptable as evidence of experience:

(A) Well reports, or rough well logs with applicant's name entered, for each of the 15 wells. The name, address and telephone number of the person responsible for the construction of each well shall be included on each report or log.

(B) Income tax returns showing source of drilling income for a period of time, or workman's compensation account information or the equivalent may be established to satisfy the 52 weeks of active construction requirement.

(C) Any other evidence the Director may deem suitable.

(D) A license held in another state shall not substitute for required evidence of experience.

(d) Pay a license fee.

(2) Trainee. If an applicant passes the written well constructor examination, but can not meet the experience requirement, the Commission will issue a trainee card. To qualify for a well constructor trainee card, a person must:

(a) Be at least 18 years old;

(b) Pass a written examination; and

(c) Be supervised by a person who holds a Well Constructor license.

(3) Special conditions apply to any person who holds a Well Constructor Trainee Card:

(a) A trainee may operate a cable tool drilling machine without a well constructor physically present at the well site only if:

(A) The constructor can reach the well site within two hours if so requested by an authorized representative of the Department; and

(B) The constructor has signed the rough drilling log within eight working hours prior to the representative's visit.

(b) A constructor must physically be on the site at all times when a cable tool drilling machine is:

(A) Drilling within a flowing artesian well;

(B) Setting or advancing casing;

(C) Setting liner;

(D) Perforating casing;

(E) Setting well screens;

(F) Placing packers;

(G) Constructing casing seals.

(c) A trainee may operate a non-cable tool drilling machine without a well constructor physically present at the well site only during the following events:

(A) Air test or pump test of the well;

(B) Gravel packing operations;

(C) Developing a completed well;

(D) Removal of the drill stem from the well.

(d) And only if:

(A) The constructor can reach the site within one hour if so requested by an authorized representative of the Department; and

(B) The constructor has signed the rough drilling log within eight working hours prior to the representative's visit.

(e) The watermaster in whose jurisdiction the well is being constructed has the authority to:

(A) Grant an extension to the time limits stated above when a request, showing good cause, is received from the bonded constructor in advance for each particular well.

(B) Place additional restrictions on the trainee, including requiring the constructor to be on the site at all times while the drilling machine is operating, when the Watermaster determines that either the drilling environment or the knowledge and/or experience of the trainee warrant closer supervision.

(f) For a trainee to operate a drilling machine without a licensed well constructor present, the trainee's card must be endorsed with the name of the bonded well constructor responsible for the construction of the well.

(4) Persons who satisfy all requirements of ORS 537.747(3) shall be issued a well constructor's license in the form of a constructor's card. The responsibilities for issuing and securing a Well Constructor license or trainee card belong to the following:

(a) The well constructor license applicant is responsible for:

(A) Completing an application for new or renewed licenses or trainee card;

(B) Submitting the application to the Water Resources Department along with the required fees; and

(C) Carrying the license or trainee card whenever constructing, altering, or abandoning any well.

(b) The Water Resources Department is responsible for:

(A) Designing and providing Well Constructor license and trainee cards;

(B) Designing and providing application forms for new and renewed licenses and trainee cards;

(C) Processing, approving and endorsing applications for licenses and trainee cards; and

(D) Returning approved and endorsed application forms to applicants with partially completed license or trainee cards.

(5) Bonded well constructor. For a person to possess a bonded well constructor's card the person must provide to the Director a properly executed well constructor's bond. The Water Resources Director will endorse the constructor's card with the number of the bond and the name of the bonding company. Such endorsements shall remain effective only while the appropriate bond remains in effect.

(6) Representatives of the Water Resources Commission may ask anyone constructing, altering, or abandoning a well to present their license or trainee card as proof of eligibility to construct, alter, or abandon wells in the State of Oregon. Cardholders shall display their cards when requested.

Term of Well Constructor License and License Fees

690-205-025(1) The Department issues all well constructor licenses. License fees are established by ORS 537.747. The amount of the fee depends on the term of the license. A penalty applies to late renewals.

(2) The well constructor must choose whether to license for one or five years. Fees for new licenses and renewal licenses are the same. The fee for a one year license is $50. The fee for a five-year license is $200. All licenses expire on June 30 of the first or fifth years respectively.

(3) A $50 penalty applies when a licensee renews their license after the expiration date. There is no charge for a Trainee Card.

(4) Well constructors who have not made arrangements with the Water Resources Department to pay civil penalties which are assessed against them, shall not be issued a license renewal until after arrangements for payment have been agreed to by the Department.

Contracting for Services

690-205-030 Only bonded well constructors may advertise services or enter into a contract, either written or verbal, to construct, alter, or abandon a well. Any written bid for a project which includes the construction, alteration or abandonment of a well must provide:

(1) A bid or estimate for the work associated with well construction signed by a bonded well constructor, licensed and bonded in the State of Oregon; and

(2) A statement by the general contractor that the work will be completed in accordance with Oregon Ground Water Law (ORS chapter 537) and the Rules and Regulations for the Construction and Maintenance of Wells in Oregon (OAR chapter 690).

Well Constructor and Landowner Well Bonds

690-205-040(1) The Water Resources Commission shall only accept bonds from corporations licensed by the Oregon Department of Insurance and Finance to issue fidelity and surety insurance.

(2) If the issuing corporation cancels a bond, the corporation shall provide notice of cancellation to the Water Resources Commission by registered or certified mail. The cancellation shall not take effect earlier than the 30th day after the date of mailing in accordance with ORS 743.755(2).

(3) When issuing a final enforcement order that may place a bond in jeopardy, the Director may mail a copy of the order to the address of record of the surety company issuing the bond.

Landowner Well Construction Permit, Fee and Bond

690-205-050(1) The Water Resources Commission requires a permit, permit fee, and bond for each well constructed, altered, or abandoned by a landowner, unless the landowner is a bonded well constructor.

(2) To receive a Landowner Well permit, a person must submit the following to the Director:

(a) A completed application form provided by the Commission, containing:

(A) The property owner's name, address and telephone number;

(B) The surety company's name, address, and telephone number;

(C) The proposed location of the well by township, range, and section; and

(D) The proposed use of the water from the well.

(b) A properly executed landowner's water well bond for $2000 to the State of Oregon; and

(c) A $25 permit fee.

(3) Only the owner of record, a member of the immediate family of the owner of record, or a full time employe of the owner of record, (whose main duties are other than the construction of wells), may operate a well drilling machine under a landowner's permit.

Well Drilling Machines

690-205-060(1) All well drilling machines being operated other than under a landowner's permit shall be plainly marked with the bonded well constructor's license number or shall have permanently affixed on each side of the vehicle either the name of the bonded constructor or the name of the well drilling business.

(2) In all cases, the license number of the bonded well constructor shall be removed from the drilling machine immediately upon change of ownership or change of control of the drilling machine. Good quality paint or commercial decal numbers shall be used in placing each identification number on the drilling rig. In no case shall the constructor's license number be inscribed with crayon, chalk, marking keel, pencil, or other temporary markings.

Well Construction Notice Required (Start Card)

690-205-070(1) Each bonded well constructor licensed to operate in the State of Oregon and each landowner holding a landowner's permit shall provide notice as required in ORS 537.762 before commencing the construction, alteration, conversion abandonment of any well. The notice card shall contain the name and post office address of the customer for which work is to be performed, the street address of the well, and the approximate location of the well; and in the case of a new or converted well, the proposed depth, diameter of the well, and the purpose or use of the water.

All notices of new or converted wells constructed by a licensed and bonded well constructor shall be submitted with a $75 notice fee. Landowners are exempt from this $75 start card fee. However, OAR 690-205-050 shall apply to landowners who construct, alter, convert or abandon a well.

Forms for making these reports and submitting fees shall be furnished by the Water Resources Department.

(2) Each notice of a newly constructed or converted well requiring a fee shall be mailed to the Water Resources Department in Salem or delivered to the Water Resources Department in Salem no later than the day construction or conversion is commenced.

(3) A copy of each notice shall be mailed or delivered to the Watermaster within whose jurisdiction the well is being constructed, altered, converted, or abandoned no later than the day construction, alteration, conversion, or abandonment is commenced. The Watermaster may provide an alternate means of notification. If an alternative means of notification is used, the notice card shall be mailed or delivered to the Watermaster within one week of beginning work on the well. A well constructor whose license has been restricted by order shall provide notice as stipulated in the order.

(4) Once received by the department, the notice card shall be confidential for a period of one year after it is received or until the well report required by OAR 690-205-080 is received whichever is shorter.

(5) The notice card may be used in an administrative enforcement action at any time including the period of confidentiality. Once the card is used for enforcement reasons it is no longer confidential.

Well Report Required (Well Log)

690-205-080(1) A well report (well log) shall be prepared for each well constructed, altered or abandoned including unsuccessful wells and wells exempt from appropriation permit requirements under ORS 537.545. The log shall be certified as correct by signature of the well constructor constructing the well. The completed log shall also be certified by the bonded well constructor responsible for construction of the well. A well report must be submitted by each constructor (if more than one) or each bonded constructor (if drilling responsibility is shifted to a different bonded constructor), showing the work performed by each constructor or bonded constructor.

(2) The log shall be prepared in quadruplicate on forms furnished by the Water Resources Department. The original and first copy shall be furnished to the Director, the second copy shall be retained by the well constructor, and the third copy shall be given to the customer who contracted for the construction of the well.

(3) The bonded well constructor shall file the well log with the Director within 30 days after the completion of the construction, abandonment, or alteration.

(4) The trainee or well constructor operating the well drilling machine shall maintain a rough log of all geologic strata encountered and all materials used in the construction of the well. This log shall be available for inspection by the Watermaster or an authorized agent of the Water Resources Department at any time before the Well Report is received by the Department.

(5) In the event a constructor shall leave any equipment in a well the bonded constructor shall enter this fact on the Well Report.

(6) A copy of any special authorizations or temporary special standards issued by the Director shall be attached to the well report.

DIVISION 210

Well Construction Standards

Standards Apply to All Methods of Well Construction

690-210-005 The following well construction standards apply to all methods of well construction. The methods include but are not limited to drilling, driving, jetting, boring, and digging. Additional standards will apply to some methods as specified in the following regulations.

Regulations of Other Agencies May Also Apply

690-210-020 Wells constructed by some methods may not produce water of suitable quality for use as public, community, municipal, or public utility supplies. Regulations administered by other agencies may apply in addition to those in this chapter (See Appendix 1, Part II).

Placement of Wells

690-210-030(1) No person shall construct a well within 50 feet of any septic tank; 100 feet of a sewage disposal area; 50 feet of a closed sewage or storm drainage system; 50 feet of a confined animal feeding or holding operation or animal waste holding pond, lagoon, or other animal waste storage site; 100 feet of any sewage sludge disposal area; or 500 feet of a hazardous waste storage, disposal or treatment unit without written permission of the Director. The constructor should consider whether greater distances are required for the protection of the ground water depending on the topography and local geology.

(2) A new well may be constructed at the site of an abandoned septic tank or drain field one year after the septic tank or drain field is taken out of use. The abandoned septic tank shall be pumped by a DEQ licensed sewage disposal business to remove all contents. Following pumping, the tank shall be filled with reject sand, bar run gravel or other material approved by the on site sub-surface sewage permitting agent. The delivery line between the building and the tank shall be permanently capped or filled with cement grout. In no event shall a well be constructed through an abandoned septic tank or drain line. The new well shall be located to meet other setbacks as directed in section (1) of this rule.

(3) Application to the Director for permission to construct a well closer than the setback distances stated in section (1) of this rule shall include:

(a) A description of physical characteristics of the site which makes such location necessary; and

(b) A description of additional steps to be taken, over and above the minimum standards in these rules, which will assure adequate protection to the ground water resource.

(4) The Director may approve location of a well closer than the setback distances stated in section (1) of this rule only upon a determination that the additional precautions to be taken and specific physical characteristics of the site allow the proposed location without threat of cross-contamination of the ground water resource.

Water Used Must be Potable

690-210-040 All water used in the construction, alteration, repair or abandonment of a well shall be potable.

Organic Materials

690-210-050 Organic materials which foster or promote undesired organic growth or have the potential to degrade water quality shall not be employed in the construction of a well. This includes but is not limited to brans, hulls, grains, starches and proteins.

Explosives

690-210-060(1) If explosives are used in the construction of a well, their use must be reported on the well report form (well log). Information which shall be included is the type and amount of explosive used.

(2) In no case shall explosives other than commercially developed gun perforators be detonated inside the well casing or liner pipe without written permission from the Director. The request shall include the type of explosive to be used, how they will be placed, and where they are to be placed. In no case shall an explosive charge be dropped down a well or used to sever installed well casing or liner pipe.

Injection Wells

690-210-070 No well subject to these rules shall be used for the injection of surface or ground waters, or chemically or thermally altered waters, unless the injection installation, well design, and receiving formations are approved by the Water Resources Department. For additional regulations on the use of wells for injection purposes, contact the Oregon Department of Environmental Quality.

Commingling of Waters

690-210-080 In no case shall a well be constructed to allow commingling or leakage of ground water within an individual well by gravity flow or artesian pressure from different ground water aquifers associated with different geological units. However, ground water entering from different depths in the same geological unit may be combined provided the waters are similar as to potentiometric head, temperature and mineral content.

Perched Ground Water

690-210-090 Wells drawing water from perched zones must be constructed to prevent the waste of this type of ground water.

Mineralized or Contaminated Ground Water

690-210-100 All formations which yield contaminated or mineralized water shall be adequately cased and sealed off so as to prevent contamination of the overlying or underlying water-bearing zones.

Unattended Wells

690-210-110 All wells when unattended during construction shall be covered to protect public health and safety.

Additional Standards for Artesian Wells

690-210-120(1) Wells penetrating into an artesian aquifer shall have an upper drillhole four (4) inches greater in diameter than the nominal diameter of the permanent well casing. Watertight unperforated casing shall extend and be sealed at least five (5) feet into the confining formation immediately overlying the artesian water-bearing zone. In all cases, a minimum of 18 feet of casing and casing seal will be required. If cement grout is placed by a suitable pump from the bottom of the casing (Methods A, B, and D, in Appendix 2 and Figure 2), the diameter of the upper drillhole shall be at least two (2) inches larger than the nominal diameter of the casing. To complete the well, a smaller diameter casing, a perforated liner, or a well screen may be installed.

(2) When artesian pressures are encountered in the absence of a confining formation, casing and casing seal requirements shall be determined by the Director upon written application. In the alternative, the person constructing the well may construct the well in conformance with the minimum standards for artesian wells with a confining formation, set forth in section (1) of this rule.

(3) If a well flows at land surface, the well shall be equipped with a watertight mechanical cap, threaded or welded, and a control valve, so that all flow of water from the well can be completely stopped.

(4) All flowing artesian wells shall be equipped with a pressure gauge placed on a deadend line. A petcock valve shall be placed between the gauge and well casing. (See Figure 10, 1986.)

(5) All flowing artesian wells shall be tested for artesian shut-in pressure in pounds per square inch and rate of flow in cubic feet per second, or gallons per minute, under free discharge conditions. This data shall be reported on the well report.

Sealing of Wells in Unconsolidated Formations Without Significant Clay Beds

690-210-130(1) Wells drilled into unconsolidated water-bearing strata overlain by unconsolidated materials, such as sand, silt, or sand and gravel, without significant clay beds, shall have a watertight, unperforated well casing extending at least five (5) feet below the top of the water table. If the water table is thirteen (13) feet or less below land surface, a watertight, nonperforated, permanent well casing shall extend to a minimum depth of eighteen (18) feet. An upper oversize drillhole, four (4) inches greater in diameter than the nominal diameter of the casing, shall be constructed to a minimum depth of eighteen (18) feet. To prevent caving, a temporary surface casing, at least eighteen (18) feet in length, shall be used throughout the construction of the annular seal space.

(2) The annular space between the permanent well casing and the temporary surface casing or drillhole wall shall be completely filled and sealed from a depth of at least eighteen (18) feet to land surface with grout in accordance with rules 690-210-300 through 690-210-360 after the permanent well casing is set into its final position. The temporary surface casing shall be removed as the annular space is filled with grout. (See Figure 3, 1986.)

Sealing of Wells in Unconsolidated Formations With Significant Clay Beds

690-210-140 Wells drilled into water-bearing strata overlain by unconsolidated deposits of clay, or sand and gravel in which significant interbeds of clay are present, shall have a watertight, nonperforated, permanent well casing extending at least five (5) feet into a clay or other impermeable stratum overlying the water-bearing zone. In all cases, an upper oversize drillhole, at least four (4) inches greater in diameter than the nominal diameter of the permanent well casing shall be constructed to this same depth. In the event that the subsurface materials penetrated by the upper drillhole cave, or tend to cave, an outer, temporary surface casing shall be used to case out caving materials throughout the construction of the oversize drillhole. If the clay or other impermeable stratum is thirteen (13) feet or less below land surface, the watertight, nonperforated well casing and the upper, oversize drillhole shall extend to a minimum depth of eighteen (18) feet below land surface. If necessary to complete the well, the single, permanent well casing may be extended below the required sealing depth prior to sealing the well with grout. If preferred, a smaller diameter casing, perforated liner, or well screen may be installed. The annular space between the permanent well casing and the upper, oversize drillhole shall be completely filled with grout in accordance with rules 690-210-300 through 690-210-360 after the permanent well casing is set into final position. The temporary surface casing shall be removed from the well as the annular space is filled. (See Figure 4, 1986.)

Sealing of Wells in Consolidated Formations

690-210-150(1) Wells drilled into a water-bearing rock formation overlain by clay, silt, sand, gravel, or similar materials, shall be constructed in accordance with one of the following methods:

(a) Method 1 - An upper drillhole, four (4) inches greater in diameter than the nominal diameter of the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into solid, uncreviced, consolidated rock overlying the water-bearing rock formation below a depth of thirteen (13) feet. Unperforated permanent well casing shall extend to this same depth. The annular space between the casing and the drillhole wall within the rock formation shall be filled with cement grout. The upper annular space between the casing and the drillhole wall shall be filled from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. The annular space between the upper and lower required cement grout sealing intervals shall be filled with an impermeable sealing material or cement grout. If necessary to complete the well, a smaller diameter well casing, liner pipe, or well screen may be installed. If cement grout is placed by a suitable pump from the bottom of the casing to land surface (Methods A, B, D, Appendix 2), the upper drillhole shall be at least two (2) inches larger than the nominal diameter of the casing. (See Figure 5, 1986.)

(b) Method 2 - An upper drillhole, four (4) inches greater in diameter than the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. Unperforated, permanent well casing shall extend to and shall be driven into solid, uncreviced, consolidated rock overlying the water-bearing rock formation. A lower drillhole, equal in diameter to the inside diameter of the upper permanent well casing, shall be constructed at least five (5) feet into solid uncreviced rock overlying the water-bearing formation. A smaller diameter casing, at least two (2) inches smaller in diameter than the diameter of the upper permanent well casing, shall extend at least five (5) feet into the lower drillhole and at least eight (8) feet into the upper permanent well casing. The annular space between the upper oversize drillhole and the permanent well casing, and the annular space between the smaller diameter lower casing and the lower drillhole, shall be completely filled with grout in accordance with rules 690-210-300 through 690-210-360 after the permanent well casing and the lower casing are set into final position. (See Figure 6, 1986.)

(c) Method 3 - An upper drillhole, four (4) inches greater in diameter than the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. A lower drillhole, at least two (2) inches greater in diameter than the diameter of the permanent well casing, shall be constructed at least five (5) feet into solid, uncreviced, consolidated rock by under-reaming methods. Unperforated, permanent well casing shall extend to and be driven into solid, uncreviced, consolidated rock at the bottom of the under-reamed section following placement of the sealing material.

The annular space between the upper oversize drillhole and the upper permanent well casing shall be filled with cement grout using Method C or bentonite grout. The annular space between the lower under-reamed drillhole wall and the permanent well casing, shall be completely filled with grout applied under pressure in accordance with the appropriate Method A, B or D, in Appendix 2. (See Figures 2, 1986 and 7, 1986.)

(2) In all cases, (Methods 1, 2, or 3 above), if materials penetrated by the upper oversize drillhole cave, or tend to cave, an outer temporary surface casing shall be used to case out all caving material throughout construction of the oversize drillhole. The temporary surface casing shall be withdrawn as the annular space is filled with grout.

Sealing of Filter Pack Wells with Surface Casing

690-210-160 If a permanent surface casing is installed in the construction of a filter pack well, a well bore having a nominal diameter of at least four (4) inches greater than the nominal diameter of the permanent surface casing shall extend from land surface to at least five (5) feet into a clay or other impermeable formation overlying the water-bearing zone. Unperforated watertight casing shall extend to this same depth and the annular space between the well bore and the surface casing shall be filled with grout. If the clay or other impermeable formation is at or near land surface, a minimum of eighteen (18) feet of unperforated casing shall be installed. A watertight, welded, steel plate at least three-sixteenths (3/16) of an inch in thickness shall be installed between the inner production casing and the outer surface casing at the well head. A watertight fill pipe with threaded cap may be installed for the purpose of placing additional filter pack material in the well. (See Figure 8, 1986.)

Sealing of Filter Pack Wells Without Surface Casing

690-210-170 If a permanent surface casing is not installed in the construction of a filter pack well, a well bore having a nominal diameter of at least eight (8) inches greater than the nominal diameter of the permanent well casing shall extend from land surface to at least five (5) feet into a clay or other impermeable formation overlying the water-bearing zone. Unperforated watertight casing shall extend to this same depth and the annular space between the well bore and the permanent casing shall be completely filled with grout. If the clay or other impermeable formation is at or near land surface, the upper oversize drillhole and unperforated, permanent well casing shall extend to a minimum depth of eighteen (18) feet below land surface. A suitable packer shall be installed in the annular space between the filter pack material and the grout seal. A watertight fill pipe with threaded cap may be installed for the purpose of placing additional filter pack material in the well. The outside diameter of the fill pipe shall not exceed one-half the thickness of the grout seal surrounding the permanent well casing and shall be centered in the annular space. (See Figure 9, 1986.)

Additional Standards for Driven or Jetted Wells

690-210-180 All drive point wells or jetted wells shall have nonperforated, watertight pipe meeting the minimum specifications shown in Appendix 2, Table VI and extending a minimum distance of eighteen (18) feet below land surface. Drive pipe greater than three and one-half (3 1/2) inches shall comply with the minimum specifications in Rule 690-210-190. An upper drillhole at least four (4) inches greater in nominal diameter than the permanent production pipe shall extend at least eighteen (18) feet below land surface. The annular space shall be filled with grout. If temporary casing is used during construction, it must be removed during placement of the grout. (See Figure 11, 1986.)

Steel Casing

690-210-190(1) All steel casing installed, shall be in new or like new condition, being free of pits or breaks, and shall meet minimum American Society of Testing Materials (ASTM A-120) specifications for steel pipe, for the sizes as set out in Table IV, Appendix 2.

(2) All steel casing having a diameter larger than twenty (20) inches shall have a wall thickness of at least .375 inch.

(3) Steel casing installed in a well greater than a nominal diameter of ten (10) inches, having a wall thickness of .250 inch and meeting ASTM A-120 specifications must not exceed the following depth limitations (Diameter -Maximum Depth, respectively):

(a) 12 inches - 250 feet;
(b) 14-16 inches - 150 feet;
(c) 18-20 inches - 100 feet;

(4) Steel casings of other ASTM specifications shall not be used without written permission of the Director. A written request to use casing of other specifications shall be submitted to the Director. This request shall include a description of the casing specifications and the reason for its use.

Publications: The publication(s) referred to or incorporated by reference in this rule are available for reference in the office of the Water Resources Department.

Steel Casing Joints

690-210-200 All steel casing joints shall be welded or screw coupled and shall be watertight. If welded casing joints are used, the weld shall be a full penetrating weld at least equal in thickness to the wall thickness of the casing. Welded casing joints shall have a tensile strength equal to or greater than that of the casing.

Plastic Casing

690-210-210 Plastic casing shall not be driven and may only be installed in an oversized drillhole. Such casing shall be of polymerized vinyl chloride (PVC), type 1120 or 1220, SDR 21 (Class 200) or SDR 26 (Class 160), meeting the standards of the "National Sanitation Foundation" and ASTM D-2241-73 and ASTM D-1784-69. The well casing must be clearly marked by the manufacturer showing: nominal size, type plastic material, Standard Dimension Ratio (SDR), ASTM designation, and National Sanitation Foundation seal of certified approval. The maximum depth to which this plastic casing may safely resist collapsing forces is a function of the "Standard Dimension Ratio" (SDR), i.e., the ratio of the outside diameter to the casing wall thickness. The maximum depths have been computed for readily available SDR and are cited as:

(1) SDR = 21 - Maximum Depth = 150 feet.
(2) SDR = 26 - Maximum Depth = 100 feet.

Publications: The publication(s) referred to or incorporated by reference in this rule are available for reference in the office of the Water Resources Department.

Plastic Casing Joints

690-210-220 All plastic casing joints shall be watertight. Either "bell" type, threaded, or coupling hubs are approved. Hub couplings shall be of material meeting the specifications for plastic casings as set forth in rule 690-210-210. Joints shall be made by solvent cement in accordance with manufacturer's directions. Newly assembled joints require careful handling until the initial set has taken place, which varies with the temperature and the pipe size. The recommended initial set times are from manufacturer's recommendations (See Appendix 2, Table V).

Inner Casing

690-210-230 Inner casing installed to prevent leakage of undesirable water into a well must meet the minimum requirements of well casing (690-210-190). The space between the two well casings shall be pressure grouted so as to prevent the movement of water between the two casings. The inner casing must be centered and must be a minimum of two inches smaller in diameter than the outer casing. The grout must be placed in a positive manner in accordance with method A, B, D, or E. (See Appendix 2)

Casing Shall Be Centered

690-210-240 In all instances, casings shall be centered in sealed intervals. Casing centralizers may be used to ensure centering. When sealing a well by Method E, casing centralizers shall be used. (See Figure 1, 1986.)

Top Terminal Height

690-210-250(1) The casing head or pitless unit of any well shall extend not less than twelve (12) inches above the finished ground surface or pumphouse floor, and not less than twelve (12) inches above the local surface runoff level. The ground surface immediately surrounding the top of the well casing or pitless unit should be graded so as to drain surface water away from the well. No casing shall be cut off below land surface except to install a basement offset or a pitless unit, or during permanent abandonment of a well without permission of the Director.

(2) Application to the Director to reduce the top terminal height of casing shall include:

(a) A description of physical characteristics of the well site which make the requested change necessary; and

(b) A description of additional steps to be taken over and above the minimum standards in these rules which will assure adequate protection to the ground water resource.

(3) The Director may approve a reduction of the top terminal height of the casing only upon a determination that the additional precautions to be taken and specific physical characteristics of the site would prevent contamination of the ground water resource.

Openings in the Casing

690-210-260 There shall be no opening in the casing wall between the top of the casing and the bottom of the required casing seal except for pitless adapters, measurement access ports, and grout nipples installed in conformance with these standards. In no case shall holes be cut in the casing wall for the purpose of lifting or lowering casing into the well bore unless such holes are properly welded closed and watertight prior to placement into the well bore.

Pitless Well Adapters and Units

690-210-270 Surface seal requirements for well casing set forth herein shall also apply when a pitless adapter or unit is installed in a well. The seal shall cover that interval occupied by the pitless case from the point of casing connection to land surface. A grout seal shall not be required within the pitless unit sealing interval. The pitless adapter or unit, including the cap or cover, pitless case and other attachments, shall be designed and constructed to be watertight to prevent the entrance of contaminants into the well from surface or near-surface sources. Pitless units shall be vented to the atmosphere.

NOTE: Prior to installing pitless well adapters or units on public, community, municipal, or public utility water supply wells, contact the Department of Human Resources. (See references to Health Division regulation in Appendix 1, Table III).

Access Ports and Airlines

690-210-280 All wells shall be equipped with a usable access port with a minimum diameter of 3/4 inch. In addition, an airline with a pressure gauge adequate to determine the water level in the well at any time may be installed. If an airline is installed, it must enter the well in a location other than the access port. If the well constructor does not install a pump in the well, the landowner will be required to provide the access port. (See Figure 17, 1986.)

Liner Pipe

690-210-290 Liner pipe installed through caving formations and installed without driving, may be of lighter weight than specified by table IV under rule 690-210-190. Such lightweight pipe shall have a wall thickness equal to or greater than .188 inch. All liner pipe shall be of steel, in new or like new condition, being free of pits or breaks; or shall be of polymerized vinyl chloride (PVC) type 1220 or 1120, SDR 21 (Class 200), or SDR 26 (Class 160). Liner pipe installed in a well shall extend or telescope at least eight (8) feet into the lower end of the well casing. In the event that more than one string of liner pipe is installed, each string shall extend or telescope at least eight (8) feet into the adjacent larger diameter liner pipe. Liner pipe shall be removable. Liner pipe may be welded or hooked onto the permanent well casing but shall not be permanently fixed to a well casing or borehole wall using packers or grout which would prohibit the liner's removal. (See Inner Casing 690-210-230.)

Drill Cuttings or Chips

690-210-300 In no case shall drill cuttings or drill chips be used or allowed to fill, partially fill, or fall into the required sealing interval of a well during the construction or the completion of a well.

Cement Grout

690-210-310 When using cement grout as the sealing material in a well, it must meet the following requirements:

(1) Cement grout used to seal a well shall be composed of a uniformly mixed slurry of Portland cement or High Early Strength Type III Portland cement, and potable water, or High-alumina cement, and potable water mixed in the following proportions (Type of Cement - Gallons of Water Per Sack of Dry Cement, respectively):

(a) Portland Cement - 4 1/2 to 6;

(b) High Early Strength Type III Portland Cement - 5 1/2 to 6 1/2;

(c) High-alumina Cement - 4 1/2 to 6.

(2) Additives to increase fluidity, reduce shrinkage, or control time of set may be used in a cement grout mixture. Expanding agents such as aluminum powder may be used at a rate not exceeding .075 ounce (1 level teaspoonful) per sack of dry cement. The powder shall not contain polishing agents. The addition of bentonite clay to a cement grout mixture is permissible but shall not in any case exceed five (5) percent by weight of dry cement. Calcium chloride may be added to a Portland cement grout to accelerate the set but shall not exceed two (2) pounds per sack of dry cement. High-alumina cement and Portland cement of any type shall not be mixed together for use in a well. (3) Cement types other than those set forth herein shall not be used as a sealing material in a well except upon written approval of the Director of the Water Resources Department.

(4) In no case shall sand or aggregate be added to cement grout seal mixtures.

Concrete

690-210-315 Concrete for use in the construction of a dug well, or for filling the annular space or well bore of a well, shall consist of clean, hard, and durable aggregate, and not less than five (5) sacks of Portland cement per cubic yard of concrete. Concrete will be allowed only when the oversize drill hole is a minimum of 8 inches larger in diameter than the well casing used in construction of the well. The maximum diameter of aggregate particles shall not exceed one and one-half (1 1/2) inches, but, in any case, shall not exceed one-fifth (1/5) or twenty (20) percent of the minimum width of the space to be filled. The ratio of coarse aggregate to fine aggregate (Passing No. 4, US Standard Sieve) shall be approximately one and one-half (1 1/2) to one (1) by volume, but, in any case, shall not exceed two (2) to one (1) nor be less than one (1) to two (2).

Methods of Placement of Cement Grout or Concrete

690-210-320 Cement grout or concrete used as a sealing material in a well shall be placed or forced upward from the bottom of the space to be grouted and shall be placed in one continuous operation without significant interruption. If temporary outer surface casing is used in the construction of the well, it shall be withdrawn as the grout or concrete is placed. (For acceptable methods of procedure, see Appendix 2 and Figure 2, 1986.)

Bentonite Grout

690-210-330 Bentonite used in construction of surface casing seals for wells shall be within industry tolerances for 6 to 8 mesh, dry granular western sodium bentonite. The bentonite shall be free of polymers.

Method of Placement of Bentonite Grout

690-210-340(1) An upper oversize drillhole, four inches greater than the nominal inside diameter of the permanent well casing, shall be constructed to a minimum depth of eighteen (18) feet. THE USE OF BENTONITE GROUT AS A SURFACE CASING SEAL SHALL NOT BE ALLOWED BELOW TWENTY-FIVE (25) FEET FROM LAND SURFACE. In the event that the subsurface materials penetrated by the oversize drillhole cave, or tend to cave, an outer temporary surface casing shall be used to case out the caving materials throughout construction of the oversize drillhole. The temporary surface casing shall be removed before completion of drilling.

(2) The annular space shall be free of water. In the event water is present or encountered during the construction of the oversized drillhole, bentonite shall not be used as grout material.

(3) After placement of the permanent casing, the annular space shall be filled to land surface with granular bentonite, in a dry condition. The annular space shall be kept full while drilling or driving casing. The annular space shall be tamped while placing bentonite to prevent bridging.

Resumption of Construction Following Placement of Cement Grout

690-210-350 The time of the final set for a cement grout mixture varies greatly in accordance with cement-water ratio and temperature. When cement grout is used to seal a well, construction should not resume in any way until after the final set of the cement grout mixture. Performance of all cement grout seals shall be the responsibility of the person responsible for the construction of the well. Recommended periods of time of final set are:

(1) If Portland Cement is used - 72 hours;

(2) If High Early Strength Type III Portland Cement is used - 48 hours;

(3) If High-alumina Cement is used - 6 hours.

Movement of Casing After Cement Grouting

690-210-360 In no case shall the permanent well casing be moved or driven following the placement and initial set of the cement grout.

Well Test

690-210-370 Every well shall be tested for yield and drawdown for a period of not less than one hour either by bailing, pumping, or air testing. Any testing method that does not provide for drawdown measurements during testing is not an accurate or reliable test of yield.

Disinfection of a Well

690-210-380 Every new, altered, or reconditioned well including pumping equipment, sand, or gravel used in filter pack wells and a well casing standing above the water table, shall be thoroughly hosed or sluiced with water, and shall be disinfected with a solution containing at least fifty (50) parts per million chlorine before being placed in the well. All water introduced into a well during construction shall be clean and potable. The well and its equipment, including the interior of the well casing, shall be thoroughly swabbed and cleaned to remove all of the oil, grease, and foreign substances upon completion of the well's construction. Following the completion of a well, and again after the pumping equipment has been installed, the well and its equipment shall be disinfected by thoroughly agitating and mixing in the well a solution containing enough chlorine to leave a residual of twenty-five (25) parts per million throughout the well after a period of twenty-four (24) hours. (See Chart Recommendations for Disinfection of Wells, Appendix 1.)

Completion of Wells

690-210-390 A well constructor or permitted landowner constructing his own well shall not remove the drilling machine from a well site unless it is immediately replaced by another drilling machine in operating condition prior to:

(1) Completion of the well in compliance with rules 690-210-005 through 690-210-430 and a watertight seal, threaded or welded cap placed on the well in accordance with rule 690-220-005; or

(2) Completion of the well in compliance with rules 690-210-005 through 690-210-430 and a pump installed; or

(3) Abandonment of the well in compliance with rules 690-220-030 through 690-220-140.

Construction of Dug Wells

690-210-400 All dug wells greater than twelve (12) feet in depth shall be constructed with a watertight surface curbing extending from a minimum of twelve (12) inches above land surface to a depth of eighteen (18) feet below land surface. In the case of wells ranging from twelve (12) to twenty-one (21) feet in depth, water tight surface casing shall extend to within three (3) feet of the bottom of the well. Open wells, sometimes called sumps, which exceed ten (10) feet in average diameter are exempt from these construction requirements, but are subject to all the requirements covering the use of ground water (water right application).

Buried Slab Construction

690-210-410 In a buried slab type well, the slab shall be at least eighteen (18) feet below land surface and shall be at least three (3) inches in thickness. The slab shall be reinforced to withstand all stresses. The slab shall be sealed with cement grout at least one (1) foot thick, and the well bore backfilled with grout or concrete in accordance with rules 690-210-300 through 690-210-360 and with 690-210-430. (See Figure 12, 1986.)

Surface Curbing

690-210-420(1) The surface curbing required in rule 690-210-400 shall be of concrete, concrete tile, or steel. If concrete is used, the concrete wall thickness shall not be less than six (6) inches. In case of buried slab type well, well casing meeting the minimum specifications given in rule 690-210-190 through rule 690-210-220 shall be used. (See Figure 12, 1986.)

(2) If precast concrete tile or steel casing are used for the surface curbing, the well diameter to the bottom of the surface curbing shall be eight (8) inches greater than the outside diameter of the tile or steel, and the annular space shall be completely filled with grout or concrete. (See Figure 12, 1986.)

Special Temporary Standards for Repair, Maintenance and Delays in Completion of New Well Construction

690-210-510(1) An authorization for special temporary standards from adopted uniform standards for construction and maintenance of wells may be granted by the Director for a specified time period not to exceed one year. A request for such temporary special standard shall be in writing from the landowner drilling their own well with a well construction permit or the bonded constructor, and shall include at a minimum:

(a) The intended use of the well;

(b) The location of the well;

(c) The name and address of the owner;

(d) The location of and distance to the nearest well, septic tank and drainfield (if none are in within 500 feet, so indicate);

(e) The unusual conditions existing at the well site that create the need for special standards;

(f) The reasons that adherence to or compliance with the rules and regulations for minimum standards will not result in a satisfactory well;

(g) The proposed standards that the well constructor or landowner constructing the well believes will be adequate for the particular well;

(h) A diagram showing the pertinent features of the proposed well design and construction; and

(i) The date by which the well will be brought into full compliance with the minimum standards.

(2) A copy of the approved special temporary standards shall be attached to each copy of the well report completed by the constructor for the subject well. The constructor shall note on the attachment or on the well report how and when the well was brought into full compliance with the minimum standards.

(3) Authorization for temporary standards for maintenance and repair, but not for new well construction, may be extended by the Director if good cause is shown by the well constructor.

DIVISION 215

MAINTENANCE, REPAIR AND DEEPENING OF WELLS

Prevention of Ground Water Contamination, Health Hazard, and Waste

690-215-005 The landowner shall maintain all wells in a condition where they are not a health threat, or health hazard, or a source of contamination or a source of waste of the ground water resource. If, in the opinion of the Director, a well is a health threat, or health hazard, or a source of contamination or a source of waste of the ground water resource, the Director may order discontinuance of or impose conditions upon the use of the well or order the well repaired or permanently abandoned in accordance with OAR Chapter 690, Divisions 215 and 220 of the Standards for Construction and Maintenance of Wells in the State of Oregon.

Notice Required to Maintain an Existing Well Following Construction of Replacement Well

690-215-010 Any time a new well is constructed to replace an existing well which is a source of contamination, loss of artesian pressure or waste, the existing well shall be repaired in compliance with these rules or abandoned in accordance with rules OAR 690-220-030 through 690-220-140.

Accessibility to Well for Reconditioning, Repair or Abandonment

690-215-015 To enable drilling equipment future access to the well for reconditioning, repair or abandonment, the property owner should maintain a minimum five-foot separation distance between the well and any permanent structure.

Down Well Continuous Water Treatment

690-215-017(1) If a chemical is used to treat well water, it shall not be allowed to come into contact with the inside of the well casing. Down well treatment of well water will only be allowed if a commercial water treatment system is used. Delivery pipes or tubes designed for use with the treatment chemicals shall be used to place the chemicals into the water in the well. This rule does not apply when disinfecting the well and equipment following construction.

(2) In no event will farm chemicals, including herbicides, pesticides, fungicides or fertilizers be allowed to enter a well.

Valves and Casing on Artesian Wells

690-215-020 Valves and casing on all artesian wells shall be maintained in a condition so that the flow of water can be completely stopped when the water is not being put to beneficial use. All casing, liner pipe, and casing seals shall be maintained in a condition that will prevent surface or subsurface leakage of ground water. Valves shall be closed when water is not being put to beneficial use. During periods of subfreezing temperatures, a valve may be partially opened to prevent damage due to freezing.

Casing and Liner Pipe

690-215-030 All casing or liner pipe used in the repair or deepening of wells shall meet the minimum standards in rules 690-210-190 through 690-210-290.

Sealing of Casing

690-215-040 If in repair or deepening of a drilled well the old casing is withdrawn or advanced, the well shall be recased and resealed in accordance with the rules set forth in rules 690-210-020 through 690-210-510.

Well Cover

690-215-050 All wells shall be securely covered to prevent any foreign substance from entering the well including any material which might contaminate the water-bearing zone.

Access Port or Airline

690-215-060 The access port or airline on all wells required by 690-210-280 shall be maintained in a condition that will prevent contamination of the water body. Access ports and airlines shall be maintained so that the position of the water table can be determined at any time.

Pressure Gauge

690-215-070 The pressure gauge and petcock valve required by rule 690-210-120 shall be maintained so that the artesian pressure can be accurately determined at any time. (See Figure 10.)

Flowmeters

690-215-080 The Director may require the landowner to install totalizing flowmeters on any well, either as a condition of a water right permit or at a later date as circumstances may warrant. The landowner may be required to install flowmeters on existing permitted wells and on wells which are exempted by ORS 537.545.

Conversion to an Artesian Well

690-215-090 If a well becomes artesian upon deepening, the well shall be cased, sealed and completed in accordance with rule 690-210-120.

Drilling in a Dug Well

690-215-100 In no case shall a dug well be deepened by drilling methods.

DIVISION 220

ABANDONMENT OF WELLS

Temporary Abandonment

690-220-005 Any well to be temporarily removed from service, temporarily abandoned due to a recess in construction, or temporarily abandoned before commencing service, shall be capped with a watertight seal, watertight welded steel cap, or threaded cap. In the event that temporary abandonment is to be of 90 days or less, the temporary steel cap may be welded to the well casing with a minimum of four (4) separate welds, evenly spaced, each at least one-half (1/2) of an inch in length. Steel or cast iron caps shall be at least three-sixteenths (3/16) of an inch in thickness.

Permanent Abandonment

690-220-030 Any well that is to be permanently abandoned shall be completely filled in such a manner that vertical movement of water within the well bore, including vertical movement of water within the annular space surrounding the well casing, is effectively and permanently stopped.

Abandonment of Uncased Wells in Unconsolidated Formations

690-220-040 Uncased wells to be abandoned that extend only into unconsolidated materials shall be completely filled with cement grout or concrete. (See Figure 13, 1986.)

Abandonment of Uncased Wells in Consolidated Formations

690-220-050 Uncased wells to be abandoned that penetrate a water-bearing rock formation shall be filled with concrete or cement grout, or alternating layers of cement grout or concrete and clean gravel throughout the water-producing horizon. A concrete or cement grout plug shall be constructed from the top of the rock formation to a depth of at least twenty (20) feet below the top of the rock formation. The remainder of the well above the rock formation shall be filled to land surface with cement grout or concrete. Plugs of cement grout or concrete, at least three (3) feet in length, shall be placed in non-producing zones between all water-bearing zones. In all cases, a cement grout or concrete plug, at least three (3) feet in length, shall be constructed in a non-producing stratum immediately above the uppermost water-bearing zone. (See Figure 14, 1986.)

Abandonment of Cased Wells

690-220-060 If the well casing or the liner pipe is not removed during the abandonment of a well, the casing or liner shall be thoroughly ripped or perforated. The annular space between the casing or liner and the drillhole wall shall be effectively and completely filled with cement grout applied under pressure. The remainder of the well shall be filled with cement grout or concrete. Uncased horizons in a cased well to be abandoned shall be filled in accordance with rules 690-220-030 through 690-220-050. The casing of wells to be abandoned may be severed below land surface and removed. (See Figure 15, 1986.)

Abandonment of Artesian Wells

690-220-070 The flow of artesian wells to be abandoned shall be confined or restricted by cement grout applied under pressure, or by the use of a suitable well packer, or a wooden plug placed at the bottom of the confining formation immediately above the artesian water-bearing zone. Cement grout or concrete shall be used to effectively fill the well to land surface. (See Figure 16, 1986.)

Abandonment of Driven and Jetted Wells

690-220-080 A cement grout or concrete plug shall be placed opposite all perforations or openings in the well casing. The remainder of the well shall be filled with cement grout, or concrete.

Abandonment of Filter or Gravel Pack Wells

690-220-090 Filter or gravel pack wells may be abandoned only with prior written approval of the Director of the method proposed for abandonment of the particular well. Any method of abandonment proposed must ensure that all perforated sections of the casing will be pressure grouted throughout, and that the remainder of the well is filled with cement grout, or concrete.

Abandonment of Dug Wells

690-220-095(1) Abandonment of a dug well shall be approved by the department before work is started. The department shall be notified of the proposed abandonment. The notification shall include:

(a) Location;
(b) Name of the owner;
(c) Well diameter;
(d) Well depth;
(e) Depth to water;
(f) Type of well casing or liner material if any; and
(g) The proposed method of abandonment.

(2) A method to be used in the abandonment will be approved by the department if the method will adequately protect the ground water resource. Dug wells penetrating more than one water bearing zone shall be abandoned in a manner to eliminate the possibility of leakage from one water bearing zone to another.

(3) The well shall be abandoned by a licensed well constructor, a landowner with a landowner well construction permit and bond or in the presence of the watermaster or other department representative.

Obstructions and Possible Contaminants

690-220-100 All obstructions or debris which may interfere with effective sealing operations shall be removed from the well to be abandoned. Any foreign matter capable of causing ground water contamination shall be removed prior to placing any sealing material.

Removal of Well Casing During Abandonment

690-220-110 If the casing of a well is removed during abandonment, the well shall be plugged and sealed in accordance with rules 690-220-030 through 690-220-050 and shall be filled with sealing materials as the casing is removed.

Cement Grout

690-220-120 Cement grout for use in abandonment operations shall conform to the requirements of rule 690-210-310.

Concrete

690-220-130 Concrete for use in abandonment operations shall conform to the requirements of rule 690-210-430.

Method of Placement of Concrete or Cement Grout

690-220-140 Concrete or cement grout used as a sealing material in abandonment operations shall be introduced at the bottom of the well or required sealing interval and placed progressively upward to the top of the well. All such sealing materials shall be placed by the use of a grout pipe, tremie, or by dump bailer in order to avoid segregation or dilution of the sealing materials.

DIVISION 225

ENFORCEMENT
(See Figure 18, 1986)

Investigation of Alleged Violations

690-225-020 The Water Resources Director, upon the Director's own initiative, or upon complaint alleging violation of statutes, standards or rules governing construction, alteration, or abandonment of wells may cause an investigation to determine whether a violation has occurred. If the investigation indicates that a violation has occurred, the Director shall notify the persons believed responsible for the violation including but not limited to:

(1) Any well constructor involved; or

(2) The landowner, if the violation involves construction, alteration, operation, or abandonment of a well.

Enforcement Actions

690-225-030(1) If, after notice and opportunity for hearing under ORS 183.310 to 183.550 the Director determines that one or more violations have occurred, the Director may impose one or more of the following:

(a) Provide a specified time for remedy;

(b) Assess a civil penalty in accordance with the schedule of civil penalties in OAR 690-225-110;

(c) Suspend, revoke, or refuse to renew the licenses when one or more persons responsible for the violation hold a well constructor's license;

(d) Require that a person whose license has been refused renewal pass the constructor test before a new license is issued;

(e) Impose any reasonable conditions on the well constructor's license to insure correction of the violation and future compliance with the law. These conditions may include but are not limited to:

(A) Fulfilling any outstanding obligations which are the result of administrative action before the constructor can offer any services or construct, alter or abandon any well;

(B) Requiring additional advance notice to be given to the watermaster of construction, alteration or abandonment of any well;

(C) Requiring a seal placement notice be given to the watermaster 24 hours in advance of placing the seal; or

(D) Any other conditions the Director feels are appropriate.

(f) Order the landowner to repair or meet other conditions on use of the well, or order discontinuance of use and proper abandonment pursuant to ORS 537.775;

(g) Make demand on the well constructor's bond or on the landowner's bond. This may occur only if the Director has given the notice required in OAR 690-225-020 to the persons responsible for the violation within three years after the date the well report is filed with the Department. If no well report has been filed, the three year limitation shall not apply until such time as a well report is filed;

(h) Take any other action authorized by law.

(2) An order may specify a schedule of escalating or cumulative sanctions to be assessed on specified dates until satisfactory correction of the violation has been completed.

(3) Any well constructor whose license is suspended or revoked shall not contract for well construction services or operate well drilling machines in the State of Oregon during the suspension or revocation period.

Multiple Violations and Consolidation of Proceedings

690-225-040 In cases of multiple or continuing violations, each occurrence of substantially the same activity and each day's continuance of a violation after the responsible party has been notified is a separate and distinct violation. Administrative enforcement proceedings for multiple violations may be consolidated into a single proceeding.

Factors Affecting Selection of Type and Degree of Enforcement

690-225-050 In selecting the appropriate type and degree of enforcement, the Director may consider the following factors:

(1) Whether the constructor's file demonstrates a pattern of prior similar violations;

(2) Whether the respondent has cooperated in attempting correction of any violation in a timely fashion;

(3) The gravity and magnitude of the violation including whether there is an immediate or long-term threat to human health or the ground water resource;

(4) Whether the damage to the ground water resource is reversible;

(5) Whether the violation in the instances cited was repeated or continuous;

(6) Whether a cause of the violation was an unavoidable accident;

(7) The opportunity and degree of difficulty to correct the violation;

(8) The cost to the Department except for travel costs, after the initial field investigation, attempting to gain voluntary compliance of the cited violation. The costs may be considered until the Department receives respondent's answer to the written notice and opportunity for hearing; or,

(9) Any other relevant factor.