



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

RECEIVED  
Aug 9 5 11 1990  
SECRETARY OF STATE

I HEREBY CERTIFY that the attached copy is a true, full and correct copy of PERMANENT rule(s) adopted on August 3, 1990 (Date)

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

become effective upon filing (Date)

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

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: June 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)

Opted (Total Rules) Chapter 690, Division 240, Construction and Maintenance of Monitoring Wells and other holes in Oregon.

Rescinded: (Existing Rules) \_\_\_\_\_

Repealed: (Statute Rules Only) \_\_\_\_\_

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

DATED this 9th day of August, 19 90

By: John E. Borcher (Authorized Signer)

Title Deputy Director

Statutory Authority: ORS \_\_\_\_\_ of \_\_\_\_\_  
Telephone(s) 537, 742.366 Oregon Laws 19 \_\_\_\_\_ or  
House Bill(s) \_\_\_\_\_, 19 \_\_\_\_\_ Legislature; or Senate Bill(s) \_\_\_\_\_, 19 \_\_\_\_\_ Legislature

Subject Matter: The construction, conversion, or abandonment of monitoring wells requires a monitoring well construction license. The rules cover requirements for becoming licensed, the construction conversion, or abandonment of monitoring wells and civil penalties for violation of the rules.

Further Information Contact: Fred Lissner or Marc Norton (Rule Coordinator) Phone: 378-3671

**OREGON ADMINISTRATIVE RULES**  
**CHAPTER 690, DIVISION 240 — WATER RESOURCES DEPARTMENT**

**DIVISION 240**

**CONSTRUCTION AND MAINTENANCE  
OF MONITORING WELLS AND  
OTHER HOLES IN OREGON**

**Introduction**

**690-240-005** (1) Wells drilled to allow ground-water quality determinations (monitoring wells) are constructed in a variety of environments and under a variety of conditions. Frequently, their improper construction, maintenance, operation, and abandonment can allow deterioration of ground-water quality and supply. Although enforcement actions may be exercised against other parties, the landowner of the property where the monitoring well is constructed is ultimately responsible for the condition and use of the monitoring well.

(2) Holes other than monitoring and water supply wells (other holes) drilled, excavated, or otherwise constructed in the earth's surface can also provide an avenue for deterioration of ground-water quality. Construction, maintenance, operation or use, and abandonment of other holes can pose a significant risk to groundwater.

(3) Many monitoring wells and other holes are constructed by public agencies for various activities. Other such construction is also undertaken by private construction, engineering, and geotechnical firms for a variety of purposes including complying with state and federal agency mandates.

(4) Groundwater problems are difficult, expensive, and time consuming to correct. The Water Resources Commission (Commission) has been authorized to develop standards for wells drilled for the purpose of monitoring groundwater in order to protect the state's groundwaters. The Water Resources Commission has also been authorized to develop standards for other holes through which groundwater may become contaminated. The rules set forth herein are adopted to provide that protection. Their purpose is to prevent and eliminate groundwater contamination, waste, and loss of artesian pressure.

(5) The Commission may develop additional rules as needed prescribing standards for the construction, operation, maintenance, and abandonment of other specific types of wells and holes to protect groundwater.

(6) Monitoring wells are wells under ORS 537.515(9) and a license and fee, bond, examination, well report, and start card and fee are required under existing statutes. Other holes do not require a license and fee, bond examination, well report, and start card and fee.

(7) Holes constructed under ORS Chapters 517, 520, and 522, and rules promulgated from those statutes, are the responsibility of the Oregon Department of Geology and Mineral Industries and are not subject to these rules. These include, but are not limited to, holes constructed for the purposes of exploring for, or producing, petroleum, minerals, or geothermal resources.

(8) The rules and regulations set forth herein shall become effective January 1, 1994.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Definitions**

**690-240-010** The following definitions apply to terms as used in monitoring well and other hole rules, OAR 690-240-005 to 690-240-180:

(1) "Abandonment" means to remove a monitoring well, or portion of a monitoring well, from service by 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. This term is synonymous with "decommission".

(2) "Artesian Monitoring Well" means a monitoring well in which groundwater is under sufficient pressure 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.

(3) "Contamination" means any chemical, ion, radionuclide, synthetic organic compound, micro-organism, waste or other substance that does not occur naturally in groundwater or that occurs naturally but at a lower concentration.

(4) "Excavation" means a free-standing cavity constructed in the earth's surface, with other than well drilling machines, which has a primary purpose other than water quality monitoring.

(5) "Horizontal Well" means a well that intentionally deviates more than 20 degrees from true vertical.

(6) "Monitoring Well" means any hole, however constructed, in naturally existing or artificially emplaced earth materials through which groundwater is accessed to make judgments, determinations, observations, or measurements of water quality.

(7) "Monitoring Well Drilling Machine" means any driving, jetting, percussion, rotary, boring, auguring machine or other equipment used in the construction, alteration, or abandonment of monitoring wells.

(8) "Other Hole" means a hole other than a water supply well or monitoring well, however constructed, in naturally occurring or artificially emplaced earth materials through which groundwater can become contaminated. Holes constructed under ORS Chapters 517, 520, and 522 are not subject to these rules.

(9) "Responsible Party" means the person or agency that is in control and is either in violation as specified in a notice of violation or who may benefit from that violation.

(10) "Remediation Well" means a well used for extracting contaminants. This term is synonymous with "extraction well".

(11) "Temporary Monitoring Well" means a monitoring well which is open no longer than 72 hours before the prescribed abandonment is completed.

(12) "Wasteful Use" means any artificial discharge or withdrawal of groundwater from an aquifer, including leakage from one aquifer to another aquifer within a well bore, that is not put to a beneficial use.

(13) "Water Supply Well" means a well as defined in OAR 690-200-050(94) with the exception of monitoring wells or other holes as regulated in OAR 690-240.

Stat. Auth.: ORS 536.090 & 537.505 - 527.796

**OREGON ADMINISTRATIVE RULES**  
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Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Delegation of Responsibility for Monitoring Wells and Other Holes**

**690-240-015** (1) The Director may, by memorandum of understanding, delegate to another state agency direct control and management of monitoring wells and other holes when the other state agency implements these standards, as a minimum, for the construction, operation, maintenance, and abandonment of those monitoring wells and other holes.

(2) Such delegation shall be revoked at such time as the agency intentionally or repeatedly fails to enforce the standards.

(3) The Water Resources Department shall provide notice to all licensed monitoring and water supply well constructors whenever authority is delegated to or revoked from another state agency.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Delegation Conditions**

**690-240-020** In order for the Commission to delegate responsibility for monitoring wells or other holes to another agency, construction, operation or use, maintenance, and abandonment standards developed by that agency pursuant to OAR 690-240-015 shall include, but not be limited to, provisions to address the following factors:

- (1) Reporting well or hole location.
- (2) Reporting intended use of the well or hole.
- (3) Reporting well or hole design or construction.
- (4) Assigning responsibility for compliance.

(5) Protecting groundwater through minimum standards for the construction, operation or use, maintenance, and abandonment of the monitoring well or other hole that provide groundwater protection equivalent to that provided by OAR 690-240-005 to 690-240-180.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Temporary Monitoring Wells**

**690-240-025** (1) A temporary monitoring well classification does not waive license, bond, start card/fee, or well report requirements.

(2) A temporary monitoring well:  
(a) Requires submittal of only one start card and fee. The constructor shall indicate both "new construction" and "abandonment" under "Type of Work";

(b) Requires submittal of only one monitoring well report. The constructor shall indicate both "new construction" and "abandonment" under "(2) Type of Work", and provide a narrative of the construction and abandonment procedure used under "(9) Well Log";

(c) Shall be abandoned within 72 hours of initial construction;

(d) Shall be abandoned in accordance with the following:

(A) If the temporary monitoring well to be abandoned is uncased, it shall be abandoned by

filling the borehole from the bottom up with neat cement, a bentonite grout slurry or dry bentonite in accordance with the requirements of OAR 690-240-130;

(B) If the temporary monitoring well to be abandoned is cased, it shall be abandoned in accordance with the requirements of OAR 690-240-135.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Other Holes: General Performance and Responsibility Requirements**

**690-240-030** (1) Although enforcement actions may be exercised against other parties, the landowner of the property where the other hole is constructed is ultimately responsible for the condition and use of the other hole.

(2)(a) In order to protect groundwater, all other holes shall be constructed, operated or used, maintained, and abandoned in such a manner as to prevent contamination of groundwater;

(b) In order to protect groundwater, all other holes, when abandoned, shall be abandoned in such a manner that water cannot move vertically in them with any greater facility than in the undisturbed condition prior to construction of the other hole. Drill cuttings shall not be placed in the hole as an abandonment material;

(c) Before any hole other than a monitoring well, temporary monitoring well, or a water supply well, is used as an opening through which water is produced or groundwater quality information or samples are obtained, the landowner shall bring the construction of the hole into compliance with water supply well or monitoring well construction standards, as appropriate. Conversion of other holes to water supply or monitoring wells shall be considered by the Water Resources Department on a case-by-case basis;

(d) If the other hole is an excavation for removal of an underground storage tanks, one water sample may be taken without adhering to the licensing, start card/fee, monitoring well report and monitor well conversion requirements.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**License Required to Construct Monitoring Wells**

**690-240-055** (1) Any person who constructs, alters or abandons monitoring wells shall have a Monitoring Well Constructor License.

(2) If a person advertises services and/or enters into contracts for the construction, alteration or abandonment of monitoring wells for another person, that person shall furnish a \$4,000 Well Constructor Bond or Irrevocable Letter of Credit to the Water Resources Commission. This bond or letter of credit shall be separate from the bond or letter of credit required for construction of water supply wells.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

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**Monitoring Well Constructor License Examination**

**690-240-060** The Water Resources Department administers the written examination required under ORS 537.747. The Department schedules the examination on the second Monday during the months of January, April, July and October. Special accommodations may be given to those individuals who cannot attend the regularly scheduled examination dates. Requests shall be considered on a case-by-case basis. The examination tests the applicant's knowledge of:

(1) Oregon laws and administrative rules on the use of groundwater, monitoring well constructor licensing requirements, the construction of monitoring wells, and preparing and filing Monitoring Well Reports.

(2) Hydrogeology, the occurrence and movement of groundwater and contaminants, and the design, construction and development of monitoring wells.

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

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. of. R-9-90; WRD R-1993, f. 12-14-93, cert. of. 1-1-94

**Monitoring Well Constructor License, Experience Requirements and Trainee Card**

**690-240-065** (1) License. To qualify for a Monitoring Well Constructor License, a person shall:

(a) Be at least 18 years old;

(b) Pass a written examination;

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

(A) Monitoring 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 monitoring well shall be included on each report or log;

(B) Income tax returns showing source of drilling income for a period of time, or worker's compensation account information or the equivalent may be established to satisfy the one year 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 monitoring well constructor examination, but cannot meet the experience requirement the Commission will issue a trainee card. To qualify for a monitoring 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 Monitoring Well Constructor License.

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

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

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

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

(b) A licensed 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) Drilling into, through, or below groundwater suspected or known to be contaminated; and

(H) Placing casing seals.

(c) A trainee may operate a non-cable tool monitoring well drilling machine without a licensed monitoring well constructor physically present at the well site only during removal of the drill stem from the monitoring well;

(d) Activities under subsection (3)(c) of this rule shall proceed only if:

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

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

(e) The watermaster in whose jurisdiction the monitoring 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; and

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

(4) Persons who satisfy all requirements of ORS 537.747(3) shall be issued a monitoring well constructor's license in the form of a constructor's card. The responsibilities for securing and issuing a Monitoring Well Constructor license or trainee card are listed in subsections (a) and (b) of this section:

(a) The monitoring 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

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

(b) The Water Resources Department is responsible for:

(A) Designing and providing Monitoring 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 monitoring well constructor. For a person to possess a bonded monitoring well constructor's card, the person shall provide to the Department a properly executed monitoring well constructor's bond. The Water Resources Department shall indicate on the constructor's card a bonded classification.

(6) Representatives of the Water Resources Department may ask anyone constructing, altering, or abandoning a monitoring well to present their license or trainee card as proof of eligibility to construct, alter, or abandon monitoring wells in the State of Oregon. Cardholders shall display their cards when requested by Water Resources Department or other agency personnel to whom monitoring well regulation has been delegated.

Stat. Auth.: ORS 636.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Terms of Monitoring Well Constructor License and License Fees**

690-240-070 (1) The Department issues all monitoring 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 monitoring 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 a license after the expiration date. There is no charge for a Trainee Card.

(4) Monitoring 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.

Stat. Auth.: ORS Ch. 537 & 742

Hist.: WRD 14-1990, f. & cert. ef. 8-9-90

#### **Contracting for Services**

690-240-075 Only Oregon licensed and bonded monitoring well constructors may advertise services or enter into a contract, either written or oral, to construct, alter, or abandon a monitoring well. Any written bid for a project which includes the construction, alteration or abandonment of a monitoring well must provide:

(1) A bid or estimate for the work associated

with monitoring well construction signed by a monitoring well constructor, who is licensed and bonded in the state of Oregon.

(2) A statement by the contractor that the work will be completed in accordance with Oregon Groundwater Law (ORS Chapter 537) and the Rules for the Construction and Maintenance of Monitoring Wells and Other Holes in Oregon (OAR Chapter 690, Division 240).

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Monitoring Well Constructor Bonds or Letters of Credit**

690-240-080 (1) The Water Resources Department shall accept bonds only from corporations licensed by the Oregon Department of Insurance and Finance to issue fidelity and surety insurance. The Water Resources Department shall accept irrevocable letters of credit only from a commercial bank as described in ORS 706.005.

(2) If the issuing corporation cancels a bond, the corporation shall provide notice of cancellation to the Water Resources Department by registered or certified mail. If the issuing commercial bank cancels a letter of credit, the commercial bank shall provide notice of cancellation to the Water Resources Department 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 742.366.

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

(4) All monitoring wells shall be constructed under a bond or irrevocable letter of credit. The bond or letter of credit shall cover construction, alteration or abandonment for each well under that bond or letter of credit for a period of three years after the date the well report is filed with the commission, whether or not the bond or letter of credit has been subsequently cancelled.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Monitoring Well Drilling Machines**

690-240-085 (1) All monitoring well drilling machines being operated shall be plainly marked with the bonded monitoring 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 monitoring well drilling business. Good quality paint or commercial decal numbers shall be used in placing each identification number on the drilling machine. In no case shall the constructor's license number be inscribed with crayon, chalk, marking keel, pencil, or other temporary markings.

(2) In all cases, the license number of the bonded monitoring well constructor shall be removed from the drilling machine immediately upon change of ownership or change of control of the drilling machine.

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Stat. Auth.: ORS 536.090 & 537.605 - 537.795  
Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Monitoring Well Construction Notice Required (Start Card)**

**690-240-090** (1) Each bonded monitoring well constructor licensed to operate in the state of Oregon shall provide notice as required in ORS 537.762 before commencing the construction, alteration, conversion or abandonment of any monitoring well. The notice card shall contain the name and mailing address of the customer for which work is to be performed, the street address and the approximate location of the monitoring well and, in the case of new construction, conversion or alteration, the proposed depth, diameter, and the purpose or use.

(2) All notices of new or converted monitoring wells constructed by a licensed and bonded monitoring well constructor shall be submitted with a \$75 notice fee.

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

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

(5) In addition to the notice required under section (4) of this rule, the constructor shall provide the "Watermaster" copy of the start card to the office of the district watermaster within which the water supply well is being constructed, altered, converted or abandoned no later than the day work begins, using one of the following options:

(a) By regular mail no later than three calendar days (72 hours) prior to commencement of work; or

(b) By hand delivery, during regular office hours, no later than the day work is commenced; or

(c) By facsimile transmission (FAX) no later than the day work is commenced. If this method is used, the original "Watermaster" copy of the start card shall also be mailed or delivered to the office of the district watermaster no later than the day work is commenced.

NOTE: District Watermaster office fax numbers are listed in Table VI. Watermaster district boundaries are shown in Figure 12-2.

The Director or 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 monitoring well. A monitoring well constructor whose license has been restricted by order shall provide notice as stipulated in the order.

(6) Once received by the Department, the notice card shall be confidential for a period of one year after it is received or until the monitoring well report required by OAR 690-240-095 is received whichever is shorter.

(7) 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.

[ED. NOTE: The Table and Figure referenced in this rule are not printed in the OAR Compilation. Copies are available from the Water Resources Department.]

Stat. Auth.: ORS 536.090 & 537.605 - 537.795  
Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Monitoring Well Report Required (Monitoring Well Log)**

**690-240-095** (1) A monitoring well report (monitoring well log) shall be prepared for each monitoring well constructed, altered, converted, or abandoned including unsuccessful monitoring wells. The log shall be certified as correct by signature of the monitoring well constructor constructing the monitoring well. The completed log shall also be certified by the bonded monitoring well constructor responsible for construction of the monitoring well. A monitoring well report must be submitted by each constructor (if more than one) of 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 or previously approved in writing by the Water Resources Department. The original and first copy shall be furnished to the Director, the second copy shall be retained by the monitoring well constructor, and the third copy shall be given to the customer who contracted for the construction of the monitoring well.

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

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

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

(6) A copy of any special authorizations or special standards issued by the Director shall be attached to the Monitoring Well Report.

(7) The report of monitoring well construction required in section (1) of this rule shall be recorded on a form provided or previously approved in writing by the Department. The form shall include, as a minimum, the following:

(a) Owner/Project name (as appropriate);

(b) Started/Completed date;

(c) Location of well by county, township, range, section and 1/4, 1/4 section, and either tax lot number, or street address. If a global positioning system (GPS) is used, the information must be converted to township, range, section and 1/4, 1/4



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section and the latitude and longitude measurements included;

(d) Start card number (Well identification number);

(e) Use of well;

(f) Type of work;

(g) Type and amount of sealant used and measured weight of the grout slurry as required in OAR 690-240-130(1)(g);

(h) Map showing location of monitoring well on site, must be attached and shall include an approximate scale and a north arrow;

(i) Such additional information as required by the Department.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Monitoring Well Construction: General**

**690-240-100** (1) Monitoring well components, including well screens, casings and annular sealant should be selected based on known site characteristics to ensure the well will last for the duration of the monitoring program.

(2) No monitoring well shall be used for domestic, industrial, commercial, or agricultural purposes unless it meets the minimum construction standards for water supply wells, OAR 690-200 to 690-230.

(3) No completed monitoring well shall interconnect aquifers, including low yielding aquifers.

(4) The start card number shall be used as the well identification number and shall be permanently attached, stamped or engraved on the outer well casing or permanent protective well cover, not on a removable cap.

(5) No monitoring well shall be constructed as a multiple completion well without prior special standard approval as specified in OAR 690-240-140.

(6) Remediation and horizontal wells shall be constructed with special standard approval only as specified in OAR 690-240-140.

(7) The borehole diameter shall be at least four inches larger than the nominal casing diameter. If the monitoring well is constructed using a hollow stem auger drilling machine, the inside diameter of the auger must be at least four inches larger than the nominal diameter of the casing to be installed.

(8) Materials which foster or promote undesirable organic growth or have the potential to degrade water quality shall not be employed in the construction of the monitoring well.

(9) After completion, the landowner is responsible for maintaining the well in an approved condition. If the well is damaged, the well protection system and casing shall be restored as prescribed by these rules. If the well is damaged beyond repair, the well shall be properly abandoned in accordance with OAR 690-240-135.

(10) Any deviation from these rules requires special standard approval as specified under OAR 690-240-140.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Well Protection**

**690-240-110** (1) Every monitoring well shall be

capped and protected using one of the following methods:

(a) If the well is cased with metal and completed above the ground surface, a lockable cap shall be attached to the top of the casing;

(b) If the well is not cased with metal and completed above the ground surface, a metal protective casing shall be installed around the well. The protective casing shall extend at least six inches above the top of the well casing and at least two feet into the ground. A lockable cap shall be attached to the top of the protective casing; and

(c) If the well is completed below ground surface, a lockable cap shall be attached to the top of the casing. A protective cover, level with the ground surface, shall be installed with a waterproof seal to prevent the inflow of surface water. The cover must be designed to withstand the maximum expected loadings.

(2) All wells completed above ground shall have a minimum casing height of one foot above finished grade and shall be protected from damage by three metal posts at least three inches in diameter, set in and filled with concrete, shall be installed in a triangular array around the casing and at least two feet from it. Each post shall extend at least three feet above and below the ground surface.

(3) If the well is to be protected by other surface protection methods, the bonded constructor shall obtain special standards from the Department as described in OAR 690-240-140.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Casing**

**690-240-115** (1) The constructor shall consider the following factors when selecting monitoring well casing:

(a) The casing installed shall not be readily reactive with the subsurface environment according to best available knowledge;

(b) The casing installed shall not adversely affect or interfere with the chemical, physical, radiological, or biological constituents of interest according to best available knowledge;

(c) The collapse strength of all casing used in monitoring well construction must be great enough to withstand the pressure exerted by the annular seal during seal placement, including heat of hydration.

(2) All monitoring well casing shall conform to at least 304 or 316 stainless steel, polytetrafluoroethylene PTFE, Schedule 40 PVC casing, or other casing materials rated and approved by ASTM for monitoring well construction.

(3) All casing installed shall be in new or like new condition, being free of pits or breaks, and shall be cleaned of foreign materials and contaminants prior to installation.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795

Hist.: WRD 14-1990, f. & cert. of. 8-9-90; WRD 8-1993, f. 12-14-93, cert. of. 1-1-94

**Additional Standards for Artesian Monitoring Wells**

**690-240-118** (1) Monitoring wells penetrating into an artesian aquifer shall have an upper

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drillhole at least four inches greater in diameter than the nominal diameter of the permanent well casing. Watertight unperforated casing shall extend and be sealed, according to OAR 690-240-130, at least five feet into the confining formation immediately overlying the artesian water-bearing zone.

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

(3) All flowing artesian monitoring wells shall be equipped with a pressure gauge placed on a dead-end line. A petcock valve shall be placed between the gauge and well casing.

(4) All flowing artesian monitoring 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.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Cleaning**

**690-240-120** (1) All drill cuttings and fluids from drilling, cleaning and development shall be properly managed during construction, alteration or abandonment to protect groundwater from contamination.

(2) The landowner or the landowner's agent is responsible for management of drill cuttings and fluids left on site after well construction, alteration or abandonment is completed.

(3) To prevent cross-contamination between wells, the drill rig and all drilling equipment shall be cleaned before and after well construction by one of the following methods:

(a) Detergent washing and rinsing with potable water;

(b) High pressure hot water cleaning;

(c) Steam cleaning; or

(d) Other appropriate methods as approved by the Water Resources Department.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Well Screen, Filter Pack, and Development**

**690-240-125** [WRD 14-1990, f. & cert. ef. 8-9-90;  
Repealed by WRD 8-1993,  
f. 12-14-93, cert. ef. 1-1-94]

#### **Monitoring Well Screen and Filter Pack**

**690-240-126** (1) The screen and filter pack, when properly designed and installed, allows a water quality sample to be collected that is representative of water in the formation.

(2) The well screen shall:

(a) Be commercially fabricated and constructed of material that is not knowingly readily reactive with the subsurface environment;

(b) Have a collapse strength great enough to withstand the pressures exerted during construction and development of the monitoring well;

(c) Be in new or like new condition, being free of pits or breaks;

(d) Be cleaned using methods outlined in OAR 690-240-120(3); and

(e) Be centered in the borehole.

(3) The use of lead packers with the screen sections is prohibited.

(4) A bottom cap or end plug shall be attached to each well casing.

(5) The filter pack shall:

(a) Consist of clean, chemically inert, well rounded material;

(b) Not extend more than three feet above the top or one foot below the bottom of the well screen; and

(c) Be placed in such a manner as to ensure placement opposite the well screen without bridging or size segregation.

(6) The filter pack seal shall consist of:

(a) A two foot thick layer of fine grained sand above the filter pack if a grout or grout slurry is used; and/or

(b) A minimum of a three foot thick layer of dry bentonite. If a grout slurry is to be used as the annular seal, the bentonite shall be adequately hydrated prior to placement of the annular seal to prevent grout infiltration into the filter pack.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Well Seals**

**690-240-130** Proper seal placement is essential to minimize the potential for movement of water and contaminants from the surface, or other waterbearing zones, into the monitoring well. Appropriate sealing materials may vary depending on the site characteristics and the substances being monitored. Well seals shall consist of a physically and chemically stable hydrated grout slurry composed of either neat cement, sodium bentonite, or a cement-bentonite mixture containing no more than five percent bentonite by dry weight; or of sodium bentonite granules, pellets or chips placed in an unhydrated state, and subsequently hydrated downhole:

(1) Grout slurries shall be mixed in the proper proportions and placed in the bore hole in such a manner as to prevent excessive shrinkage, water loss, chemical breakdown, bridging or invasion into the filter pack. The following procedures shall be utilized if a grout slurry is to be the sealing material:

(a) Neat cement used for grouting shall be American Petroleum Institute Class A or B, or ASTM C-150 Type I or II neat cement with no additives, mixed in the proportion of 5.2 gallons of water per standard 94 pound sack and having a mud weight of approximately 15.6 pounds per gallon;

(b) Bentonite used as a slurry for grouting shall be a high solids granular sodium bentonite mixed according to the manufacturer's directions, having a minimum mud weight of at least 9.5 pounds per gallon, and containing at least 20 percent solids. Mixing methods should be used which prevent the slurry from being excessively lumpy;

(c) When a mixture of cement and bentonite is used as a slurry for grouting, the cement shall be American Petroleum Institute Class A or B, or ASTM C-150 Type I or II neat cement. The slurry shall be no more than five percent, by dry weight of



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cement, sodium bentonite gel powder (3.75 pounds of bentonite per sack of cement). For each pound of bentonite added, up to an additional 0.7 gallons of water shall be added to the original neat cement mix. The water and bentonite shall be mixed first, and the cement added to the bentonite slurry. The cement-bentonite mixture shall have a mud weight of approximately 14.1 pounds per gallon;

(d) Prior to placing grout in the annular space, the grout slurry weight shall be measured by **ASTM Test Method D-4380-84**. Grout slurry shall not be placed in the annular space until the grout slurry weight is within ten percent of the weight specified in subsection (1)(a), (b) or (c) of this rule;

(e) Grout slurries shall be placed from the bottom of the annular space upward in such a manner as to completely fill the sealing interval. Grout slurries shall begin at the top of the filter pack seal overlying the filter pack and extend to the bottom of the surface seal. If the grout slurry is intended to serve as the surface seal, it shall extend to land surface;

(f) Grout slurries shall be placed through a side discharge tremie pipe by gravity flow or by pumping to ensure positive placement without bridging or wash-out of previously placed annular materials. The discharge end of the tremie pipe shall remain submerged in the grout throughout the sealing operation;

(g) Prior to discontinuing placement of grout in the annular space, grout slurry returns from the annular space shall be measured by **ASTM Test Method D-4380-84**. Placement of grout slurry in the annular space shall continue until the returns are within ten percent of the weight specified in subsection (1)(a), (b) or (c) of this rule.

(2) Bentonite used in an unhydrated form shall be sodium bentonite granules, pellets or chips. The following procedures shall be followed if dry bentonite will be used for sealing:

(a) Dry, poured bentonite seals shall only be used if the depth to the bottom of the seal is less than fifty feet and the standing water column in the bore hole or annular space is less than twenty-five feet deep at the time of seal placement. Only sodium bentonite chips or pellets shall be used below the water level in the sealing interval;

(b) Pour rate shall be three minutes or slower per 50 pound sack in the water-filled portion of the annulus;

(c) A sounding or tamping tool shall be run in the bore hole or annular space during pouring to measure fill-up rate and to break up possible bridges or cake formation;

(d) In a dry sealing interval, bentonite shall be installed in individual lifts with a maximum thickness of two feet. Hydrate the dry bentonite in each lift with potable water to ensure activation.

(3) The estimated and actual volume of sealing material used shall be calculated and reported to the Department.

[Publications: The publication(s) referred to or incorporated by reference in this rule are available from the Water Resources Department.]

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

### Monitoring Well Development

**690-240-131** (1) The monitoring well development shall not affect the integrity of the casing or seal. Monitoring well development shall not occur prior to 24 hours after annular seal placement if cement grout or a bentonite grout slurry is used, or 12 hours after annular seal placement if dry bentonite is used.

(2) The monitoring well development should:

(a) Remove any water or drilling fluid introduced into the well during drilling;

(b) Stabilize the filter pack and formation materials opposite the well screen;

(c) Minimize the amount of fine-grained sediment entering the well; and

(d) Maximize well efficiency.

(3) As long as the well is not altered, the monitoring well development may be performed by other than a licensed and bonded monitoring well contractor.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

### Completion of Monitoring Wells

**690-240-132** (1) A monitoring well constructor shall not remove the drilling machine from a monitoring well site, unless it is immediately replaced by another monitoring well drilling machine in operating condition, prior to completion or abandonment of the well in compliance with administrative rules OAR 690-240-005 through 690-240-140 and installation of a watertight seal, or threaded or welded cap on the well.

(2) Installation of the protective metal posts does not require a monitoring well constructor's license, providing the surface seal is not disturbed.

(3) Installation of the protective posts described in OAR 690-240-110 shall be completed within one week of placement of the seal.

(4) If installation of the protective measures as described in OAR 690-240-110 are not completed within 24 hours of seal placement, the monitoring well shall be marked using one of the following methods.

(a) Placement of three stakes around the well connected with fluorescent survey tape;

(b) Placement of construction barricades around the well; or

(c) Use of other protective measures as approved by the Water Resources Department

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

### Abandonment of Monitoring Wells

**690-240-135** Proper abandonment of monitoring wells will prevent both vertical movement of water within the well bore and infiltration of surface water into the well:

(1) In areas where groundwater contamination has been identified, abandonment shall require the borehole to be completely redrilled to a minimum of the original diameter. All casing, screen, annular sealing material, drill cuttings, debris, and filter pack material shall be removed prior to sealing.

(2) In areas where groundwater contamination has not been identified, if it can be verified that the monitoring well was constructed in accordance with

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these rules, it shall be abandoned by filling the well from the bottom up with an approved sealant as described in OAR 690-240-130. The casing shall then be removed below grade, as compatible with local land use. The following are acceptable methods of original well construction verification:

- (a) A well report in accordance with OAR 690-240-095;
- (b) Well construction information submitted to the Oregon Department of Environmental Quality;
- (c) Information obtained through down-hole geophysical logging; or
- (d) Other information as approved by the Water Resources Department.

(3) In areas where groundwater contamination is not present, if the monitoring well construction cannot be verified by means listed in section (2) of this rule, the well shall be abandoned according to section (1) of this rule.

(4) Grout slurries shall be placed from the bottom up by a tremie tube to avoid segregation or dilution of the sealant. The discharge end of the tremie tube shall be submerged in the grout to avoid breaking the seal while filling the annular space. Grout slurries used to abandon monitoring wells shall conform to the requirements of OAR 690-240-130.

(5) The abandonment procedure shall be recorded on a form provided by or previously approved in writing by the Department. The form shall include, as a minimum, the following:

- (a) Owner/Project name (as appropriate);
- (b) Started/Completed date;
- (c) Location of well by county, township, range, section and 1/4, 1/4 section and either tax lot or street address. If a global positioning system is used, the information must be converted to township, range, section and 1/4, 1/4 section and the latitude and longitude measurements included;
- (d) Start card number (Well identification number);
- (e) Type of work;
- (f) Method of abandonment;
- (g) Type and amount of sealant used and measured weight of the grout slurry as required in OAR 690-240-130(1)(g);
- (h) A map showing location of the monitoring well on site must be attached and shall include an approximate scale and north arrow;
- (i) Such additional information as required by the department.

(6) The well abandonment shall be recorded and reported to the Department within thirty days of abandonment.

(7) When abandoning artesian monitoring wells, in addition to sections (1) - (6) of this rule, the flow shall be confined or restricted by cement grout applied under pressure, or by the use of a suitable well packer, or a plug placed at the bottom of the confining formation immediately above the artesian waterbearing zone. An approved sealant shall be used to fill the well to land surface as specified in OAR 690-240-130.

(8) Monitoring wells that were constructed under special standards will require the abandonment method to be approved by the Department.

Stat. Auth.: ORS 536.090 & 537.505 - 537.796  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Abandonment of Temporary Monitoring Wells**  
**690-240-138** [WRD 14-1990, f. & cert. ef. 8-9-90;  
Repealed by WRD 8-1993,  
f. 12-14-93, cert. ef. 1-1-94]

**Special Standards**

**690-240-140** (1) Specific site conditions may require design, construction, and abandonment procedures to adapt to the existing local geologic and groundwater conditions to fully utilize every natural protection to the state's groundwater. Specific site conditions may require different design, construction, or abandonment standards than required by the Monitoring Well construction rules. Alternate technologies not addressed in these rules may also exist which could be utilized in the construction or abandonment of a monitoring well. The constructor must request in writing, and receive, written approval from the Director to use methods or materials that do not meet monitoring well construction standards prior to completion or abandonment of the well. The proposed methods or materials shall prevent or eliminate contamination or waste of groundwater or loss of artesian pressure.

- (2) The written request shall include:
- (a) The purpose of well construction or abandonment;
  - (b) Location of well by township, range and section;
  - (c) Name and address of the project site;
  - (d) The distance to the nearest well and septic drain field;
  - (e) The reasons that conformance to the rules and regulations for monitoring wells cannot be met;
  - (f) A diagram showing the proposed monitoring well design, construction, or abandonment; and
  - (g) The start/card well identification number.

Stat. Auth.: ORS 536.090 & 537.505 - 537.796  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Evidence of Failure**

**690-240-145** Evidence of failure to comply with the requirements of OAR 690-240, special standards as described in OAR 690-240-140, or those standards of a state agency to which the Director has delegated direct responsibility under OAR 690-240-015 shall include, but not be limited to, the following:

- (1) A specific standard to which the Director has agreed is violated.
- (2) Evidence that contamination is occurring as a result of a monitoring well or other hole construction.
- (3) Evidence that wasteful use of groundwater is occurring.

Stat. Auth.: ORS 536.090 & 537.505 - 537.796  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

**Investigation of Alleged Violations**

**690-240-150** The Water Resources Director, upon the Director's own initiative, or upon complaint alleging violation of statutes, standards or rules governing licensing, construction, alteration, or abandonment of monitoring wells or other holes may cause an investigation to

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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 monitoring well constructor involved.
- (2) The landowner, if the violation involves construction, alteration, operation or abandonment of a well.
- (3) The agency that has been delegated authority over a particular class of wells.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Enforcement Actions**

**690-240-155** (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 690-240-180;
- (c) Suspend, revoke, or refuse to renew the licenses when one or more persons responsible for the violation hold a monitoring well constructor's license;
- (d) Require that a person whose license has been refused renewal pass the monitoring well constructor test before a new license is issued;
- (e) Impose any reasonable conditions on the monitoring 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, convert, or abandon any monitoring well;

(B) Requiring additional advance notice to be given to the watermaster of construction, alteration or abandonment of any monitoring 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, order discontinuance of the use or order proper abandonment pursuant to ORS 537.775;

(g) Make demand on the monitoring well constructor's bond. This may occur only if the Director has given the notice required in OAR 690-240-150 to the persons responsible for the violation within three years after the date the monitoring well report is filed with the Department. If no monitoring well report has been filed, the three year limitation shall not apply until such time as a well report is filed; or

(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 the violation has been satisfactorily corrected.

(3) Any monitoring well constructor whose license is suspended or revoked shall not contract for monitoring well construction services or operate

monitoring well drilling machines in the State of Oregon during the suspension or revocation period.

Stat. Auth.: ORS 536.090 & 537.505 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

#### **Multiple Violations and Consolidation of Proceedings**

**690-240-160** 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.

Stat. Auth.: ORS Ch. 537 & 742  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90

#### **Factors Affecting Selection of Type and Degree of Enforcement**

**690-240-165** 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 groundwater resource.

(4) Whether the damage to the groundwater 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.

(9) Any other relevant factor.

Stat. Auth.: ORS Ch. 537 & 742  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90

#### **Change in Enforcement Status**

**690-240-170** (1) In the interest of achieving compliance, the Director at any time may reevaluate the status of the violations and take appropriate action, including reduction of the enforcement level or remission of all or part of any civil penalties assessed.

(2) The Director may terminate proceedings against a monitoring well constructor if the constructor provides acceptable evidence that:

(a) The landowner does not permit the constructor to be present at any inspection made by the Director; or

(b) That the constructor is capable of complying with recommendations made by the Director, but the landowner does not permit the constructor to

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comply. In such cases, the landowner is responsible for bringing the well into compliance pursuant to ORS 537.535, and if the landowner was not a party to the original enforcement proceeding the Director may initiate a proceeding to ensure that the landowner does so.

Stat. Auth.: ORS Ch. 537 & 742  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90

**Assessment of Civil Penalties**

**690-240-175** Under OAR 690-240-155(1) the Director may at any time select the most appropriate enforcement tool, including assessment of civil penalties, to gain compliance. However, the Director shall not impose a civil penalty if compliance has been achieved in another manner prior to final decision in the proceeding.

Stat. Auth.: ORS Ch. 537 & 742  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90

**Schedule of Civil Penalties**

**690-240-180** (1) The amount of civil penalty shall be determined consistent with the following schedule:

(a) Not less than \$25 nor more than \$250 for each occurrence defined in the rules as a minor violation;

(b) Not less than \$50 nor more than \$1,000 for each occurrence defined in the rules as a major violation;

(c) First occurrence, in a calendar year, of a missing or late start card fee shall be \$150;

(d) Second occurrence, in a calendar year, of a missing or late start card fee shall be \$250; and

(e) Third occurrence, and all subsequent occurrences, in a calendar year, of a missing or late start card fee shall be \$250 and may include suspension of the monitoring well constructors license, and any other action authorized by law.

(2) For purposes of assessing a civil penalty, the start card fee referred to in subsections (1)(c), (d), and (e) of this rule shall not be considered late if it is received in the Salem office of the Water Resources Department within five days of the receipt of the start card, provided the start card is submitted in a timely manner as defined in OAR 690-240-090.

(3) Table 1 located at the end of this Division, lists minor violations of well construction standards. All other violations are declared to be major.

Stat. Auth.: ORS 536.090 & 537.605 - 537.795  
Hist.: WRD 14-1990, f. & cert. ef. 8-9-90; WRD 8-1993, f. 12-14-93, cert. ef. 1-1-94

TABLE I  
(OAR 690-240-180 (3))

Oregon Statute Reference	Value Assignment	Title
ORS 537.762	Minor	REPORT OF COMMENCEMENT OF CONSTRUCTION
ORS 537.765	Minor	WELL REPORT
Rule 690-240-085	Minor	DRILLING MACHINE IDENTIFICATION
Rule 690-240-095	Minor	WELL REPORT
Rule 690-240-100 (4)	Minor	WELL IDENTIFICATION NUMBER (START CARD NUMBER)

TABLE II  
(OAR 690-240-090)

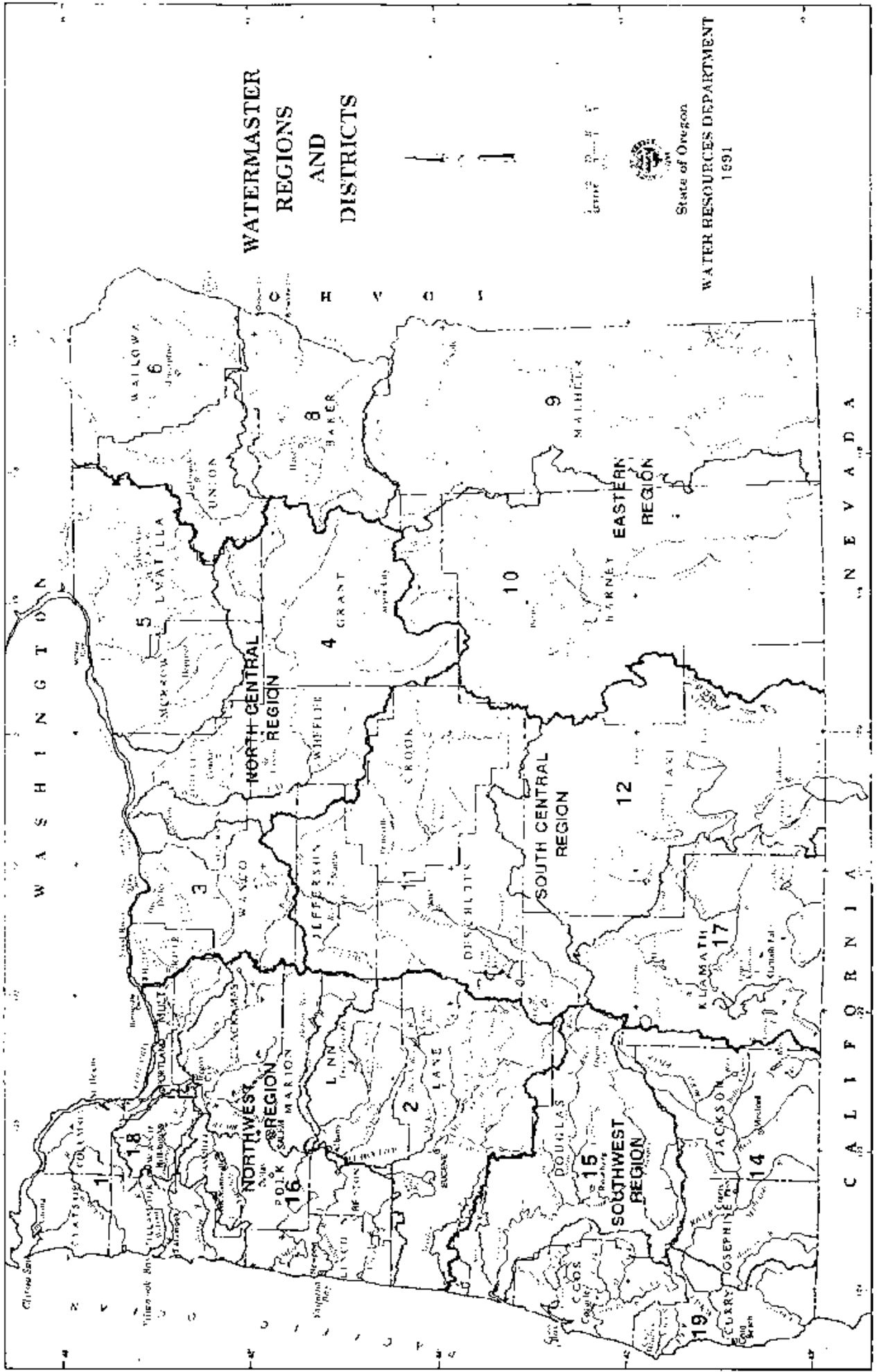
Watermaster Office Fax Numbers

District	Watermaster	Fax Number
01	St. Helens	397-2760
02	Eugene	687-3804
03	The Dalles	296-3769
04	Canyon City	575-2248
5	Pendleton	278-0287
06	La Grande	963-8980
08	Baker City	523-3913
09	Vale	473-5136
10	Burns	573-8387
11	Bend	385-1748
12	Lakeview	947-6015
14	Grants Pass	474-5389
15	Roseburg	440-4408
16	Salem	378-8130
17	Klamath Falls	883-4183
18	Hillsboro	681-7028
19	Coquille	396-2690

Notes:

1. Watermaster fax numbers are subject to change.
2. A current version of this table is available at the Water Resources Department's Salem office.
3. See Figure 1 for a map of Watermaster Districts.

FIGURE 1





ADMINISTRATIVE RULES  
 WATER RESOURCES DEPARTMENT  
 CHAPTER 690, DIVISION 240  
 CONSTRUCTION AND MAINTENANCE  
 OF MONITORING WELLS AND OTHER HOLES IN OREGON

INTRODUCTION

690-240-005 (1) Wells drilled to allow groundwater quality determinations (monitoring wells) are constructed in a variety of environments and under a variety of conditions. Frequently, their construction, maintenance, operation, and abandonment can allow deterioration of groundwater quality and supply. Although enforcement actions may be exercised against other parties, the landowner of the property where the monitoring well is constructed is ultimately responsible for the condition and use of the monitoring well.

(2) Holes other than monitoring and water supply wells (other holes) drilled, excavated, or otherwise constructed in the earth's surface can also provide an avenue for deterioration of groundwater quality. Construction, maintenance, operation or use, and abandonment of other holes can pose a significant risk to groundwater.

(3) Many monitoring wells and other holes are constructed by state agencies for various activities. Other such construction is also undertaken by private construction, engineering, and geotechnical firms for a variety of purposes including complying with state and federal agency mandates.

(4) Groundwater problems are difficult, expensive, and time consuming to correct. The Water Resources Commission (Commission) has been authorized to develop standards for wells drilled for the purpose of monitoring groundwater in order to protect the state's groundwaters. The Water Resources Commission has also been authorized to develop standards for other holes through which groundwater may become contaminated. The rules set forth herein are adopted to provide that protection. Their purpose is to prevent, and eliminate groundwater contamination, waste, and loss of artesian pressure.

(5) The Commission may develop additional rules as needed prescribing standards for the construction, operation, maintenance, and abandonment of other specific types of wells and holes to protect groundwater.

(6) Monitoring wells are wells under ORS 537.515 (7) and a license and fee, bond, examination, well report, and start card and fee are required under existing statutes. Other holes do not require a license and fee, bond examination, well report, and start card and fee.

(7) Holes constructed under ORS 517, 520, and 522 for the purposes of exploring for, or producing, petroleum, minerals, or geothermal resources are the responsibility of the Oregon Department of Geology and Mineral Industries. These holes are not subject to these rules.

DEFINITIONS

690-240-010 The following definitions apply to terms as used in monitoring well and other hole rules, OAR 690-240-005 to 690-240-145.

(1) "Contamination" means any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance that does not occur

naturally in groundwater or that occurs naturally but at a lower concentration.

(2) "Excavation" means a free-standing cavity constructed in the earth's surface which has a primary purpose other than water quality monitoring.

(3) "Monitoring well" means any hole, however constructed, in naturally existing or artificially emplaced earth materials through which groundwater is accessed to make judgments, determinations, observations, or measurements of water quality.

(4) "Monitoring well drilling machine" means any driving, jetting, percussion, rotary, boring, digging, auguring machine or other equipment used in the construction, alteration, or abandonment of monitoring wells.

(5) "Other hole" means a hole other than water well or monitoring well, however constructed, in naturally occurring or artificially emplaced earth materials through which groundwater can become contaminated.

(6) "Responsible Party" means the person or agency that is in control and is either in violation as specified in a notice of violation or who may benefit from that violation.

(7) "Temporary monitoring well" means an uncased monitoring well which is less than 1.5 inches in diameter, less than 15 feet deep, and is open no longer than 24 hours before prescribed abandonment is completed. This includes, but is not limited to wells constructed by cone penetration testing, by a Hydropunch, or by auger.

(8) "Wasteful use" means any artificial discharge or withdrawal of groundwater from an aquifer, including leakage from one aquifer to another aquifer within a well bore, that is not put to a beneficial use.

#### DELEGATION OF RESPONSIBILITY FOR MONITORING WELLS AND OTHER HOLES.

690-240-015 (1) Monitoring wells and other holes may be constructed pursuant to practices, responsibilities, or statutory authority of another state agency or commission. The Commission may, by memo of understanding, delegate to another state agency all direct control and management of monitoring wells and other holes when the other state agency develops and puts in place standards for the construction, operation, maintenance, and abandonment of those wells and holes which are, in the Commission's judgment, adequately protective of the state's groundwaters.

(2) Such delegation shall be revoked at such time as:

(a) The standards are changed in such a way as to make them ineffective at protecting groundwater, or

(b) The standards are demonstrated through experience to be ineffective at protecting groundwater, or

(c) The agency intentionally or repeatedly fails to enforce the standards.

#### DELEGATION CONDITIONS

690-240-020 In order for the Commission to delegate responsibility for monitoring wells or other holes to another agency, construction, operation or use, maintenance, and abandonment standards developed by that agency pursuant to OAR 690-240-015 shall include, but not be limited to, provisions to address the following factors:

(1) reporting well or hole location

(2) reporting intended use of the well or hole

- (3) reporting well or hole design or construction
- (4) assigning responsibility for compliance, and
- (5) protecting groundwater through minimum standards for the construction, operation or use, maintenance, and abandonment of the well or hole that provide groundwater protection equivalent to that provided by OAR 690-240-005 to 690-240-145.

#### OTHER HOLES: GENERAL PERFORMANCE AND RESPONSIBILITY REQUIREMENTS

690-240-030 (1) Although enforcement actions may be exercised against other parties, the landowner of the property where the other hole is constructed is ultimately responsible for the condition and use of the other hole.

(2) a) In order to protect groundwater, all other holes shall be constructed, operated or used, and maintained in such a manner as to prevent contamination of groundwater.

b) In order to protect groundwater, all other holes, when abandoned, shall be abandoned in such a manner that water cannot move vertically in them with any greater facility than in the undisturbed condition prior to construction of the other hole.

c) Before any hole other than a monitoring well, a water supply well, or excavation is used as an opening through which water is produced or groundwater quality information or samples are obtained, the landowner shall bring the construction of the hole into compliance with water well or monitoring well construction standards, as appropriate.

#### LICENSE REQUIRED TO CONSTRUCT MONITORING WELLS

690-240-055 (1) Beginning January 1, 1991, any person who constructs, alters or abandons monitoring wells shall have a Monitoring Well Constructor License. No Monitoring Well Constructor License shall be effective until January 1, 1991.

2) If a person advertises services and/or enters into contracts for the construction, alteration or abandonment of monitoring wells for another person, that person shall furnish a \$4,000 Well Constructor Bond to the Water Resources Commission. This bond shall be separate from, and in addition to, the bond required for construction of water wells.

#### MONITORING WELL CONSTRUCTOR LICENSE EXAMINATION

690-240-060 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 monitoring well constructor license examination shall be given by appointment only during 1990. The examination tests the applicant's knowledge of:

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

(2) Ground-water geology, the occurrence and movement of groundwater and contaminants, and the design, construction and development of monitoring wells; and

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

#### MONITORING WELL CONSTRUCTOR LICENSE, EXPERIENCE REQUIREMENTS AND TRAINEE CARD

690-240-065 (1) License. To qualify for a Monitoring Well Constructor License, a person shall:

- (a) Be at least 18 years old;
- (b) Pass a written examination;
- (c) Have the equivalence of one year of experience on a minimum of fifteen monitoring wells during the previous 36 month period. The experience shall be in monitoring well construction, alteration, or abandonment. The following are acceptable as evidence of experience:

(A) Monitoring 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 monitoring well shall be included on each report or log. Prior to January 1, 1991, the person responsible for the construction may be an Oregon licensed well constructor or other person in charge of operating equipment for the construction of monitoring wells. After January 1, 1991, the person responsible for the construction shall be an Oregon licensed and bonded monitoring well constructor.

(B) Income tax returns showing source of drilling income for a period of time, or worker's compensation account information or the equivalent may be established to satisfy the one year 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 monitoring well constructor examination, but cannot meet the experience requirement, the Commission will issue a trainee card. To qualify for a monitoring well constructor trainee card, a person must:

(a) Be at least 18 years old; and

(b) Pass a written examination; and

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

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

(a) A trainee may operate a cable tool monitoring well drilling machine without a monitoring 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) Drilling into, through, or below groundwater suspected or known to be contaminated;

(H) Constructing casing seals.

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

(A) Air test, bailer test, or pump test of the monitoring well;

(B) Developing a completed monitoring well;

(C) Removal of the drill stem from the monitoring well. (d)

Activities under OAR 690-240-065 (3)(c) shall proceed 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 monitoring 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 monitoring well drilling machine without a licensed monitoring well constructor present, the trainee's card must be endorsed with the name of the bonded monitoring well constructor responsible for the construction of the monitoring well.

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

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

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

(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 monitoring well.

(b) The Water Resources Department is responsible for:

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

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

(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 monitoring well constructor. For a person to possess a bonded monitoring well constructor's card, the person must provide to the Department a properly executed monitoring well constructor's bond. The Water Resources Department shall 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 Department may ask anyone constructing, altering, or abandoning a monitoring well to present their license or trainee card as proof of eligibility to construct, alter, or abandon monitoring wells in the State of Oregon. Cardholders shall display their cards when requested.

#### TERMS OF MONITORING WELL CONSTRUCTOR LICENSE AND LICENSE FEES

690-240-070 (1) The Department issues all monitoring 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 monitoring 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 a license after the expiration date. There is no charge for a Trainee Card.

(4) Monitoring 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

690-240-075 Only bonded monitoring well constructors may advertise services or enter into a contract, either written or oral, to construct, alter, or abandon a monitoring well. Any written bid for a project which includes the construction, alteration or abandonment of a monitoring well must provide:

(1) A bid or estimate for the work associated with monitoring well construction signed by a bonded monitoring 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 Groundwater Law (ORS chapter 537) and the Rules for the Construction and Maintenance of Monitoring Wells and Other Holes in Oregon (OAR chapter 690, Division 240).

#### MONITORING WELL CONSTRUCTOR BONDS

690-240-080 (1) The Water Resources Department shall accept bonds only 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 Department 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 742.366.

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



## MONITORING WELL DRILLING MACHINES

690-240-085 (1) All monitoring well drilling machines being operated shall be plainly marked with the bonded monitoring 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 monitoring well drilling business.

(2) In all cases, the license number of the bonded monitoring 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.

## MONITORING WELL CONSTRUCTION NOTICE REQUIRED (START CARD)

690-240-090 (1) Each bonded monitoring well constructor licensed to operate in the state of Oregon shall provide notice as required in ORS 537.762 before commencing the construction, alteration, conversion or abandonment of any monitoring 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 and the approximate location of the monitoring well and, in the case of new construction or alteration, the proposed depth, diameter, and the purpose or use.

(2) All notices of new or converted monitoring wells constructed by a bonded and bonded monitoring well constructor shall be submitted with a \$75 notice fee.

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

(4) Each notice of a newly constructed or converted monitoring 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.

(5) A copy of each notice shall be mailed or delivered to the watermaster within whose jurisdiction the monitoring 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 monitoring well. A monitoring well constructor whose license has been restricted by order shall provide notice as stipulated in the order.

(6) Once received by the Department, the notice card shall be confidential for a period of one year after it is received or until the monitoring well report required by OAR 690-240-095 is received, whichever is shorter.

(7) 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.

## MONITORING WELL REPORT REQUIRED (MONITORING WELL LOG)

690-240-095 (1) A monitoring well report (monitoring well log) shall be prepared for each monitoring well constructed, altered, converted, or abandoned including unsuccessful monitoring wells. The log shall be certified as correct by signature of the monitoring well constructor constructing the monitoring well. The completed log shall also be certified by the bonded monitoring well constructor responsible for construction of the monitoring well. A monitoring 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 monitoring well constructor, and the third copy shall be given to the customer who contracted for the construction of the monitoring well.

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

(4) The trainee or monitoring well constructor operating the monitoring well drilling machine shall maintain a rough log of all geologic strata encountered and all materials used in the construction of the monitoring 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 Monitoring Well Report is received by the Department.

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

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

(7) The report of monitoring well construction required in OAR 690-240-095 (1) shall be recorded on a form provided by the Department. The form shall include, as a minimum, the following information:

- (a) Project name (if appropriate);
  - (b) Date;
  - (c) Location of well by Township, Range and 1/4, 1/4 section and tax lot or smallest legal subdivision;
  - (d) Start card number (Well identification number);
  - (e) Use of well;
  - (f) Method of abandonment;
  - (g) Type and amount of sealant used;
  - (h) Map showing location of monitoring well on site;
  - (i) Such additional information as required by the Department.
- (8) The well abandonment shall be recorded and reported to the Department within thirty days of abandonment.

## MONITORING WELL CONSTRUCTION: GENERAL

690-240-100 (1) No monitoring well shall be used for domestic, industrial, commercial, or agricultural purposes unless it meets the minimum construction standards for water supply wells, OAR 690-200 to 690-230.

(2) No completed monitoring well shall interconnect aquifers, including low yielding aquifers.

(3) The start card number shall be used as the well identification number and shall be permanently attached or engraved on the inner and outer well casings.

#### WELL PROTECTION

690-240-110 (1) Every monitoring well shall be capped and protected using one of the following methods:

(a) If the well is cased with metal and completed above the ground surface, a lockable cap shall be attached to the top of the casing.

(b) If the well is not cased with metal and completed above the ground surface, a metal protective casing shall be installed around the well. The protective casing shall extend at least six inches above the top of the well casing and at least two feet into the ground. A lockable cap shall be attached to the top of the protective casing.

(c) If the well is completed below ground surface, a lockable "water-meter cover," or equivalent shall be installed around the well. A protective cover, level with the ground surface, shall be installed with a waterproof seal to prevent the inflow of surface water. Drains shall be provided, when feasible, to keep water out of the well and below the well cap. The cover must be designed to withstand the maximum expected loadings.

(2) The wells completed above ground, shall be protected from damage by the following methods:

(a) Three metal posts at least three inches in diameter, set in and filled with concrete, shall be installed in a triangular array around the casing and at least two feet from it. Each post shall extend at least three feet above and below the ground surface.

(b) A reinforced concrete pad may be installed to prevent freeze/thaw cracking of the surface seal. When a concrete pad is used, the well seal shall be part of the concrete pad.

(c) A protective cover shall be installed when the well is completed below the ground surface. The cover must be designed to withstand the maximum expected loadings.

(3) If the well is to be protected by other surface protection methods, the owner shall obtain prior written approval (special standards) from the Department.

(4) If the well is damaged, the well protection system measures and casing shall be restored as prescribed by this chapter. If the well is damaged beyond repair, it shall be properly abandoned in accordance with 690-240-135.

#### CASING

690-240-115 (1) No monitoring well shall be constructed as a multiple completion well.

(2) The bore hole diameter shall be at least four inches larger than the outside casing diameter.

(3) The casing shall not be readily reactive with the subsurface environment.

(4) The casing shall not affect or interfere with the chemical, physical, radiological, or biological constituents of interest.

(5) All monitoring well casing shall conform to at least 304 or 316 stainless steel, PTFE, or Schedule 40 PVC casing, or other casing materials rated and approved by ASTM for monitoring well construction.

(6) All casing installed shall be in new or like new condition, being free of pits or breaks, and shall be cleaned of foreign materials and contaminants prior to installation.

#### CLEANING

690-240-120 (1) All drill cuttings and fluids from drilling, cleaning and development shall be properly managed to protect groundwater from contamination.

(2) To prevent cross-contamination between wells, the drill rig and all drilling equipment shall be cleaned by washing and triple rinsing, high pressure heat cleaning, or steam cleaning before and after well construction.

#### WELL SCREEN, FILTER PACK, AND DEVELOPMENT

690-240-125 (1) Wells installed for water quality sampling shall include the following:

(a) The well screen shall be commercially fabricated and constructed of material that is not readily reactive with the subsurface environment.

(b) The use of lead packers with the screen sections is prohibited.

(c) A filter pack is preferred, but not required, in coarse or granular formations. When used, the filter pack shall not extend more than three feet above the top, or one foot below the bottom of the well screen.

(2) The well shall be developed to assure continuity between the well, filter pack, and formation materials.

(3) A bentonite plug at least two feet thick shall be placed on top of the filter pack.

#### WELL SEALS

690-240-130 (1) Well seals shall consist of a physically and chemically stable hydrated grout slurry composed of either neat cement, sodium bentonite, or a cement-bentonite mixture containing no more than four percent bentonite by weight; or of sodium bentonite granules, pellets or chips placed in an unhydrated state, and subsequently hydrated downhole.

(a) Neat cement used for grouting shall be American Petroleum Institute Class A or B, or ASTM C-150 Type I or II neat cement with no additives, mixed in the proportion of 5.2 gallons of water per standard 94 pound sack and having a mud weight of approximately 15.6 pounds per gallon.

(b) Bentonite used as a slurry for grouting shall be a high solids granular sodium bentonite with no additives (catalysts may be used), mixed according to the manufacturer's directions, having a minimum mud weight of at least 9.5 pounds per gallon, and containing at least 20 percent solids. Mixing methods should be used which prevent the slurry from being excessively lumpy.

(c) When a mixture of cement and bentonite is used as a slurry for grouting, the cement shall be American Petroleum Institute Class A or B, or ASTM C-150 Type I or II neat cement with no additives. The slurry shall be no more than four percent, by weight of cement, sodium bentonite gel powder (3.75 pounds of bentonite per sack of cement). No additives shall be added

to the cement. For each pound of bentonite added, up to an additional 0.7 gallons of water are added to the original neat cement mix. The water and bentonite shall be mixed first, and the cement added to the bentonite slurry. The cement-bentonite mixture shall have a mud weight of approximately 14.1 pounds per gallon.

(d) Bentonite used in an unhydrated form shall be sodium bentonite granules, pellets or chips. Only sodium bentonite chips or pellets with no additives shall be used below the water table. (2) All grout slurries shall be mixed in the proper proportions and properly placed in the bore hole to prevent excessive shrinkage, water loss, chemical breakdown, bridging, or invasion into the filter pack.

(3) The grout slurries shall be placed in the annular space, starting from the bottom of the annular space, from the top of the bentonite plug to the bottom of the surface seal, or to land surface if the grout slurry is intended to provide the surface seal, in such a manner as to completely fill the void.

(4) Grout slurries shall be placed through a side discharge tremie pipe by gravity flow or by pumping to ensure positive placement without bridging or wash-out of previously placed annular materials. The discharge end of the tremie pipe shall remain submerged in the grout throughout the sealing operation. Grouting shall be placed from the bottom to top of the annular space.

(5) The following procedures shall be followed if dry bentonite will be used for sealing:

(a) Dry, poured bentonite seals shall only be used if the depth to the bottom of the seal is less than fifty feet and the standing water column in the bore hole or annular space is less than twenty five feet deep at the time seal placement.

(b) Pour rate shall be three minutes or slower per standard sack.

(c) A sounding or tamping bar shall be run in the bore hole or annular space during pouring to measure fill-up rate and to break up possible bridges or cake formation.

(6) The estimated and actual volume of sealing material used shall be calculated and reported to the Department.

(7) Other methods may be used to seal the annular space if they provide equivalent protection and special standards have been issued by the Director.

#### COMPLETION OF MONITORING WELLS

690-240-132 A monitoring well constructor shall not remove the drilling machine from a monitoring well site, unless it is immediately replaced by another drilling machine in operating condition, prior to completion or abandonment of the well in compliance with administrative rules 690-240-005 through 690-240-140 and installation of a watertight seal, or threaded or welded cap on the well.

#### ABANDONMENT OF MONITORING WELLS

690-240-135 (1) In areas where groundwater contamination has been identified, special abandonment procedures under OAR 690-240-140 may be required by the Department to prevent waste of water and contamination. In areas where groundwater contamination has not been identified, if it can be verified that a monitoring well was constructed in accordance with these

rules, it shall be abandoned by filling the casing from the bottom to the surface with bentonite or a bentonite-cement sealant.

(2) If the construction cannot be verified, the well shall be abandoned in one of the following three ways:

(a) The casing shall be perforated from the bottom to within five feet of the land surface and pressure grouted with a bentonite-cement sealant. Perforations shall be at least four equidistant cuts per row, and one row per foot. Each cut shall be at least one and one-half inches long; or

(b) As the casing is being withdrawn, the well shall be filled with a bentonite-cement sealant; or,

(c) When appropriate, all wells with a casing of two inches or less in diameter in unconsolidated formations shall be overbored and all casing, screen, grout, and filter pack material removed prior to sealing.

(3) The bentonite-cement sealant shall be placed from the bottom up by methods that avoid segregation or dilution of the sealant. The discharge end of the tremie tube shall be submerged in the grout to avoid breaking the seal while filling the annular space.

(4) The abandonment procedure shall be recorded on a form provided by the Department. The form shall include, as a minimum, the following information:

(a) Project name (if appropriate);

(b) Date;

(c) Location of well by Township, Range, and 1/4, 1/4 section and tax lot or smallest legal subdivision;

(d) Start card number (Well identification number);

(e) Use of well;

(f) Method of abandonment;

(g) Type and amount of sealant used;

(h) Map showing location of monitoring well on site; and

(h) Such additional information as required by the Department.

(5) The well abandonment shall be recorded and reported to the Department within thirty days of abandonment.

#### ABANDONMENT OF TEMPORARY MONITORING WELLS

690-240-138 In all cases, temporary monitoring wells shall be abandoned in such a manner as to prevent contamination of groundwater.

#### SPECIAL STANDARDS

690-240-140 (1) Specific site conditions may require design, construction, and abandonment procedures to adapt to the existing local geologic and groundwater conditions to fully utilize every natural protection to the state's groundwater. Specific site conditions may require different design, construction, or abandonment standards than required by the Monitoring Well construction rules. The constructor must request in writing, and receive, written approval from the Director to use methods or materials that do not meet monitoring well construction standards prior to completion or abandonment of the well. The proposed construction, abandonment method or materials shall prevent or eliminate contamination or waste of groundwater or loss of artesian pressure.

(2) The written request shall include:

(a) The purpose of well construction or abandonment;



- (b) Location of well by section, township and range;
  - (c) Name and address of the project site;
  - (d) The distance to the nearest well and septic drain field; ( e )
- The reasons that conformance to the rules and regulations for monitoring wells cannot be met; and
- (f) A diagram showing the proposed monitoring well design, construction, or abandonment.

#### EVIDENCE OF FAILURE

690-240-145 Evidence of failure to comply with Department standards or those of a state agency to which the Commission has delegated direct responsibility under OAR 690-240-015 shall include, but not be limited to, the following:

- 1) a specific standard to which the Commission has agreed is violated,
- or
- 2) contamination is occurring as a result of a monitoring well or other hole construction, or
  - 3) wasteful use of groundwater is occurring.

#### INVESTIGATION OF ALLEGED VIOLATIONS

690-240-150 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 monitoring wells or other holes 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 monitoring well constructor involved; or
- (2) The landowner, if the violation involves construction, alteration, operation, or abandonment of a well; or
- (3) The agency that has been delegated authority over a particular class of wells.

#### ENFORCEMENT ACTIONS

690-240-155 (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 690-240-180;
- (c) Suspend, revoke, or refuse to renew the licenses when one or more persons responsible for the violation hold a monitoring well constructor's license;
- (d) Require that a person whose license has been refused renewal pass the monitoring well constructor test before a new license is issued;
- (e) Impose any reasonable conditions on the monitoring 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, convert, or abandon any monitoring well;

(B) Requiring additional advance notice to be given to the watermaster of construction, alteration or abandonment of any monitoring 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, order discontinuance of the use or order proper abandonment pursuant to ORS 537.775;

(g) Make demand on the monitoring well constructor's bond. This may occur only if the Director has given the notice required in OAR 690-240-150 to the persons responsible for the violation within three years after the date the monitoring well report is filed with the Department. If no monitoring 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 monitoring well constructor whose license is suspended or revoked shall not contract for monitoring well construction services or operate monitoring well drilling machines in the State of Oregon during the suspension or revocation period.

#### MULTIPLE VIOLATIONS AND CONSOLIDATION OF PROCEEDINGS

690-240-160 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

690-240-165 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 groundwater resource;

(4) Whether the damage to the groundwater 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.

#### CHANGE IN ENFORCEMENT STATUS

690-240-170 (1) In the interest of achieving compliance, the Director at any time may reevaluate the status of the violations and take appropriate action, including reduction of the enforcement level or remission of all or part of any civil penalties assessed.

(2) The Director may terminate proceedings against a monitoring well constructor if the constructor provides acceptable evidence that:

(a) The landowner does not permit the constructor to be present at any inspection made by the Director; or

(b) That the constructor is capable of complying with recommendations made by the Director, but the landowner does not permit the constructor to comply. In such cases, the landowner is responsible for bringing the well into compliance pursuant to ORS 537.535, and if the landowner was not a party to the original enforcement proceeding the Director may initiate a proceeding to ensure that the landowner does so.

#### ASSESSMENT OF CIVIL PENALTIES

690-240-175 Under OAR 690-240-155(1) the Director may at any time select the most appropriate enforcement tool, including assessment of civil penalties, to gain compliance. However, the Director shall not impose a civil penalty if compliance has been achieved in another manner prior to final decision in the proceeding.

#### SCHEDULE OF CIVIL PENALTIES

690-240-180 (1) The amount of civil penalty shall be determined consistent with the following schedule:

(a) Not less than twenty five dollars (\$25) nor more than two hundred fifty (\$250) for each occurrence defined in the rules as a minor violation.

(b) Not less than fifty dollars (\$50) nor more than one thousand dollars (\$1,000) for each occurrence defined in the rules as a major violation.

(c) First occurrence, in a calendar year, of a missing or late start card fee shall be one hundred fifty dollars (\$150).

(d) Second occurrence, in a calendar year, of a missing or late start card fee shall be two hundred fifty dollars (\$250).

(e) Third occurrence, in a calendar year, of a missing or late start card fee shall be two hundred fifty dollars (\$250) and may include suspension of the monitoring well constructors license, and any other action authorized by law.

(2) For purposes of assessing a civil penalty, the start card fee referred to in (c), (d) and (e) above shall not be considered late if it is received in the Salem office of the Water Resources Department within five (5) days of the receipt of the start card.

(3) Table I located at the end of this Division, lists minor violations of well construction standards. All other violations are declared to be major.

TABLE I  
(690-240-180 (3))

Oregon Statute Reference	Value Assignment	Title
ORS 537.762	Minor	REPORT OF COMMENCEMENT OF CONSTRUCTION
ORS 537.765	Minor	WELL REPORT
Rule 690-240-085	Minor	DRILLING MACHINE IDENTIFICATION
Rule 690-240-095	Minor	WELL REPORT