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JUN 29 1988
BARBARA ROBERTS
SECRETARY OF STATE

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

I HEREBY CERTIFY that the attached copy is a true, full and correct copy of PERMANENT rule(s) adopted on June 24, 1988 (Date)

by the Water Resources Commission (Department) (Division)

to become effective June 29, 1988 (Date)

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

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

Notice of Intended Action published in Secretary of State's Bulletin: NO ☐ YES ☒ Date Published: April 15, 1988

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

Adopted:
(New Total Rules)

RECEIVED
JUN 29 1988
LEG. COUNSEL'S OFF.

Amended:
(Existing Rules) See attachment

Repeal
(Total Rules Only)

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

DATED this 29th day of June, 19 88

By: John E. Borden, Jr. (Authorized Signer)

Title: Deputy Director

Statutory Authority: ORS _____ or

Chapter(s) 183, 536, 537 and 540 Oregon Laws 19 87 or

Case Bill(s) _____, 19____ Legislature; or Senate Bill(s) 132, 19 87 Legislature

Subject Matter:

Amendments to the Well Construction and Maintenance Rules
OAR 690-200-005 through 690-235-020.

For Further Information Contact: Tom Paul (Rule Coordinator) Phone: 378-8455

OREGON ADMINISTRATIVE RULES

for

CONSTRUCTION and MAINTENANCE of WELLS

prescribed by the
WATER RESOURCES DEPARTMENT
adopted by the
WATER RESOURCES COMMISSION
on June 24, 1988

(effective June 29, 1988)

OREGON ADMINISTRATIVE RULES
FOR
WELL CONSTRUCTION AND MAINTENANCE
Water Resources Department
Chapter 690
Administrative Rule
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DIVISION 210

WELL CONSTRUCTION STANDARDS

Standards Apply to all Methods of Well Construction

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-216 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Regulations of Other Agencies May Also Apply

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86

Placement of Wells

690-210-030 (1) No person shall construct a well within 50 feet of any septic tank, or within 100 feet of any sewage disposal area without written permission of the Director.

(2) Application to the Director for permission to construct a well closer than 50 feet of a septic tank or 100 feet of a sewage disposal area shall include:

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

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

(3) The Director may approve location of a well closer than 50 feet of a septic tank or 100 feet of a sewage disposal area only upon a determination that the additional precautions to be taken and specific physical characteristics of the site allow the proposed location without threat of cross-contamination of the ground water resource.

Stat. Auth.: ORS Ch. 183 536, 537 & 540
Hist.: WRD 3, f. & ef. 2-18-77; WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-60-015 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Water Used Must be Potable

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86

Organic Materials

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79, Amended & Renumbered from 690-61-076 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Explosives

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-066 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Injection Wells

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-60-030 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Commingling of Waters

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-061 by WRD 13-1986, f. 10-7-86, ef. 11-186

Perched Ground Water

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-059 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Mineralized or Contaminated Ground Water

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-056 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Unattended Wells

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-071 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Additional Standards for Artesian Wells

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

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

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

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-156, 690-61-161, 690-61-166, 690-61-171 & 690-61-176 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Sealing of Wells in Unconsolidated Formations Without Significant Clay Beds

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-126 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Sealing of Wells in Unconsolidated Formations With Significant Clay Beds

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-131

Sealing of Wells in Consolidated Formations

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

(a) Method 1 - An upper drillhole, four (4) inches greater in diameter than the nominal diameter of the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into solid, uncreviced, consolidated rock overlying the water-bearing rock formation below a depth of thirteen (13) feet. Unperforated permanent well casing shall extend to this same depth. The annular space between the casing and the drillhole wall within the rock formation shall be filled with cement grout. The upper annular space between the casing and the drillhole wall shall be filled from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. The annular

space between the upper and lower required cement grout sealing intervals shall be filled with an impermeable sealing material or cement grout. If necessary to complete the well, a smaller diameter well casing, liner pipe, or well screen may be installed. If cement grout is placed by a suitable pump from the bottom of the casing to land surface (Methods A, B, D, Appendix 2), the upper drillhole shall be at least two (2) inches larger than the nominal diameter of the casing. (See Figure 5, 1986.)

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

(c) Method 3 - An upper drillhole, four (4) inches greater in diameter than the permanent well casing to be installed, shall extend from land surface to at least five (5) feet into an impermeable clay stratum below a depth of thirteen (13) feet. Unperforated, permanent well casing shall extend to and shall be driven into solid, uncreviced, consolidated rock overlying the water-bearing formation. A lower drillhole, at least two (2) inches greater in diameter than the diameter of the upper permanent well casing, shall be constructed at least five (5) feet into solid, uncreviced, consoldiated rock by under-reaming methods. The upper permanent well casing shall be lowered to the full depth of the lower oversize drillhole. The annular space between the upper oversize drillhole and the upper permanent well casing, and the annular space between the lower under-reamed drillhole and the permanent well casing, shall be completely filled with grout applied under pressure in accordance with the appropriate Method A, B, C, or D, in Appendix 2. (See Figure 2, 1986 and 7, 1986.)

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-136 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Sealing of Filter Pack Wells With Surface Casing

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Renumbered from 690-61-141 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Sealing of Filter Pack Wells Without Surface Casing

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-146 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Additional Standards for Driven or Jetted Wells

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-186 & 690-61-191 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Steel Casing

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

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

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

(a) 12 inches - 250 feet;

(b) 14-16 inches - 150 feet;

(c) 18-20 inches - 100 feet;

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-006 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Steel Casing Joints

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-016 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Plastic Casing

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

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

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-031 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Plastic Casing Joints

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-036 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Inner Casing

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-231 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Casing Shall Be Centered

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86

Top Terminal Height

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

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

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

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540

Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-041 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Openings in the Casing

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Renumbered from 690-61-046 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Pitless Well Adapters and Units

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-051 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Access Ports and Airlines

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86

Liner Pipe

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-011 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Drill Cuttings or Chips

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-110 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Cement Grout

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

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

(a) Portland Cement – 4-1/2 to 6;

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

(c) High-alumina Cement – 4-1/2 to 6.

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

(3) Cement types other than those set forth herein shall not be used as a sealing material in a well except upon written approval of the Director of the Water Resources Department.

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-086 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Methods of Placement of Cement Grout

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540

Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-021 & 690-61-096 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Bentonite Grout

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

Stat. Auth.: ORS Ch. 183, 536, 537, 540 & 673
Hist.: WRD 12-1985, f. 12-6-85, ef. 12-7-85; Renumbered from 690-61-087 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Method of Placement of Bentonite Grout

690-210-340 (1) An upper oversize drillhole, four inches greater than the nominal inside diameter of the permanent well casing, shall be constructed to a minimum depth of eighteen (18) feet. *The use of bentonite grout as a surface casing seal shall not be allowed below twenty-five (25) feet from land surface* . In the event that the subsurface materials penetrated by the oversize drillhole cave, or tend to cave, an outer temporary surface casing shall be used to case out the caving materials throughout construction of the oversize drillhole. The temporary surface casing shall be removed before completion of drilling.

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

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

Stat. Auth.: ORS Ch. 183, 536, 537, 540 & 673
Hist.: WRD 12-1985, f. 12-6-85, ef. 12-7-85; Amended & Renumbered from 690-61-097 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Resumption of Construction Following Placement of Cement Grout

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

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

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-101 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Movement of Casing After Cement Grouting

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Renumbered from 690-61-106 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Well Test

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Renumbered from 690-61-081 by WRD 13-1986, f. 10-7-86, ef. 1-1-79

Disinfection of a Water Well

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-116 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Completion of Wells

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

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

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-121 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Dug Wells

Construction of Dug Wells

690-210-400 All dug wells greater than twelve (12) feet in depth shall be constructed with a watertight surface curbing extending from a minimum of twelve (12) inches above land surface to a depth of eighteen (18) feet below land surface. In the case of wells ranging from twelve (12) to twenty-one (21) feet in depth, water tight surface casing shall

extend to within three (3) feet of the bottom of the well. Open wells, sometimes called sumps, which exceed ten (10) feet in average diameter are exempt from these construction requirements, but are subject to all the requirements covering the use of ground water (water right application).

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-196 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Buried Slab Construction

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-206 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Surface Curbing

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-201 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

Concrete

690-210-430 Concrete for use in the construction of a dug well, or for filling the annular space or well bore of a well, shall consist of clean, hard, and durable aggregate, and not less than five (5) sacks of Portland cement per cubic yard of concrete. Concrete will be allowed only when the oversize drill hole is a minimum of 8 inches larger in diameter than the well casing used in construction of the well. The maximum diameter of aggregate particles shall not exceed one and one-half (1-1/2) inches, but, in any case, shall not exceed one-fifth (1/5) or twenty (20) percent of the minimum width of the space to be filled. The ratio of coarse aggregate to fine aggregate (Passing No. 4, US Standard Sieve) shall be approximately one and one-half (1-1/2) to one (1) by volume, but, in any case, shall not exceed two (2) to one (1) nor be less than one (1) to two (2).

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 9-1978, f. 12-12-78, ef. 1-1-79; Amended & Renumbered from 690-61-211 by WRD 13-1986, f. 10-7-86, ef. 11-1-86

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

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

(a) The intended use of the well;

(b) The location of the well;

(c) The name and address of the owner;

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

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

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

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

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

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

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

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

Stat. Auth.: ORS Ch. 183, 536, 537 & 540
Hist.: WRD 13-1986, f. 10-7-86, ef. 11-1-86