

FOR FILING
PERMANENT
ADMINISTRATIVE RULES WITH THE SECRETARY OF STATE

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

by the Water Resources Department
(Department)

Water Resources Commission
(Division)

to become effective upon filing
(Date)

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

(Division)

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

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

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

Adopted:
(New Total Rules)

Amended:
(Existing Rules)

OAR Chapter 690-08-001, 690-230-005-140, 690-250-110

Repealed:
(Total Rules Only)

Administrative Rules of the Water Resources Department
(Department)

(Division)

DATED this 14th day of December, 19 90

By: William H. Young
(Authorized Signer)

Title: Director

Statutory Authority: ORS Chapter 537

Number(s) _____, Oregon Laws 19 _____

House Bill(s) _____, 19 _____ Legislature; or Senate Bill(s) 237, 19 _____ Leg

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

Further Information Contact: Janet Koehler

(Rule Coordinator)

Phone: 378-8456

See replacement on top - correction to DIV. 115

SEO FORM
No. 425a
Rev. 10-1-87

DEC 14 3 10 PM '90

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

SECRETARY OF STATE

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

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

to become effective upon filing (Date)

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

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

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

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

Proposed:
(New Total Rules)

Repealed:
(Existing Rules)

OAR Chapter 690-08, 690-230, 690-250

A
DEC 1990
LEGISLATIVE
COUNCIL
OFFICE

Repealed:
(Total Rules Only)

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

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By: William N. Young (Authorized Signer)

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

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

December 14, 1990

**OREGON ADMINISTRATIVE RULES
WATER RESOURCES DEPARTMENT
CHAPTER 690
DIVISION 8
STATUTORY GROUND WATER TERMS**

690-008-0001

Definition and Policy Statements

A number of terms are used in the statutes, ORS 537.505 - 537.795, prescribing the management of ground water in Oregon. These rules define terms to qualify and clarify the statutes. In all statutes and rules employed in the management of ground water by the Water Resources Department and Commission, the following definitions shall apply, unless the context requires otherwise:

(1) "Aquifer" means a water-bearing body of naturally occurring earth materials that is sufficiently permeable to yield useable quantities of water to wells and/or springs.

(2) "Critical Ground Water Area Boundary" means a line established in a critical ground water area order on a map that surrounds an area in which one or more of the statutory criteria for critical area declaration are met and which is located either:

(a) Physically by coincidence with natural features such as ground water reservoir boundaries, hydrologic barriers, or recharge or discharge boundaries; or

(b) Administratively by surrounding an affected area when that area does not coincide with an area bounded by natural features.

(3) "Customary Quantity" means the rate or annual amount of appropriation or diversion of water ordinarily used by an appropriator within the terms of that appropriator's water right.

(4) "Declined Excessively" means any cumulative lowering of the water levels in a ground water reservoir or a part thereof which:

(a) Precludes, or could preclude, the perpetual use of the reservoir; or

(b) Exceeds the economic pumping level; or

(c) Constitutes a decline determined to be interfering with:

(A) A surface water diversion having a priority date senior to the priority dates of the causative ground water appropriations; or

(B) A surface water body that has been administratively withdrawn with an effective date senior to the priority dates of the causative ground water appropriations unless the causative ground water appropriations are for uses that are exceptions to the withdrawals; or

(C) An adopted minimum stream flow or instream water right, or closure having an effective date senior to the priority dates of the causative ground water appropriations; or

(D) A surface water body which has a classification that is senior to the priority date of the causative ground water appropriation(s) and the use or uses to which the ground water is being put are not included in the classification.

(d) Constitutes a lowering of the annual high water level within a ground water reservoir, or part

Note: These rules were filed with the Office of the Secretary of State and took effect on December 14, 1990. The rules are subject to non-substantive modifications such as renumbering and correction of typographical errors pursuant to ORS 183.360 (2)(a) when published by the Secretary of State.

thereof, greater than 50 feet below the highest known water level; or

(e) Results in ground water pollution; or

(f) constitutes a lowering of the annual high water level greater than 15% of the greatest known saturated thickness of the ground water reservoir. the saturated thickness shall be calculated using pre-development water levels and the bottom of the ground water reservoir, or the economic pumping level, whichever is shallower.

(5) "Economic Pumping Level" means the level below land surface at which the per-acre cost of pumping equals 70 percent of the net increase in annual per-acre value derived by irrigating. (The value is to be calculated on a five year running average of the per-acre value of the three, if there are that many, prevalent irrigated crops in the region minus the five year running average of the per-acre value of the three, if there are that many, prevalent regional non-irrigated crops.)

(6) "Excessively Declining Water Levels" (Note: "Excessively" as used in ORS 537.730(1)(a) is taken to modify both "are declining" and "have declined") means any ongoing lowering of the water level in a ground water reservoir or part thereof which:

(a) Precludes, or could preclude, the perpetual use of the reservoir; or

(b) Represents an average downward trend of three or more feet per year for at least 10 years; or

(c) Represents, over a five year period, an average annual lowering of the water level by 1% or more of the initial saturated thickness as determined by observation or investigation in the affected area; or

(d) Results in water quality deterioration.

(7) "Overdraw" means to artificially produce water, in any one year period, from a ground water reservoir, or part thereof, at an annual rate that:

(a) Exceeds the average annual recharge to that ground water supply over the period of record; or,

(b) Reduces surface water availability resulting in:

(A) One or more senior appropriators being unable to use either their permitted or customary quantity of surface water, whichever is less; or

(B) Failure to satisfy an adopted minimum streamflow or instream water right with an effective date senior to the causative ground water appropriation(s).

(c) Reduces the availability of surface waters that have been:

(A) Withdrawn with an effective date senior to the priority dates of the causative ground water appropriations; or

(B) Restrictively classified with an effective date senior to the priority date(s) of the causative ground water appropriations.

(8) "Substantial or Undue Interference" means the spreading of the cone of depression of a well to intersect a surface water body or another well, or the reduction of the ground water gradient and flow as a result of pumping, which contributes to:

(a) A reduction in surface water availability to an extent that:

(A) One or more senior surface water appropriators are unable to use either their permitted or customary quantity of water, whichever is less; or

(B) An adopted minimum streamflow or instream water right with an effective date senior to the causative ground water appropriation(s) cannot be satisfied.

(b) The ground water level being drawn down to the economic level of the senior appropriator(s); or

(c) One or more of the senior ground water appropriators being unable to obtain either the permitted or the customary quantity of ground water, whichever is less, from a reasonably efficient well that fully

penetrates the aquifer where the aquifer is relatively uniformly permeable. However, in aquifers where flow is predominantly through fractures, full penetration may not be required as a condition of substantial or undue interference.

(9) "Substantial Thermal Alteration" means any change in water temperature of a groundwater reservoir, or a part thereof, which:

(a) Precludes, or could preclude, the perpetual heating or cooling use of the groundwater reservoir; or

(b) Constitutes a change in the mean annual temperature within a groundwater reservoir, or part thereof, greater than 25 percent of the highest recorded naturally occurring Celsius (C) temperature.

(10) "Substantial Thermal Interference" means the spreading of the radius of thermal impact of a low-temperature geothermal production well or low-temperature geothermal injection well to intersect a surface water body or another well, or the reduction of temperature or heat flow as a result of pumping or injection, which contributes to change in groundwater or surface water temperature to an extent that one or more senior appropriators of the low-temperature resource are unable to use water for the purpose(s) designated in the associated water right.

(11) "Wasteful Use (of ground water)" means any artificial discharge or withdrawn of ground water from an aquifer that is not put to a beneficial use described in a permit or water right, including leakage from one aquifer to another aquifer within a well bore.

Stat. Auth.: ORS Ch. 537

Hist.: WRD 21-1988, f. & cert. ef. 12-14-88; WRD 18-1990, f. & cert. ef. 12-14-90

Oregon Administrative Rules
 Water Resources Department
 Chapter 690, Division 08
 Definition and Policy Statements
 Regarding Statutory Ground Water Terms

690-08-001 A number of terms are used in the statutes, ORS 537.505-.795, prescribing the management of ground water in Oregon. These rules define terms to qualify and clarify the statutes. In all statutes and rules employed in the management of ground water by the Water Resources Department and Commission, the following definitions shall apply, unless the context requires otherwise:

(1) Aquifer: means a water-bearing body of naturally occurring earth materials that is sufficiently permeable to yield useable quantities of water to wells and/or springs.

(2) Critical Ground Water Area Boundary: means a line established in a critical ground water area order on a map that surrounds an area in which one or more of the statutory criteria for critical area declaration are met and which is located either 1) physically by coincidence with natural features such as ground water reservoir boundaries, hydrologic barriers, or recharge or discharge boundaries, or 2) administratively by surrounding an affected area when that area does not coincide with an area bounded by natural features.

(3) Customary Quantity: means the rate or annual amount of appropriation or diversion of water ordinarily used by an appropriator within the terms of that appropriator's water right.

(4) Declined excessively: means any cumulative lowering of the water levels in a ground water reservoir or a part thereof which:

- a) Precludes, or could preclude, the perpetual use of the reservoir; or,
- b) Exceeds the economic pumping level; or,
- c) Constitutes a decline determined to be interfering with
 - A) A surface water diversion having a priority date senior to the priority dates of the causative ground water appropriations, or
 - B) A surface water body that has been administratively withdrawn with an effective date senior to the priority dates of the causative ground water appropriations unless the causative ground water appropriations are for uses that are exceptions to the withdrawals, or
 - C) An adopted minimum stream flow or instream water right, or closure having an effective date senior to the priority dates of the causative ground water appropriations, or

D) A surface water body which has a classification that is senior to the priority date of the causative ground water appropriation(s) and the use or uses to which the ground water is being put are not included in the classification; or,

d) Constitutes a lowering of the annual high water level within a ground water reservoir, or part thereof, greater than 50 feet below the highest known water level; or,

e) Results in ground water pollution; or,

f) Constitutes a lowering of the annual high water level greater than 15% of the greatest known saturated thickness of the ground water reservoir. The saturated thickness shall be calculated using pre-development water levels and the bottom of the ground water reservoir, or the economic pumping level, whichever is shallower.

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(8) Substantial or undue interference: means the spreading of the cone of depression of a well to intersect a surface water body or another well, or the reduction of the ground water gradient and flow as a result of pumping, which contributes to:

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 - A) One or more senior surface water appropriators are unable to use either their permitted or customary quantity of water, whichever is less, or
 - B) An adopted minimum streamflow or instream water right with an effective date senior to the causative ground water appropriation(s) cannot be satisfied; or,
- b) The ground water level being drawn down to the economic level of the senior appropriator(s); or,
- c) One or more of the senior ground water appropriators being unable to obtain either the permitted or the customary quantity of ground water, whichever is less, from a reasonably efficient well that fully penetrates the aquifer where the aquifer is relatively uniformly permeable. However, in aquifers where flow is predominantly through fractures, full penetration may not be required as a condition of substantial or undue interference.

(9) Substantial thermal alteration: means any change in water temperature of a groundwater reservoir, or a part thereof, which:

(a) Precludes, or could preclude, the perpetual heating or cooling use of the groundwater reservoir; or,

(b) Constitutes a change in the mean annual temperature within a groundwater reservoir, or part thereof, greater than 25 percent of the highest recorded naturally occurring Celsius (C) temperature.

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