

Water Resources Department  
Chapter 690  
Division 9

**GROUND-WATER INTERFERENCE WITH SURFACE WATER**

**690-009-0010**

**Basis for Regulatory Authority, ~~and Purpose, and Applicability~~**

~~(1) The right to reasonable control of the ground-water~~groundwater~~ of the State of Oregon has been declared to belong to the public. Through the provisions of the Ground Water Act of 1955, ORS 537.505 to 537.795, the Water Resources Commission has been charged with administration of the rights of appropriation and use of the ground-water resources of the state. These rules govern the use of ground waters, pursuant to 537.730 and 537.775, where the ground water is hydraulically connected to, and the use interferes with, surface waters.~~

~~(2) These rules establish criteria to guide the Department in determining whether a proposed or existing groundwater use will **impair**, substantially interfere, or unduly interfere with a surface water source. These rules apply to all wells, as defined in ORS 537.515 (9), and to all proposed and existing appropriations of groundwater except the exempt uses under ORS 537.545. The authority under these rules may be locally superseded where more specific direction is provided by the Commission after the effective date of adoption of these rules.~~

Statutory/Other Authority: ORS 537

History:

WRD 17-1988, f. & cert. ef. 11-4-88

**690-009-0020**

**Definitions**

~~Unless **the context requires stated** otherwise, as used in these rules:~~

~~(1) “Confined Aquifer” means an aquifer in which ground water is under sufficient hydrostatic head to rise above the bottom of the overlying confining bed, whether or not the water rises above land surface.~~

~~(2) “Commission” means the Water Resources Commission.~~

~~(3) “Confining Bed” means a layer of low permeability material immediately overlying a confined aquifer.~~

~~(4) “Department” means the Water Resources Department, its Director, and all personnel employed by the Department, and consists of the Director of the Department and all personnel employed in the Department including but not limited to all watermasters appointed under ORS 540.020 (536.039).~~

~~(2) “Effective and timely manner” is a determination made on a case-by-case basis considering the best available information and reasonably accepted hydrogeologic methods and taking into consideration whether regulation will result in the addition of any water to the surface water source during the relevant time period.~~

~~(5) “Director” means the Water Resources Director.~~

~~(36) “Hydraulic Connection” or “Hydraulic Interconnection” means saturated conditions exist that allow water to move between two or more sources of water, either between groundwater and surface water or between groundwater sources. means that water can move between a surface water source and an adjacent aquifer.~~

~~(4) “Potential for Substantial Interference”, or “PSI”, means that substantial evidence exists to determine that a groundwater use will cause streamflow depletion based on the assessments described in OAR 690-009-0040, and therefore may cause or has caused impairment to, substantial interference with, or undue interference with a surface water source, based on the definitions in OAR 690-008-0001.~~

~~(5) “Proposed groundwater use” means an application to appropriate groundwater pursuant to ORS 537.621 that is under consideration with the Department.~~

~~(6) “Streamflow depletion” means a reduction in the flow of a surface water source due to pumping a hydraulically connected groundwater source. Streamflow depletion encompasses both:~~

~~(a) captured groundwater that would otherwise discharge to a surface water source; and,~~

~~(b) induced infiltration from a surface water source to recharge the hydraulically connected groundwater source.~~

~~(7) “Unconfined Aquifer” means an aquifer in which the hydrostatic head at the upper surface of the ground water is atmospheric.~~

Statutory/Other Authority: ORS 537

History:

WRD 17-1988, f. & cert. ef. 11-4-88

#### ~~690-009-0030~~

##### ~~General Policy~~

~~The following rules establish criteria to guide the Department in making determinations whether wells have the potential to cause substantial interference with surface water supplies and in controlling such interference. The rules apply to all wells, as defined in ORS 537.515 (7), and to all existing and proposed appropriations of ground water except the exempt uses under 537.545. The authority under these rules may be locally superseded where more specific direction is provided by the Commission after the effective date of adoption of these rules.~~

~~Statutory/Other Authority: ORS 537~~

~~History:~~

~~WRD 17-1988, f. & cert. ef. 11-4-88~~

#### **690-009-0040**

##### **Determination of Hydraulic Connection and Potential for Substantial Interference**

(1) Hydraulic connection and the potential for substantial interference with a surface water source shall be determined by the Department according to these rules. These determinations shall be based upon the application of generally accepted hydrogeologic principals using best available information concerning the hydrologic system of interest and the well(s) under consideration.

(a) Appropriate information that is provided in the application or in the public comment period for the application by potentially affected parties shall be considered in the process of making these determinations.

(b) Best available information includes, but is not limited to, pertinent water well reports, aquifer test analyses, hydrologic and geologic studies and reports, groundwater and surface water elevation data, available numerical and analytical groundwater flow models, and any other information that is used in applying generally accepted hydrogeologic principals and methodologies.

(2) A determination of hydraulic connection is a prerequisite for a determination of the potential for substantial interference.

(3) A determination of the potential for substantial interference with a surface water source shall at a minimum include application of the generally accepted hydrogeological principles described in the following subsections to the specific use and wells under consideration:

(a) "The Source of Water Derived from Wells: Essential Factors Controlling the Response of an Aquifer to Development" by C. V. Theis, 1940; and,

(b) "Streamflow Depletion by Wells – Understanding and Managing the Effects of Groundwater Pumping on Streamflow" by P. M. Barlow and S. A. Leake, 2012.

(4) The potential for substantial interference with a surface water source exists if substantial evidence indicates the well(s) under consideration will, over the full term of the proposed or authorized groundwater use, obtain water from streamflow depletion.

(5) For the purposes of issuing a permit for a proposed groundwater use, a finding of potential for substantial interference with a surface water source may mean that water is not available for the proposed groundwater use if the use will impair, substantially interfere, or unduly interfere with a surface water source as per the definitions in OAR 690-008-0001 and OAR 690-300-0010, and 690-400-0010.

(6) For the purposes of groundwater controls in OAR 690-009-0050, a finding of potential for substantial interference with a surface water source may precede the control actions described in that rule.

For the purposes of permitting and distributing ground water, the potential for substantial interference with surface water supplies shall be determined by the Department.

(1) The Department shall determine whether wells produce water from an unconfined or confined aquifer. Except for wells that satisfy the conditions in section (2) of this rule the Department shall further determine whether the aquifer is hydraulically connected to the surface water source. The basis of the determination shall be information provided on the Water Well Report for any well in question. If there is no Water Well Report available or if the information provided is inadequate, the Department

shall make the determination on the basis of the best available information. Such information may include other Water Well Reports, topographic maps, hydrogeologic maps or reports, water level and other pertinent data collected during a field inspection, or any other available data or information that is appropriate, including any that is provided by potentially affected parties.

(2) All wells located a horizontal distance less than one-fourth mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source, unless the applicant or appropriator provides satisfactory information or demonstration to the contrary. Department staff may provide reasonable assistance to the applicant or appropriator in acquiring the satisfactory information.

(3) The Department shall determine the horizontal distance between any well in question and the nearest surface water source on the basis of the edge of the surface water source as also determined by the Department.

(4) All wells that produce water from an aquifer that is determined to be hydraulically connected to a surface water source shall be assumed to have the potential to cause substantial interference with the surface water source if the existing or proposed ground water appropriation is within one of the following categories:

(a) The point of appropriation is a horizontal distance less than one-fourth mile from the surface water source; or

(b) The rate of appropriation is greater than five cubic feet per second, if the point of appropriation is a horizontal distance less than one mile from the surface water source; or

(c) The rate of appropriation is greater than one percent of the pertinent adopted minimum perennial streamflow or instream water right with a senior priority date, if one is applicable, or of the discharge that is equaled or exceeded 80 percent of time, as determined or estimated by the Department, and if the point of appropriation is a horizontal distance less than one mile from the surface water source; or

(d) The ground water appropriation, if continued for a period of 30 days, would result in stream depletion greater than 25 percent of the rate of appropriation, if the point of appropriation is a horizontal distance less than one mile from the surface water source. Using the best available information, stream depletion shall be determined or estimated by the Department, employing at least one of the following methods:

(A) Suitable equations and graphical techniques that are described in pertinent publications (such as "Computation of Rate and Volume of Stream Depletion by Wells," by C.T. Jenkins, in Techniques of Water Resources Investigations of the United States Geological Survey: Book 4, Chapter D1);

(B) A computer program or ground water model that is based on such or similar equations or techniques.

(5) Any wells, other than those covered in section (4) of this rule, that produce water from an aquifer that is determined to be hydraulically connected to the surface water source may be determined by the Department to have the potential to cause substantial interference with the surface water source. In making this determination, the Department shall consider at least the following factors:

~~(a) The potential for a reduction in streamflow or surface water supply; or~~

~~(b) The potential to impair or detrimentally affect the public interest as expressed by an applicable closure on surface water appropriation, minimum perennial streamflow, or instream water right with a senior priority date; or~~

~~(c) The percentage of the ground water appropriation that was, or would have become, surface water; or~~

~~(d) Whether the potential interference would be immediate or delayed; or~~

~~(e) The potential for a cumulative adverse impact on streamflow or surface water supply.~~

~~(6) All wells that produce water from an aquifer that is not hydraulically connected to a surface water source shall be assumed not to interfere with the surface water source.~~

~~[Publications: Publications referenced are available from the agency.]~~

Statutory/Other Authority: ORS 537

History:

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## **690-009-0050**

### **Ground Water Controls**

These rules apply to the control or regulation of groundwater where it is determined that an existing groundwater appropriation will cause or has caused substantial or undue interference with a surface water source as described in OAR 690-009-0040.

(1) The Department shall review existing ~~ground water~~groundwater appropriations to determine the potential to cause substantial interference with a surface water source on a case-by-case basis, in accordance with OAR 690-009-0040, whenever the Department has cause to believe that substantial interference with a surface water source ~~is suspected to exist by the Department~~may exist.

(2) Whenever the Department determines that substantial interference with a surface water supply exists, the Department shall control those groundwater appropriations that have been determined under section (1) of this rule to have the potential to cause substantial interference. The controls shall be similar to or compatible with, but not more restrictive than controls on the affected surface water source, in accordance with the relative dates of priorities of the ground water and surface water appropriations:

(a) Prior to controlling the use of any well greater than 500 feet from a surface water source, the Department shall determine whether any control would provide relief to the surface water supply in an effective and timely manner. The Department shall make the determination on the basis of the best available information, employing at least one of the following methods: ~~set forth in OAR 690-009-0040(4)(d);~~

(A) Suitable equations and graphical techniques that are described in pertinent publications (such as “Computation of Rate and Volume of Stream Depletion by Wells,” by C.T. Jenkins, in Techniques of Water-Resources Investigations of the United States Geological Survey: Book 4, Chapter D1);

(B) A computer program or groundwater model that is based on such or similar equations or techniques

(b) The Department shall control the use of wells greater than one mile from a surface water source only through a critical ~~ground water~~groundwater area determination in accordance with ORS 537.730 through 537.740.

(3) As necessary, the Department shall determine the horizontal distance between any well in question and the nearest surface water source on the basis of the edge of the surface water source as also determined by the Department.

Statutory/Other Authority: ORS 537

History:

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