

LEGAL OVERVIEW OF GEOTHERMAL RESOURCES IN IDAHO

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ABSTRACT

The most significant impact of geothermal resource development in southern Idaho will be the effect on water. Any geothermal resource development in Idaho will involve some form of consumptive utilization of thermal waters for energy conversion. The potential for discord between geothermal development and water resources is considered the most critical legal conflict facing future geothermal resource development in Idaho.

An application for appropriation of public waters must also be made if the proposed well will involve the use of water in the construction or operation of a geothermal well.<sup>4</sup> For example, water that would be used in drilling a well or used to stimulate a hot but dry well would have to be appropriated from some other source. An application for appropriation must also be made if the geothermal well will yield water that will have a beneficial use. Any consumptive use of geothermal water will require appropriation.<sup>5</sup>

INTRODUCTION

The state of Idaho recognizes the unique nature of geothermal resources with respect to water and has declared the geothermal resources of the state to be "sui generis".<sup>1</sup> The "sui generis" designation classifies geothermal resources as being neither water nor mineral resource but closely related to and possibly affecting and affected by water and mineral resources. In order to control any possible conflict between geothermal utilization and state water appropriation, the regulatory powers of the state Geothermal Resource Act was placed in the Idaho Department of Water Resources.<sup>2</sup>

If the geothermal well yields water that is used as "mineral source, an energy source, or as a material medium", an appropriation of public waters is not required. Geothermal resources which can be developed as an energy source, a mineral source or as a material medium,<sup>6</sup> are usually dependent on high temperature geothermal reservoirs. Temperatures hot enough for electrical power generation (above 150°C) can be found beneath Western Snake River Plain at depths of 3-4 kilometers.<sup>7</sup> Fluids at these depths are sui generis and would be high temperatures, high pressure and often highly mineralized. Fluids at these depths are not normally associated with the developed groundwater. In addition, high temperature fluids may be encountered at shallower depths, if suitable convective reservoir systems are present. Shallow, high temperature fluids are known to exist in several locations in southern Idaho, particularly in the Raft River Basin. These high temperature geothermal fluids are directly related to developed regional groundwaters.<sup>7</sup>

GEOTHERMAL RESOURCE ACT

Under the Idaho Geothermal Resource Act, any private owner, or holder of a state or federal geothermal lease must first apply to the Director of the Idaho Department of Water Resources for a geothermal resource well permit, before he can drill or alter any well for exploration or production purposes. A filing fee of one hundred dollars (\$100) for a well and fifty dollars (\$50) for an injection well is required with all permit applications. The permit must be secured before drilling can occur.

High temperature geothermal fluids, developed as an energy source, a mineral source, or as a material medium are exempt from applications to appropriate water if they will not affect any source of developed underground water. A geothermal resource permit will not be issued if the operation of any well, under the proposed permit, will unreasonably decrease the groundwater available for prior water rights.<sup>8</sup> The burden of proving the interdependence between geothermal sources and prior groundwater rights is with the state of Idaho. The geothermal resource permit will be denied until a valid water appropriation permit has also been obtained.

As a condition of every permit, a bond, indemnifying the State of Idaho is required. The bond which is not less than ten thousand dollars (\$10,000) for each individual well, must be posted to provide sufficient security conditioned upon the performance of the duties required by the Geothermal Resources Act.

The statutory intent is to tightly regulate geothermal development which could interfere with a prior appropriation of water. The potential for

such a conflict is quite high when considering shallow geothermal sources. Sources of geothermal fluids from depths deeper than two kilometers are generally high temperature sources and could be considered undeveloped and thus unappropriated waters. There would be little difficulty in obtaining an appropriation permit for such deep thermal waters on the grounds of the constitutional guarantee of the state of Idaho, that the appropriation of the unappropriated waters of the state shall not be denied.<sup>9</sup>

In the state of Idaho, any state, private, or federal geothermal operator must obtain a valid geothermal resource permit from Idaho Department of Water Resources before any drilling operations can begin.<sup>10</sup> The prudent geothermal developer in the state of Idaho would be wise to obtain a permit to appropriate deep, high temperature, fluids used as an energy source. This would guarantee him a prior appropriation of the newly developed water source. The acquisition of a valid water right for a geothermal development appears to be the current interpretation for the administration of this act.

Certainly specific types of geothermal resource utilization are specifically excluded from geothermal resource permit requirements.

"No person operating or proposing to operate a geothermally heated greenhouse, hothouse, swimming pool, hot springs bath, or hot water fish propagation facility, space heating plant or similar facility unless such operation is in conjunction with a geothermal resource use not specified in this subdivision, shall be compelled to comply with the geothermal resource permit requirements under this act if such person obtains a valid water right permit for such operation."<sup>11</sup>

The operations mentioned above are low temperature uses of geothermal resources. Low temperature thermal waters (80°C - 140°C) with potential for space heating and other low temperature uses are common shallow ground water resources in southern Idaho. Under this part of the Idaho Geothermal Resources Act, any irrigation well which contains thermal water and a valid water right could develop a geothermal heating project without a geothermal resource permit.

Presumably, drilling and development of low temperature thermal wells for any of the above geothermal operations will be regulated by the groundwater appropriation laws and water well drilling regulations of the state of Idaho.

If the operation of a low temperature utilization method is in conjunction with a geothermal resource use not specified under this part of the state act, then the operation is regulated by the geothermal resource permit regulations. Secondary developments, associated with higher temperature developments would be governed by the permit regu-

lations of the Geothermal Resource Act. Thus, any high temperature geothermal resource developed for an energy source which also develops a secondary use beyond the primary energy use, would fall under the appropriation clause of the Act.

The implications of the exemptive clauses of the Idaho Geothermal Resource Act is that low temperature geothermal utilization only requires a valid water right permit and such operations would be regulated by the appropriation laws of the state. Higher temperature utilization for an energy source or mineral resource requires a geothermal resource permit, but does not require a water right permit. This latter point is only valid if the well will not interfere with other groundwater users. Conjunctive developments of high and low temperature uses from the same geothermal resource well would require both a water right permit and a geothermal resource permit.

Although many low temperature uses do not require a valid geothermal permit, such operations can acquire one. Likewise a high temperature geothermal operations developed as an energy source, a mineral resource or a material medium do not require a valid water right permit, but such operations can acquire such a permit. A prudent operator would be wise in obtaining both permits for additional protection from third party interference and for avoiding potential conflicts with state agencies. A problem with applying for both permits is that performance bonds, and application fees are required for each.

#### APPROPRIATION DOCTRINE

Under the general concept of the appropriation doctrine, the individual water user has a guaranteed right to the continued use of water based on the date of his first use of the water. The measure of his certainty to an adequate water supply is his priority date. The appropriation doctrine is the basis of water law in the Western United States. In the state of Idaho, the appropriation doctrine included the administration of groundwater resources.

Idaho has had a comprehensive Groundwater Act since 1951.<sup>12</sup> Under this Act "the right to groundwater may be acquired only by appropriations."<sup>13</sup> There is no distinction in the Groundwater Act between categories of groundwater. Under this statutory framework, a water right is acquired by diverting the water and applying it to a beneficial use.<sup>14</sup>

The acquisition of groundwater rights in the state of Idaho is through a permit system supervised by the Idaho Department of Water Resources.<sup>15</sup> Under the permit system, any person intending to appropriate water must apply for a permit prior to commencing work on the diversion and distribution facility.<sup>16</sup> The Department then publishes notice and if anyone files a protest against approval of the application, a hearing must be held.<sup>17</sup> The state can deny a permit or grant one for a lesser quantity of water only under the following con-

ditions.<sup>18</sup>

- 1) if the proposed use is such that it will reduce the quantity of water under existing rights.
- 2) if the water supply itself is insufficient for the purpose for which it is sought to be appropriated.
- 3) if it appears to the satisfaction of the Department that such application is not in good faith.
- 4) if the applicant has not sufficient financial resources with which to complete the work involved.

After the diversion has been completed and the water put to a beneficial use, a license is granted. The priority of the water right begins on the date the application for an appropriation permit was filed.

The point here is the difference between developed water and appropriated water. Water that is used in the construction of a geothermal well or water that is injected to develop a geothermal system would have to be derived from another source. This would require an appropriation for that purpose. Thus a permit to construct a geothermal well of this nature would be dependent upon both a water appropriation permit and a geothermal resource permit. If the particular system involves the extraction of high temperature water for the purpose of mineral or energy extraction, that water will be considered non-tributary water or developed water, providing that such would not be available for use, except through the exertion of development of the geothermal resource. The developer of the water would create a water source and under the appropriation doctrine would be given free rein of disposition of this water provided that no other appropriator could be injured by this action. The geothermal permit does not guarantee the operator a water right to the created water. If the operator wishes assurance against subsequent developers, he would be wise to acquire an appropriation license as *prima facie* evidence of a water right. The geothermal resource permit gives the operator the right to construct a geothermal well and extract the energy or minerals found therein. Anyone diverting water and applying it to a beneficial use without a permit acquires no rights to that water under the mandatory permit system of water appropriation in the state of Idaho.<sup>19</sup>

The Idaho Groundwater Act seeks to promote "full economic development" of the state's groundwater resources.<sup>20</sup> The full economic development of groundwater is consistent with the constitutional policy of promoting optimum development of the state's water resources.<sup>21</sup> The implications of the phrase "full economic development" to geothermal development is not clear and needs definition. Geothermal resource development, by its very nature, involves the combination of various resources which seek maximum net benefits by efficient economic coordination of those resources. It would seem that geothermal development particularly

multicomponent utilization, would be a justifiable interpretation of "full economic development."

The Idaho Groundwater Act requires "the maintenance of reasonable groundwater pumping levels".<sup>22</sup> The maintenance of reasonable pumping levels is of concern to geothermal development. The Director of Water Resources can establish groundwater pumping levels in areas "having a common groundwater supply".<sup>23</sup> The interpretation of the phrase "common groundwater supply" is not clearly understood and subject to judicial review. Deep thermal aquifers could not be termed a "common groundwater supply", but they may be hydrologically interrelated to shallower common groundwater supplies. Excessive withdrawal of thermal waters from these deep sources could be restricted if pumping levels of other prior appropriators were affected. Thermal aquifers which are shared by geothermal developments and other water users, such as irrigation, would fall under the broad term "common groundwater supply". This is particularly true in the Bruneau-Grandview area of northern Owyhee County where irrigation wells yield thermal waters. In all such cases, it would be prudent for the geothermal well operator to have a water right to protect himself against third party interference.

#### FOOTNOTES

1 Idaho Code 42-4002, Idaho Geothermal Resource Act: sui generis; being neither water nor mineral resource but closely related to and possibly affecting and affected by water and mineral resources.

2 Idaho Code 42-4001, *et. seq.*

3 Idaho Code 42-4003 (c).

4 Idaho Code 42-4003 (b), the appropriation of public waters of the state of Idaho is controlled by Idaho Code 42-227.

5 Allred, Steve, Director of Idaho Department of Water Resources, personal communications, March, 1978.

6 Idaho Code 42-4002, 4003.

7 Brott, Charles A., et. al., Heat Flow Study of the Snake River Plain Region, Idaho, Geothermal Investigations in Idaho, Part 8, Idaho Department of Water Resources Information Bull. 30 (1976), pg. 50-52.

8 Idaho Code 42-4006 (e).

9 Idaho Constitution, Article 15, Section 3, the constitutional aspect of water appropriation in Idaho relates to a declaration in the original constitution of 1889 that "The right to divert and appropriate the unappropriated waters of any natural stream to beneficial uses shall never be denied." In 1928, this sentence was amended by adding the clause "except that the state may regulate

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and limit the use thereof for power purposes," the effect of the constitutional provision on the acquisition of water rights for irrigation and other purposes, other than power, was not altered by the amendment. The development of geothermal resources for power generation will be affected by this regulation but other nonelectrical uses presumably are not affected. For further information on the judiciary ruling of a constitutional method of appropriation of water see the following:

Pioneer Irr. Dist. v. American Ditch Assn.

50 Idaho 732. Also see: Hutchins, Wells A., Water Rights Law in the Nineteen Western States: Volume 1, U.S. Department of Agriculture Publication No. 1206, pg. 346.

10 Clapp, Darrel, State of Idaho Department of Water Resources, personal communications, December, 1977.

11 Idaho Code 42-4003 (e).

12 Idaho Code 42-226 et. seq.

13 Idaho Code 42-229.

14 Idaho Code 42-230.

15 Idaho Code 42-437.

16 Idaho Code 42-202, 42-229. An application for a permit must be accompanied by information about the project. The permit application must contain information about the project that the Director of Water Resources Department has requested. A plan of operation, a map of proposed facilities and a payment of a fee, which varies with the size of the appropriation also must accompany the application.

17 Idaho Code 42-203.

18 Idaho Code 42-203. Delay for speculative purposes is included in the good faith clause. Such delays are a violation of Idaho Code.

19 Tappen v. Smith, 92 Idaho 451.

20 Idaho Code 42-226.

21 Idaho Constitution Article 15, Section 7.

22 Idaho Code 42-226.

23 Idaho Code 42-237 (a-g).