

**BEFORE THE DEPARTMENT OF WATER RESOURCES**  
**OF THE**  
**STATE OF IDAHO**

<b>IN THE MATTER OF THE BOISE FRONT</b>	)	
<b>LOW TEMPERATURE GEOTHERMAL</b>	)	<b>FINAL ORDER</b>
<b>RESOURCE GROUND WATER</b>	)	<b>EXTENDING</b>
<b>MANAGEMENT AREA</b>	)	<b>MORATORIUM</b>
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On June 15, 1987, the Director of the Idaho Department of Water Resources (“IDWR” or “Department”) designated the Boise Front Low Temperature Geothermal Resource Ground Water Management Area in Ada County, Idaho, due to reported declines in aquifer water levels and water pressure.

On June 10, 1988, IDWR issued an order establishing a five (5) year moratorium to prevent further development or additional use of the low temperature geothermal water resource (“resource”).

On June 11, 1993, September 1, 1998, and November 25, 2003, the Director of the Department issued orders each extending the moratorium for a period of five years.

**FINDINGS OF FACT**

1. Recent studies of the Boise Front Low Temperature Geothermal Resource, including IDWR’s annual review of Boise Front geothermal monitoring data, focus on three areas within the geothermal system: the Downtown-Table Rock Area, the Stewart Gulch Area (Water District 63-S), and the Harris Ranch Area. Wells in these areas generally encounter the warmest geothermal water, share common uses, and have more available data than geothermal wells in other areas along the Boise Front. Water users in these three areas have historically expressed concern about possible effects associated with proposed increases in geothermal water withdrawals from the system.

**Downtown-Table Rock Area**

2. The Downtown-Table Rock Area defines a sub-region within the Boise Front Low Temperature Geothermal Resource Ground Water Management Area, which is comprised of four separate geothermal heating systems including the Boise Warm Springs Water District system, the Capitol Mall system, the City of Boise system, and the Veterans Administration system. The document “Review of Boise Front Geothermal Monitoring Data for Water Year 2008<sup>1</sup>” prepared by

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<sup>1</sup> *Water Year 2008 started on October 1, 2007 and ended on September 30, 2008*

IDWR, indicates that gross withdrawals from the four Downtown-Table Rock area geothermal heating systems declined 1.0%, while net withdrawals increased 6.0% compared to the previous water year. Since Water Year 2005, gross withdrawals have decreased each year from a high of 776 million gallons to 687 million gallons. Net withdrawals decreased from 294 to 213 million gallons from Water Year 2005 to Water Year 2007, before increasing to 236 million gallons in Water Year 2008.

3. IDWR reviews geothermal monitoring data, including depth (distance) from top of well casing to the water surface within the well, from the following wells in the Downtown-Table Rock Area: the BLM well; Boise Warm Springs Water District's (BWSWD) #1 (East supply), #2 (West supply), and #3 (monitoring) wells; the Kanta well; Boise Geothermal, Ltd. (BGL) #1, #2, #3, and #4 wells; the Veteran's Administration production well; and the Old Penitentiary well. The non-pumping wells (BLM, Kanta, BGL #1, and BWSWD #3) are the most useful wells for determining trends in this area. These wells show steady increases in water levels from Water Year 2005 to Water Year 2008. All four wells exhibited increases in maximum water levels for these four water years. In all of the wells except for the BWSWD #3, the minimum water levels increased consistently from year to year during this time period. The minimum water levels for the BWSWD #3 increased from Water Year 2005 to Water Year 2007, but had an odd decrease in Water Year 2008. The increasing water level trends in these four wells in conjunction with the overall decreases in gross and net withdrawals show the rapid responsive nature of this system to changes in withdrawal.

4. IDWR authorized additional use under existing permits 63-9138 and 63-9139 in the name of the City of Boise on September 6, 2002. The order permitting the additional use increased the maximum allowable annual pumping volume of the geothermal resource by the City of Boise from 200 million gallons per year to 230 million gallons per year.

5. As of December 1, 2008, the City of Boise has not annually pumped volumes in excess of 200 million gallons per year. However, the City has installed a system capable of pumping volumes much greater than 230 million gallons per year. The City reports that pumping volume for current geothermal heating commitments can approach 230 million gallons per year, particularly in a cold year.

### **Stewart Gulch Area (State Water District 63-S)**

6. IDWR formed Water District 63-S to administer low temperature geothermal ground water rights in the Stewart Gulch Area. IDWR reviews geothermal monitoring data, including well head pressure (in flowing wells) and depth (distance) from top of well casing to the water surface within the well (in non-flowing wells), from the following wells in Water District 63-S: the Edwards well; the TTCI 36<sup>th</sup> Street Silkey (shed), Tiegs (triangle), and Office (house) wells; Quail Hollow Upper (Tee Ltd.) and Lower (Nibbler) wells; the Terteling Ranch "Windsock" and "Pool" wells, and the Stralow (Niznik) well. As evident in the "Review of Boise Front Geothermal Monitoring Data for Water Year 2008" downward trends in measured pressures/water surface elevations have occurred from Water Year 2006 to 2008 in many of the monitored wells from Water District 63-S.

7. Decreasing trends in measured pressures/water surface elevations in monitoring wells in Water District 63-S from Water Year 2006 to Water Year 2008 are consistent with the slight increase in total withdrawal for the same time period. Aquifer pressures/water levels in Water District 63-S respond quickly to changes in withdrawal. An enhanced monitoring plan is being developed for Water District 63-S. This plan calls for the collection of additional monitoring data, which will hopefully lead to a more complete understanding of the withdrawal and water level relationships of the low temperature geothermal ground water resource in this area.

### **Harris Ranch Area**

8. The “Review of Boise Front Geothermal Monitoring Data for Water Year 2008” indicates that water surface elevations in the Harris Ranch West and East wells increased slightly throughout the course of the water year. Overall, water surface elevations in both wells have shown a steady increasing trend from 2003 to present.

9. The document “Investigation of Hydrogeologic Conditions and Ground Water Flow in the Boise Front Geothermal Aquifer (Executive Summary)”, prepared by the Idaho Water Resources Research Institute in October of 2003, concluded that low temperature geothermal water in the Downtown-Table Rock and the Harris Ranch areas are hydraulically connected. The investigation implies that increases in water surface elevations in the Harris Ranch area likely reflect the recent recharge activity in the Downtown-Table Rock Area.

### **Domestic Wells**

10. The Department has issued drilling permits for domestic uses, as defined by Idaho Code § 42-111, within the Boise Front Low Temperature Geothermal Resource Ground Water Management Area. Low temperature geothermal water may be diverted from some of the wells constructed under these domestic drilling permits.

## **CONCLUSIONS OF LAW**

1. Idaho Code § 42-226 states, in part:

Prior appropriators of underground water shall be protected in the maintenance of reasonable ground water pumping levels as may be established by the director of the department as herein provided. In determining a reasonable ground water pumping level or levels, the director of the department shall consider and protect the thermal and/or artesian pressure values for low temperature geothermal resources and for geothermal resources to the extent that he determines such protection is in the public interest.

2. Idaho Code § 42-1805 (7) authorizes the Director to suspend the issuance or further action on permits or applications to appropriate water as necessary to protect existing water rights.

3. IDAPA Rule 37.03.08055 (Water Appropriation Rule 55) authorizes the Director to cease approvals of applications and undeveloped permits in a designated geographical area upon finding a need to protect existing water rights.

4. Without the full allowable stress to the aquifer system having yet occurred in the Downtown-Table Rock area, it is unknown how this resource and the likely hydraulically connected Harris Ranch area, will respond to the maximum potential diversion withdrawal of 230 million gallons per year by the City of Boise. It is in the public interest to protect the low temperature geothermal resource in both of these areas and to continue to monitor the effects of increased withdrawals.

5. The direct response of well head pressures and water levels to changes in withdrawals is well documented in the Stewart Gulch area, increases in withdrawal rates lead to an almost immediate decline in well head pressures or water levels within monitored flowing and non-flowing wells. It is in the public interest to protect the low temperature geothermal resource in this area.

6. Extension of the moratorium is appropriate.

#### **The Effect of the Moratorium on Domestic Uses**

7. Idaho Code § 42-229 states:

The right to the use of ground water of this state may be acquired only by appropriation. Such appropriation may be perfected by means of the application permit and license procedure as provided in this act; provided, however, that in the event an appropriation has been commenced by diversion and application to beneficial use prior to the effective date of this act it may be perfected under such method of appropriation. All proceedings commenced prior to the effective date of this act for the acquisition of rights to the use of ground water under the provisions of sections 42-201 – 42-225, Idaho Code, may be completed under the provisions of said sections and rights to the use of ground water may be thereby acquired. But the administration of all rights to the use of ground water, whenever or however acquired or to be acquired, shall, unless specifically excepted therefrom, be governed by the provisions of this act.

8. Idaho Code § 42-227 states:

The excavation and opening of wells and the withdrawal of water therefrom for domestic purposes shall not be subject to the permit requirement under section 42-229, Idaho Code; providing such wells and withdrawal devices are subject to inspection by the department of water resources and the department of environmental quality and providing further that the drilling of such wells shall be subject to the licensing provisions of section 42-238, Idaho Code. Rights to ground water for such domestic purposes may be acquired by withdrawal and use.

9. Idaho Code § 42-229 and Idaho Code § 42-227 were enacted in 1951. Idaho Code § 42-229 was subsequently amended in 1963 and Idaho Code § 42-227 was subsequently amended in 1970, 1978, and 2001.

10. Idaho Code § 42-111 defines domestic use as follows:

(1) For purposes of sections 42-221, 42-227, 42-230, 42-235, 42-237a, 42-242, 42-243 and 42-1401A, Idaho Code, the phrase "domestic purposes" or "domestic uses" means:

(a) The use of water for homes, organization camps, public campgrounds, livestock and for any other purpose in connection therewith, including irrigation of up to one-half (1/2) acre of land, if the total use is not in excess of thirteen thousand (13,000) gallons per day, or

(b) Any other uses, if the total use does not exceed a diversion rate of four one-hundredths (0.04) cubic feet per second and a diversion volume of twenty-five hundred (2,500) gallons per day.

11. Idaho Code § 42-233 states in part:

(1) The right to the use of low temperature geothermal resources of this state shall be acquired by appropriation. The appropriation may be perfected by means of the application, permit and license procedure as provided in this chapter for ground water, provided that low temperature geothermal resources shall be utilized primarily for heat value and secondarily for the value as water. Usage of a low temperature geothermal resource primarily for reasons other than heat value is not a beneficial use of the resource, unless the director of the department of water resources exempts the proposed use. The director may exempt a proposed use if the director finds that the proposed use satisfies the following criteria: (i) there is no feasible alternative use of the resource; (ii) there is no economically viable source of water having a bottom hole temperature of eighty-five (85) degrees or less in a well available; (iii) the exemption is in the public interest.

12. Idaho Code § 42-233 was enacted in 1987 and amended in 1988.

13. Idaho Code § 42-229 requires a prospective appropriator of ground water to file an application for and obtain a water right prior to beneficially using water in the state of Idaho. Idaho Code § 42-233 separately and specifically requires a prospective appropriator in the state of Idaho to file an application for and obtain a water right prior to beneficially using low temperature geothermal water in the state of Idaho.

14. Idaho Code § 42-227 expressly exempts domestic ground water uses, as defined by Idaho Code § 42-111, from the water right filing requirements of Idaho Code § 42-229. Idaho Code § 42-227 does not include an exemption from the requirement under Idaho Code § 42-233 to file an application for permit when appropriating low temperature geothermal water for domestic purposes.

15. To the extent these statutes may be viewed in conflict, they should be read, so far as reasonably possible, to be construed in harmony with each other. To the extent the statutes deal with a common subject matter, the statute containing the more detailed and specific language relating to a particular matter will prevail. To the extent there is an irreconcilable inconsistency between statutes, the most recent legislative expression will control.

16. Low temperature geothermal ground water is a subset of the larger ground water resource described by Idaho Code § 42-229. Applying the previously stated principles of statutory construction, Idaho Code § 42-233 defines a process for appropriating low temperature geothermal ground water that is separate from Idaho Code § 42-229. As a result, the requirements of Idaho Code § 42-233 are not subsumed by Idaho Code § 42-229.

17. Idaho Code § 42-227 exempts only domestic ground water uses proposed under Idaho Code § 42-229. Idaho Code § 42-227 does not exempt prospective appropriators of low temperature geothermal ground water for domestic uses from the application and water right requirements of Idaho Code § 42-233. A domestic ground water right from low temperature geothermal ground water cannot be perfected by beneficial use, but must be established by the filing of an application with the Department and subsequent approval by the Department as a water right.

18. Idaho Code § 42-1805 (7) authorizes the Director to suspend the issuance of permits or actions on applications to appropriate water as necessary to protect existing water rights. Low temperature geothermal ground water rights must be established by an approved permit, and the Director has the authority to refuse to process applications to appropriate low temperature geothermal water for domestic use.

19. Idaho Code § 42-235 states in part:

20. Prior to beginning construction of any well or changing the construction of any well, the driller or well owner shall obtain a permit from the director of the department of water resources to protect the public health, safety and welfare and the environment . . .

21. Idaho Code § 42-231 states, in part:

It shall likewise be the duty of the director of the department of water resources to control the appropriation and use of the ground water of this state as in this act provided and to do all things reasonably necessary or appropriate to protect the people of the state from depletion of ground water resources contrary to the public policy expressed in this act.

22. To protect the artesian pressures of the low temperature geothermal aquifer underlying the Boise Front Low Temperature Geothermal Resource Ground Water Management Area, the Director should not approve drilling permits for any purpose in the Boise Front

Moratorium Area, including domestic use, unless the applicant for a drilling permit holds a water right authorizing diversion of low temperature geothermal water from a point of diversion at the proposed well site.

23. Owners of domestic wells diverting water from the low temperature geothermal aquifer that were constructed prior to this order without a water right should be entitled to seek a water right for the existing domestic use as defined by Idaho Code § 42-111.

## **ORDER**

IT IS HEREBY ORDERED, pursuant to Idaho Code § 42-1805(7) and IDAPA Rule 37.03.08055 (Water Appropriation Rule 55), that the order dated June 10, 1988, establishing a moratorium on further development, and additional use of the low temperature geothermal water resource in the Boise Front Low Temperature Geothermal Resource Ground Water Management Area **is extended for five (5) years, from the date this order becomes final through May 5, 2014**, unless rescinded or modified by order of the Director or a court of competent jurisdiction.

IT IS FURTHER ORDERED that the moratorium prohibits appropriation of low temperature geothermal water, including the appropriation of low temperature geothermal ground water for “domestic purposes” under Idaho Code § 42-111.

IT IS FURTHER ORDERED that the Department shall not issue drilling permits for domestic purposes as defined by Idaho Code § 42-111, or for any other purpose, to construct or modify a well proposing, or resulting in, a production zone within the low temperature geothermal aquifer underlying the Boise Front Low Temperature Resource Ground Water Management Area unless the proposed construction is for a well described as a point of diversion by a valid water right or water right permit authorizing the appropriation of low temperature geothermal ground water.

IT IS FURTHER ORDERED that further development of additional use pursuant to undeveloped or partially developed permits is prohibited until the permit holder shows to the satisfaction of the Director that further development or additional use: a) will not increase depletions from the aquifer; b) will not increase pumping lift or decrease pressure of existing prior users; and c) will not reduce temperature to existing users causing systems operating at reasonable efficiency to no longer operate.

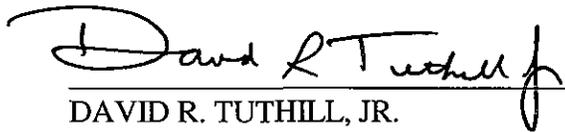
IT IS FURTHER ORDERED that pending and future applications will be rejected unless information is provided to demonstrate the use: a) will not increase depletions from the aquifer; b) will not increase pumping lift or decrease pressure of existing prior users; and c) will not reduce temperature to existing users causing systems operating at reasonable efficiency to no longer operate.

IT IS FURTHER ORDERED that the Department shall process and consider, and may approve, application to appropriate water for domestic use of low temperature geothermal ground water underlying the Boise Front Low Temperature Geothermal Resource Ground Water Management Area from owners of existing domestic wells whose use satisfies the limitations of Idaho Code § 42-111, if the well was constructed and used prior to the date of this order.

IT IS FURTHER ORDERED that the Department shall serve a copy of this order upon holders of applications and undeveloped permits proposing appropriation in the Boise Front Low Temperature Geothermal Resource Ground Water Management Area and shall publish notice of this order as required by IDAPA Rule 37.03.08055 (Water Appropriation Rule 55).

IT IS FURTHER ORDERED that this order shall be effective on May 5, 2009. A petition for reconsideration or exceptions to this order must be filed with the Department on or before May 19, 2009. Any person aggrieved by this order may request a hearing on or before May 20, 2009 as authorized by Idaho Code § 42-1701A. Remedies following issuance of a final order are further explained in the enclosure to this order.

Dated this 14<sup>th</sup> day of April 2009.



Handwritten signature of David R. Tuthill, Jr. in cursive script, written over a horizontal line.

DAVID R. TUTHILL, JR.

Director