

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

**IN THE MATTER OF THE BOISE  
FRONT LOW TEMPERATURE  
GEOTHERMAL RESOURCE GROUND  
WATER MANAGEMENT AREA**

**ORDER EXTENDING  
MORATORIUM**

**BACKGROUND**

On June 15, 1987, the Director of the Idaho Department of Water Resources ("IDWR") designated the Boise Front Low Temperature Geothermal Resource Ground Water Management Area ("Boise Front GWMA") in Ada County, Idaho, due to reported declines in aquifer water levels and water pressure. A map of the Boise Front GWMA is attached hereto as Attachment A.

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 ("LTG") water resource within the Boise Front GWMA.

On June 11, 1993, September 1, 1998, November 25, 2003, April 14, 2009, and April 29, 2014, the Director of IDWR 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 Boise-East Boise area, the Stewart Gulch area (Water District 63-S), and the Harris Ranch area. Wells in these areas generally encounter the warmest LTG water, share common uses, and have more available data than LTG 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 LTG water withdrawals from the system.

**Downtown Boise-East Boise Area**

2. The Downtown Boise-East Boise area defines a sub-region within the Boise Front GWMA, which is comprised of four separate LTG heating systems including the Boise Warm Springs Water District system, the State of Idaho Capitol Mall system, the City of Boise system, and the Veterans Administration system. In *Review of Boise Front Low Temperature Geothermal Monitoring Data for Water Year 2018*<sup>1</sup>, IDWR concluded that gross withdrawals for

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<sup>1</sup> Water Year 2018 started on October 1, 2017 and ended on September 30, 2018.

the four Downtown Boise-East Boise area heating systems declined 2%, while net withdrawals declined 4% compared to the previous water year. Since Water Year 2013, gross withdrawals have generally increased from a low of 781 million gallons to 846 million gallons per water year. Net withdrawals have generally decreased from 275 to 256 million gallons per water year.

3. IDWR reviews LTG monitoring data, including depth to water recorded either as shut-in pressure for flowing wells, or distance from a measuring point near land surface to water surface for non-flowing wells, from the following wells in the Downtown Boise-East Boise area: the United States Bureau of Land Management ("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; and the Veteran's Administration production 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 fairly stable water levels from Water Year 2009 through Water Year 2018, which follows a distinct increasing water level trend from Water Year 2000 to Water Year 2009.

4. In *Review of Boise Front Low Temperature Geothermal Monitoring Data for Water Year 2018*, IDWR concluded that peak water levels from Water Year 2003 through Water Year 2018 in the BLM and Kanta wells exhibited statistically significant increasing water-level elevation trends of 0.5 and 0.4 feet/year, respectively.

5. IDWR reviews geothermal monitoring data, including water supply temperature, from the Capitol Mall, BWSWD, and City of Boise systems in the Downtown Boise-East Boise area. The water supply temperatures in these systems have remained fairly stable for the past several years.

6. IDWR authorized additional use under permits 63-9138 and 63-9139 in the name of the City of Boise for Water Years 2014, 2015, 2016, and 2017. The orders permitting the additional use increased the maximum allowable annual pumping volume of the geothermal resource by the City of Boise from 267 million gallons per year to 310 million gallons per year. The issuance of license 63-9139 on April 27, 2018, authorizes a maximum allowable annual pumping volume of the LTG resource by the City of Boise of 310 million gallons per year. The City of Boise relinquished permit 63-9138 on July 16, 2018.

7. IDWR authorized additional use under existing permit 63-34326 in the name of the City of Boise for Water Years 2018. The order permitting the additional use increased the maximum allowable annual pumping volume of the LTG resource by the City of Boise from 310 million gallons per year to 325 million gallons per year.

8. The City of Boise has increased pumped volumes since Water Year 2013 from 266.50 million gallons per year to 312.5 million gallons per year in Water Year 2018. IDWR has authorized the City of Boise to increase use to 355 million gallons per year for Water Year 2020.

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

9. IDWR formed Water District 63-S to administer LTG 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 36th 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. In *Watermaster’s Report Water District 63-S (Stewart Gulch) October 1, 2017 to September 10, 2018* prepared by Michael McVay, Water District 63-S Water Master, concludes that withdrawals increased 13% from Water Year 2017 to Water Year 2018. Since Water Year 2014, withdrawals have generally increased from a low of 170 million gallons to 202 million gallons. The overall trend in combined withdrawals for Water District 63-S indicates withdrawals in the district have not consistently increased or decreased since Water Year 2003.

10. Ground water levels decreased slightly from Water Year 2013 to Water Year 2018 in Water District 63-S in several of the wells. Withdrawals decreased sharply from Water Year 2015 to 2016, remained fairly constant through Water Year 2017, and then increased sharply from Water Year 2017 to 2018. Withdrawals have decreased at Quail Hollow from Water Year 2015 to 2018, with water levels declining in both the Upper and Lower Quail Hollow wells. Regardless of the reduction in Quail Hollow withdrawals, the Quail Hollow Wells appear to responding to the increased combined Water District 63-S withdrawals. Water levels declined in the Edwards and Tiegs wells from Water Year 2015 to 2018. Despite the lack of an increasing trend in the combined withdrawal volume, the minimum water levels in the Tiegs well, the Edward Greenhouse well, and the Quail Hollow Upper well exhibit a downward trend from Water Year 2003 to 2018. These observations demonstrate that aquifer pressures/water levels in Water District 63-S respond quickly to changes in withdrawal. Continued monitoring and self-regulation of withdrawals by the district water users is very important to confirm and maintain stability of the LTG resource in this area.

### **Harris Ranch Area**

11. The *Review of Boise Front Low Temperature Geothermal Monitoring Data for Water Year 2018* concludes that water surface elevations in the Harris Ranch West and East wells showed slight decreasing trends in Water Year 2018. Peak water levels from Water Year 2003 through Water Year 2018 in the Harris Ranch (west) well exhibited a statistically significant increasing water-level elevation trend of 0.6 feet/year. Overall, water surface elevations in both wells have been steadily increasing since 2003.

12. The *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 LTG water in the Downtown Boise-East Boise area and the Harris Ranch area are hydraulically connected. The conclusion implies that trends in water surface elevations in the Harris Ranch area likely reflect the pumping and recharge activity in the Downtown Boise-East Boise area.

13. Water level data collected from Water Year 2012 to 2018 at the Harris Ranch wells have distinctly different water level signatures than the Downtown Boise-East Boise wells. There is an offset of up to several months in the maximum and minimum values between the two areas.

## Domestic Wells

14. IDWR has issued drilling permits for domestic uses, as defined by Idaho Code § 42-111, within the Boise Front GWMA. LTG water may be diverted from some of the wells constructed under these domestic drilling permits.

15. On April 14, 2009, the Director of IDWR issued the *Final Order Extending Moratorium*, to be effective on May 5, 2009. The extension prohibited appropriation of LTG ground water, including the appropriation of LTG ground water for domestic purposes under Idaho Code § 42-111. The extension also provided that IDWR shall process and consider, and may approve, applications to appropriate water for domestic use of LTG ground water underlying the Boise Front GWMA from owners of existing domestic wells whose use satisfied the limitations of Idaho Code § 42-111, if the well was constructed and used prior to the date of the extension.

## CONCLUSIONS OF LAW

1. 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, except as provided in subsection (2) of this section. 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; and (iii) the exemption is in the public interest.

2. 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 of water resources as herein provided. In determining a reasonable ground water pumping level or levels, the director of the department of water resources 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.

3. 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.

4. IDAPA Rule 37.03.08.055 (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.

5. Without the full allowable stress to the aquifer system having yet occurred in the Downtown Boise-East Boise area, it is unknown how this resource, and the likely hydraulically connected Harris Ranch area, will respond to the maximum potential diversion withdrawal of 355 million gallons per year by the City of Boise. It is in the public interest to protect the LTG resource in both of these areas and to continue to monitor the effects of increased withdrawals.

6. The direct response of well head pressures and water levels to changes in withdrawals is well documented in the Stewart Gulch area, where increases in withdrawal rates leads 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 LTG resource in this area.

7. The legislature has instructed the Director, when determining reasonable pumping levels, to protect artesian pressures of LTG aquifers if protection is found to be in the public interest.

8. It is in the public interest to protect the existing LTG aquifer pressures.

9. Extension of the moratorium is appropriate.

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

10. Idaho Code § 42-233 separately and specifically requires a prospective appropriator to file an application for and obtain a water right prior to beneficially using LTG water in the state of Idaho.

11. Idaho Code § 42-227 does not exempt prospective appropriators of LTG water for domestic uses, as defined by Idaho Code § 42-111, from the application and water right requirements of Idaho Code § 42-233.

12. A domestic ground water right from LTG water cannot be perfected by beneficial use, but must be established by the filing of an application with IDWR and subsequent approval by IDWR as a water right.

13. 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. LTG ground water rights must be established by an approved permit, and the Director has the authority to suspend action on applications to appropriate LTG water for domestic use.

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

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... .

15. 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.

16. To protect the artesian pressures of the LTG aquifer underlying the Boise Front GWMA, the Director should not approve drilling permits for any purpose in the Boise Front GWMA, including domestic use, unless the applicant for a drilling permit holds a water right authorizing diversion of LTG water from a point of diversion at the proposed well site.

17. Owners of domestic wells diverting water from the LTG aquifer that were constructed prior to May 5, 2009 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 37.03.08.055 (Water Appropriation Rule 55), that the order dated June 10, 1988, establishing a moratorium on further development, and additional use of the LTG water resource in the Boise Front GWMA is extended for five (5) years, from May 5, 2019, 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 LTG water, including the appropriation of LTG ground water for domestic purposes as defined in Idaho Code § 42-111.

IT IS FURTHER ORDERED that IDWR 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 LTG aquifer underlying the Boise Front GWMA 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 LTG 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 or existing prior users; and c) will not reduce temperature to existing users causing systems operating at reasonable efficiency to no longer operate.<sup>2</sup>

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<sup>2</sup> This prohibition does not apply to City of Boise permit 63-34326. The City of Boise may continue to develop permit 63-34326 consistent with the *Stipulated Agreement* approved by



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 or existing prior users; and c) will not reduce temperature to existing users causing systems operating at reasonable efficiency to no longer operate.<sup>3</sup>

IT IS FURTHER ORDERED that IDWR shall process and consider, and may approve, application to appropriate water for domestic use of LTG ground water underlying the Boise Front GWMA 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 May 5, 2009.

IT IS FURTHER ORDERED that IDWR shall serve a copy of this order by certified mail upon holders of applications and undeveloped permits proposing appropriation in the Boise Front GWMA and shall publish notice of this order for three consecutive weeks as required by IDAPA Rule 37.03.08.055 (Water Appropriation Rule 55).

IT IS FURTHER ORDERED that this order shall be effective on May 5, 2019.

IT IS FURTHER ORDERED that unless the right to a hearing before the Director is otherwise provided by statute, any person who is aggrieved by the action of the Director, and who has not previously been afforded an opportunity for a hearing on the matter, shall be entitled to a hearing before the Director to contest the action. The person shall file with the Director, within fifteen (15) days after receipt of written notice of the action issued by the director, or receipt of actual notice, a written petition stating the grounds for contesting the action by the Director and requesting a hearing. See Idaho Code § 42-1701A(3).

Dated this 3<sup>rd</sup> day of May 2019.

  
GARY SPACKMAN  
Director

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IDWR. *Order Accepting Settlement*, In the Matter of Application to Appropriate Water No. 63-34326 in the Name of the City of Boise (Oct. 16, 2017).

<sup>3</sup> Pursuant to the June 1988 *Management Policy for the Boise Front Ground Water Management Area*, Section V, Part G, IDWR may also “Require a drilling prospectus to be submitted for review and approval with each drilling permit proposing to construct a well into the low temperature geothermal aquifer or which exceeds a 300 ft. depth.”

# Attachment A

