

**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-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, April 29, 2014, and May 3, 2019, IDWR issued orders extending the moratorium for a period of five years each time.

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 is a sub-region within the Boise Front GWMA. There are four separate LTG heating systems in the Downtown Boise-East Boise area. These are the Boise Warm Springs Water District (“BWSWD”) system, the State of Idaho Capitol Mall system, the City of Boise system, and the Veterans Administration system.

3. The report *Boise Front Low-Temperature Geothermal Resource Groundwater Management Area Water Year 2023*¹, shows that since Water Year 1990, gross annual withdrawals from the four Downtown Boise-East Boise systems have generally increased from 571 million gallons to 994 million gallons. Since Water Year 1993, net withdrawals have generally decreased from 395 million gallons to 279 million gallons per water year.

4. 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; BWSWD #1 (East supply), BWSWD #2 (West supply), and BWSWD #3 (monitoring) wells; the Kanta well; Boise Geothermal, Ltd. (“BGL”) #1; and the Veteran’s Administration production well. The non-pumping wells (BLM, Kanta, and BWSWD #3) are the most useful wells for determining trends in this area. IDWR calculated the median annual water level changes in the three non-pumping wells from 1990 to 2023 and applied a regional statistical analysis to determine if the changes are statistically significant. From 1990 to 2000, water levels in the non-pumping wells increased at a statistically significant rate of 0.47 feet per year. From 2000 to 2009, water levels in the non-pumping wells increased at a statistically significant rate of 1.60 feet per year. From 2009 to 2023, water levels in the non-pumping wells increased at a statistically significant rate of 0.11 feet per year.²

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. In *Boise Front Low-Temperature Geothermal Resource Groundwater Management Area Water Year 2023*, IDWR concluded that water supply temperatures from Water Year 2005 to Water Year 2023 in the Capitol Mall and City of Boise systems exhibited statistically significant decreasing temperature trends of 0.05°F and 0.04°F per year, respectively. However, the small magnitude limits the significance of the trends and system operation complicates the assessment of temperature changes in these wells.

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 LTG 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, authorized 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. The City of Boise holds permit 63-34326 authorizing diversion and use of up to 12 cubic feet per second and 1,181 acre-feet per year (385 million gallons per year) of the LTG resource in combination with water right 63-9139 for heating use in the City of Boise geothermal water system.

¹ Water Year 2023 started on October 1, 2022 and ended on September 30, 2023.

² See Michael McVay’s email to Angela Hansen *Boise Front regional water-level trends* (April 26, 2024).

8. Pursuant to the *Stipulated Agreement* submitted to the Department on August 29, 2017, in connection with permit 63-34326, if IDWR determines certain criteria are met, IDWR may authorize the City of Boise to increase its annual LTG production in incremental steps, up to the 385 million gallons per year limit, during the authorized permit development period. IDWR authorized increases in withdrawals under permit 63-34326 in Water Years 2018, 2020, and 2021. The orders permitting the additional withdrawals in those years increased the maximum allowable annual pumping volume of the LTG resource by the City of Boise from 310 million gallons per year to 370 million gallons per year.

9. In *Preliminary Order Accepting Addendum to Stipulated Agreement and Granting Extension In the Matter of Water Right Permit 63-34326 in the Name of the City of Boise* (January 23, 2023), IDWR reduced the allowable annual pumping volume of the LTG resource by the City of Boise from 370 million gallons per year to 340 million gallons per year and extended the proof of beneficial use deadline for permit 63-34326 to November 1, 2027.

10. The City of Boise has increased pumped LTG volumes from 267 million gallons in Water Year 2013 to 323 million gallons in Water Year 2023.

11. For Water Year 2024, IDWR authorized an increase in the maximum allowable pumping volume under permit 63-34326 from 340 million gallons per year to 350 million gallons per year. Furthermore, for Water Year 2025, IDWR authorized an increase to 360 million gallons per year.³

12. On March 3, 2024, IDWR met with the parties to the Matter of Water Right Permit 63-34326. This meeting was the required annual meeting to review prior-year monitoring data, the City of Boise's annual production and injection report, and the City of Boise's request to increase its production limit under permit 63-34326 in combination with its license 63-9139. At this meeting, the City of Boise suggested IDWR consider extending the Boise Front GWMA moratorium one year instead of the historically typical five-year extension to allow time for IDWR to consider creation of a water district under Idaho Code § 42-604, or a ground water management area plan under Idaho Code § 42-233b, in addition to or in lieu of the moratorium. IDWR requested the parties submit written comments regarding IDWR's possible extension of the Boise Front GWMA moratorium by March 22, 2024.

13. On March 22, 2024, IDWR received comments regarding extension of the Boise Front GWMA moratorium from the City of Boise, BWSWD, Edwards Family, LLC ("Edwards"), and the Idaho Department of Administration ("IDA").

14. In its March 22, 2024, comments, the City of Boise states that since the 1988 establishment of the Boise Front GWMA moratorium, "the aquifer of the Boise Front GWMA has seen dramatic improvement. Even with continued increases in production by the City [of Boise], the mitigation accompanying development has allowed the aquifer not only to recover

³ See *Interlocutory Order Authorizing Additional Use In the Matter of Petition for Order Authorizing Additional Use Under Authorized Permits and Moratorium Order for Water Right Permit 63-34326 In the Name of the City of Boise* (May 2, 2024).

water levels, but also to stabilize temperature and maintain pressure.” City of Boise’s letter *Re: Permit 63-34326: Comments to the City request for increase under the 2017 Stipulated Agreement; and In the Matter of the Boise Front Low Temperature Geothermal Resource GWMA: Comments on the extension of the Moratorium* (March 22, 2024) at 2. The City of Boise suggests IDWR extend the moratorium for one year to establish an advisory committee for the purpose of developing a ground water management area plan. The City of Boise proposes the committee meet bi-monthly or quarterly and use the City of Boise permit 63-34326 Stipulated Agreement reporting, data sharing, and mitigation requirements as a starting point to establish a ground water management area plan.⁴

15. In its March 22, 2024, comments, BWSWD opposes the City of Boise’s suggested one-year moratorium extension, stating the aquifer took almost 10 years to recover from previous damage (water level and pressure declines). BWSWD asserts the data used to make decisions for future water usage under permit 63-34326 lags behind the year of increased production by two or three years. BWSWD states, “Five (5) years is a reasonable middle-ground to allow the data to ‘catch up’ to the increase in water usage. Based on this, the moratorium should be no less than five (5) years.” BWSWD email *Re: City of Boise Geothermal Permit 63-34326* (March 22, 2024) at 1. BWSWD further states that the historic five-year moratorium renewals and annual meetings (for the City of Boise’s permit 63-34326) provided parties valuable data and a venue to discuss aquifer conditions and ensure parties’ interests are preserved.

16. In its March 22, 2024, comments, Edwards opposes a one-year moratorium extension. “Edwards is concerned about the long-term effects of the City of Boise’s increased production and reinjection which have not yet been realized in the data.” Edwards letter *Re: Comments From Edwards Family LLC City of Boise Annual Meeting* (March 22, 2024) at 2. Edwards further highlights the complexity of geothermal ground water issues, the length of ground water level response times, and the number of affected stakeholders as reasons one year is not a realistic amount of time for an advisory committee to develop an acceptable ground water management plan or other alternative to the moratorium. Edwards recommends that IDWR should renew the moratorium for another five years.

17. In its March 22, 2024, comments, IDA recommends that the moratorium be extended another five years. IDA states that “a plan may not adequately allow the water rights of participating water right holders to be curtailed in the event that the plan fails to anticipate water supply and the water supply becomes insufficient. *See* I.C. 42-233b.” IDA’s email *Re: Request for extension of the Boise Front Low Temperature Geothermal Resource Ground Water Management Area Moratorium* (March 22, 2024) at 1. IDA asserts the moratorium should be extended another five years to “appropriately limit the use of geothermal water within the Boise Front GWMA.” *Id.*

⁴ See *Order Accepting Settlement In the Matter of Application to Appropriate Water No. 63-34326 In the Name of the City of Boise* (October 16, 2017) and *Preliminary Order Accepting Addendum to Stipulated Agreement and Granting Extension In The Matter of Water Right Permit 63-34326 In the Name of the City of Boise* (January 23, 2023).

Stewart Gulch Area (Water District 63-S)

18. IDWR formed Water District 63-S to administer LTG ground water rights in the Stewart Gulch area. Based on data in a report titled *Watermaster's Report Water District 63-S (Stewart Gulch) October 1, 2022 - September 30, 2023* prepared by Michael McVay ("McVay"), Water District 63-S Watermaster, 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. While there is no increasing or decreasing trend, the greatest annual withdrawal, 204 million gallons, occurred in Water Year 2003 and the lowest annual withdrawal, 160 million gallons, occurred in Water Year 2023.

19. 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 Tiegs well, the Edwards Greenhouse well, the Quail Hollow Upper well, and the Quail Hollow Lower well. In *Watermaster's Report Water District 63-S (Stewart Gulch) October 1, 2022 - September 30, 2023*, McVay concludes that water levels exhibit flat to slightly rising trends from Water Year 2003 to Water Year 2023, but Quail Hollow Lower well is the only well that exhibits a statistically significant water level trend, which is an increasing trend of 0.4 feet per year for the twenty-year period.

20. IDWR relies on ground water level data from the Tiegs well as an indicator of water level trends in the Stewart Gulch Area (Water District 63-S) because the well is unused and somewhat centrally located. In *Watermaster's Report Water District 63-S (Stewart Gulch) October 1, 2022 - September 30, 2023*, McVay concluded higher withdrawal rates generally coincide with deeper water levels. This relationship is evident in Water Year 2003 to Water Year 2013 and Water Year 2022 water levels in the Tiegs well. The relationship is less direct from Water Year 2013 to Water Year 2020 and Water Year 2023, but this may be due to several factors, including timing, magnitude, and location of withdrawals; monitoring equipment issues; or some combination of these factors.

Harris Ranch Area

21. In *Boise Front Low-Temperature Geothermal Resource Groundwater Management Area Water Year 2023*, IDWR concludes that peak water levels in the Harris Ranch West well rose 0.33 feet from Water Year 2022 to Water Year 2023. Peak water levels from Water Year 2005 through Water Year 2023 in the Harris Ranch West well exhibited a statistically significant increasing water-level elevation trend of 0.4 feet per year.

22. *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, concludes 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.

Domestic Wells

23. 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.

24. On April 14, 2009, the Director of IDWR issued the *Final Order Extending Moratorium*, to be effective on May 5, 2009. The moratorium extension prohibited appropriation of LTG ground water, including the appropriation of LTG ground water for domestic purposes under Idaho Code § 42-111. The moratorium 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 satisfies the limitations of Idaho Code § 42-111, if the well was constructed and used prior to the date of the moratorium extension.

RELEVANT STATUTES AND RULES

1. Idaho Code § 42-233(1) states, in part:

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 concludes:

- (a) The proposed use will not detrimentally affect existing water rights, including water rights for low temperature geothermal water;
- (b) The proposed use will not diminish the temperature of or artesian pressure of the low temperature geothermal aquifer; and
- (c) There is no economically viable source of water having a bottom hole temperature of eighty-five (85) degrees or less in a well available.

2. Idaho Code § 42-233b states, in part:

When a ground water management area is designated by the director of the department of water resources, or at any time thereafter during the existence of the designation, the director may approve a ground water management plan for the area. The ground water management plan shall provide for managing the effects of ground water withdrawals on the aquifer from which withdrawals are made and on any other hydraulically connected sources of water.

Applications for permits made within a ground water management area shall be approved by the director only after he has determined on an individual basis that sufficient water is available and that other prior water rights will not be injured.

The director may require all water right holders within a designated water management area to report withdrawals of ground water and other necessary information for the purpose of assisting him in determining available ground water supplies and their usage.

The director, upon determination that the ground water supply is insufficient to meet the demands of water rights within all or portions of a water management area, shall order those water right holders on a time priority basis, within the area determined by the director, to cease or reduce withdrawal of water until such time as the director determines there is sufficient ground water. Water right holders participating in an approved ground water management plan shall not be subject to administration on a time priority basis so long as they are in compliance with the ground water management plan.

3. 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.

4. 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, and to prevent the waste of water or mixture of water from different aquifers.

5. 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.

6. 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.

7. IDAPA Rule 37.03.08.055 (Water Appropriation Rule 55) authorizes the IDWR to cease approvals of applications and undeveloped permits in a designated geographical area upon finding a need to protect existing water rights.

CONCLUSIONS OF LAW

1. In 1987, IDWR established the Boise Front GWMA moratorium in response to declines in aquifer water levels and well head pressures. After the moratorium's establishment, LTG water levels in the Downtown Boise-East Boise sub-region rose gradually (0.47 feet per year) in the 1990s, rose more significantly (1.60 feet per year) from 2000 through 2009, and since 2009 are only slightly increasing (0.11 feet per year) or essentially stabilizing. However, the City of Boise is authorized to continue further development of permit 63-34326. 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 City of Boise's maximum authorized withdrawal of 360 million gallons per year. It is in the public interest to protect the LTG resource in Downtown Boise-East Boise area and the Harris Ranch area and to continue to monitor the effects of increased withdrawals on existing water rights.

2. The direct response of well head pressures and water levels to changes in withdrawals is documented in the Stewart Gulch area, where increases in withdrawal rates lead to an almost immediate decline in well head pressures or water levels within monitored flowing and non-flowing wells, in most years. It is in the public interest to protect the LTG resource, including aquifer levels and pressures, in the Stewart Gulch area.

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

4. Idaho Code § 42-1805(7) authorizes the Director of IDWR to suspend the issuance of permits or actions on applications to appropriate water as necessary to protect existing water rights. In the Boise Front GWMA, it is necessary to protect existing water rights by suspending the issuance or further action on permits or applications to appropriate water.

5. Idaho Code § 42-233b allows IDWR to approve a ground water management plan within a designated ground water management area to manage the effects of ground water withdrawals on the aquifer and hydraulically connected sources. Anyone interested in a ground water management plan for the Boise Front GWMA may petition IDWR to adopt such a plan.

6. A three-year moratorium extension affords IDWR an opportunity to consider the merits of a petition for a management plan for the Boise Front GWMA, should a petition be filed, before proof of beneficial use for permit 63-34326 is due on November 1, 2027.

The Effect of the Moratorium on Domestic Uses

7. 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.

8. 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.

9. 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.

10. Idaho Code § 42-1805(7) authorizes the Director of IDWR 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.

11. To protect the artesian pressures of the LTG aquifer underlying the Boise Front GWMA, IDWR 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.

12. 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 that the Boise Front GWMA moratorium on further development and additional use of the LTG ground water resource established by the Director of IDWR by order dated June 10, 1988, is extended for three years.

IT IS FURTHER ORDERED that IDWR suspend further action on the processing and approval of presently pending and new applications for permits to appropriate LTG ground water from the Boise Front GWMA, subject to the following provisions:

1. The moratorium prohibits appropriation of LTG water, including the appropriation of LTG ground water for domestic purposes as defined by Idaho Code § 42-111.

2. 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.

3. The moratorium does not prevent IDWR from processing, considering, and potentially approving, applications to appropriate LTG ground water underlying the Boise Front GWMA for domestic use by 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.

4. The moratorium does not prevent IDWR from reviewing for approval on a case-by-case basis an application which otherwise would not be approved under terms of this moratorium if the applicant demonstrates the use: a) will not increase depletions from the aquifer; b) will not increase pumping lift or decrease pressure to existing prior users; and c) will not reduce temperature to existing users causing systems operating at reasonable efficiency to no longer operate.⁵

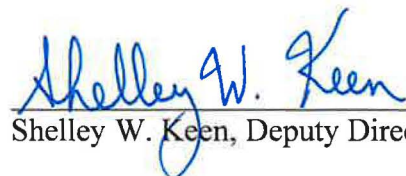
IT IS FURTHER ORDERED that further development of additional use pursuant to undeveloped or partially developed permits is prohibited until the permit holder shows to the satisfaction of IDWR that further development or additional use: a) will not increase depletions from the aquifer; b) will not increase pumping lift or decrease pressure to existing prior users; and c) will not reduce temperature to existing users causing systems operating at reasonable efficiency to no longer operate.⁶

IT IS FURTHER ORDERED that this moratorium order shall be in effect on May 5, 2024. The moratorium order shall remain in effect until May 5, 2027, unless rescinded or modified by IDWR or a court of competent jurisdiction.

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 37.03.08.055 (Water Appropriation Rule 55).

Pursuant to Idaho Code § 42-1701A(3), any person aggrieved by any decision, determination, order or other 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.

Dated this 3rd day of May 2024.


Shelley W. Keen, Deputy Director

⁵ 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.”

⁶ 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* and subsequent *Addendum*, both approved by IDWR. See *Order Accepting Settlement In the Matter of Application to Appropriate Water No. 63-34326 in the Name of the City of Boise* (October 16, 2017) and *Preliminary Order Accepting Addendum to Stipulated Agreement and Granting Extension In the Matter of Water Right Permit 63-34326 in the Name of the City of Boise* (January 23, 2023).

Attachment A

