



Expert Witness Report in
Rebuttal to Idaho Water
Engineering Report on
Application for Transfer
No. 85639

IMH Boise Cimmaron, LLC

Project: 10346993

Canyon County, Idaho
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1 Background

IMH Boise Cimmaron, LLC's (IMH; Applicant) Application for Transfer No. 85639 (the Application) proposes to change a portion of decreed ground water right 63-3298 from irrigation to domestic use for the Cimarron Ridge Subdivision located south of Caldwell in Canyon County, Idaho. Beranna Dairy and Western Farms, Inc. protested the Application

The Application is supported by two reports. HDR prepared *Expert Witness Report in Support of Application for Transfer No. 85639*, dated December 7, 2023 (HDR, 2023). Triple Point Strategic Consulting prepared the *Estimating the Effect of Cimarron Ridge on the Agricultural Base of Canyon County* report, dated December 2023.

Protestants submitted *Beranna Dairy's Expert Witness Disclosure*, dated December 8, 2023. This disclosure includes reports from Idaho Water Engineering (IWE), University of Idaho professors Phillip Watson, Ph.D., and Jason Winfree, Ph.D., and Treasure Valley Planning Idaho.

This report provides rebuttal to protestants' expert witness report prepared by IWE.

2 Idaho Water Engineering Report

2.1 IDWR Program Monitoring Wells

IWE claimed "Unfortunately, there are no IDWR program wells in the vicinity of Breanna (sic) and IMH that are being monitored for ground water levels in the **deeper Idaho Group aquifers**." (emphasis added). HDR identified four Idaho Department of Water Resources (IDWR) program monitoring wells in the vicinity of the Application and Beranna Dairy, two of which appear to be completed in the deeper Idaho Group (HDR, 2023).

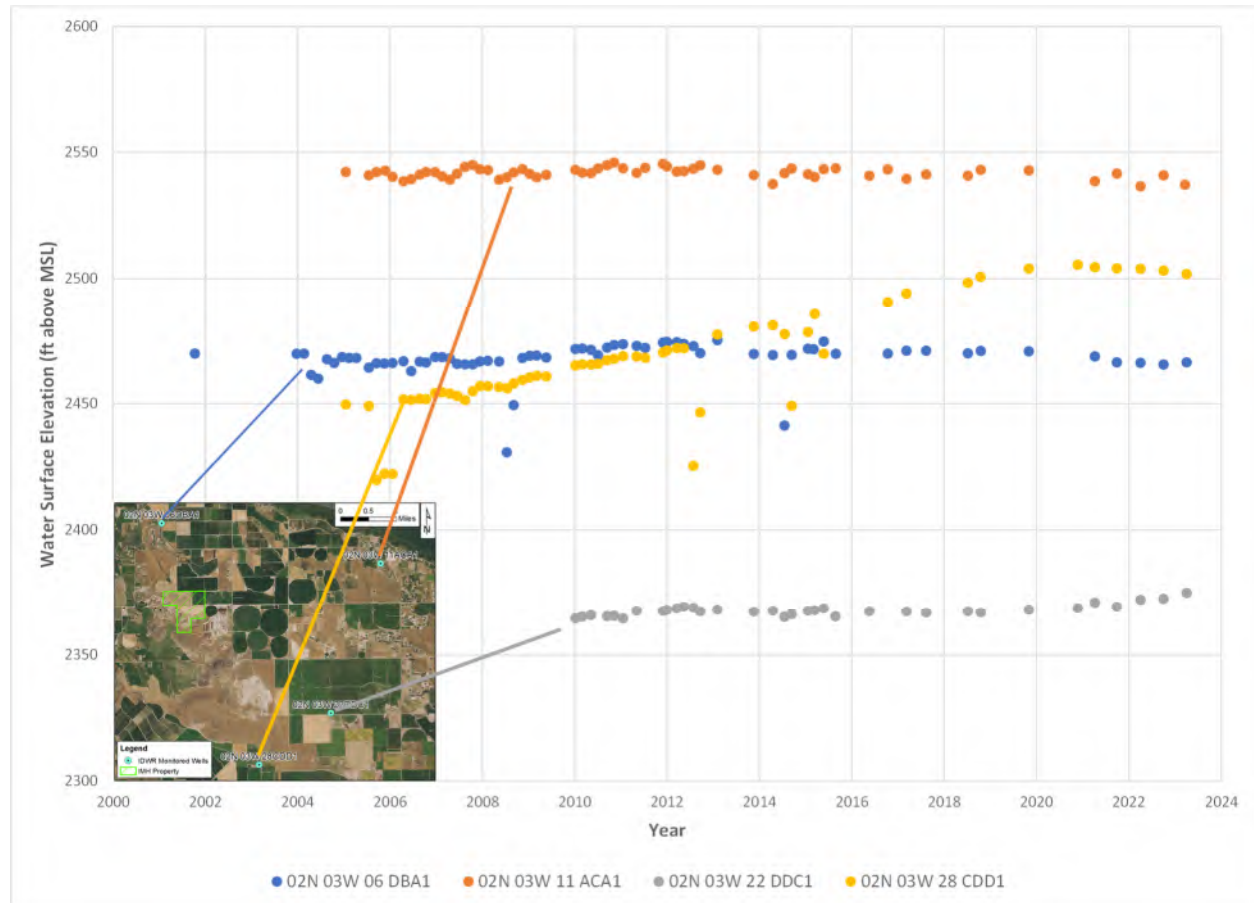
Well 02N 03W 22 DDC1, located approximately 3 miles southeast of the Applicant's property, is completed with perforations from 400 to 580 feet in what the Well Driller's Report largely describes as gray and blue clays with sand layers that appear to be in the deeper Idaho Group. This well was gravel packed from 0 to 580 feet, so there may be co-mingling of waters between aquifer groups. Water levels in this well have been stable for more than 20 years.

Well 02N 03W 28 CDD1, located approximately 3 miles south-southeast of the Applicant's property, does not have an identified well driller's report. IDWR's Groundwater Data Portal indicates this well has a depth of 485 feet, but does not identify completion intervals. Constructed in the same 40-acre tract as 02N 03W 28 CDD1 is another well at 02N 03W 28 SESW, for owner Craig Castagneto in 2002. The Well Driller's Report for Castagneto's well indicates a depth of 625 feet is in the gray clays consistent with the deeper Idaho Group. Water levels in the 02N 03W 28 CDD1 well have increased by approximately 50 feet from 2005 to 2020, and since 2021 have declined approximately 4 feet.

Figure 3 in HDR's *Expert Witness Report in Support of Application for Transfer No. 85639* plotted groundwater levels from the four identified IDWR Groundwater Data Portal wells near the IMH property. After further review, HDR identified that a portion of data from well 02N 03W 28 CDD1 was omitted. Figure 1 below provides the full record of all four wells with water levels presented as water surface elevations above sea level.

The two wells located southeast of IMH and Beranna Dairy, 02N 03W 28 CDD1 and 02N 03W 22 DDC1, appear to be completed in the deeper Idaho Group and both exhibit long-term stable or increasing water levels.

Figure 1. Groundwater Level Data and Trends



2.2 Water Supply Issues

IWE indicated that applications for new groundwater permits are on hold in the area south of Lake Lowell. While there are several very large applications for permit that are not being processed due to unresolved protests, IDWR has recently approved the following permits in the area south of Lake Lowell.

- Permit 63-35199 authorizes appropriation of 1.72 cubic feet per second (cfs) of groundwater for domestic use and irrigation of 84 acres. IDWR received the application for permit on February 18, 2022, and approved the permit on April 26, 2022.
- Permit 63-35051 authorizes appropriation of groundwater, including 0.28 cfs for irrigation of 14 acres, 0.45 cfs for domestic use in 101 homes, and 3.34 cfs for fire protection. IDWR received the application for permit on April 22, 2021, and approved the permit on September 24, 2021.

- Permit 63-34858 authorizes appropriation of groundwater, including 0.1 cfs for commercial and 0.04 cfs for fire protection. IDWR received the application for permit on January 27, 2020, and approved the permit on June 4, 2020.
- Permit 63-34320 authorizes appropriation of 1 cfs of groundwater for irrigation of 50 acres on the IMH property, the same property associated with the Application implicated by this report. IDWR received the application for permit on November 10, 2016, which the Boise Project Board of Control subsequently protested. Beranna Dairy did not protest the application. The protest was resolved with Boise Project Board of Control and IDWR approved the permit on June 9, 2020.

IWE states that new groundwater uses could reduce supplies for Beranna Dairy. HDR concurs on this point; however, the Application does not propose any additional groundwater use. On the contrary, 26 acres irrigated with groundwater are removed from production to balance the new domestic use. There is no increase in diversion rate, annual diversion volume, or annual consumptive volume.

IWE contends, “Given that the proposed Transfer includes changing a portion of the irrigation beneficial use to year-round residential and additional 50 acres of irrigation with Permit 63-34320, **it appears quite possible that IDWR would consider this an enlargement.**” (emphasis added). As described in *Expert Witness Report in Support of Application for Transfer No. 85639*, the unchanged portion of water right 63-3298 is 138 acres, and the anticipated irrigated area associated with the Cimarron Ridge development is 145 acres. Permit 63-34320, described above, authorizes 50 acres of new groundwater irrigation. Beranna Dairy did not protest Permit 63-34320 and IDWR approved that permit in 2020. Developing this permit is not an enlargement of water right 63-3298. Based on the difference between 145 planned irrigated acres and 138 acres provided by the unchanged portion of water right 63-3298, only about 7 acres of Permit 63-34320 are expected to be developed ($145-138=7$). Nevertheless, if Permit 63-34320 was fully developed, the Application does not enlarge water right 63-3298. HDR disagrees that IDWR would consider this an enlargement.

2.3 Potential Impacts to Ground Water Levels Due to Changes in Pumping Schedules

IWE implies that changing pumping schedule from the irrigation season to year-round would impact the groundwater levels in existing wells. There may be an impact to groundwater levels, and this expected impact would be positive for groundwater levels at Beranna Dairy’s wells. Currently during the irrigation season, when water is pumped from the IMH irrigation wells at a higher diversion rate over a shorter period of time, a deep and broad cone of depression likely interferes with water levels in the Beranna Dairy wells. Reducing the pumped quantity from the IMH irrigation wells due to the reduction of 26 irrigated acres is expected to yield less potential interference with Beranna Dairy wells. Subsequently moving the 26 equivalent acres of diversion volume a distance away from Beranna’s wells reduces the stress on the aquifer at Beranna. Diverting less during the irrigation season, when Beranna is pumping for irrigation use, should also benefit Beranna. *Expert Witness Report in Support of Application for Transfer No. 85639* provided further discussion on anticipated well interference and identified a calculated an approximate 1-foot benefit to water levels at Beranna and Western Farms.

IWE contends, “To determine the impacts, the applicant would need to monitor water levels for a year or two before any change in pumping patterns, and then monitor water levels during a long term well pumping test of the new wells.” *Expert Witness Report in Support of Application for Transfer No. 85639* provided results of a Theis analysis of water level changes anticipated due to the changes proposed by the Application. The Theis methodology is a long-accepted approach to approximating expected changes to water level conditions resulting from aquifer stresses. It is unrealistic to require long-term monitoring on an application for transfer where net water use is not increased, and where the change in pumping stresses is expected to benefit water levels at Beranna and Western Farms.

2.4 Additional Information Needed and Questions

IWE posed nine questions for additional information.

1. Information on well design.

The preliminary plans for anticipated domestic wells are 8-inch diameter completed in sediments below 300 feet. A test well is proposed to identify aquifer layers with acceptable productivity and water quality. Final well plans will be prepared after test well construction and analysis.

2. Separate monitoring well.

IMH does not plan nor propose to construct a separate monitoring well. HDR typically includes sounding tubes for water level access on every public water system/community well design. Some are also equipped with transducers. A separate monitoring well is not required.

3. Well sequencing.

The wells will be operated as lead and backup. New community systems are required to have at least one redundant source as a backup to failure of a primary supply as required by IDAPA 58.01.08.501.17. Each well will have sufficient capacity to meet demands, but the wells will not be operated in tandem.

4. Source for annual domestic use need described in Transfer Part 1A.3.

As described in Expert Witness Report in Support of Application for Transfer No. 85639, the annual domestic demand for 240 homes is based on 300 gallons per day per home based on IDAPA 58.01.03.007.08 for a 4-bedroom home.

5. Measurements of production or water levels on IMH wells, or power records to provide annual withdrawal information.

HDR does not have measurements of production or water levels on IMH wells, nor power records. HDR obtained Farm Service Agency (FSA) crop records documenting alfalfa as the sole crop grown on the farm during years 2008, 2009, 2010, and 2014. This information is suitable to meet IDWR’s requirements on documenting water use for water right applications for transfer proposing a change in nature of use.

6. What is proposed for water level and production monitoring for all IMH’s irrigation and community wells?

As described above, anticipated plans for the new domestic wells to be equipped with sounding tubes for water level access. Domestic wells will be equipped with flowmeters as required by the Idaho Department of Environmental Quality (IDEQ). The Application does not propose any increase in diversion rate or volume of the changed water right. IDWR does not generally require water level measurement and production reporting in this area. If required by IDWR, water levels and production data will be measured and reported.

7. What volume and pumping rates will be required to satisfy the community supply needs by month?

The community supply is based on peak hour demands of 0.51 cfs and annual average daily demands of 300 gallons per day (gpd) per home. Based on 300 gpd per home, the average monthly volume is projected at 6.72 acre-feet (af). As the community system will not supply outdoor irrigation uses, monthly peak hour and volume demands are expected to be relatively steady with little month-to-month fluctuation.

8. What information can be provided to document that conversion from irrigated agriculture to residential lawns and gardens are similar in consumptive use?

This information is not required by IDWR to process the Application. The unchanged portion of the water right remains defined as irrigation use, and the right holder is allowed to change crop types under an irrigation use. There is no requirement to demonstrate consumptive uses are similar between historic and future irrigation use. Regardless, the University of Idaho's ET_{Idaho} 2017¹ website for the nearby Deer Flat Dam climate station can be queried to demonstrate precipitation deficit irrigation consumptive uses between alfalfa and turf grass are similar.

9. The Transfer Application includes a Preliminary Plan map that shows streets and lots on the south side of the property which was historically non-irrigated. Are these homes and lands to be serviced using the IMH Water Right 63-3298 or Permit 63-34320? If so, what is the calculated irrigated acreage and consumptive use?

The areas described on the south side of the property are within the authorized places of use for water right 63-3298 and Permit 63-34320; therefore, either or both the right or permit may be used on this land. As described above, the anticipated irrigated area associated with the Cimarron Ridge development is 145 acres. However, the owner is not precluded from developing all 50 acres associated with Permit 63-34320. ET_{Idaho} 2017 provides average precipitation-deficit irrigation crop demands of 982 millimeters per year (mm/yr) for turf grass.

2.5 IWE Conclusions

IWE makes the following conclusions:

"The proposed development would be the first large-scale residential development in the area." IWE's report did not provide an analysis of other surrounding residential

¹ <http://data.kimberly.uidaho.edu/ETIdaho/>

developments. IWE's Figure 4 depicts subdivisions to the northwest and east of Beranna.

"The impacts to the aquifers are unknown and unpredictable because of the current limitation of data." This is inaccurate. HDR used available information from existing nearby wells and other available information on aquifer characteristics to prepare a Theis analysis for approximating anticipated impacts to nearby wells.

"There are a lot of wells in the Beranna and IMH area, but there are very limited ground water level data for these wells. Thus, it is not possible to determine if ground water trends have occurred in the past or occurring currently. Going forward, ground water level data need to be collected at multiple existing wells, and at all new wells." The IDWR Groundwater Data Portal presents water level information in wells within 1.5 to 3.5 miles surrounding the IMH property. It is possible to identify water level trends, and none of these monitored wells demonstrates a significant declining trend.

"Because the proposed IMH Transfer is in an area that has historically been of concern due to declining ground water levels ... there is a reasonable possibility that approving the IMH Transfer could negatively impact the Beranna Dairy wells..." The Application does not enlarge the quantity of water allowed for use under the changed water right. HDR has demonstrated that the change is expected to yield improved water levels at the Beranna and Western Farms' wells.

"Due to rapidly changing land use...IWE concludes that the proposed Transfer requires heightened scrutiny in order to ensure that the proposed IMH transfer and development does not cause injury to Beranna or Western Farms." IDWR is aware of the issues of land use changes, declining drain flows, outstanding applications, and available hydrogeologic data in this area. HDR trusts IDWR, bound by its statutory obligations, provided sufficient scrutiny in review of the Application. HDR has demonstrated the Application does not enlarge the changed water right and is not expected to injure existing water rights.

"Relative to the questions concerning potential enlargement...IWE could not adequately analyze the potential because the information presented in the Application is insufficient. However, based on the information available...the IMH Transfer could result in enlargement."

The transfer application provided sufficient information to demonstrate no enlargement. Subsequently, the HDR *Expert Witness Report in Support of Application for Transfer No. 85639 (2023)*, supplemented with this rebuttal report, provides additional analysis of the Application to further demonstrate enlargement and/or injury will not result from the proposed change.