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Idaho Water Engineering Response to HDR Expert Witness Report in Support of Application for Transfer No. 85639

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HDR has submitted an Expert Report in support of Application for Transfer 85639. The Transfer proposes to change a portion of ground water right 63-3298 from irrigation to domestic use for the Cimarron Ridge Subdivision located south of Caldwell in Canyon County, Idaho. The changed quantity is 0.52 cfs / 82.2 afa. Other Changes include:

- Type of use is changed from irrigation to domestic.
- Season of use is changed from March 15 - November 15 to January 1 - December 31.
- Points of diversion are changed from two existing wells at T02N R03W Section 8 SESW to two new wells at T02N R03W Section 17 NWNW.
- Place of use is changed from 26 acres of irrigation at T02N R03W Section 7 SE1/4SE1/4, Section 8 S1/2SW1/4, and Section 17 N1/2NW1/4, SW1/4NW1/4 to domestic in the same tracts. The changed places of use represent lands that will be no longer be irrigated such as roads, rooftops, and other impervious areas.

The proposed subdivision is directly west of the Beranna Dairy a protestant to proposed Transfer 85639.

The HDR Expert Report specifies that the proposed water supply for the subdivision will include water right 63-3298 and water permit 63-34320. Water Permit 63-34320 authorizes irrigation of 50 acres and a diversion rate volume of 1 cfs. The permit has a priority date of November 10, 2016. However it appears that as of July 28, 2022 around 8 acres of the authorized 50 acres have been developed. All 15 of the Beranna Dairy water rights and the supplemental ground water rights for Western Farms located near the proposed subdivision are senior to permit 63-34320.

Given the proposed water supply for Cimarron Ridge Subdivision includes water right 63-3298 and partially developed permit 63-34320, if the Transfer is approved and both rights are fully developed as proposed there may be adverse interference to both Beranna Dairy and Western Farms wells. Because the proposed Transfer will be included with permit 63-34320 this will certainly increase the ground water demand and potentially cause injury to the Senior Breanna Dairy and Western Farms water rights.

IWE also has reviewed the following documents provided by HDR:

1. SPF Memorandum - Dated April 10, 2019
2. SPF Memorandum - Dated November 16, 2020
3. Report of Commodities – Program Year 2019

4. Questions in Red – Not dated
5. Report of Commodities – Program Year 2022
6. SPF Memorandum – Dated July 8, 2021
7. SPF Draft Memorandum – Dated September 17, 2021

IWE has identified multiple data and information gaps that limit the confidence of the analysis and conclusions. The areas of major concerns are present and potential land use changes, present and future water supply issues and very limited ground water level and trend data. The following questions would provide additional needed elements for improving confidence in our findings:

1. What are the proposed well designs for the two new community supply wells, including total depth, screening, casing schedules, and all other construction plans including targeted aquifer zone(s)? SPF documents proposed possible well depths ranging from 400 to over 600 feet, with up to three screened intervals. SPF also proposed that a test well be drilled to over 600 and that multiple zones below 300 feet (i.e., where the Idaho Group aquifers are encountered) be tested. We find no evidence that a test well has been drilled. If the test well is drilled and zones tested, then the nearby IMH and Beranna wells should be monitored during the testing for changes in ground water levels.
2. Is IMH going to be required by IDWR to construct a separate monitoring well? SPF documents say the test well is to be abandoned after aquifer testing. Would it be possible to convert the test well into a monitoring well?
3. IMH plan calls for two new 8-inch community supply wells. Will both wells be used for production or will one be used for production and the other for back-up? SPF documents say that one well may be used for production and the second well may be drilled deeper and used for the fire suppression water supply. However, at the time of the SPF documents, it was not clear as to whether a fire suppression well was required. Has this been determined yet? If a fire suppression water well is not required, then both production wells may only need to be drilled to 400 feet or so.
4. What was the source of the information used to determine the annual domestic use need, described in "Transfer Part 1A.3."?
5. What measurements including production and water levels have been done on any existing IMH wells. SPF documents do not provide any water level measurement data. If none, can IMH supply power records for the last several years and provide annual withdrawal information? This is critical to determine if an enlargement could occur with IMH's proposed change-of-use plans. For example, if IMH has not been using their full amount under their water right, but does use the full amount under their proposed development plans, there could be enlargement and injury.
6. What is being proposed for future ground water level and production monitoring for all of IMH's irrigation and community wells? SPF documents do not mention any ground water level or production monitoring plans for the new wells or for the existing wells in the area. What is IDWR likely to require for monitoring?

7. What volume and pumping rates will be required to satisfy the community supply needs by month?
8. What information can be provided to document that conversion from irrigated agriculture to residential lawns and gardens are similar in consumptive use?
9. The Transfer Application includes a Preliminary Plat map that shows streets and lots on the south side of the property that 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 HDR Expert Report provided information regarding annual domestic demand for the proposed 240 homes using IDEQ criteria of 300 gallons per day per home. Also information was provided on proposed peak-day and hour domestic demand, which may be sufficient to answer questions 4. and 7. above. However, the HDR report does not provide sufficient information to answer the remaining questions related to well construction, measurement, monitoring and water use. Also the additional documents provided by HDR do add some information that may be helpful in determining potential impact the Breanna and Western Farms wells. However, the documents also bring up several additional questions that need to be addressed by the Transfer Applicant.

IWE has the following additional questions.

1. SPF Memorandum – April 10, 2019; Concludes that increasing the housing density will result in a water savings due to decreased demand. However, there is no mention or analysis of how changing from irrigation use during the growing season to year-round residential use might impact aquifer recovery that occurs during the winter months.
2. SPF Memorandum – November 16, 2020; Documents that Permit 63-34320 authorizes irrigation of 50 acres but has only been developed on for 11 acres. The permit priority date is November 10, 2016. Has IMH filed for an extension with IDWR to complete development of the remaining 39 acres?
3. Questions in Red – The “Questions” document that currently only 95 acres are being irrigated on the IMH and that the existing center pivot irrigation was removed and replaced by wheel lines in 2018/2019. How long has there been a reduced acreage and is there a forfeiture issue associated with WR 63-3298?
4. SPF Memorandum – Dated July 8, 2021; Provides a plan for the drilling of a test well including zone testing. We have not found any documentation of this work being completed. Has the test well been done and if no why not?
5. Draft SPF Memorandum – Dated September 17, 2021; describes that total irrigated area for the proposed development will be 188 acres. Currently WR 63-3298 authorizes 164 acres and Permit 63-34320 authorizes 50 acres. The memorandum also states that tests need to be conducted to make sure the existing irrigation wells can supply the anticipated increased demand. One proposed option is to use the newly drilled public water supply wells to supplement peak irrigation demand. What might be the impact to the targeted

pumping zones from the increased pumping from both irrigation wells and public supply wells?