

MEMORANDUM

DATE: January 15, 2010

TO: Gary Spackman

FROM: Shelley W. Keen *SWK*

RE: City of Newdale options for establishing a new point of diversion

The City of Newdale filed Transfer 76126 proposing to add a third well as an alternative point of diversion for its two water rights, 22-2217 (1.78 cfs) and 22-7269 (1.52 cfs). The volume proposed to be diverted from the alternate point of diversion is 181 AF per trimester. The alternate point of diversion is needed to bring Newdale's water supply within EPA standards for arsenic and fluoride. Transfer 76126 was advertised without protest. The City of Newdale can receive grant money from the federal government to construct the new well if the water right permit is issued by mid-February, 2010.

Because wells in the vicinity of Newdale often encounter low temperature geothermal water, the transfer proposes to place the new point of diversion three miles to the southeast of the existing points of diversion. Newdale is between the Ashton to Rexburg reach of the Snake River (Henrys Fork) and the Heise to Shelley reach (South Fork) within the modeled area of the Eastern Snake Plain Aquifer (ESPA). This area is also called the "Rexburg Bench." The ESPA model grid squares are one-mile by one-mile. Changing the point of diversion within the same grid square or into an adjacent grid square does not trigger the use of the model for a rigorous analysis of the injury that could be caused by the proposed transfer. Because the proposed three-mile change is beyond the "same cell or adjacent cell" tolerance, IDWR required an injury analysis for the City of Newdale's proposed transfer. The analysis showed that moving 181 AF per trimester to the proposed new point of diversion would increase depletions within the Heise to Shelley reach of the Snake River by 11.9 AF per trimester in both the transient and steady state phases.

IDWR's typical view of this level of increased depletion to a modeled river reach is that it causes injury to senior surface water uses because the river reaches supply water rights that are not fully satisfied at certain times. For the transfer to be approvable the injury must be mitigated or the applicant must show that the injury analysis is in error. Rocky Mountain Environmental Associates, Inc., a consulting firm representing the City of Newdale, indicated that the city does not have a water supply it can use for mitigation. This memo, therefore, discusses a few ideas for avoiding the mitigation requirement.

- IDWR does not require mitigation if the depletion to a river reach is limited to 2.0 AF per trimester. The ESPA model "transfer tool" shows that the City of Newdale could transfer up to 30.2 AF per trimester from the two existing wells to the new well location without

incurring mitigation obligations. It is not clear whether the entire 181 AF per trimester authorized for diversion under the two water rights is really needed from the new point of diversion or whether some fraction of that amount would be sufficient to dilute the water supply from the existing wells enough to meet the EPA requirement. Perhaps 30.2 AF per trimester would be sufficient. On January 12, 2010, I posed this question to Roger Warner of Rocky Mountain Environmental Associates, Inc. Roger said he would discuss the possibility with city officials. When I spoke with Roger again on January 15, 2010, he had no update on this question.

- The City of Newdale is situated such that if it were to change its point of diversion, depletions to the Heise to Shelley reach of the Snake River would be counterbalanced by similar gains in the Ashton to Rexburg reach, and vice versa. Because of this counterbalancing, senior water users located on the main Snake River below the confluence of the two reaches are generally not injured by changing a ground water point of diversion in the Rexburg Bench area. If IDWR were to combine the two model reaches into one reach, there would be no overall depletion to the combined reach. In essence, the proposed change would mitigate for itself. In an email dated December 15, 2009, Water District 01 official Tony Olenichak stated, "At most times, it wouldn't matter if the Henrys Fork and South Fork were combined into one reach for mitigation purposes." In an email dated January 8, 2010, he further stated that only in extremely dry years would depletions to either the Henrys Fork or the South Fork require mitigation in that same reach to prevent injury to senior surface water appropriators. As Tony summarized in the January 8, 2010, memo, "You could certainly say that in most years, and at most times during all years, it doesn't make any difference where the injection occurs."

Under this option, mitigation would be required only during extremely dry years. Moreover, during those dry years mitigation would be necessary only during the brief periods that injury is occurring. The City of Newdale could mitigate when needed by acquiring sufficient storage water in Palisades Reservoir to provide 11.9 AF during the summer trimester of those rare dry years when it is needed. Ensuring a specific supply from Palisades typically requires obtaining storage space for triple the required amount of mitigation water.

Technically, combining model reaches is not problematic. IDWR has allowed the combination of the Near Blackfoot to Neely and the Neely to Minidoka reaches in a couple of transfer applications. Conceptually, however, combining reaches seems more likely to result in some localized injury. In fact, one criticism of IDWR's use of the ESPA model for evaluating injury is that it cannot be used for discrete points of diversion, such as springs. Providing mitigation to a large reach does not guarantee that it

mitigates injury at a discrete location along that reach. Elongating reaches only increases this level of uncertainty.

- The City of Newdale could propose to locate its new point of diversion in a different model cell. Newdale proposes to place the new point of diversion to the southeast of town. It appears from the sparse data available that the concentration of low temperature geothermal water is also mainly southeast of Newdale. The city proposes to put the new well so far from town in order to get beyond the source of hot water. Apparently the proposed site was selected because there is a cold water irrigation well nearby. North of town, closer to the Teton River, ground water temperatures appear to be much lower. It is not clear whether ground water in the adjacent model grid cells to the north of Newdale is cool enough or of sufficient quality to satisfy the EPA standards. When I asked Roger Warner, he could not tell me if this option had been explored in detail. This option may not be attractive because the transfer application would have to be re-advertised. The time needed for re-advertisement could jeopardize the timetable for the federal grant money available for the project.
- On January 4, 2010, IDWR received a report from Rocky Mountain Environmental Associates, Inc., about the hydrogeology of the Rexburg Bench where the City of Newdale is located. The report, prepared in connection with geologist Glenn F. Embree, PhD, states that “there is little likelihood that ground water from the Newdale area is a significant contributor to the South Fork of the Snake River.” The report suggests that IDWR should ignore the ESPA model’s conclusion that ground water pumping in the vicinity of Newdale depletes the South Fork of the Snake River. IDWR Hydrology Section staff already addressed the same information when it was submitted in connection with Water Right Application 22-13965 (DKJ Farms), which proposes to divert ground water in lieu of water previously diverted from Moody Creek. In a March 11, 2009, memorandum, Sean Vincent acknowledged that the geology in the area is complex, “making it difficult to arrive at definitive conclusions regarding hydrologic impacts caused by pumping.” Sean also points out, however, that the geologic cross-section used by Rocky Mountain and Dr. Embree for their analysis may not be indicative of the geology across the entire area. In Sean’s opinion, the plan view geologic map suggests there is probably a hydraulic communication between wells in the Rexburg Bench and the South Fork of the Snake River downstream from Heise.

More data are needed to calibrate the ESPA model in the Rexburg Bench area. Until that data is collected, this region of the model will be viewed with greater skepticism than other regions. Nevertheless, the ESPA model remains the best tool available for predicting hydrologic impacts in this area. Choosing to forego usage of the model to

evaluate transfer applications in the Rexburg Bench area could throw water administration in that area into uncertainty. To exemplify this concern, I think it is important to point out that Application 22-13965 remains protested by downstream surface water interests who were not convinced by the arguments of Rocky Mountain and Dr. Embree.

- Idaho Code § 42-226 states, in pertinent part:

The traditional policy of the state of Idaho, requiring the water resources of this state to be devoted to beneficial use in reasonable amounts through appropriation, is affirmed with respect to the ground water resources of this state as said term is hereinafter defined and, while the doctrine of "first in time is first in right" is recognized, a reasonable exercise of this right shall not block full economic development of underground water resources. 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.

Some have suggested that this statute indicates that there must be a counterbalancing of injury to senior water rights against the opportunity to develop ground water resources. However, the statute specifies the level of protection only for prior appropriators of underground water, not for surface water appropriators. Therefore, it is not clear if injury to surface water rights can be balanced against full economic development of the ground water resource.

Recommendation

Viewed individually, none of the five options described above presents a simple solution to preventing injury caused by Newdale's proposed change. Changing the proposed point of diversion to a location closer to Newdale might have been a reasonable option a few months ago, but time constraints have rendered exploring this option unattractive. Limiting diversions from the new well to 30 AF per trimester might be sufficient to accomplish Newdale's needs for the time being, but we don't know this for sure, and future growth could cause Newdale to need more than 30 AF before too long anyhow. Balancing injury to surface water rights against full economic development of ground water may not be firmly supported by statute. Combining modeled river reaches could result in a small amount of injury to senior surface water users in some dry years. And discrediting the ESPA model results for the South Fork of the Snake River on a wholesale basis may make matters worse by replacing an imperfect tool with no tool at all.

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However, a couple of the options described above provide a compelling collective case for approving the City of Newdale's transfer application despite concerns about the potential for injury to senior surface water users. First, the ESPA model may not accurately predict impacts of the proposed change to South Fork of the Snake River; the impacts may be different than modeled. Second, even if the predicted impacts to the South Fork are accurate, injury to senior surface water users is likely to occur only rarely. Third, Idaho Code § 42-226 hints that the mere prospect of injury to senior water appropriators should not limit economic development of Idaho's ground water resources, especially when the need is dire. For these collective reasons, IDWR can approve Newdale's transfer application without requiring mitigation at this time. The amount of water to be diverted from the new point of diversion should be limited to 181 AF per trimester or 543 AF total so that if mitigation is needed for future conjunctive management of surface and ground water, it can be quantified according to an established diversion volume.

Appendices

Email from Tony Olenichak to Roger Warner and Ernie Carlsen on December 15, 2009.

Email from Tony Olenichak to Shelley Keen on January 8, 2009.

Newdale Report submitted by Roger Warner of Rocky Mountain Environmental Associates, Inc., via coverletter dated December 31, 2009.

Memo from Sean Vincent to Gary Spackman dated March 11, 2009.