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APR 24 2017

DEPARTMENT OF
WATER RESOURCES

John M. Marshall
John Marshall Law PLLC
575 W Bannock St
Boise, Idaho 83702
Telephone: 208-991-2701
Email: john@jmarshalllaw.com

Attorney for Applicant.

BEFORE THE STATE OF IDAHO DEPARTMENT OF WATER RESOURCES

IN THE MATTER OF APPLICATIONS FOR PERMIT NO. 63-34079 AND 63- 34080	APPLICANT'S CLOSING ARGUMENTS
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Applicant Chris Emmert submits the following closing arguments in support of his Applications for Permit Nos. 63-34079 and 63-34080.

As applicant, Mr. Emmert bears the burden of proving each of the six elements listed in Idaho Code § 42-203A for his two permit applications. The record in this case shows that Mr. Emmert's has met all of § 42-203A's requirements, and the Department therefore should approve Mr. Emmert's applications.

I. Sufficiency of supply, good faith, and sufficiency of financial resources are not in dispute.

Protestant directly challenged only three of the six statutory elements. The others were either stipulated to or were unopposed without contrary testimony. Protestant stipulated that the Mr. Emmert made the applications in good faith and that he has the financial resources to complete his proposed project. Additionally, Protestant did not produce any evidence to support an assertion that aquifer proposed for diversion is insufficient for the proposed use. In support of this element, Mr. Emmert supplied a Department memorandum, in the record as Exhibit 4, and supporting testimony from his expert witnesses that describe stable and rising water levels, and adequate groundwater supply in the area near Lake Lowell. Consequently, there is no

controversy concerning the adequacy of the water supply, the good faith nature of the applications, or the sufficiency of financial resources. That leaves open only the issues of the public interest, consistency with conservation, and the potential reduction of water available to existing rights. As demonstrated below, Mr. Emmert also satisfied each of these elements.

II. The applications are in the public interest and consistent with conservation.

Protestant challenged whether Mr. Emmert's applications are in the public interest and consistent with conservation by suggesting that he should grow less water sensitive crops using only surface water. In making this argument, Protestant is in effect arguing that as a matter of public interest and conservation, the Department should in this instance prohibit appropriation of groundwater to supplement a surface supply. This conclusion would be contrary to the public interest and inconsistent with conservation.

Mr. Emmert testified that he and his family have been growing seed crops on their farm, a farm his grandfather established 100 years ago, for several decades using standard irrigation methods. These seed crops are high value crops and can only be grown by farmers that seed companies determine possess the requisite skills to grow these specialized crops. Mr. Emmert explained that successfully growing seed crops takes particular quantities of water at particular times, and that on occasion there is not sufficient surface water available for his crops. For example, prior to planting in the spring, the ground must be watered, and the primary surface water source is not always available by the time he needs to plant. More importantly, the final irrigation cycles on these crops are critical because germination of the seeds will not occur if these last waterings are not applied, and if that happens, the crop is worthless and all the investment in the crop lost. Mr. Emmert further testified that his new applications, if approved, will provide him the insurance he needs to be able to effectively grow his crop in years when the surface water supply is limited. Currently, practical reality requires him to idle his ground in

some years because of the uncertainty of the surface supply, even in years when ultimately the surface supply turns out to be abundant but did not show itself to be so until later in the spring. The insurance provided by the supplemental supply will allow Mr. Emmert to normalize his operation, consistently grow his high-value seed crops, and thereby contribute to a stable agricultural economy in southwest Idaho. This clearly is in the public interest. Indeed, the public is much better served if farmers in southwest Idaho are consistently productive and profitable.

Under Protestant's view, the ag economy would rise and fall year to year based on the variable quantity of the surface water supply. Meanwhile, the productive aquifer that underlies the Boise Basin would go untapped and discharge hundreds of thousands of acre feet (AF) of water annually into the Boise and Snake River and down into Oregon. This, and not the withdrawals proposed by Mr. Emmert, would be contrary to the public interest and inconsistent with the conservation of water resources in Idaho.

III. Pumping groundwater will not reduce the quantity of water available to existing rights.

Protestant asserts that Mr. Emmert's proposed pumping should not be allowed because it may induce seepage from Lake Lowell and from canals, thereby reducing the quantity of water available to its existing rights. Mr. Emmert disputes this contention both as a matter of fact and as a matter of law. The evidence shows his proposed pumping will not measurably impact either canals or Lake Lowell. Additionally, even if pumping may induce some seepage loss, this would not be a basis on which to deny the applications.

A. Mr. Emmert's proposed diversions will cause no measurable impact on the Project's delivery facilities.

1. The evidence does not support Protestant's theory that pumping will induce seepage from canals.

Mr. Emmert and Protestant disagree about the potential impact of his proposed pumping on Protestant's delivery facilities, primarily over whether his pumping will induce leakage from canals. Mr. Emmert and his experts from SPF Water Engineers believe there will little to no induced leakage from canals. Protestant's expert, R. D. Schmidt, claims, based entirely on a theoretical model he created, that nearly 20% of the water withdrawn by Mr. Emmert's pumping would come directly out of isolated portions of three canals. His contention is that his model shows these canal segments are in direct contact with the saturated surface of the underlying aquifer and therefore seepage is dependent on aquifer head, which will increase because of the pumping and thereby induce seepage. *Conductive Hydrologic Modeling Analysis of Proposed New Groundwater Pumping in the Boise Basin South of Lake Lowell*, Exhibit 110, pages 2-3. Mr. Emmert's experts, Terry Scanlan and Christian Petrich of SPF Water Engineers, refuted Mr. Schmidt's theory several ways.

First, Mr. Emmert's experts question the contention that the canal segments selected by Mr. Schmidt's model are in fact hydraulically connected to the regional aquifer. Mr. Schmidt testified that he did not ground check or otherwise attempt to confirm the theoretical connection between the canals and the aquifer predicted by the model. Mr. Scanlan did check recently by visiting the canal segments identified as hydraulically connected in Figure 12 of Mr. Schmidt's report (Page 23 of Exhibit 110). Mr. Scanlan explained that if Mr. Schmidt's model were correct, the canal segments identified as being hydraulically connected to the aquifer would effectively operate like drains and should have groundwater flowing into them during the times of the year when the canals are not delivering water. However, the segments were dry, except for small, scattered puddles, and certainly not demonstrating the type of saturation that would indicate a direct hydraulic connection with the aquifer. Mr. Scanlan also reviewed historic aerial photographs of the canal segments, including a recent photograph in October taken after irrigation

deliveries were over. His observation of the photos pointed to the same conclusion. The segments said to be in direct hydraulic connection were dry except for some residual, puddled water. Accordingly, the evidence shows that the modeled, theoretical hydraulic connection between the regional aquifer and limited canal segments does not exist. Consequently, the conclusion based on this model that Mr. Emmert's pumping will induce seepage from these canal segments is not dependable and should not be relied upon.

Mr. Petrich provided further testimony that calls into question the model and its results. Mr. Petrich pointed out that if the canal segments were hydraulically connected to the regional aquifer and losing significant water as modeled by Mr. Schmidt, there would be corresponding groundwater level declines near these canal reaches. However, such declines are not present in the historic record (*see* the hydrographs at the end of Exhibit 4). Mr. Petrich also showed, based on review of water levels in driller reports, that the top of the regional aquifer in the area around Mr. Emmert's proposed wells is substantially lower than the elevation of the canals from which seepage is alleged to be induced. Accordingly, not only is the water table not at the surface as predicted by the model, there is a strong downward hydraulic gradient near Mr. Emmert's proposed wells and in the general area south of Lake Lowell. Mr. Schmidt's model does not account for this. In fact, his model assumes a uniform upward flow into the model domain despite the clear existence of the downward gradient. Exhibit 110, page 17. This further calls into the question the adequacy of the model as a predictive tool.

Additionally, Mr. Petrich testified that driller's reports from wells in the area show low permeability materials such as clay and solid basalt are interbedded with higher-permeability materials, resulting horizontal aquifer transmissivities orders of magnitude larger than vertical aquifer transmissivities. *See* Exhibit 106, pages 28 to 31 (figures 3-16 to 3-21). This limited, vertical hydraulic conductivity significantly reduces the potential impact of pumping on any

nearby surface channels. Mr. Schmidt's GFLOW model misses this because it simulates only two-dimensional groundwater flow and does not account for the constrained vertical conductivity.

In summary, Mr. Schmidt's GFLOW model fails to account for the two dominant characteristics in the aquifer near Lake Lowell: the downward gradient and the limited vertical hydraulic connectivity. It is not surprising, then, that the two-dimensional model inaccurately predicts significant hydraulic connection to canal segments that show no evidence of this connection. Because of the inadequacies and inaccuracy of the GFLOW model, its results and the conclusion that ground water pumping will induce seepage from canals should be rejected.

2. There will be no measurable impact on Lake Lowell from Mr. Emmert's pumping.

In contrast to Mr. Schmidt's use of a two-dimensional model, SPF simulated the impact of the new diversions using the Treasure Valley Hydrologic Project (TVHP) groundwater-flow model, a peer-reviewed model that uses the same MODFLOW code as other regional flow models, e.g., ESPA, Rathdrum Prairie, and Wood River Valley. To analyze the impact of Mr. Emmert's proposed withdrawals, SPF assumed an average annual pumping volume of 235 AF/year (168 acres x 1.4 AF/ac supplemental, assuming 4.0 AF irrigation requirement and 2.6 AF of surface deliveries). Of course, given the variable nature of the surface supply, in some years the pumping volume could be more, in other years less. SPF's modelling showed only a small, theoretical impact to Lake Lowell.¹ The model run shows that only 1.3% of Mr. Emmert's pumping would derive from seepage induced from Lake Lowell. The remainder of the impact is distributed among drains and the Boise and Snake Rivers. The model also showed the impact of

¹ Mr. Petrich explained that if in fact there were canal segments near Lake Lowell that did have a connection with the aquifer, the terminus of the New York Canal for example, that the TVHP modeling would capture that because the model cells for Lake Lowell include these nearby canal segments. Even so, the full impact is described as being on Lake Lowell.

pumping would decrease groundwater discharge to the Lake, but because this is groundwater for which the Project has no water right, the focus is the 1.3% of modeled seepage from the Lake.

During the average modeled year, where Mr. Emmert would pump 235 AF, his theoretical, modeled impact to Lake Lowell is 3 AF (235 x 1.6%). Accordingly, the decision on whether to approve Mr. Emmert's applications comes down to whether this modeled, average annual 3 AF impact on Lake Lowell should be deemed a reduction of water available to existing water rights under Idaho Code § 42-203A(5)(a).² Mr. Emmert contends that it should not.

First, a little perspective. The Project testified through its manager, Tim Page, that the current storage capacity of Lake Lowell is 159,000 AF. Three AF is 0.0019% of the current storage capacity. This is an immeasurable impact on the lake, an impact that cannot be said to reduce the quantity of water available to existing rights.³

Additionally, the modeled 0.0019% impact on Lake Lowell is derived using extremely conservative assumptions. For example, SPF's model run assumes that all 235 AF of the proposed pumping is consumed and not returned to the aquifer. Exhibit 1 (*SPF Report*), p. 23, ¶ 8.

However, the irrigation efficiency used to derive that volume is assumed at 50%, meaning half of the volume diverted will not be consumed, and therefore a portion of the diverted volume will

² As discussed below, Mr. Emmert believes there is no injury from his propose pumping and therefore mitigation is not necessary. If the Department determines it is, Mr. Emmert has proposed to mitigate his 3 AF impact by foregoing delivery of equivalent volume of surface water. Protestant objects because that would require more groundwater pumping that would then need to be mitigated. However, because the modeled impact is so small, the 1.3% impact of the new pumping would be immeasurable. This could be addressed simply by rounding up the mitigation requirement so that 3.1 AF. The mechanics of this type of mitigation are simple. As Mr. Emmert testified, in the past he routinely has "rented" surface water from other Project patrons. His irrigation district tracks the movement of the rented allocation to Mr. Emmert's farm by accounting for it in its ledger. The same accounting method would be used to track the water left in the canal for mitigation.

³ Protestant asserts the Department should consider the potential cumulative impacts of other pending applications as well. However, those applications are not at issue here. Moreover, Protestant greatly exaggerates the potential impact, claiming that 127 cfs of potential impact from these applications. Of this, approximately 98 cfs is tied to a set of 5 applications, 63-33131 et al. which have been subject of pending administrative procedures. The publically available record in those applications shows that the requested diversions are for very limited supplemental diversions for emergency situations when the applicants cannot divert their full supply from the Snake River.

return to the aquifer through infiltration. *Id.* This recharge is not credited in the model.

Consequently, the 3 AF impact to Lake Lowell is based on a gross withdrawal, not a net that accounts for the infiltration, and if this conservative assumption were removed, the modeled result would be even lower.

Additional and important perspective is also gained by looking at the water budget for the area surrounding Lake Lowell. R.D. Schmidt, Protestant's expert, describes the water budget in a report titled *Analysis of Hydrologic Impacts of New Groundwater Pumping in the Dry Lake Area of Canyon County, Idaho*, included in the record as Exhibit 113. Pages 11 to 18 discuss the water budget. Here are the pertinent facts:

- Canal seepage recharges the aquifer with about 588,000 AF per year. *Id.* p 11.
- Recharge from on farm losses recharges the aquifer with about 677,000 AF per year. *Id.*
- So, between incidental recharge from farming and canal seepage, 1,265,000 AF are added to the aquifer annually.
- About 578,000 AF is discharged annually from the aquifer to drains. *Id.*
- Groundwater pumping accounts for about 125,000 of annual withdrawal from the aquifer. *Id.* p. 11.
- **During an average year, Lake Lowell gains 3,752 AF per year from the aquifer.** *Id.* p. 13; *see also* Exhibit 110, page 20.
- Although not addressed directly, the balance of approximately 558,248 AF of the 1,265,000 AF added to the aquifer is discharged directly from the aquifer to the Boise and Snake Rivers. *See e.g. Id.* p 17 and 18.

Several facts stand out as relevant to the analysis of Mr. Emmert's applications. First, Mr. Emmert seeks to withdraw and average annual volume of 265 AF from an aquifer that receives over 1.2 million AF a year from incidental recharge and that discharges around 1 million AF annually into the Boise and Snake Rivers through surface drains and recharge. This is water that for the most part flows out of Idaho and into Oregon. Second, Lake Lowell on average gains

water from the aquifer. The alleged harm advanced by the Protestant is that cumulative effects of pumping by Mr. Emmert over time will withdraw water from Lake Lowell. Mr. Schmidt's budget shows that this is not the case. If anything, on aggregate Mr. Emmert's pumping may reduce the amount of groundwater flowing into Lake Lowell, and that by an immeasurable amount. And even if this were measurable, it is legally immaterial because Protestant does not have a water right to appropriate and store any ground water in Lake Lowell. Its only recognized source is Boise River water diverted at the Diversion Dam many miles up-valley on the Boise River. Accordingly, when analyzing whether the quantity of water available to Protestant's existing rights will be reduced, the Department looks not to Lake Lowell, but to whether flows of the Boise River are reduced at Protestant's point of diversion. The Project did not present any evidence to support a claim that Mr. Emmert's pumping would reduce the flow of the Boise River at its point of diversion.

In addition to the fact Lake Lowell actually gains water from the regional aquifer, other evidence presented at hearing counters Protestant's claim that Mr. Emmert's pumping will impact delivery to downstream irrigators by lowering the level of the lake. Mr. Page, testifying on behalf of Protestant, explained that the capacity of Lake Lowell has reduced over the years from approximately 177,000 AF of active storage to approximately 159,000 AF, a loss of 18,000 AF of storage capacity. Mr. Page testified that this loss of capacity is in part due to lack of maintenance caused by controversies related to the Deer Flat National Wildlife Refuge.⁴ So while it may be true that the amount of storage in the Lake has declined, the evidence shows this is due to loss of capacity by lack of maintenance, not groundwater pumping.

⁴ Although the hearing did not get into the measurement of evapotranspiration losses from lake vegetation, the storage volume loss described Mr. Page is compounded by the fact that the storage losses are due at least in part from vegetation encroachment, which directly withdraws water from the Lake

It is also worth noting again that Protestant loses over a half a million acre feet each year to canal seepage, including 40,000 AF that Mr. Schmidt claims is induced by ground water pumping in an approximately half-mile long stretch of the Mora Canal. Exhibit 110, pages 13 to 14.⁵ If the Project truly is experiencing difficulty with delivery downstream of Lake Lowell due to decreased storage volume in the Lake, a targeted program of sealing particularly leaky sections of its canals would potentially increase the surface water delivery to the Lake by tens of thousands of AF annually. This would be far more efficient than seeking to stop further appropriation of an aquifer that discharges approximately million acre feet out of the basin annually. In fact, the law in Idaho would require Protestant to eliminate these gross inefficiencies before closing off a productive aquifer from appropriation.

B. The Protestant's position is contrary to the conservation of water resources, the maximum use doctrine and the requirement of full economic development of ground water resources.

The analysis above demonstrates that based on the facts, most of which are provided by Protestant or its expert, Mr. Emmert's pumping will not reduce the quantity of water available for Protestant's Boise River water rights at its diversion point on the Boise River, in Lake Lowell, or otherwise. An additional reason to reject the protests and approve Mr. Emmert's applications is that the law does not recognize reduction of seepage as a protectable interest.

Protestant contends that in considering Mr. Emmert's applications, the Department should protect the Project's surface delivery facilities from seepage that might be induced by ground water pumping. In making this argument, the Project contends that seepage is induced, and ground water pumping should therefore not be allowed, whenever the regional aquifer rises to

⁵ At hearing Mr. Petrich provided analysis disputing the conclusion that 40,000 AF is lost in such a short stretch of the Mora Canal via induced seepage from pumping. However, the point here is that the Protestant passively loses hundreds of thousands of AF to seepage annually.

reach the bottom of surface facility. According to Protestant, when that occurs, water is no longer simply cascading out of the surface facility but being induced to seep by a change in head pressure caused by the pumping. *See* Exhibit 1, pages 2-3. In other words, according to the Protestant, its surface conveyance and storage facilities are entitled to be supported by the pressure of the aquifer. There is no support in Idaho law for this position.

Protestant's position is akin to the claim made in *Shodde v. Twin Falls Land & Water Co.*, 22 U.S. 107 (1912), where a senior right holder sought to block operation of Milner dam to continue his prior use of current-driven water wheels to deliver water to his irrigation system. The court, of course, declined to protect the prior appropriator who claimed the whole flow of the river to support use of only a small portion of that flow, giving rise to the reasonableness limitation that now permeates Idaho water law. Here the Protestant, like the senior appropriator in *Shodde*, seeks to curtail further appropriation in a vast water resource, in this case the regional aquifer in the Treasure Valley, from which additional water is undisputedly available for appropriation, on the basis that Protestant is entitled to have the hydraulic pressure of the aquifer support its surface deliveries. This position is no more reasonable than the claim that by *Shodde* that he was entitled to maintenance of the current in the Snake River to turn his water wheels. The Department, like the supreme court in *Shodde*, should reject the Project's claim.

The principle from *Shodde* that an appropriator cannot command a large portion of a water resource to support its diversion is codified with respect to groundwater in Idaho Code § 42-226:

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.

This statute is consistent with the fundamental principle in Idaho water law that “the policy of the law of this state is to secure the maximum use and benefit of its water resources.” *Mountain Home Irrigation Dist. v. Duffy*, 79 Idaho 435, 442 (1957). One of the specific outflows of this policy is the requirement throughout the law that requires conservation of water resources in Idaho. For example, *Application Processing Memo No. 76* imposes stringent requirements on the amount of water that may be allowed to leak from the bottom of reservoirs. Another example is the statutory authorization given to the Director to determine a reasonable pumping level in an aquifer so that an owner of a shallow well is not able to command the full aquifer by arguing later appropriators have injured his right by lowering the water table below the level at which he established his right. See Idaho Code §§ 42-226 and 42-237a; *Baker v. Ore-Ida Foods, Inc.*, 513 P.2d 627 (Idaho 1973). The Protestant’s position in this case runs contrary to all the principles enumerated above.

If the Protestant has its way, the Department effectively is setting the reasonable pumping level for the regional aquifer surrounding Lake Lowell at the ground surface. Lake Lowell and/or the Protestant’s surface canals play the role of the initial, shallow well drilled into the aquifer. Protestant would preclude any further appropriation of the groundwater resource in order to maintain the water level of its early appropriation, which in this case is the surface. As noted above, the law pertaining to full economic development of groundwater resources and establishment of a reasonable pumping level preclude this result. Moreover, it must be noted again that approximately 1 million AF of ground water leaves the Boise Basin through drains or direct inflows in the Boise and Snake Rivers. If Protestant’s argument is adopted, this water flows to Oregon and is not available for appropriation. This not only would be completely contrary to the conservation of water resources in Idaho, it would effectively re-establish a moratorium on new ground water development in the Boise Basin. Notably, in 2008, after extensive hydrologic

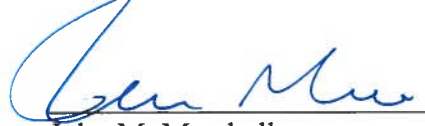
review through the establishment and calibration of the TVHP, the Department lifted the informal moratorium that had been in place since 1996 by amending *Application Processing Memorandum No. 59* to direct the renewed processing of groundwater applications in the Basin (Exhibits 2 and 3). The Department made the correct decision in 2008 and should not return to a moratorium given the demonstrated abundance of the water supply and the lack of any legally protectable injury by Protestant.

CONCLUSION

Mr. Emmert has satisfied all the requirements of Idaho Code § 42-203A. Protestant's claims of injury to its canals and Lake Lowell are not supported by either facts or the law. Accordingly, the Department should approve Mr. Emmert's applications.

Dated this 24th day of April, 2017.

JOHN MARSHALL LAW PLLC

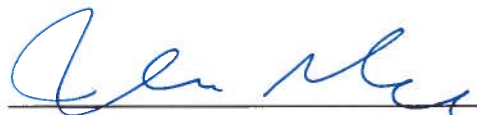

John M. Marshall

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 24th day of April, I caused the original of this document to be filed with the Idaho Department of Water Resources via hand delivery and a true and correct copy of the foregoing to be served by the method indicated below, and addressed to the following.

Shelley M Davis
Barker Rosholt & Simpson LLP
1010 W. Jefferson St Ste 102
PO Box 2139
Boise, ID 83701-2139

☐ U.S. Mail
☐ Overnight Mail
☐ Hand Delivery
☐ Fax
☒ Email


John M. Marshall