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ATTORNEYS FOR THE CITY OF POCATELLO

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF DISTRIBUTION OF WATER TO VARIOUS WATER RIGHTS HELD BY OR FOR THE BENEFIT OF A&B IRRIGATION DISTRICT, AMERICAN FALLS RESERVOIR DISTRICT #2, BURLEY IRRIGATION DISTRICT, MILNER IRRIGATION DISTRICT, MINIDOKA IRRIGATION DISTRICT, NORTH SIDE CANAL COMPANY, AND TWIN FALLS CANAL COMPANY	)	**POCATELLO'S POST-TRIAL BRIEF**

The City of Pocatello ("Pocatello") hereby submits its closing brief in the above captioned matter. Pocatello's Proposed Findings of Fact, Conclusions of Law and Ruling are also provided as an attachment to this brief. Pocatello endorses IGWA's Post-Hearing Brief and Proposing Findings of Fact and Conclusions of Law ("IGWA's Proposed Findings"). Further, to the extent issues in this case are addressed in IGWA's Proposed Findings and are necessary to

decision, but are not addressed in Pocatello's Proposed Findings of Fact, Conclusions of Law and Ruling, Pocatello incorporates by reference those provisions of IGWA's Proposed Findings.[1]

SUMMARY

The Surface Water Coalition ("SWC") placed a delivery call on January 14, 2005. The SWC alleged injury on the basis that any and all depletions associated with ground water pumping on the Eastern Snake Plain Aquifer ("ESPA") were depleting surface flows, and depriving certain of their senior water rights of water. Simply put, the SWC seeks curtailment of wells in order to have available to them the amounts of water reflected on the face of their decrees, without regard to the amount of water required for beneficial use. This is contrary to Idaho law. *Abbot v. Reedy*, 9 Idaho 577, 75 P. 764, 765 (1904); *American Falls Reservoir Dist. No. 2 v. Idaho Dept. of Water Resources*, 143 Idaho 862, 154 P.3d 433, 447-448 (2007) ("*AFRD #2*"). The constitutionally based concept of beneficial use forms a limitation on all water rights. In the context of administration in Idaho, the beneficial use doctrine provides the platform for implementing the constitutional requirement to optimize the use of water resources. Thus, curtailment of junior diversions is an appropriate remedy only if the senior does not receive an amount of water consistent with the amount required for beneficial uses. These legal limitations on senior water rights are reflected in the Conjunctive Management Rules ("CMR"), which govern the conjunctive administration of connected water sources.

I. SWC SEEKS CURTAILMENT TO DELIVER WATER PER DECREE WITHOUT A FACTUAL SHOWING OF INJURY.

A. The injury standard in Idaho is based on beneficial use. Failure to receive the decreed amount of water is not injury unless the water user is not receiving the amount of water required for beneficial use.

[1] For example, IGWA's Proposed Findings includes, *inter alia*, the following topics that may be important to deciding this case, which Pocatello has not attempted to address in its own post-trial filings: 1) Status of SWC supplies in relation to their historic supplies (section I.C.); relationship between ground water pumping and material injury (section II.A); sufficiency of IGWA's replacement water plans (section IV).

The SWC has continued to insist that it is entitled to curtailment of juniors to ensure delivery of the quantity of water on the face of its decrees. This position scarcely varies from the position the SWC took at the Supreme Court during the facial challenge to the CMR, when it insisted that the Idaho Department of Water Resources ("IDWR") was authorized only to "shut and fasten" junior wells, without regard to the quantity of water required by SWC to make beneficial use of the water. *AFRD #2* at 447. The Court rejected the concept that IDWR was a purely ministerial agency without any discretion to answer a delivery call by reference to the amounts of water *needed* by SWC in order to make beneficial uses of the water. *Id.* at 447-48. The Hearing Officer should similarly reject such a position here.

Numerous constitutional provisions and statutes support the conclusion that IDWR should limit senior water rights in the context of a delivery call to that amount of water a senior can beneficially use, *inter alia*:

> "Priority of appropriation shall give the better right as between those using the water . . . ." Idaho Const. art. XV, § 3.
>
> "Priority of right shall be subject to such reasonable limitations as to the quantity of water used and the times of use as the legislature, having due regard both to such priority of right and the necessities of those subsequent in time of settlement or improvement, may by law prescribe." Idaho Const. art. XV, § 5. By its terms, the Idaho constitution introduces a qualifier that a prior right is only the better right if the administrative authorities can establish that the senior needs the water for beneficial uses.
>
> Under Idaho Code § 42-101, the legislature has determined that the State is responsible for regulating the "just apportionment to, and economical use by,

those making a beneficial application" of the "waters of the state" and that "in providing for its use, [the State] shall equally guard all the various interests involved."

Numerous Idaho Supreme Court cases confirm the limitations that senior water rights are only entitled to the amount of water they can beneficially use, in light of the state's goals of maximum utilization of water. *Briggs v. Golden Valley Land & Cattle Co.*, 97 Idaho 427, 435 n.5, 546 P.2d 382, 390 n.5 (1976) ("*Briggs*")("I.C. § 42-220 prohibits the senior appropriators, regardless of the amount of their decreed right, from 'the use of more water than can be beneficially applied on the lands for the benefit of which such right may have been confirmed . . . .'"); *Vineyard Land & Stock Co. v. Twin Falls Salmon River Land & Water Co.*, 245 F.9, 22 (9th Cir. 1917) ("*Vineyard*") ("an appropriator is entitled only to the amount of water he needs, economically and reasonably used"); *Schodde v. Twin Falls Land & Water Co.*, 224 U.S. 107, 120 (1912) ("*Schodde*") ("the extent of beneficial use [is] an inherent and necessary limitation upon the right to appropriate"); *Niday v. Barker*, 16 Idaho 73, 101 P. 254, 256 (1909) ("*Niday*") ("The fact that a water user and consumer has a rental right for a fixed number of inches of water does not of itself entitle him to that amount of water, unless he can and will apply it to a beneficial use.").

B. Risk avoidance, without more, is not a basis for IDWR to conjunctively administer water rights.

Rather than tying its demands for water to the amount necessary to grow a crop, the SWC has presented reports and testimony aimed at using curtailment of junior wells to enhance the reliability of their natural flow water rights and keep their storage rights full year-round so that it avoids risk to their water rights. Let us be clear: if the SWC members want to keep their reservoirs full—whether to rent the water to the Bureau of Reclamation ("BOR" or "Bureau") for

flow augmentation or because it increases shareholder confidence—nothing in the CMR or Idaho statutes prohibits them from doing so. However, there is nothing in the CMR or Idaho law that allows the SWC order curtailment of juniors to allow maintenance of full storage accounts or to otherwise seek amounts of water that increase the reliability of historically (i.e., prior to ground water development) unreliable natural flow rights. To that extent, testimony and evidence about "short tempers"[2] or shareholders' lack of "confidence"[3] in water supplies is in resolving this dispute. Nor is evidence, presented by Dr. Raff, that diverting reservoir storage water to beneficial uses increases the "risk" to seniors—particularly when Dr. Raff admits that even the seniors diverting reservoir storage for irrigation increases the "risk."[4]

SWC provided an irrigation diversion requirements analysis, but has provided no testimony or evidence that ties their calculated irrigation diversion requirements to the amounts of water necessary to avoid injury to their water rights. At the end of his cross-examination, Dr. Brockway testified that the preferable approach to administration would be to make available to the SWC their decreed amounts at the start of the irrigation season and adjust from there.[5] Thus, although SWC has presented an irrigation diversion requirements analysis, it apparently does not replace their primary goal which is to achieve an administrative condition under which their decreed amounts of water are available at their headgates throughout the irrigation season.[6] In

[2] Written Direct Testimony of Rodney George, page 11, line 5.
[3] SWC Expert Report, September 26, 2007, page 11-7.
[4] Transcript of Hearing, page 1530, January 25, 2008.
[5] Transcript of Hearing, pages 2374-76, January 31, 2008.
[6] This position was articulated most clearly by Dr. Brockway, who said that "you are going to need that [full amount of the water right] during the season and you better plan for it." Transcript of Hearing, page 2375, January 31, 2008. This position was also articulated by Mr. Norm Young, Transcript of Hearing, page 2000-01, January 29, 2008. Mr. Young admitted during his testimony that his version of administration, which requires curtailment of wells at the time of a delivery call, was not reflected in any decision or policy of IDWR.

fact, as Mr. Shaw admitted during his testimony, well curtailment would produce water in excess of what could be stored during wet and average years.[7]

C. In the context of conjunctive administration, as framed by the CMR and Idaho law, the question is how much water do the seniors need, not simply what amount is on the face of their decrees.

Both Pocatello and SWC presented irrigation diversion requirements analyses. An irrigation diversion requirements analysis requires certain data inputs. There was no dispute that the inputs to this analysis are objective and knowable.[8] However, it is important to frame the data required by reference to the proper assumptions. Employing the SWC's assumptions in calculating "irrigation diversion requirements" would result in SWC receiving an additional 900,000 af/year[9] of water to SWC, nearly 800,000 af/year of which would be delivered to Twin Falls Canal Company ("TFCC") and North Side Canal Company ("NSCC"). However, there is no question that if IDWR conjunctively administered the ESPA to provide this amount of water, whether through curtailment or replacement obligations, during many years the replacement water would be unusable by SWC and simply flow over Milner Dam.[10] Further, it is hard to reconcile the position articulated by Mr. Shaw that an aquifer-wide curtailment would result in water that SWC could have diverted[11] and used with the fact that Mr. Thurin and Dr. Brockway excluded from their requirements analysis quantities of water that they claimed were in excess of what was necessary to meet irrigation diversion requirements.[12] In fact, the only way to reconcile these two positions is to interpret Mr. Shaw's testimony as demonstrating that an

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[7] Transcript of Hearing, page 1956, January 29, 2008.
[8] *See* Transcript of Hearing page 2388-89, January 31, 2008.
[9] Exhibit 3061, line 9. This is approximately the amount of water, on average, that the SWC would receive if their irrigation diversion requirements assumptions and methods were adopted by IDWR as a means for administration.
[10] Transcript of Hearing, pages 1965-66, January 29, 2008.
[11] *Id*. at 1942 and 1965 (stating that he assumed additional natural flows would have been diverted) (admitting that the SWC could not have used all the natural flow that was available, and some would have been diverted by other, non-SWC users).
[12] Transcript of Hearing, pages 2065-67, January 30, 2008

aquifer-wide curtailment would allow SWC to rely on their historically inadequate natural flow rights and maintain full or nearly full storage reservoirs. No evidence or testimony (or persuasive legal argument) has been advanced that supports this type of administration, which would require IWDR to sacrifice the property rights of junior ground water users in favor of improving the water supply conditions of SWC in excess of their demonstrated need for the water under a beneficial use analysis.

Because SWC and Pocatello presented competing irrigation diversion requirements analyses, Pocatello assembled a comparison of the irrigation diversion requirements analyses, reflected in Exhibit 3061 (attached hereto[13]). A discussion of the most important comparisons are made in Exhibit 3061, and discussion of proper assumptions underlying each provision, is found below.[14]

1. What are the crop needs?

Line 5 of Exhibit 3061 reflects "unit crop irrigation requirements" in inches/year. There are essentially no differences between the unit crop CIR used by Pocatello and SWC's experts. Where there are differences, Pocatello assumed a greater crop demand for water than did SWC. Line 6 of Exhibit 3061 reflects "crop irrigation requirements" which is the product of the unit CIR and the acreage. It calculates the annual CIR volume that must be delivered to the root zone of the crop.

Because SWC and Pocatello used different acreage numbers, the CIR values in line 6 were slightly different, with the largest differences for NSCC and TFCC. These differences in acreage assumptions are reflected in line 1 of Exhibit 3061. The actual acreages of TFCC and Burley Irrigation District ("BID") were specifically disputed by the Idaho Ground Water

[13] Note that this exhibit has been annotated with "line numbers" to facilitate discussion of the Exhibit in this brief.
[14] *See also* Exhibit 3035A, ¶ 25, pages 13-20.

Appropriator Inc's ("IGWA") expert, Mr. King.[15] Although there was dispute over what acreage numbers were appropriate, there was no dispute that the amount of acres actually irrigated consistent with senior water rights was the appropriate value to use in an irrigation diversion requirement analysis.[16]

2. What farm efficiency should be assumed?

It was undisputed that the amount of water used by the crop will be different from the amount of water delivered to a farm headgate. That difference is the "farm efficiency" and it can be described as the percentage of water that, all other things being equal, can be delivered to the crop assuming existing physical conditions and a careful level of management. Farm efficiency is influenced by factors such as the method of application, the topography and the soils. In other words, if water is delivered to the field in question via center pivot sprinkler, the farm efficiency will be higher than if the water is delivered by flood or furrow irrigation. If the slopes are modest and the soils are average, farm efficiency will be higher than if the slopes are severe or the soils are poor. Farm efficiency also assumes that the farmer is a careful irrigator (both in timing and in quantity), and does not over-deliver water to his crops.

As reflected in line 2 of Exhibit 3061, SWC and Pocatello used different efficiency values for the percentage of water delivered to the headgate that will reach the crop root zone. As a practical matter, as line 2 shows, with the exception of Minidoka Irrigation District ("MID"), the differences in Pocatello and SWC's efficiency values were relatively small.

Much was made about the terminology regarding efficiency: whether Pocatello's "achievable efficiency" was any different from Dr. Brockway's efficiency values which were

[15] However, Dr. Brockway also testified that it would be most appropriate to use the actual irrigated acres associated with the calling water right in order to perform these analyses. Transcript of Hearing, pages 2280-81, January 31, 2008.
[16] Transcript of Hearing, pages 2280-81, January 31, 2008.

initially described as "actual efficiency" then, in the rebuttal report, described as "operational farm efficiency." Despite the confusion caused by these competing characterizations, Dr. Brockway's testimony demonstrated that his efficiency values are not "actual efficiency." For example, Dr. Brockway testified that he considered application type (i.e., sprinkler or furrow), soils, and topography in his analysis.[17] These types of considerations would not be included in an "actual efficiency" value, which is simply the quotient of the amount of water needed by the crop divided by the amount of water delivered to the field headgate.

Because Dr. Brockway's assumptions and Mr. Franzoy's assumptions appeared to include the same considerations (both considered application type, soils, topography, irrigation management decisions) the question posed is which set of numbers is more reliable. As Mr. Franzoy demonstrated through his rebuttal testimony, Dr. Brockway made adjustments to his efficiency values which do not seem logical.[18] Dr. Brockway failed to establish why he made certain efficiency adjustments—adjustments either up or down—based on the physical evidence. Instead, Dr. Brockway seemed to rely on his familiarity with the systems. But familiarity is not a substitute for transparency in methods, nor is it an appropriate engineering method.

For example, while Dr. Brockway considered application methods, he did so using the broadest possible range of values, which lead to a less reliable efficiency figure. He testified that for his efficiencies associated with sprinkler and furrow irrigation, he relied on page 26 of Exhibit 3040, the Dreher-Tuthill Report.[19] He assumed that sprinkler efficiencies ranged from 50-87%, but failed to exclude the categories of sprinklers that are not present on SWC lands such

[17] Transcript of Hearing, pages 2297-99, January 31, 2008. Dr. Brockway's rebuttal report also states that the efficiency values were determined by reference to: "present available application equipment, conveyance infrastructure, soils, topography, crop types, labor and application methodology using management skills adapted to the local setting." Rebuttal Report, November 7, 2008, page 2 (Exhibit 8192).
[18] Franzoy Rebuttal Report, November 7, 2007, pages 8-14.
[19] Transcript of Hearing, pages 2299-2300, January 31, 2008.

as the so-called “big gun” sprinklers. He also failed to account for what percentage of SWC lands are served by center pivot sprinklers, among the most efficient of delivery systems. Dr. Brockway ended up with an evaluation that considered delivery systems in the grossest possible way.

Mr. Franzoy, by contrast, attempted to develop a more precise understanding of delivery systems actually in use on SWC lands, and to incorporate that into his efficiency analysis. Mr. Franzoy’s analysis (as described in Table 2 of his Rebuttal Report) excluded sprinklers that are not found on SWC lands, and developed the efficiencies for the various companies by reference to both lands served by center pivot, lands served by other sprinklers, and lands served by furrow irrigation. He also determined that page 37 of Exhibit 3040 was the more appropriate table of efficiencies to rely on. That table breaks down the application efficiencies associated with different types of sprinklers. Mr. Franzoy concluded that the so-called “big gun” sprinklers ought to be excluded, and so the proper efficiency range was 60-87%. Because most of the sprinklers were center pivot sprinkler which include a range of 75-85%. The result of taking into account the details of delivery systems is a more precise evaluation of efficiencies associated with actual delivery methods, including appropriate ranges of efficiencies.

Line 7 of Exhibit 3061 shows the impact from different assumptions about efficiency. This is the Farm Delivery Requirement, and it is the quotient of CIR/farm efficiency. Where the farm efficiency values are furthest apart, the farm delivery requirements are similarly skewed. To the extent that no physical or objective basis can be shown to support “judgment calls” made by Dr. Brockway in his adjustments to weighted average efficiency values, Pocatello’s assumptions are the more reliable. Mr. Franzoy testified both in his written materials and during live testimony about the extensive evaluations he made both on the ground and through review

of available soils data, topographical information, aerial photographs and other data review. By contrast, based on the facts in evidence (and the facts disclosed), Dr. Brockway, by contrast, had not made any systematic efficiency analyses for SWC systems since the 1970's.[20] *See* Exhibits 3059 and 3060. And these reports, he frankly admitted during his cross-examination, were not representative of current conditions because the delivery systems had changed so dramatically.[21] IDWR has insufficient factual basis to engage in conjunctive administration based on Dr. Brockway's "seat-of-the-pants" judgment calls about adjustments to efficiency values.

3. What are appropriate assumptions for losses between the river headgate and the farm headgate?

There was no dispute that a portion of the water diverted at the river headgate seeps away or is otherwise lost through normal irrigation operations. However, the conveyance loss determination was the area of greatest disagreement between the experts. "Conveyance losses" can be characterized as the amount of water necessary to get irrigation water to the field headgate. Exhibit 3061, lines 3 and 8, respectively, show percentage conveyance loss and total acre-feet of conveyance loss.

These values are not strictly comparable, because Dr. Brockway's analysis considered *only* canal seepage losses. As Dr. Brockway testified, there are other losses that would be routinely associated with operating an irrigation system, including operational losses and spills.[22] There would also routinely be gains to the system from reuse, inflows or tributaries that cross or discharge to canals. Thus, under Dr. Brockway's analysis, total losses associated with operating

[20] Beginning in early 2006, Pocatello and IGWA attempted to obtain numerous professional and peer review reports prepared by Dr. Brockway to make an assessment of any other efficiency analyses he had conducted of SWC systems. Despite repeated efforts—including motions to compel—the SWC provided almost none of the requested materials. At his deposition, Dr. Brockway testified that he had been unable to locate the requested materials.
[21] Transcript of Hearing, pages 2344-48, January 31, 2008 (regarding Exhibit 3059).
[22] Transcript of Hearing, pages 2268-69, January 31, 2008.

an irrigation system would be even *higher* than those he reported; his analysis also does not take into account any gains that a canal system might experience in its operation.

Dr. Brockway's seepage losses were not credible. Mr. Sullivan's rebuttal report and testimony at the hearing described the types of errors that accompany the use of the Worstell method.[23] In addition, as Dr. Brockway testified, he had not simply used the Worstell method but had also made his own "adjustments" to the final calculated Worstell values.[24] The results were conveyance losses that stretched credulity. As Appendix C of Exhibit 3035A shows, in some months, the SWC's conveyance losses even exceeded headgate diversions for particular SWC entities. Further, these are only calculated seepage losses, meaning total conveyance losses would likely be higher. It seems hardly possible that NSCC's manager, Ted Diehl, would be unaware that his company's shoulder-season diversions in 2004, 2005 and 2006—years in which this case was being litigated—were entirely lost to canal seepage.

The better approach is to estimate net losses by reference to operational data. Although the SWC was critical of Mr. Sullivan's decision to use diversion data, SWC conservation reports, and sworn testimony of the managers to determine conveyance losses, an added consideration—brought out on Mr. Sullivan's cross-examination—was that five of the managers had testified that they had not suffered any injury between 1990 and 2005. Mr. Harmon, of American Falls Reservoir District No. 2 ("AFRD #2") testified that his company had suffered injury during 2004.[25]

Mr. Alberdi did claim during the hearing that TFCC had experienced a "challenging" water supply situation in recent years, impacting their ability to deliver full supply to

[23] *See* Sullivan Rebuttal Report, November 7, 2007; Transcript of Hearing, February 5, 2008.
[24] Transcript of Hearing, pages 2302-20, January 31, 2008.
[25] Written Direct Testimony of Lynn Harmon, page 4.

shareholders.[26] Yet of the past 15 years, as Exhibit 1004 demonstrates, TFCC delivered ¾ of water per share—an amount in dispute but by any measure the maximum amount TFCC is entitled to under their decrees—in many of the years for which they provided data.[27] Far from being "challenged," TFCC has delivered adequate water to the shareholders. In fact, what Mr. Alberdi was really referring to was a preference for the Department to "commence administration to the right,"[28] that is to have available of 100% of TFCC's decreed water right, at the headgate on demand.

Much was made about Mr. Sullivan's reliance on Mr. Alberdi's 12% conveyance loss—a value that Mr. Alberdi disavowed on cross-examination.[29] However, the context of Mr. Alberdi's testimony during his deposition[30] does not square with his 3-year-later "clarification" of his statements in his deposition. Further, as Mr. Sullivan testified, Mr. Alberdi personally took Mr. Sullivan and Mr. Franzoy on a portion of the TFCC tour, and repeatedly during that field trip stated that their conveyance losses were 12%.

Mr. Alberdi's primary basis for that number was the re-use of water that occurs on the TFCC. He testified during trial (consistent, this time, with his deposition) that water could be reused as much as three times on the TFCC.[31] To test this reuse in the context of the 12% conveyance loss value, Mr. Sullivan performed an analysis to inquire into the net losses associated with TFCC's operations, assuming reuse of the water at least three times. Exhibit 3035A, Table 6 shows that, by starting with the Dr. Brockway's assumed conveyance loss of 34%, and then assuming the water diverted is reused at least three times as Mr. Alberdi

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[26] Transcript of Hearing, pate 1626, January 28, 2008. During his deposition he referred to "catastrophic" water supply situation in recent years. Deposition transcript, pages 95-96.
[27] Exhibit 1004 (Petitioner's Joint Response to Director's February 14, 2005 Request for Information) at Exhibit C.
[28] Transcript of Hearing, page 1647, January 28, 2008.
[29] Transcript of Hearing, pages 1778-80, January 28, 2008.
[30] *Id*.; *see also*, Exhibit 3035A, Table 7, page 3, summarizing admissions by SWC regarding the conveyance losses of TFCC as well as the reuse of water by TFCC.
[31] *Id*. at 1776-79.

testified,[32] the net conveyance loss (as opposed to seepage loss, as Dr. Brockway testified) is 12%.

4. What are the appropriate assumptions for diversion requirements?

As line 9 of Exhibit 3061 shows, the sum of the farm delivery requirement (line 7) and conveyance loss (line 8) is the irrigation diversion requirement. The differences in farm efficiency and conveyance loss discussed above are compounded by this relationship, and the differences between SWC and Pocatello's analyses are nearly 900,000 af.

Average Annual Diversion Requirement Water Budget Analyses of SWC Districts 1990 - 2006 (acre-feet per year)

SWC Member	SWC Analysis	Pocatello Analysis	Difference (SWC-Pocatello)
A&B	61,144	51,574	9,570
AFRD2	418,989	370,812	48,177
BID	255,217	229,649	25,568
MIL	51,251	38,356	12,895
MID	331,542	343,078	(11,536)
NSCC	1,106,859	633,642	473,217
TFCC	1,049,946	738,750	311,196
Total	3,274,948	2,405,861	869,087

Sullivan Rebuttal Report, November 7, 2007, page 17.

Nearly 9/10 of that number is reflected in the requirements for NSCC and TFCC (which similarly had the largest differences in conveyance loss and farm efficiency). Put another way, there is a relatively modest dispute between the parties with regard to the requirements of A&B

[32] *Id*. at 1806-07.

Irrigation District ("A&B"), AFRD #2, BID, Milner Irrigation District and MID[33]. But if SWC's values are adopted, TFCC and NSCC would effectively be entitled to curtail junior wells to have available 800,000 af of water on average.

As testimony at trial established, this huge number is based in part on assumptions inherent in the SWC's shortage analysis that inflated the number unreasonably. Dr. Brockway and Mr. Thurin adjusted the irrigation diversion requirements by reference to canal capacity—the requirements were even larger before the canal capacity was taken into account. There was no evidence presented that SWC canals were purposely undersized at the time they were developed; the more typical course would be that canals would be sized to serve available lands. Further, even assuming the canals were undersized at the time the projects began, there was no evidence presented that the SWC canals would need to carry *more* water today to satisfy crop requirements than they would have had to carry at the turn of the twentieth century. Indeed, Mr. Alberdi testified (at least with regard to TFCC) that today's farmers are more efficient irrigators than would have been their predecessors at the time the projects were established.[34] The fact that SWC's experts had to reduce their calculated irrigation diversion requirements to allow there to be volumes of water that the canals could carry is a red flag that indicates the analysis is unreliable.

The SWC's experts also excluded actual physical diversions of water. The result, as Mr. Thurin testified, was that their analyses showed shortages at times when smaller (or no) shortages would have been calculated.[35] Mr. Thurin also showed shortages of as much as 10-15% during 2006, a year that Mr. Alberdi testified that had not suffered water rights injury.[36]

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[33] Pocatello actually forecasts MID to have a larger irrigation requirement than does SWC.
[34] Transcript of Hearing, page 1805, January 28, 2008.
[35] Transcript of Hearing, pages 2065-66, January 30, 2008.
[36] *Id*. at 2066; Transcript of Hearing, pages 1600-01, January 28, 2008.

The better course would have been for SWC to assume that those amounts of water that were diverted in excess of crop demand in a given month went into soil moisture to provide for future supplies.[37] Instead, SWC's experts excluded actual physical diversions and didn't take soil moisture into account at all, despite the fact that Mr. Alberdi and Mr. Diehl all testified that soil moisture was an important part of satisfying crop demand.[38]

D. The Hearing Officer properly denied the SWC's motion to strike the testimony and evidence of Mr. Franzoy and Mr. Sullivan.

In light of the evidence adduced at trial, the legal arguments above, and the problems with the SWC approach to efficiencies, the Hearing Officer made the proper decision to admit the "achievable efficiency" testimony and evidence submitted by Mr. Franzoy and relied upon for Mr. Sullivan's irrigation diversion requirements analysis.

E. IDWR has sufficient expertise to administer using the methods identified.

Dr. Brockway and Mr. Sullivan both testified that the irrigation diversion requirements analysis was consistent with the CMR. Further, Mr. Sullivan presented a proposed administrative framework (Exhibit 3007A, Appendix C) which details the decision-making steps to forecast natural flow and storage supplies, and to forecast demand based on the irrigation diversion requirement data inputs. However, with that said, an Order in this case should include the proper assumptions to be incorporated into an irrigation diversion requirements analysis. Based on the foregoing discussion, the Hearing Officer should determine:

1. That the "actual irrigated acres" associated with a particular senior water right would provide the proper acreage input.

2. That the farm efficiency evaluation (whatever terminology is used) must include evaluation of topography, soil type, rooting depth, and application efficiencies as referenced in page 37 of Exhibit 3040, assuming that SWC farmers are careful mangers of their water.

[37] Transcript of Hearing, page 2067, January 30, 2008.
[38] Transcript of Hearing, pages 1607 and 1649, January 28, 2008.

3. That conveyance loss determinations should be a "net loss" rather than merely canal seepage.

There is no dispute that IDWR has sufficient expertise to conduct the types of irrigation diversion requirement analyses presented by Pocatello and SWC. The 1996 Dreher-Tuthill Report, Exhibit 3040, was a primary resource for both sets of experts. In addition, the January 29, 2008 A&B Order expressly incorporates a version of the irrigation diversion requirements analysis in finding that A&B has not suffered material injury. While a hearing remains to be held to inquire into the bases of the A&B Order, the Order stands for the proposition that IDWR not only has expertise sufficient to administer using an irrigation diversion requirements analysis, it has done so.

II. THE CMR'S REQUIREMENT FOR "REASONABLE CARRY-OVER STORAGE" CAN BE INTERPRETED TO REQUIRE A FORECASTED AMOUNT OF "CARRY-OVER" IN THE CURRENT IRRIGATION SEASON WHICH DOES NOT COME DUE AND OWING UNTIL THE SUBSEQUENT YEAR.

IDWR is authorized to order administration of junior ground water users to satisfy beneficial uses of seniors. Storage in and of itself is not a beneficial use, unless and until it is put to its decreed or licensed use. *AFRD#2*, 154 P.3d at 451; *United States v. Pioneer Irrigation Dist.*, 144 Idaho 106, 157 P.3d 600, 604 (2007) ("*Pioneer*"). Thus, although Rule 42(g) authorizes a "reasonable carry-over" amount, to be constitutional that requirement must be read in the context of Idaho law and limited to that which can be beneficially used. When IDWR forecasts a "reasonable carry-over" amount, it is forecasting potential storage water supplies that will be required by seniors during the next irrigation season to avoid injury. IDWR is not authorized to require that the carry-over amount be obtained and placed in senior storage accounts unless and until it becomes clear that the seniors *are likely to* suffer injury without that

amount. If the reservoirs fill, there is no injury to seniors and, if there is no injury, IDWR has no authority to order replacement water.

III. BOR HAS NO COLORABLE INTERESTS AT STAKE IN THIS MATTER AND FAILED TO PRESENT EVIDENCE THAT WAS HELPFUL IN SUPPORT OF SWC'S CLAMS OF INJURY.

A. The Bureau's legal interests at stake in this case are no broader than SWC's.

The Bureau was the federal agency responsible for initiating the various storage projects in which SWC holds storage contracts. In total, BOR projects in the Upper Snake provide storage space for over 4.3 million acre feet ("maf") of water. While the Bureau's storage projects are nominally operated by the Bureau, releases from those projects are made at the direction of state water officials in response to requests for delivery of water from contract holders. The Bureau is bound to comply with state water law, pursuant to the Reclamation Act of 1902 43 U.S.C.A. § 383 (2008) ("the Secretary of the Interior, in carrying out the provisions of this Act, shall proceed in conformity with [the laws of any state or territory]"). *See, e.g.*, *Fox v. Ickes*, 137 F.2d 30 (D.C. Cir. 1943). BOR has made claims in the SRBA for its storage water rights.

In this proceeding, BOR has not placed a delivery call for water under the CMR. Instead, as the testimony of Mr. Gregg and others demonstrated, the Bureau is participating as a party to: 1) protect the rights of its contract holders; 2) facilitate the Bureau's compliance with the flow augmentation program; and 3) facilitate other Bureau operations, including flood control.[39]

Only the first of these items is arguably within the jurisdiction of IDWR and another, facilitation of Bureau operations for flood control, is not something that can be affected by

[39] Transcript of Hearing, pages 1316-17, January 24, 2008.

IDWR since the Bureau is authorized to make releases from its reservoirs for flood control[40]. The Bureau's testimony and evidence, particularly from its experts, was directed at protecting and enhancing their flow augmentation operations. Mr. McGrane examined the fill pattern in a period of dry years if wells junior to 1949 were to be curtailed. According to his September 26, 2007 expert report submitted in this matter, the amount of water he found to be available for storage in the 2005 winter season based on three years of curtailment was roughly 225,000 af.[41] Consulting the "rainbow" or "colorful" chart, this is slightly more than the amount of water the Bureau is required to produce in flow augmentation from sources above Milner Dam. Exhibit 1076.

Insofar as the Bureau seeks to protect the rights of its contract holders, its interests in this case are conterminous with those of the SWC. In other words, the Bureau's party status is no broader than that of the SWC. So, for example, the SWC cannot seek protection of the Bureau's flow augmentation program and, as discussed above, neither can the Bureau. The SWC holds senior natural flow and storage water rights, and yet, on information and belief, neither the SWC's licenses nor their pre-SRBA decrees include as an authorized use the right to lease water to BOR for flow augmentation. Further, Mr. Gregg testified that the BOR contracts with the SWC also do not contain provisions allowing for flow augmentation, and indeed, that Congress had not authorized the Upper Snake Projects for flow augmentation.[42]

In short, relevant Bureau evidence is limited to those items of fact and law that support its contractors' claims of injury to their water rights. A review of Bureau evidence demonstrates that there was no evidence submitted that was directed at supporting SWC claims of injury. Mr.

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[40] Undoubtedly there is a tension between state water administration and the Bureau's flood control measures. However, as Mr. Gregg's testimony demonstrated, that tension has not impeded the Bureau's efforts to forecast fill conditions (although incorrectly as it turned out in 2006) and make releases from Upper Snake Reservoirs. *Id.*
[41] *See* page 12 of Mr. McGrane's report.
[42] Transcript of Hearing, pages 1284-85, January 24, 2008.

McGrane performed a curtailment analysis that assumed—without investigation—that additional water available during the irrigation season would have been diverted by SWC. However, the Bureau offered no evidence that the SWC required such additional quantities of water in order to satisfy beneficial uses, and neither did the SWC.

B. The Bureau's evidence was directed mainly at enhancing its flow augmentation program; flow augmentation is not a decreed or licensed use, and the legislature has rejected it as a beneficial use.

The Bureau presented expert testimony that detailed the impacts of curtailment of ground water users junior to 1949. However, that evidence was not directed at demonstrating that the SWC required such an amount of water for beneficial uses; instead, the evidence was directed at demonstrating that curtailment would result in greater levels of winter fill, based on reservoir conditions from 2001-2004. Instead, as Mr. McGrane testified, additional storage water would have been available for use by seniors (including seniors other than SWC) and additional natural flow water would have been available as well.[43] He was not able to say whether the additional amounts of water were necessary to SWC under an irrigation diversion requirements analysis, or even whether the timing of such additional water would have been useful in the context of crop demand.[44]

Mr. Gregg commented during his testimony that the Bureau's defense of its flow augmentation uses in this proceeding was made to avoid "another Klamath."[45] In the Klamath dispute, Bureau contractors were denied contract deliveries because the Bureau was obligated under the Endangered Species Act ("ESA") to make releases to benefit endangered species. The Klamath contract-holders were subject to the Bureau's obligations under the ESA, just as the SWC users are in Idaho. The ground water users, by contrast, are not subject to any limitations

[43] Transcript of Hearing, January 25, 2008.
[44] *Id*. at 1410-11
[45] Transcript of Hearing, pages 1233-34, January 24, 2008.

on water deliveries arising from a contractual relationship with the Bureau. Put another way, if the Bureau had to curtail deliveries to SWC to satisfy ESA requirements, there is no basis in the law of prior appropriation to suggest that the junior ground water users would have to curtail as well.

The SWC bears the risk that the Bureau will be obligated under other federal laws to alter or suspend deliveries under their contracts. In any event, this is a potential problem between the Bureau and the SWC.[46] The Bureau cannot interpose on IDWR the requirement to use its discretion under conjunctive management to curtail junior wells to enhance storage water supplies to the benefit of the Bureau's flow augmentation program and its contractors. This simply substitutes economic dislocation from one set of water users—the contract holders themselves who bear this risk—for another who have developed their water supplies without regard to Bureau projects.

C. The IDWR is without authority under the CMR or its authorizing statutes to curtail junior ground water users for the benefit of an undecreed, unlicensed use such as flow augmentation.

IDWR is authorized, under Idaho Code section 42-607, to administer water rights in Idaho. Neither Idaho statutes nor the CMR provide a basis to administer the Bureau's flow augmentation uses. No evidence has been produced that flow augmentation uses are decreed uses; quite the contrary, Mr. Gregg testified that the Bureau had applied for such uses in the 1990's but withdrawn them after protest from water users and others.[47] Furthermore, the Idaho legislature also has adopted Idaho Code section 42-1763B(4) which provides:

[46] To anticipate the Bureau's response to this line of argument, Pocatello is also a Bureau contract holder in Palisades. Presumably, if the ESA was imposed as a limitation on contract deliveries, that would impact Pocatello as well. That doesn't mean that Pocatello will sign up for curtailment of its junior wells in order to enhance the Bureau's flow augmentation program.
[47] Transcript of Hearing, pages 1278-79, January 24, 2008.

> Nothing in this section shall be construed to alter, or authorize the U.S. bureau of reclamation [sic] to modify in any way its existing contractual obligations, or to constitute a finding by the legislature that the rental or use of storage water or natural flow water rights for flow augmentation for listed anadromous fish or any other species is a beneficial use of water, that it is in the public interest, or whether such use injures existing water rights.

By its terms, flow augmentation is not a beneficial use.

D. The Bureau's uses for flow augmentation are junior to those of ground water users.

Testimony at trial established that the Bureau had first made flow augmentation deliveries in 1992.[48] Based on the prior appropriation system, if the Bureau's flow augmentation uses are to be administered in priority, IDWR would be required to curtail flow augmentation deliveries to avoid injury to SWC.

CONCLUSION

For the reasons stated above, Pocatello requests that the Hearing Officer enter Findings of Fact, Conclusions of Law, and Ruling in substantial conformance with the proposed Findings of Fact, Conclusions of Law and Order submitted by Pocatello contemporaneously with this brief.

Respectfully submitted, this 26th day of February, 2008.

CITY OF POCATELLO ATTORNEY'S OFFICE

By Sarah Klahn for
A. Dean Tranmer

WHITE & JANKOWSKI

By Sarah Klahn
Sarah Klahn

Attorneys for CITY OF POCATELLO

[48] Transcript of Hearing, page 1509, January 25, 2008.

CERTIFICATE OF SERVICE

I hereby certify that on this 26th day of February, 2008, I caused to be served a true and correct copy of the foregoing **Pocatello's Post–Trial Brief with attached Pocatello's Proposed Findings of Fact, Conclusions of Law and Ruling** by electronic mail and/or facsimile to:

Sarah Klahn, White & Jankowski, LLP

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BEFORE THE DIRECTOR
OF THE DEPARTMENT OF WATER RESOURCES
OF THE STATE OF IDAHO

IN THE MATTER OF THE REQUEST FOR ADMINISTRATION IN WATER DISTRICT 120 AND THE REQUEST FOR DELIVERY OF WATER TO SENIOR SURFACE WATER RIGHTS BY A&B IRRIGATION DISTRICT, AMERICAN FALLS RESERVOIR DISTRICT #2, BURLEY IRRIGATION DISTRICT, MILNER IRRIGATION DISTRICT, MINIDOKA IRRIGATION DISTRICT, NORTH SIDE CANAL COMPANY, AND TWIN FALLS CANAL COMPANY	**SPRONK WATER ENGINEERS, INC. UPDATED EXPERT REPORT DATED SEPTEMBER 26, 2007 PREPARED FOR THE CITY OF POCATELLO**

Revised December 2007 to include errata pages

Spronk Water Engineers, Inc.
1000 Logan Street
Denver, Colorado 80203

Figure 3

Flow Chart of
Water Budget Analyses
Surface Water Coalition

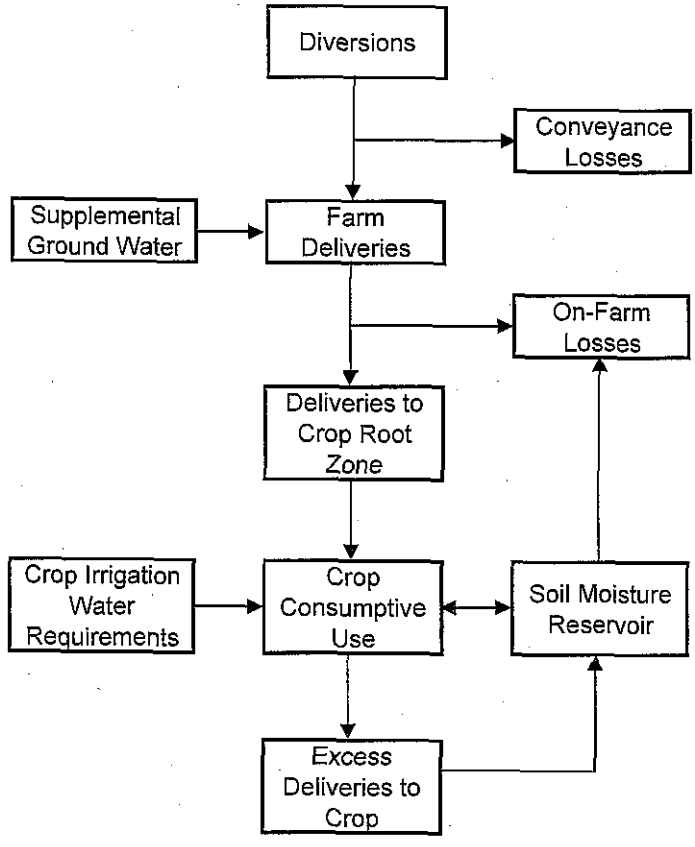

Table 2
Comparison of Water Budget Analysis by SWC Experts and Pocatello Experts
1990 - 2006 Average

	Irrigated Area (ac)	A&B	AFRD2	BID	Milner	MID	NSCC	TFCC	Total
1	Pocatello Analysis	14,637	62,361	47,643	13,335	75,093	154,067	196,162	563,298
	SWC Analysis	17,301	62,402	45,355	13,548	77,360	162,146	202,690	580,802
	Delta (SWC - Pocatello)	2,664	41	(2,288)	213	2,267	8,079	6,528	17,504
	Farm Efficiency								
2	Pocatello Analysis	73%	74%	71%	75%	74%	78%	62%	
	SWC Analysis	79%	68%	66%	60%	59%	71%	61%	
	Delta (SWC - Pocatello)	6%	-6%	-5%	-15%	-15%	-7%	-1%	
	Conveyance Loss								
3	Pocatello Analysis	17%	48%	35%	20%	35%	33%	12%	
	SWC Analysis	34%	48%	42%	18%	24%	53%	35%	
	Delta (SWC - Pocatello)	17%	0%	7%	-2%	-11%	20%	23%	
	System Efficiency								
4	Pocatello Analysis	61%	38%	46%	60%	48%	52%	55%	
	SWC Analysis	52%	35%	38%	49%	45%	33%	40%	
	Delta (SWC - Pocatello)	-8%	-3%	-8%	-11%	-3%	-19%	-15%	
	Unit Crop Irrigation Requirement (in/y)								
5	Pocatello Analysis	26	29	27	22	27	27	25	
	SWC Analysis	23	29	26	22	24	29	27	
	Delta (SWC - Pocatello)	(3)	(1)	(1)	0	(3)	2	1	
	Crop Irrigation Requirement (af/y)								
6	Pocatello Analysis	31,249	152,542	104,890	24,431	168,462	343,901	411,602	1,237,077
	SWC Analysis	33,153	149,854	97,620	25,083	152,310	385,301	448,792	1,292,112
	Delta (SWC - Pocatello)	1,904	(2,688)	(7,270)	652	(16,152)	41,400	37,190	55,035
	Farm Delivery Requirement (af/y)								
7	Pocatello Analysis	42,807	206,138	147,732	32,575	227,651	440,899	663,874	1,761,676
	SWC Analysis	42,061	219,802	147,342	41,963	256,118	544,998	736,956	1,989,240
	Delta (SWC - Pocatello)	(746)	13,664	(390)	9,388	28,467	104,099	73,082	227,564
	Conveyance Loss (af/y)								
8	Pocatello Analysis	9,471	206,285	85,102	10,170	124,973	338,984	128,302	903,287
	SWC Analysis	20,551	199,307	107,879	9,288	77,463	586,136	361,025	1,361,649
	Delta (SWC - Pocatello)	11,080	(6,977)	22,777	(882)	(47,510)	247,152	232,723	458,363
	Diversion Requirement (af/y)								
9	Pocatello Analysis	51,574	370,812	229,649	38,356	343,078	633,642	738,750	2,405,861
	(1) SWC Analysis	61,144	418,989	255,217	51,251	331,542	1,106,859	1,049,946	3,274,948
	Delta (SWC - Pocatello)	9,570	48,177	25,568	12,895	(11,536)	473,217	311,196	869,087
	Diversion Requirement (af/ac/y)								
10	Pocatello Analysis	3.5	5.9	4.8	2.9	4.6	4.1	3.8	4.3
	SWC Analysis	3.5	6.7	5.6	3.8	4.3	6.8	5.2	5.6
	Delta (SWC - Pocatello)	0.0	0.8	0.8	0.9	(0.3)	2.7	1.4	1.4
	Diversions (af/y)								
11	Pocatello Analysis	55,713	429,760	243,149	50,849	357,065	1,027,223	1,069,187	3,232,946
	(2) SWC Analysis	53,343	383,809	228,414	48,800	302,290	987,685	971,807	2,976,148
	Delta (SWC - Pocatello)	(2,370)	(45,951)	(14,735)	(2,049)	(54,775)	(39,538)	(97,380)	(256,798)
	Unadjusted Shortage (-) Surplus (+) (af/y)								
12	(3) Pocatello Analysis	4,139	58,948	13,500	12,493	13,987	393,581	330,437	827,085
	(4) SWC Analysis	(7,800)	(35,180)	(26,803)	(2,451)	(29,252)	(119,174)	(78,139)	(298,799)
	Delta (SWC - Pocatello)	(11,939)	(94,128)	(40,303)	(14,944)	(43,239)	(512,755)	(408,576)	(1,125,884)
	Adjusted Shortage (-) (af/y)								
13	(5) Pocatello Analysis	0	(149)	0	0	0	0	0	(149)
	(6) SWC Analysis	(434)	(24,233)	(7,824)	0	(336)	(62,424)	(45,907)	(141,159)
	Delta (SWC - Pocatello)	(434)	(24,084)	(7,824)	0	(336)	(62,424)	(45,907)	(141,010)

Notes

(1) Diversion requirement limited to canal capacity.
(2) Monthly diversions limited to amounts less than or equal to monthly diversion requirements.
(3) Diversions - Diversion Requirement.
(4) Diversion - Diversion Requirement (average of supply deficit reported on Tables 10-1 - 10-8 from 9/26/2007 SWC Expert Report).
(5) From Column 15, Tables 6 - 12, SWE 9/26/2007 Expert Report.
(6) Average of Shortage without providing carryover reported on Tables 10-9 - 10-15 from 9/26/2007 SWC Expert Report.

EXHIBIT
tabbies
3061

Table 5
Comparison of Water Budget Analysis by SWC Experts and Pocatello Experts
2004

	Irrigated Area (ac)	A&B	AFRD2	BID	Milner	MID	NSCC	TFCC	Total
	Pocatello Analysis	14,637	62,361	47,643	13,335	75,093	154,067	196,162	563,298
	SWC Analysis	17,301	62,402	45,355	13,548	77,360	162,146	202,690	580,802
	Delta (SWC - Pocatello)	2,664	41	(2,288)	213	2,267	8,079	6,528	17,504
	Farm Efficiency								
	Pocatello Analysis	73%	74%	71%	75%	74%	78%	62%	
	SWC Analysis	79%	68%	66%	60%	59%	71%	61%	
	Delta (SWC - Pocatello)	6%	-6%	-5%	-15%	-15%	-7%	-1%	
	Conveyance Loss								
	Pocatello Analysis	17%	48%	35%	20%	35%	33%	12%	
	SWC Analysis	34%	46%	39%	18%	21%	52%	33%	
	Delta (SWC - Pocatello)	17%	-2%	4%	-2%	-14%	19%	21%	
	System Efficiency								
	Pocatello Analysis	61%	38%	46%	60%	48%	52%	55%	
	SWC Analysis	52%	37%	40%	49%	47%	34%	41%	
	Delta (SWC - Pocatello)	-8%	-2%	-6%	-11%	-1%	-18%	-14%	
	Unit Crop Irrigation Requirement (in/y)								
	Pocatello Analysis	26	29	27	22	27	27	25	
	SWC Analysis	24	31	29	22	28	30	28	
	Delta (SWC - Pocatello)	(2)	1	3	0	1	3	3	
	Crop Irrigation Requirement (af/y)								
	Pocatello Analysis	35,053	158,963	118,554	26,024	189,168	361,671	429,326	1,318,759
	SWC Analysis	34,358	159,406	111,169	25,358	177,629	400,823	477,060	1,385,802
	Delta (SWC - Pocatello)	(695)	443	(7,385)	(666)	(11,539)	39,152	47,734	67,043
	Farm Delivery Requirement (af/y)								
	Pocatello Analysis	48,018	214,815	166,977	34,699	255,632	463,681	692,461	1,876,283
	SWC Analysis	43,678	234,448	167,959	42,554	299,131	568,196	785,112	2,141,079
	Delta (SWC - Pocatello)	(4,339)	19,634	982	7,856	43,499	104,515	92,651	264,796
	Conveyance Loss (af/y)								
	Pocatello Analysis	8,432	141,552	88,923	7,638	119,327	303,864	120,228	789,964
	SWC Analysis	20,551	199,307	107,879	9,288	77,463	586,136	361,025	1,361,649
	Delta (SWC - Pocatello)	12,119	57,755	18,956	1,650	(41,864)	282,272	240,797	571,685
	Diversion Requirement (af/y)								
	Pocatello Analysis	49,600	316,043	256,484	38,191	386,126	667,646	771,234	2,485,324
(1)	SWC Analysis	61,110	433,756	275,838	51,842	376,485	1,127,871	1,083,394	3,410,297
	Delta (SWC - Pocatello)	11,510	117,713	19,354	13,651	(9,641)	460,225	312,160	924,973
	Diversion Requirement (af/ac/y)								
	Pocatello Analysis	3.4	5.1	5.4	2.9	5.1	4.3	3.9	4.4
	SWC Analysis	3.5	7.0	6.1	3.8	4.9	7.0	5.3	5.9
	Delta (SWC - Pocatello)	0.1	1.9	0.7	1.0	(0.3)	2.6	1.4	1.5
	Diversions (af/y)								
	Pocatello Analysis	49,600	294,900	254,065	38,191	340,935	920,800	1,001,900	2,900,391
(2)	SWC Analysis	49,707	294,881	241,216	41,553	308,523	920,972	955,231	2,812,084
	Delta (SWC - Pocatello)	107	(19)	(12,849)	3,362	(32,412)	172	(46,669)	(88,307)
	Unadjusted Shortage (-) Surplus (+) (af/y)								
(3)	Pocatello Analysis	0	(21,143)	(2,419)	0	(45,191)	253,154	230,666	415,067
(4)	SWC Analysis	(11,403)	(138,875)	(34,622)	(10,289)	(67,962)	(206,899)	(128,163)	(598,213)
	Delta (SWC - Pocatello)	(11,403)	(117,732)	(32,203)	(10,289)	(22,771)	(460,053)	(358,829)	(1,013,280)
	Adjusted Shortage (-) (af/y)								
(5)	Pocatello Analysis	0	(2,526)	0	0	0	0	0	(2,526)
(6)	SWC Analysis	(7,375)	(137,965)	(22,798)	0	(5,715)	(338,671)	(46,745)	(559,269)
	Delta (SWC - Pocatello)	(7,375)	(135,439)	(22,798)	0	(5,715)	(338,671)	(46,745)	(556,743)

Notes

(1) Diversion requirement limited to canal capacity.
(2) Monthly diversions limited to amounts less than or equal to monthly diversion requirements.
(3) Diversions - Diversion Requirement.
(4) *Diversion - Diversion Requirement* (2004 value for supply deficit reported on Tables 10-1 - 10-8 from 9/26/2007 SWC Expert Report).
(5) From Column 15, Tables 6 - 12, SWE 9/26/2007 Expert Report.
(6) 2004 value for Shortage without providing carryover reported on Tables 10-9 - 10-15 from 9/26/2007 SWC Expert Report.