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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 THE MITIGATION COMPUTATIONS IN WATER DISTRICT 120 FOR THE SURFACE WATER COALITION	**CITY OF POCATELLO'S COMMENTS ON THE DEPARTMENT'S MAY 4, 2009 DRAFT PROTOCOL FOR DETERMINING REASONABLE IN-SEASON DEMAND AND REASONABLE CARRYOVER**

The City of Pocatello is providing comments on the Department's Draft Protocol for Determining Reasonable In-Season Demand and Reasonable Carryover ("Draft Protocol"). These comments are provided in response to the Director's invitation for input from interested parties in developing the protocol that will be issued in a Final Order by the Director and utilized in administering delivery calls from the Surface Water Coalition ("SWC") pursuant to the Conjunctive Management Rules.

Pocatello's comments address certain elements of the Draft Protocol that were presented in the materials distributed to interested parties on May 4, 2009, and are necessarily incomplete insofar as Pocatello has been unable to obtain or review underlying materials, and to the extent that certain portions of the Protocol have not yet been disclosed by IDWR.

1) **Corrections**

a) The Draft Protocol presentation misstates SWC's crop irrigation requirements. In Slide No. 3 of the Determining Average Irrigation Need presentation, IDWR presents water budget information developed by SWC and Pocatello experts[1] during the SWC Delivery Call hearing held in December 2008. The graph on Slide No. 3 shows a substantial difference in the computed annual crop irrigation requirement ("CIR") for the Twin Falls Canal Company ("TFCC") between the SWC (533,954 af) and the Pocatello analysis (411,602 af).

i) The actual average annual CIR for the period 1990 through 2006 computed by the SWC was 448,792 af (as reported by the SWC in the spreadsheet TFCC Water Requirements-ResOps.xls).

ii) The CIR reported in the SWC water budget analysis was based on an irrigated area of 202,690 acres for the TFCC that was determined by the Hearing Officer to be too large.

iii) On an acre-foot per acre basis, the CIRs computed by the SWC and Pocatello are 2.21 af/acre and 2.10 af/acre, respectively; a difference of less than 5%.

iv) The differences between the SWC diversion requirements that were developed by the SWC experts and the Pocatello experts were primarily due to differences in conveyance losses and irrigation efficiencies, not differences in CIR estimates, as implied from the IDWR presentation.

b) The Draft Protocol presentation misstates Pocatello's Crop Water Need as a percentage of diversions. Slide No. 5 of the Determining Average Irrigation Need presentation presents a pie chart of the SWC and Pocatello water budgets that depicts simplified water budget elements as a percent of average annual TFCC diversion. The correct Crop Water Need as a percent of diversions computed by Pocatello is 38%, not 30%.

[1] On slides 3 and 5 of the presentation entitled "Determining Average Irrigation Need", IDWR attributed to IGWA the water budget analysis that was performed by the Pocatello's experts.

c. To the extent that these misunderstandings related to the positions and evidence presented by the SWC and Pocatello during the SWC hearing were relied upon by IDWR in developing the Protocol, the Protocol should be re-examined.

2) **Baseline Demand.** As noted in the Draft Protocol, the Department was tasked by the Hearing Officer to "modify the minimum full supply analysis as a method of establishing a baseline of predicted water need for projecting material injury" (Recommendation, p. 51, §XIV, ¶7). Also in that paragraph, the Hearing Officer noted that "[t]he concept of a baseline is that it is adjustable as weather conditions or practices change, and that those adjustments will occur on an orderly, understood protocol."

a) IDWR's methodology does not include adjustments to the Baseline Demand for changes in cropping pattern, changes in facilities, diversion, conveyance, and irrigation practices, and non-irrigated acres. IDWR assumes that the baseline year is reflective of all conditions in the current year. This assumption may or may not be valid, and is dependent on specific conditions in both the baseline year and current year. For example, on-farm efficiencies are likely to increase as more lands are converted from gravity to sprinkler irrigation; however, the proposed methodology does not consider the increased efficiency from the baseline year in determining the Baseline Demand. Additionally, if there is a change in irrigated acres, the Baseline Demand should reflect that change, rather than relying on the in-season demand that occurs later to account for actual irrigated acres.

b) Adjustments to the Baseline Demand are vague. As noted above, there are no adjustments to the Baseline Demand currently proposed for changes in facilities, diversion, conveyance, and irrigation practices, and non-irrigated acres. The only adjustment provided for in the Draft Protocol is for adjusting for above normal winter/spring rains that occurred in 2006. Pocatello understands that the adjustment includes adding the effective precipitation that occurred during in the spring to the diversions. For the TFCC, this "correction" results in a Baseline Demand of an additional 41,000 acre-feet above what was diverted by TFCC in 2006. There does not appear to be an adequate basis for this adjustment; given that the "adjustment" increases mitigation water requirements for juniors (as in the TFCC 2006 example described above).

IDWR has adopted 2006 as the baseline year in the Draft Protocol, however, the methodology calls for the baseline year, and therefore Baseline Demand, to change as a "better year" arises. What would constitute a "better year"? What adjustments for excess soil moisture would be made to the diversions of the new baseline year? What other adjustments might be made by IDWR based on the unique characteristics of the new baseline year? These questions illustrate the lack of an orderly or understood protocol.

c) Proposed method to determine Baseline Demand assumes that the water diverted by the SWC in 2006 (baseline year) was necessary to avoid crop loss. Use of 2006 diversions to establish the SWC Baseline Demands presumes that the diversions by the SWC in 2006 are the amount necessary to meet irrigation demands in an average hydrologic year. Under the proposed methodology, if the SWC divert over and above their crop water needs in the baseline year, the ground water users will be required to mitigate for that amount.

d) The Baseline Demand should not include water diverted through SWC facilities but not used on SWC lands. A number of SWC members divert water for other entities that are reflected in Water District 01 records. These diversions should not be included in the Baseline Demand for the SWC member.

3) **Baseline Project Efficiency**. One of the most important elements of the Draft Protocol is the Baseline Project Efficiency derived for each SWC member. As Pocatello understands the methodology, the Baseline Project Efficiency is computed as the Crop Water Need (determined by METRIC analysis of satellite imagery) during the 2006 baseline year divided by the 2006 diversions. This computed Baseline Project Efficiency is used in the Draft Protocol to convert Crop Water Needs determined by METRIC for the year at issue into an equivalent diversion requirement, or Reasonable In-season Demand ("RISD"). Differences between the RISD and the actual irrigation supply will be used to compute the mitigation requirements for junior ground water users. By calculating the Baseline Project Efficiency using 2006 Crop Water Needs and 2006 Diversions, IDWR avoids having to dissect the two components of project efficiency; the on-farm efficiency and conveyance loss. The Baseline Project Efficiency has a substantial impact on the RISD and it is essential that it accurately reflect the relationship between Crop Water Needs and the equivalent demand for water at the river headgage. Further, the Baseline Project Efficiency needs to be consistent with the Conjunctive Management Rules or the Recommendations/Final Order.

a) Proposed method assumes that all water diverted in 2006 by the SWC was necessary to avoid crop loss. For example, IDWR's use of 2006 diversions to establish the SWC Baseline Demand presumes that the diversions by the SWC in 2006 are the amount necessary to meet irrigation demands in an average hydrologic year. If this is not the case, such as in the spring, the baseline project efficiency will be lower than it should. Any over-diversions in the baseline year will be memorialized in the project efficiency value and will result in mitigation requirements that are greater than the crop water need.

b) Project efficiency values do not conform with expected efficiency values. If IDWR determines the Baseline Project Efficiency values as proposed, the values should be reviewed for consistency with verified conveyance loss figures and reasonable on-farm efficiencies. For example, IDWR proposes an overall efficiency of 41% for the TFCC[2], with monthly project efficiencies as follows:

[2] The project efficiencies for the other SWC members have not been provided for review.

Month	Baseline Project Efficiency
April	39%
May	30%
June	29%
July	45%
August	49%
September	38%
October	47%
Annual	40%

Based on the project efficiencies presented for TFCC, the values do not reflect the technical understanding regarding project efficiencies across an irrigation season. Monthly efficiencies are generally lower during the early portion of the irrigation season, and greater in the latter portions of the season. The above table shows substantial variability in the efficiencies that is somewhat nonsensical. The low efficiency in June (29%) is particularly unreasonable.

During the June 1, 2009 Technical Meeting, Director Tuthill indicated that the April and May soil moisture was left in the 2006 diversion data in calculating the project efficiency. However, if the April and May soil moisture correction is taken out of the 2006 diversions, the baseline project efficiency values still do not make sense. This further demonstrates the need to compare baseline project efficiency values with knowable conveyance loss and reasonable on-farm efficiency values.

c) Conveyance loss is "knowable". The Recommendations rejected the conveyance loss values relied upon by the SWC's experts ("The conveyance loss values do not appear reliable and the element of soil moisture does not appear adequately addressed." (Recommendation, p. 50, §XIV ¶5)). However, this term is "knowable" and can be determined based on analysis of delivery records and/or knowledge of the operators of the ditch systems. Simply avoiding the question by using a gross value (i.e., the "Baseline Project Efficiency") may compound rather than reduce any error associated with reliance on this value.

d) Implied on-farm efficiency values should be consistent with values in prior Agency Orders and published documents. Various sources in technical literature, including IDWR publications, report on-farm efficiencies for various methods of irrigation. IDWR is familiar with this body of professional work. In the January

29, 2008, Order on the A&B delivery call, IDWR asserted that reasonable on-farm efficiencies for sprinkler irrigation are 75% – 80%. Using accepted ranges of reasonable efficiencies for the type of irrigation methods and the percentage of lands irrigated by gravity and sprinklers within each SWC service area (which is known), a reasonable on-farm efficiency can be derived.

e) Baseline Project Efficiency values should be adjusted as conditions change from the baseline year. Under the Draft Protocol, the Baseline Project Efficiency as determined from the baseline crop water need and actual diversions in the baseline year will be applied to the crop water needs in the current year in order to determine the reasonable in-season demand. Given that on-farm irrigation efficiencies are likely to increase as more lands are converted from gravity irrigation to sprinkler irrigation, the proposed methodology should provide for consideration of increased irrigation efficiencies (e.g, the baseline project efficiencies should be adjusted upward from the 2006 values). In determining project efficiencies, IDWR should also consider any changes in cropping pattern, and changes in facilities, diversion, conveyance, and irrigation practices that have occurred from the baseline year.

4) **Reasonable In-Season Demand.**

a) IDWR's methodology does not include adjustments to Reasonable In-Season Demand for changes in facilities, diversion, conveyance, and irrigation practices. The RISD calculation accounts for the current year crop water need and irrigated area. However, the calculation does not account for changes in cropping pattern, and changes in facilities, diversion, conveyance, and irrigation practices that have occurred from the baseline year, to the extent that the project efficiency values are not updated for these changes.

b) Water from all sources must be considered in the RISD computation. Certain of the lands served by the SWC members receive supplemental irrigation water from wells. Most of these wells are owned by individuals within the canal service areas. As currently proposed, the RISD computation is based on crop water need and the number of irrigated acres. It is Pocatello's understanding that acres irrigated by ground water are appropriately not included, however, it is also Pocatello's understanding that the distinction between primary and supplementary ground water right was not considered in the Draft Protocol, and may be revisited by IDWR. The methodology for determining RISD (and Baseline Demand) should account for land that receives supplemental ground water.

c) The crop water needs computation used in the RISD equation should be based on actual irrigated acres by surface water, limited to the irrigated acreage of the water right. The Draft Protocol appropriately considers actual irrigated acres by surface water in the computation of the RISD. As Pocatello understands the methodology, if the acreage count is within 5% of the irrigated acreage limit of the water right, the water right acres are used. If the acreage count is more than

5% in excess of the irrigated acreage limit of the water right, further investigation is required. If the acreage is less than 5% less then the irrigated acreage limit of the water right, than an assessment will be made of the impact on the mitigation requirement, but it will not be a one-for-one reduction.[3] There is no basis for the 5% criteria. The amount of water to supply the crop water need to 5% of TFCC water right acres is significant. Likewise, there is no basis for a different methodology for the case where the irrigated acreage is less than 5% less than the irrigated acres. It would be more appropriate to simply utilize the irrigate acres determined to be irrigated by surface water in the crop water needs equation.

d) The irrigated acres for AFRD#2 and A&B in the Draft Protocol appear to be overstated. The Draft Protocol for Determining Reasonable In-Season Demand and Reasonable Carryover presentation, Slide No. 8 presents a table of acreage adjustments. It is Pocatello's understanding that these acreages may change based on review from the SWC members, however, if no comments are received, these acreages may be used in the RISD computation. It should be noted that the acreage listed for A&B appears to include water irrigated by ground water, and the acreage listed for AFRD#2 is significantly higher than the acreage listed on the recommended water right.

e) The assessment of irrigated acres should include evidentiary requirements and oversight by all parties. The number of irrigated acres is one of the most important variables in determining crop water needs and mitigation requirements. As Pocatello understands the proposed methodology, the determination of irrigated acres is prepared by IDWR and provided to each SWC member for review. Any input and changes provided to IDWR by the SWC member is accepted with no verification. Ground water users should have an opportunity to review the information. In addition, there should evidentiary requirements for the data to be considered. For example, all lands with access to ground water in the database should be assumed to have access to that supply, unless shown otherwise.

f) The RISD calculation includes an adjustment for antecedent soil moisture, however, the methodology has not yet been finalized or provided for review. The equation presented for determining crop water need is the "product of the area of planted crops and evapotranspiration (ET) less effective precipitation and antecedent soil moisture" (Overview of Protocol for Determining Demand & Predicting Demand Shortfall presentation, Slide No. 5). Consideration of water deliveries that are in excess of the immediate water needs of the crops and stored in the soil moisture reservoir should be included in the computation of the RISD.

5) **Reasonable Carryover**. The proposed protocol for establishing reasonable carryover involves the use of a statistical model that is meant to "predict" the amount of carryover that would have occurred at the end of the irrigation season given current

[3] The methodology for determining the impact of a reduction in acres of less than 5% than the water right on the mitigation requirement has not yet been developed by the Department.

climatic and water supply conditions, absent the effects of ground water pumping. If this amount (after accounting for the impacts of any rentals, leases, and presumable flow augmentation) is less than the actual carryover, the difference is owed to the SWC two weeks after the day of allocation, up to the amount of the Demand Shortfall.

a) SWC members are not entitled to historical carryover. By design, the statistical model predicts historical carryover absent the impacts of ground water pumping. The Draft Protocol then uses this amount as "reasonable carryover" referenced in the Rule 42.g. Notwithstanding whether or not the model is adequate to determine historical carryover, the model seeks to answer the wrong question: the SWC are not entitled to historical carryover. According to Rule 42.g., "the holder of a surface water storage right shall be entitled to maintain a reasonable amount of carry-over storage to assure water supplies for future dry years. In determining a reasonable amount of carry-over storage water, the Director shall consider the average annual rate of fill of storage reservoirs and the average annual carry-over for prior comparable water conditions and the projected water supply for the system."

b) Consistent with the Recommendations, the Draft Protocol must provide for a means to avoid charging junior ground water users for amounts of water rented, leased, or exchanged through private agreements, or dedicated to flow augmentation.

6) **Mitigation Requirements.**

a) Draft Protocol should incorporate concepts of reasonable use and public interest. The concepts of reasonable use and public interest should be incorporated into the methodologies of the Draft Protocol in order to avoid over-replacement.

DATED this 12th day of June, 2009.

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this ~~8th~~ 12th day of June, 2009, I caused to be served a true and correct copy of the foregoing *City of Pocatello's Comments on the Department's May 4, 2009 Draft Protocol for Determining Reasonable In-Season Demand and Reasonable Carryover* by electronic mail, facsimile or regular U.S. Mail, postage prepaid, to:

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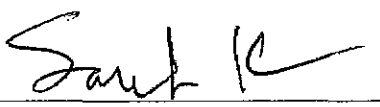

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