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IN THE DISTRICT COURT OF THE SIXTH JUDICIAL DISTRICT OF THE

STATE OF IDAHO IN AND FOR THE COUNTY OF POWER

ABERDEEN-SPRINGFIELD CANAL COMPANY, an Idaho Corporation, JEFFREY and CHANA DUFFIN, individually, as stockholders, and as husband and wife, Plaintiffs, vs. IDAHO DEPARTMENT OF WATER RESOURCES, an executive department of the State of Idaho, Defendant.	Case No. CV-2014-165 **SECOND AFFIDAVIT OF STEVEN T. HOWSER**

STATE OF IDAHO)

ss.

County of BANNOCK)

STEVEN T. HOWSER, being first duly sworn under oath, deposes and states that the following facts are true and correct to the best of my knowledge, information and belief.

1. I am the General Manager of Aberdeen-Springfield Canal Company ("ASCC" or "Company") I am also a Special Deputy Water Master of Water District #1, duly elected

by the shareholders of ASCC and appointed by the Director of the Idaho Department of Water Resources.as hired by the ASCC Board of Directors in May 1998 to replace the retiring General Manager and have been continuously employed as the General Manager since then. As General Manager I am responsible for all aspects of ASCC's operations.

2. Prior to employment with ASCC, I was self-employed as an Environmental Health and Safety consultant to the manufacturing industry, which was preceded by employment with the Idaho Department of Fish and Game as a statistician in Region 5. Prior to that I was enrolled as a Doctoral Candidate in the Department of Biological Sciences at Idaho State University. A portion of my dissertation research included modeling surface water/ground water exchanges in riparian areas in Yellowstone National Park. My doctoral minors were Statistics and Environmental Chemistry. I earned a Bachelor's of Science degree in Ecology from Idaho State University in 1990 with a dual minor in Civil and Environmental Engineering and Physics. Before being accepted as a Ph.D. candidate at Idaho State University, I was employed by the Idaho Department of Fish and Game as a Fisheries Research Technician where I designed and carried out multiple investigations into the operations of American Falls reservoir and the Snake River downstream to Minidoka (e.g. spiny-ray fish habitat loss due to reservoir drawdown, turbine passage mortality study for American Falls power plant, and extensive water quality modeling of usable trout habitat in the reservoir and river downstream).

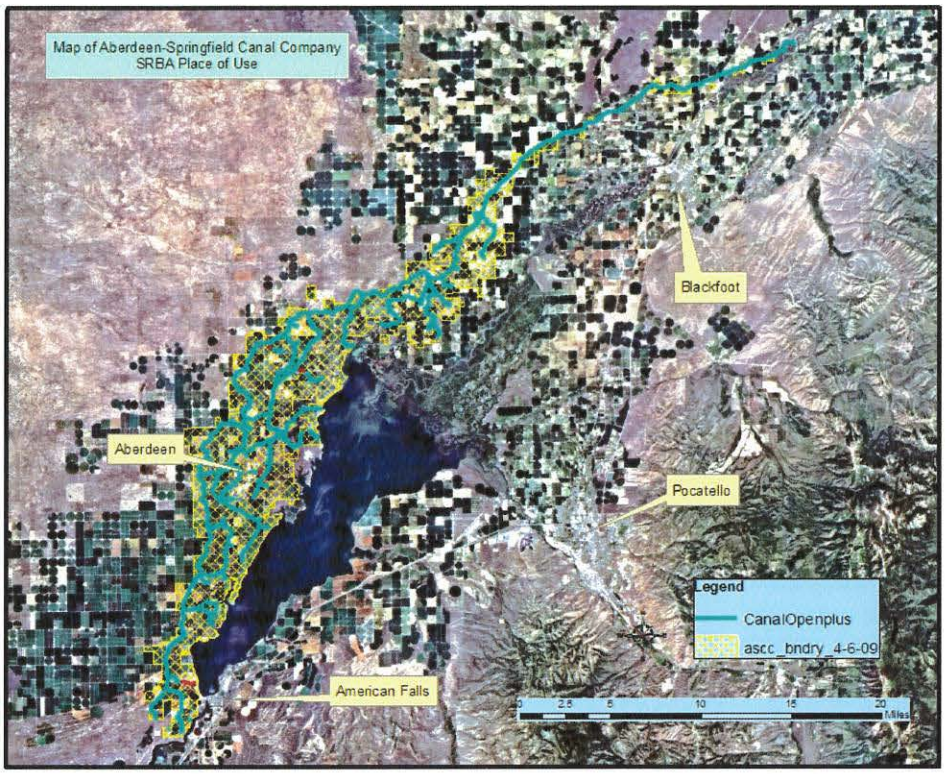
3. When I began my employment the Board of Directors asked me to bring the Company into the 21st century and prepare it for the next 100 years of irrigation water delivery to our shareholders. Towards this end I have developed and implemented one of the most sophisticated SCADA monitoring and control systems in the country. Fifteen of our

major control structures are fully automated using advanced computer controls and we have another 22 critical monitoring stations. All controls and monitoring are real-time and available via any internet connection. In addition, I have added permanent, professional GIS and IT personnel to our staff. Using state-of-the-art GIS software we have mapped our system and created an advanced local three-dimensional ground water model to track and predict ground water elevation changes throughout the year. ASCC is an Idaho 'Carey Act' corporation that provides water to stockholders who to irrigate approximately 62,000 acres of real property in Bingham and Power County, Idaho. ASCC has nearly 500 stockholders, including Plaintiffs Jeffrey and Chana Duffin of Aberdeen, Idaho.

4. ASCC holds natural flow, storage, and groundwater rights. ASCC's primary source of water is Water Right No. 1-23B for 1,072.1 cfs of natural flow from the Snake River with a priority date of February 6, 1895 and Water Right No. 1-297 for 230 cfs of natural flow from the Snake River with a priority date of April 1, 1939. ASCC is one of the largest storage water holders in the upper Snake River with (at full pool) 57,661 acre feet in Jackson reservoir, 139,417 acre feet in Palisades reservoir, and 29,771 acre feet in American Falls reservoir. In addition, ASCC owns Water Right No. 35-4246 for 2.44 cfs with a priority date of October 15, 1934 and Water Right No. 35-2543 for 6.0 cfs with a priority date of August 7, 1958 which provide groundwater for two Company owned wells. These wells are pumped directly into the canal system to supplement supply.
5. ASCC delivers irrigation water to its stockholders through a system of approximately 200 miles of canals and laterals extending from its diversion from the Snake River at Rose to

its terminus below the American Falls Dam near Neeley to serve nearly 62,000 acres of crop land owned by its stockholders within its authorized place of use (Figure 1).

Figure 1.



6. In addition to its system of surface canals, ASCC owns and operates 12 "recovery wells" used to recover Company surface water lost through seepage from ASCC's delivery system to supplement flow and supply irrigation water directly to certain shareholders with ASCC shares appurtenant to their land within the service area. Currently, ASCC operates 13 recovery wells. The majority of these wells were constructed by ASCC (with Federal grants) during the great drought of the 1930's. Additional recovery wells were drilled in the 1940's, 1950's, and 1960's, with the most recent in 2004. None of these recovery wells have separate water rights which is not required since all exist and are

operated pursuant to I.C. §42-228 to recover Company water under the rights described above. Of the 13 recovery wells, 8 pump directly into canal and laterals and 5 are used to deliver water directly to shareholders. Earlier this year, ASCC was issued by IDWR drilling permit no. 869326 and began constructing a new recovery well. This well has not been completed pending a review of the permit conditions objected to by ASCC and also the Surface Water Coalition.

7. Company records indicate at one time there were as many as 19 wells being operated to recover water lost from the delivery system. During World War II, the Federal government commandeered the pumps from these wells. In the ensuing years, some of these wells were abandoned and some were taken over and operated by shareholders and used to irrigate their lands. After the drought of the 1930's, these wells were used to supplement flows. As is common with large surface water delivery systems, ASCC experienced system capacity limitations during peak irrigation demand. These limitations were especially onerous to shareholders on the ends of canals and laterals. With one exception, all of ASCC's recovery wells were placed on the lower end of the system and at the head of laterals. The Company's use of these wells to recover system losses has supplemented the need and ability to deliver the Company's irrigation water as needed for the irrigation of shareholders' lands has been a regular practice for over 80 years. .
8. Unfortunately, these recovery wells were insufficient to completely alleviate the capacity limitation issues, which became even more pressing as farms converted to sprinkler irrigation beginning in the late 1950s. Today most flood irrigation has been discontinued and approximately 99% of the lands are irrigated by sprinklers which are far more efficient (our only remaining flood irrigation is for pastures and lawns). Beginning in the

late 1950's, some shareholders began securing groundwater rights and drilling their own wells to supplement their ASCC supply during peak irrigation capacity limitations. To my knowledge all of these ground water rights were issued with a notation that they were "supplemental" to the right holders' ASCC shares. ASCC protested the granting of these ground water rights in 1964, but IDWR issued new ground water rights anyway. By the late 1970's, approximately 100 ground water rights were issued on lands that had ASCC shares and I estimate they were providing irrigation water to approximately 12,000 to 15,000 acres of land that have ASCC shares appurtenant. In 1999, ASCC filed objections to all of these ground water right claims filed in the SRBA, objecting to the source of the water, which we contended was loss from ASCC's system and consequently these wells were all recovery wells, delivering ASCC's water to its shareholders' lands. When these wells were granted partial decrees, they were all conditioned as 'Combined with water from Aberdeen-Springfield Canal Company"

9. When ASCC file water right claims in the SRBA as the purpose of use "recharge for irrigation" was claimed in addition to "irrigation" pursuant to an agreement with IDWR to resolve the Company's objections to numerous ground water right claims. The additional purpose of "recharge for irrigation" was recommended by IDWR but later rejected by the SRBA Court in Subcase Nos. 01-23B, 01-297, 35-2542, 35-4246.
10. As described above, ASCC has been using wells to recover deliver losses and to drain water from shareholder's lands long before I.C. §42-228 was passed in 1951 to recognize and allow the historic practice of constructing and operating recovery wells.
11. ASCC, as required by Idaho law, has been meticulously measuring and documenting its daily diversion from the Snake River, deliveries to stockholders, and return spills to the

Snake River for over 100 years. In addition, ASCC estimates annual transmission loss based on the formula: $Diversion_{af}$ - $Delivery_{af}$ - $Spill_{af}$ = $Transmission\ Loss_{af}$. Transmission loss has two primary components: evaporation, which is estimated to be less than 2% of the total, and loss to the underlying Eastern Snake Plain Aquifer (ESPA). These annual amounts have been part of the General Manager's Annual Report to Stockholders every year since ASCC's incorporation in 1910. Prior to my tenure with ASCC, this data was handwritten and I began using computers to record and calculate these amounts, and incorporated historical, handwritten data back to 1989 and anecdotal data from the General Manager's Annual Report to Stockholders back to 1922. For the first 60 years of operation, ASCC's percentage loss ranged between 30% and 40% of total diversion. Beginning in the early 1970's loss rates began to increase and since the mid 1980's have stabilized, ranging between 55% and 62%. For the years 1989 to 2013, ASCC's average annual diversion was 319,953 acre feet , average delivery to stock holders was 102,478 acre feet , average return spill was 44,634 acre feet , and average transmission loss (and consequent contribution to the ESPA) was 181,624 acre feet (57% of total diversion). It should be noted that contribution to the ESPA due to infiltration after application to crops was not calculated, but has been estimated at 2-4% of total application, which we consider de minimis. ASCC believes it has a lawful right to recover all of its transmission loss to the underlying ESPA utilizing recovery wells pursuant to Idaho Code §42-228. The quantity of water ASCC pumps from all recovery wells has averaged approximately 500 AF per year, only 0.27% of the average annual losses. The most ever pumped from all recovery wells was approximately 2000 AF per year, only 1.1% of the average annual losses.

12. The geology and ground water elevations have been extensively studied in the Aberdeen-Springfield area since the mid-1930's by State and Federal agencies (e.g. Stearns, H.T., Crandall, L., and Steward, W.G., 1938, Geology and Ground-Water Resources of the Snake Plain in Southeastern Idaho: U.S. Geological Survey Water-Supply Paper; Stearns, H.T., Crandall, L., and Steward, W.G., 1936, Records of Wells on the Snake River Plain, Southeastern Idaho: USGS Water-Supply Paper). The underlying geology of the Aberdeen-Springfield region can be broadly described as consisting of alluvium in the upstream 1/3 of the system, undifferentiated basalt of the Snake River Group in the middle 1/3 of the system, and basalt intercalated with American Falls Lake Beds in the lower 1/3.

13. In 1942, ASCC began a program of monthly ground-water elevation sampling of 80 wells within its service area. This sampling program continued until 1992. In 1999 I began compiling and examining this data in conjunction with ASCC's annual diversion and loss. Figure 2 is a graph showing the deviation from mean yearly depth to surface for all 80 wells for the time period 1942-1992. Not all wells were measured every month, and over the years some wells were dropped from the sampling program for various reasons.

Figure 2.

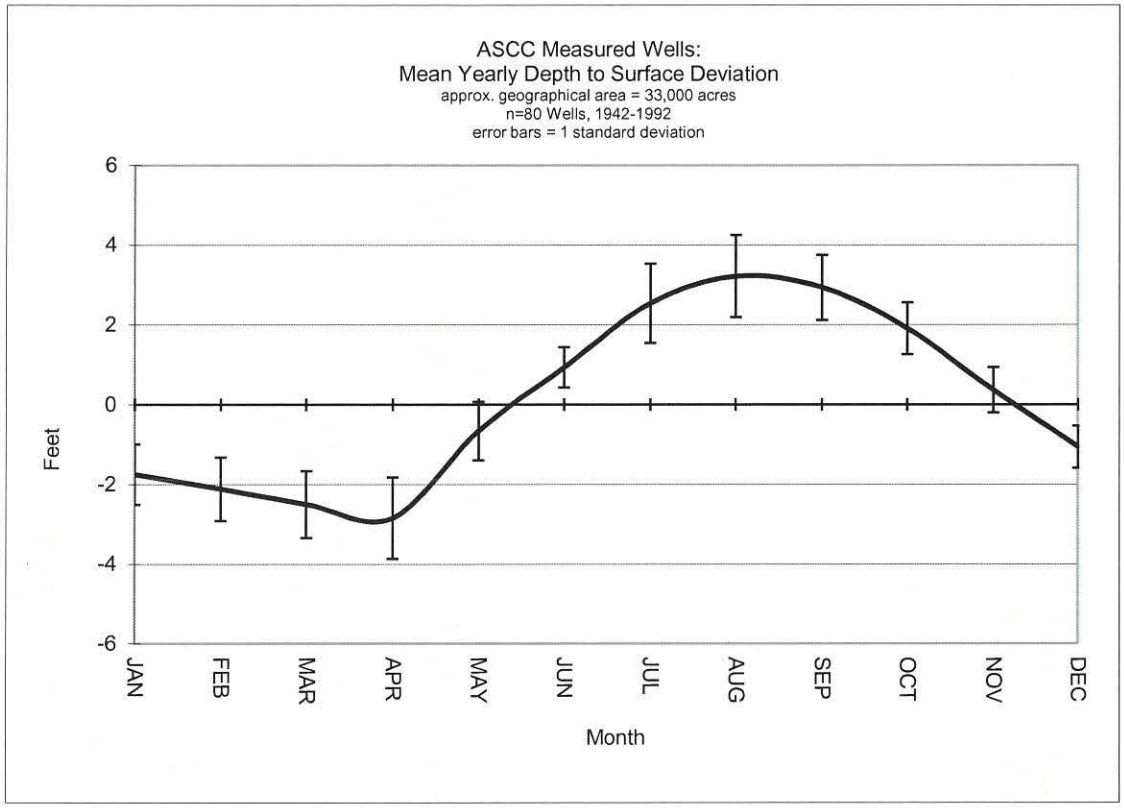
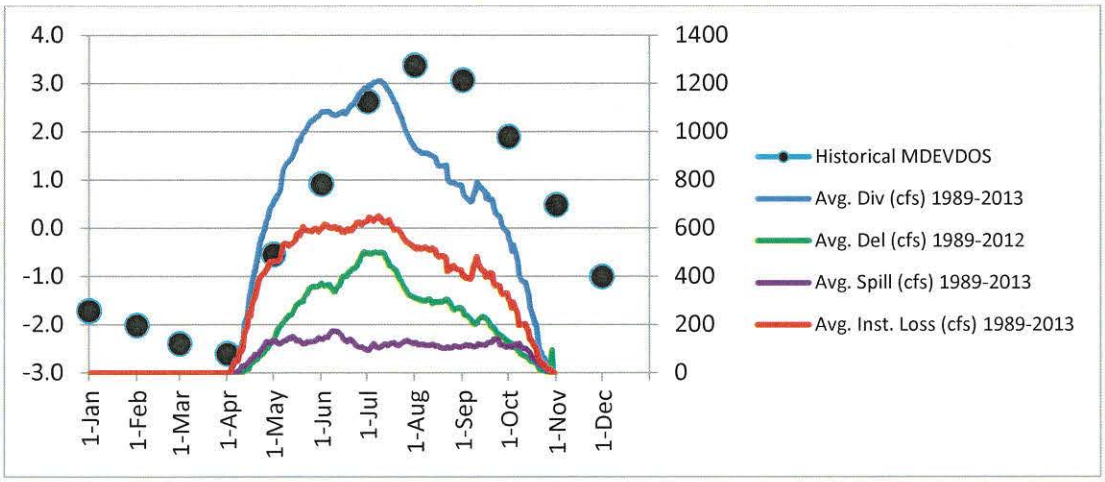


Figure 3 is an average annual hydrograph of ASCC's operations, including calculated loss, with the data from Figure 1 superimposed.

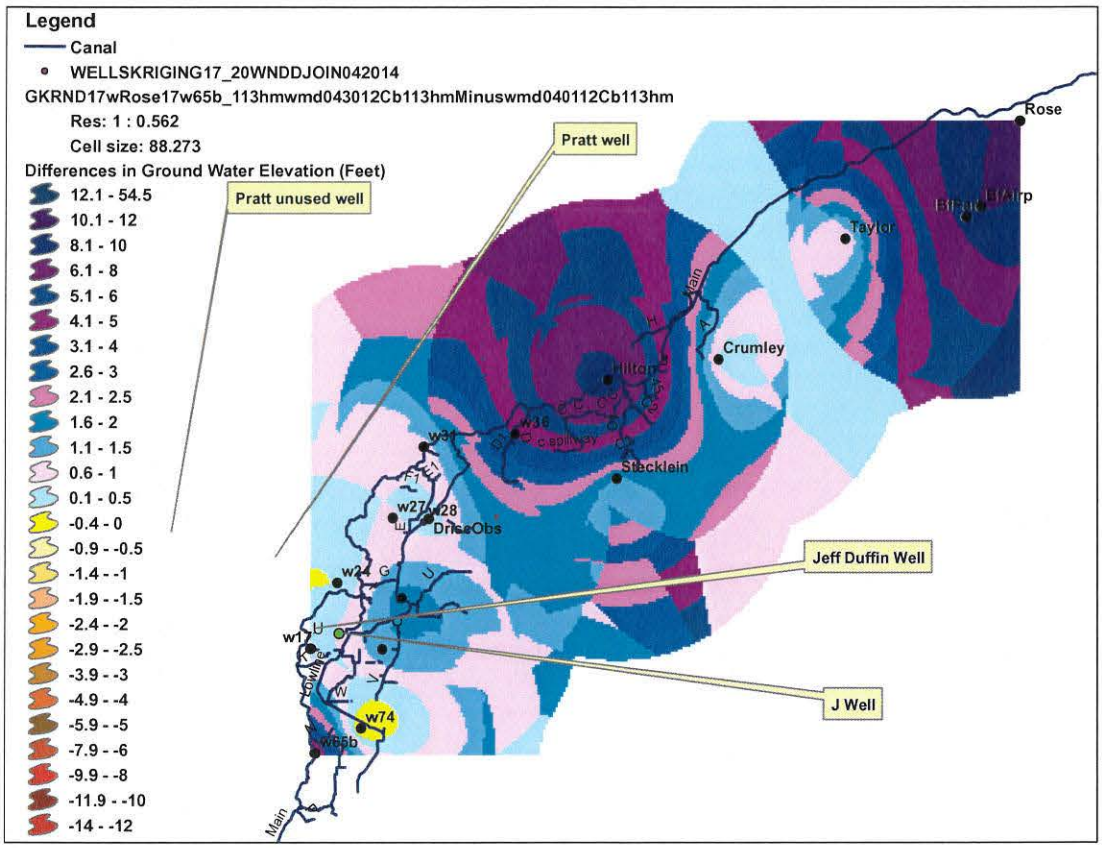
Figure 3.



Regression analysis results in a statistically significant relationship between ASCC's annual diversion and historical mean deviation from depth of surface (r^2=0.99, p<0.05). Clearly the ground water elevation underlying the ASCC system responds to ASCC's operations.

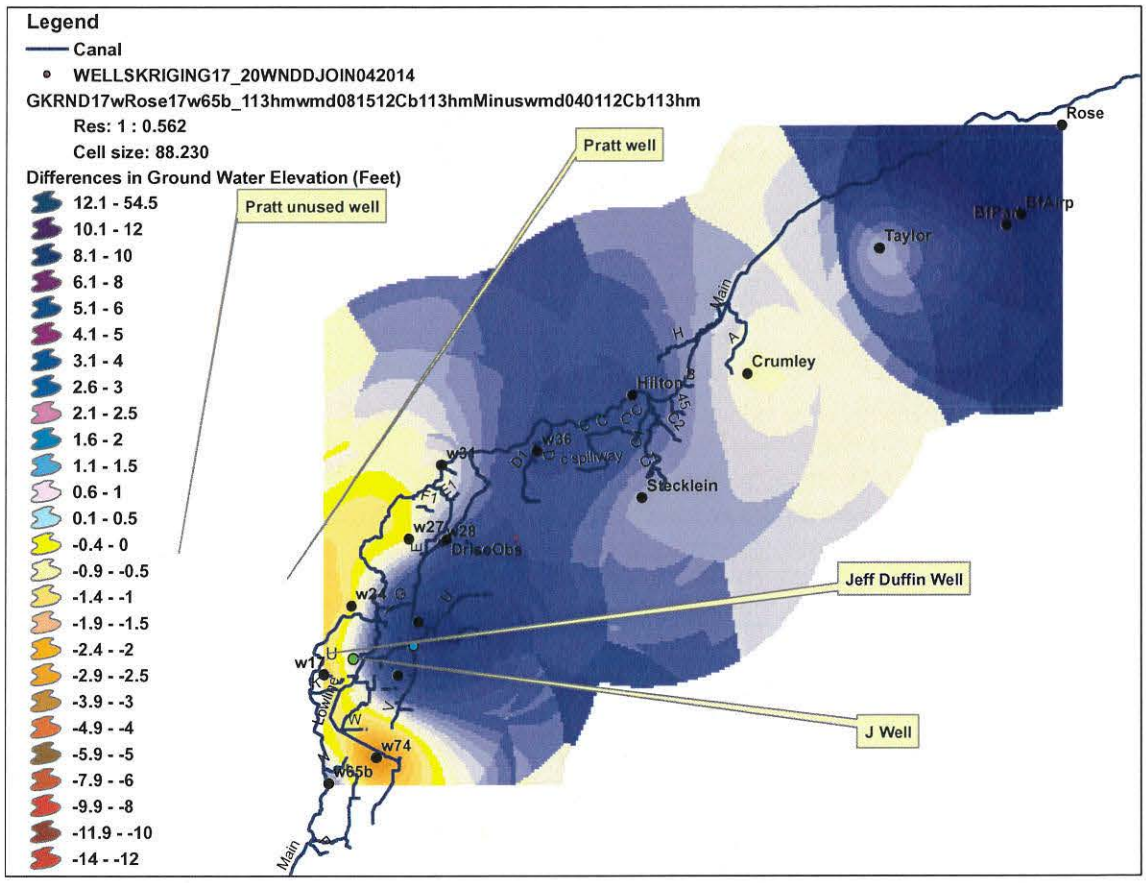
14. In 2005, I began developing a GIS-based ground water elevation model for ASCC's service area using the historical well data. In 2010, ASCC entered into a cooperative agreement with the IDWR to install pressure transducer data-loggers in wells throughout our system. Whenever possible, transducers were placed in wells we had the most complete historical record for. These pressure transducer data-loggers collect data every minute and summarize average daily depth of water column. This data has been continuously collected, with additional wells added each subsequent year. Currently, ASCC is collecting data in 17 wells. Analysis of this data allows ASCC to 'track' changes in ground water elevations over time using a technique called 'Kriging'. Krig analysis creates a three-dimensional surface that is statistically robust and allows statistical testing for spatial and temporal differences. This data and analysis confirms that there exists a 'mound' of water formed during the irrigation season beneath the Company's service area. Figure 4 shows a sample of the Kriging output. It illustrates the change in ground water elevation in a portion of our service area from April 1, 2012 through April 30, 2012 (first month of irrigation operation).

Figure 4.



This analysis clearly shows that loss from ASCC's canal system results in substantial and significant increases to ground water elevation throughout the area (note that wells with a 'w' designation are irrigation wells that show a small drawdown due to pumping). By mid-August (when, based on historical ground well depth of surface data, we expect to see peak ground water levels) we see distinct patterns in the mounding that roughly correlates with the underlying geology of the area (Figure 5). ASCC undertook this analysis in an effort to identify the relative 'leakiness' of reaches of its system in order to make sound decisions about where canal lining would be most effective.

Figure 5.



15. In 2012, after the SRBA Court rejected ASCC's effort to establish "recharge for irrigation" as a purpose of use under its water rights as a means of developing credits to protect shareholders who were pumping groundwater, some shareholders who were operating supplemental ground water wells began to demand delivery of their water based on ASCC's shares from the Company's surface water system. ASCC's Board of Directors was concerned that ultimately this trend could lead to a return of our capacity limitation issues and established policies to prevent this potential injury to other shareholders.

16. In 2013 certain Shareholders submitted applications requesting that the Company either install a new headgate for direct delivery from the canal system or approve the use of their wells as a headgate to take delivery of Company water based on their shares. Some shareholders were allowed to connect to the surface delivery system if there was sufficient capacity and it would not recreate problems delivering water to other shareholders. Where reconnection would present water delivery problems, some shareholders were required to relinquish control of their well to the Company to own and operate the well as a 'recovery head gate' to take their water delivery. The Company would install an approved measuring device and take over ownership and operation of the well to delivery water to the shareholder. The well is given a head gate number and entered into the Company's records. Water delivered through the well is measured and deducted from the shareholder's allotment.
17. Since 2012 ASCC has designated 5 wells as recovery head gates. Three of these were operated in 2013 by Jeff Duffin, KBCP, LLC and Lance Funk. In 2014 Jeff Duffin continues to receive water from a Company recovery head gate. KBCP, LLC and Lance Funk have reconnected to the surface delivery system. As described in the Complaint for Declaratory Judgment and the Affidavit of Jeff Duffin, IDWR threatened to shut off the recovery well serving Jeff Duffin and disputes that ASCC is entitled to operate recovery wells pursuant to I.C. §42-228. The purpose of the lawsuit is to determine ASCC's right to operate existing and future recovery wells.
18. ASCC maintains that is lawfully entitled to own and operate wells to recover water lost through the Company's delivery system pursuant to Idaho Code § 42-228 and to deliver that water to lands which have ASCC shares appurtenant, to wit: "excavation and

opening of wells and the withdrawal of water therefrom by canal companies and other owners of irrigation works for the sole purpose of recovering ground water resulting from irrigation works for further use on the lands to which the established water rights of the parties constructing the wells are appurtenant".

FURTHER YOUR AFFIANT SAITH NAUGHT.

Dated this 3rd day of July, 2014.

STEVEN T. HOWSER

SUBSCRIBED AND SWORN to before me this 3rd day of July, 2014.

RANDALL C. BUDGE
NOTARY PUBLIC
STATE OF IDAHO
(SEAL)

NOTARY PUBLIC
Residing at Pocatello, Idaho
My Commission Expires 10/11/16

CERTIFICATE OF SERVICE

I certify that on this 15th day of July, 2014, the foregoing document was served on the following persons in the manner indicated.

Randall C. Budge

Clerk of the District court Snake River Basin Adjudication P.O. Box 2707 253 Third Avenue North Twin Falls, Idaho 83303-2707	☒ U.S. Mail/Postage Prepaid ☐ Facsimile ☐ Overnight Mail ☐ Hand Delivery ☐ E-mail
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