ATTACHMENT A

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Attorneys for Boise Project Board of Control

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT

OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA Case No. 39576	Subcase Nos. 63-33732 (Consolidated subcase no. 63-33737), 63-33733 (Consolidated subcase no. 63-33738), and 63-33734 **AFFIDAVIT OF EDWARD SQUIRES, R.P.G.**

STATE OF IDAHO)
) ss.
County of Ada)

EDWARD SQUIRES, R.P.G., being first duly sworn upon oath, deposes and states as follows:

1. I have personal knowledge of the testimony set forth herein and am competent to testify to all matters addressed herein.

2. I was employed with United Water Idaho, Inc. from 1993 to 1999 as the Manager of the Geosciences Department and Senior Project Hydrogeologist. Since 1995 I have also served as part of the adjunct graduate faculty at Boise State University in the University's Department of Geosciences. In 1999 I founded Hydro Logic, Inc., a geoscientific consulting firm

specializing in hydrology, hydrogeology, and geophysics where I remain to this day as the President and Managing Hydrogeologist.

3. I am also a Certified Water Rights Examiner (Certification No. 125) in the State of Idaho and regularly conduct beneficial use examinations for individual water rights and provide Beneficial Use Field Reports to the Idaho Department of Water Resources for use in making determinations about the licensing of water rights.

4. In 2002 I was contracted by United Water Idaho, Inc. to conduct the beneficial use field exam for its surface water right permit no. 63-12055, one of many water rights appurtenant to the diversion works commonly known as the Marden Water Treatment Plant, a very complicated water facility owned and operated by United Water Idaho, Inc. On June 28, 2002, I conducted an investigation and field-licensing examination of that facility and subsequently produced a Beneficial Use Field Report. I performed a number of analyses concerning the capacity of the plant and its instrumentation and ultimately determined that the plant was capable of producing the total of its existing appurtenant surface and ground water rights *plus* the added diversion rate of the newer Permit no. 63-12055. My recommendation to Department was that the Permit be licensed at its authorized diversion rate "for use anytime surplus water is available on the Boise River (Lucky Peak spilling)." *See* Exhibit 1, attached hereto which is a correct and accurate copy of the Beneficial Use Field Report that I submitted to IDWR for water right permit no. 63-12055, absent the Figures and Appendices submitted therewith.

5. The reason that I recommended that the exercise of water right no. 63-12055 be limited to times when Lucky Peak Reservoir is spilling is that it is my understanding that the IDWR has considered the Boise River to have been fully appropriated prior to the filing of

Permit no. 63-12055 and that only those waters that are passed through the Boise River reservoir system for flood control are available for appropriation.

REGISTERED PROFESSIONAL GEOLOGIST
EDWARD SQUIRES
968
6-18-15
STATE OF IDAHO

DATED THIS 18 day of June, 2015.

Edward Squires, R.P.G.

SUBSCRIBED AND SWORN to before me this 18 day of June, 2015.

DEBBIE L. WILDER
NOTARY PUBLIC
STATE OF IDAHO

NOTARY PUBLIC FOR IDAHO
Residence: Boise, Idaho
My Commission Expires: 12-17-16

EXHIBIT 1

Form 219
6/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

**Please direct inquiries to Ed Squires at 342-8369.*

A. GENERAL INFORMATION

Permit Nos. 63-12055

1. Owner: United Water Idaho, Inc. Phone No. (208) 362-7358

   Current Address: 8248 West Victory Road, PO Box 7488, Boise, Idaho 83707-1488

2. Accompanied by: Bob Adams and Scott Cairl EXAM DATE: June 28, 2002

   Address: Same as above. Phone No. (208) 362-7358

   Relationship to Permit Holder: Lead Operators – United Water Idaho, Inc.

3. Source: Boise River (including United Water Idaho's infiltration galleries) tributary to N/A

B. OVERLAP REVIEW

1. Other water rights with the same place of use: United Water Idaho's integrated portfolio of municipal water rights.

2. Other water rights with the same point of diversion: 63-2892, 63-243E, 63-243H, 63-165L, and 63-169F

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

Ident No.	Govt Lot	¼	¼	¼	Sec	Twp.	Rge.	County	Method of Determination/Remarks
Collector Well #1	7		SE	NE	14	3N	2E	Ada	Site visit and USGS 7 ½ -minute Topographic Series maps
Collector Well #2	7		SE	NE	14	3N	2E	Ada	Site visit and USGS 7 ½ -minute Topographic Series maps
Collector Well #3	7		SE	NE	14	3N	2E	Ada	Site visit and USGS 7 ½ -minute Topographic Series maps
Boise River Intake	7		SE	NE	14	3N	2E	Ada	Site visit and USGS 7 ½ -minute Topographic Series maps

2. Place(s) of Use: UWID's Certificated Service Area Indicate Method of Determination On-file records at IDWR and IPUC

TWP	RGE	SEC	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size / ditch size / pipe I.D. as applicable.

See attached sheets, appendices, and figures:

XX Copy of USGS Quadrangle Attached showing location(s) of point(s) of diversion and place(s) of use (Figure 1).

XX Photos of Diversion and System Attached (Figures 2-7)

4a. Raw Water Pumping Station (into plant)

Pump Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
RWPS #1	U.S. Motors	15	G69502W08W0490347F	Layne & Bowler	# 115467 (8" discharge)
RWPS #2	U.S. Motors	30	G69505W08W04990369F	Layne & Bowler	#115468 (14" discharge)
RWPS #3	U.S. Motors	30	G69505W08W0490369F	Layne & Bowler	#115469 (14" discharge)
RWPS #4	G.E. Motors	25	5K284DBBG001A	Prime Pump	# PPD9903002 (14" disch)
RWPS #5	U.S. Motors	50	D1201061904-004R-02	Goulds	#439495 (14" discharge)

**Code to correspond with No. on map and aerial photo*

4b. Finished Water Pumping Station (into system)

Pump Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
FWPS #1	U.S. Motors	150	W08-W2100606-GT	Layne & Bowler	# 115472 (12" discharge)
FWPS #2	U.S. Motors	150	W08-W2100606-GT 02	Layne & Bowler	#115473 (12" discharge)
FWPS #3	U.S. Motors	250	W08-W0490429R-1	Layne & Bowler	#115474 (14" discharge)
FWPS #4	U.S. Motors	250	B05797121212-GT 01	FloWay 16DKH	# 33374-1 (14" discharge)
FWPS #5	U.S. Motors	300	C05 980 58514-001R-01	Layne & Bowler	# ?? (14" discharge)

**Code to correspond with No. on map and aerial photo*

D. FLOW MEASUREMENTS

1. Finished Water Pumping Station (flow-meter into distribution system)

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
Sparling	magnetic flow-meter	"Tiger Mag"	FM 657	H80352893	24 MGD	2/12/2002 by JDR and GR

2. **Measurements:** Discharge measurements for this examination were made using the magnetic flow-meter listed above. The minimum piping installation recommendations of the manufacturer appear to be met (Appendix A).

E. NARRATIVE/REMARKS/COMMENTS

I conducted the field licensing examination for this water right on June 28,2002. Bob Adams and Scott Cahl of United Water Idaho were kind enough to spend the better part of a day walking me through the treatment plant process from the Boise River intake to the discharge into the 24-inch diameter water main leaving the facility. The plant is fairly complicated with literally hundreds of pumps, valves, and diversions that result in water getting moved around to a considerable extent. Additionally, water can get diverted around, or to, specific processes so that flow reversals can occur within large pipelines and there are multiple sources including a series of infiltration galleries or collector wells that are a mix of surface water and ground water sources. Even though I was somewhat familiar with the general plant design and operations (from previous experience at the treatment facility) I really appreciated Bob and Scott's time in helping me to understand the entire process to be able to satisfy myself that I could account for all of the water moving through the plant.

In its simplest terms, the diversion works can be described in the following way: A caged intake structure on the Boise River is situated approximately 300 feet upstream of the plant (Figure 2). Boise River water is diverted to the plant through an underground 36-inch diameter raw water pipe that enters a small (450,000 gallon) underground concrete reservoir beneath the southwest corner of the facility (Figure 3). The concrete roof of the reservoir is also the floor of the raw water pumping station (Figure 4). In this room are five pumps which lift the river water from the reservoir and pressurizes it into a 30-inch diameter pipe and which drives it upward, through a series of treatment processes, to the "top" of the treatment plant. From this point, the water flows under gravity through a series of treatment trains, filtration beds, and decant operations, to an underground "clear well" disinfection reservoir (1,000,000 gallons), and to the discharge pumping station (Figure 5). Here, five turbine pumps re-pressurize the water into the distribution system through a 24-inch diameter main line leading away from the plant (Figure 6).

Although the Marden water treatment plant was designed to obtain all of its supply from the Boise River intake, it can draw water from five separate sources. These are:
1) The Boise River
2) The Boise City Canal
3) Three collector wells (infiltration galleries) along the river bank.

The "Collectors" source wells are unusual and complicated because they have been apportioned as 70% groundwater and 30% surface water by IDWR, because the water from these wells can enter the plant in several ways, and because the water rights associated with these well sources share a point of diversion down river from the MWTP. Both the collector wells and the river raw water pumps are dramatically affected by river stage so that when the river stage is high, significantly more water can be produced by the plant. Because Permit No. 63-12055 is solely a surface water "flood stage" right, the river would typically be at a higher (rather than lower) stage when the right was being used.

Although the general operation of the plant and its water treatment processes are relatively straightforward, the sheer number of pumps and flow options available tend to make a comprehensive evaluation very complex. Whereas UWID has been willing to explain the entire process and even though they appear able to monitor all phases of the water production through individual flow-meters, for the purposes of this evaluation, I have focused on four main aspects of the water plant's design and on the plant's ability to produce Water Right No. 63-12055 solely from its Boise River diversion works. The four individual components of interest are: 1) the 36-inch diameter intake line off of the Boise River, 2) the raw water pumping station which pressurizes the water through the plant, 3) the finished water pumping station which pressurizes the treated water into the distribution system, and 4) the totalizing flow-meter at the discharge pump station. In other words, I first wanted to ascertain whether Permit No. 63- 12055 could be produced solely through the River intake and raw water pumping station. For this analysis, two factors need to be considered: 1) the ability of the 36-inch raw water intake pipe to transmit the instantaneous flow-rate to the plant under gravity head, and 2) the pumping capacity of the raw water lift pumps. Those calculations, which are included under the "Calculations" section of the examination form, show that the permitted flow rates are more than possible using only the River intake portion of the plant. This is not surprising because, after discussion with the design engineer (Carollo Engineers), I understand that this was the design criteria for the intake facility. Therefore, even without the surface water component of the collector wells, there does not appear to be any problem diverting Permit No. 63-12055 into the treatment plant facility using the plant's Boise River intake only. Moving to the output side of the plant, the finished water flows, by gravity, to a discharge pumping station where the treated water is pumped under pressure to the distribution system. An analysis of the performance curves of the discharge pumps and direct observation of the magnetic flow-meter at the discharge point, show that the facility can produce at significantly higher instantaneous flow rates than are permitted under Permit 63-12055 alone. I observed discharge rates ranging to 28.2 cfs (12,658 gpm) leaving the plant (Figure 7) with four of five available pumps running. These components are discussed individually below:

Boise River intake:

A caged intake structure on the Boise River (Figure 2) is connected to the raw water pumping station via a 36-inch diameter pipe. The intake pipe is a total of 360 feet in length and drops one foot in elevation between the River and the treatment plant. The pipe interconnects to a 450,000 gallon concrete cistern underlying the raw water pumping station (Figure 3) which has the same water level as the River under non-pumping conditions. The elevation of the lowest point of the center of the pipe is 2701 feet. The elevations of the minimum and maximum River stages are 2704 and 2712, respectively. Therefore, the gradient or head available to drive water through the pipe, to the plant, ranges from 3 feet to 9 feet (Figure 9). Using the Hazen Williams and Manning equations (see calculations) the range of flow, under these gravity heads, that could move through the 36-inch pipe begins at 28 cfs under the most conservative calculations.

Raw water pumping station:

A total of five line-shaft turbine pumps pressurize all of the raw Boise River water through the treatment plant (Figure 4). These pumps are classified by United Water personnel as: one, 2 million gallon per day (MGD) pump, three 4 MGD pumps, and one 6 MGD pump. All but the 60 HP, 6 MGD pump are constant speed pumps with the large pump working off of a variable frequency motor drive. All five pumps together should produce about 20 MGD or 13,889 gallons per minute or 30.95 cubic feet per second which is 6.15 cfs more than the instantaneous diversion rate of Permit No. 63-12055. This pumping capacity is in addition to the three Collector well pumps which pump to the system "downstream" (later in the treatment train) of the raw water pumping station. According to the original treatment plant design (Figure 5), and as best as can be field-verified on site, the total maximum pumping lift from the raw water pumping station reservoir to the elevation necessary to push the raw water to the maximum level within the treatment plant is 31 feet. Reference to the pump-performance curves for the five raw-water pumps (Appendix B) suggests that the five pumps should be capable of 14,415 gpm (32 cfs) under maximum lift conditions. This corresponds closely with the maximum stated production capacity of the plant at 20.7 MGD (Figure 9). Therefore, the pumping capacity of the raw water pumping station appears more than adequate to produce water right No. 63-12055. This would appear to be true even if any one of the raw water pumps, other than the 6 MGD pump, would not be operating; i.e. if one of the constant-speed pumps would be considered redundant (back-up) capacity.

Using standard horsepower equations, all of the raw water pumps are driven by adequately sized electric motors that are more than capable to satisfy the water and brake horsepower requirements taking into account the motor and pump efficiencies.

Finished water pumping station

A total of five turbine pumps are used to pressurize the treated water into the distribution system. Discharge is initially to a 36-inch diameter manifold and exiting the plant via a 24-inch diameter main line (Figure 6). The pump-performance curves for all five pumps are included as Appendix C. These pumps are classified by United Water personnel as: 1) two, constant-speed 4-million gallon per day (MGD) pumps, 2) two, constant-speed 6- MGD pumps, and 3) one 6 MGD pump which is equipped with a variable frequency motor drive for varying flow rates by regulating the speed of the motor. Judging from the pump-performance curves, estimated maximum pumping water levels, and measured gage pressures, this pumping station would appear to be theoretically capable of approximately 17, 000 gpm (37 cfs) or 25.5 MGD. With all five pumps running (but with VFD speed unknown) and with line pressures ranging from 80-to-100 psi, I observed discharge rates fluctuating over the range 11,730 gpm-to-12,658 gpm (11:47 AM) according to the Sparling "Tiger-Mag" flow-meter on the final discharge piping leaving the plant. The observed flow rates (26-to-28 cfs) seem to correlate well with the sustained pumping rates shown by a computer printout of total plant output which I obtained for the previous 24-hour period (Figure 9) from the plant operators. The finished water (treated water exiting the plant) flow rate was measured by the Sparling magnetic flow-meter mentioned above and described in the Flow Measurements section of the examination form. The technical specifications for the meter are included as Appendix A. This appears to be a high-quality instrument with a calibration date of February, 2002. The installation clearances and design specifications of the flow-meter manufacturer appear to be met.

Using standard horsepower equations, all of the finished water pumps are driven by adequately sized electric motors that are more than capable to satisfy the water and brake horsepower requirements taking into account the motor and pump efficiencies.

Other observations

The plant was originally designed for 16 MGD (24.75 cfs). This is likely where the 24.8 cfs water right application flow rate originated as well. Owing to the low turbidity (reduced treatment demands) and superior water quality of the Boise River, the treatment facility is routinely operated at 20 MGD (31 cfs) during continuous production of peak season summer months. During my field examination, I requested a computer print out from the plant's automated monitoring system for the previous 48 hours (the extent of the short-term recoverable data). This graph (Figure 9) shows the finished water flow rate (treated water being pumped into the distribution system) regularly "floating" between 17 and 19 MDG with a peak of over 22 MGD (34 cfs) on the evening prior to my visit.

RECOMMENDATIONS:

Observation of the three main, separate and distinct, "water moving" portions of the water treatment plant (Boise River Intake Structure, Raw Water Pumping Plant, and Finished Water Pumping Station) indicate that the three components are well matched at the design capacity of the plant to be able to maintain a continuous sustained flow of 20 MGD (~31 cfs). Therefore, the plant's capacity far exceeds the diversion rate allowable under water right 63-12055. During periods of high river stage, UWID should have no difficulty in producing this water right in its entirety from the Boise River diversion. I recommend licensing at the permitted rate for use anytime surplus water is available on the Boise River (Lucky Peak spilling).

Have conditions of permit approval been met? X yes ___ no

F. FLOW CALCULATIONS _XX_ Additional Computation Sheet Attached

Measurement Method:

Instantaneous flow amounts are based upon actual on-site observances of system capacity and analysis of the installed pump performance curves with respect to the gravity head conditions and distribution system pressures. The calculated and observed flow rates appear to be well supported by computer print-outs of treatment plant process information from the previous 48 hour period from UWID's electronic monitoring system using a high-quality, magnetic flow-meter installed according to manufacturers recommendations.

Boise River Intake Structure:

The attached hand-lettered worksheets contain the calculations used to verify the treatment plant's Boise River Diversion works ability to transport the maximum diversion rate of water right 63-12055 under gravity head to the plant"s raw water pumping station. Both, the Manning Equation and the Hazen Williams Formula are used to estimate the intake structure's flow-rate at minimum River Stage. The most conservative estimation allows 28 cfs to be conducted to the plant; 3.2 cfs more than the water right's instantaneous diversion rate and 3 cfs more than the sustainable output of the water treatment plant according to UWID personnel.

Raw Water Pumping Station:

Observed discharge pressures (gages on the individual pump discharge lines) observed during the field examination ranged between 2 psi and 8 psi depending on which combination of pumps were running. Each discharge is equipped with a check valve, control valve, and a pressure gage (Figure 4). These pressures seem in line with the pumping lifts and of the general design schematic (Figure 5) which has very little room for variance. Pump performance curves are shown in Appendix B

Finished Water Pumping Station:

At the time of my field examination only four of the five pumps were running with observed discharge rates ranging between 11, 866 gpm (26.4 cfs) and 12,658 gpm (28.2 cfs). With Pump #3 not operating, the observed line pressures (and corresponding flow rates from pump performance curves) are tabulated as follows:

Pump # See Figure 6	UWID pump No.	UWID capacity rating	Observed gage pressure	GPM from pump performance curve
1	P-710	2 MGD	76-79 psi	1880 gpm
2	P-720	4 MGD	Not operating	0 gpm
3	P-730	4 MGD	80 psi	3650 gpm
4	P-740	4 MGD	101 psi	2150 gpm
5	P-750	6 MGD	90 psi	4200 gpm

Pump #4 is coupled to a variable frequency drive which "rides" on system demand (pressure). Therefore the total discharge rate fluctuated by a few hundred gpm during the site visit. The calculated (from curves) combined flow rate of 11,880 gpm corresponds almost exactly with the observed flow-meter readings between 11,866 and 12, 576 (Figure 7). The total production capacity of the Finished Water Pumping Station (Figure 6) appears to be significantly greater than the maximum instantaneous flow rate of Water Right N. 12055. This is not surprising since a certain amount of redundant capacity must be built into municipal water systems (to provide back-up in the event of pump failure) and because UWID has additional water rights appurtenant to this facility and point of diversion. Overall, the diversion works are certainly capable of producing water right No. 12055 and all of the installed pumping plant specifications and monitoring equipment are in close agreement.

G. VOLUME CALCULATIONS Not applicable to a municipal water right.

1. Volume Calculations for Irrigation:

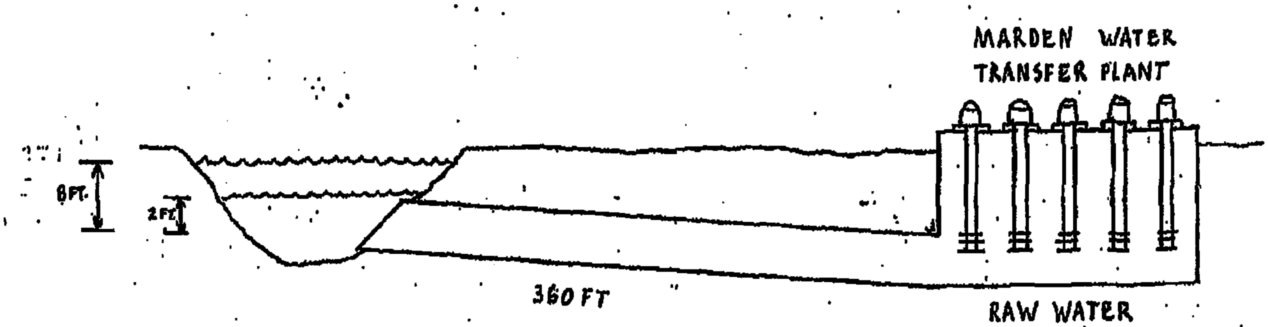
   $V_{I.R}$ = (Acres Irrigated) x (Irrigation Requirement) =

   $V_{D.R.}$= [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835 =

   V = Smaller of $V_{I.R.}$ and $V_{D.R.}$=

2. Volume Calculations for Other Uses:

BOISE RIVER DIVERSION



HIGH STAGE = 8 FOOT DIFFERNCE IN ELEVATION
LOW STAGE = 2 FOOT DIFFERENCE IN ELEVATION

HAZEN WILLIAMS EQ.

LOW STAGE

$Q = 1.318 \cdot C(R)^{0.63} S^{0.54} A$

$Q = 1.318 \; 80(.75)^{0.63} \; 0.0056^{0.54} A$

$Q = 1.318 \; 80 \; 0.83 \; 0.061 \; 7.06 ft^2$

Q = 38 cfs

C = 80
R = 0.75 = hydraulic radius = $\frac{area}{perimeter}$
$S = \frac{2}{360} = 0.0056$
$A = 7.06 ft^2$

HIGH STAGE

$Q = 1.318 \; C(R)^{0.63} S^{0.54} A$

$Q = 1.318 \cdot 80(0.75)^{0.63} \; 0.022^{0.54} \cdot 7.06 ft^2$

$Q = 1.318 \; 80 \; 0.83 \; 0.13 \; 7.06$

Q = 80 cfs

C = 80
R = 1.5
$S = \frac{8}{360} = 0.022$
$A = 7.06 ft^2$

MANNING EQ.

LOW STAGE

$Q = (1.486/n) A r^{2/3} s^{1/2}$

$Q = (1.486/0.023) 7.06 \cdot 0.75^{2/3} \cdot 0.0056^{1/2}$

$Q = (1.486/0.023) 7.06 \cdot 0.82 \cdot 0.074$

Q = 2[illegible] cfs

n = 0.023
A = 7.06 ft^2
r = 0.75 = hydraulic radius = $\frac{area}{perimeter}$
$s = \frac{2}{360} = 0.0056$

HIGH STAGE

$Q = (1.486/n) A r^{2/3} s^{1/2}$

$Q = (1.486/0.023) 7.06 \cdot 0.75^{2/3} \; 0.022^{1/2}$

$Q = (1.486/0.023) 7.06 \; 0.82 \; 0.15$

Q = 56 cfs

n = 0.023
A = 7.06
r = 0.75
$s = \frac{8}{360} = 0.022$

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Permit No.	Period of Use From	To	Rate of Diversion Q (cfs)	Annual Volume (afa)
Municipal	63-12055	Jan 1.	Dec. 31	24.8 cfs	N/A
		Totals:		24.8 cfs	N/A

It is recommended that Condition No. 10 of the Permit No. 63-12055 be amended to reflect accepted language developed since issuance of the Permit to describe UWID's service area. The following language is suggested as a condition of the License: "10. *Place of use is within the Certificated Service Area of United Water Idaho as determined by the Idaho Public Utilities Commission.*"

It is recommended that Conditions Nos. 11, 12, 13, and 14 be eliminated as conditions of the License as supported by internal IDWR memo of teleconference between Cindy Zimmerman and Gary Spackman dated 12/22/98 (Appendix D). Removal of the "domestic only" conditions have been routine in the municipal licensing process for UWID and other municipal providers beginning with a precedent set by licensing of UWID's so called "Tenmile Ridge" water rights.

2. Recommended Amendments

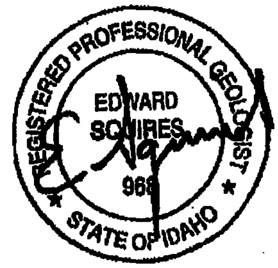
__ Drop P.D. as reflected above ______ Add P.D. as reflected above ____ None

_X_ Drop conditions as reflected above _______ Add P.U. as reflected above __X_ Revise language as reflected above

I. AUTHENTICATION

Field Examiner's Name Edward Squires Date March 12, 2002

Reviewer ________________________ Date ________________ SEAL



ATTACHMENT B

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF ACCOUNTING	)
FOR DISTRIBUTION OF WATER TO	)
THE FEDERAL ON-STREAM	)
RESERVOIRS IN WATER	)
DISTRICT 63	)
______________________________	)

DEPOSITION OF ELIZABETH CRESTO

VOLUME II (Pages 215 - 317)

TAKEN JULY 21, 2015

REPORTED BY:

ANDREA L. CHECK, CSR No. 748, RPR

Notary Public

Page 276

you mean by "storage accounts"?
Q. So the amount that had accrued to storage under the water right accounting program?
A. Yes.
Q. Do you know why that happened?
A. I believe that was an error.
Q. An error?
A. Yes.
Q. How did the error occur?
A. I believe I probably did it. I think I -- I think I should not have reset that water right in 2008, but I do not believe the resulting allocations in that year -- or the accrual to that year remained a full accrual to the water rights.
Q. Do you remember why you did it, that reset?
A. I believe I was just learning the accounting program. And it takes a long time to learn this program, and there's new sets of facts every single year that you have to address in the accounting program. And I think that I reset that in error in 2008. And I think I should have left those reservoir counts -- the volume should have remained as full instead of being reset at the date it occurred.
Q. And you set it to the level of physical storage at that time?

Page 277

A. Yes. And I think that was incorrect.
Q. And you know that -- on a daily basis what the amount of storage is in all of the reservoirs in Boise?
A. From gauged measurements, correct.
Q. And you said that that reset in 2008 didn't affect accrual?
A. Well --
Q. Wouldn't it have changed how much water was in the unallocated storage account?
A. I think the accrual that happened early in the season up to the satisfaction of that reservoir right is unchanged, because that -- in 2008 it was a large water year, and there was excess flow in the system. So that water right filled.
And then I believe you're correct. By incorrectly resetting the storage right and allowing those to again fill in priority for a short -- and I don't know how long it was -- would have reduced your unallocated for storage. So the accruals that happened in error in that reset should have been unaccounted-for -- or at least a portion of that -- should have been unaccounted-for storage.
Q. So is there any reason why this manual reset couldn't happen tomorrow?
I mean, is there any reason in the program

Page 278

that would prevent someone from manual resetting the program today?
A. They're certainly capable of answering yes and reading new files. It doesn't mean that that's the appropriate running of it.
Q. So you're familiar that in the Boise there are water rights with conditions on them, such as water can only be taken when water is being released for flood control?
A. Correct.
Q. Is there anything in the accounting program that accounts for those conditions?
A. Nothing automated, no.
Q. So how do you account for conditions like that in the accounting program?
A. Right now what you would do is you would turn that reservoir water right on and off using the rights file.
Q. That's something that would also have to be done manually?
A. Correct.
Q. Is that something that you do on a daily basis?
A. We have not done that. And we have identified that as something that we would like to have an

Page 279

automated process programmed into the accounting. It just has not been accomplished yet.
Q. And is that something that you are going to recommend to the director, that he change in this contested case?
A. I would not mind making that recommendation.
Q. But I guess, in your opinion, the only way that the accounting program would take into consideration those types of conditions is if someone goes and does a manual override of those individual water rights?
A. At this point in time, that is the mechanism that we would have to follow to get that to be administered that way in the water right accounting program.
Q. And --
A. And you could do that into the future, it's just cumbersome. Maybe you would like a better process.
Q. So is it possible to recode the accounting program to take those conditions into account so that it deals with them automatically?
A. Well, if it -- you know, I think there's different conditions. If there's flood control, you would have to have a question in there so that the watermaster could answer it. The one s that are

conditions that specify a flow rate are much more easily coded in, because that's a mathematical equation. But even with, say, one that just blanketly identifies flood control release, that could be identified. But I don't believe that is a mathematical-equation type.
Q. So there are also conditions -- there are also rights in the Boise that are available only when water is being exchanged for flow augmentation water?
A. Correct.
Q. How are those accounted for in the accounting program?
A. Those water rights -- when that exchange is going, it shows up as a storage use. And it's actually, probably, more appropriate to say it's done in the storage program, because the actual water right accounting just shows that exchange as a storage use. And to rectify that, we use the storage program, and we -- I'm assuming you're talking about the United Water exchange here. Is that what you're --
Q. Are there more exchanges than that?
A. No. That's the only one I'm aware of. So what happens there is it just -- there's actually not -- the water right, if it is in the accounting, it doesn't have a diversion rate, so, therefore, it shows up always as a storage use.

We know when flow augmentation is going on, and what we do is in the storage program, because it's part of the exchange, we transfer water from the Bureau's account. Because we're saying that that water was intended to be released for flow augmentation, it was actually diverted by United Water, so we transfer that storage water to United Water, and there's zero-sum game, and that that is a charge for flow augmentation out of the Bureau's flow augmentation account.
Q. So that's something that's taken care of manually in the storage accounting process?
A. Correct. And then I guess it's implemented in your acre-feet remaining in the daily -- it shows up in your daily water rights accounting program.
Q. If water is being released for flood control and there's no -- and paper fill hasn't been achieved, is it the case that a natural flow -- a junior natural flow user cannot take that water without accruing it to the water -- to its storage account?
A. It depends on what the natural flow is on the river, of course.
Q. Sure.
A. But say the priority date on the entire river is one off the reservoir water right and a junior takes it, it will show up as a storage use, because all of the

natural flow is accruing to the reservoir storage right.
Q. Is that something that --
A. Or other seniors, I should say.
Q. Is that something that, in your opinion, the accounting program should be modified?
A. No, I don't think it should be modified.
Q. And you don't think a junior user that has a condition on their right that says they can take water when it's being released for flood control ought to be able to take that water when it's being released for flood control, even if they don't have a natural flow -- I mean, a storage right?
A. Well, there's differences between what needs to be programmed in and what could be corrected for. But I guess in that situation that is a natural flow -- there isn't any natural flow available in the river.
Q. Right. So one of the purposes of this proceeding is not just how it is but how it should be accomplished. And I'm asking the question of whether or not, in your opinion, those rights ought to be able to take water that's being released for flood control purposes if they don't have a storage right?
A. If the flood control right is natural flow that's available, then they can go ahead and take it; but if the priority isn't --

Q. So you don't think any changes are appropriate?
A. No, because I believe some of that could be accomplished through storage -- the storage canceling procedure.
Q. How would that purpose be accomplished by the storage cancellation procedure?
A. Water that is diverted prior to a flood control release, regardless of whether it's in June and shows up as a storage use, and then there are subsequent flood control operations, typically, that storage use is canceled under the assumption that had that diverter not taken storage water, it would have just been released with flood control releases, because that flood control was subsequent to that use.
Q. So help me understand the method by which the storage cancellation process works in the accounting program.
Just, you know, take -- forget my example and just explain to me --
A. How it's done?
Q. -- how does storage cancellation work in the Boise, just in a general fashion?
A. In a general sense -- so in some of these big water years, in April the water might not have -- the