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AUG 16 2017

DEPARTMENT OF
WATER RESOURCES

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Attorneys for the State of Idaho

**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	)	Subcase Nos. 02-00100, 02-02032A,
	)	02-04000A, 02-04001A, 02-02032B,
	)	02-04000B, 02-04001B, 02-02036,
Case No. 39576	)	02-02056, 02-02065, 02-02064,
	)	02-10135, 02-02060, 02-02059,
	)	02-02001B, 02-02001A, 02-02057,
	)	37-02128, 37-02472, 37-02471,
	)	37-20710, 37-20709, 36-02013,
	)	36-02018, and 36-02026
	)	
	)	AFFIDAVIT OF MICHAEL C. ORR
	)	

STATE OF IDAHO)
) ss.
COUNTY OF ADA)

MICHAEL C. ORR, being first duly sworn upon his oath, deposes and states that:

1. I am a Deputy Attorney General in the Idaho Office of the Attorney General
and one of the attorneys of record for the State of Idaho in the above-entitled proceedings.

2. The following is based upon my own personal knowledge.

3. Attached hereto is a true and correct copy of a United States Geological Survey (“USGS”) “Memorandum” entitled “Intent to move USGS Gaging Station 13172500, Snake River nr Murphy, ID, and discontinue USGS Gaging Station 13172455, Snake River Below Bypass, nr Murphy, ID” that I obtained from the website of the Idaho Department of Water Resources (“IDWR”).

4. The above-referenced USGS Memorandum is the “*USGA Memorandum*” quoted on page 2 of the *Memorandum in Support of State of Idaho’s and Idaho Power Company’s Joint Motion to Amend Remark No. 2 for Above Referenced Partial Decrees* (May 17, 2017). The fact that the USGS Memorandum is cited as the “*USGA Memorandum*” rather than as the “*USGS Memorandum*” is an inadvertent typographical error.

5. The USGS Memorandum can be viewed online at IDWR’s website, <https://www.idwr.idaho.gov/>, by selecting “Legal Actions,” then “Agreements,” then “Swan Falls Agreement,” and from that page clicking the link on the right to: “Technical Justification for Relocating the *Snake River near Murphy Gage*.”

Further your affiant sayeth naught.

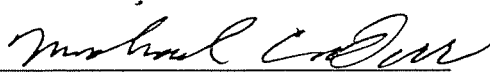
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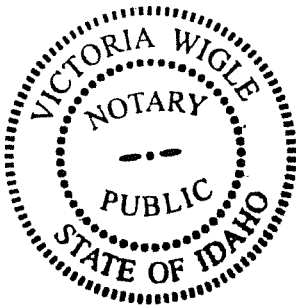
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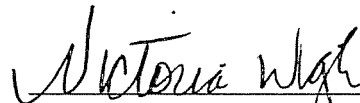
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DATED this 15th day of August 2017.


MICHAEL C. ORR

SUBSCRIBED AND SWORN to before me this 15th day of August 2017.




Notary Public for Idaho
Residing at: Bowse
My commission expires: 6/22/22

CERTIFICATE OF SERVICE

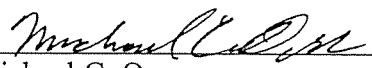
I certify that on this 15th day of August 2017, I caused the foregoing *Affidavit of Michael C. Orr* to be filed with the Court and copies served on the following by the methods indicated:

1. Original to:

CLERK OF THE DISTRICT COURT SNAKE RIVER BASIN ADJUDICATION 253 THIRD AVENUE NORTH PO BOX 2707 TWIN FALLS, ID 83303-2707 Additional copies, for filing in each subcase, are being mailed to the Court	☐ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Federal Express ☒ Facsimile: (208) 736-2121
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2. Copies to the following:

JAMES C. TUCKER SARAH W. HIGER IDAHO POWER CO. PO BOX 70 BOISE, ID 83707-0070	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Federal Express ☐ Facsimile: ☒ Email: jtucker@idahopower.com shiger@idahopower.com
DIRECTOR OF IDWR STATEHOUSE MAIL PO BOX 83720 BOISE, ID 83720-0098	☐ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Federal Express ☐ Facsimile: ☒ Statehouse Mail



Michael C. Orr



United States Department of the Interior

U. S. GEOLOGICAL SURVEY

Idaho Water Science Center

230 Collins Rd

Boise, ID 83702

Phone: (208) 387-1300 Fax: (208) 387-1372

April 5, 2017

Memorandum

To: Sean Vincent
Hydrology Section Manager, Idaho Department of Water Resources

Peter J. Vidmar, P.E.
Water Management Department, Idaho Power Company

From: David M. Evetts
Assistant Director of Hydrologic Data, Idaho Water Science Center, USGS

Subject: Intent to move USGS Gaging Station 13172500, Snake River nr Murphy, ID, and discontinue USGS Gaging Station 13172455, Snake River Below Bypass, nr Murphy, ID.

USGS Gaging Station 13172500, Snake River nr Murphy, ID has been in operation since 1912, providing invaluable hydrologic information about the Snake River between Swan Falls Dam and Brownlee Reservoir to multiple users. It is the reference gage used for the Swan Falls Agreement (1984) establishing minimum average daily flow requirements for key periods of the year, and it is used to assist dam operators in flow regulation through the Swan Falls Dam located approximately 4 miles upstream of the current gage location. Due to the stream gage's importance and heavily relied on data, accuracy is a crucial requirement. This accuracy has become increasingly difficult to maintain and has become suspect over the past several years due to increased macrophyte growth and degradation of the control downstream of the gage. These factors have led to increased measurement activity and excessive shifting to maintain the stage discharge relationship at this site. The shifting applied to the discharge record makes it very difficult to maintain the accurate publication of record on a real-time basis that is needed to ensure Swan Falls Agreement compliance by all parties involved. (Wood, M.S., Williams, M.L., Evetts, D.M, and Vidmar, P.J., 2014, Evaluation of seepage and discharge uncertainty in the middle Snake River, southwestern Idaho: U.S. Geological Survey Scientific Investigations Report 2014-5091, 34 p., <http://dx.doi.org/10.3133/sir20145091>).

In response to the ever increasing need for accurate data and the suspect stability of the control at the Murphy site, the USGS, in cooperation with Idaho Department of Water Resources and Idaho Power Company, added an additional gage 13172455, Snake River Below Bypass, nr Murphy, ID in 2015. Gage 13172455 is located three miles upstream of the current Murphy gage location and approximately one mile downstream of the Swan Falls Dam. Gage 13172455 was installed in a location that limits the potential impact of sedimentation, scour, and macrophyte plant growth on the control while monitoring the same water passing the current Murphy gage site.

Memorandum

SUBJECT: Intent to Move USGS Gaging Station 13172500, Snake River nr Murphy, ID, and discontinue USGS Gaging Station 13172455, Snake River Below Bypass, nr Murphy, ID.

The intent was that this site would provide more accurate, reliable data without the need for the excessive shifting experienced at the current Murphy gage site (13172500)

Simultaneous measurements have been made at both the bypass site (13172455) and Murphy site (13172500) since 2015 to ensure continuity and lack of inflow or outflow between the sites. To date, 14 comparison measurements have been made at both sites, indicating strong correlation between the two sites with an R^2 value of .9913. The relationship is essentially a 1:1 ratio showing no cumulative inflow or outflow between the two sites, verifying that the “same water” is being measured at both locations. Percent difference between measurements at the two sites varied from -2.1% to 5.8% with an average deviation of 1.56%, which is well below the accepted potential measurement error of +/- 5%.

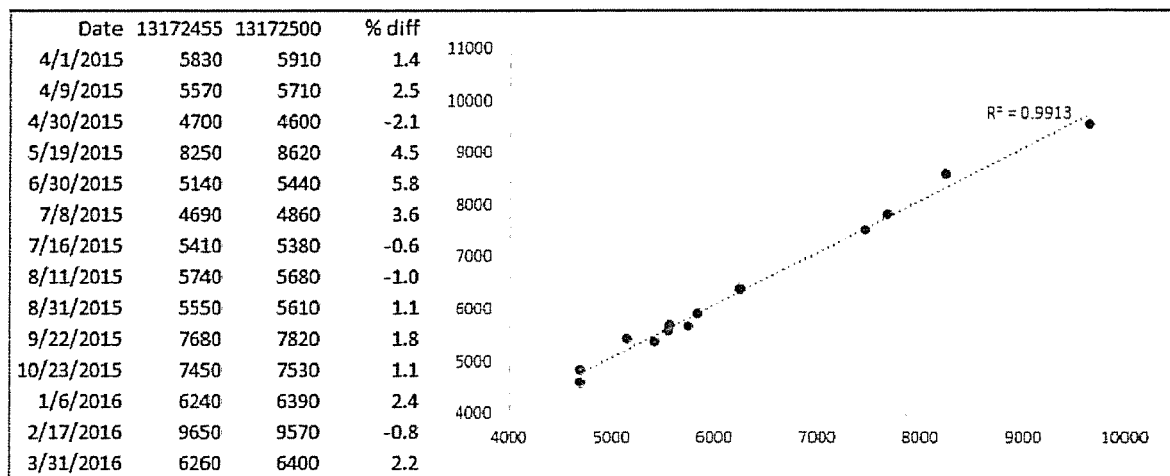


Figure 1 Flow (cfs) measurement comparison between Station 13172455 and 13172500 between April 1, 2015 and March 31, 2016.

Analysis for the discharge record from April 1, 2015 to March 31, 2016 was reviewed. The control at this site seems very stable, needing no shifts to be applied to the current stage discharge rating. Discharge was computed “rating direct” for the entire period and verified by 18 measurements that were all within 2.5% of the rated discharge at the gage.

Based on the comparison stated above and the quality of record produced at site 13172455, effective April 1, 2017, the USGS will change the location of Station 13172500, Snake River near Murphy, ID to the current location of station 13172455, Snake River below Bypass nr Murphy, ID. The current station description for station #13172500 will be changed to reflect the location of the new site. Site data at the new site location from April 3, 2015 on will be merged with the old site location’s historical values. Data collected at the old site location from April 3, 2015 to present will be moved to a separate data descriptor for historical preservation.

Memorandum #

SUBJECT: Intent to Move USGS Gaging Station 13172500, Snake River nr Murphy, ID, and discontinue USGS Gaging Station 13172455, Snake River Below Bypass, nr Murphy, ID.

The historic station descriptions will not be changed. The station manuscript for station 13172500 will also be updated to include documentation of the site change. Once the information is changed and continuity of data is verified, station #13172455 will be discontinued and archived.

If you have any questions or concerns place contact me a devetts@usgs.gov or 208-387-1316.

Cc Kyle Blasch
 Douglas Ott