

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-7848, 37-8178, and 37-8389

Exam Date: 9/17/2013

1. Current Owner: MAGIC RESERVOIR HYDROELECTRIC INC
C/O DON STURTEVANT, J. R. SIMPLOT COMPANY
P. O. BOX 27
BOISE ID 83707
2. Assisted by: William Trent, Superintendant of Magic Hydroelectric
Phone No: 208-487-2442 or 208-358-1247 (cell phone)
Address:
Relationship to Permit Holder: employee

This Beneficial Use Field Report was completed by Michele Edl and is primarily based on existing inspection reports which were archived in the IDWR's Dam Safety document library. Specifically, I reviewed two Part 12D reports for Magic Reservoir Hydroelectric Project prepared pursuant to FERC Order No. 12: the June 1989 Safety Inspection Report prepared by Morrison-Knudsen Engineers, Inc. and the March 1, 2005 Part 12D Safety Inspection Report & Supporting Technical Information prepared by STRATA, Inc. I also reviewed several of IDWR's Record of Inspection of Dam reports beginning with the 1990 inspection report by D. Jones.

Some additional project-specific information was provided by William Trent. No dedicated site visit to confirm beneficial use was carried out.

3. SOURCE

BIG WOOD RIVER

TRIBUTARY

MALAD RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: The same powerhouse is the place-of-use for rights 37- 7848, 37-8178, and 37-8389
2. Other water rights with the same point of diversion: The same intake is the point-of-diversion for rights 37-7848, 37-8178, and 37-8389

C. DIVERSION AND DELIVERY SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

BIG WOOD RIVER NE1/4NE1/4 Sec. 18, Twp 02S, Rge 18E, B.M.

BLAINE County

Method of Determination:

I found no record of GPS coordinates for the penstock intake. Although the intake structure is often submerged, it is visible in aerial photography when the reservoir is low. I compared photography available in FERC and IDWR inspection reports with 2004 aerial photography to determine the POD. I created the POD shape.

2. PLACE OF USE: POWER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
02S	18E	18	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
			X																

Method of Determination:

I found no record of GPS coordinates for the powerhouse. However, the powerhouse is visible in aerial photography. I compared photography available in FERC and IDWR inspection reports with aerial photography to determine the POU. I created the POU shape. The powerhouse appears to straddle the 40-acre delineation between NENE and SENE. No amendment is needed.

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☐ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached
- 4.

Well or Diversion ID No.

<u>Generator Make</u>	<u>kW</u>	<u>Generator Type.</u>	<u>Turbine Make</u>	<u>Turbine Discharge Size</u>
Ideal	4425 HP (3301 kW)	Synchronous	Niagara	rated at 12.03 m ³ /s (424.8 cfs)
				for 36.6 m (120.08 ft) design net head

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

The generator-turbine sets are triplets. The above descriptions apply to all three. Magic Hydroelectric personnel refer to these turbine-generator sets as units #1, #2, and #3. The turbines are horizontal-shaft, Kaplan type.

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>

2. Measurements:

The reservoir pool elevation and the downstream stage elevation are available from USGS gauging stations. These gages satisfy permit conditions requiring measurement of the reservoir accrual and discharge. The meter types, accuracy of measurements and calibration date(s) can be obtained from the USGS.

There is no instrumentation measuring the flow through the turbines. Although I requested commissioning test results or absolute performance test results, either they were never conducted or the test results have been lost. The attached computations are turbine discharges estimated by Magic Reservoir Hydroelectric personnel.

In addition to data archived at the IPUC, the July 13, 2010 FERC inspection report records continuing beneficial use. "The plant was on-line at the time of the inspection with unit generators 1, 2, and 3 producing 2100 kW, 2100 kW and 1900 kW respectively."

Piezometers monitor the phreatic surface through the dam and weirs measure the leakage through the dam. Operation personnel record those water levels and the leakage rates.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method:

The attached computation sheet was provided by Mr. Trent in response to my request for turbine flow data with coincident generation data. I understand that the data are transcriptions of hand written log sheets and computer printouts. The data confirms that power production can occur at flow rates in excess of the total for these three permits. It also confirms that contemporary power production occurs during the non-irrigation season.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: not applicable

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

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

2. Volume Calculations for Other Uses:

On May 10, 1984, Cook Electric, Inc. (the original owner of all three power permits) and Big Wood Canal Company signed an agreement which merged their previously competing efforts to add a hydroelectric generation facility to Magic Dam. The agreement and its subsequent amendments clarified the operation of the dam and the responsibilities of each party. (A copy of the original agreement is available in file 37-8178. A copy of the March 22, 1988 amended agreement is available in file 37-7848). The agreement has a 30-year term, so it is expected to expire in May 2014.

The following are excerpts from the agreement, Section 3. Operation of Magic Dam
 Subsection (2) states, "Cook shall not obtain any storage rights in Magic Reservoir"
 Subsection (3) states,

the primary irrigation purpose and the incidental purpose of Magic Reservoir shall not be impaired by the subordinate utilization for power generation at the power plant of the water released from Magic Reservoir. Big Wood is not obligated operate Magic Dam in a manner to have water in Magic Reservoir for power generation or to operate to increase the head in Magic Reservoir for power generation.

Although this project is an on-stream storage project, the storage was operated to serve irrigation and flood control requirements, not to provide water for power production. Magic Reservoir's contents are managed for the benefit of Big Wood Canal Company stockholders and not necessarily for the benefit of Magic Reservoir Hydroelectric. These rights may qualify for an exemption from the volume requirement based on that operation strategy.

If a volume is required for the licenses, I recommend that it be equal to the volume discharged from Magic Reservoir during the 1989 irrigation season that was within the operation range of the turbines. (Streamflow rates below 50 cfs were considered spill.) That volume is 237,000 AF and is significantly less than the volume which would satisfy the irrigation water rights held by the Big Wood Canal Co. Although the USGS streamflow data shows that water was available and released from the reservoir during the 1989 non-irrigation season, the IPUC generation records show that no power was generated from those releases. Please refer to the attached spreadsheet for the volume calculation.

Period-of-record USGS streamflow data shows that in subsequent more favorable water years, additional volume was available, discharged and likely put to use for power production during the non-irrigation season. An additional permit to cover that additional volume will be required.

G. NARRATIVE/REMARKS/COMMENTSOwnership

The hydroelectric facility is owned and operated by Magic Reservoir Hydroelectric, Inc., now a subsidiary of the J.R. Simplot Company, whereas the dam is owned by Big Wood Canal Co. The 30-year agreement which established this cooperative arrangement is expected to expire in May 2014. (See discussion above in F. Volume Calculations)

The project is located on property owned by the BLM. An existing right-of-way grant/temporary use permit for the hydroelectric facility will expire on January 15, 2027, shortly after the expiration of the project's FERC license.

Term limit

Both the IPUC and the FERC have authority over this project. FERC issued a 40-year license to the Magic Dam Project (FERC Project No. #3407) on January 15, 1987. It expires January 1, 2027.

The power sales agreement is for 35 years and will expire before the FERC license. Therefore, I choose the term of the FERC license as the term for each of these three water right licenses.

SOU

Permit 37-7848 authorizes 800 cfs for power production from April 1 to October 1, which may have been the irrigation season at the time that the permit was issued. The season-of-use will be adjusted at licensing to conform to the current irrigation season-of-use for this area which is April 15 to October 31.

Permit 37-8178 authorizes 250 cfs for year-round power production. Permit 37-8389 authorizes 300 cfs for year-round power production.

Therefore, during the irrigation season, as much as 1350 cfs was authorized for use in power production. During the non-irrigation season, 550 cfs was authorized for power production use.

However, during the development period, beneficial use occurred during the irrigation season only. No power generation occurred in the non-irrigation season until years after the development period had ended. Therefore, I am recommending the irrigation season as the season-of-use for all three licenses.

Water Use

The Proof-of-Beneficial-Use statements were submitted for all three permits on January 29, 1990. Generation records from 1989 were available from Idaho Power Company reports stored in the IPUC archive. They confirm that beneficial use occurred during the development period of the permits. The records are monthly average kW and not representative of daily or hourly peak operation.

Idaho Power Company identifies the Magic Reservoir powerplant as #31715123. The firm energy sales agreement between Idaho Power Company and Cook Electric is PUC case U-1006-294.

From the beginning, the Magic Reservoir powerplant appears to have been capable of generating power in excess of 9.9 MW for short time periods. The nameplate generation capacity is 9903 kW (3301 kW per generator). 9.9 MW is the upper generation limit for facilities qualified as a small power producer under the provisions of PURPA. IPUC documents in the water right files mention conferences between the developer and Idaho Power to address this concern. Occasional generation in excess of 9.9 MW would not violate either the sales agreement or PURPA conditions, but the developer may not be compensated for that excess generation.

I requested insitu test data to confirm the hydraulic capacity of the powerplant, but none were available. The design flow and head are visible on the equipment nameplates. Although typical operation would be less than the nameplate parameters, the operational capacity of this powerplant is greater than the nameplate capacity. The nameplate capacity is 1274.4 cfs (= 424.8 x 3).

The March 1, 2005, Part 12D report Subsection 2.3.3 states, "Releases of water begins with all flow through the power plant turbines, each of the three units have a peak capacity of 450 cfs, total plant capacity of 1,350." The three permits 37-7848, 37-8178, and 37-8389, authorize development of 1350 cfs. However, contemporary data submitted by Magic Reservoir Hydroelectric Inc. personnel, indicate that peak turbine discharge flows exceed 1350 cfs.

The rates I recommend for these three licenses are limited to those authorized by their respective permits.

Stream Flow measurement

USGS station #13142500, Big Wood River bl Magic Dam nr Richfield is maintained by Boise Field Office of the USGS. It is located at river mile 67, approximately 0.5 mile downstream from Magic Dam. Flow information derived from this station represents the total flow of the river not just the flow through the turbines. Without companion generation records, and exclusion of any spill, the data from this station is not sufficient to confirm beneficial use.

Streamflow

There is no minimum streamflow requirement for the reach of the Big Wood River directly below the dam. Low flow readings from USGS station #13142500 represent leakage from the dam. The minimum flow which can be used for power generation is approximately 50 cfs. Large off-season releases from the reservoir typically represent flood control releases are likely used for power production.

Therefore, an additional permit is required to cover the power use in the non-irrigation season and for the power use above 1350 cfs during the irrigation season.

Storage

No storage for power use is authorized by these three permits. Storage is authorized through rights 37-867, 37-870, 37-895 and 37-20733 which have been decreed to Big Wood Canal Co not to Magic Hydroelectric. The dam impounds a reservoir which is authorized to contain 191,500 AF, the combined volume of the water rights for storage.

Magic Reservoir is a multipurpose facility but it is operated primarily for irrigation storage. Recreation, flood control, and power uses are secondary.

Magic Dam is National Inventory of Dam # ID00039.

Both FERC and IDWR classify the Magic Dam as high hazard. IDWR s Dam Safety has certified Magic Dam to impound water to an elevation of 4797.0 ft. Unless revoked, the current impoundment certificate expires December 31, 2015.

Reservoir Elevation

USGS station #13142000, Magic Res nr Richfield ID is maintained by the Boise Field Office of the USGS. Pool elevation readings are also available from Water District 37.

Point of Discharge

The Magic Reservoir Hydroelectric powerhouse is built into an on-stream storage facility. The turbines discharge into the Big Wood River below the dam.

Priority dates

Proof-of-beneficial-use statements for all three permits were submitted on January 29, 1990 although proof was due for Permit 37-8389 only. Because the fee was insufficient, the priority date for Permit 37-8389 has been advanced from October 28, 1988 to November 12, 1988.

Proof statements for permits 37-7848 and 37-8178 were not due until September 1, 1992. Sufficient fees to match the early proof statements were submitted on February 16, 1990. And there was no impact to the priority dates.

Have conditions of permit approval for 37-7848 been met? ☒ Yes ☐ No
 Have conditions of permit approval for 37-8178 been met? ☒ Yes ☐ No
 Have conditions of permit approval for 37-8389 been met? ☐ Yes ☒ No However, I am recommending the permit be licensed. See my memo to water right file 37-8389 dated April 28, 2014.

H. RECOMMENDATIONS

An additional permit is needed to cover the non-irrigation season power use and the rate and volume for power use in excess of 1350 cfs or 237,200 AF.

1. Recommended Amounts**37-7848**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
POWER	4/15 to 10/31	800.00 CFS	N/A
	<u>Total:</u>	800.00 CFS	

37-8178

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
POWER	4/15 to 10/31	250.00 CFS	N/A
	<u>Total:</u>	250.00 CFS	

37-8389

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
POWER	4/15 to 10/31	300.00 CFS	N/A
	<u>Total:</u>	300.00 CFS	

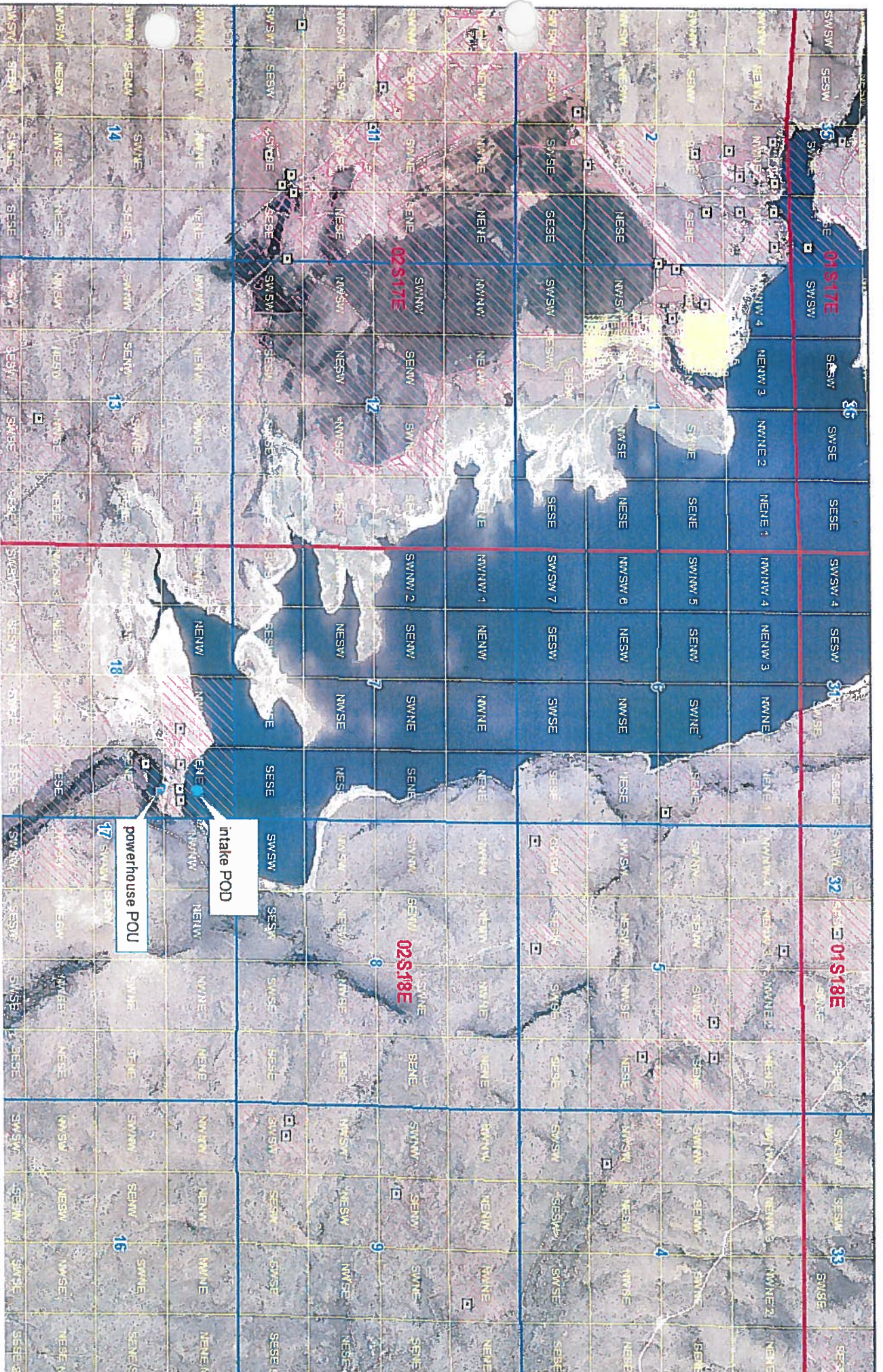
2. Recommended Amendments

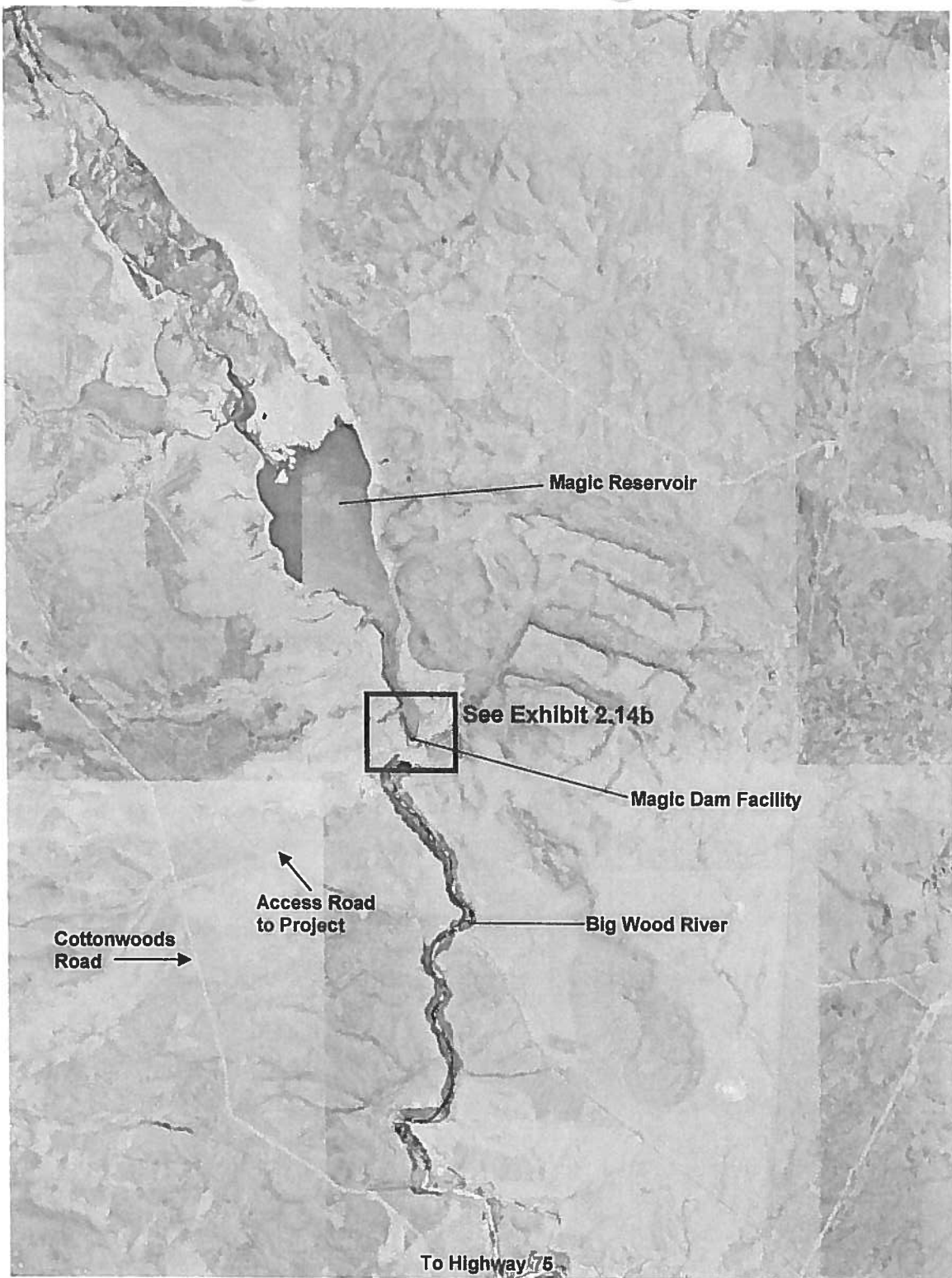
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

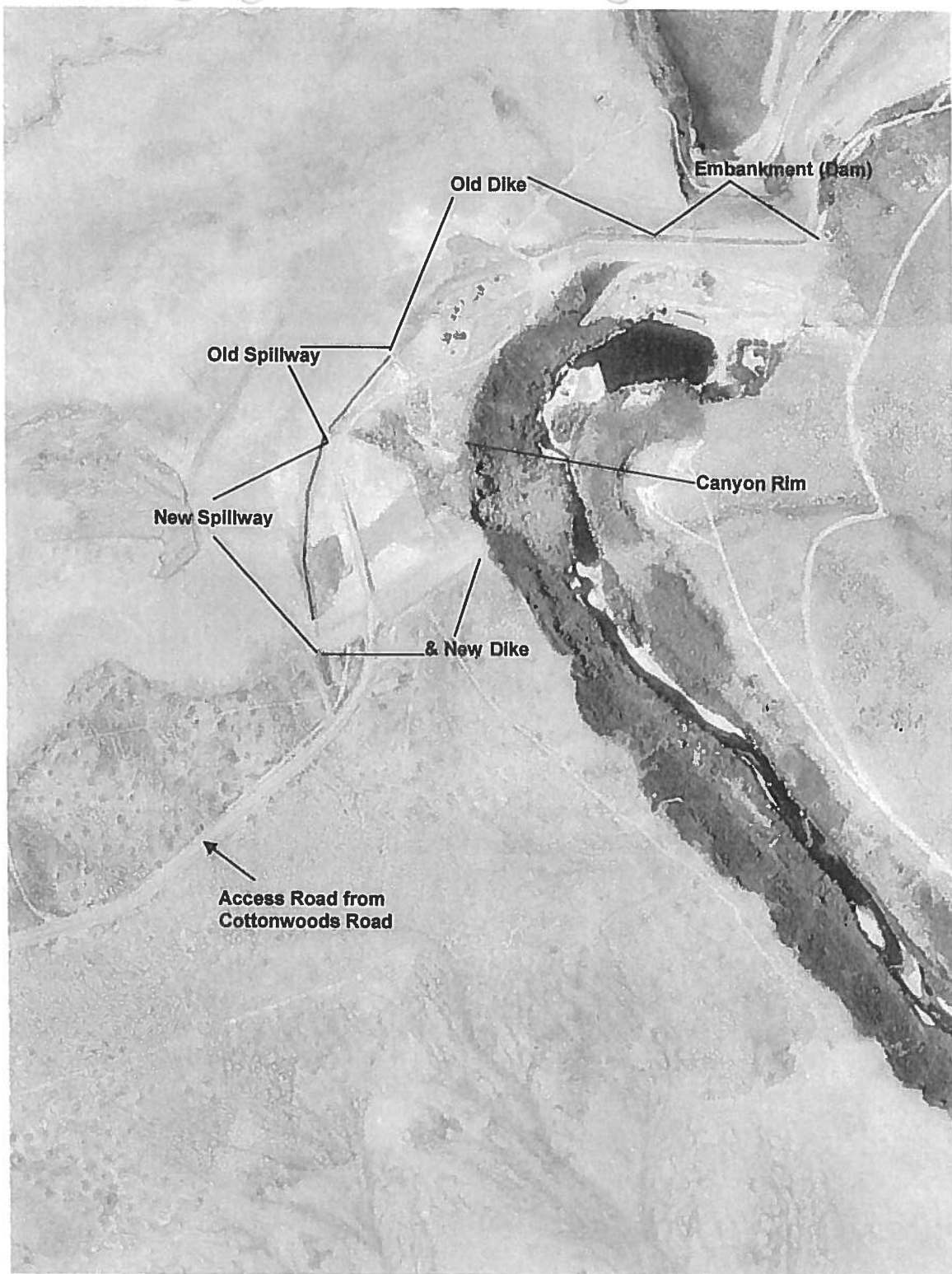
I. AUTHENTICATION

Field Examiner's Name Michelle S. Galt Date April 29, 2014
 Reviewer _____ Date _____

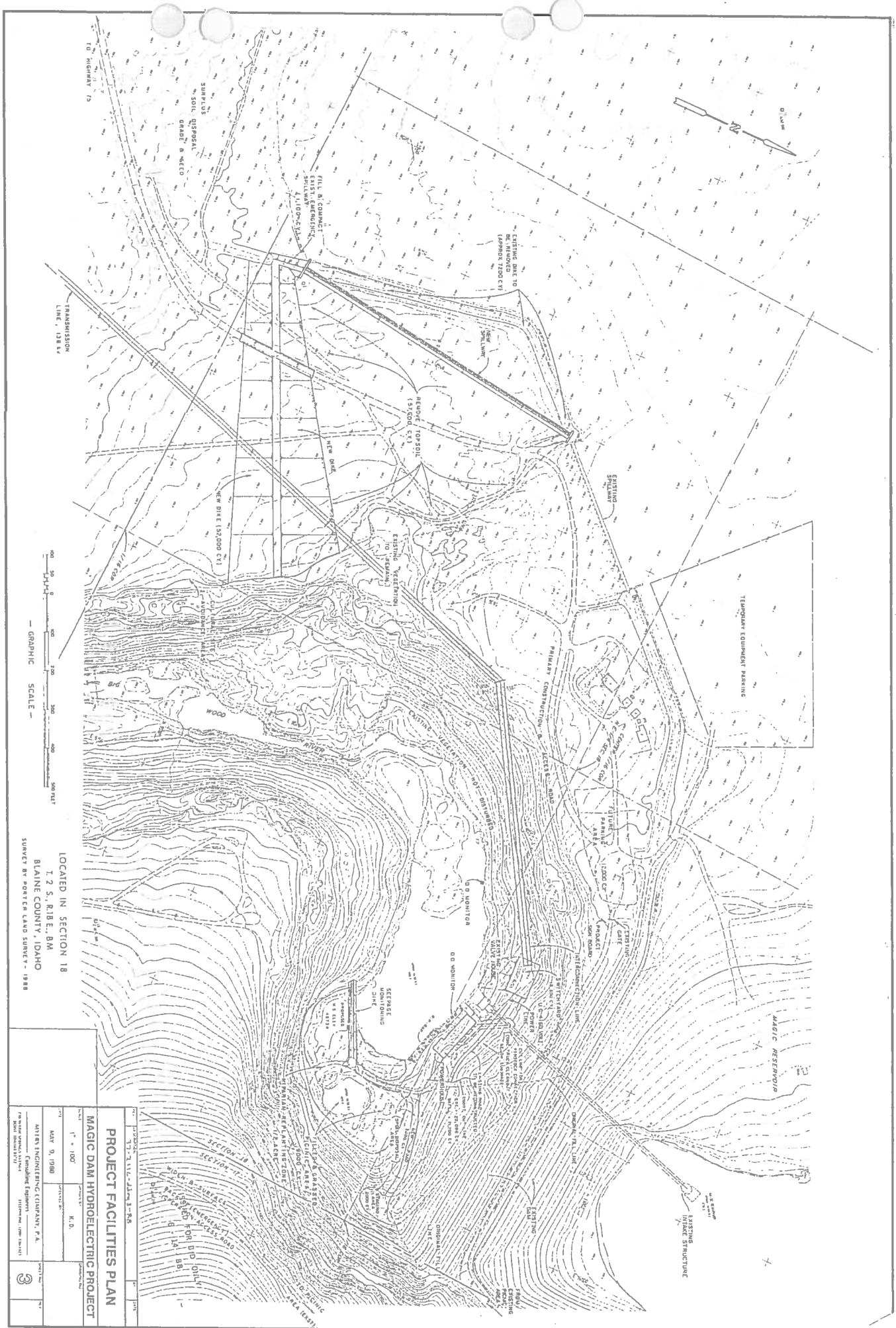




AERIAL PHOTO OF MAGIC DAM FACILITY
Ref: USGS Magic City, Idaho – July 1992



AERIAL PHOTO OF MAGIC DAM FACILITY
Ref: USGS, Magic City, Idaho – July 1992

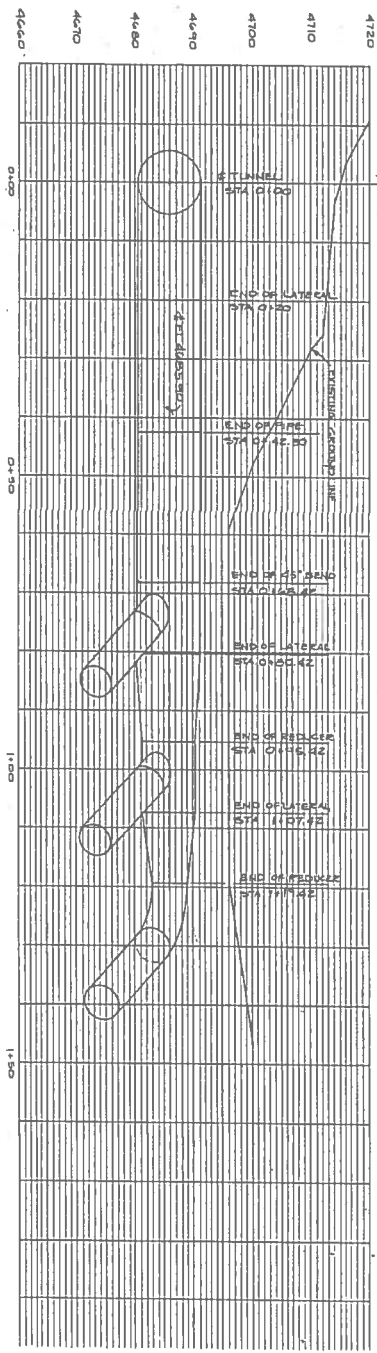


LOCATED IN SECTION 18
 T 2 S., R 18 E., BM
 BLAINE COUNTY, IDAHO
 SURVEY BY PORTER LAND SURVEY - 1988

PROJECT FACILITIES PLAN		1" = 100'	K.D.	DATE
MAGIC DAM HYDROELECTRIC PROJECT				MAY 9, 1988
MAYERS ENGINEERING COMPANY, P.A.		ENGINEERING		
2700 N. 10th Street, Boise, Idaho 83702		PHONE (208) 333-1211		
3				



Dam Safety Digital Photo Gallery P9120454.jpg Magic Reservoir Intake exposed



NOTE
FOR SIZE AND DIMENSIONS
OF FITTINGS, SEE SHEET 19

[illegible]



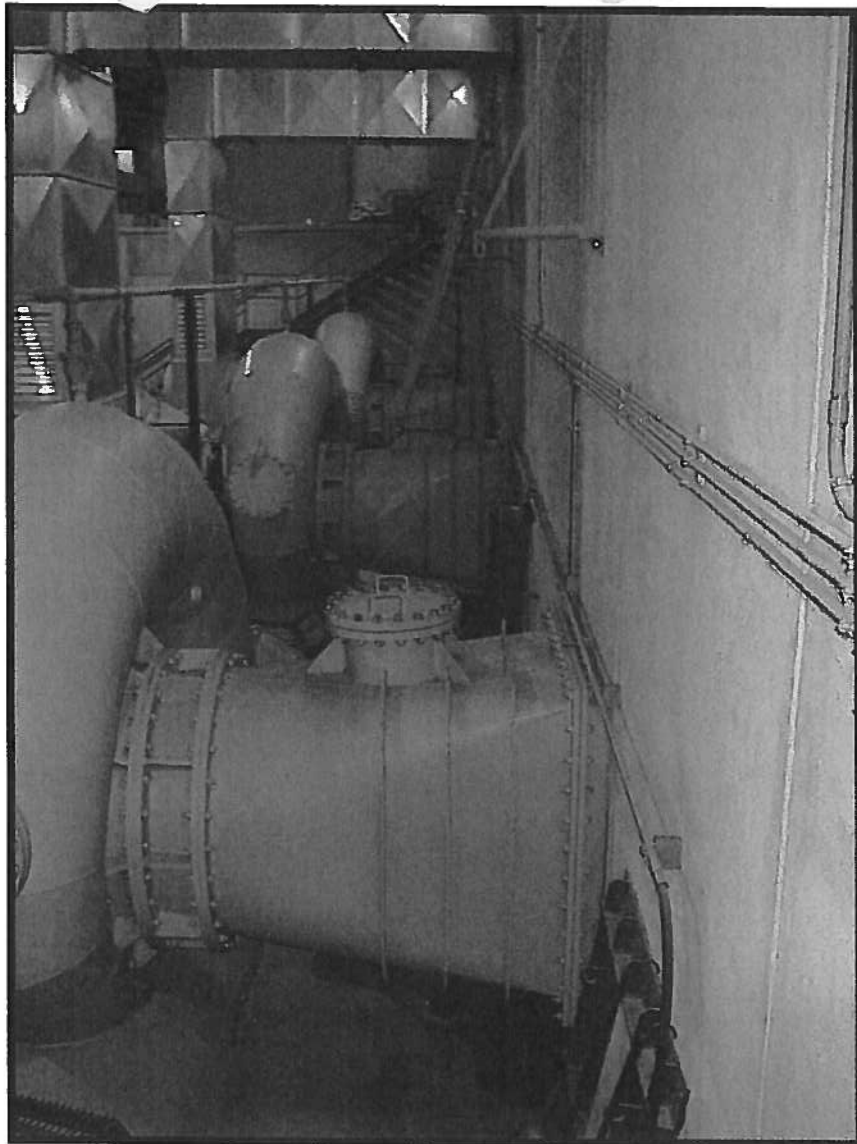


Photo 19
Looking east at three turbines.

Edl, Michele

From: Conrad, Vic [Vic.Conrad@simplot.com]
Sent: Tuesday, November 12, 2013 4:34 PM
To: Edl, Michele
Cc: Sturtevant, Don
Subject: RE: MRHE address correction

Michele,

The contact for additional information for the licensing of these permits will be Don Sturtevant, J. R. Simplot Company; P. O. Box 27; Boise, ID 83707. Don's phone number is 389-7306. Please let me know if there is anything I can do to help.

From: Edl, Michele [<mailto:Michele.Edl@idwr.idaho.gov>]
Sent: Tuesday, November 12, 2013 4:31 PM
To: Conrad, Vic
Subject: MRHE address correction

Mr. Conrad,

You may remember that I am completing the field exam reports and drafting licenses for the three permits (37-7848, 37-8178, and 37-8339) for power use at Magic Dam.

Our database shows the following as the contact for these permits:

MAGIC RESERVOIR HYDROELECTRIC INC

C/O JAY R JACKSON PRES

2399 S ORCHARD ST #201

BOISE ID 83705

Because these rights have been in permit status for many years, I suspect that the contact information may be outdated. Please review the above and make any necessary corrections by sending a written request to IDWR State Office.

Don't hesitate to call me at 287-4946 if you have questions.

Sincerely,

Michele Edl



IDAHO SECRETARY OF STATE

Viewing Business Entity

Ben Yursa, Secretary of State

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MAGIC RESERVOIR HYDROELECTRIC, INC.

P. O. BOX 27
BOISE, ID 83707

Type of Business:	CORPORATION, GENERAL BUSINESS
Status:	GOODSTANDING, ANREPT SENT 07 Jan 2013
State of Origin:	IDAHO
Date of Origination/Authorization:	23 Mar 1988
Current Registered Agent:	DAVID E SPURLING 999 MAIN STREET #1300 BOISE, ID 83702
Organizational ID / Filing Number:	C86218
Number of Authorized Stock Shares:	100000
Date of Last Annual Report:	21 Jan 2013

Original Filing:

		[Help Me Print/View TIFF]
Filed 23 Mar 1988	INCORPORATION	View Image (PDF format) View Image (TIFF format)

Amendments:

		[Help Me Print/View TIFF]
Amendment Filed 20 May 1988	MERGED WITH MAGIC DAM HYDROELECTRIC, INC.	View Image (PDF format) View Image (TIFF format)
Amendment Filed 12 Mar 1990	STOCK CHANGE	View Image (PDF format) View Image (TIFF format)

Annual Reports:

		[Help Me Print/View TIFF]
Report for year 2013	ANNUAL REPORT	View Document Online
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Report for year 2003	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 2002	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 2001	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
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Report for year 1994	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1993	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1992	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1991	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1990	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1989	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1988	ANNUAL REPORT	View Image (PDF format) View Image (TIFF format)
Report for year 1988	CHNG RA/RO	View Image (PDF format) View Image (TIFF format)

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Comments, questions or suggestions can be emailed to: sosinfo@sos.idaho.gov

No. C 86218		Due no later than Mar 31, 2013		Annual Report Form		2. Registered Agent and Address (NO PO BOX)	
Return to: SECRETARY OF STATE 700 WEST JEFFERSON PO BOX 83720 BOISE, ID 83720-0080 NO FILING FEE IF RECEIVED BY DUE DATE		1. Mailing Address: Correct in this box if needed. MAGIC RESERVOIR HYDROELECTRIC, INC. TERRY T UHLING P. O. BOX 27 BOISE ID 83707		TERRY T UHLING 999 MAIN STREET BOISE ID 83702		3. <u>New</u> Registered Agent Signature:*	
4. Corporations: Enter Names and Business Addresses of President, Secretary, and Directors. Treasurer (optional).							
Office Held	Name	Street or PO Address	City	State	Country	Postal Code	
DIRECTOR	WILLIAM J WHITACRE	999 MAIN STREET SUITE 1300	BOISE	ID	USA	83702-0027	
PRESIDENT	WILLIAM J WHITACRE	999 MAIN STREET SUITE 1300	BOISE	ID	USA	83702-0027	
SECRETARY	TERRY T UHLING	999 MAIN STREET SUITE 1300	BOISE	ID	USA	83702-0027	
5. Organized Under the Laws of: ID C 86218		6. Annual Report must be signed.* Signature: Terry T. Uhling Name (type or print): Terry T. Uhling Date: 01/21/2013 Title: Secretary					
Processed 01/21/2013		* Electronically provided signatures are accepted as original signatures.					

Edl, Michele

From: Trent, William [william.trent@simplot.com]
Sent: Thursday, October 03, 2013 4:46 PM
To: Edl, Michele
Cc: Sturtevant, Don; Curtis, Tiffany
Subject: Maximum turbine flows
Attachments: 2012 Magic production max flow.pdf; Turbine Nameplates.pdf

Michele,

I have created a chart of the data relating to the maximum flows from the turbines at Magic Reservoir Hydroelectric during 2012. Attached are that chart and photos of the nameplates of the three units. The estimated maximum flow appears to be 2160 cfs. There may very well be human error built into that number, since most of the numbers are manually logged and there is no way to measure total spillway flow, just estimate it. My best guess at a maximum flow based on analysis of the data would be about 1800 cfs, but that is still far above the 1350 cfs permitted previously.

As we discussed, this may be a sensitive time to publish an increased flow for Magic Hydroelectric. I don't know if it is possible to describe the increase in flow for a license based on flood control conditions, but during the time of year that we flow the maximum amount of water, it is technically for flood control. Please let me know if you have any questions or comments.

Thank you,
Bill

William Trent



Magic Reservoir Hydroelectric
(208)487-2442
(208)358-1247 cell

2012 PRODUCTION

DATE	OPERATING		PERCENT	SLOPE	RES.	GROSS	FLOW	Power	Estimated	USGS #3	Est. plant	turbine avg
	#1	#2	#3	GAUGE	ELEV	HEAD	CFS	(MW)	Spillway flow	(cfs)	flow	percent
27-Mar-12				930.8	4793.2	120.8	570.3	4.380	0	580	580	
28-Mar-12	48.6	49.8	0	932.0	4794.4	121.9	575.1	4.450	0	1280	1280	32.8
29-Mar-12	83.7	87.2	85.9	932.8	4795.2	121.2	1177	9.810	0	1360	1360	85.6
30-Mar-12				933.3	4795.7	121.2	1210	10.000		?	2750	
31-Mar-12	90	89.4	91	933.5	4795.9	120.0	2456	9.800	1256	2980	1724	90.1
1-Apr-12	92.7	91.7	91.5	933.5	4795.9	118.6	2923	9.700	1458	3270	1812	92.0
2-Apr-12	88.1	91.5	91.7	933.6	4796	118.4	2658	9.730	1723	3280	1557	90.4
3-Apr-12	85.6	92	92.1	933.6	4796	118.7	2640	9.730	1440	3180	1740	89.9
4-Apr-12	92	95.9	95.3	933.4	4795.8	119.1	2344	9.900	1144	2780	1636	94.4
5-Apr-12	88.5	96.7	95.5	933.1	4795.5	120.3	1991	9.860	791	2430	1639	93.6
6-Apr-12	94.8	97.2	95.6	932.9	4795.3	120.1	1781	10.025	581	2110	1529	95.9
7-Apr-12	97.5	98.5	97.5	932.7	4795.1	119.9	1516	10.050	316	1790	1474	97.8
8-Apr-12	97	98.7	97.5	932.6	4795	119.8	1363	10.050	163	1560	1397	97.7
9-Apr-12	72.1	76.6	74.9	932.4	4794.8	121.0	1095	9.440	100	1400	1300	74.5
10-Apr-12				932.5	4794.9	122.3	584.7	4.200	50	824	774	
11-Apr-12				932.7	4795.1	122.5	609.1	5.110	50	614	564	
12-Apr-12				933.0	4795.4	122.8	547	3.125	20	413	393	
13-Apr-12				933.4	4795.8	123.8	421.5	3.180	50	944	894	
14-Apr-12				933.5	4795.9	123.9	1157	6.900	100	1030	930	
15-Apr-12				933.5	4795.9	123.9	1170	6.850	150	1130	980	
16-Apr-12				933.6	4796	122.8	1164	6.980	200	1380	1180	
17-Apr-12				933.4	4795.8	121.8	1411	9.810	50	1320	1270	
18-Apr-12				933.3	4795.7	122.2	1190	8.240	50	1280	1230	
19-Apr-12				933.2	4795.6	122.1	1145	8.010	20	1000	980	
20-Apr-12				933.2	4795.6	122.1	1145	7.870	20	1020	1000	
21-Apr-12				933.2	4795.6	122.1	1150	7.800	20	1240	1220	
22-Apr-12	68.3	66.9	69.6	933.2	4795.6	122.1	1280	9.300	20	1130	1110	68.3
23-Apr-12	85.5	84.8	84.5	933.4	4795.8	121.8	1445	9.940	100	1410	1310	84.9
24-Apr-12	81.4	85.7	84.2	933.6	4796	121.8	1580	9.870	150	1680	1530	83.8
25-Apr-12	85.6	86.3	86.9	933.7	4796.1	122.0	1530	9.950	150	1920	1770	86.3
26-Apr-12	84	86.7	86.6	933.9	4796.3	121.5	2023	9.880	650	2330	1680	85.8
27-Apr-12	85	87.5	87.2	934.1	4796.5	120.9	2510	9.870	1000	2730	1730	86.6
28-Apr-12	85.2	87.6	87.2	934.4	4796.8	121.2	2430	9.880	900	2750	1850	86.7
29-Apr-12	85.7	88.1	87.5	934.3	4796.7	121.1	2268	9.950	700	2640	1940	87.1
30-Apr-12	86	88.4	87.5	934.1	4796.5	122.4	1595	10.020	200	2360	2160	87.3
1-May-12	87	88.7	87.6	934.2	4796.6	120.6	1236	10.050	20	1380	1360	87.8
2-May-12	80.4	89.2	87.8	934.2	4796.6	120.6	1255	10.000	20	1430	1410	85.8
3-May-12	84.5	89.6	87.9	934.2	4796.6	122.8	1473	10.040	20	1430	1410	87.3
4-May-12	69.9	69.4	40	934.2	4796.6	122.8	1322	9.460	10	1370	1360	59.8
5-May-12				934.3	4796.7	122.9	824	7.850	120	1150	1030	
6-May-12				934.3	4796.7	122.9	1039	8.990	20	1110	1090	
7-May-12				934.3	4796.7	123.6	971.1	6.120	20	802	782	
8-May-12				934.4	4796.8	123.7	955.4	5.960	20	764	744	
9-May-12				934.4	4796.8	124.3	753	4.480	20	575	555	
10-May-12				934.5	4796.9	124.2	834.8	5.230	20	654	634	
11-May-12				934.7	4797.1	124.4	829.3	5.240	20	654	634	
12-May-12				934.9	4797.3	124.6	829.3	5.270	10	835	825	
13-May-12				934.9	4797.3	124.6	1033	6.960	10	869	859	
14-May-12				935.0	4797.4	124.3	1064	7.000	10	1140	1130	
15-May-12				935.1	4797.5	124.1	1152	7.810	10	1380	1370	
16-May-12	79.7	92.5	92.6	935.1	4797.5	123.4	1495	10.230	10	1390	1380	88.3
17-May-12	75.7	81.3	80.7	935.2	4797.6	123.6	1438	10.010	10	1430	1420	79.2
18-May-12	80.4	79.6	80.9	935.2	4797.6	123.6	1417	10.100	110	1540	1430	80.3
19-May-12	71.4	72.5	71.1	935.2	4797.6	123.6	1411	9.730	120	1620	1500	71.7
20-May-12				935.2	4797.6	123.6	1550	6.600	120	1570	1450	

Highlighted numbers show flows exceeding 1350 cfs. Spillway flows however are estimated, not measured.
Depending on the error in the spillway flow estimation, the maximum flow through the turbines appears to be 2160 cfs.

Magic Reservoir Hydroelectric Turbines 1, 2, and 3

