

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-9368

Exam Date: 9/16/2013

1. Current Owner: SPOKANE BANK FOR COOPERATIVES
PO BOX TAF-C2
STAR RT
SPOKANE WA 99220
2. Field work completed by: Dan Nelson on September 16, 2013.
Accompanied by: Jerry Hoagland
Phone No: 318-8308
Address: 13528 Reynolds Creek Rd, Wilson ID 83641
Relationship to Permit Holder: Mr. Hoagland is a representative for Reynolds Irrigation District.

This Beneficial Use Field Report was completed by Michele Edl. The field work was completed, at my request, by Dan Nelson (Staff Hydrologist, IDWR) in September 2013.

- | | |
|------------------|--------------------|
| 3. <u>SOURCE</u> | <u>TRIBUTARY</u> |
| GROUND WATER | WARM SPRINGS CREEK |

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 63-9909
2. Other water rights with the same point of diversion: decreed right 63-359. The three wells which are the points of diversion for this permit are also considered the origination points for the Reynolds Canal.

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER	SE1/4SE1/4 Sec. 3, Twp 01S, Rge 02W, B.M.	CANYON County
GROUND WATER	SE1/4SE1/4 Sec. 3, Twp 01S, Rge 02W, B.M.	CANYON County
GROUND WATER	SE1/4SE1/4 Sec. 3, Twp 01S, Rge 02W, B.M.	CANYON County

Method of Determination:
GPS coordinates were recorded by Dan Nelson during his site visit.

2. PLACE OF USE: POWER

Twp Rge Sec	NE				NW				SW				SE				Totals
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
01S 02W 17		X															

Method of Determination:
GPS coordinates were recorded by Dan Nelson during his site visit.

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

you rpl & related docs

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>
General Electric	rated at 350 kW	Induction	Turboinstitut	rated at 142 cms (~50.1 cfs)
for 30.5 m (~100.0 ft) effective head				

From field exam photos the turbine appears to be a horizontal shaft, Francis type manufactured by turboinstitut in Ljubljana, Slovenia (former Yugoslavia).

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

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Acoustic doppler velocimeter		SonTek	FlowTracker	P4554		

2. Measurements:

Dan Nelson measured the flow in two locations to determine the accumulated flow from the three wells.

He also recorded powerhouse instrument readings which indicated that the turbine-generator was using 36.48 cfs (16,375.91 gpm) to generate 198.34 kW.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method:

(See the attached FlowTracker system printouts)

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:

Effective 3/29/2012, the Beneficial Use Examination Rules exempt on-stream, run-of-the-river, power generation from the volume reporting requirement. This facility fits that definition. Power use is the last use of water in the Reynolds Irrigation District Canal before it is discharged into the Snake River. There is no storage impoundment. The source wells are uncontrolled artesian wells. The powerhouse operates year-round in run-of-river mode.

G. NARRATIVE/REMARKS/COMMENTS

This permit authorized water for power use in the same powerhouse place-of-use as licensed right 63-9909. The powerhouse contains a single turbine whose nameplate states it is capable of utilizing 1.42 meters per second which is 50.15 cfs. At design head of 30.5 meters (~100.0 ft), and design flow, 1.42 mps (50.15 cfs), the turbine-generator can produce 320 kW. The available USGS DRG layer in ArcMap indicates that the head is approximately 100 ft

Licensed right 63-9909 authorizes 18 cfs for power use from surface water sources. This right, 63-9368, authorizes power use from groundwater sources only. The field measurements taken for this right confirm that 11.74 cfs is provided by the three wells. The locations of the wells are different than was authorized by the permit. An amendment will be needed before licensing.

The Reynolds Irrigation project is a small hydropower facility tied to Idaho Power Company's grid. The project is identified by them with number 21415119 in summary records that IPCo submitted to the Idaho Public Utilities Commission in 1993. Those records confirm beneficial use occurred during the development period. Reynolds Irrigation has generated year-round since May 1986. (See the attached records.)

Other records of flow and generation provided by Mr. Sherl Chapman to IDWR's Bob Fleenor in 1988, indicate that the powerhouse has beneficially used as much as 43.3 cfs. (See attached records from file 63-10483). 43.3 cfs is less than the turbine capacity but more than 29.74 cfs, (= 18 cfs + 11.74 cfs), the combined rate authorized by the two power rights. Therefore, an additional permit for 13.6 cfs (43.3 cfs – 29.74 cfs = 13.56 cfs) is needed to cover the additional surface water used.

Neither Reynolds Irrigation District nor Spokane Bank for Cooperatives is currently registered with the ISOS. Internet research indicates that the bank has merged with two other farm credit banks in the Spokane area. According to Mr. Hoagland, the loan from the Spokane Bank for Cooperatives was paid off in 2002. The permit was to have been assigned back to Reynolds Irrigation District shortly thereafter. As of this date, the permit is still held by the Bank.

Current taxlot information shows that the Sam and Cleo Charitable Trust is the owner of the property containing the powerhouse. Contents of the water right file indicate that an Easement Agreement, dated October 18, 1983, exists between Cleo R. Swayne and the Idaho State Historical Society grantors/owners and Reynolds Irrigation District for construction, operation and maintenance of the powerhouse.

Term limit

Both the IPUC and the FERC have authority over this project. This is FERC exempt project #6229 and therefore not subject to FERC license renewal timelines. The order granting the exemption to Reynolds Irrigation District was issued by FERC on August 6, 1982.

A 35-year sales agreement with IPCo was made effective April 1, 1985 and expires in 2020. A copy of the sales agreement can be found in the file for senior water right, 63-9909. 63-9909 has a term date set at June 1, 2020, which is two months later than the term of the sales agreement. It's not obvious that the term for right 63-9909 was intended to be tied to the sales agreement. This right, 63-9368, is for additional use in the same powerhouse and through the same turbine as the use authorized by 63-9909. I am recommending April 1, 2020, the expiration date of the sales agreement, as the term date for this right. As a consequence, the term review will be initiated on this junior right before the term review for the senior right.

Point-of-Discharge

The turbine discharges into the Snake River near river mile 442, approximately 175 feet south of the Waters Ferry Bridge.

Combined limits

The quantity of water injected into the Snake River from this hydroelectric project should be greater than or equal to the quantity of water that is re-diverted from the Snake River to serve the irrigation needs of Reynolds Irrigation District customers. Existing irrigation water rights: 63-306, 63-359 and 63-2420, have been decreed to Reynolds Irrigation District. After approval of transfer 3027, those rights are limited to the smaller of 31.28 cfs or the rate of water injected into the Snake River from this powerhouse. The Reynolds Irrigation District needs an additional permit not only to authorize the full power use but also to allow them continued use of the full diversion rate authorized by their decreed rights.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
POWER	1/01 to 12/31	11.74 CFS	N/A
<u>Totals:</u>		11.74 CFS	N/A

2. Recommended Amendments

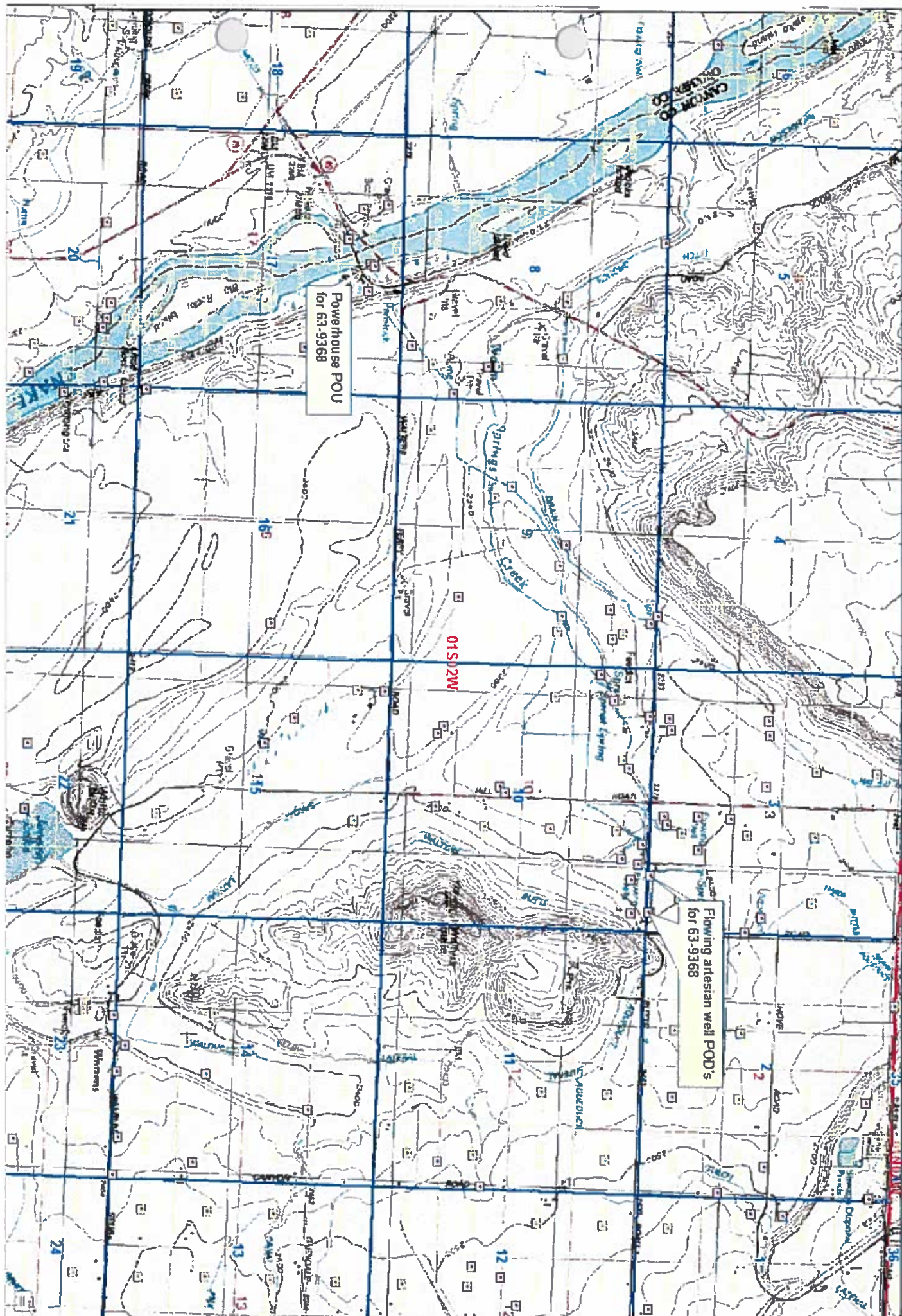
☒ Change P.D. as reflected above ☐ Add P.D. as reflected above ☐ None

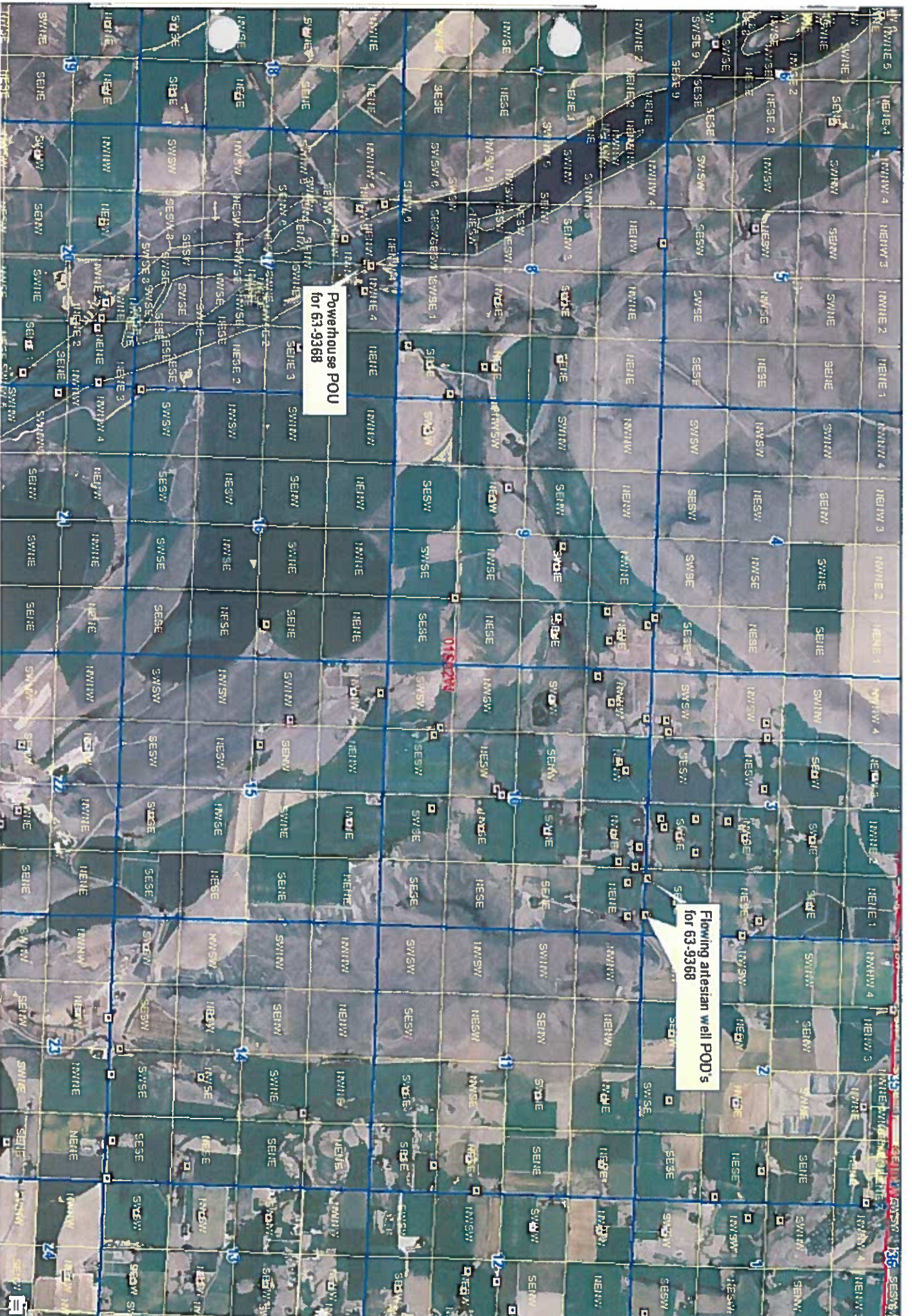
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name Dan Nelson and Michele Edl Date December 10, 2014

Reviewer _____ Date _____





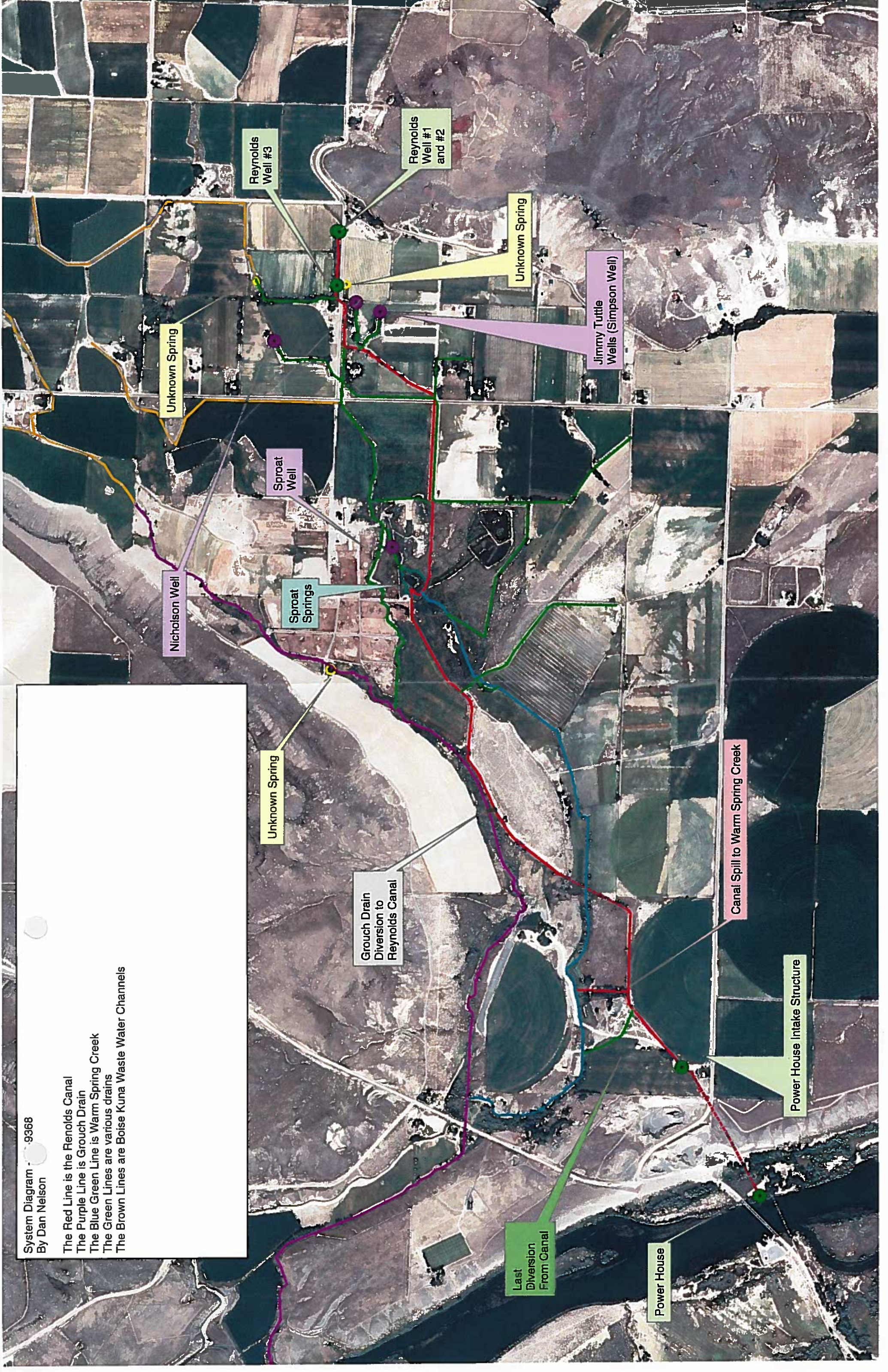
System Diagram 33-9368
By Dan Nelson

The Red Line is the Renolds Canal
The Purple Line is Grouch Drain
The Blue Green Line is Warm Spring Creek
The Green Lines are various drains
The Brown Lines are Boise Kuna Waste Water Channels



System Diagram - 9368
By Dan Nelson

The Red Line is the Renolds Canal
The Purple Line is Grouch Drain
The Blue Green Line is Warm Spring Creek
The Green Lines are various drains
The Brown Lines are Boise Kuna Waste Water Channels



Nicholson Well

Unknown Spring

Reynolds Well #3

Reynolds Well #1 and #2

Unknown Spring

Jimmy Tuttle Wells (Simpson Well)

Sproat Springs

Sproat Well

Unknown Spring

Grouch Drain Diversion to Reynolds Canal

Last Diversion From Canal

Power House

Power House Intake Structure

Canal Spill to Warm Spring Creek

MEMORANDUM

TO: Michele Edl

FROM: Daniel Nelson – Staff Hydrologist

DATE: September 16, 2013

SUBJECT: Field Work For Field Exam

I was asked to perform the field work on this field exam for Michele Eld. This is a complicated system that stretches over a very large area. There are several water sources that commit water to this drainage system. The main conveyance drain for the Reynolds Creek Irrigation District (RCID) is known locally as the Reynolds Canal. The Reynolds canal starts in the SESE of Section 3, Township 1 South, Range 2 West. Three artesian wells create the starting point of the canal. All three wells are located in the SESE of Section 3. These three wells appear to be the sources of water for this permit.

I was unable to measure each well separately. I could measure the Upper Well #1 and Upper Well #2 separately from the Lower Well #3. The two upper wells were measured at a diversion rate of 8.57 cfs and the all three wells were measured at 11.74 cfs. It appears that each well was flowing at approximately 4 cfs each. In past litigation and information in the back files for the RCID water rights and protests, I found estimations of the amount of water flowing from these wells of between 8.92 cfs to 15.91 cfs, so I feel my measurements were well within reason. These wells are at their highest discharge level within a few weeks of the water being shut off in the canals. The water in the canals had just been shut off at the time of my measurement, so I am confident that the flow rate of these wells were running at the highest rates of the year. If these three wells are all that are allowed to be recognized as a source for this permit then the diversion rate should be limited to 11.74 cfs.

From the starting point of the Reynolds Canal, the canal flows southeast approximately one mile to Sproat Springs. In between the canal starting point and Sproat Springs, water is acquire through natural infiltration into the drain, approximately 4 privately owned artesian wells, 2 springs, and waste water from the Boise Kuna Irrigation District canals.

There are several water rights from these drains on the Nicholson property where Sproat Springs is located, and there are also several water rights out of the private wells described above. According to the 1956 decree, the entire drain system has approximately 10.20 to 13.00 cfs that can be diverted out of the drain prior to the 31.28 cfs allowed by the RCID irrigation rights. All of the RCID irrigation rights are run through the hydropower plant. According to a 1988 report done by Sherl Chapman the 31.28 cfs or more has been delivered approximately 59% of the time. There are also several newer water rights that divert out of this system.

From Sproat Springs the canal flows approximately 1.5 miles to the intake pipeline for the hydropower plant. In this stretch there are several diversions out of the canal to comply with the 1956 decree. Approximately 0.6 miles downstream from Sproat Springs, water can be injected into the Reynolds Canal from Grouch Drain. 0.9 miles from Sproat Springs, there is a 950 ft siphon that delivers water in the canal under Warm Springs Creek. At no point does Warm Springs Creek water divert into the Reynolds Canal. Warm Springs Creek is actually a drain/ditch that delivers water from Sproat Springs, and it generally runs parallel to the Reynolds Canal. Warm Springs water is never diverted into the Reynolds Canal, but there are diversions out of Reynolds Canal that end up in Warm Springs Creek.

Approximately 0.5 miles from the siphon discharge point there is the hydropower intake structure. This structure feeds a large pipeline to travels approximately 0.4 miles southwest into the Snake River Canyon, where it enters the pumping plant. In between the siphon and the intake structure there is a spill from the Reynolds Canal into Warm Springs Creek. This spill is used to maintain the water flows flowing into the power plant. The spill is approximately 1300 feet from the siphon and 1300 feet from the intake structure. The last diversion point from the Reynolds Canal is in between the spill and the intake. The GPS unit stated the elevation difference between the intake structure and the power house was 2360 feet – 2260 feet or 100 ft elevation difference. The topographical maps show the elevation difference to be between 80 and 100 feet.

The power plant has a Yugoslavian turbine that had a 320 Kw and 1.42 m³/s (50.15cfs) rating. The generator had a 350 Kw, 515 amp, 480 volt rating. The system diagnostics or SCADA system and the gauges on the power panel show the system was operating at approximately 198.34 Kw, 325 amps, and 473 volts. The measurement device installed on the pipeline displayed a diversion rate of 16,375.91 gpm or 36.5 cfs.

Sherl Chapman performed measurements on this system in 1981 and 1988 for various protests and court decisions. The measurements in 1981 show flow rates of 34.53 cfs on October 23, 1980 and 28.47 cfs on March 28, 1981. The 1981 study claims the measurement was made 100 feet upstream of the hydropower intake structure. The 1981 study also states that the flows in this system start dropping off once the water in the canals is shut off, since the shallow ground water and wastewater is no longer available in the drains. The 1981 study also uses some very confusing analysis that suggest that if water is not diverted under certain water rights that the maximum diversion rate would be in the 43 cfs range.

The 1988 study shows more consistent data of taking flow measurements every day during the irrigation season. The high flow on this study was 43.3 cfs. However, this study doesn't specifically state where the measurements were made. These measurements could have been made prior to the spill structure. This study does show that last few weeks of the season, when farmers were turning off their Boise Kuna Irrigation District water for harvest that the flow rates went from 31 to 39 cfs to a high in the last few weeks of 43.3 cfs. After the canal water was turned off, you could see the water flows drop to a pretty consistent 34.6 to 36.6 cfs. This suggests to me that for approximately 2 weeks a year the system has the ability to get up to 43.3 cfs, but for most of the year, the system operates at about 36 cfs or less. Therefore, the measurement taken on the day I was at the site of 36.5 seems reasonable, since the water in the canals was no longer flowing, so waste water was not contributing to the water flows in the drains.

At the time of my field visit, I noticed that the channel flowing into the intake structure was within a few inches of topping the cement retaining wall. The water was also within an inch or two of going over the spillway. Therefore, I am pretty certain that 43.3 cfs would be very close to overflowing the banks of the canal and the spillway. I would need to see proof of flows over the 43.3 cfs amount before I could recommend any more water than that.

The one question that my field exam and research has raised is whether or not this permit was actually filed for just the water from the wells or the 11.74 cfs measured, or if the permit was filed for all of the ground water that is contributed to this drain system. The 18 cfs filed under water right 63-9909 for surface water seems appropriate for the surface water that is contributed from the springs and waste water from Boise Kuna Irrigation District. However, a significant amount of water is contributed from the RCID wells, private wells, and the drains themselves. The measurements taken in 1988 and the measurement at the time of my field visit suggest that water from the RCID wells, private wells, seepage water into the drains, and the springs provide at least 36 cfs of the flows in the drains. In 1988, RCID representatives stated that the wells only produced between 8.92 cfs and 15.91 cfs, but they filed this permit for 50 cfs.

The 1956 decree states the following:

The water supply the rights to the use of which are hereby adjudicated, consists of the waters flowing in the drain ditch from which all the parties hereto divert their water, and the waters flowing in the drain and its branches, whether said waters are derived from surface waste, or percolation into the drain, or from any existing wells, including the well of the plaintiffs, the wells of the defendant Reynolds Irrigation District, and a well known as the "Simpson Well", situated at the head of one branch of the main drain ditch from which the parties hereto divert their water, constitute a common and interdependent source of supply, and the withdrawal of water from said main drain, or any of its said contributing sources of supply, depletes the water rights and supply of each of the parties hereto.

The statement above suggests that everyone involved in this decree would consider all of the water in the drain regardless of the actual source of water to be a common water source. If we are only going to recognize the three RCID wells as part of this permit, then I could agree to a diversion rate of 36.5 cfs, which was the amount measured during my field visit with a combined limitation of water rights 63-9909 and 63-9368 not to exceed 43.3 cfs, which is the maximum amount measured in Sherl Chapman's 1988 measurements. If this is not the case, then water right should be limited to 11.74 cfs with no combined limitation of these two water rights.

Please see the attachments to this memo for all measurements, maps, pictures, and supporting documentation to my analysis. All the computer files and Arc Map files can be found at P:\DNelson\Michele\63-9368.

Discharge Measurement Summary

Date Generated: Fri Sep 13 2013

File Information

File Name ALL3WELS.WAD
Start Date and Time 2013/09/11 13:57:07

Site Details

Site Name
Operator(s) DAN

System Information

Sensor Type FlowTracker
Serial # P4554
CPU Firmware Version 3.7
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	3.1%
Velocity	1.3%	8.0%
Width	0.2%	0.2%
Method	2.6%	-
# Stations	3.6%	-
Overall	4.7%	8.6%

Summary

Averaging Int. 40 # Stations 14
Start Edge LEW Total Width 13.100
Mean SNR 40.2 dB Total Area 16.035
Mean Temp 63.58 °F Mean Depth 1.224
Disch. Equation Mid-Section Mean Velocity 0.7323
Total Discharge 11.7426

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:57	1.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	13:57	2.00	0.6	0.800	0.6	0.320	-0.0335	1.00	-0.0335	0.800	-0.0268	-0.2
2	13:58	3.00	0.6	1.300	0.6	0.520	0.9380	1.00	0.9380	1.300	1.2193	10.4
3	14:00	4.00	0.6	1.300	0.6	0.520	0.8527	1.00	0.8527	1.300	1.1084	9.4
4	14:02	5.00	0.6	1.700	0.6	0.680	0.9085	1.00	0.9085	1.700	1.5445	13.2
5	14:03	6.00	0.6	1.900	0.6	0.760	1.1512	1.00	1.1512	1.900	2.1873	18.6
6	14:04	7.00	0.6	1.500	0.6	0.600	1.1591	1.00	1.1591	1.500	1.7387	14.8
7	14:05	8.00	0.6	1.300	0.6	0.520	0.8087	1.00	0.8087	1.300	1.0512	9.0
8	14:06	9.00	0.6	1.500	0.6	0.600	0.7717	1.00	0.7717	1.500	1.1575	9.9
9	14:07	10.00	0.6	1.500	0.6	0.600	0.3133	1.00	0.3133	1.500	0.4700	4.0
10	14:09	11.00	0.6	1.400	0.6	0.560	0.1883	1.00	0.1883	1.400	0.2636	2.2
11	14:10	12.00	0.6	1.100	0.6	0.440	0.6112	1.00	0.6112	1.100	0.6724	5.7
12	14:11	13.00	0.6	0.700	0.6	0.280	0.4849	1.00	0.4849	0.735	0.3565	3.0
13	14:11	14.10	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Discharge Measurement Summary

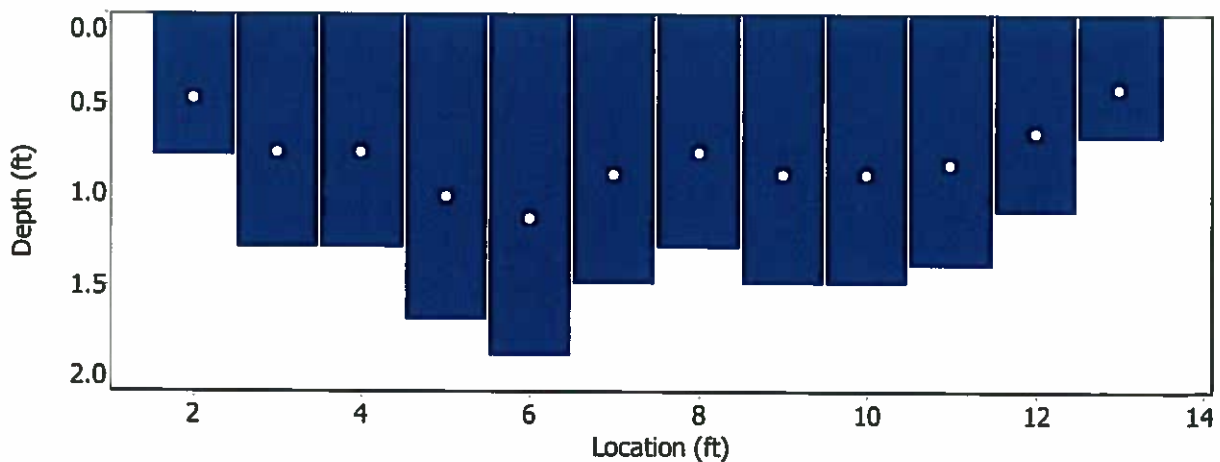
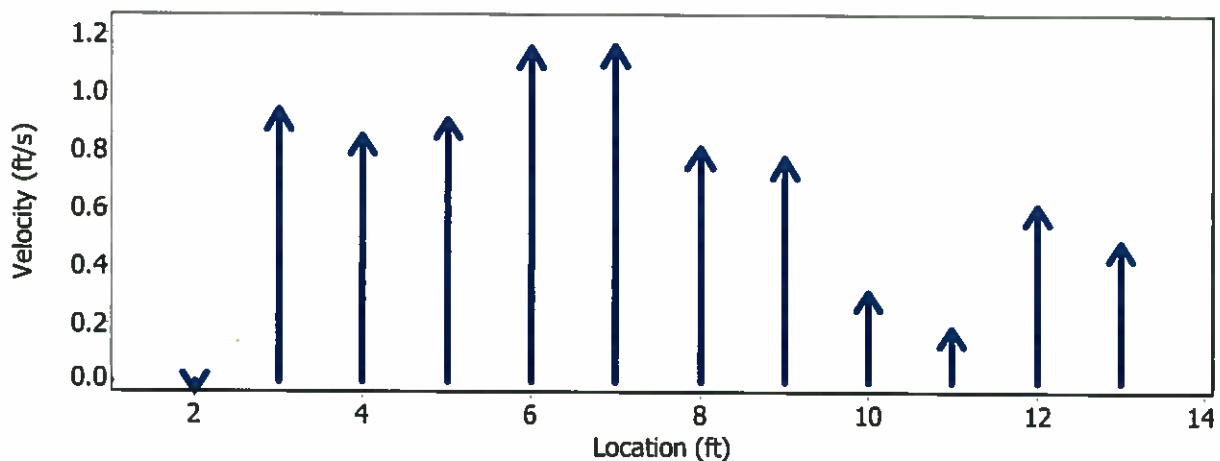
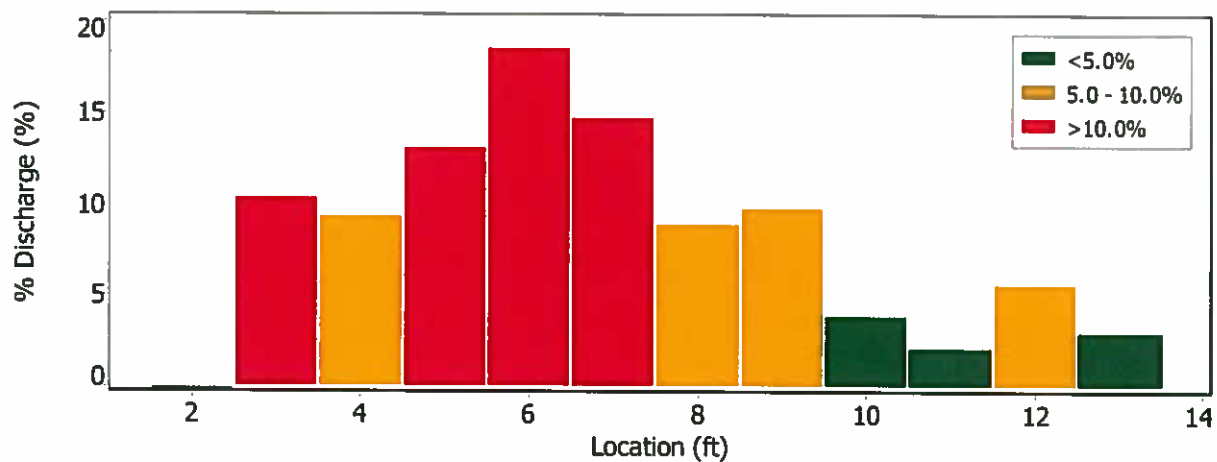
Date Generated: Fri Sep 13 2013

File Information

File Name ALL3WELS.WAD
Start Date and Time 2013/09/11 13:57:07

Site Details

Site Name
Operator(s) DAN



Discharge Measurement Summary

Date Generated: Fri Sep 13 2013

File Information

File Name ALL3WELS.WAD
Start Date and Time 2013/09/11 13:57:07

Site Details

Site Name
Operator(s) DAN

Quality Control

St	Loc	%Dep	Message
1	2.00	0.6	High angle: 105
3	4.00	0.6	High angle: 21

Discharge Measurement Summary

Date Generated: Fri Sep 13 2013

File Information

File Name UPPER2WE.WAD
Start Date and Time 2013/09/11 13:03:40

Site Details

Site Name
Operator(s) DAN

System Information

Sensor Type FlowTracker
Serial # P4554
CPU Firmware Version 3.7
Software Ver 2.30
Mounting Correction 0.0%

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.6%
Velocity	0.8%	3.3%
Width	0.2%	0.2%
Method	2.5%	-
# Stations	3.3%	-
Overall	4.4%	3.9%

Summary

Averaging Int. 40 # Stations 15
Start Edge LEW Total Width 7.300
Mean SNR 36.6 dB Total Area 7.060
Mean Temp 62.65 °F Mean Depth 0.967
Disch. Equation Mid-Section Mean Velocity 1.2140
Total Discharge 8.5702

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:03	0.90	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	13:03	1.40	0.6	0.800	0.6	0.320	0.0554	1.00	0.0554	0.400	0.0222	0.3
2	13:05	1.90	0.6	1.100	0.6	0.440	0.1430	1.00	0.1430	0.550	0.0787	0.9
3	13:07	2.40	0.6	1.200	0.6	0.480	0.7218	1.00	0.7218	0.600	0.4331	5.1
4	13:08	2.90	0.6	1.200	0.6	0.480	1.2228	1.00	1.2228	0.600	0.7337	8.6
5	13:09	3.40	0.6	1.300	0.6	0.520	1.4990	1.00	1.4990	0.650	0.9743	11.4
6	13:10	3.90	0.6	1.300	0.6	0.520	1.6755	1.00	1.6755	0.650	1.0890	12.7
7	13:11	4.40	0.6	1.300	0.6	0.520	1.6404	1.00	1.6404	0.650	1.0662	12.4
8	13:12	4.90	0.6	1.300	0.6	0.520	1.8238	1.00	1.8238	0.650	1.1854	13.8
9	13:13	5.40	0.6	1.300	0.6	0.520	1.6841	1.00	1.6841	0.650	1.0945	12.8
10	13:14	5.90	0.6	1.300	0.6	0.520	1.6467	1.00	1.6467	0.650	1.0702	12.5
11	13:15	6.40	0.6	0.900	0.6	0.360	0.9659	1.00	0.9659	0.450	0.4346	5.1
12	13:16	6.90	0.6	0.600	0.6	0.240	0.8635	1.00	0.8635	0.300	0.2591	3.0
13	13:17	7.40	0.6	0.400	0.6	0.160	0.4970	1.00	0.4970	0.260	0.1292	1.5
14	13:17	8.20	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

Discharge Measurement Summary

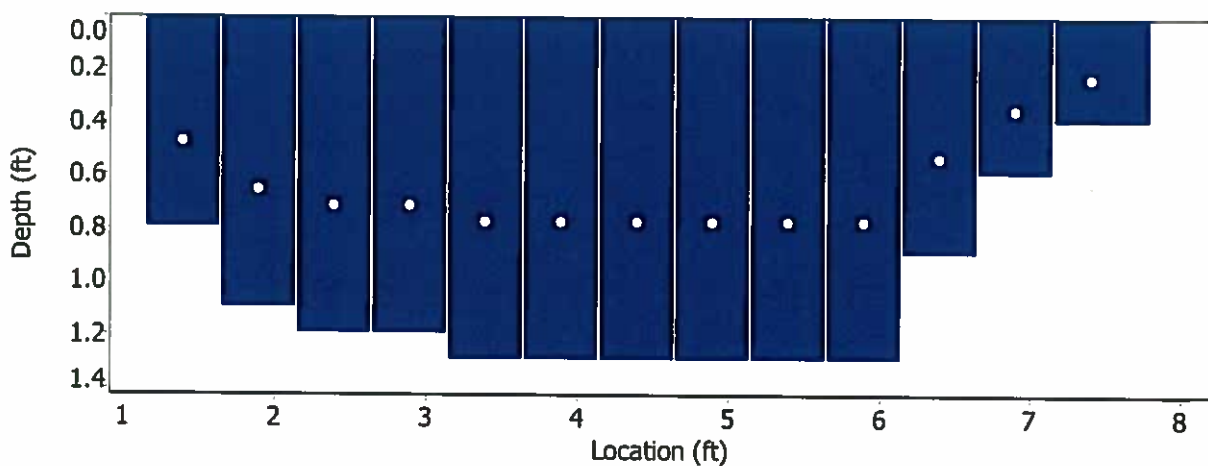
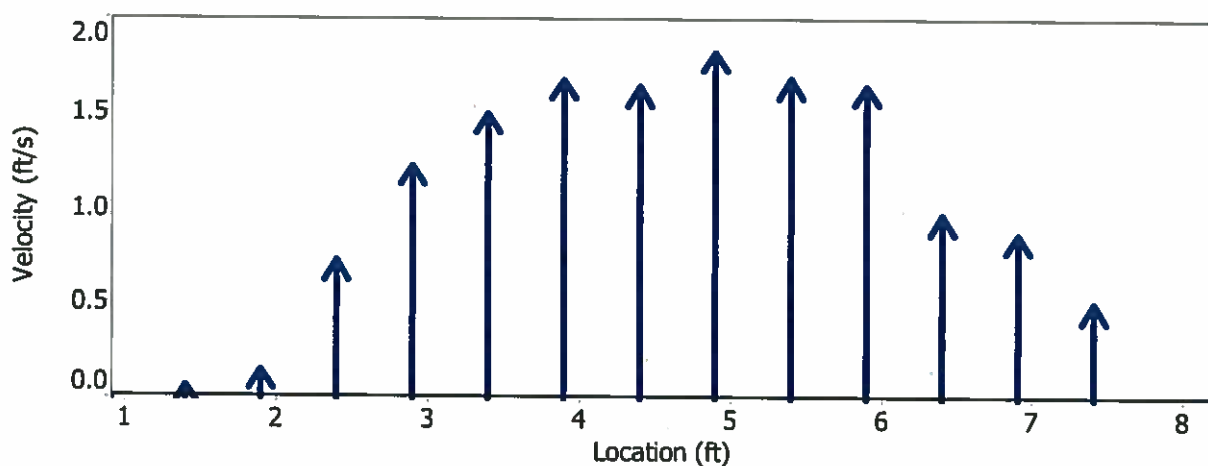
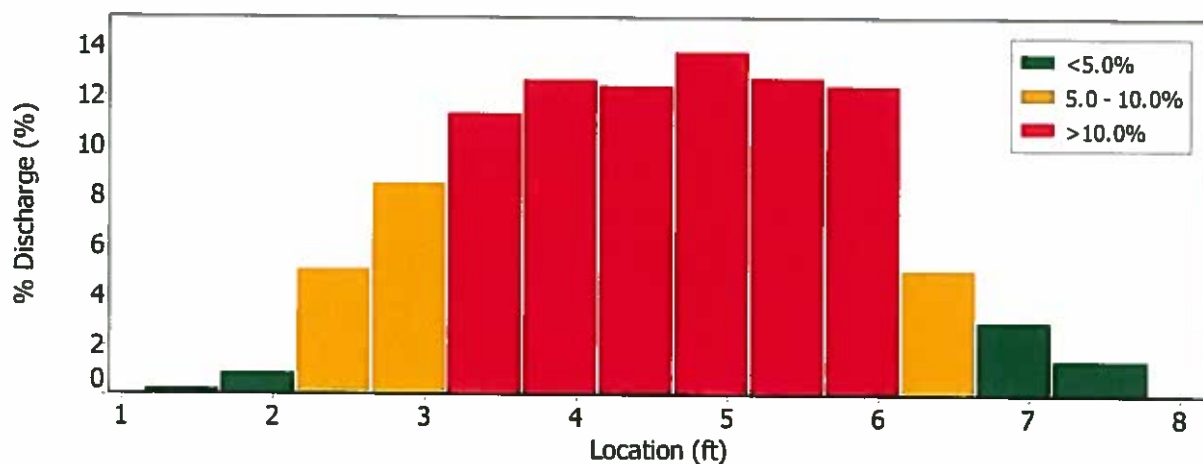
Date Generated: Fri Sep 13 2013

File Information

File Name UPPER2WE.WAD
Start Date and Time 2013/09/11 13:03:40

Site Details

Site Name
Operator(s) DAN



Discharge Measurement Summary

Date Generated: Fri Sep 13 2013

File Information

File Name UPPER2WE.WAD
Start Date and Time 2013/09/11 13:03:40

Site Details

Site Name
Operator(s) DAN

Quality Control

No Quality Control warnings

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/11/2013

FILE NUMBER 63-9368



This photo shows the lower well #3. I neglected to take pictures of the two upper wells.



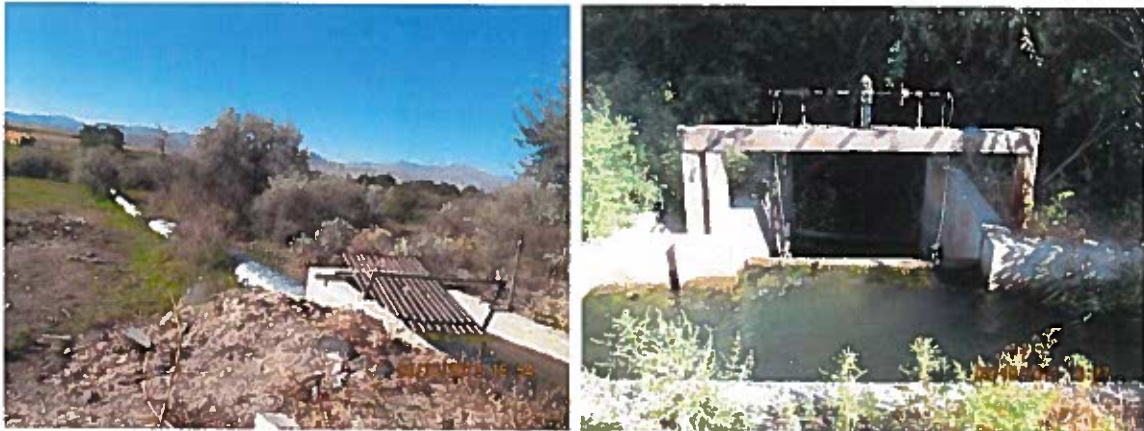
The photos above show the diversion points in and around Sproat Springs. The first photo shows the diversion out of Sproat Springs into the Reynolds Canal. The second photo shows the diversion out of Sproat Springs/Reynolds Canal into Warm Springs Creek. The third photo shows Warm Springs Creek, which is now basically a ditch off of the Reynolds Canal and Sproat Springs.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/11/2013

FILE NUMBER 63-9368



The photo above shows the point of diversion from Grouch Drain into the Reynolds Canal. The culvert in the middle of the photo transports water from Grouch Drain into the canal which is in the foreground. Grouch Drain runs through the Russian Olive trees shown behind the canal. There is a pond on Grouch Drain used for irrigation by Nicholson Farms. You can see the dam between the two stands of Russian Olive trees.



The photo above left shows the siphon that delivers water under Warm Springs Creek. You can see the line of willow and trees down the pipeline which designate the location of the creek. The photo above right shows the spillway on Reynolds Canal. As you can see, there is only about an inch or two before the water in the Reynolds Canal starts spilling into Warm Springs Creek.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/11/2013

FILE NUMBER 63-9368



These photos show the hydropower intake structure. As you can see from the photos this structure is very close to being at full capacity. There is some room left over for high water, but most of the water would be diverted out of the spill if too much more water was sent into the channel.



Spill Structure
is located
approximately
in this location.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/11/2013

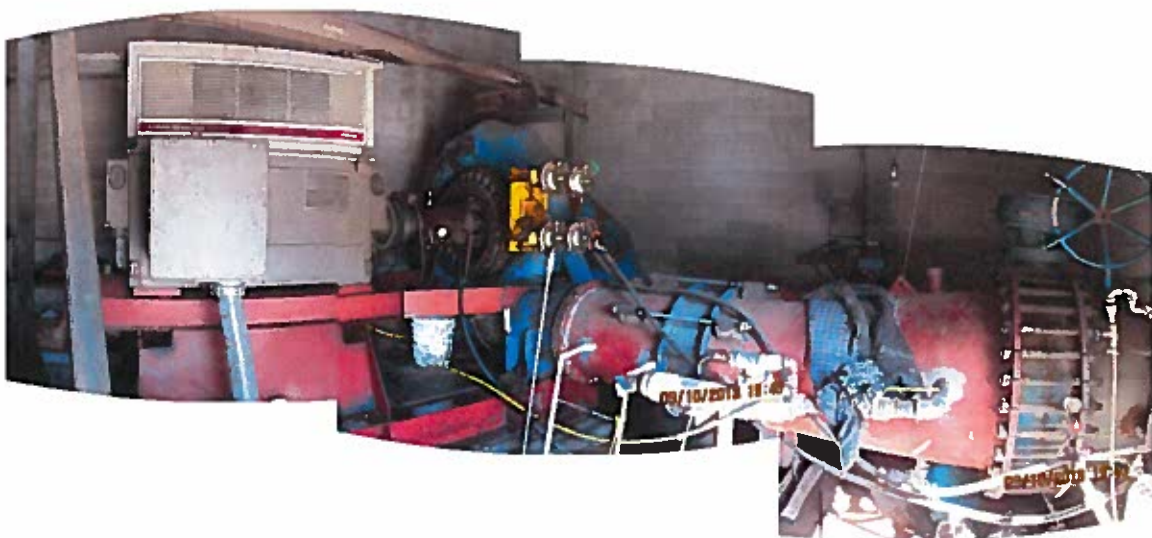
FILE NUMBER 63-9368



These are photos of the power house. The top photo shows the power house. The orange cone in front of the house is the location of the flow meter transducer. You can also see the pipeline coming into the power house next to the door. The Snake River is directly behind the cinder block power house. You can see the Dan's Ferry Bridge going over the Snake River in the background.

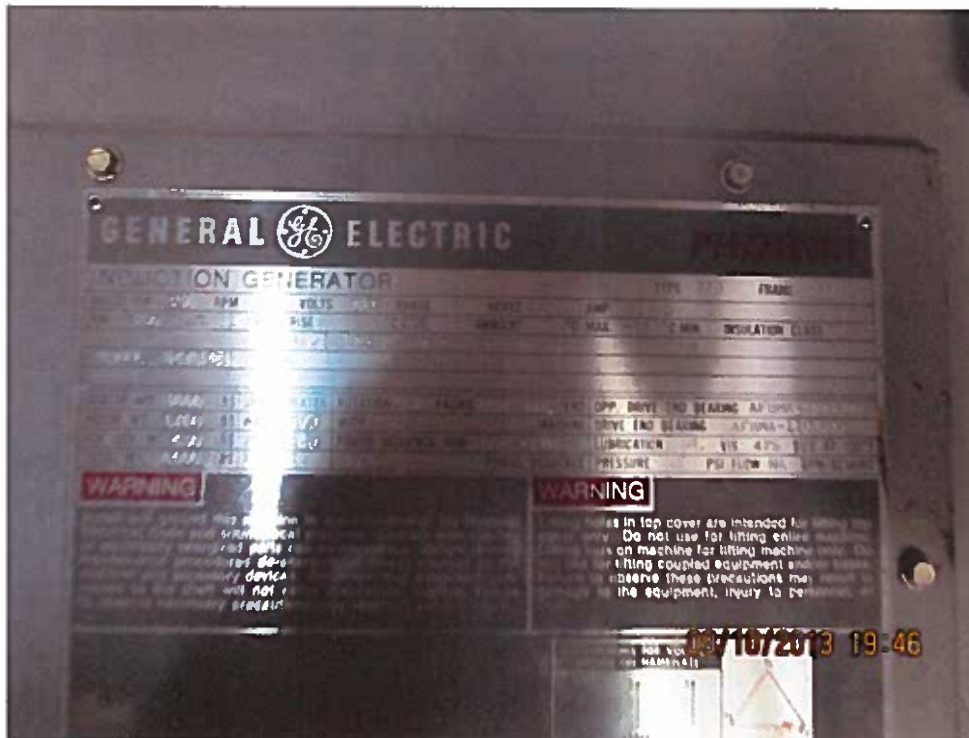
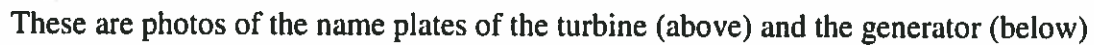


The second photo shows the measurement transducer on the pipe in the manhole cover marked by the orange cone in the first photo.



The bottom photo shows the inside of the power house. You can see the pipeline coming into the building on the right – going into the blue turbine and the blue turbine turning the shaft of the grey generator. The outflow from the turbine goes directly into the Snake River.

FILE NUMBER 63-9368



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 9/11/2013

FILE NUMBER 63-9368



The photos above show the various gauges on the power panel for this system. The system was operating at 16,375.91 gpm, 198.34 Kw, 325 amps, and 473 volts at the time of my visit. I am not sure about the how the SCADA system was set up, but it appears as though the canal had approximately 3 inches before the canal would spill. I am not sure if this is correct or not.

IDAHO POWER COMPANY
PRODUCTION GRAPHS AND STATISTICS OF
COGENERATION PROJECTS

1993 SECOND QUARTERLY UPDATE

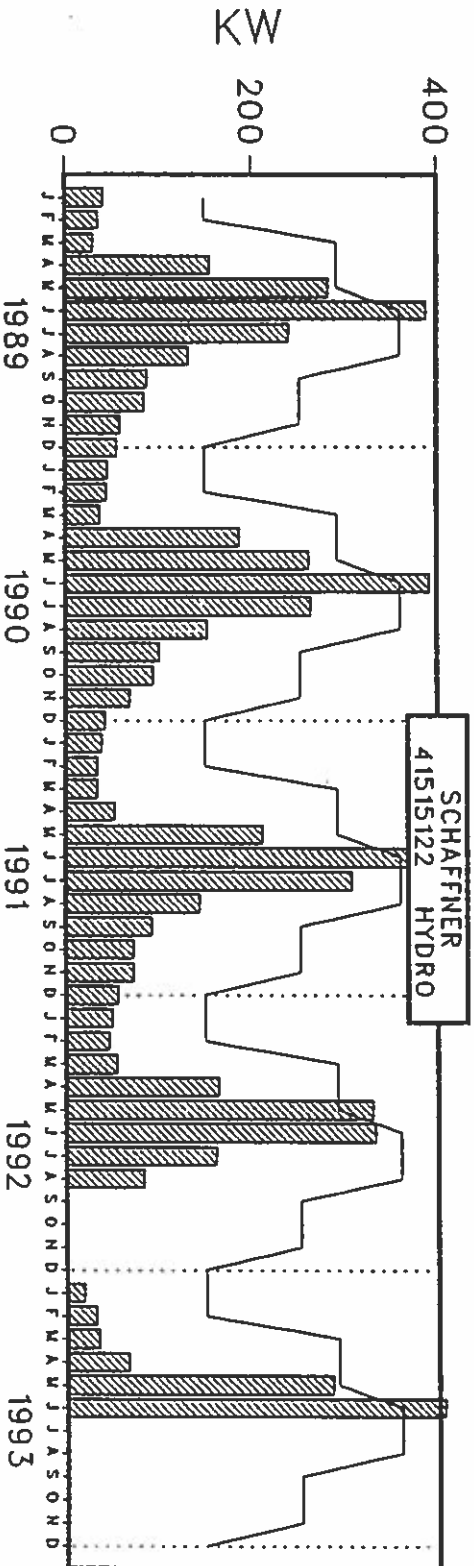
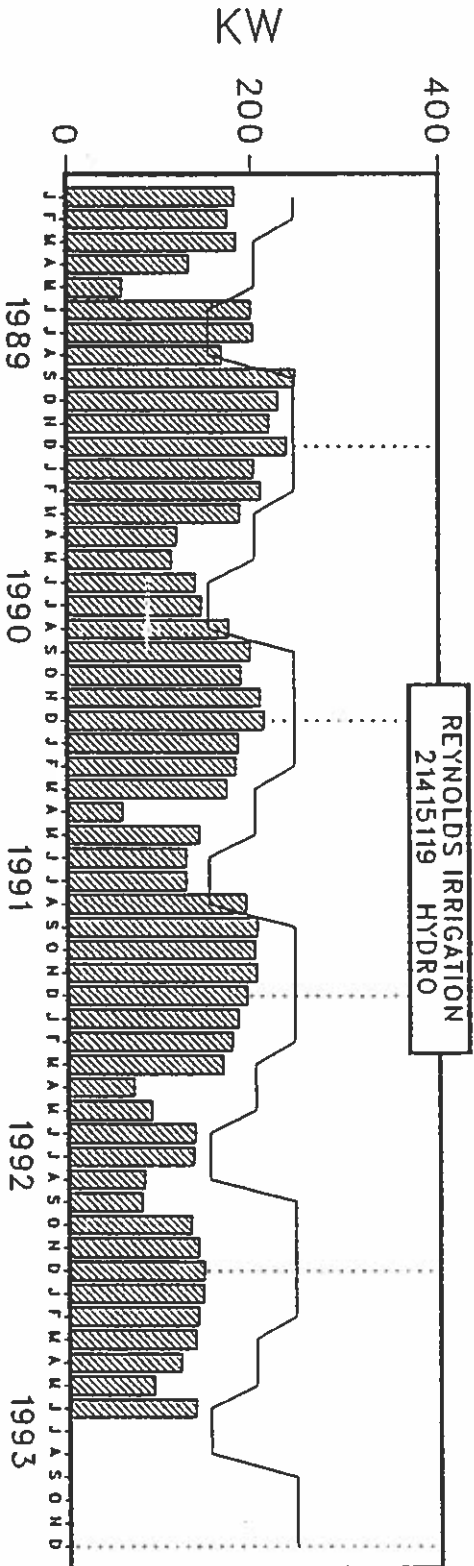
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TOTAL GENERATION
HYDRO GENERATION
STEAM GENERATION
INTERCONNECTION GRAPH

PAGE 1 IDAHO PUBLIC
2 UTILITIES COMMISSION
3
4

AFTON	20
BARBER DAM	30
B.C. EMMETT	6
BIRCH CREEK	6
BLACK CANYON #3	33
BLIND CANYON	11
BOX CANYON	13
BRIGGS CREEK	22
BYPASS	28
CANYON SPRINGS	13
CEDAR DRAW	19
CLEAR SPRINGS	15
CRYSTAL SPRINGS	23
CURRY CATTLE	11
DIETRICH DROP	29
ELK CREEK	24
FAULKNER RANCH	27
FISHERIES DEV. CO.	33
GEORON #2	26
HAILEY CSPP	8
HAZELTON A	32
HAZELTON B	34
JIM KNIGHT	12
KASEL & WITHERSPOON	17
KOYLE	17
LATERAL #10	16
LEMOYNE	8
LITTLE WOOD / ARKOOSH	26
LITTLE WOOD RIVER RESERVOIR	18
LOWLINE CANAL	19
LOWLINE #2	29
MAGIC RESERVOIR	32
MALAD RIVER	14
MARCOS RANCHES	20
MITCHELL BUTTE	31
MUD CREEK/S & S	14
MUD CREEK/WHITE	23
NORTHSIDE CANAL Y-8	10
OWYHEE DAM	21
PIGEON COVE	18
POCATELLO WASTE	22
REYNOLDS IRRIGATION	25
ROCK CREEK #1	16
ROCK CREEK #2	31
SAGEBRUSH	15
SCHAFFNER	25
SHINGLE CREEK	5
SHOSHONE	12
SIMPLOT	24
SLAUGHTERHOUSE CREEK	7
SNAKE RIVER POTTERY	7
SNEDIGAR RANCH	10
STEVENSON #1	9
STEVENSON #2	9
SUNSHINE POWER #2	28
TAMARACK	5
TROUT-CO	27
TUNNEL #1	34
WEST BOISE WASTEWATER	30
WILSON LAKE HYDRO	35
WHITE WATER RANCH	21
HYDRO AND STEAM PERCENTAGES BY MONTH	36-37
ACTUAL GENERATION	38-52

IDAHO POWER COMPANY Cogeneration and Small Power Production



IDAHO POWER COMPANY
COGENERATION AND SMALL POWER PRODUCTION
MONTHLY GENERATION BY PLANT (AVERAGE KW)

1986	JAN86	FEB86	MAR86	APR86	MAY86	JUN86	JUL86	AUG86	SEP86	OCT86	NOV86	DEC86
31515004	MUD CREEK/S&S	95	116	119	77	92	81	77	78	84	69	12
31416001	SHOSHONE	84	95	185	288	308	227	299	292	303	280	126
11766002	TAMARACK	4717	4213	3980	4437	2740	4850	4967	4879	4492	4324	4537
31415017	NORTHSIDE CANAL Y-8	-6	0	0	40	65	53	50	62	56	29	16
31415023	CURRY CATTLE CO.	0	0	0	78	188	190	216	219	167	0	0
11415009	SHINGLE CREEK	89	94	126	169	192	192	187	163	143	109	99
31615003	ROCK CREEK #1	1135	1593	1720	1877	1845	1872	1872	1932	1873	1479	1075
31515009	MALAD RIVER	228	502	572	538	580	564	405	662	670	677	400
31516014	CLEAR SPRINGS TROUT	419	421	422	190	259	425	434	417	423	430	434
31416013	BOX CANYON	242	237	186	169	178	199	243	253	235	207	205
31615030	KOYLE	244	391	701	566	766	690	743	895	879	857	442
31615031	KASEL & WITHERSPOON	309	311	253	412	660	873	805	697	842	531	358
44767012	AFTON	5886	5198	5723	6246	4987	6246	6363	6298	6436	5039	5220
31214058	BIRCH CREEK	42	42	41	34	40	43	47	49	52	52	50
31316010	STEVENSON #1	33	34	31	33	32	33	35	32	33	33	34
31415065	BLACK CANYON NO.3	0	0	0	28	65	56	53	39	109	96	4
31616081	CEDAR DRAW	369	289	349	1137	1260	1093	872	504	1420	541	409
31316011	STEVENSON #2	20	22	17	4	17	10	12	12	15	6	6
31415094	JIM KNIGHT	0	15	89	125	231	271	218	202	148	146	85
31416020	CANYON SPRINGS	103	82	85	92	82	97	100	96	96	95	101
31615067	PIGEON COVE	719	695	623	926	950	1195	1634	1603	1808	873	799
31315021	SNAKE RIVER POTTERY	64	68	45	8	34	36	42	45	28	63	76
31316015	LEMOYNE	25	24	25	23	21	23	22	17	23	25	25
31414075	SNEDGAR RANCH	212	224	203	278	301	300	338	342	411	225	189
31715093	LOWLINE CANAL	-4	-2	-1	3001	7408	7463	7584	7843	6707	3944	-6
31315093	HAILEY CSPP	19	21	24	26	28	30	32	30	23	25	47
31615105	LITTLE WOOD RIV. RES.	0	648	1436	2271	2731	2777	2404	915	244	16	0
31615105	LATERAL #10	1283	1087	1251	1245	7551	658	745	1229	1726	1514	665
11666066	B.C. EMETT	8522	6650	0	6651	7956	11107	11266	11448	6059	9644	10416
31515103	SAGEBRUSH	-8	-2	54	220	244	229	232	159	169	131	115
31315029	WHITE WATER RANCH	105	107	91	90	61	50	82	84	115	117	132
31615117	MARCOS RANCHES	0	0	0	199	515	656	636	776	1106	799	101
12616071	OWYHEE DAM	-25	2408	5076	5066	5234	5214	5091	0	4814	1475	3458
31315008	H.E.E.D. CO.	7	11	10	7	23	24	24	0	0	0	0
31515100	BRIGGS CREEK	429	433	442	448	446	445	455	488	525	549	510
31615057	CRYSTAL SPRINGS	34	0	76	1203	1725	1324	1056	1220	1755	457	282
41455091	POCATELLO WASTE	154	146	148	156	151	147	138	126	123	156	152
31414111	MUD CREEK/WHITE	67	94	86	19	34	1	0	40	156	134	118
11111111	SIAPLOT POCATELLO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11615077	ELK CREEK	0	0	0	312	1034	1460	525	NA	NA	NA	NA
21415119	REYNOLDS IRRIGATION	0	0	0	0	71	170	213	226	237	112	239
31315107	LITTLEWOOD/ARKOOSH	0	0	0	0	0	0	0	595	852	769	428
41515122	SCHAFFNER	0	0	0	0	0	0	0	95	135	92	71
31615098	GEORON 2	0	0	0	0	0	0	0	0	0	762	463
31415027	TROUT CO.	0	0	0	0	0	0	0	0	0	1	155
TOTAL	25633	26265	24186	38689	44312	51376	50520	45073	45545	41890	30885	32102

IDAHO POWER COMPANY
 COGENERATION AND SMALL POWER PRODUCTION
 MONTHLY GENERATION BY PLANT (AVERAGE KW)

1987	JAN87	FEB87	MAR87	APR87	MAY87	JUN87	JUL87	AUG87	SEP87	OCT87	NOV87	DEC87
31515004	MUD CREEK/S&S	0	43	50	50	46	27	0	10	122	25	117
31416001	SHOSHONE	0	141	173	208	297	277	284	180	70	167	83
11766002	TAMARACK	4925	4773	4391	4552	3967	5130	4663	4476	3800	4507	4971
31415017	NORTHSIDE CANAL Y-8	4	0	4	51	68	44	66	67	21	7	14
31415023	CURRY CATTLE CO.	0	0	0	115	234	222	248	180	95	0	0
11415009	SHINGLE CREEK	89	85	90	114	188	154	106	90	85	85	79
31615003	ROCK CREEK #1	967	921	898	1249	1603	1874	1921	1929	1991	1577	1185
31515009	MALAD RIVER	122	265	257	316	315	287	394	434	146	34	85
31416014	CLEAR SPRINGS TROUT	436	439	436	425	431	424	404	430	139	363	434
31416013	BOX CANYON	231	270	261	265	251	258	241	234	233	246	257
31615030	KOYLE	95	188	270	503	844	385	433	442	181	20	39
31615031	KASEL & WITHERSPOON	316	270	262	298	566	601	546	555	697	455	251
44767012	AFTON	6073	5269	6237	5864	5520	5456	5726	6442	5542	4471	6066
31214058	BIRCH CREEK	47	47	45	30	40	45	46	51	47	50	49
31316010	STEVENSON #1	32	33	34	26	33	33	34	35	35	24	34
31415065	BLACK CANYON NO.3	0	0	0	45	83	69	75	118	44	0	0
31616001	CEDAR DRAW	325	282	250	641	434	593	614	1264	1169	366	543
31316011	STEVENSON #2	34	22	30	31	30	29	32	32	26	30	32
31415094	JIM KNIGHT	0	41	0	89	205	213	185	183	63	36	37
31416020	CANYON SPRINGS	95	100	93	95	87	102	107	90	92	120	129
31615067	PIGEON COVE	607	562	446	732	1311	1529	1425	1756	1576	891	792
31315021	SNAKE RIVER POTTERY	56	53	66	71	4	36	38	38	42	56	63
31316015	LEMOYNE	25	26	26	25	19	21	23	22	24	24	24
31414075	SNEEDIGAR RANCH	186	170	146	190	225	262	295	342	308	227	208
31715099	LOWLINE CANAL	-10	-12	-6	3166	7404	7020	7347	6063	3592	-2	-15
31615093	HAILEY CSP	46	47	47	8	15	38	38	35	37	38	36
31615105	LITTLE WOOD RIV. RES.	0	-8	-2	555	1081	988	445	51	-3	-3	-3
31615056	LATERAL #10	1305	754	483	1629	768	1114	1385	1772	1313	1871	1648
11866066	B.C. EMETT	9437	10240	9820	3988	2287	11982	10681	7582	10435	6518	9561
31515103	SAGEBRUSH	0	0	0	36	373	214	247	173	76	30	-5
31315029	WHITE WATER RANCH	141	123	133	117	103	106	82	52	98	143	126
31615117	MARCOS RANCHES	0	0	0	359	682	562	632	1014	390	0	0
12616071	OWTHEE DAM	-20	-21	8	5041	4932	4775	4329	4071	3891	-21	4
31315008	H.E.D. CO.	13	8	9	6	20	3	12	6	35	28	16
31515100	BRIGGS CREEK	490	487	442	433	416	460	496	515	506	528	493
31615057	CRYSTAL SPRINGS	209	76	75	750	592	849	673	1929	1582	267	72
41455091	POCATELLO WASTE	123	156	150	152	118	169	148	170	168	185	175
31414111	MUD CREEK/WHITE	79	78	57	21	0	0	0	123	138	127	105
11111111	SIMPLLOT POCATELLO	0	0	0	0	0	0	0	0	0	0	0
11615077	ELK CREEK	-11	30	312	1354	1769	831	0	0	0	0	0
21415119	REYNOLDS IRRIGATION	190	237	194	103	80	115	-2	206	-3	-4	-10
31515107	LITTLEWOOD/ARKOOSH	182	274	254	516	725	750	179	672	173	210	206
41515122	SCHAFNER	54	44	39	169	332	286	130	82	67	53	160
31615098	GEORON 2	184	302	315	575	832	685	829	731	246	8	47
31415027	TROUT CO.	154	143	156	79	56	51	75	122	129	141	144
31615121	FAULKNER RANCH	0	0	0	0	0	0	420	664	200	42	88
41415124	SUNSHINE POWER #2	0	0	0	0	0	0	0	0	0	0	0
TOTAL	27230	26968	31821	34942	39393	48913	45924	46465	45476	38643	24050	28482

IDAHO POWER COMPANY
COGENERATION AND SMALL POWER PRODUCTION
MONTHLY GENERATION BY PLANT (AVERAGE KW)

1988		JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88
31515004	MUD CREEK/S&S	103	61	58	16	56	53	71	82	119	170	189	153
31416001	SHOSHONE	0	104	235	263	318	281	317	307	317	85	140	88
11766002	TAMARACK	5075	4844	4790	4286	4377	3423	4668	4714	4065	4611	4256	4572
31415017	NORTHSIDE CANAL Y-8	11	6	12	35	37	24	0	58	58	2	0	5
31415023	CURRY CATTLE CO.	0	0	0	47	193	212	233	200	153	17	0	0
11415009	SHINGLE CREEK	73	69	72	98	151	185	127	101	93	89	85	79
31615003	ROCK CREEK #1	982	809	840	995	1228	1603	1829	1920	1924	1834	1448	1029
31515009	MALAD RIVER	65	200	178	360	215	177	125	142	450	151	49	37
31516014	CLEAR SPRINGS TROUT	432	442	442	442	439	443	442	433	434	427	447	435
31416013	BOX CANYON	265	255	259	249	242	246	219	229	236	215	240	242
31615030	KOYLE	26	152	168	542	604	439	309	317	611	237	27	15
31615031	KASEL & WITHERSPOON	272	247	184	319	475	650	682	650	921	679	538	504
44767012	AFTON	5804	6216	5480	5241	2228	5699	6438	6204	5304	5231	6039	4815
31214058	BIRCH CREEK	46	44	39	35	32	42	45	46	46	49	46	46
31316010	STEVENSON #1	33	31	29	25	29	9	0	0	0	0	18	19
31415005	BLACK CANYON NO.3	0	0	0	21	95	108	87	68	110	18	0	0
31616001	CEDAR DRAW	346	274	219	546	726	694	442	465	781	1143	482	371
31316011	STEVENSON #2	23	23	28	27	24	9	27	27	26	25	26	11
31415094	JIM KNIGHT	0	0	31	32	95	171	171	197	247	61	0	0
31416020	CANYON SPRINGS	126	132	127	126	107	124	113	110	97	107	94	113
31615067	PIGEON COVE	684	534	436	732	1335	1439	1316	1229	1457	1378	845	732
31315021	SNAKE RIVER POTTERY	60	61	65	42	31	32	34	27	34	38	51	56
31316015	LEMOYNE	24	26	24	25	24	27	17	23	24	24	17	24
31414075	SNEEDGAR RANCH	164	146	140	227	245	271	142	220	270	223	137	118
31715099	LOWLINE CANAL	0	0	0	2207	6797	7534	7984	7602	4521	3114	25	-3
31315093	HAILEY CSPP	34	33	32	31	30	29	29	28	27	27	25	17
31615105	LITTLE WOOD RIV. RES.	-1	-2	-3	-4	1158	1299	918	157	2	-2	0	0
31615056	LATERAL #10	1366	1057	230	1791	1005	605	13	160	866	1914	1736	1507
11866006	B.C. EMELT	8749	8605	7749	2290	5859	9386	8465	10164	3678	11041	10951	9401
31515103	SAGEBRUSH	0	0	0	58	111	119	119	236	279	69	5	-7
31315029	WHITE WATER RANCH	133	137	121	80	55	66	53	43	57	66	103	121
31615117	MARCOS RANCHES	0	0	0	319	439	504	493	620	842	319	0	0
12616071	OWYHEE DAM	-23	-20	249	2703	2971	2862	2689	2530	2310	2054	-19	-21
31315008	H.E.E.D. CO.	0	37	3	2	13	19	23	21	7	7	7	7
31515100	BRIGGS CREEK	481	477	438	436	410	428	430	454	494	504	507	481
31615057	CRYSTAL SPRINGS	96	10	-9	406	871	922	587	573	1160	1782	113	2
41455091	POCATELLO WASTE	187	180	172	174	157	165	156	148	140	181	183	169
31414111	MUD CREEK/WHITE	45	39	36	13	15	26	28	12	10	57	80	80
11111111	SIMPLLOT POCATELLO	0	0	0	0	0	0	0	0	0	0	0	0
11615077	ELK CREEK	-11	-9	-3	1116	1655	1671	329	-2	-2	-1	-9	-11
21415119	REYNOLDS IRRIGATION	193	185	185	50	105	134	134	144	176	164	206	211
31515107	LITTLEWOOD/ARCOOSH	142	247	236	314	678	784	867	863	770	169	114	133
41515122	SCHAFFNER	40	35	34	141	273	365	166	96	73	57	54	45
31615098	GEORON 2	92	227	224	282	714	803	873	862	771	176	13	8
31415027	TROUT CO.	134	142	131	124	63	66	57	43	86	86	107	133
31615121	FAULKNER RANCH	67	120	45	309	570	535	615	540	554	190	33	54
41415124	SUNSHINE POWER #2	0	31	16	11	29	47	50	38	24	12	6	3
31615125	LOWLINE #2	0	0	0	1037	2349	2487	2533	2441	1868	1219	-4	0
31715126	BYPASS	0	0	0	86	85	0	6997	746	4765	1633	-28	-30
31615106	DIETRICH DROP	0	0	0	0	0	0	0	0	3604	623	-6	-6
21615078	BARBER DAM	0	0	0	0	0	0	0	0	0	0	0	0
31615104	ROCK CREEK #2	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		26339	26206	23742	28705	39720	51580	53059	53285	44956	42276	29344	25861

IDAHO POWER COMPANY
COGENERATION AND SMALL POWER PRODUCTION
MONTHLY GENERATION BY PLANT (AVERAGE KW)

	1989	JAN89	FEB89	MAR89	APR89	MAY89	JUN89	JUL89	AUG89	SEP89	OCT89	NOV89	DEC89
31515004	MUD CREEK/S&S	91	60	60	29	46	76	47	88	223	259	207	138
31416001	SHOSHONE	0	0	165	299	315	313	286	306	300	160	188	109
11766002	TAMARACK	5090	4384	4115	3671	4637	4507	4885	4729	4522	4476	3855	4571
31415017	NORTHSHORE CANAL Y-8	0	2	25	25	33	32	30	32	29	10	0	10
31415023	CURRY CATTLE CO.	0	0	0	46	194	292	97	212	151	53	0	0
11415009	SHINGLE CREEK	72	65	85	133	186	193	172	136	118	108	102	89
31615003	ROCK CREEK #1	797	576	1149	1536	1402	1691	1664	1957	1936	1968	1524	1041
31515009	MALAD RIVER	2	133	462	484	496	179	133	407	582	383	228	116
31516014	CLEAR SPRINGS TROUT	442	444	444	439	418	418	417	410	407	400	413	435
31416013	BOX CANYON	249	214	237	237	233	144	124	196	210	197	206	224
31615030	KOYLE	0	13	562	467	629	443	306	625	780	443	212	42
31615031	KASEL & WITHERSPOON	346	282	199	231	496	535	657	719	917	865	556	463
44767012	AFTON	4970	5015	3862	5202	5085	5179	5046	2800	5425	5562	1403	4828
31214058	BIRCH CREEK	45	44	44	38	36	41	44	49	53	56	51	46
31316010	STEVENSON #1	18	1	0	0	0	0	0	0	20	32	29	26
31415065	BLACK CANYON NO.3	0	0	0	0	105	97	104	85	82	66	77	0
31616081	CEDAR DRAW	295	267	212	661	885	879	590	1236	1434	1427	586	378
31316011	STEVENSON #2	0	0	0	2	0	0	0	0	0	30	31	35
31415094	JIM KNIGHT	0	0	0	80	58	290	247	259	263	77	58	0
31416020	CANYON SPRINGS	118	118	109	112	118	125	119	116	55	106	98	123
31615067	PIGEON COVE	586	457	423	490	1224	1395	1352	1465	1629	1549	861	775
31315021	SNAKE RIVER POTTERY	57	58	44	44	32	34	10	26	27	0	35	59
31316015	LEMOYNE	22	19	17	24	23	18	26	19	22	21	23	24
31414075	SNEDIGAR RANCH	130	101	104	126	229	140	150	162	230	228	146	141
31715089	LOWLINE CANAL	-3	-6	0	1231	7193	7911	7507	8004	6532	4300	220	-4
31315093	HAILEY CSPP	21	20	20	19	20	16	20	19	19	18	18	17
31615105	LITTLE WOOD RIV. RES.	-5	-7	-8	1638	1716	2199	1707	269	-2	-2	-6	-6
31615056	LATERAL #10	1043	492	10	447	857	909	720	1561	1759	1661	1627	1321
11866066	B.C. EMMETT	9211	8525	7750	4271	6234	10904	9564	9595	3194	8165	9123	9467
31515103	SAGEBRUSH	-6	-5	-4	129	288	297	293	288	296	90	70	-4
31315029	WHITE WATER RANCH	67	95	122	73	37	47	36	39	44	97	114	129
31615117	MARCOS RANCHES	0	0	0	283	555	485	413	673	883	795	47	0
12616071	OMYTHE DAM	-21	-16	2575	1962	5058	4711	4806	4669	4660	4453	-46	-45
31315008	H.E.E.D. CO.	7	7	8	5	15	22	19	28	0	0	0	21
31515100	BRIIGGS CREEK	474	457	436	482	347	420	432	412	439	417	412	378
31615057	CRYSTAL SPRINGS	-31	-24	-11	638	1277	1444	787	1828	2295	2161	357	0
4145081	POCATELLO WASTE	159	197	169	188	154	155	139	152	149	149	136	170
31414111	MUD CREEK/WHITE	41	35	31	3	10	15	17	43	63	26	98	62
11615077	ELK CREEK	-11	-12	366	1225	1753	1748	641	-2	-1	51	133	-12
21415119	REYNOLDS IRRIGATION	182	175	184	132	60	200	202	167	247	228	219	238
31515107	LITTLEWOOD/ARROOSH	68	65	324	455	730	770	621	509	429	299	195	226
41515122	SCHAFFNER	41	36	30	156	283	389	241	132	88	84	58	55
31615098	GEORON 2	-21	-12	345	507	772	787	815	878	648	15	173	225
31415027	TROUT CO.	139	133	139	97	50	52	50	74	107	116	144	149
31615121	FAULKNER RANCH	26	19	136	354	631	647	601	672	560	269	166	148
41415124	SUNSHINE POWER #2	2	1	6	8	18	37	35	24	10	0	3	10
31715125	LOWLINE #2	-22	-18	-13	278	2431	2534	2471	2522	2350	1697	56	0
31615126	BYPASS	-35	-36	-28	2158	6572	7744	8351	7192	5793	2841	-22	-31
31615106	DIETRICH DROP	-6	-7	-6	259	3866	4641	4078	4444	3832	1028	-4	-7

Sherl L. Chapman

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FEB 26 1988

CONSULTANT

410 S. ORCHARD / SUITE 144 / BOISE, IDAHO 83705 / PHONE 344-6690

Department of Water Resources

BDF

Dave ONA

February 25, 1988

Mr. Bob Fleenor
Department of Water Resources
Statehouse
Boise, Idaho 83720

Dear Mr. Fleenor:

Enclosed you will find flow data from the broad crested weir installed by Reynolds Irrigation District for their hydroelectric power project. The flume measures water flowing through the Reynolds diversion facilities into the hydropower plant and is a measure of the water flowing from the springs and relief wells described in my report submitted to you during the recent water right protest hearing in Caldwell, Idaho. This is a measurement of the water exchanged for Snake River water and records have been kept to the present time although not reflected on the enclosed table. I have limited the data on the enclosed table to the general irrigation season for this area in order to minimize the amount of paperwork submitted to you.

If you have any questions regarding the table, please don't hesitate to contact me.

Additionally, given the testimony presented at the hearing, it would seem that Mr. Young is in fact diverting water without a valid water right and did so for most of the 1987 irrigation season. I would suggest that pursuant to Idaho Code 42-351 that the Department of Water Resources should direct Mr. Young to cease and desist operation of the wells involved under these water rights until a determination has been made by the Department of Water Resources.

Sincerely yours,

Sherl L. Chapman

Sherl L. Chapman
Consultant

SLC:kje
enclosures
cc:Mr. Jerry Hoagland

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MAR 4 1988

FEB 24 1990

Department of Water Resources
Western Regional Office

SPECIALIST IN

GROUND-WATER HYDROLOGY / WATER RIGHTS / WATER WELL DESIGN / GEOTHERMAL RESOURCES

Sherl L. Chapman

CONSULTANT

410 S. ORCHARD / SUITE 144 / BOISE, IDAHO 83705 / PHONE 344-6890

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February 25, 1988

Department of Water Resources

Mr. C. W. Young
Box 13, Star Route
Melba, Idaho 83641

Dear Mr. Young:

Enclosed you will find the tabular data submitted to the Idaho Department of Water Resources relating to the flow through the broad crested weir on the Reynolds Basin Irrigation District project. This table is submitted to you in accordance with the direction of Mr. Bob Fleenor of the Idaho Department of Water Resources at the recent hearing on permit #63-10483.

If you have questions regarding the table, please feel free to contact me.

Sincerely yours,

Sherl L. Chapman
Consultant

SLC:kje
enclosures
cc:Mr. Bob Fleenor
Mr. Jerry Hoagland

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FLOOD RECORDS FOR REYNOLDS IRRIGATION DISTRICT
BROAD CRESTED WEIR
SW/4 SW/4, SEC. 9, T1S, R2W
TABULATED FEBRUARY 25, 1988
SHERL L. CHAPMAN

* Gage height less than 1.79 indicates a flow less than the water right of 31.28 cfs

DATE	GAGE HT. (ft)	FLOW (cfs)	DATE	GAGE HT. (ft)	FLOW (cfs)
1987			1987		
MARCH			APRIL		
1	2.0	37.2	1	1.97	36.3+
2	2.0	37.2	2	1.97	36.3+
3	2.0	37.2	3	1.97	36.3+
4	2.0	37.2	4	2.0	37.2+
5	1.99	36.9	5	1.99	36.9+
6	1.88	33.7	6	1.99	36.9+
7	1.88	33.7	7	1.98	36.6+
8	1.87	33.4	8	1.97	36.3+
9	1.88	33.7	9	----	----
10	1.97	36.3	10	1.6	<28.7
11	1.99	36.9	11	1.6	<28.7
12	1.97	36.3	12	1.59	<28.7
13	1.99	36.9	13	----	----
14	1.99	36.9	14	1.60	<28.7
15	1.99	36.9+	15	----	----
16	1.97	36.3+	16	----	----
17	1.97	36.3+	17	1.34	<28.7
18	1.98	36.6+	18	1.47	<28.7
19	1.99	36.9+	19	1.50	<28.7
20	1.98	36.6+	20	1.50	<28.7
21	1.97	36.3+	21	1.68	<28.7
22	1.98	36.6+	22	1.73	29.6
23	1.98	36.6+	23	----	----
24	1.98	36.6+	24	1.44	<28.7
25	1.99	36.9+	25	1.61	<28.7
26	1.99	36.9+	26	1.4	<28.7
27	1.99	36.9+	27	1.38	<28.7
28	1.98	36.6+	28	1.61	<28.7
29	1.97	36.3+	29	1.05	<28.7
30	1.97	36.3+	30	1.48	<28.7
31	1.98	36.6+			

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+ = 31.28 was available 59%
- = <31.28 was available 31%

+ 25

- 17

Σ+ = 142

Σ- = 97

DATE	GAGE HT. (ft)	FLOW (cfs)
1987		
MAY		
1	1.57	<28.7
2	1.49	<28.7
3	1.42	<28.7
4	1.39	<28.7
5	1.44	<28.7
6	1.40	<28.7
7	1.62	<28.7
8	1.36	<28.7
9	1.35	<28.7
10	1.32	<28.7
11	1.41	<28.7
12	1.47	<28.7
13	1.41	<28.7
14	1.34	<28.7
15	1.33	<28.7
16	1.54	<28.7
17	1.47	<28.7
18	1.36	<28.7
19	1.34	<28.7
20	1.32	<28.7
21	1.55	<28.7
22	1.42	<28.7
23	1.48	<28.7
24	1.44	<28.7
25	1.42	<28.7
26	1.47	<28.7
27	1.39	<28.7
28	1.41	<28.7
29	1.40	<28.7
30	1.40	<28.7
31	1.40	<28.7

DATE	GAGE HT. (ft)	FLOW (cfs)
1987		
JUNE		
1	1.39	<28.7
2	1.38	<28.7
3	1.43	<28.7
4	1.48	<28.7
5	1.42	<28.7
6	1.42	<28.7
7	1.28	<28.7
8	1.48	<28.7
9	1.68	<28.7
10	1.52	<28.7
11	1.56	<28.7
12	1.60	<28.7
13	1.56	<28.7
14	1.59	29.9
15	1.74	<28.7
16	1.68	30.4
17	1.76	<28.7
18	1.61	<28.7
19	1.67	<28.7
20	1.62	<28.7
21	1.64	<28.7
22	1.63	30.9
23	1.78	34.6
24	1.91	<28.7
25	1.62	28.7
26	1.70	<28.7
27	1.64	<28.7
28	1.59	<28.7
29	1.61	<28.7
30	1.60	

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DATE GAGE HT. (ft) FLOW (cfs)

1987
JULY

1	1.66	<28.7
2	1.69	<28.7
3	1.70	28.7
4	1.68	<28.7
5	1.76	30.4
6	1.74	29.9
7	1.77	30.7
8	1.78	30.9
9	1.87	33.4
10	1.72	29.3
11	1.72	29.3
12	1.78	30.9
13	1.71	29.0
14	1.73	29.6
15	1.78	30.9
16	1.79	31.2
17	1.88	33.7
18	1.84	32.6
19	1.88	33.7
20	1.83	32.3
21	1.86	33.1
22	1.85	32.8
23	1.81	31.7
24	1.82	32.0
25	1.84	32.6
26	1.86	33.1
27	1.86	33.1
28	1.87	33.4
29	1.86	33.1
30	1.91	34.6
31	1.91	34.6

DATE GAGE HT. (ft) FLOW (cfs)

1987
AUG.

1	1.92	34.8
2	1.90	34.3
3	1.92	34.8
4	1.91	34.6
5	1.97	36.3
6	1.92	34.8
7	1.94	35.4
8	1.91	34.6
9	1.94	35.4
10	1.96	36.0
11	1.98	36.6
12	1.97	36.3
13	1.97	36.3
14	1.97	36.3
15	1.98	36.6
16	1.98	36.6
17	1.99	36.9
18	1.97	36.3
19	1.99	36.9
20	1.99	36.9
21	2.0	37.2
22	2.06	39.0
23	2.03	38.1
24	2.04	38.4
25	2.06	39.0
26	2.04	38.4
27	2.06	39.0
28	2.05	38.7
29	2.05	38.7
30	2.04	38.4
31	2.05	38.7

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DATE GAGE HT. (ft) FLOW (cfs)

1987
SEPT

1	2.06	39.0 ⁺
2	2.08	39.6 ⁺
3	2.09	39.9 ⁺
4	2.1	40.2 ⁺
5	2.05	38.7 ⁺
6	2.05	38.7 ⁺
7	2.01	37.5 ⁺
8	1.99	36.9 ⁺
9	2.01	37.5 ⁺
10	2.04	38.4 ⁺
11	2.02	37.8 ⁺
12	1.99	36.9 ⁺
13	1.94	35.4 ⁺
14	1.99	36.9 ⁺
15	1.95	35.7 ⁺
16	1.93	35.1 ⁺
17	1.89	34.0 ⁺
18	1.98	36.6 ⁺
19	1.98	36.6 ⁺
20	----	----
21	2.0	37.2 ⁺
22	1.98	36.6 ⁺
23	2.0	37.2 ⁺
24	2.0	37.2 ⁺
25	1.98	36.6 ⁺
26	2.0	37.2 ⁺
27	2.0	37.2 ⁺
28	2.03	38.1 ⁺
29	2.03	38.1 ⁺
30	2.03	38.1 ⁺

DATE GAGE HT. (ft) FLOW (cfs)

1987
OCT.

1	2.02	37.8 ⁺
2	1.99	36.9 ⁺
3	1.99	36.9 ⁺
4	1.93	35.1 ⁺
5	1.96	36.0 ⁺
6	1.80	31.5 ⁺
7	1.86	33.1 ⁺
8	1.82	32.0 ⁺
9	1.82	32.0 ⁺
10	1.78	30.9 ⁺
11	1.81	31.7 ⁺
12	1.80	31.5 ⁺
13	1.81	31.7 ⁺
14	1.78	30.9 ⁺
15	1.81	31.7 ⁺
16	1.80	31.5 ⁺
17	1.80	31.5 ⁺
18	1.79	31.2 ⁺
19	1.80	31.5 ⁺
20	----	----
21	1.78	30.9 ⁺
22	1.78	30.9 ⁺
23	2.1	40.2 ⁺
24	2.0	37.2 ⁺
25	2.0	37.2 ⁺
26	2.1	40.2 ⁺
27	2.1	40.2 ⁺
28	2.1	40.2 ⁺
29	2.0	37.2 ⁺
30	2.0	37.2 ⁺
31	2.1	40.2 ⁺

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DATE GAGE HT. (ft) FLOW (cfs)

1987

NOV.

1	2.2	43.3 f
2	2.2	43.3 f
3	2.04	38.4 f
4	2.1	40.2 f
5	2.1	40.2 f
6	2.1	40.2 f
7	2.0	37.2 f
8	2.1	40.2 f
9	1.96	36.0 f
10	1.97	36.3 f
11	1.94	35.4 f
12	1.91	34.6 f
13	1.94	35.4 f
14	1.95	35.7 f
15	1.94	35.4 f
16	1.93	35.1 f
17	1.94	35.4 f
18	1.92	34.8 f
19	1.92	34.8 f
20	1.93	35.1 f
21	1.93	35.1 f
22	1.93	35.1 f
23	1.92	34.8 f
24	1.92	34.8 f
25	1.91	34.6 f

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