

Edl, Michele

From: Lloyd Wallace <wallace83836@gmail.com>
Sent: Wednesday, February 16, 2022 5:06 PM
To: Edl, Michele
Subject: Re: water right update

Ms. Michele Edl,

I think I have found the engineering data that you can accept. After trying to get the engineering locally, I finally remembered Canyon Hydro in Seattle that I worked with back in the 1980's. I worked with Eric Melander's father & more recently with Eric in purchasing an electronic governor control. You can google search Canyon Hydro and see their world wide operation, systems they have built and Eric offered to answer any questions. Eric remembered me and offered to run my nozzle size data and (in operation) pressure data through their engineering program and he sent me the results. I will copy his email to me below. I did the annual acre feet that I have observed months to provide and while the total was 671 acre ft. with the two large nozzles, it is doubtful that I can run the two large nozzles for all of the 242 permit days. I think that your offer of 572 acre feet will work for our purposes. Let me know if this meets your needs. I could always seek more annual acre ft. if the need arises.

Lloyd Wallace permit # 96-9430

Jet Flow Rates

Inbox



Eric Melander

to me

Hello Lloyd,

Good to hear from you. Please find below our calculations for water flowing through a turbine jet of a certain diameter at a certain pressure.

$\frac{3}{4}$ " nozzle at 81 psi = 0.326 cfs

1" nozzle at 81 psi = 0.580 cfs

1.25" nozzle at 79 psi = 0.895 cfs

We hope this information is helpful and I welcome questions.

Best regards,

Eric

Eric Melander | Canyon Hydro – VP of Sales | eric.melander@canyonhydro.com | 360-592-5552

On Wed, Feb 9, 2022 at 8:55 PM Lloyd Wallace <wallace83836@gmail.com> wrote:

Hi Michele,

I thought we had this figured out on Feb 9, 2022 but we still have a problem. As I have been working through how to meet IDWR's annual acre feet requirement, let me explain the problem.

Par. 6, Right holder didn't report annual acre feet.

Ms. Edl, on our 57-minute phone call of Feb 9, at 10:29 a.m. called my Permit "a building permit" and I totally agree, but we don't get annual acre feet before the end of the building permit period, the final "building" inspection, and flow rate data determined. No right holder can determine the acre ft. without the flow rate data for each nozzle size. That has been the problem since my final inspection. IDWR failed to bring their flow rate measuring device and thus **I had no nozzle flow rate data to determine annual acre feet from dates of production.** (See Par. 5 of Conditions of Approval)

So it was and remains that I cannot report the annual acre feet without the flow rate data and this problem remains to this day. I went to the list of Certified Water Right Examiners for Idaho and found only 2 for North Idaho & they are in Coeur d'Alene, one of which flatly turned me down, saying they only did that for large systems such as cities, I have yet to reach the other and there are no other certified water right examiners in the rest of N. Idaho.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9430

Exam Date: 4/5/2019

1. Current Owner: R. LLOYD WALLACE and/or
ALICE M. WALLACE
299 DELTA VIEW RD
HOPE ID 83836

Adam Frederick (IDWR Northern region) visited the site, took GPS coordinates and photos and created the system diagrams.

2. Accompanied by: R. Lloyd Wallace, permit holder
Phone number: 208-263-0895
Email address: wallace83836@gmail.com

Proof had been submitted May 21, 2018 which was several weeks early and although the Wallace hydropower project may have been generating some power for personal use since November 2017, it had been fully operational for less than a year when proof was accepted.

On 4/8/2019, after he had completed the field work, Adam Frederick requested my help with licensing the uses.

This report summarizes and interprets the Adam's notes and photos. I did not make another visit to the site. When needed, I requested additional information from the current owner/operator of the project.

The Wallace hydropower project was begun in 1997 under the authorization of now lapsed Permit 96 8951. Some documents relevant to this right can be found among the scanned images in the backfile of that right. I refer to them in footnotes instead of duplicating them in this file.

3. SOURCE

KIRBY CREEK

TRIBUTARY

PACK RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place-of-use: None

Water Right No.	Source	Purpose of Use	Basis

Comments: No other rights authorize power use.

2. Other water rights with the same point-of-diversion: None

Water Right No.	Source	Purpose of Use	Basis

Comments: Fire protection use authorized by this right shares the point of diversion and much of the penstock-pipeline with the power use.

Domestic water use is available from a well located within the Wallace property.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

KIRBY CREEK

NE1/4NW1/4 Sec. 08, Twp 57N, Rge 01E, B.M.

BONNER County

Method of Determination: Kirby Creek is obscured by trees in available aerial photography but Global Positioning System (GPS) coordinates for the penstock-pipeline intake were recorded during the site visit. The point-of-diversion (POD) for this right was determined by comparison of the GPS coordinates with the USGS' DRG (Digital Raster Graphic) files and the SpatialData layer available in ArcMap. I selected existing data point, SpatialDataID 399954, as the best representation of the POD for this right.

For the purpose of delineating the drainage area of Kirby Creek above the Wallace diversion, a slightly different point (within the margin of error of GPS) was required to be located on Kirby Creek as that creek was defined in the USGS StreamStats model.

2.

PLACE OF USE: POWER

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
57N	01E	08					X												

I created the place-of-use (POU) shape based on the GPS coordinates for the powerhouse that were recorded during the site visit.

PLACE OF USE: FIRE PROTECTION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
57N	01E	08					X												

Method of Determination:

The water supply line to the hydrant splits off of the main penstock-pipeline approximately ½-mile northeast of the hydrant location.

I created the fire protection POU shape based on the length of hose available to deliver water from the hydrant. Currently there is approximately 200 feet of 2-inch diameter hose available (conversation with Mr. Wallace on 9/5/2019) which is sufficient to serve an area around the shop and house.

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.	Generator Make	Hp	Generator Serial No.	Turbine Make	Turbine Serial No. or Discharge Size
					Pelton wheel type turbine with 2 nozzles

Diversion description

The most upstream component of the project is a custom-built intake structure. See pg 7 and pg 17 of the Application for Permit for photos of the structure before it was put in place. The water destined for power use is directed from the main channel of Kirby Creek and into an enclosed off-stream system. Excess water overtops the structure and continues to flow downstream in Kirby Creek.

From the intake, a 10-inch diameter steel pipe carries the water away from the creek and the headworks. The penstock-pipe then necks down to 8-inch diameter PVC pipe which conveys the water the remaining approximately 900 feet to the powerhouse. The penstock is buried beneath a roadway most of its length.

A wye in the penstock located approximately 600 feet down-pipe from the intake structure allows re-diversion of some water for fire protection use in a 2-inch diameter pipeline.

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calibration Date
penstock pressure gauges power production meters						

2.

Measurements:

At the time of the exam, the pressure gauge readings were 78-80 psi and two nozzles were in use: a ¾ inch nozzle and a 1-3/8 inch nozzle

Beneficial use of water for power generation was confirmed during the exam. At the time of the exam, the turbine-generator was producing 58-60 amps of current. For standard household voltage, (120 volts), that would have been roughly 7200 Watts. (amps x volts = Watts).

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method:

Discharges from various combinations of pressures and nozzle sizes have been calculated and are routinely available in an assortment of online tables. A good fit for the Wallace project is the attached table¹ which Adam Frederick found and used during his field exam. The table is for nozzles with smooth bore openings, under the pressures applicable to both the power and fire protection uses.

Power Flowrate

At 80 psi, the ¾ inch nozzle discharges ~150 gpm (~0.33 cfs). At 80 psi, the 1-3/8 inch nozzle discharges ~ 502 gpm (~1.12 cfs). Together the two nozzles would discharge ~1.45 cfs. The discharging jets from the two nozzles would interfere somewhat with each other, reducing the efficiency of power generation but the maximum flowrate is the simple sum of the maximum discharge from both nozzles.

The field exam was done during high flows. The instantaneous pressure readings taken by the examiner are representative of the maximum pressure head and the resulting maximum discharge through the turbine. I recommend 1.45 cfs as the maximum rate for power use for the license.

The Application for Permit 96-9430 requested two seasons-of-use for the power use; a high flow season Nov 1-Jun 30 and a lower flow season Jul 1-Oct 31 and Permit 96-9430 was issued with two seasons that respected that request. However, the results of statistical analysis showed that Kirby Creek's high and low flows do not align with the requested/permitted seasons. StreamStats showed that higher flowrates than the permittee had expected would typically be available in July, August, and September. So during those three months, the permitted flowrate limited the flow through the project and limited the size of nozzle that could be employed and be consistent with the permit. The size of nozzle that could be used in July, August, and September would have been limited to the smaller nozzle. Therefore, the licensed flowrate for those same months will be limited to 0.33 cfs, the flow which was possible from use of the smaller nozzle.

Fire Protection Flowrate

Public hydrants are required to deliver a minimum of 500 gpm (~1.1 cfs). Assuming that the Wallace's private fire hydrant is expected to handle water at head pressures equivalent to those seen in the powerhouse (78-80 psi), then the hydrant's 2-inch hose and nozzle would be able to deliver 1063 gpm or 2.36 cfs for fire protection. The permit limits the diversion rate for this use to 1.0 cfs.

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:

Power Volume

There is no diversion dam and only a small pooling chamber at the headworks. No storage is authorized, and none is needed. This is an off stream, run-of-river hydropower project. An annual volume is required for the license.

The proof of beneficial use statement for this permit was due July 1, 2018. It was received early, on May 21, 2018. IDWR acknowledged proof and inspected the project without recognizing that there was an information gap with respect to the annual volume of water that had been used during the development period.

The examiner found a Pelton-wheel type hydro turbine paired to a compatible generator installed in the powerhouse. A turbine can be considered a measurement device. This turbine has been fitted with two different nozzles: a 1-3/8 inch nozzle and ¾ inch nozzle. Which nozzle or nozzles are used varies with water availability. At low flow, only the ¾ inch nozzle is used. As stream flow increases, the ¾ nozzle is idled and the 1-3/8 inch nozzle is used alone until enough water is available to utilize both nozzles. As flows diminish, the sequence of nozzles used would be ramped down in reverse order.

¹ <https://www.elkhartbrass.com/files/aa/downloads/brochures/GPM%20Flow%20Guide%20-%20Smooth%20Bore%20-%20Web%20Cut%20and%20Print.pdf>

There are no active USGS stream gaging stations anywhere near this project so the volume that I recommend for power use is not based on actual data. Instead, it is based on the results of a StreamStats model simulation.² The model results are attached, as is the spreadsheet I created to compare each month's probable flows with the flows required for the existing nozzles.

I am recommending a volume based on the predicted flows of Kirby Creek for a full year. Each monthly value was adjusted to match the nozzles available to the Wallace turbine and to fit within the seasonably varied flow rates authorized by the permit.

Fire Protection Volume

A volume is not required for licensing the fire protection use.

G. NARRATIVE/REMARKS/COMMENTS

The permittee has a unique set of skills and experience. This hydropower project is the 3rd that he has constructed and installed. The Pelton wheel may have been machined elsewhere, but this project's the diversion structure was designed and built by Mr. Wallace in his shop. He also constructed the powerhouse and installed the penstock pipe.

A challenge for the operator of any system which generates electricity is to match the creation of electricity with the demand for electricity. The equipment which would have managed the electrical loads to efficiently use the power generated by the project had not been installed in powerhouse until the winter of 2018-2019. So on April 5, 2019, the field examiner found a system that had been improved upon after 'proof' had been submitted. During the development period the owner/operator was managing the turbine-generator speed and the electrical loads without the assistance of a load controller (a.k.a. governor). He did not make time to also record flowrates and generation. The governor-managed system had been operational less than a year when the field examiner visited the project. The maximum flowrates through the nozzles would not have been impacted by the addition of a governor, but the annual volume of water beneficially used might have been.

According to Mr. Wallace, his power plant can generate approximately 9000 Watts of electricity in real-time. If true, generation from his power plant exceeds the amount of electricity a typical single residence will put to use. The quantity of power possible from this project would make it a candidate for net metering³ with the local utility.

Net metering

Mr. Wallace told me that he had a net metering arrangement with Avista (the local electric and gas utility). I contacted Avista by phone on August 21, 2019 and again on September 20, 2019. In my conversations with two different customer service reps, I was given information that contradicted Mr. Wallace's statement. Avista did not have any hydropower projects in their net-metering portfolio at that time. Based on the queries of Avista's databases, the Wallace property has only one meter and that meter is not the type suited for net metering. The Avista personnel also confirmed that the Wallace property at 299 Delta View Rd, Hope ID, has access to the electricity distribution grid maintained by Avista was accepting power from Avista every month. The Wallaces may have refused some power from Avista during the development period, but their power use records are not public information. Without any records of generation, the annual volume of water used by this project was much more difficult to determine.

This hydropower project doesn't provide all the electricity needed by the Wallaces, especially during the driest months. Instead, the project supplements power purchased from Avista. The turbine-generator is supplying year-round power to a single-family residence, shop, and other buildings on the property. This is a personal use, grid connected project which operates continuously at varying flowrates. When Kirby Creek flow is low and only the smallest nozzle is in use, the Wallaces need to buy some electrical power.

Bypass Flow

Although the hydropower project could dewater Kirby Creek between the point-of-diversion and the point-of-discharge, only a portion of the creek is diverted for power use. The permittee voluntarily maintains a minimum bypass flow in Kirby Creek by limiting his diversion. A letter dated 12/12/1996 from State of Idaho Fish & Game (IDFG) to Robert G. Haynes (manager IDWR Northern Region) states that Mr. Wallace agreed to leave 0.17 cfs in

² See https://www.usgs.gov/mission-areas/water-resources/science/streamstats-streamflow-statistics-and-spatial-analysis-tools?qt-science_center_objects=0#qt-science_center_objects

³ Net metering is primarily a billing arrangement. When the customer's generator is producing less energy than the customer is using, the electric meter will measure the supplemental energy passing from the utility to the customer and register the flow of electricity in a forward direction. When the customer's generator is producing more energy than the customer is using, the electricity meter will measure the excess energy passing from the customer to the utility and register the flow of electricity in a backward direction. The surplus energy is subtracted, or "netted," from the energy supplied by the utility to the customer, thus "net metered." Neither the FERC nor the IPUC are concerned about regulating net metering at this time because this type of generation is considered energy conservation.

Kirby Creek.⁴ The water right permit doesn't have a condition requiring a minimum bypass flow, but I believe that the Wallace project honors that commitment. The lowest flow that the smallest nozzle could beneficially use is approximately 0.33 cfs, which means that the hydro turbine would not operate at flows as low as 0.17 cfs and that flows less than 0.33 cfs would be left in Kirby Creek by default.

A condition will be applied to the license which makes explicit a minimum bypass flow of 0.17 cfs.

Project ownership

En route to its confluence with the Pack River, Kirby Creek flows from east to west across the northern portion of the right holder's 20-acre property. Available Bonner County parcel information shows the current parcel number as RP57N01E082402A and that the property is owned by R. Lloyd Wallace and Alice M. Wallace.

The point-of-diversion (the intake structure), powerhouse, point-of-discharge and all the project lands traversed by the penstock, are located within property owned by the right holder.

April 9, 2009, Mr. Wallace signed an Affidavit for Water Rights to be Used for Power Purposes and submitted it with his Application for Permit.⁵

No FERC jurisdiction

The Federal Energy Regulatory Commission (FERC) has no jurisdiction over this hydropower project because:

- Kirby Creek is not among the navigable waters of the United States.
- None of the project occupies the public lands of the United States. The penstock, powerhouse and power distribution lines for this small hydropower project begin and end on the Wallace property.
- The project doesn't use surplus power from a U.S. government dam.
- The project doesn't affect interstate commerce. (FERC has jurisdiction over the interstate transmission of high voltage electricity. It does not have jurisdiction over the lower voltage distribution system which supplies most retail customers.) The power produced from this project remains in the distribution system where the IPUC has jurisdiction.

No IPUC jurisdiction

The Idaho Public Utilities Commission (IPUC) is responsible for establishing and approving rates that a utility charges its retail customers, but the IPUC had no jurisdiction over this hydropower project during the development period because the power that the Wallace power plant generated was not being sold.

POU

The place-of-use for this right is property located at approximately 2100 feet elevation, and approximately 5 miles as the crow flies, Northwest of Hope, Idaho. The Wallace property is abutted by Bureau of Land Management (BLM) property on the east side, but the permitted water uses are occurring entirely within the Wallace property. A copy of the BLM General Land Office map is attached.

Point-of-Discharge

The water discharged from the turbine daylights a few feet northwest of the powerhouse and returns to Kirby Creek through a short tailrace channel.

Fire Protection Use

The permit authorized year-round fire protection use. The examiner found a hydrant located on the property which would provide water for that use. The permittee stated that he has approximately 200 feet of 2-inch diameter hose dedicated to that use.

The permittee also stated that he intended the hydrant to be available to fill local fire department tanker trucks if needed for firefighting.

Fire projection use is more likely during times when the creek flows are low, and Mr. Wallace stated that he would shut down the powerhouse rather than compete for firefighting water.

Conditions

Condition 3 The hydrant diversion and distribution works and the hydropower project works are entirely contained with the permit holder's property. This condition will be dropped from the license.

The measuring ports required by Condition 5 were installed. Neither the examiner nor I needed to use them.

⁴ See pg 38 of the backfile of lapsed right 96-8951 (the previous permit for this hydropower project).

⁵ See pg 31 of the scanned document named Application in the backfile of this right

Condition 7 Water quality has been maintained by careful construction and materials selection.⁶ This condition will be dropped from the license.

Condition 8 Mr. Wallace signed an Affidavit for Water Rights to be Used for Power Purposes on April 9, 2009 in conjunction with the previous permit issued for this same project.

Condition 10 Neither the IPUC nor FERC had jurisdiction over this project. The permit was issued without a specific term review date. The license condition for term review will have a date based on the expected 25-year lifespan of the turbine-generator. The Wallace hydropower project has been in development since 1997 but according to the permit holder, the turbine-generator was not in regular use until the winter of 2017⁷. I am recommending a 25-year term review date which is based on the year that proof was received. I am recommending a review on or before December 31, 2043.

Condition 13 In correspondence between IDF&G and the permit holder, IDF&G recommended ¼-in screen openings for this project. Fish screening is in place. See the photos of the as-built headworks before it was placed in the creek. A fish screen condition will be carried forward on the license. In addition, the license will be issued with a condition that makes explicit that the project has a bypass flow requirement of 0.17 cfs.

The power use should be term-limited and made subordinate to any subsequent rights also served by Kirby Creek. However, the fire protection use should not have either limitation. So the required conditions for the hydropower use will be worded so as not to restrict the fire protection use.

Have conditions of permit approval been met? ____ Yes X No

Condition 6 states that "after specific notification" the right holder shall report annual amounts diverted. I requested both flow and generation data from Mr. Wallace during my various phone conversations and email exchanges with him. I needed information from the development period to assist me with determining a volume, but the information was not available.

IDWR accepted proof and an IDWR field examiner visited the project site confirming the use without any evidence that development-period data had been collected and was available. When I requested the information, the right holder made statements that could not be substantiated.

To satisfy the requirement for a volume on the license, I found and used a statistics-based Web application available from USGS to simulate maximum annual volume of water available to this project. I am recommending that this water right be licensed in spite of the right holder's failure to comply with Permit condition 6.

IDWR loses little by issuing a license for the use.

- The project is fully contained within the permit holder's property.
- There are currently no other water rights with points-of-diversion from Kirby Creek.
- The power use will be subordinated to uses other than hydropower and will be given a term review date.

And to ensure that the previously voluntary bypass flow in Kirby Creek is maintained, I am adding a condition to the license requiring that flow.

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
POWER	11/01 to 06/30	1.45 CFS	572.0 AF
POWER	07/01 to 10/31	0.33 CFS	80.5 AF
FIRE PROTECTION	01/01 to 12/31	1.00 CFS	
<u>Totals:</u>		1.80 CFS	

⁶ See the construction documentation beginning on pg of the scanned document named Application in the backfile of this right.

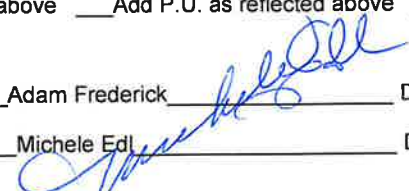
⁷ See Mr. Wallace's email to me dated April 16, 2019

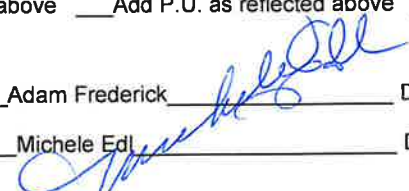
2. Recommended Amendments

☐ 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 Adam Frederick  Date _____

Field Report Author's Name Michele Edl  Date 2/22/2022

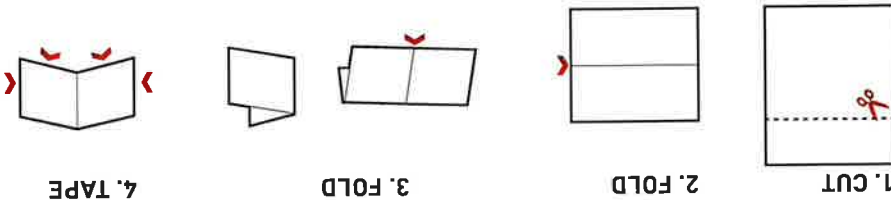
Nozzle Pressure (PSI)	SMOOTH BORE DISCHARGE DATA											POCKET FLOW GUIDE (GPM)											
	1/4"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	15/16"	1"	1 1/16"	1 1/8"	1 3/16"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/4"	2 1/2"	3"	
72	16	35	48	63	98	142	193	221	252	284	319	355	394	476	567	665	772	886	1008	1276	1575	2268	
74	16	36	49	64	100	144	196	225	255	288	323	360	399	483	575	675	782	898	1022	1293	1597	2299	
76	16	36	50	65	101	146	198	228	259	292	328	365	405	490	583	684	793	910	1036	1311	1618	2330	
78	16	37	50	66	102	148	201	231	262	296	332	370	410	496	590	693	803	922	1049	1328	1639	2361	
80	16	37	51	66	104	149	203	233	266	300	336	375	415	502	598	701	814	934	1063	1345	1660	2391	
82	17	38	51	67	105	151	206	236	269	304	340	379	420	508	605	710	824	946	1076	1362	1681	2421	
84	17	38	52	68	106	153	208	239	272	307	345	384	425	515	612	719	834	957	1089	1378	1701	2450	
86	17	39	53	69	108	155	211	242	275	311	349	388	430	521	620	727	843	968	1102	1394	1721	2479	
88	17	39	53	70	109	157	213	245	279	315	353	393	435	527	627	736	853	979	1114	1410	1741	2507	
90	17	40	54	70	110	158	216	248	282	318	357	397	440	533	634	744	863	991	1127	1426	1761	2536	
92	18	40	55	71	111	160	218	250	285	322	361	402	445	539	641	752	872	1002	1139	1442	1780	2564	
94	18	40	55	72	112	162	220	253	288	325	364	406	450	544	648	760	882	1012	1152	1458	1800	2592	
96	18	41	56	73	114	164	223	256	291	329	368	410	455	550	655	768	891	1023	1164	1473	1819	2619	
98	18	41	56	74	115	165	225	258	294	332	372	415	459	556	662	776	900	1034	1176	1488	1838	2646	
100	19	42	57	74	116	167	227	261	297	335	376	419	464	562	668	784	910	1044	1188	1504	1856	2673	
105	19	43	58	76	119	171	233	267	304	344	385	429	476	575	685	804	932	1070	1217	1541	1902	2739	
110	19	44	60	78	122	175	238	274	311	352	394	439	487	589	701	823	954	1095	1246	1577	1947	2803	
115	20	45	61	80	124	179	244	280	318	360	403	449	498	602	717	841	975	1120	1274	1612	1991	2866	
120	20	46	62	81	127	183	249	286	325	367	412	459	508	615	732	859	996	1144	1301	1647	2033	2928	
125	21	47	64	83	130	187	254	292	332	375	420	468	519	628	747	877	1017	1167	1328	1681	2075	2989	
130	21	48	65	85	132	190	259	298	339	382	429	478	529	640	762	894	1037	1191	1355	1714	2116	3048	
135	22	49	66	86	135	194	264	303	345	390	437	487	539	652	776	911	1057	1213	1380	1747	2157	3106	
140	22	49	67	88	137	198	269	309	351	397	445	496	549	664	791	928	1076	1235	1406	1779	2196	3163	
145	22	50	68	89	140	201	274	314	358	404	453	504	559	676	805	944	1095	1257	1431	1811	2235	3219	
150	23	51	70	91	142	205	278	320	364	411	460	513	568	688	818	961	1114	1279	1455	1841	2273	3274	
175	25	55	75	98	153	221	301	345	393	444	497	554	614	743	884	1037	1203	1381	1572	1989	2456	3536	
200	26	59	80	105	164	236	322	369	420	474	532	592	656	794	945	1109	1286	1477	1680	2126	2625	3780	

P.O. Box 1127, Elkhart, IN 46515 • 1.574.295.8330 • 1.800.346.0250 • www.elkhartbrass.com • Email: info@safefleet.net

ELKHART BRASS
FIRE FIGHTING EQUIPMENT • A SAFE FLEET BRAND

KNOW YOUR FLOW

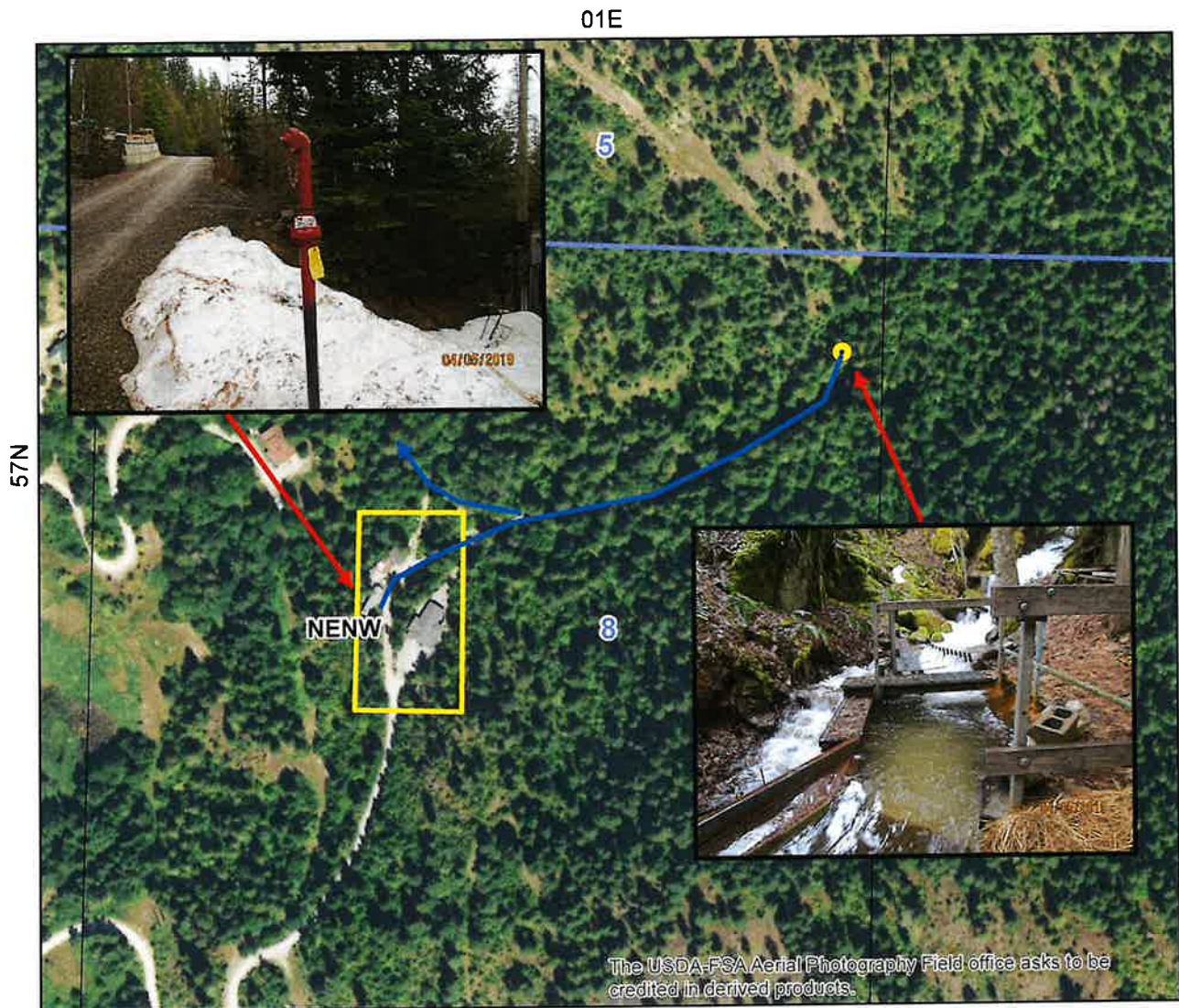
Nozzle Pressure (PSI)	SMOOTH BORE DISCHARGE DATA																			POCKET FLOW GUIDE (GPM)				
	1/4"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	15/16"	1"	1 1/16"	1 1/8"	1 3/16"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/4"	2 1/2"	3"		
70	16	35	48	62	82	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
68	15	34	47	61	81	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
66	15	34	46	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
64	15	33	45	59	79	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
62	15	33	45	58	78	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
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58	14	32	43	57	77	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
56	14	31	43	56	76	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
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52	13	30	41	54	74	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
50	13	30	40	53	73	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
48	13	29	39	51	71	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
46	13	28	39	50	70	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
44	12	28	38	49	69	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
42	12	27	37	48	68	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
40	12	26	36	47	67	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	
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30	10	23	31	41	61	92	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	
28	10	22	30	40	60	88	100	120	138	157	177	197	217	237	256	276	296	316	336	356	376	396	416	
26	9	21	29	38	58	85	100	116	133	151	171	192	212	232	252	272	292	312	332	352	372	392	412	
24	9	20	28	36	56	82	100	111	128	145	164	184	205	227	247	267	287	307	327	347	367	387	407	
22	9	20	27	35	55	80	100	107	122	139	157	176	196	218	243	268	293	318	343	368	393	418	443	
20	8	19	25	33	53	75	100	102	117	133	150	168	187	208	231	254	277	300	323	346	369	392	415	



1. Print this page on your printer.
2. Cut out the entire chart below.
3. Fold in half along the center.
4. Fold in half again to create a square layout.
5. Tape each edge (4 spots).

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9430

FIRE PROTECTION / SYSTEM DIAGRAM



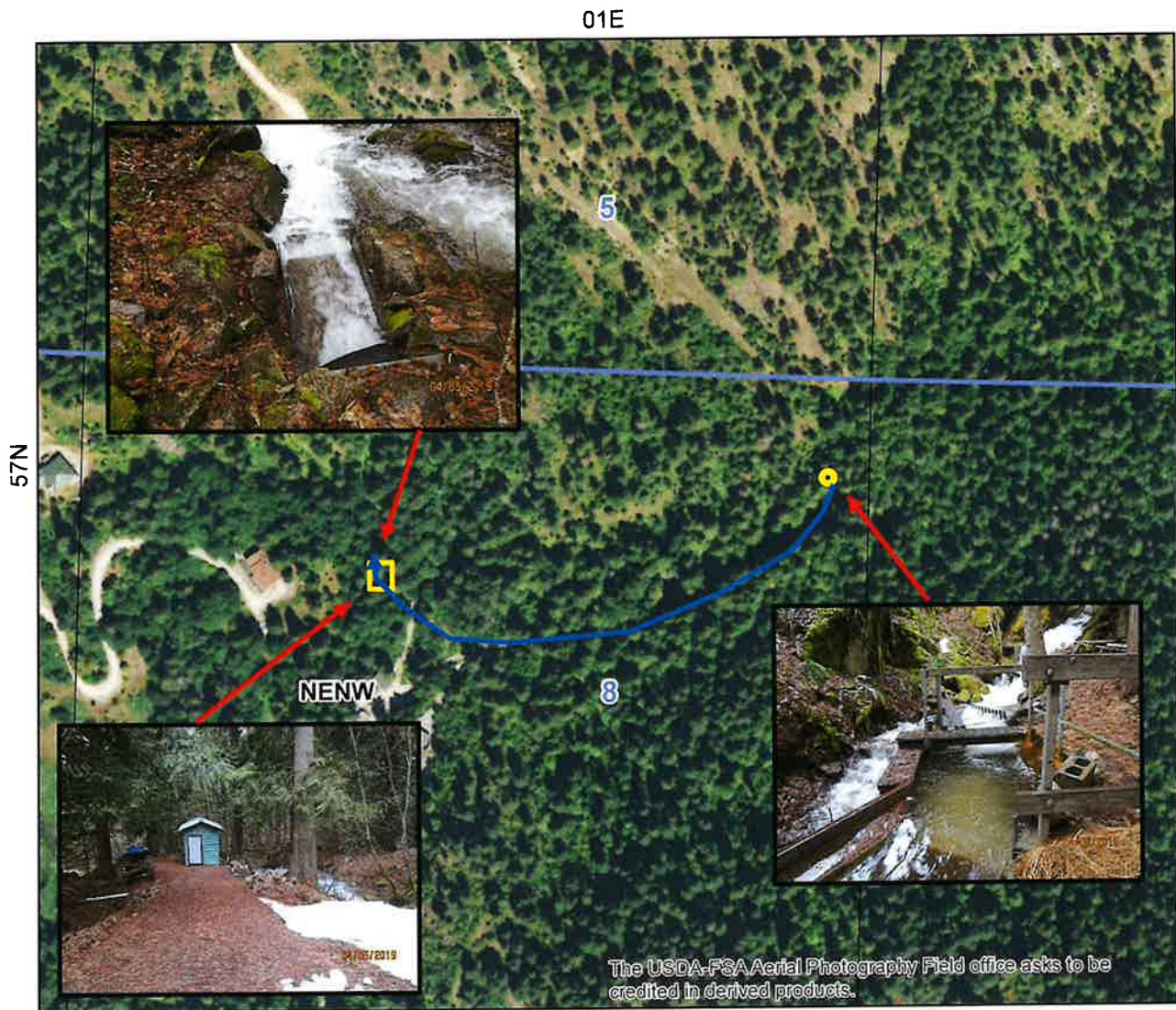
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9430

POWER / SYSTEM DIAGRAM



- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles





Kirby Cr

diversion
for WR#96-9430

04/05/2019



WR #96-9430

powerhouse exterior

04/05/2019

WR#96-9430

generator

turbine

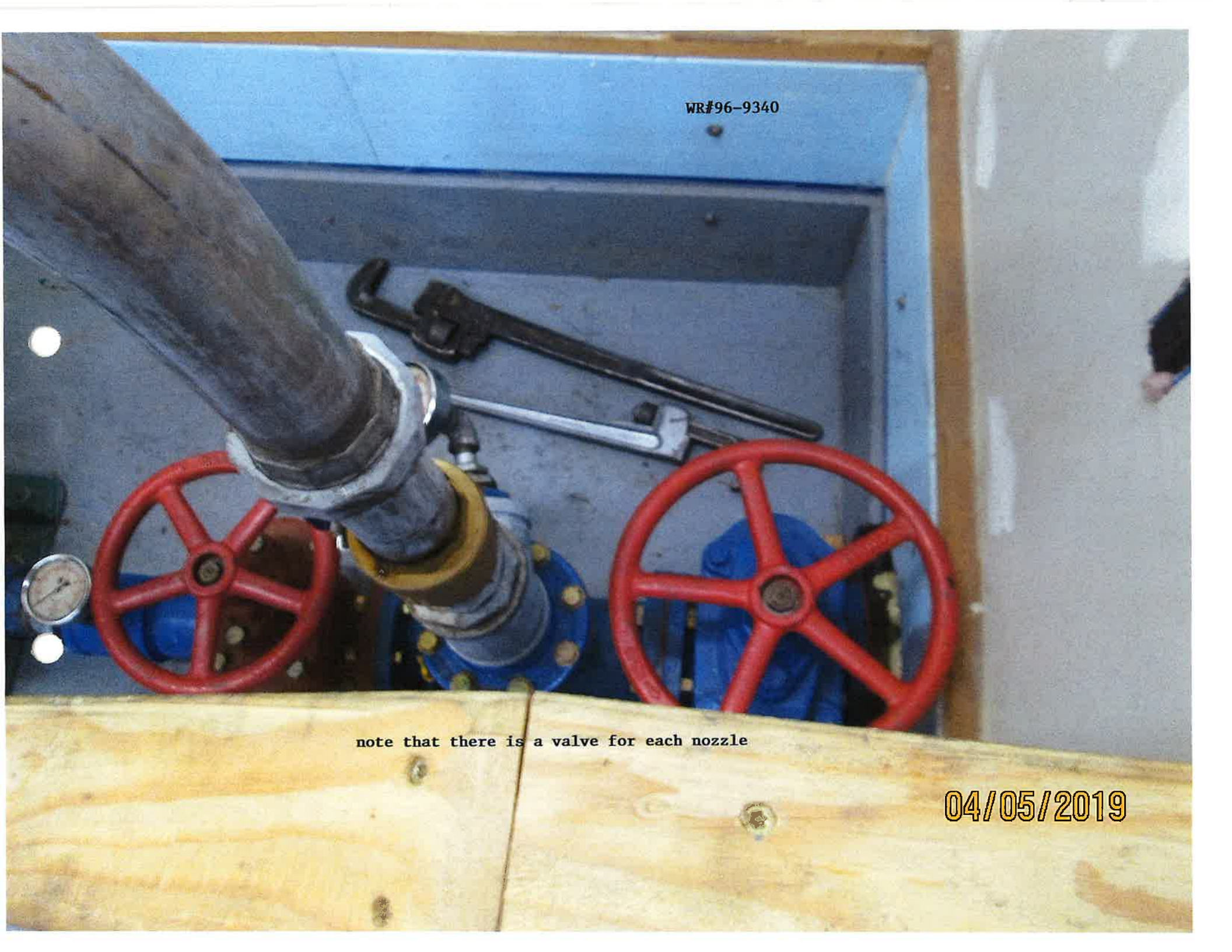
04/05/2019



WR#96-9340

note that there is a valve for each nozzle

04/05/2019





04/05/2019



04/05/2019

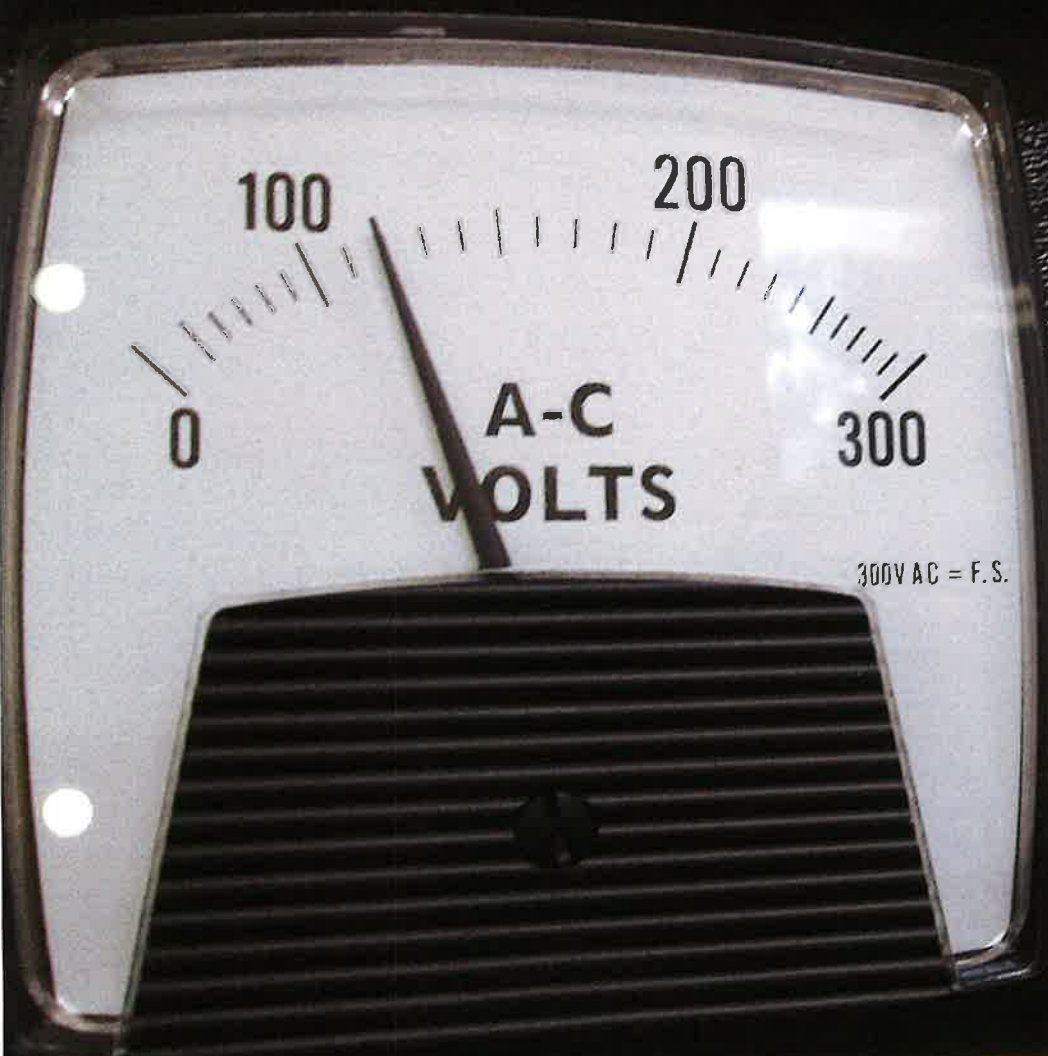
WR#96-9340
powerhouse interior

load controller

04/05/2019

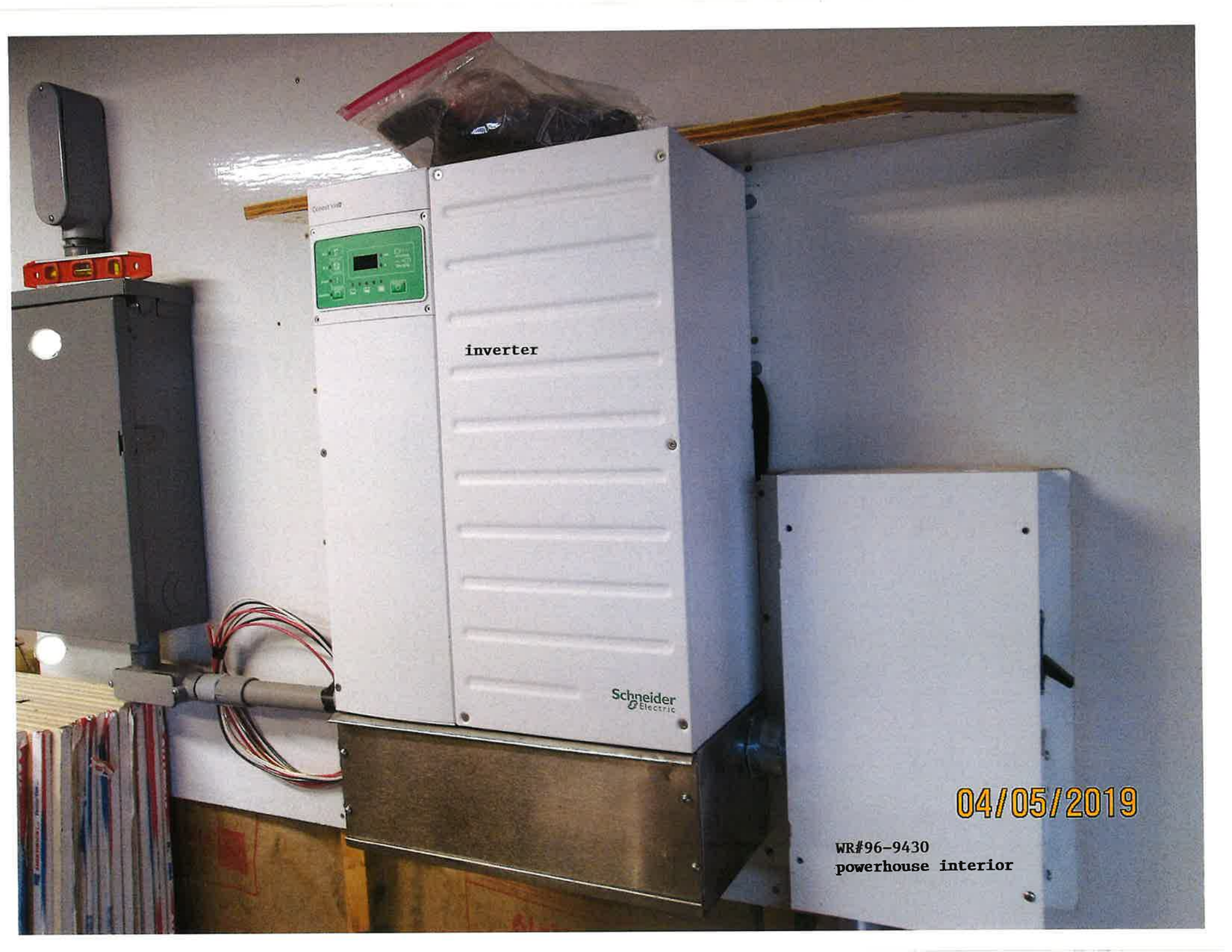


WR#96-9430



04/05/2019





inverter

Schneider
Electric

04/05/2019

WR#96-9430
powerhouse interior



WR#96-9430

tailrace
conveying the
turbine discharge

Kirby Creek

04/05/2019



WR#96-9430
fire protection

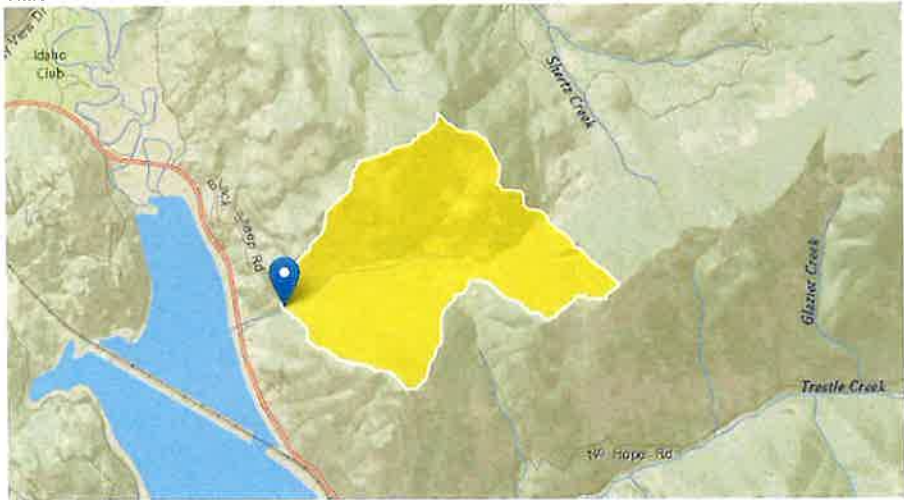
04/05/2019

Right #96-9430 (Wallace)		USGS StreamStats								
month	number of days	20% cfs	50% cfs	80% cfs	bypass cfs*	available cfs	nozzle cfs	permit cfs	ac-ft	
January	31	1.12	0.758	0.606	0.17	0.95	0.33	1.5	20.291	
February	28	2.2	1.23	0.807	0.17	2.03	1.45	1.5	80.530	
March	31	3.67	1.52	1.03	0.17	3.5	1.45	1.5	89.158	
April	30	8.7	6.02	3.7	0.17	8.53	1.45	1.5	86.282	
May	31	12.9	10	8.22	0.17	12.73	1.45	1.5	89.158	
June	30	5.91	3.8	2.92	0.17	5.74	1.45	1.5	86.282	
July	31	1.92	1.47	1.15	0.17	1.75	0.33	0.75	20.291	
August	31	1.63	1.3	1.03	0.17	1.46	0.33	0.75	20.291	
September	30	1.35	0.946	0.769	0.17	1.18	0.33	0.75	19.637	
October	31	0.943	0.946	0.917	0.17	0.773	0.33	0.75	20.291	
November	30	1.19	0.825	0.783	0.17	1.02	0.33	1.5	19.637	
December	31	1.28	0.815	0.612	0.17	1.11	0.33	1.5	20.291	
									572.141	AFA
*see IDF&G letter dated 12/12/1996 in WR# 96-8951										
sufficient water for a 1-3/8-inch nozzle may be available, but the permit limits the water and nozzle size										
		gpm	cfs	use						
permit limit		810	1.8	all						
at 80 psi	2-in dia nozzle	1063	2.36	fire protection						
at 80 psi	3/4-in nozzle	149	0.33	power						
at 80 psi	1-3/8-in nozzle	502	1.12	power			if 0.33	1.9835	365	238.912575
at 80 psi	both nozzles		1.45	max power			if 1.12	1.9835	365	810.8548
							if 1.45	1.9835	365	1049.76738
spreadsheet created on 2/3/2022 by Michele Edl for water right license 96-9430										

Wallace Hydro Power 96-9430

Region ID:
Workspace ID:
Clicked Point (Latitude, Longitude):
Time:

ID
ID20190904202358176000
48.31017, -116.36451
2019-09-04 14:24:13 -0600



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.82	square miles
ELEV	Mean Basin Elevation	3430	feet
FOREST	Percentage of area covered by forest	96	percent
RELIEF	Maximum - minimum elevation	2430	feet

January Flow-Duration Statistics Parameters[Monthly Annual Region 1 2001 4093]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
ELEV	Mean Basin Elevation	3430	feet	2398	5347

January Flow-Duration Statistics Disclaimers[Monthly Annual Region 1 2001 4093]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

January Flow-Duration Statistics Flow Report[Monthly Annual Region 1 2001 4093]

Statistic	Value	Unit
January 20 Percent Duration	1.12	ft^3/s
January 50 Percent Duration	0.758	ft^3/s
January 80 Percent Duration	0.606	ft^3/s

January Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

February Flow-Duration Statistics Parameters[Monthly Annual Region 1 2001 4093]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
FOREST	Percent Forest	96	percent	54.6	94.5

February Flow-Duration Statistics Disclaimers[Monthly Annual Region 1 2001 4093]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

February Flow-Duration Statistics Flow Report[Monthly Annual Region 1 2001 4093]

Statistic	Value	Unit
February 20 Percent Duration	2.2	ft^3/s
February 50 Percent Duration	1.23	ft^3/s
February 80 Percent Duration	0.807	ft^3/s

February Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01–4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/Index.html>)

March Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
FOREST	Percent Forest	96	percent	54.6	94.5

March Flow-Duration Statistics Disclaimers(Monthly Annual Region 1 2001 4093)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

March Flow-Duration Statistics Flow Report(Monthly Annual Region 1 2001 4093)

Statistic	Value	Unit
March 20 Percent Duration	3.67	ft^3/s
March 50 Percent Duration	1.52	ft^3/s
March 80 Percent Duration	1.03	ft^3/s

March Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01–4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

April Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
ELEV	Mean Basin Elevation	3430	feet	2398	5347

April Flow-Duration Statistics Disclaimers(Monthly Annual Region 1 2001 4093)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

April Flow-Duration Statistics Flow Report(Monthly Annual Region 1 2001 4093)

Statistic	Value	Unit
April 20 Percent Duration	8.7	ft^3/s
April 50 Percent Duration	6.02	ft^3/s
April 80 Percent Duration	3.7	ft^3/s

April Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

May Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
ELEV	Mean Basin Elevation	3430	feet	2398	5347

May Flow-Duration Statistics Disclaimers(Monthly Annual Region 1 2001 4093)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

May Flow-Duration Statistics Flow Report(Monthly Annual Region 1 2001 4093)

Statistic	Value	Unit
May 20 Percent Duration	12.9	ft^3/s
May 50 Percent Duration	10	ft^3/s
May 80 Percent Duration	8.22	ft^3/s

May Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

June Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	3430	feet	2398	5347

June Flow-Duration Statistics Disclaimers[Monthly Annual Region 1 2001 4093]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

June Flow-Duration Statistics Flow Report[Monthly Annual Region 1 2001 4093]

Statistic	Value	Unit
June 20 Percent Duration	5.91	ft^3/s
June 50 Percent Duration	3.8	ft^3/s
June 80 Percent Duration	2.92	ft^3/s

June Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

July Flow-Duration Statistics Parameters[Monthly Annual Region 1 2001 4093]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
ELEV	Mean Basin Elevation	3430	feet	2398	5347

July Flow-Duration Statistics Disclaimers[Monthly Annual Region 1 2001 4093]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

July Flow-Duration Statistics Flow Report[Monthly Annual Region 1 2001 4093]

Statistic	Value	Unit
July 20 Percent Duration	1.92	ft^3/s
July 50 Percent Duration	1.47	ft^3/s
July 80 Percent Duration	1.15	ft^3/s

July Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p.
(<http://idaho.usgs.gov/PDF/wri014093/index.html>)

August Flow-Duration Statistics Parameters[Monthly Annual Region 1 2001 4093]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
RELIEF	Relief	2430	feet	2231	5867

August Flow-Duration Statistics Disclaimers[Monthly Annual Region 1 2001 4093]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

August Flow-Duration Statistics Flow Report[Monthly Annual Region 1 2001 4093]

Statistic	Value	Unit
August 20 Percent Duration	1.63	ft^3/s
August 50 Percent Duration	1.3	ft^3/s
August 80 Percent Duration	1.03	ft^3/s

August Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p.
(<http://idaho.usgs.gov/PDF/wri014093/index.html>)

September Flow-Duration Statistics Parameters[Monthly Annual Region 1 2001 4093]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
RELIEF	Relief	2430	feet	2231	5867

September Flow-Duration Statistics Disclaimers[Monthly Annual Region 1 2001 4093]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

September Flow-Duration Statistics Flow Report[Monthly Annual Region 1 2001 4093]

Statistic	Value	Unit
-----------	-------	------

Statistic	Value	Unit
September 20 Percent Duration	1.35	ft^3/s
September 50 Percent Duration	0.946	ft^3/s
September 80 Percent Duration	0.769	ft^3/s

September Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

October Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
ELEV	Mean Basin Elevation	3430	feet	2398	5347

October Flow-Duration Statistics Disclaimers(Monthly Annual Region 1 2001 4093)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

October Flow-Duration Statistics Flow Report(Monthly Annual Region 1 2001 4093)

Statistic	Value	Unit
October 20 Percent Duration	0.943	ft^3/s
October 50 Percent Duration	0.946	ft^3/s
October 80 Percent Duration	0.917	ft^3/s

October Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

November Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	3430	feet	2398	5347

November Flow-Duration Statistics Disclaimers(Monthly Annual Region 1 2001 4093)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

November Flow-Duration Statistics Flow Report(Monthly Annual Region 1 2001 4093)

Statistic	Value	Unit
November 20 Percent Duration	1.19	ft^3/s
November 50 Percent Duration	0.825	ft^3/s
November 80 Percent Duration	0.783	ft^3/s

November Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles,2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p. (<http://idaho.usgs.gov/PDF/wri014093/index.html>)

December Flow-Duration Statistics Parameters(Monthly Annual Region 1 2001 4093)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.82	square miles	12.5	1011
ELEV	Mean Basin Elevation	3430	feet	2398	5347

December Flow-Duration Statistics Disclaimers(Monthly Annual Region 1 2001 4093)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

December Flow-Duration Statistics Flow Report(Monthly Annual Region 1 2001 4093)

Statistic	Value	Unit
December 20 Percent Duration	1.28	ft^3/s
December 50 Percent Duration	0.815	ft^3/s
December 80 Percent Duration	0.612	ft^3/s

December Flow-Duration Statistics Citations

Hortness, J.E., and Berenbrock, Charles, 2001, Estimating Monthly and Annual Streamflow Statistics at Ungaged Sites in Idaho: U.S. Geological Survey Water-Resources Investigations Report 01-4093, 36 p.
(<http://idaho.usgs.gov/PDF/wri014093/index.html>)

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Application Version: 4.3.8

Edl, Michele

From: Edl, Michele
Sent: Tuesday, January 25, 2022 4:43 PM
To: Lloyd Wallace
Subject: water right update

Mr. Wallace,

I tried and failed to connect with you by phone this afternoon. I had hoped to visit with you briefly about your water right permit 96-9430.

I understand that you visited IDWR's Northern Region office and chatted with Luke Bates about the status of your permit.

I also understand that Luke Bates shared with you what has stalled me in the licensing process: that I have not been able to confirm power generation use through this permit beyond a single day.

I can issue a water right license based on the information available to me. But I want to authorize the maximum rate and volume found to have been put to use and so far, I am limited to the records from the day of the field visit.

Do you have evidence demonstrating that you used water from Kirby Creek for power generation on other days between June 19, 2009 and May 21, 2018?

I am mostly in-office these days so I am usually available 8 am to 5 pm your time.

Sincerely,
Michele Edl
208-287-4946

Edl, Michele

From: Edl, Michele
Sent: Thursday, September 05, 2019 6:28 PM
To: Grimm, Angie
Cc: Webster, Clay
Subject: RE: Delayed Hydro Electric License

Hello both of you,
I spoke to Mr. Wallace via phone this afternoon.
He knows that I am now the primary contact for this license and that I will be writing up the report with Adam's assistance rather than visa versa.

We discussed several things including the difference between a permit and a license. I explained it to him, but based on our conversation, I believe that he likely does and did understand the difference but is just not as careful with his choice of words as we are.

He has not had the full potential of this little hydro in place for a full year. But was up to full beneficial use when Adam visited. He did not keep generation records while he was ramping it up. (He didn't have a governor for the generator until relatively recently.) He stated that he was happy with the rate that I was recommending. I confirmed with him my understanding of how he ramps up the use when stream flow is available and how he ramps it back down. He may be the only net-metered hydro that Avista has and they didn't draft a contract for it. No money changes hands, he just refuses some of Avista's electricity. (This confirms my understanding of net-metering and therefore that IPUC not involved).

He stated that the SOU that he applied for is correct as a limitation of the flow. (I haven't calculated middle and low flows yet)

The annual volume will be a statistical estimate, but I will be using a full years-worth of statistics to get to it. Both Manuel and Scott confirmed that I was using the USGS Streamstats program correctly. (I taught myself so getting that affirmation was very good.)

Also this afternoon, Adam provided me with the system diagrams. He creates an interesting attachment to his field reports which includes piping and photos. A benefit is that my descriptions have considerably fewer words.

I expect to complete the BU report and to put it in Clay's inbox before the week's end.

Michele

From: Grimm, Angie
Sent: Thursday, September 05, 2019 12:43 PM
To: Edl, Michele <Michele.Edl@idwr.idaho.gov>; Webster, Clay <Clay.Webster@idwr.idaho.gov>
Subject: RE: Delayed Hydro Electric License

Clay + Michele,

In reading all of the emails in the string, it appears Mr. Wallace may not be aware of the difference between a permit and a license. It does not appear he understands our statutory duty to define the license based on the beneficial use occurring rather than a maximum physical quantity possible to divert. While I still believe Michele should proceed with the information she has to recommend a volume, I hope one or both of you will have at least one more conversation

with Mr. Wallace to explain the licensing process and associated statutory responsibilities. I hope this conversation might avoid a petition for reconsideration in this matter.

Thanks,
Angie

From: Edl, Michele
Sent: Friday, August 30, 2019 10:55 AM
To: Webster, Clay <Clay.Webster@idwr.idaho.gov>; Grimm, Angie <Angie.Grimm@idwr.idaho.gov>
Subject: FW: Delayed Hydro Electric License

I hope we will be discussing what volume to issue for this license on Wednesday.

From: Frederick, Adam
Sent: Friday, August 30, 2019 10:27 AM
To: Edl, Michele <Michele.Edl@idwr.idaho.gov>
Subject: Fwd: Delayed Hydro Electric License

Fyi, looks like he really wants a license.

Sent from my Verizon Wireless 4G LTE smartphone

----- Original message -----
From: Representative Heather Scott <HScott@house.idaho.gov>
Date: 08/30/2019 9:00 AM (GMT-08:00)
To: "Frederick, Adam" <Adam.Frederick@idwr.idaho.gov>
Subject: FW: Delayed Hydro Electric License

Adam,

I spoke to Tammy this morning concerning the email below. She was very helpful and shared that Lloyd is legal to operate and that licenses are backlogged. I will let him know that he will possibly hear from your office this winter. If there is anything else I should know, please contact me at 208-920-3120.

Rep. Heather Scott
208-920-3120

From: Lloyd Wallace <wallace83836@gmail.com>
Sent: Thursday, August 29, 2019 6:59 PM
To: Representative Heather Scott <HScott@house.idaho.gov>
Subject: Delayed Hydro Electric License

Dear Representative Scott,
As per our discussion at the Bonner County Fair, I am requesting that you look into why my approved and inspected hydro system not being licensed promptly, or is being delayed from licensing.

I hereby give you permission to review all the documents of my hydro project regarding PERMIT NUMBER 96-9430, available from IDWR. You should be able to access everything from my first approval to the renewal, extension, and IDWR's Proof Acknowledgement Letter of May 30, 2018. (notice LAST YEAR's date).

Literally, I have had this permit since 1996 and when it expired, I paid for the renewal of this permit and filed all necessary extensions and paid their costs as required all along.

IDWR said in this final Acknowledgement Letter, QUOTE "The Department acknowledges receipt of the proof of beneficial use form submitted for the above referenced permit. The next step in the process of developing a water right is for the Department to conduct a field examination to determine and confirm the use being made of the water."

They could not inspect my system till August of 2018, the driest part of the year when there was not enough water to run the hydro. So, we agreed to put off the inspection till March of 2019. So, IDWR sent their representative up to inspect and I operated it at the approved water amount for him. IDWR and myself are agreed on the water amount, they approved my permit to construct and the water quantity in cubic ft. per second (CFS) & the potential dates of operation. There is no argument about any particular, - they "required" and I performed exactly to their requirements.

In the "Conditions of Approval" it is clear that (QUOTE) "The water right acquired under this permit for hydropower purposes shall be junior and subordinate to all rights to use of water, other than hydropower, within the state of Idaho that are initiated later in time than the priority of this permit and shall not give rise to any right or claim against future rights to the use of water, other than hydropower, within the State of Idaho initiated later in time than the priority of this permit".

So, my water use right for hydropower is junior to all right rights to use of water, other than hydropower, that are initiated later in time. Even other hydropower systems, that are up stream or downstream, have no adverse effect on my system because I own the all the property, (both sides of the creek) that my system is constructed on.

So, there should be no problem with issuing my final water use right or license. Also, I had to file that I would leave at least 50 gallons per minute of water or shut down and leave whatever water quantity is naturally there. Thus there is no reason not to finish up the Water Use Right or License. If there is not enough water above the minimum I cannot run. But if there is a very wet year I might be able to run at some level of power output all the requested days of use.

Somehow, it seems to me that Ms. Edl is thinking that we can reduce the approved permit water use quantity. I disagree that our approved permit water use quantity can now be reduced, after setting up a system to match my approved permit amount.

Thanks,

Lloyd Wallace, 299 Delta View Road, Hope Idaho, 83836 208-263-0895

Next, I will copy our emails into this email.

First email from Ms. Edl to me: April 16, 2019

Mr. Wallace,

I left you a voice message a few moments ago.

Your hydropower project is uncommon. In the 10+ years I've worked for IDWR reviewing hydropower water rights yours is a first. I have a favor to ask.

I would like to use your project as a template for that type of hydro in a guidance manual. Adam did a pretty good job of inspecting but he was working through his instincts rather than an IDWR policy. I hope you are ok with that extra notoriety.

I also need to recommend a volume of water used by the project in a typical year. I am hoping to use your annual power production information to kind of back-calculate a volume. Do you have a copy of that generation?

Thank you.

Michele Edl

Water Rights Section

IDWR State office

Boise ID

208-287-4946

L. Wallace's answer to email #1, April 16, 2019

Lloyd Wallace <wallace83836@gmail.com>

to Michele

Hello Michele,

Thank you for your interest in my hydro project. My hydro project is unique and will become more unique as I use the grid for my "battery" to store Kilowatt hours instead of just heat & charging batteries for back-up. Oh how I would love to get ahold of an electric plug in vehicle, like the Chevy Volt or Bolt! :)

There are some things that my hydro project might work for, as a template in a guidance manual, and with some caveats (like picture approval, - I would want to spruce up for any pics), I would possibly agree to such notoriety use, though I don't seek notoriety. This project is my 3rd personal hydro project, it has been going on for quite awhile and several electrical inspectors have come and gone, so, it is no surprise that Adam was not familiar with small hydro, some inspectors scratched their head a time or two with this size of system too, but we worked through the issues. The other projects that I built were back in the 1980s, both of them are still working or workable.

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water tank, 1 car garage, 700 sq. ft. storage building, & R.V. trailer. That first winter was spent in testing and matching the system loads to power output up to about 9 Kw. After April of 2018, I had to shut it down, I had no use for heat and no way to push power into the grid.

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I would love to work with IDWR to formulate a real and quality hydro instruction A-Z book for Idaho. Remember, the beauty of my system is that it consumes nothing to make power, makes absolutely no pollution or greenhouse gas, kills no birds, has very low noise levels, (quieter than a 3 Kw Honda Generator). And Idaho has lots of locations for just such systems! And compared to Avista's Solar Farm (160 solar panels of 350 watts each) I produced 4 times as much power in Feb. 2019 and beat them badly again in March.

My engineering for all my systems (I do conservative engineering) is that a 1 inch nozzle will flow .6 CFS at 200 ft. of altitude and produce 5 Kw or 5000 watts. I use pipe fittings for nozzles and a 1 inch pipe fitting has an actual inside diameter of 1 1/16". 81 lbs. per sq. inch (PSI) pressure = 187 ft. altitude (head). In practice, with a 1" nozzle & 81 PSI, I get over 6 Kw. With a 1 1/4" nozzle (& 81 PSI) I get 10.8 Kw at 45 amp flow and with both the 1 1/4" and the small 3/4" nozzle (3 kw) I get 13,920 watts (13.92 Kw) at 58 amps flow.

My suggestion is that since I own all land on both sides of the creek, and all future potable water has precedence over power production, there is not much chance of any water use dispute. I suggest to issue the license for the applied for water amount, I don't see how there could be a dispute with future potable water permits having priority over existing power production. Hydro above me (or below me) would not be a problem for my system. In any case, I can't (& don't want to) dry the creek up anyway, it is required that I leave a minimum of 50 GPM in the creek or shut down and leave the creek to its natural flow.

I hope this helps.

Ms. Edl's email #2 April 16, 2019

Edl, Michele <Michele.Edl@idwr.idaho.gov>

to me

Lloyd Wallace

Thank you for your prompt response.

I believe that you have misunderstood me, at least in part. I am comfortable with the flow rate we discussed the other day. I am recommending 1.46 cfs for the license rate. But I am also required by statute to recommend an annual volume of water used in units of acre-feet.

Aerial photography can show IDWR that a crop was planted and harvested and so we can determine the annual volume of water consumptively used for irrigation. Non-consumptive uses such as hydropower are not exempt from the requirement for an annual volume and it can be very difficult to calculate and justify.

I was hoping that because you were selling power, I could use the power sales statements to back-calculate a total volume of water used in the last couple of months. Knowing that you need 1.46 cfs to generate 6 kW and say if you generated 2100 kWhr and sold 1900 kWhr of that, I could estimate the volume of water used for power generation from your project in a year.

I understood that your hydropower project would not run at 1.46 cfs flowing continuously 365 days per year, because the creek can't support that. So I would be unrealistic if not unethical to recommend a volume based on an impossible flow.

Can you suggest a better method?

I'll be in the office but in meetings much of the day tomorrow. I would be happy to chat with you again and I'll try to catch up with you through a phone call.

Sincerely,
Michele Edl

L Wallace's Answer to Ms. Edl's email #2 April 17, 2019

Lloyd Wallace <wallace83836@gmail.com>

to Michele

Ms. Michele Edl,

O.K., now I understand where this is going. I am not now, nor will be, selling power, nor do I yet have the two way kilowatt meter installed, just a verbal discussion with Avista about 4 years ago. So, there is no data available. But in any case, the amount I push into the grid would never include the uses I make of it here at home for heating of our home, garage, storage building, R.V., pre-heat hot water tank, or a myriad of other uses. I will push only a minimum of kilowatt hours into the grid for late summer to early fall use.

What I would suggest is that you simply take the applied for, and approved application amount of water (1.46CFS) and multiply it by the dates of use in the approved application to figure out the maximum annual acre ft.. Just use the applied for (& approved) 1.46 CFS for the applied for & approved production dates. After all, that is the amount requested in my original approved water rights use permit application and should be the maximum amount allowed for in the water rights use license.

My application requirements are that I always leave 50 gpm creek flow, so, my water use always depends on what excess water there is in the creek. My system does operate 24 hrs. per day, every day of the production year - that there is enough water to operate at some level. Don't farmers also use the amount RATE (CFS)

they apply for, with final actual acre ft. amount of use depending on natural rain fall? Don't they have a maximum annual acre ft. of water rights use?

Approving less annual acre ft. than the requested & approved permit application RATE (1.46 CFS) amount, is in effect an arbitrary reduction of the approved water rights application for my permitted use. If you look again at my approved water rights permit application, there are applied for days and water quantities listed that can easily be figured into annual acre ft. The CFS quantity multiplied by 60 (for 1 minute), then multiply again by 60 (for 1 hour), then multiply by 24 hrs. (for 1 day) and then times the number of production days for the maximum annual cubic ft. use amount, - then divide total annual cubic ft. by the cubic ft. in one cubic ft.-acre will give you the annual acre ft. One cubic ft. acre is 43560 (sq. ft.) by 1 ft. deep water.

Thus the way to describe my approved application for water rights use is **"not to exceed * * * * annual acre ft.", used at a rate no greater than 1.46 cubic feet per second during approved dates of production.** Then I would suggest a 20-30 year renewal period, as we have proof that my systems, with maintenance, last for well over 30 years, the longest being 38 years and second longest 34 years, with both systems still going.

Lastly, since this water rights permit was requested, paid for, and approved quite a few years ago, would not the rules to figure final (water rights use) license in annual acre ft. use, need to be figured as it was in the year of the approved application? I should have "grandfather rights" from the water rights use application first being approved in 1996 and then renewed & approved again about 10 years ago. The electrical inspector is doing his inspections as per the rules of the year of electrical permit application approval.

I am aware of the water rights battles going on currently in Idaho, so, I will be taking all necessary legal steps to protect my approved water rights use amounts as listed in my approved water rights use application, (to appropriate the waters of Idaho) from a decade ago. The rules of those approved application time periods have priority over new rules adopted after my system application approval dates.

Feel free to call me, (208-263-0895) I will try to be where I can hear my phone ring, or maybe tell me when you will be calling and I will wait by the phone.

L. Wallace's second email answer to Ms. Edl's email #2 April 24, 2019

Lloyd Wallace <wallace83836@gmail.com>
to Michele

Ms. Edl

Here is scientific engineering for figuring annual acre feet, based upon acre feet being the square feet in one acre (43560 sq. ft.) and the water 1 ft. deep. Thus the square ft. in one acre with 1 ft. deep water) equals 43560 square feet or one acre foot.

Step one: We both already have accepted the 1.46 cubic ft. maximum cubic foot per second (CFS) water flow.

Step two: We can figure the number of maximum cubic feet per minute (CFM) by multiplying the agreed upon CFS flow by the number of seconds (60) in a minute. 1.46 CFS times 60 seconds = 87.6 maximum CFM.

Step three: We can figure the number of maximum cubic feet per hour by multiplying the number of minutes (60) in an hour times the 87.6 CFM in step two. 87.6 CFM times 60 minutes = 5256 cubic feet per hour.

Step 4: We can find the number of CFM per day by multiplying the cubic feet per hour times 24 hours in a day. 5256 cubic ft. per hour times 24 hours = 126,144 cubic feet per day.

Step 5: Check the approved permit application to find the approved days of production. Multiply the cubic feet per day by the number of approved production days (in PERMIT) to get the Maximum annual cubic ft. 126,144 cubic feet per day times (example 304) approved days of production = 38,347,776

Step 6: To change the total Maximum annual cubic feet to acre feet requires us to divide the total annual cubic feet (38,347,776) by the number of square feet in 1 acre (43560). 38,347,776 divided by 43560, sq. ft. in 1 acre) = 880.344 annual acre feet.

Granted this does figure that we will be at maximum production every day, which it is possible that the creek will not always have that quantity of water.

However, to cut down the annual acre feet from the approved maximum amount would prevent me from maximum production in years that the creek could supply the MAXIMUM APPROVED AMOUNT IN THE APPROVED PERMIT FOR THE APPROVED PRODUCTION DAYS.

Remember, this is a non consumptive use, we use no actual water, we just borrow its mass and weight as it passes down the creek.

This is my case, I hope this makes sense if not, feel free to call 208-263-0895. I would be happy to move through each step one by one.

Thanks for your time in considering this approved permit for final licensing.
Lloyd Wallace 208-263-0895

Ms. Edl's email answer to me, dated April 24, 2019

Edl, Michele <Michele.Edl@idwr.idaho.gov>

Edl, Michele

From: Frederick, Adam
Sent: Friday, September 06, 2019 7:53 AM
To: Edl, Michele
Subject: RE: fire protection for Wallace?

Northwestish. Once the water was through the powerhouse it was maybe 4 feet into the creek. I did not do anything in relation to domestic investigation.

From: Edl, Michele
Sent: Thursday, September 5, 2019 4:41 PM
To: Frederick, Adam <Adam.Frederick@idwr.idaho.gov>
Subject: RE: fire protection for Wallace?

Good stuff! Thank you.
So the discharge from the powerhouse flows North ish? Maybe 10 feet into Kirby Creek?

By chance did you locate his domestic well while you were there?

From: Frederick, Adam
Sent: Thursday, September 05, 2019 2:31 PM
To: Edl, Michele <Michele.Edl@idwr.idaho.gov>
Subject: RE: fire protection for Wallace?

Here are your system diagram maps. Hope they are ok.

From: Edl, Michele
Sent: Thursday, September 5, 2019 10:42 AM
To: Frederick, Adam <Adam.Frederick@idwr.idaho.gov>
Subject: RE: fire protection for Wallace?

I reused an existing spatial data point for the POD. And very rough idea shapes for POUs for power and fireprotection should be available for you to see.
I used the Go To XY function to locate your GPS point and the powerhouse. It doesn't seem to be where the DRG layer shows Kirby Creek so please relocate as necessary.

From: Frederick, Adam
Sent: Thursday, September 05, 2019 10:58 AM
To: Edl, Michele <Michele.Edl@idwr.idaho.gov>
Subject: RE: fire protection for Wallace?

P:\AFrederick\96-9430

He had a hydrant on the property. So I would say yes. Diversion rate I'm unsure of. It is an exempt use so maybe authorize the full amount? Though the hydrant was only a 2 inch line. I put the entire folder of pictures in my p drive.

Point of diversion is located at
-116 21.863

48 18.602

Powerhouse is located at

-116 22.051

48 18.577

Applicant diverts from creek in a 10 inch steel pipe that goes into an 8 inch pvc.

From: Edl, Michele

Sent: Thursday, September 5, 2019 9:48 AM

To: Frederick, Adam <Adam.Frederick@idwr.idaho.gov>

Subject: fire protection for Wallace?

What is your recommendation for the fire protection use authorized by 96-9430?

Edl, Michele

From: Frederick, Adam
Sent: Friday, August 30, 2019 10:27 AM
To: Edl, Michele
Subject: Fwd: Delayed Hydro Electric License

Fyi, looks like he really wants a license.

Sent from my Verizon Wireless 4G LTE smartphone

----- Original message -----

From: Representative Heather Scott <HScott@house.idaho.gov>
Date: 08/30/2019 9:00 AM (GMT-08:00)
To: "Frederick, Adam" <Adam.Frederick@idwr.idaho.gov>
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Water Rights Section

IDWR State office

Boise ID

208-287-4946

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Lloyd Wallace <wallace83836@gmail.com>

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Ms. Edl's email #2 April 16, 2019

Edl, Michele <Michele.Edl@idwr.idaho.gov>

to me

Lloyd Wallace

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L Wallace's Answer to Ms. Edl's email #2 April 17, 2019

Lloyd Wallace <wallace83836@gmail.com>

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L. Wallace's second email answer to Ms. Edl's email #2 April 24, 2019

Lloyd Wallace <wallace83836@gmail.com>
to Michele

Ms. Edl

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Lloyd Wallace 208-263-0895

Ms. Edl's email answer to me, dated April 24, 2019

Edl, Michele <Michele.Edl@idwr.idaho.gov>

Edl, Michele

From: Lloyd Wallace <wallace83836@gmail.com>
Sent: Tuesday, August 13, 2019 7:49 AM
To: Edl, Michele
Subject: Re: your hydropower project

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Sent: Wednesday, April 24, 2019 12:58 PM

To: Edl, Michele <Michele.Edl@idwr.idaho.gov>

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Mr. Wallace,

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Ms. Michele Edl,

O.K., now I understand where this is going. I am not now, nor will be, selling power, nor do I yet have the two way kilowatt meter installed, just a verbal discussion with Avista about 4 years ago. So, there is no data available. But in any case, the amount I push into the grid would never include the uses I make of it here at home for heating of our home, garage, storage building, R.V., pre-heat hot water tank, or a myriad of other uses. I will push only a minimum of kilowatt hours into the grid for late summer to early fall use.

What I would suggest is that you simply take the applied for, and approved application amount of water (1.46CFS) and multiply it by the dates of use in the approved application to figure out the maximum annual acre ft.. Just use the applied for (& approved) 1.46 CFS for the applied for & approved production dates. After all, that is the amount requested in my original approved water rights use permit application and should be the maximum amount allowed for in the water rights use license.

My application requirements are that I always leave 50 gpm creek flow, so, my water use always depends on what excess water there is in the creek. My system does operate 24 hrs. per day, every day of the production year - that there is enough water to operate at some level. Don't farmers also use the amount RATE (CFS) they apply for, with final actual acre ft. amount of use depending on natural rain fall? Don't they have a maximum annual acre ft. of water rights use?

Approving less annual acre ft. than the requested & approved permit application RATE (1.46 CFS) amount, is in effect an arbitrary reduction of the approved water rights application for my permitted use. If you look again at my approved water rights permit application, there are applied for days and water quantities listed that can easily be figured into annual acre ft. The CFS quantity multiplied by 60 (for 1 minute), then multiply again by 60 (for 1 hour), then multiply by 24 hrs. (for 1 day) and then times the number of production days for the maximum annual cubic ft. use amount, - then divide total annual cubic ft. by the cubic ft. in one cubic ft.-acre will give you the annual acre ft. One cubic ft. acre is 43560 (sq. ft.) by 1 ft. deep water.

Thus the way to describe my approved application for water rights use is "not to exceed * *
* * annual acre ft.", used at a rate no greater than 1.46 cubic feet per second during
approved dates of production. Then I would suggest a 20-30 year renewal period, as we

have proof that my systems, with maintenance, last for well over 30 years, the longest being 38 years and second longest 34 years, with both systems still going.

Lastly, since this water rights permit was requested, paid for, and approved quite a few years ago, would not the rules to figure final (water rights use) license in annual acre ft. use, need to be figured as it was in the year of the approved application? I should have "grandfather rights" from the water rights use application first being approved in 1996 and then renewed & approved again about 10 years ago. The electrical inspector is doing his inspections as per the rules of the year of electrical permit application approval.

I am aware of the water rights battles going on currently in Idaho, so, I will be taking all necessary legal steps to protect my approved water rights use amounts as listed in my approved water rights use application, (to appropriate the waters of Idaho) from a decade ago. The rules of those approved application time periods have priority over new rules adopted after my system application approval dates.

Feel free to call me, (208-263-0895) I will try to be where I can hear my phone ring, or maybe tell me when you will be calling and I will wait by the phone.

Lloyd

On Tue, Apr 16, 2019 at 5:42 PM Edl, Michele <Michele.Edl@idwr.idaho.gov> wrote:

Lloyd Wallace

Thank you for your prompt response.

I believe that you have misunderstood me, at least in part. I am comfortable with the flow rate we discussed the other day. I am recommending 1.46 cfs for the license rate. But I am also required by statute to recommend an annual volume of water used in units of acre-feet.

Aerial photography can show IDWR that a crop was planted and harvested and so we can determine the annual volume of water consumptively used for irrigation. Non-consumptive uses such as hydropower are not exempt from the requirement for an annual volume and it can be very difficult to calculate and justify.

I was hoping that because you were selling power, I could use the power sales statements to back-calculate a total volume of water used in the last couple of months. Knowing that you need 1.46 cfs to generate 6 kW and say if you generated 2100 kWhr and sold 1900 kWhr of that, I could estimate the volume of water used for power generation from your project in a year.

I understood that your hydropower project would not run at 1.46 cfs flowing continuously 365 days per year, because the creek can't support that. So I would be unrealistic if not unethical to recommend a volume based on an impossible flow.

Can you suggest a better method?

I'll be in the office but in meetings much of the day tomorrow. I would be happy to chat with you again and I'll try to catch up with you through a phone call.

Sincerely,

Michele Edl

Edl, Michele

From: Frederick, Adam
Sent: Monday, April 08, 2019 12:32 PM
To: Edl, Michele
Subject: RE: Hydropower 96-9430

Wow, that's great news. I will write up everything if you can get me the documentation confirming diversion rate and annual volume. Sound good?

From: Edl, Michele
Sent: Monday, April 08, 2019 11:29 AM
To: Frederick, Adam <Adam.Frederick@idwr.idaho.gov>
Subject: RE: Hydropower 96-9430

I spoke with Mr. Wallace this morning. I understand his hydro pretty well now. Are you writing up the exam report this week?

He sells power but his sales are based on an annual review (probably varies as the electricity tariffs vary). Anyway, he doesn't have a sales agreement. We will need to use equipment life for the director's term review. He said that one of his projects was installed in 1981 and is still running so I would be comfortable with 15-20 year term.

This is a single Pelton wheel type turbine with 2 nozzles. Using my nozzle charts, I would be comfortable recommending 1.46 cfs as the max rate for hydropower. The site could do more but he's not interested in more power.

I need to think a little more about a volume recommendation. The powerplant runs continuously but not at the max rate. He does swap out the nozzles to accommodate for flow fluctuation in the creek. I understand that it's been running a least a year so maybe he has an annual generation summary from Northern Lights(?) that we could peg a volume onto.

Do you have questions?
Michele

From: Frederick, Adam
Sent: Monday, April 08, 2019 9:37 AM
To: Edl, Michele <Michele.Edl@idwr.idaho.gov>
Subject: Hydropower 96-9430

Michele,
I have placed photos in a folder 96-9430 under my public folder in the P Drive.

The point of diversion is located at -116 21.863, 48 18.602 and is diverted from a 10 inch pipe
The power house is located at -116 22.051, 48 18.577

The diversion goes from a 10 inch to 8 inch to 6 inch splitter to each head.

There is one $\frac{3}{4}$ in head and one head that is $1 \frac{1}{2}$ but is actually $1 \frac{3}{8}$.

In the photos you will see the psi for each head running at the same time with is somewhere between 78-80 psi.

There is 191 feet of head according the applicant and believes his system is somewhere around 80% efficient.

There is also a photo showing the power output in amps with both running at the same time between 58-60 amps.

Let me know how you would like to proceed. Thanks for your help.

Adam Frederick
Senior Water Resource Agent
Idaho Dept. of Water Resources
Northern Regional Office
Phone 208-762-2800