

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 92-10033

1. Owner Bruce C. Morehouse Phone No. 210-655-0642

Current address P.O. Box 509, St. Maries, ID 83861 208-245-1275

2. Examiner's name Keith Franklin EXAM DATE 10/20/2010

3. Accompanied by Bruce Morehouse Email —

Address Same as above

Relationship to permit holder N/A Phone No. N/A

4. Source Carlin Creek tributary to St. Maries River

B. OVERLAP REVIEW

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

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

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

Ident. No.	Gov't Lot	1/4	1/4	1/4	Sec	Twp	Rge	County	Method of Determination/Remarks
	<u>—</u>		<u>SW</u>	<u>NW</u>	<u>20</u>	<u>45N</u>	<u>2W</u>	<u>Benevento</u>	<u>visual / ArcMap</u>

2. Place(s) of Use: Method of determination Arc Map

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
<u>45N</u>	<u>2W</u>	<u>20</u>																	

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☐ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

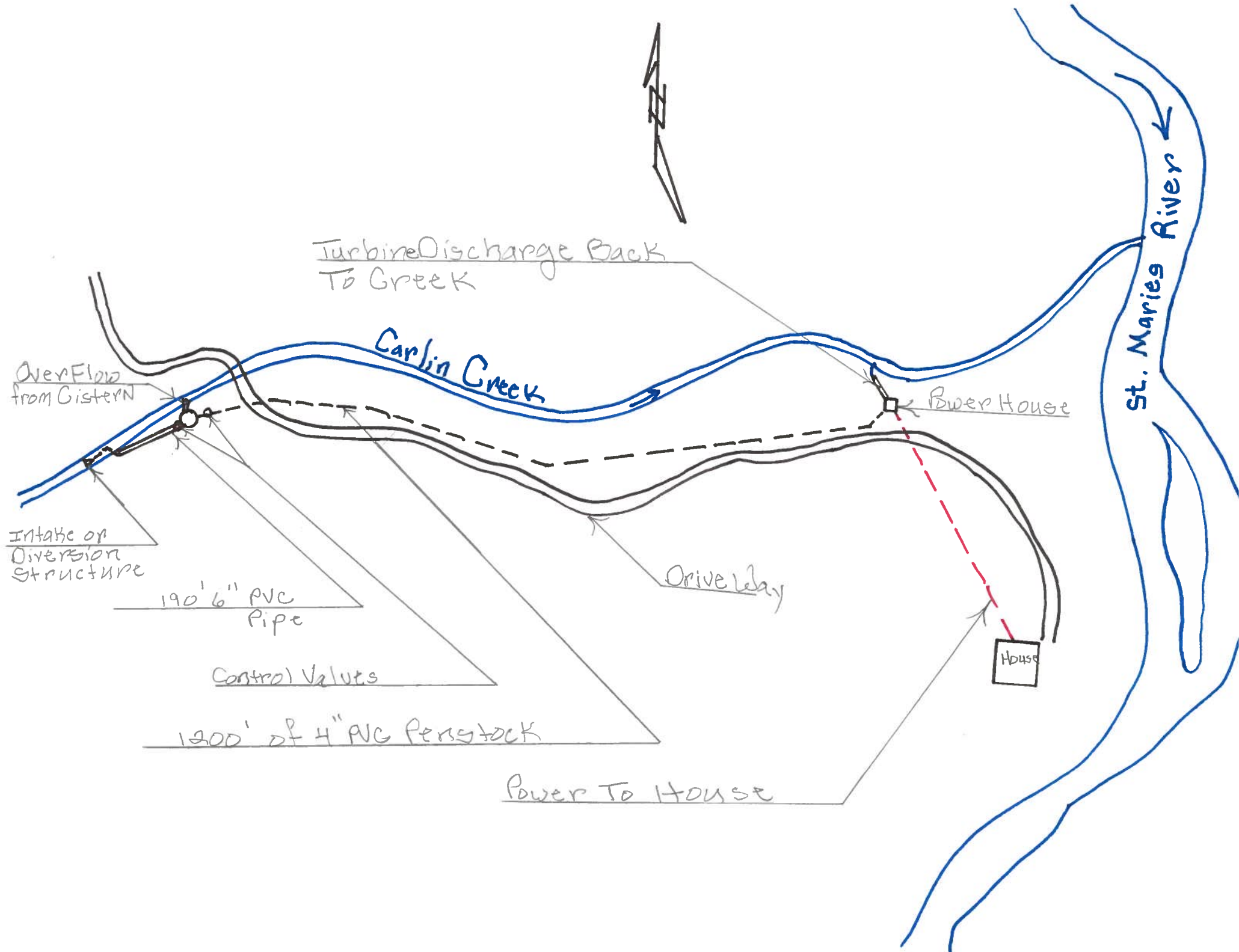
*Code to correspond with no. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: Flow was measured by Nozzle size and pressure at the turbine or power generator.
 4- 5/16" Nozzles @ 45 ps = 78.4 GPM = 0.18 cfs



E. NARRATIVE/REMARKS/COMMENTS

See Attached Narrative

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

NARRATIVE/REMARKS/COMMENTS

Water is diverted from Carlin Creek by way of a portable triangular shaped intake device that is double screened, preventing any fish and debris from entering the system. The intake device is intended to be of a portable nature so it can be removed in the non-operating season. The intake is attached to approximately 20 feet of flexible 6 inch diameter pipe that is connected to 190 feet of 6 inch diameter pvc pipe that discharges into a 4 foot diameter concrete cistern. The cistern acts as an equalization reservoir and emergency overflow structure prior to the water entering the penstock. The penstock intake, within the cistern, is screened prior to the water entering a 1200 foot, 4 inch diameter pvc penstock that extends to the generating unit, which is a Harris Permanent Magnet Generating Unit rated at 24 volts and 1100 Watts at 100 feet of head. Water from the generating unit is discharged back to Carlin Creek by way of a 4 inch diameter pvc return flow pipe.

The operating pressure or head at the power generating unit was measured at 45 psi by an inline pressure gauge, which is equivalent to 104 feet of head. The power out-put, when 2 of the 5/16 inch diameter nozzles were in use was measured at 20 amps with a corresponding calculated wattage of 577 Watts. When 4 of the nozzles were in use the power out-put was measured at 30 amps with a corresponding calculated wattage of 1190 Watts.

The power produced is stored in 8 DC battery cells and converted to AC power before used for domestic purposes.

A condition of the permit was to install a weir type measuring device that will insure the passage of a minimum of 0.5 cfs in Carlin Creek, when the power generating unit is in operation. The permittee has manufactured a standard contracted metal weir box that sets below the intake structure in Carlin Creek. The system is designed so at least 0.5 cfs must pass through the weir box and any excess will flow above the weir box and thence into the triangular intake device. The inside throat of the weir box measured at 1 foot wide by 3.75 inches deep, so if water is flowing 3.75 inches over the 1 foot wide weir, the flow would be equal to 0.5 cfs.

The field exam confirms compliance with the elements and conditions of the permit.

Photo Index 10/20/2010 92-10033



Penstock intake.JPG



Weir.JPG



Generating unit.JPG



Generator outflow.JPG



Power house.JPG



DC.JPG



AC.JPG



Batteries.JPG



Pt of Diversion.JPG



PD.JPG



Cistern.JPG



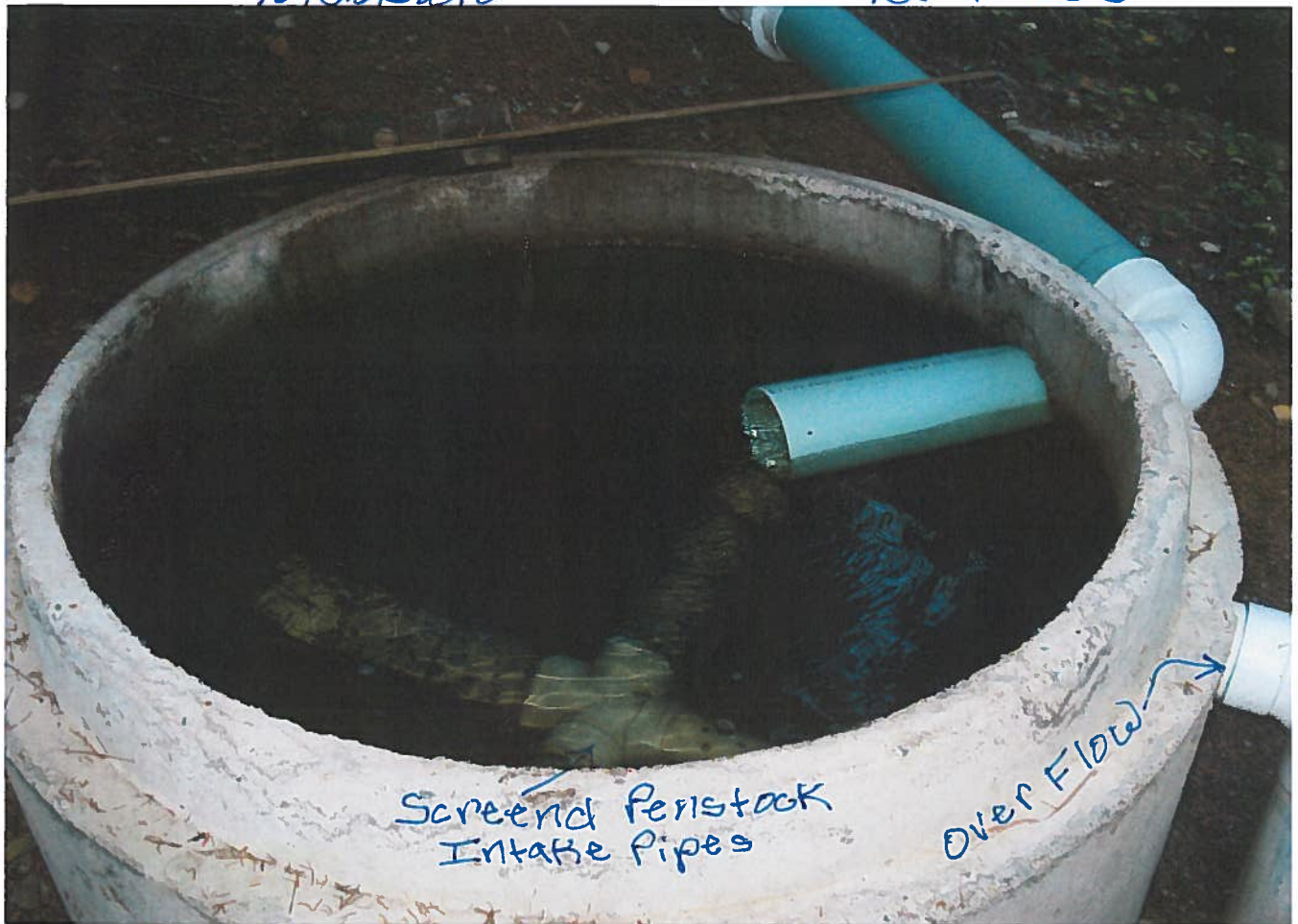
Penstock valve.JPG



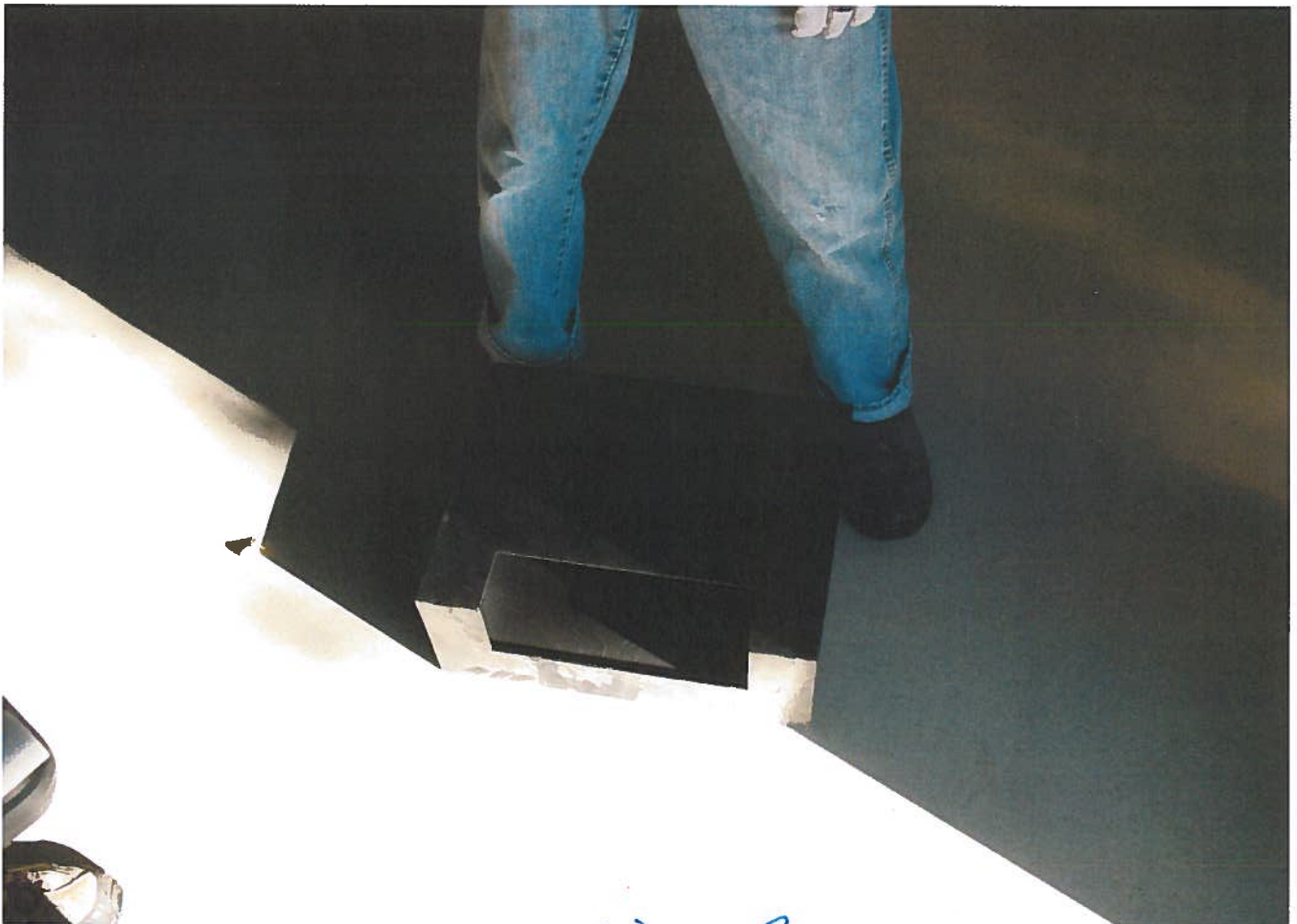
Cistern overflow.JPG

10/30/2020

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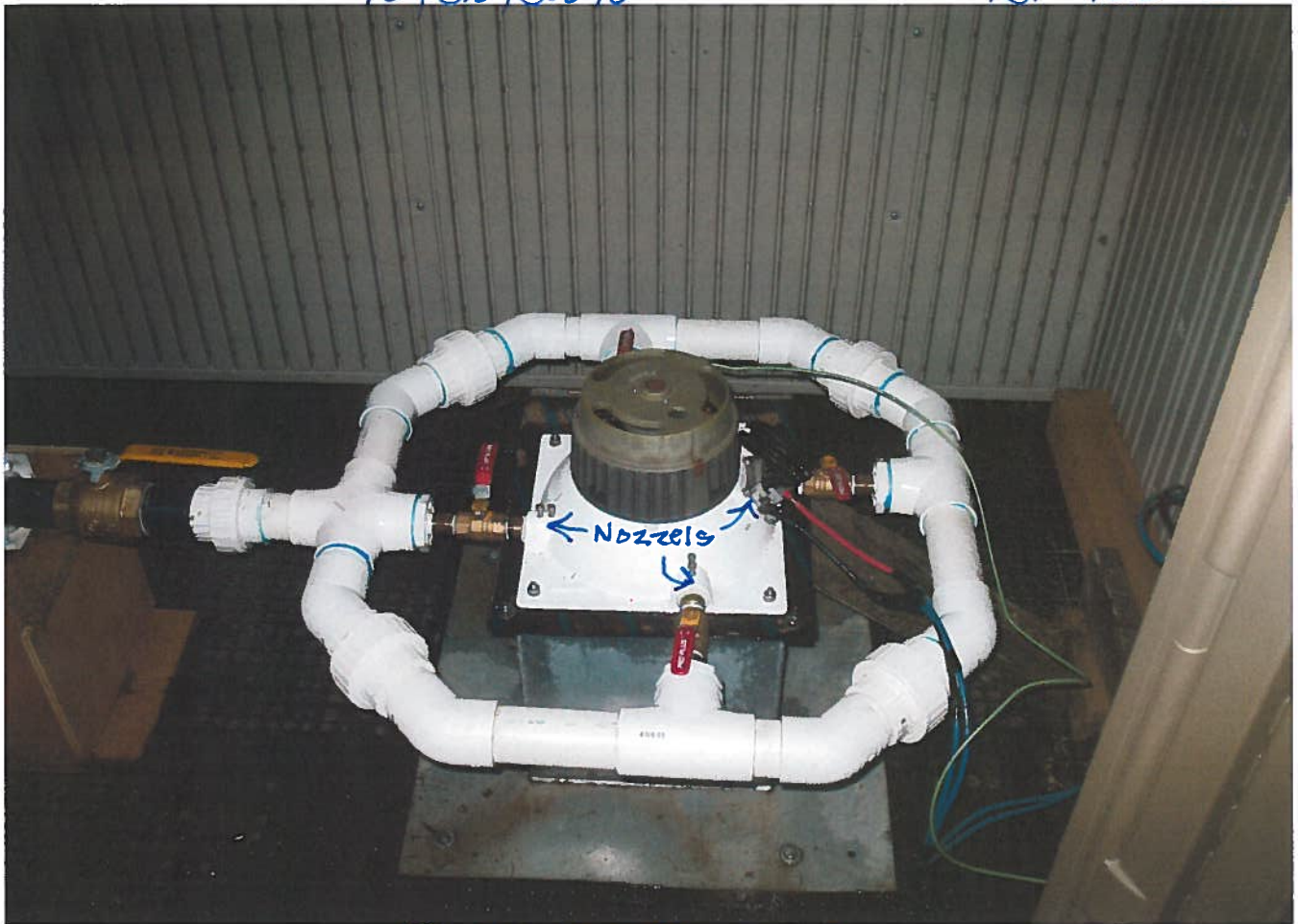
Cistern



Metal Weir Box

10/20/2010

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Generating Unit



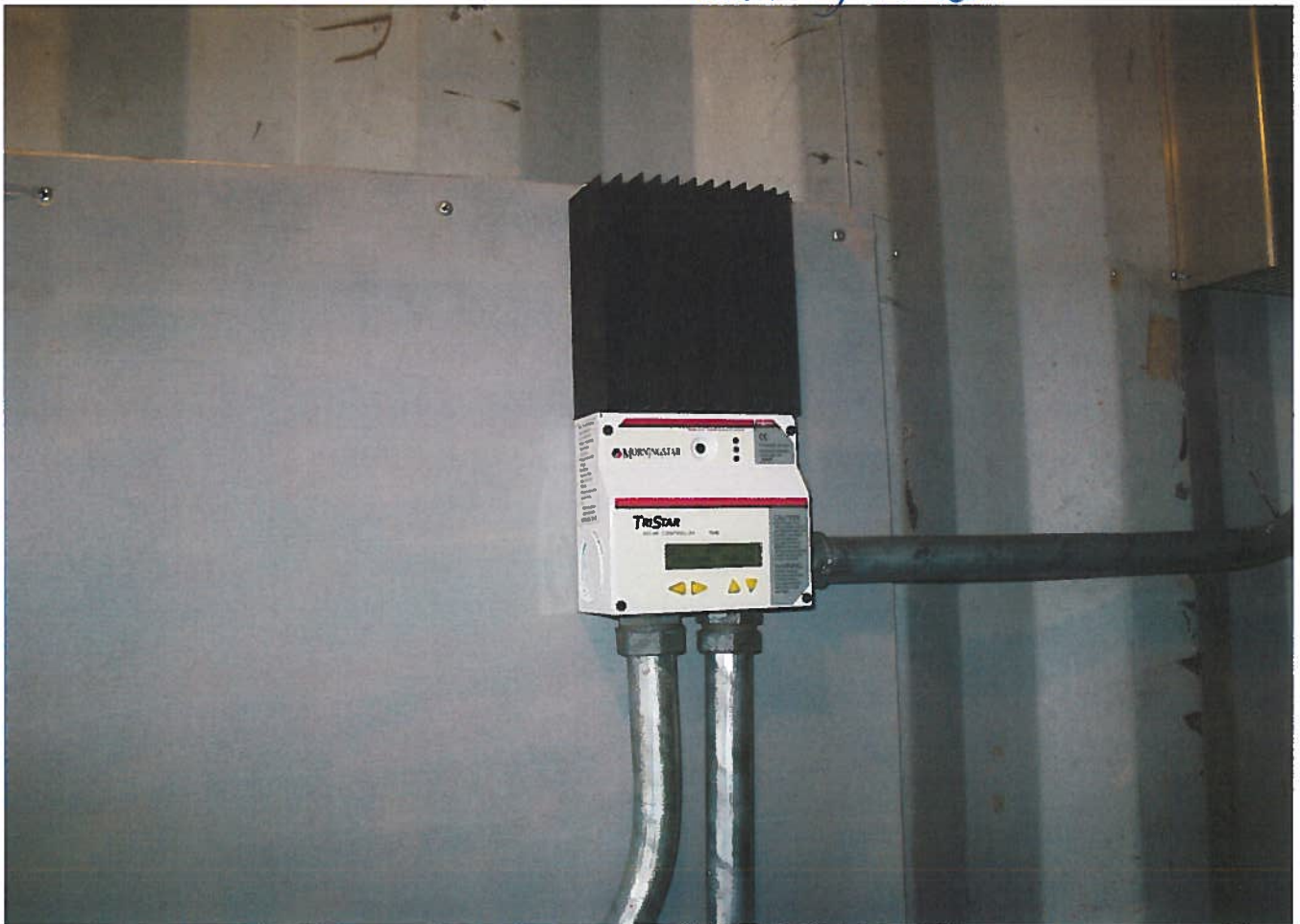
Removal Pipe From Generator

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Power Generating House



DC Connector Box

10/20/2010

98-10033



AC Converter Boxes



Battery Storage Unit

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Triangular Intake Device



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Cistern



Penstock shut off valve

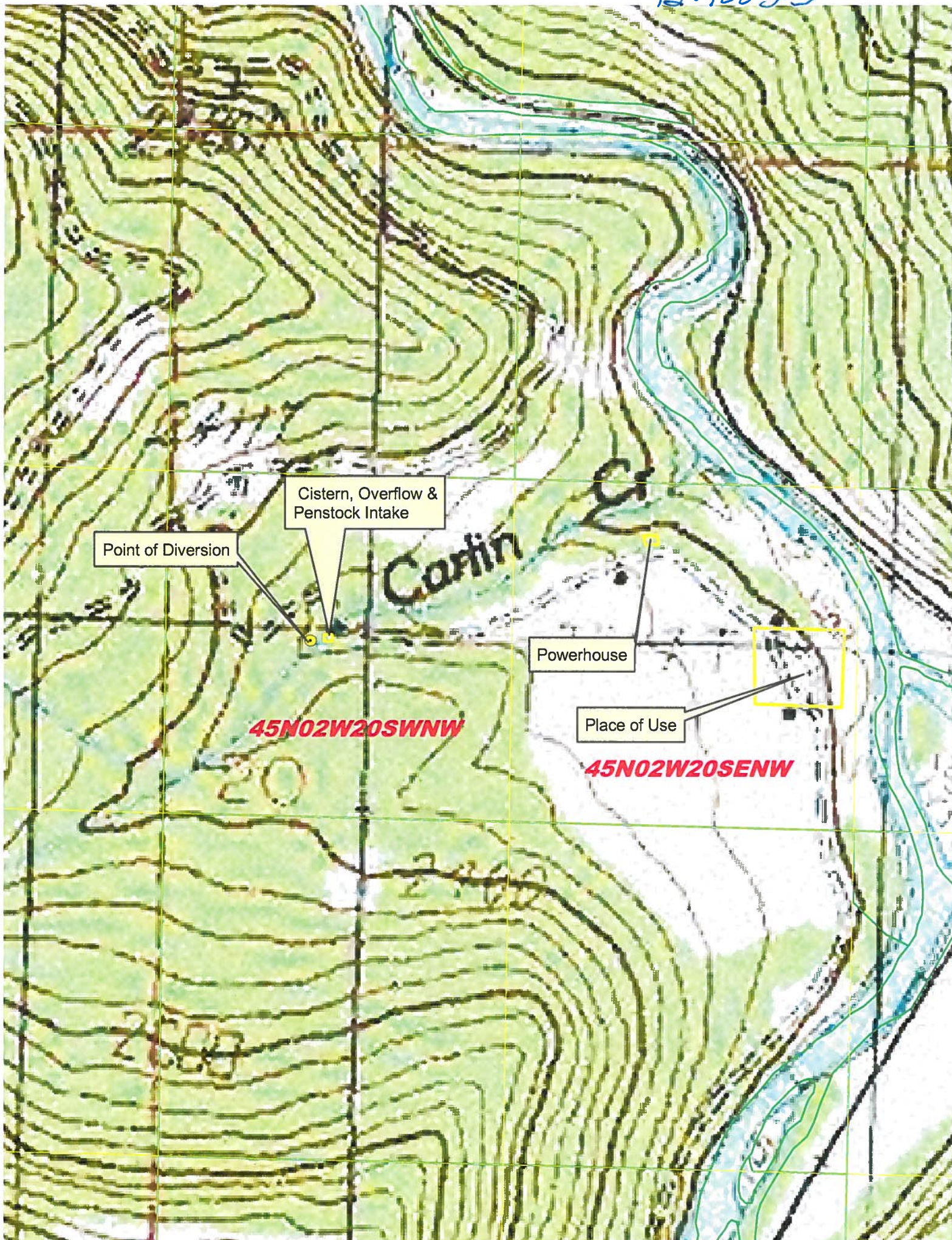
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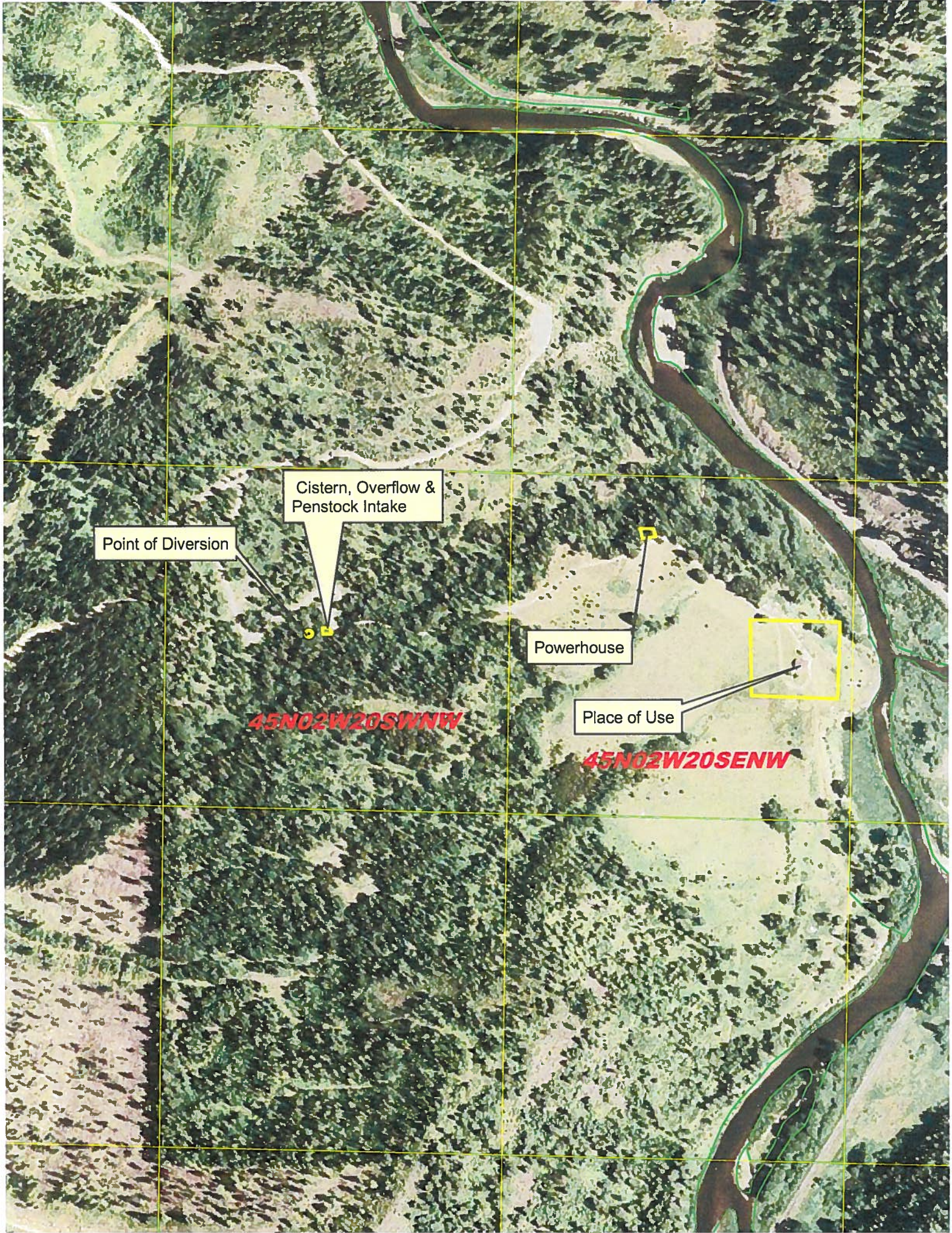


Emergency Over Flow From Cistern

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Point of Diversion

Cistern, Overflow & Penstock Intake

Powerhouse

Place of Use

45N02W20SWNW

45N02W20SENW

Table No. 10. THEORETICAL DISCHARGE OF NOZZLES IN U. S. GALLONS PER MINUTE

Coefficient of Discharge = 1.00

Pressure Lbs. per Sq. In.	Head Feet	Velocity Ft. per Sec.	DIAMETER OF NOZZLE IN INCHES															
			1/16"	3/32"	7/64"	1/8"	9/64"	5/32"	11/64"	3/16"	13/64"	7/32"	15/64"	1/4"	9/32"	5/16"	11/32"	3/8"
At Nozzle																		
10	23.1	38.6	0.37	0.83	1.13	1.48	1.87	2.31	2.78	3.32	3.90	4.51	5.17	5.91	7.5	9.2	11.2	13.4
15	34.6	47.3	0.45	1.02	1.40	1.81	2.32	2.86	3.44	4.06	4.85	5.60	6.41	7.24	9.25	11.4	13.9	16.6
20	46.2	54.6	0.52	1.17	1.59	2.09	2.65	3.26	3.92	4.69	5.51	6.37	7.30	8.35	10.5	13.0	15.8	18.9
25	57.7	61.0	0.58	1.31	1.78	2.34	2.96	3.64	4.38	5.25	6.16	7.13	8.17	9.34	11.8	14.5	17.7	21.1
30	69.3	66.9	0.64	1.44	1.96	2.56	3.26	4.01	4.83	5.75	6.80	7.85	9.00	10.2	13.0	16.0	19.5	23.2
35	80.8	72.2	0.69	1.55	2.11	2.77	3.50	4.31	5.18	6.21	7.30	8.43	9.65	11.1	13.9	17.2	20.4	24.9
40	92.4	77.2	0.74	1.66	2.25	2.96	3.74	4.61	5.54	6.64	7.80	9.02	10.3	11.8	14.9	18.35	22.4	26.7
45	103.9	81.8	0.78	1.76	2.40	3.13	3.99	4.91	5.91	7.03	8.30	9.60	11.0	12.5	15.9	19.6	23.8	28.6
50	115.5	86.3	0.83	1.85	2.52	3.30	4.18	5.15	6.19	7.41	8.71	10.10	11.5	13.2	16.6	20.5	25.0	29.8
55	127.0	90.5	0.87	1.94	2.63	3.46	4.37	5.39	6.48	7.77	9.12	10.50	12.10	13.8	17.4	21.5	26.6	31.2
60	138.6	94.5	0.90	2.03	2.76	3.62	4.50	5.65	6.80	8.12	9.56	11.05	12.70	14.5	18.3	22.5	27.4	32.7
65	150.1	98.3	0.94	2.11	2.86	3.77	4.76	5.87	7.06	8.45	9.92	11.45	13.10	15.1	19.0	23.4	28.4	33.9
70	161.7	102.1	0.98	2.19	2.98	3.91	4.96	6.10	7.34	8.78	10.32	11.95	13.70	15.7	19.8	24.4	29.6	35.4
75	173.2	105.7	1.01	2.27	3.08	4.05	5.12	6.30	7.58	9.08	10.66	12.32	14.12	16.2	20.4	25.1	30.6	36.5
80	184.8	109.1	1.05	2.35	3.18	4.18	5.29	6.52	7.84	9.39	11.02	12.74	14.60	16.7	21.1	26.0	31.6	37.7
85	196.3	112.5	1.08	2.42	3.28	4.31	5.45	6.71	8.07	9.67	11.35	13.11	15.03	17.3	21.7	26.7	32.5	38.8
90	207.9	115.8	1.11	2.49	3.38	4.43	5.61	6.91	8.31	9.95	11.69	13.51	15.48	17.7	22.3	27.5	33.5	40.0
95	219.4	119.0	1.14	2.56	3.46	4.56	5.76	7.09	8.53	10.2	11.99	13.86	15.88	18.2	22.9	28.2	34.4	41.0
100	230.9	122.0	1.17	2.63	3.56	4.67	5.91	7.29	8.76	10.5	12.32	14.23	16.31	18.7	23.5	29.0	35.3	42.2

More noise

Volts : 24 V — 30 MAX

AMPS :

~~1500~~ : 1100 Watts @ 100 lb

Make : Harris ^{current} F. Magnet

HP :

Serial No. :

Power : $Q = \frac{11.8 P}{14 \text{ eff}}$ $P = 15 \text{ W}$

$$P = \frac{Q \text{ eff}}{11.8} = \frac{(0.18)(104)(0.75)}{11.8}$$
$$= 1.1898 \text{ KW} = 1189.8 \text{ W}$$

RECEIVED RECEIVED

OCT 25 2010

OCT 28 2010

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

IDWR / NORTH

STATEMENT OF COMPLETION
FOR SUBMITTING PROOF OF BENEFICIAL USE

FOR OFFICE USE ONLY
Amt. of Fee \$: 50.00
Receipt No. NC 26799
Receipt By: AS
Date Received: 10/25/10

The Idaho Department of Water Resources considers this form a statement by the permit holder(s) that development of a water right has been completed and that water has been applied to beneficial use to the extent described below. This form must be accompanied by an examination fee, when necessary, or by a completed Beneficial Use Field Report prepared by a certified water right examiner. Please refer to the instructions and fee schedule for this form. If ownership of the permit has changed, please contact any Department office or visit the Department's website at: www.idwr.idaho.gov for an Assignment of Permit form. If you wish to relinquish your permit because you have not established the authorized use of the water and are not applying for an extension, please notify the Department in writing.

1. Permit No.: 92-10033 Telephone No.: 208-245-1275
2. Name of Permit Holder(s): BRUCE C MOREHOUSE
3. Mailing Address: P.O. Box 509 City: ST. MARIES
State: ID Zip: 83861 Email: NONE
4. Source of Water: CARLIN CREEK If GROUND WATER (well), Date Drilled: mo. — / yr. —
Well Driller: — Drilling Permit Number: —
5. Extent of use(s) completed (as authorized by the water right permit):
Domestic (No. of households): — Stockwater (No. and type of stock): —
Irrigation (No. of acres): — Other: POWER
6. Total rate of diversion or storage volume for which proof is submitted: 0.18 cfs OR — acre-feet.
7. Compliance with a measuring device requirement, lockable controlling device requirement, and/or other conditions of permit: Refer to the approval conditions on your permit and respond accordingly. The Department will not issue a license if permit conditions are not met.
Measuring Device: Is a measuring device required? Yes ☒ No ☐
If yes, has the measuring device been installed? Yes ☒ No ☐
Lockable Controlling Device: Is a lockable device required to control the diversion? Yes ☐ No ☒
If yes, has the lockable device been installed? Yes ☐ No ☒
Other Conditions of Permit: Do the approval conditions on your permit require you to submit additional information in connection with your proof of beneficial use? If yes, list the conditions below and attach documents with the required information.
NONE Completed? Yes ☒ No ☐
8. Fee Enclosed: \$ 50.00 See fee schedule on back of the instructions for filing proof of beneficial use.
Proofs filed without an appropriate fee, will be considered incomplete.
9. Person to contact to accompany the Department representative during field examination of the water system.
Name: BRUCE C. MOREHOUSE Telephone Number: 208 245 1275
Mailing Address: P.O. Box 509 City: ST. MARIES
State: ID Zip: 83861 Email: NONE

The information given on this form is my true statement of the extent to which the above numbered permit has been developed and water has been diverted and applied to a beneficial use. I understand that any undeveloped portion of the permit is relinquished to the State of Idaho.

Signature of permit holder:

B. Morehouse
(Include your title, if on behalf of company or organization)

Date: 20 OCT 2010

Mail to: Idaho Department of Water Resources, PO Box 83720, Boise, ID 83720-0098