

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 81-7181

Exam Date: 5/14/2014

1. Current Owner: US DEPT OF ENERGY
BONNEVILLE POWER
PO BOX 3621 TRF 3
PORTLAND OR 97208-3621
(503)230-5572
2. Accompanied by: Aaron Penny
Phone No: (208) 843-7384 Ext. 3502
Address: 18985 Hubbard Gulch, Juilietta, ID 83535
Relationship to Permit Holder: Hatchery Manager, Nez Perce Tribal Hatchery

3. SOURCE

SELWAY RIVER

TRIBUTARY

MIDDLE FORK CLEARWATER 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 SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

SELWAY RIVER L4 SW1/4SE1/4 Sec. 23, Twp 32N, Rge 07E, B.M. IDAHO County

Method of Determination: GPS and Visual Inspection

2.

PLACE OF USE: FISH PROPAGATION AND FISH PROPAGATION STORAGE

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
32N	07E	23															X		
																	LT4		

Method of Determination: Visual Inspection and GIS

3. YES Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.

YES Aerial Photo Attached (required for irrigation of 10+ acres).YES 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
Main Pump Cedar Flats Diversion	Techo	30	DXP61224332017	Gorman / Rudd	1511931
Back Up Pump Cedar Flats Diversion	WEGW21	25	02518EP3E284T	Goodwin	Model # 216P SN# 20061104-0029

*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
State Office Flow Meter #1 St ID# 150232	Polysonic	Thyme Flyte	TF-P	N8J4638	N/A	3/20/2014

2. Measurements: We used the Department's Polysonic meter for this system. The measurement matches their standard practices.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method:

Please See Attached Sheet for measurement calculations.

Measured Amount = 2.32 cfs

Permit Allowed = 5.70 cfs

I recommend the measured amount of 2.32 cfs.

F. VOLUME CALCULATIONS**1. Volume Calculations for Irrigation:**

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\hspace{2cm}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{\hspace{2cm}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{\hspace{2cm}}$$

2. Volume Calculations for Other Uses:

Please see the attached analysis for the volume requirements.

Calculated volume = 0.4 af

Permit Allows = 0.7 af

I am recommending 0.4 af of storage.

G. NARRATIVE/REMARKS/COMMENTS

Water for this permit is diverted from the Selway River by a 30 Hp portable pump. From the river the water travels through an 8 inch PVC pipeline to an aeration tank that is approximately 6 feet in diameter and 10 feet tall. From the aeration tank the water is transported by 8 inch PVC to 10 fish tanks that are 20 feet in diameter and 5 feet deep. From the tanks, the water is run through 12 inch PVC pipeline back to the river. Please Note: At the time of the field exam, there were only 8 tanks, but fishery manager stated that they had 10 tanks in 2006. I have spoken with staff, and it is acceptable to give them all 10 tanks in the equation.

There are no overlapping water rights for this system. This is an acclimation site for Fall Chinook salmon. They brought to this site for approximately 43 days to acclimate to the water in the Selway River. Once the fish have been acclimated, they are released over a period of one to two weeks to give them the best chance at survival. The salmon are released out of the outflow pipes by removing the screens in the tanks. The fish are not touched or netted during this process. The fish are approximately 3 inches in length at time of release. The fish are released at several sites in the same general area, but each site is on a different stream or river.

I added the government lots onto the legal descriptions. I am not sure why they were permitted without the lot numbers, but they are in place now. I cleaned up several of the conditions and added one condition describing the volume dispersal.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
DIVERSION TO STORAGE	01/01 to 12/31	2.320 CFS	
FISH PROPAGATION	01/01 to 12/31	2.320 CFS	197.50 AF
FISH PROPAGATION STORAGE	01/01 to 12/31		0.40 AF
<u>Totals:</u>		2.320 CFS	197.90 AF

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 Daniel A. Nelson – Staff Hydrologist

Field Examiner's Name

 Date 6-18-14

Reviewer

Date

SESW 4

Permit 81-7181 -- System Diagram -- By Dan Nelson

Water for this permit is diverted from the Selway River by a 30 Hp portable pump. From the river the water travels through an 8 inch PVC pipeline to an aeration tank that is approximately 6 feet in diameter and 10 feet tall. From the aeration tank the water is transported by 8 inch PVC to 10 fish tanks that are 20 feet in diameter and 5 feet deep. From the tanks, the water is run through 12 inch PVC pipeline back to the river. Please Note: At the time of the field exam, there were only 8 tanks, but fishery manager stated that they had 10 tanks in 2006.

SWSE 4

SESW

26

These last two tanks were not on site a the time of the exam

Fish Hatchery Border

10 - 20 foot circular tanks 5 feet deep

32N07E

Selway River

Supply Line

Power House

Aeration Tank

Outflow Line Back to River

Supply Line

Pump Area

SWSE

SWSE 5

NWNE 2

NWNE

26

POLYSONIC READINGS

PERMIT #: 81-7181

POINT OF DIVERSION

Cedar Flats Diversion

FIRST SET OF INFORMATION:

SET-UP IMPUTE DATA USED DURING
PREPARATION FOR FLOW MEASUREMENTS.

SECOND SET OF INFORMATION:

THESE ARE THE READINGS TAKEN FOR
THIS PUMP. THE TOTAL FLOW WAS
AVERAGED OVER A 10 MINUTE READING.

FLOWS IN GALLONS PER MINUTE (GPM)

1042 GPM FLOW RATE

FLOWS IN CUBIC FEET PER SECOND (CFS)

1042 GPM / 448.8 = 2.32 CFS FLOW RATE

SPACING
8.133 IN U
OUTER DIAMETER
10.8000 IN
PIPE MATERIAL
? PVC
WALL THICKNESS
0.3642 IN
INNER LINING
? NO LING.
KIND OF FLUID
? WATER
SENSOR MOUNTING
? U
SPACING
8.133 IN U
ZERO MODE
ZERO MODE
AUT ZERO

05-14 15:4000 *R
+003.00 % AI2

0389.9 MMSEC
103.60 % T0

15:54+ 1.066E 3GPM 00R
+ 4.294E 0FPS 00R
+00000 *10 G 00R
-00000 *10 G 00R

15:55+ 1.060E 3GPM 00R
+ 4.271E 0FPS 00R
+00103 *10 G 00R
-00000 *10 G 00R

15:56+ 1.050E 3GPM 00R
+ 4.232E 0FPS 00R
+00207 *10 G 00R
-00000 *10 G 00R

15:57+ 1.036E 3GPM 00R
+ 4.176E 0FPS 00R
+00312 *10 G 00R
-00000 *10 G 00R

15:58+ 1.044E 3GPM 00R
+ 4.206E 0FPS 00R
+00417 *10 G 00R
-00000 *10 G 00R

15:59+ 1.045E 3GPM 00R
+ 4.212E 0FPS 00R
+00521 *10 G 00R
-00000 *10 G 00R

16:00+ 1.021E 3GPM 00R
+ 4.114E 0FPS 00R
+00625 *10 G 00R
-00000 *10 G 00R

16:01+ 1.049E 3GPM 00R
+ 4.225E 0FPS 00R
+00729 *10 G 00R
-00000 *10 G 00R

16:02+ 1.069E 3GPM 00R
+ 4.307E 0FPS 00R
+00834 *10 G 00R
-00000 *10 G 00R

16:03+ 1.044E 3GPM 00R
+ 4.206E 0FPS 00R
+00938 *10 G 00R
-00000 *10 G 00R

16:04+ 1.036E 3GPM 00R
+ 4.173E 0FPS 00R
+01042 *10 G 00R
-00000 *10 G 00R

1042
GPM.

Fish Propagation Worksheet

Permit 81-7181 -- By Dan Nelson

Determination of Density Index = Weight of Fish Produced in pounds/ (Fish length in inches X Facility Volume in ft ³)		
Fish Weight	5,000.00	
Length	3.00	
Volume	15,700.00	
Density Index	0.11	
Under Ideal Conditions, Density Index should be between 0.4 and 1		

Determination of facility exchange = Diversion Rate in cfs X 3600/ Facility Volume in ft ³		
Diversion Rate	2.32	
Facility Volume	15,700.00	
Exchanges per Hour	0.53	
Under Ideal Conditions, Exchanges per Day should be 2.5 for Trout.		

Diversion Capacity Calculation = Diversion Rate in cfs X 1.9835 X 43 days		
Diversion Rate	2.32	
Total Volume	197.9	

Fish Numbers	Fish per pound	Total pounds
250,000	50	5,000

Determination of Flow Index = Weight in Pounds/ (Fish Length X Diversion Rate in gpm).		
Fish Weight	5,000.00	
Length	3.00	
Diversion Rate	1,042.00	
Flow Index	1.60	
Under Ideal Conditions, Flow Index should be between 0.83 and 2.7		

Adjusted Density Index if the Facility was a Standard Facility is as follows: Adjusted Density Index = (Actual Density Index X Standard Exchange of 2.5 per Hour)/ Actual Exchanges per Hours=.		
Actual Density Index	0.11	
Actual Exchanges Per Hour	0.53	
Adjusted Density Index	0.50	
If the Adjusted Density Index is between 0.4 and 1 then the density Index was Lowered to handle a lower diversion rate, so the annual volume should equal diversion capacity.		

<---- Use This Volume if Adjusted Density Index falls Within
Standards.

Storage Tank Calculations

Number of Tanks	Tank Diameter in feet	Tank Depth in feet	Volume in Cubic Feet per tank	Volume of all tanks in Cubic Feet	Volume in Acre Feet
10	20	5	1570	15700	0.360422

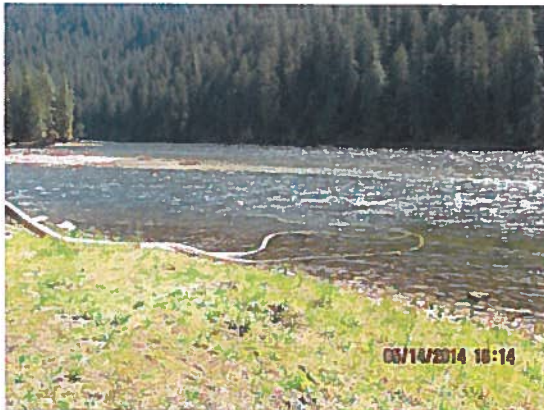
The total volume for this system is 0.4 acre feet.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 5/14/2014

FILE NUMBER 81-7181



The photos above show the pumps used for this fish hatchery. The pumps are portable, so they can be removed from the site and properly stored once the 43 day season is complete. The photo below shows the intake hoses for pumps in the Selway River.

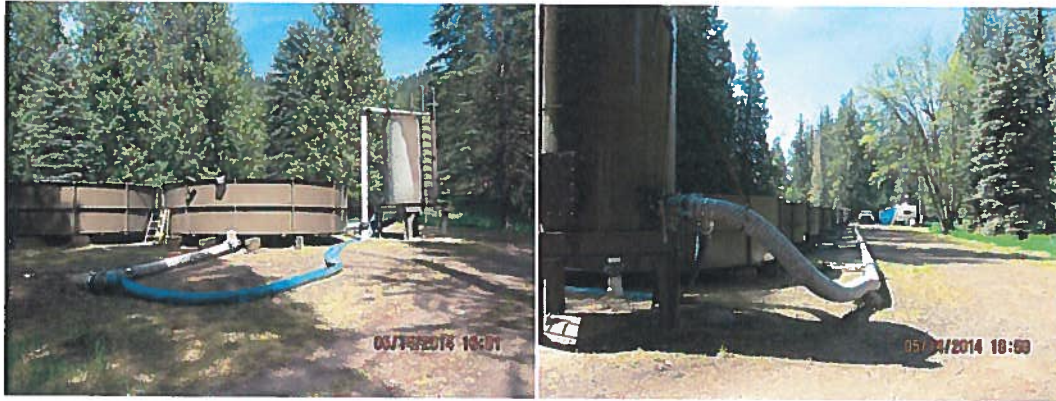


The photos below show the mainline and measurement point for this system. The picture on the right shows where the backup pump line ties into the main water supply line.



PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 5/14/2014

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The photo above right shows the white PVC inflow pipeline discharging into the top of the aeration tank. The blue flex hose coming off the aeration tank is the overflow hose that discharges into the outflow pipeline. The picture on the left shows a white flex hose that connects to an 8 inch supply line to each of the 8 water tanks. The fish hatchery manager told us that they had 10 tanks in 2006, but there were only 8 during our exam.



The two photos above shows the outflow pipeline that delivers the water from the 8 tanks back to the Selway River. This is all done by gravity flow. There are 8 inch pipelines coming from each tank connecting into a 12 inch pipeline that delivers the water to the center to another 12 inch pipeline that leads to the river.

PHOTOGRAPHER AND DATE OF PHOTOS DANIEL A NELSON 5/14/2014

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These photos show the 8 fish tanks and the fish that are in the tanks. The tanks are 20 feet in diameter and 5 feet deep. The fish hatchery manager stated that they had 10 tanks in 2006, but only 8 were on site at the time of the exam. They put between 32,000 and 35,000 fish per tank, and there are 250,000 fish total. They try to maintain between 90 gpm and 130 gpm per tank flow rate to provide optimal flows for the fish. The flow rate was measured at 1,042 gpm, so that would be 130 gpm for 8 tanks and 104 gpm for 10 tanks.

