

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 86-7372

Exam Date: 8/15/2012

1. Current Owner: US DEPT OF ENERGY
BONNEVILLE POWER
PO BOX 3621 TRF 3
PORTLAND OR 97208-3621
(503)230-5572
2. Accompanied by: Steve Rodgers
Phone No: 208-843-7384
Address: H18985 Hubbard Gulch Rd
Relationship to Permit Holder: Hatchery Supervisor

3. **SOURCE****TRIBUTARY**

GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 86-7371 and 86-7373
2. Other water rights with the same point of diversion: none

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

GROUND WATER SE1/4SW1/4 Sec. 25, Twp 37N, Rge 03W, B.M.

NEZ PERCE County

GROUND WATER SW1/4SW1/4 Sec. 25, Twp 37N, Rge 03W, B.M.

NEZ PERCE County

Method of Determination: Field verification with Garmin handheld GPS unit and aerial photographs

2.

PLACE OF USE: FISH PROPAGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
37N 03W 25										X	X						

Method of Determination:

Field Verification with Garmin hand held GPS unit and aerial photographs

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.

<u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
Well #1		10			
Well #2		10			
Well #3		10			
Well #4		10			

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

Note All wells are equipped with submersible pumps, therefore details regarding the pump and motor make with serial numbers were unavailable at the time of the field exam.

D. FLOW MEASUREMENTS

1.

<u>Measurement Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
Flow Meter #1	Propeller	Water Specialties		20010944-6	6 inch	
Flow Meter #2	Propeller	Water Specialties		200323-6	6 inch	
Flow Meter #3	Propeller	Water Specialties		200325-6	6 inch	
Flow Meter #4	Propeller	Water Specialties		200324-6	6 inch	

2. Measurements:

Well #1 – 520 gpm

Well #2 – 160 gpm

Well #3 – 585 gpm

Well #4 – 460 gpm

E. FLOW CALCULATIONS

_____Additional Computation Sheets Attached

Measured Method:
See narrative section.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

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

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

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

2. Volume Calculations for Other Uses:

See narrative section.

G. NARRATIVE/REMARKS/COMMENTS

Hatchery Information: The Nez Perce Tribal Fish Hatchery (NPTH) began fish production in 2002. The hatchery traps, spawns, and raises juvenile fall and spring Chinook salmon to release into the wild to mitigate effects of the Federal Columbia River Hydropower System on naturally-reproducing salmon in the Clearwater River basin.

The hatchery currently has three water right permits associated with the fish production at this facility. One permit allocates 35 cfs of surface water be diverted and 2.9 AF stored from the Clearwater River (86-7371). One permit authorizes 7 cfs of ground water be diverted and 2.9 AF of ground water be stored (86-7372). The hatchery also has a domestic water right with ground water as the source for employee and residential uses, authorizing 0.24 cfs of ground water (86-7373). This narrative will focus on the ground water permit.

Proof of beneficial use was filed with the department in 2005 for all three permits.

Annual Production: Production records from the facility are available for 2005 and 2011. In 2005, the hatchery raised and released 1,491,336 (27,174 pounds) of Chinook salmon. In 2011, the hatchery raised and released 2,789,857 (52,867 pounds) of Chinook salmon. The difference in the numbers is due to the fact that in 2005 the hatchery was still early in the process of raising salmon. In other words, they had not raised enough fish in the first few years to get a full return of spawning adults for future years. The 2011 numbers represent close to actual current production.

PODs -- Wells: There are currently four wells operating at the hatchery. The production rates of the wells vary based on the well. In addition, the hatchery manager informed me that the production rates have been declining annually on all of the wells. The duration of the flow from each individual well varies based on time of year, water flows in the river, water quality and temperature of the river, and demand for the ground water. At the time of the field exam, flow rates from the individual well (observed through flow meter outputs) were as follows:

Well #1 = 520 gpm

Well#2 = 160 gpm

Well #3 = 585 gpm

Well #4 = 460 gpm

Total = 1,725 gpm

Outdoor Volumes:

Raceways: 8,900 ft³

Rearing Ponds: 38,315 ft³

S Channels: 14,038 ft³

Adult Holding Ponds: 11,092 ft³

Adult trap: 1,600 ft³

Adult ladder: 3,200 ft³

Total Outdoor volume = 77,145 ft³

Indoor Volumes:Nursery holding tanks = 6,840 ft³Incubation trays = 994 ft³**Total Indoor Volume = 7,834 ft³****Headtank Volumes:**

Headtanks (4 in total – 1 adult, 1 outside rearing, 1 inside, 1 oxygenated)

Adult headtank: 1,640 ft³Combined Headtank: 2,736 ft³LHO Headtank: 810 ft³Main Headtank: 3,045 ft³**Total Headtank Volume: 8,231 ft³**

Volume Calculations:

PD: There are four ground water wells and four surface water intakes. The combined permitted flow rate is 42 cfs. The wells and surface intakes fluctuate annually in terms of rates and duration of flow.

POU: The hatchery complex which includes outdoor raceways and ponds, indoor nursery complex, and an adult trap and ladder complex.

Volume Calculation: At the time of the field exam, only the adult trap, ladder, and holding ponds were in operation. To determine the amount of water beneficially used, the Density Index and Flow Index equations were used. The known factors are; the weight of the fish raised in 2005 was 27,174 pounds, the volume of the facility is 93,210 ft³, the length of fish released in 5 inches, and the density index ranges from 0.1 – 0.3.

Calculations conducted for the surface water permit for this facility resulted in a total volume of 12,452 AFA. Only a portion of the water beneficially used was diverted as ground water. Although the well measurements made during the field exam were conducted several years after the proof paperwork was filed, I recommend issuing the maximum flow rate to the rates measured during the exam. This is justified through the discussion with the hatchery supervisor that the wells have been decreasing in production since they were drilled. They undoubtedly produced more water than what was measured during the field exam back in 2005, when the proof paperwork was filed. Unfortunately, the hatchery did not have sufficient records to justify the higher flows, therefore the best available information is the data that was collected during the field exam.

The recommended volume of this permit was determined by taking the maximum diversion rate for the wells operating 24 hours a day for an entire year. The calculations are as follows:

$$1,725 \text{ gpm} / 448.83 = 3.84 \text{ cfs}$$

$$3.84 \text{ cfs} * 1.9835 = 7.6 \text{ AF/day}$$

$$7.6 \text{ AF/day} * 365 = 2,782 \text{ AFA}$$

I recommend this permit be licensed with a volume limit of 2,782 AFA.

I recommend the maximum flow rate from the surface water intake is 3.84 cfs, determined by taking the measured flow rate for each of the four wells.

I recommend the storage component for this water right be dropped at licensing. It appears the facility is not technically storing water during the operations. The dropping of the storage component will not reduce the recommended volume or diversion rates as the facility volume was included in the calculations.

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

H. RECOMMENDATIONS

1. Recommended Amounts

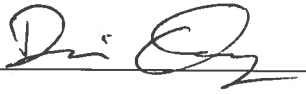
<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
FISH PROPAGATION	1/01 to 12/31	3.85 CFS	2,782 AFA
	<u>Totals:</u>	3.85 CFS	2,782 AFA

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: Dennis Owsley  Date 01/03/2013

Reviewer _____ Date _____

Field Exam Photos – 86-7371 -- Photos taken on 8/15/2012 by D. Owsley

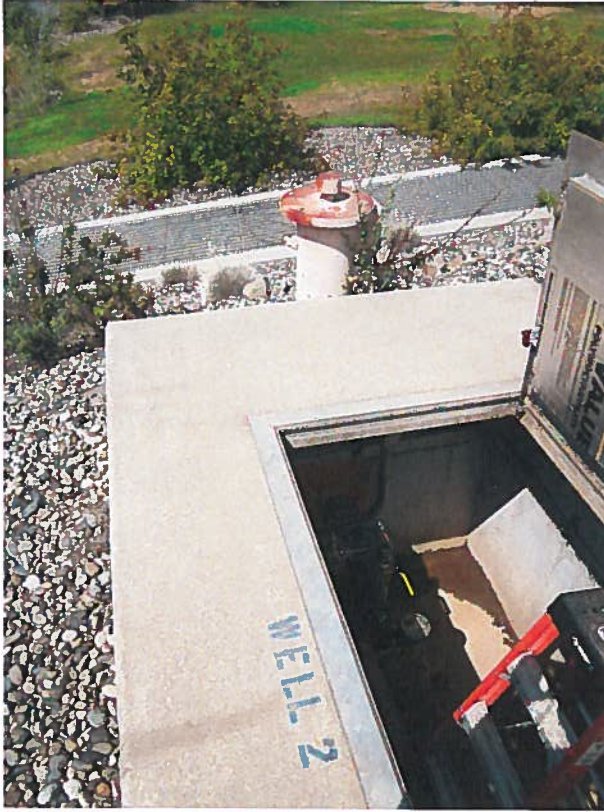


Photo #1. Photo of well #2



Photo #2. Photo of well #4



Photo #3. Photo of Well #3



Photo #4. Photo of well #1



Photo #5. S-Curve raceways.

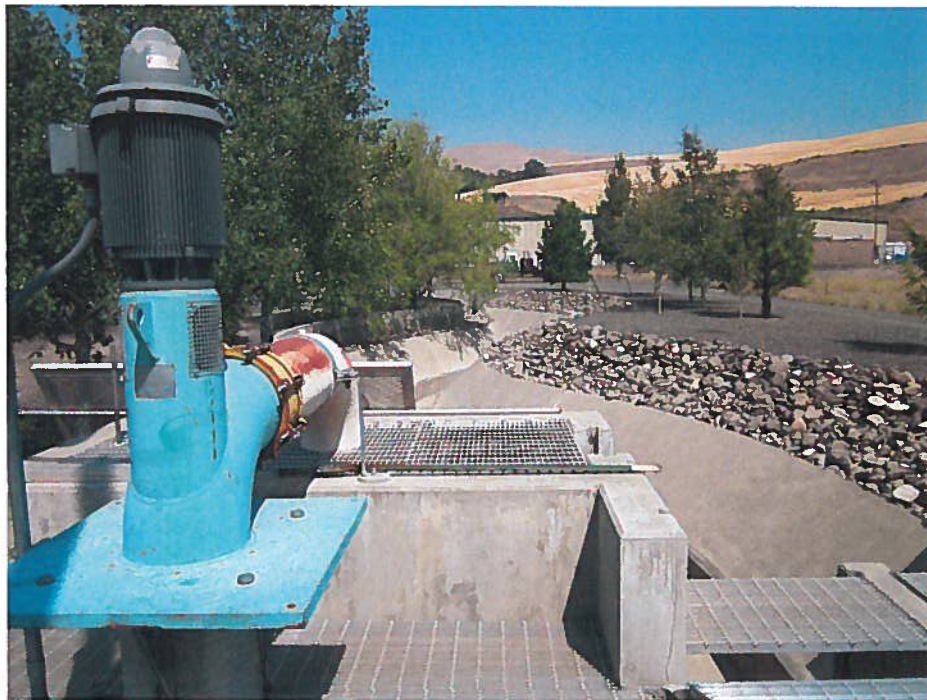


Photo #6. S-Curve raceways.



Photo #7. Acclimation Pond.



Photo #8. Raceway.



Photo #9. Nursery tanks.

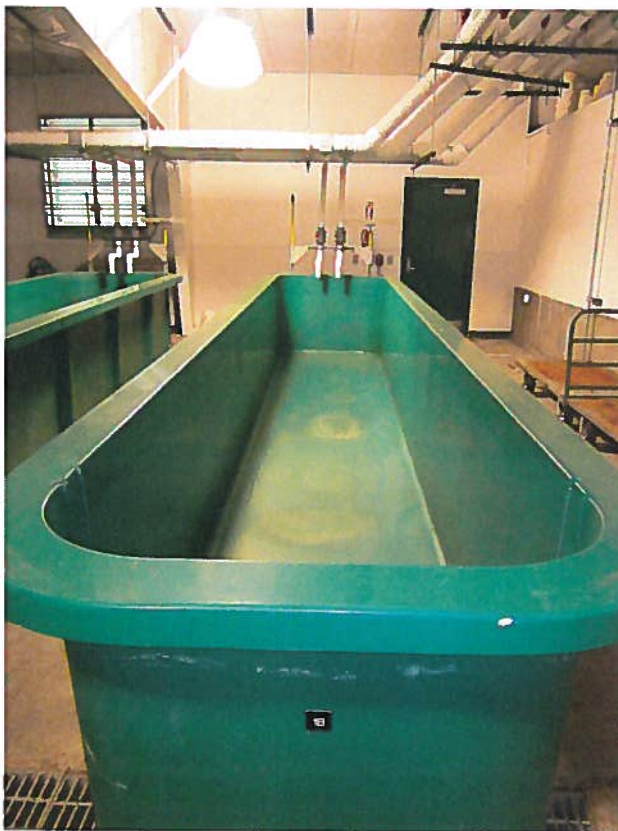


Photo #10. Close-up of nursery tank.

Cleaverwater River

