

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9494

Exam Date: 10/27/2014

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? ☒ Yes ☐ No
- a. Irrigation of 5 acres or less
 - b. Storage of up to 14.6 AF for stockwater purposes only
 - c. Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - d. Other < >

2. Current Owner: Name: Thomas L Nelson, Nelson Trust
Owner of Record Correct? ☒ Yes ☐ No
Address of Record Correct? ☒ Yes ☐ No
If No: Address

3. Beneficial Use Fees have been paid: ☒ Yes ☐ No Receipt No: CO99488

4. SOURCE**TRIBUTARY**

Pend Oreille Lake

Pend Oreille River

Method of Determination: Applicant submitted an aerial photo map that outlined POD & POU.

Change in Source: ☐ Yes ☒ No**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: Overlap? ☒ Yes ☐ No

Water Right No.	Source	Purpose of Use	Basis

Comments: No POU overlap. 96-9338 and 96-9236 are irrigation water rights for 2 different homes in the neighborhood; not pertinent to the Nelson property.

2. Other water rights with the same point of diversion: Overlap? ☐ Yes ☒ No

Water Right No.	Source	Purpose of Use	Basis

Comments: No POD overlap.

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Pend Oreille Lake	3		SE	NW	12	57N	02W		BONNER

Method of Determination: Legal Description in permit validated by PLS data and mapping.

Change in POD? ☐ Yes ☒ NoAmendment Required? ☐ Yes ☒ No

2. **PLACE OF USE:** Use: Irrigation

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
57N	02W	12								0.7									0.7
										L3									

Method of Determination: Map of property submitted by land owner identifies POU clearly. Area measurements completed via arc shapes.

Change in POU? ☐ Yes ☒ No

Amendment Required? ☐ Yes ☒ No

3.

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

☒ 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
Unk.	Unk	1	Unk	Unk	Unk

*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: In-office field exam; see theoretical sheet.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method:

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Efficiency = 0.70

Depth to water = 20 ft.

psi = 35-55

hp= 1

See attached theoretical sheet.

Average flow rate is 0.05 cfs

Measurement = 0.05 cfs

Permit allowed = 0.03 cfs

License recommend for 0.03 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.7 * 3.0 = 2.1 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.03 * 214 * 1.9835 = 12.7 \text{ af}$$

V = Smaller of $V_{I.R.}$ and $V_{D.R.} = 2.1$ af

2. Volume Calculations for Other Uses: None.

G. PURPOSE OF USE

Irrigation ☒ Yes ☐ No # Stock 0 Domestic # of Homes 0

Other: < >

Change in Purpose of Use? ☐ Yes ☒ No

Method of Determination: Information in the water right file is consistent with aerial photography of the property.

If Yes: From Use _____ To Use _____ Amount _____ CFS _____ AFA _____

H. NARRATIVE/REMARKS/COMMENTS

Permit 96-9494 authorized the diversion of 0.03 cfs from Pend Oreille Lake for irrigation purposes. Based on the permitted diversion rate and small POU, this qualifies for an in-office field exam. The exam was completed on Oct 27, 2014 by WRA Patrick Kelly.

Legal description of POU & POD were used to locate the property in the name of Nelson Family Trust. A map outlining the POU and POD was submitted and I found no errors in the information that was presented.

Overlap review showed 96-9338 and 96-9236 are irrigation water rights for 2 different homes in the neighborhood; not pertinent to the Nelson property. Plans for the POD outlined a 1 hp pump placed under the end of the dock. This pump serves no other diversions.

Aerial photography was used to measure the POU. ArcMap tools were used to calculate an area of 0.66 acres of irrigated land. This was a limiting factor on the permit which authorized the irrigation of 0.9 acres. 0.7 acres will be recommended for the POU.

Horsepower is given in the application for permit. Lift was taken from the surface of the shore to irrigation level of the property. Discharge pressure ranges from 35-55psi to account for expected sprinkler system in use. Theoretical average flow rate is 0.05 cfs.

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

I. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Irrigation	04/01-10/31	0.03 cfs	2.1
	<u>Totals</u>	0.03 cfs	2.1

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

Other: < >

J. AUTHENTICATION

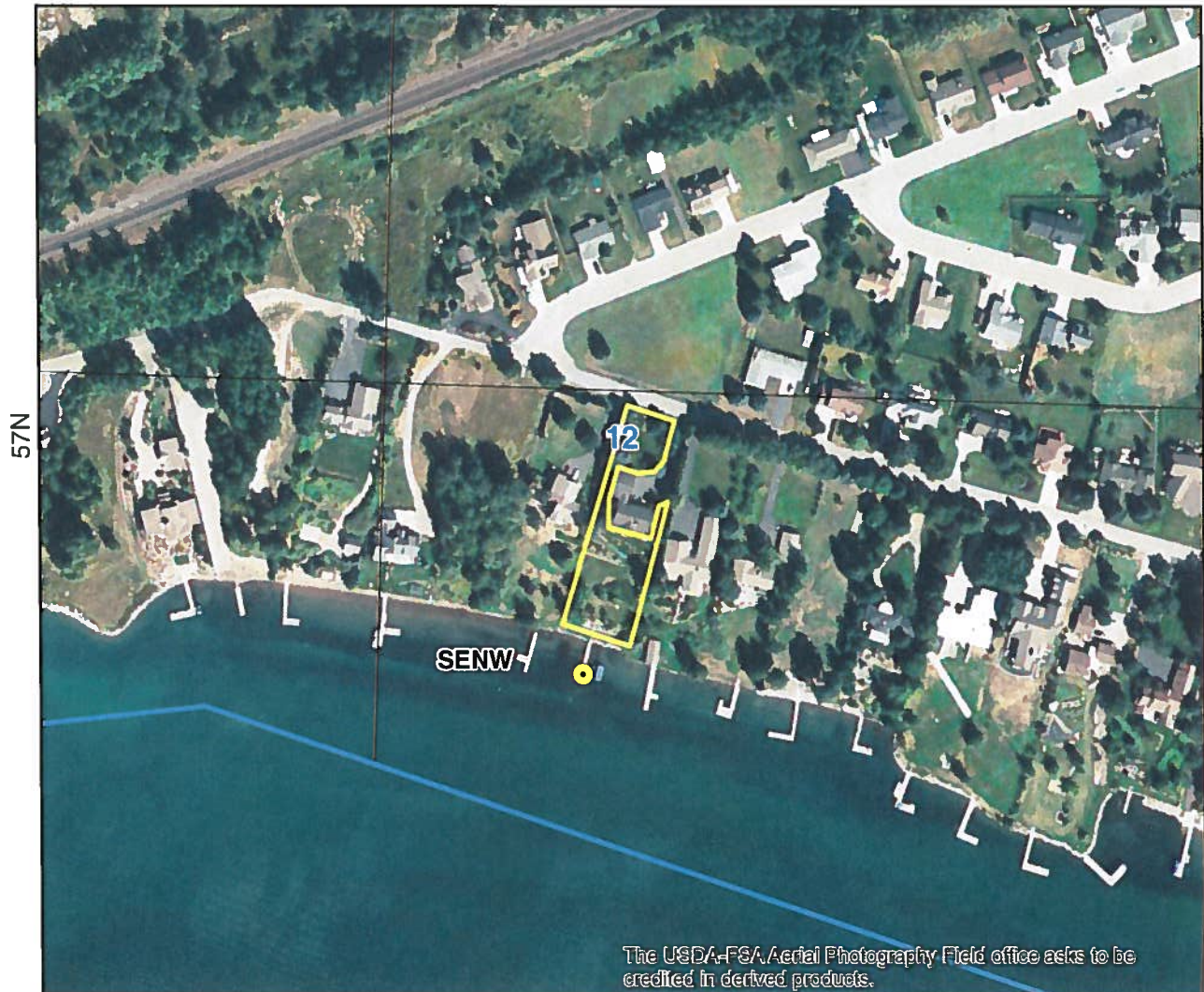
Field Examiner's Name Patrick Kelly Date 10-27-2014

Reviewer Camille S. Skaggs Date 10-31-2014

State of Idaho
Department of Water Resources
Field Exam Map
96-9494

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

02W



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

0 0.035 0.07 0.14 Miles



THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 96-9494
 Reviewer: Patrick Kelly
 Date of Review: 10/27/2014

P/D No.:	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	1	1	1
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	20	20	20
DISCHARGE PRESSURE	35	45	55
RATE OF FLOW (cfs)	0.06	0.05	0.04 0.05

The above calculates the formula =
$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

Horsepower is given in the application for permit. Lift was taken from the surface of the shore to irrigation level of the property. Discharge pressure ranges from 35-55psi to account for expected sprinkler system in use. Theoretical average flow rate is 0.05 cfs.