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

A. GENERAL INFORMATION

Permit No: 96-9749
Exam Date: 6/16/2020

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? __X__Y ____N
   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: Warren Living Trust C/O Clifton A. Warren or Carrol A Warren
   Owner of Record Correct? __X__Y ____N
   Address of Record Correct? __X__Y ____N
   If No: Address

3. Beneficial Use Fees have been paid: __X__Y ____N Receipt No: C108858

4. **SOURCE** **TRIBUTARY**
   Lake Pend Oreille Pend Oreille River

   Method of Determination: GIS and Taxlot Data

   Change in Source: ____Y __X__N

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
96-7011	Pend Oreille River	Domestic	License
96-8953	Pend Oreille River	Municipal	License

Comments: Two water rights overlap with the POU; domestic water right 96-7011 and municipal right 96-8953. Neither of these overlapping water rights should have any influence over the irrigation water use of this permit since they have different beneficial uses.

Another water right, 96-7961, has a nominal place of use shape over the entire 40 acres of the SWNW QQ, which overlaps the POU for this permit. This right authorizes the diversion of groundwater for domestic use by Laurene and John Boehm. Department records show that the well (permit ID 756515) for right 96-7961 is on another parcel (No. RP033910000CA0A) which is located to the north, across Idaho State Highway 200.

2. Other water rights with the same point of diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: There are no overlapping water rights at the POD.

C. DIVERSION AND DELIVERY SYSTEM

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Lake Pump			SW	NW	4	57N	1W	B.M.	Bonner
								B.M.	
								B.M.	

Method of Determination: GIS and Taxlot data.

Change in POD? ___X___N Amendment Required? ___X___N

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	1W	4							2.0										2.0
		Lot #																	
																Total Acres =			2.0

Method of Determination: GIS

Change in POU? ___X___N Amendment Required? ___X___N

__ Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

_X_ 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
Lake Pump				Sta-Rite	

**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
NONE						

2. Measurements: No measurement is required for an in-house exam per IDAPA Rule 37.03.02, Section 35.01.r.i. However, a theoretical calculation was used to determine if the diversion rate is reasonable.

E. FLOW CALCULATIONS __x___Additional Computation Sheets Attached

Measured Method:

Q = (3 Hp)(8.8)(0.70)/100 ft lift + (55psi X 2.31) = 0.08 cfs

Theoretical = 0.08 cfs
Permit allowed = 0.06 cfs

A theoretical analysis shows that a diversion rate of 0.06 cfs is possible with a 3 Hp pump. The water use is limited by the permitted diversion rate.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$V_{I.R.}$ = (Acres Irrigated) x (Irrigation Requirement) = 2.0 X 3.0 = 6.0

$V_{D.R.}$ = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835 = 0.06X 214 X1.9835 = 25.5

V = Smaller of $V_{I.R.}$ and $V_{D.R.}$ = 6.0

2. Volume Calculations for Other Uses: NONE

G. PURPOSE OF USE

Irrigation __X__Y ____N # Stock_____ Domestic # of Homes _____

Other:

Change in Purpose of Use? ____Y ____N

Method of Determination: Taxlot data & Department records

If Yes: From Use _____To Use _____Amount _____CFS _____AFA_____

H. NARRATIVE/REMARKS/COMMENTS

This permit qualifies for an in-house exam. The place of use (POU) is NE of Sandpoint, ID on the North shore of Lake Pend Oreille in Oden Bay. The POU and point of diversion (POD) are both located on parcel No. RP57N01W044101A which is owned by The Warren Trust and trustees Clifton and Carol Warren.

Both the POU and POD are located in the SWNW QQ of Section 4 in Township 57 North, Range 01 West. The water use is within IDWR Administrative Basin 96 and there is no current water district at the time of licensing.

The permit was approved for the irrigation of 2 acres and has a priority of 5/6/2019. Proof of beneficial use was received in the State Office on 6/8/2020. Using 2019 NAIP imagery, it is evident the full 2 acres have been irrigated.

I called the trustees on 6/16/2020 to inquire about the HP of the pump and I spoke with Clifton Warren. He indicated the pump was 3 HP. The initial application for permit filed with the Department indicated the pump is a Sta-Rite DHH-122 pump with model No. XVB182TCDR7318EPL. With the HP of the pump, a theoretical calculation could be completed to help estimate if the permitted diversion rate was reasonable/possible. The lift was determined using the DRG layer in ArcMap, which indicated that there is approximately 100 feet from the pump location to the upper part of the POU. The theoretical calculation indicated that a 3 HP pump with a lift of 100 feet could produce approximately 0.08 cfs. An attached theoretical analysis details this information.

The permit was approved with a diversion rate of .06 cfs. Administrative memo #17 authorizes up to .03 cfs/acre of irrigation up to 5 acres. A diversion rate of 0.06 cfs over 2.0 acres equates to a rate/acre of .03 (.06/2.0 acres= .03 cfs/acre) which maintains the acceptable rate/acre.

There are no water rights that are used at the POU in addition to this irrigation right. However, Oden Water Assn. Inc. owns domestic right 96-7011 and municipal right 96-8953 which overlap the POU. These rights may provide water to the home on the property but do not authorize irrigation use. It is also worth noting that the nominal POU shape in ArcMap for domestic right 96-7961 overlaps with the POU. This right is pertinent to another parcel in the SWNW QQ.

Water right 96-7961 overlaps with this permit's POU and is owned by Laurene and John Boehm. According to the shape in ArcMap, the nominal POU for this right is over the entire 40 acres of the SWNW QQ. A nearby well, with permit number 756515, is owned by John Boehm. Therefore, it is presumed the owner of the well is the same owner of right 96-7961. According to Department records, the well is located across Highway 200 and therefore, no overlap is perceived.

It appears all of the necessary conditions have been met, and it is reasonable to believe that the owners are using water for this system. Therefore, I am recommending a diversion rate of 0.06 cfs and a volume of 6.0 acre-feet (AF).

Conditions x15 and R66 will be left on the license, but I am going to remove condition 004 since the ownership of the POU and POD is not a concern.

Have conditions of permit approval been met? __x___Yes _____No

I. RECOMMENDATIONS

1. Recommended Amounts

BENEFICIAL USE	PERIOD OF USE	DIVERSION RATE	ANNUAL VOLUME
Irrigation	04/01 to 10/31	0.06 CFS	6.0 AF
	Totals:	0.06 CFS	6.0 AF

2. Recommended Amendments

___Change P.D. as reflected above ___Add P.D. as reflected above __x_None

___Change P.U. as reflected above ___Add P.U. as reflected above __x_None

Other:

J. AUTHENTICATION

Field Examiner's Name Alex Ddgleish Date 6/30/2020

Reviewer PHome Date 6/30/20

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 96-9749
Reviewer: Alex Dalgleish
Date of Review: 6/16/2020

P/D No.:	Well #1	Well #2	Well #3	
PUMP HORSEPOWER	3	3	3	
BOOSTER HORSEPOWER	0	0	0	
PUMPING LEVEL	100	100	100	
DISCHARGE PRESSURE	45	55	65	
RATE OF FLOW (cfs)	0.09	0.08	0.07	0.08
	41	37	33	36.78

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

Assumptions: %70 efficiency.
No Friction

Examiners Notes: According to the application, this system uses a single 3 Hp pump. 100 feet of lift (pumping level) was estimated using the DRG layer in ArcMap. The permit authorizes .06 cfs for irrigation. The theoretical calculation shows that a diversion rate of 0.06 cfs is possible at all estimated psi levels. The permit authorizes 0.06 cfs for irrigation and the license will maintain this rate.