

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

A. GENERAL INFORMATION

Permit No: 65-23737
Exam Date: 07/23/2020

1. Does this qualify for an in-office field exam (IDAPA 37.03.02.035.r)? **YES, Irrigation of 5 acres or less**
2. Current Owner: **Craig Olson**, Valley County Assessor's Office shows Mr. Olson as the current owner
3. Beneficial Use Fees have been paid: **YES, receipt # C106930**
4. **SOURCE:** Payette Lake
TRIBUTARY: North Fork Payette River
Method of Determination: GIS, aerial imagery

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Comments: There are many water rights in the quarter-quarter section, however, it appears there are no direct overlapping water rights at the place of use.

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
65-23738	Payette Lake	Irrigation	License

Comments: Water right 65-23738 is diverted from the same location, but is diverted by a different pump. Both rights are on the same Idaho Department of Lands permit. The systems are connected together, therefore they are a common system using the same point of diversion.

According to the application for permit, there is also a domestic well used for in-house use only, and is available as a backup water source if needed. There are no domestic water rights in the permit holder's name or that describe the parcel associated with this permit.

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

LAKE DIVERSION NE¼ NW¼, Sec. 35, Twp 19N, Rge 03E, B.M. VALLEY County

Method of Determination: GIS, tax parcel information, aerial imagery

2. **PLACE OF USE: IRRIGATION**

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
19N	03E	35					0.3												0.3
							Lot 1												

Method of Determination: Aerial imagery, GIS, tax parcel information

3.

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

x Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

x Aerial Photo Attached (required for irrigation of 10+ acres).

 Photo of Diversion and System Attached

4.

Well or Diversion ID No.	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Submersible lake pump	Unknown	2.5			1 ¼ inch line per application

D. FLOW MEASUREMENTS

- Measurements: No measurement is required for an in-house exam.

E. FLOW CALCULATIONS

YES Additional Computation Sheets Attached

Measured Method: Theoretical calculation resulted in 0.09 cfs.

Acre Limits: 0.3 acres x 0.03 cfs per acre = 0.009 cfs (4.039 gpm) <- value is not enough to operate a sprinkler system

Permit allowed: 0.03 cfs (13 gpm)

I recommend a diversion rate of 0.03 cfs, as this was the amount recommended in the permit and that was developed by the permit holder. A typical irrigation zone for a home sprinkler system is generally 12 gpm per zone. By leaving the diversion rate at the permitted amount, it will allow the permit holder to properly operate their irrigation system. If we reduced their diversion rate to the 4.039 gpm rate, they would only be able to operate very low flow sprinklers that are generally not used to irrigate large areas.

F. VOLUME CALCULATIONS

- Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.3 \text{ acres} \times 3.0 \text{ afa/acre} = 0.9 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.03 \text{ cfs} \times 200 \text{ days} \times 1.9835 = 11.9 \text{ af}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \underline{0.9 \text{ af}}$$

G. NARRATIVE/REMARKS/COMMENTS

Permit 65-23737 was applied for on 10/27/2017 by James F. Cleary, Jr. The ownership was changed during the application for permit to Craig Olson on 04/06/2018. The permit was approved on 05/16/2018 and permit proof was made on 05/31/2019. The permit sought 0.03 cfs from Payette Lake for 0.5 acres of irrigation for adjacent lakefront property.

The point of diversion is shared with water right 65-23738. The system has two submersible pumps that are placed in the lake. The two pumps divert water from the lake into a common distribution box on the lake shore, where the two lines are connected together. The system is set up to allow either pump to be used if one of the pumps breaks down. I have moved the POD for this right to the same location as water right 65-23738 for consistency, which is the location where the water is diverted at the distribution point.

The permit applied for 0.5 acres of irrigation, but by looking at aerial imagery, I only found 0.3 acres being irrigated.

One of the permit conditions was to install a lockable device on the POD. Per the proof of beneficial use, a device was installed on May 31, 2019.

The permit application stated that there was a domestic well that supplies the home and could be used for irrigation on the property if Payette Lake water was not available. There are no water rights for domestic use that appear to be associated with this property, so I assume that the domestic use is exempt according to Idaho Code 42-227 and 42-111.

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>Rate of Diversion</u>	<u>Annual Volume</u>
IRRIGATION	04/15 to 10/31	0.03 CFS	0.9 AF

Totals: 0.03 CFS 0.9 AF

2. Recommended Amendments

____ Change P.D. as reflected above ____ Add P.D. as reflected above x None

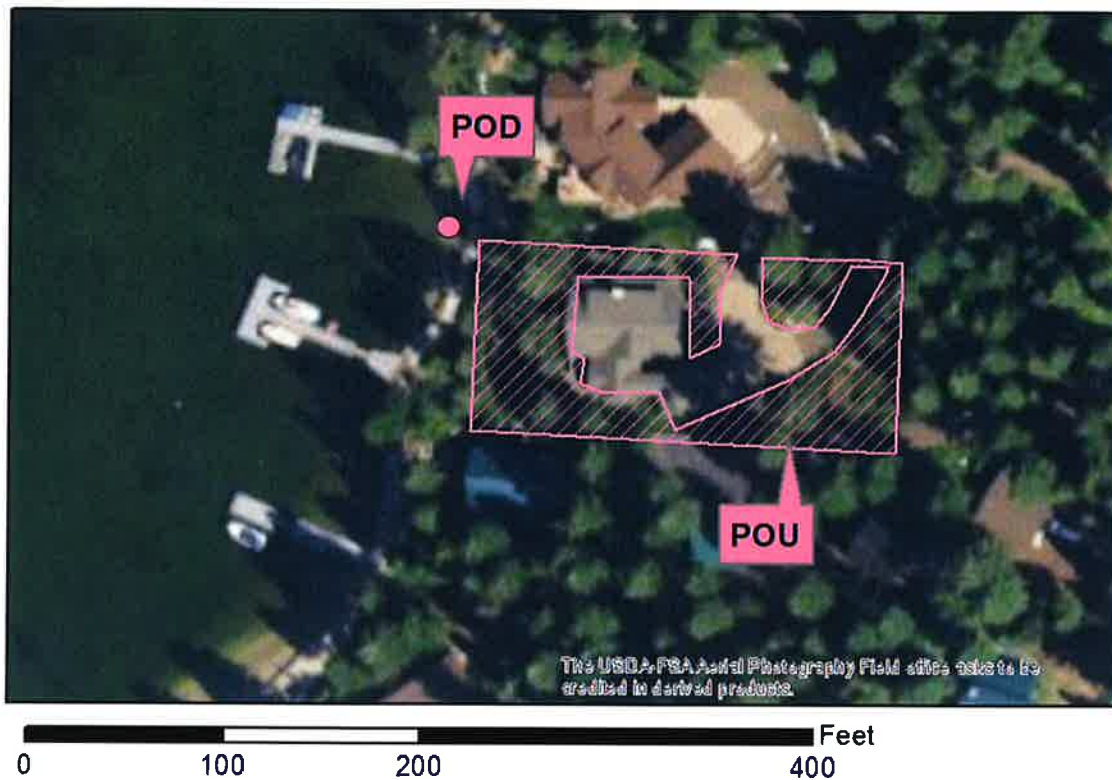
____ Change P.U. as reflected above ____ Add P.U. as reflected above x None

I. AUTHENTICATION

Amy Steimke - Hydrogeologist, Staff

Field Examiner's Name Amy Steimke Date 7/23/2020Reviewer Angela M. Quinn Date 2/20/2021

Map of place of use (POU) and point of diversion (POD) for water right 65-23737



Close up in Google Earth



Theoretical calculation worksheet

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 65-23737
 Reviewer: Amy Steimke
 Date of Review: 7/20/2020

P/D No.:

PUMP HORSEPOWER
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)
 RATE OF FLOW (gpm)

Scenario 1	
	2.5
	0
	50
	40
	0.11
	49

Scenario 2	
	2.5
	0
	50
	50
	0.09
	42

Scenario 3	
	2.5
	0
	50
	60
	0.08
	37

Average
 0.09
 42.31

The above calculates the formula =

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

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

This is an in-house field examination. The application for permit file states that 2.5 Hp submersible pump is used to divert water for irrigation. The contour lines in GIS suggest that there is approximately up to 50 feet of lift from the water level of the lake to the upper end of the property. I used a standard of 40 to 60 psi normally set for domestic uses to estimate the pressure on this system. With this criteria, it appears as though this pump will produce between 0.08 cfs to 0.11 cfs, dependent on the pressure required for an average of 0.09 cfs or 42 gpm. This seems reasonable for this type of system. The permit limits the diversion rate to 0.03 cfs (13 gpm) for 0.5 acres of yard. I only found 0.3 acres actually being irrigated. Home sprinkler systems are generally set up to operate at 12 gpm per zone, so I think we should keep the 0.03 cfs limitation even though only 0.3 acres are being irrigated. It seems clear from the pump that the system was designed for the 0.03 cfs diversion rate if not a bit more.

Photos obtained from Valley County Assessor's office showing irrigated areas

