

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

A. GENERAL INFORMATIONExam Date: 03/08/20241. Does this qualify for an in-office field exam (IDAPA 37.03.02.035.01.r)? X Y ___ N

- a. X 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: **RICHARD MASON**

Owner of Record Correct? ___ N

Address of Record Correct? ___ N

If No Explain:

3. Beneficial Use Fees have been paid: X Y ___ N Receipt No: C117856

4. Source: Tributary:

PEND OREILLE RIVER**COLUMBIA RIVER**Method of Determination: Bonner County Maps, GIS, and Tax Parcel DataChange in Source: ___ Y X N**B. OVERLAP REVIEW**1. Other water rights with the same place of use: X No Overlap

Water Right No.	Source	Purpose of Use	Basis
96-8275	Ground Water	Irrigation	License

Comments: Rights 96-9535 (municipal) and 96-8275 (irrigation) have POU areas overlapping the permit POU, but both are groundwater sources. There are no surface water rights overlapping the permit place of use (POU).

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

Water Right No.	Source	Purpose of Use	Basis
NONE	NA	NA	NA

Comments: There are no rights sharing the permit point of diversion (POD).

C. DIVERSION AND DELIVERY SYSTEM

1. Location of Point(s) of Diversion:

Source	Govt. Lot	1/4	1/4	1/4	Sec.	Twp.	Rge.		County
Screened Intake at the river			SW	SW	26	57N	03W	B.M.	BONNER

Method of Determination: GIS, and Tax Parcel DataChange in POD? ___ Y X N Amendment Required? ___ Y X N2. Place of 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	03W	26											0.2						0.2
		Lot#											5						
Total Acres =																			0.2

Method of Determination: Bonner County Maps, GIS, and Tax Parcel DataChange in POU? ___ Y X N Amendment Required? ___ Y X N

___ 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

3. Diversion Id No.*	Motor Make	HP	Pump Model	Pump Make	Pump Serial No. or Discharge Size
Screened river intake	Unknown	1.5	Unknown	Unknown	Unknown

*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	NA	NA	NA	NA	NA	NA

2. Measurement Comments: The permit holder stated that the system uses a 1.5 Hp pump to divert water to an inground sprinkler system. A maximum head of about 25ft was estimated to the POU based on the DRG map.

E. FLOW CALCULATIONS

____ Additional Computation Sheets Attached

Measured Method:

A theoretical calculation and Administrative Memos #17, and 6 were used to determine a reasonable rate of diversion.

$$Q = (1.5 \text{ Hp})(8.8)(0.80 \text{ eff})/(25 \text{ ft lift}) + (2.31)(45 \text{ psi}) = 0.08 \text{ cfs}$$

Product Details

- Precipitation rate: .37 to .72 inches per hour (9 to 18 mm/h)
- Radius: 15 to 35 feet (4.6 to 10.7 m)
- Radius may be reduced up to 35% with Radius Reduction Screw
- Pressure: 25-55 psi (1.7 to 3.8 Bars)
- Flow Rate: .54 to 4.6 gpm (12 to 104 m³/h)
- 1/2" NPT female bottom threaded inlet
- Reversing Full-and Part-circle adjustment 40 degrees - 360 degrees

Table 1- Standard Rainbird 1/2" inlet popup sprinkler tech specs.

Typical Rainbird Popup Sprinklers 0.54 to 4.6GPM each x 4 to 5 per zone= 5 gpm (approx. 0.01cfs)

Theoretical Calculation= 0.08cfs

Permit allowed = 0.02cfs

Recommendation= 0.01cfs

Comments:

The full permitted rate of 0.02cfs is possible with the 1 1/2 Hp pump. According to Administrative memo #17 up to 0.03cfs per acre is standard for the irrigation of up to 5 acres. Based on minimum output of the largest zones would be 5gpm. I am recommending a diversion rate of 0.01cfs for irrigation of 0.2-acre on the license.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.2\text{-acre} \times 3 \text{ AF} = 0.6 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.01 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 4.3 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 0.6 \text{ AF}$$

Comments:

This permit was issued for irrigation use from a natural stream/river source. According to the IDAPA Beneficial Use Examination Rules 37.03.02.35. 01j.viii a diversion volume is not required for irrigation if water is diverted from a natural flowing stream/river or spring. However, as the POU is less than 1 acre condition X31 will be carried on the license stating the annual volume as 0.6 AF for the irrigation of 0.2-acre.

G. PURPOSE OF USE

Irrigation X Y NA # Stock NA Domestic # of Homes NA

Change in Purpose of Use? Y X NA

Method of Determination: Bonner County Maps, GIS, and Tax lot Data

H. NARRATIVE/REMARKS/COMMENTS

This permit for the irrigation of 0.4-acre of irrigation qualifies for an in-office examination for license. The permit holder submitted the Proof of Beneficial Use, received by IDWR on February 28, 2024, stating in section #3 that the beneficial use was developed 0.4-acre of irrigation. I was unable to identify the extent of irrigation use within the POU based on the documentation received and imagery (Figures 1-3), so I called the permit holder requesting additional system information and a map of the irrigation POU and the POD. The permit holder responded March 11, 2024, with an emailed description of the areas irrigated and system used within the parcel. Photos were included of the screen submersible pump (Photo 1) and control boxes (photos 2A& 2B). Irrigation was reported by the permit holder in the landscaped beds on the north and south of home, and in the lawn areas on the north and west of home. The total POU area identified by the permit holder is measured at approximately 0.2-acre. The pump was described in a phone conversation as a 1 ½ Hp submersible pump with a screened intake, which is dropped into the water at the end of the dock in the spring and disconnected in the fall. No markings or other information could be found regarding the pump. The in-ground sprinkler system has 8 zones, 2 zones are driplines and 6 zones running 4-5 rainbird popup sprinklers each. No specific information regarding the sprinkler nozzles was provided. However, a technical information search found that rainbird popup sprinklers have a rate of flow ranging from 0.5-4.6 gpm each. Based on a conservative estimate of 5 gpm for the largest zones in the system a rate of 0.01cfs for the irrigation of 0.2-acre seems reasonable.

Administrative memo #17 allows 0.03cfs per acre for the irrigation of up to 5 acres of irrigation, and Administrative Memo #6 requires that the rate be reported to the hundredth place on licenses. I am recommending a rate of 0.01cfs on the license, as per the usage described and current guidance. The license is being recommended for irrigation use from a natural steam/river source. According to the IDAPA Beneficial Use Examination Rules 37.03.02.35. 01j.viii a diversion volume is not required for irrigation if water is diverted from a natural flowing stream/river or spring. However, as the POU is less than 1 acre condition X31 will be carried on the license stating the annual volume as 0.6 AF for the irrigation of 0.2-acre.

I am recommending the license be issued with a combined total rate of 0.01cfs and conditions X60, X31, and 004. Conditions 029 was removed at licensing, as the permit holder confirmed a fish screen is installed at the intake, and no comment was received from Idaho Fish and Game at advertisement.

Have conditions of permit approval been met? X 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 TO 10/31	0.01CFS	0.6 AF (Stated on X31 Only)
	<u>Totals:</u>	0.01CFS	0.6 AF (Stated on X31 Only)

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- Bob Howe- Water Resource Agent

Field Examiner's Bob Howe Date 4/16/24

Reviewer pk Date 4/16/24



Photo 1- Screened submersible pump with quick connect fitting.



Photos 2 A & B- Control valves (8 total).



Figure 1-Bonner count Imagery of the parcel (west is top of page).



Figures 2 & 3- Bonner County GIS Imagery of the north (left image) and south (right image) of the POU. Landscaping planters with shrubs are visible on the north and south of home. Lawn is visible on the north and east sides of home.



Figure 4- GIS 2023-NAIP imagery- Irrigated areas are outlined in yellow. POD is indicated by the blue point.