

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

A. GENERAL INFORMATIONExam Date: 4/16/2024

1. 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 Berryman
Owner of Record Correct? X Y N
Address of Record Correct? X Y N
If No Explain:
3. Beneficial Use Fees have been paid: X Y N Receipt No: N044496
4. Source: Little Muskrat Lake
Tributary: Pend Oreille River

Method of Determination: GIS, Tax Parcel Data, and the permit holders Statement of Completion for Proof of Beneficial Use.

Change in Source: Y X N

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
96-8275	Groundwater	Irrigation	License, Claim

Comments: Water right 96-8275 overlaps the place of use according to the GIS place of use shape. However, a map of the place of use in the water right backfile indicated the block and lots included in POU for 96-8275 are different than the lot this permits place of use includes.

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

Water Right No.	Source	Purpose of Use	Basis
N/A			

Comments: N/A

C. DIVERSION AND DELIVERY SYSTEM

1. Location of Point(s) of Diversion:

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Little Muskrat Lake	5		SW	SW	26	57N	03W	B.M.	Bonner
								B.M.	
								B.M.	

Method of Determination: GIS, Tax Parcel Data, and 2023 Aerial Imagery. The point of diversion is permitted in the SWSW Gov lot 5 Section 26. A plat map from the Bonner County Title Company in records for water right 96-8275 indicates the boundary of Section 26 SWSW Gov lot 5 should be further south than the current location according to Department maps (see field exam map) the portion of Muskrat Lake where the point of diversion is located within Gov Lot 5 Section 26.

Change in POD? Y X N Amendment Required? Y X N

2. Place of Use:

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											0.3						0.3
		Lot #											5						
Total Acres =																		0.3	

Method of Determination: GIS, Tax Parcel Data, and 2023 Bonner County Aerial Imagery. A plat map from the Bonner County Title Company indicated the boundary of Section 26 SWSW Gov lot 5 is further south, and the entire place of use would be within SWSW Gov lot 5 Section 26.

Change in POU? Y X N Amendment Required? Y X N

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

 X Aerial Imagery indicating the location of the POD and POU.

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

 Photo of Diversion and System Attached

3. Diversion Id No.*	Motor Make	HP	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
		0.75			

*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
N/A						

2. Measurement Comments: The permit holder provided a pump horsepower of 0.75 and a lift of 15.5ft was determined using Google Earth Imagery. Therefore, a diversion rate calculation is possible.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method: Since the permit holder provided a pump horsepower of 0.75 and a lift of 15.5ft was determined a diversion rate calculation was possible. The calculation determined the system can handle 0.04 cfs with a 40psi discharge pressure. According to Administrative Processing Memo #17 the standard diversion rate/acre for the irrigation of 5 acres or less is 0.03 cfs/acre. I am recommending a 0.01 cfs diversion rate.

$$Q = (0.75 \text{ hp}) * (8.8) * (70\% \text{ efficiency}) / (15.5\text{ft of lift}) + (2.31) * (40 \text{ psi discharge pressure}) = 0.04 \text{ cfs}$$

$$(0.3 \text{ acres}) * (0.03 \text{ cfs/acre}) = 0.009 \text{ cfs or } 0.01 \text{ cfs rounded}$$

Diversion Rate Calculation = 0.04 cfs

Administrative Processing Memo #17 Calculation = 0.01 cfs

Permit allowed = 0.03 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) * (\text{Irrigation Requirement}) = (0.3 \text{ acres}) * (3.0 \text{ af/acre}) = 0.9 \text{ af}$$

I.R.

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] * (\text{Days in Irrigation season}) * 1.9835 = (0.01 \text{ cfs}) * (214 \text{ days}) * (1.9835 \text{ af/day}) = 4.2 \text{ af}$$

D.R.

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 0.9 \text{ af}$$

G. PURPOSE OF USEIrrigation X Y N # Stock N/A Domestic # of Homes N/A Change in Purpose of Use? Y X NMethod of Determination: GIS, Tax Parcel Data, 2023 Bonner County Aerial Imagery, and the permit holders Statement of Completion for Proof of Beneficial Use.**H. NARRATIVE/REMARKS/COMMENTS**

This permit qualifies for an in-office examination. According to Tax Parcel Data the property was developed in 2008. The permit authorized the irrigation of 0.6 acres diverting from Little Muskrat Lake. According to 2023 Bonner County Aerial Imagery 0.3 acres of irrigation occurred within the development period. The Tax Parcel Boundary and visual property boundary were inconsistent. The visual property boundary was used to determine the total irrigated area. The point of diversion is permitted in the SWSW Gov lot 5. However, according to the current Public Land Survey layer in GIS the lake level likely doesn't reach the SWSW Gov lot 5. A plat map from the Bonner County Title Company indicated the boundary of Section 26 SWSW Gov lot 5 should be further south and would encompass the portion of Muskrat Lake where the point of diversion would be in Gov Lot 5 Section 26. The plat map also indicated the entire place of use is located within the entirety of SWSW Gov lot 5. A condition on the permit requires the permit holder to install a fish screen meeting the fish screening and passage requirements of the Idaho Department of Fish and Game. The permit holder confirmed a fish screen was installed on their Proof Statement.

Since the permit holder provided a pump horsepower of 0.75 a lift of 15.5 ft was determined using Google Earth a diversion rate calculation was possible. According to the calculation the system can handle a 0.04 cfs diversion rate with a 40-psi discharge pressure. The standards set in Administrative Processing Memo # 17 were used to make a diversion rate recommendation. All of the conditions have been met and development of the permitted beneficial use was confirmed within authorization on the permit. Therefore, I am recommending a 0.01 cfs diversion rate and 0.9 af volume.

Conditions X60, X31, and 004 should remain on the license. The diversion rate and volume limit within condition X31 should be updated to match the recommended diversion rate and volume. Condition 029 should be removed because the permit holder confirmed a fish screen was installed meeting the fish screening and passage requirements of the Idaho Department of Fish and Game.

Have conditions of permit approval been met? X Yes No**I. RECOMMENDATIONS**

1. Recommended Amounts:

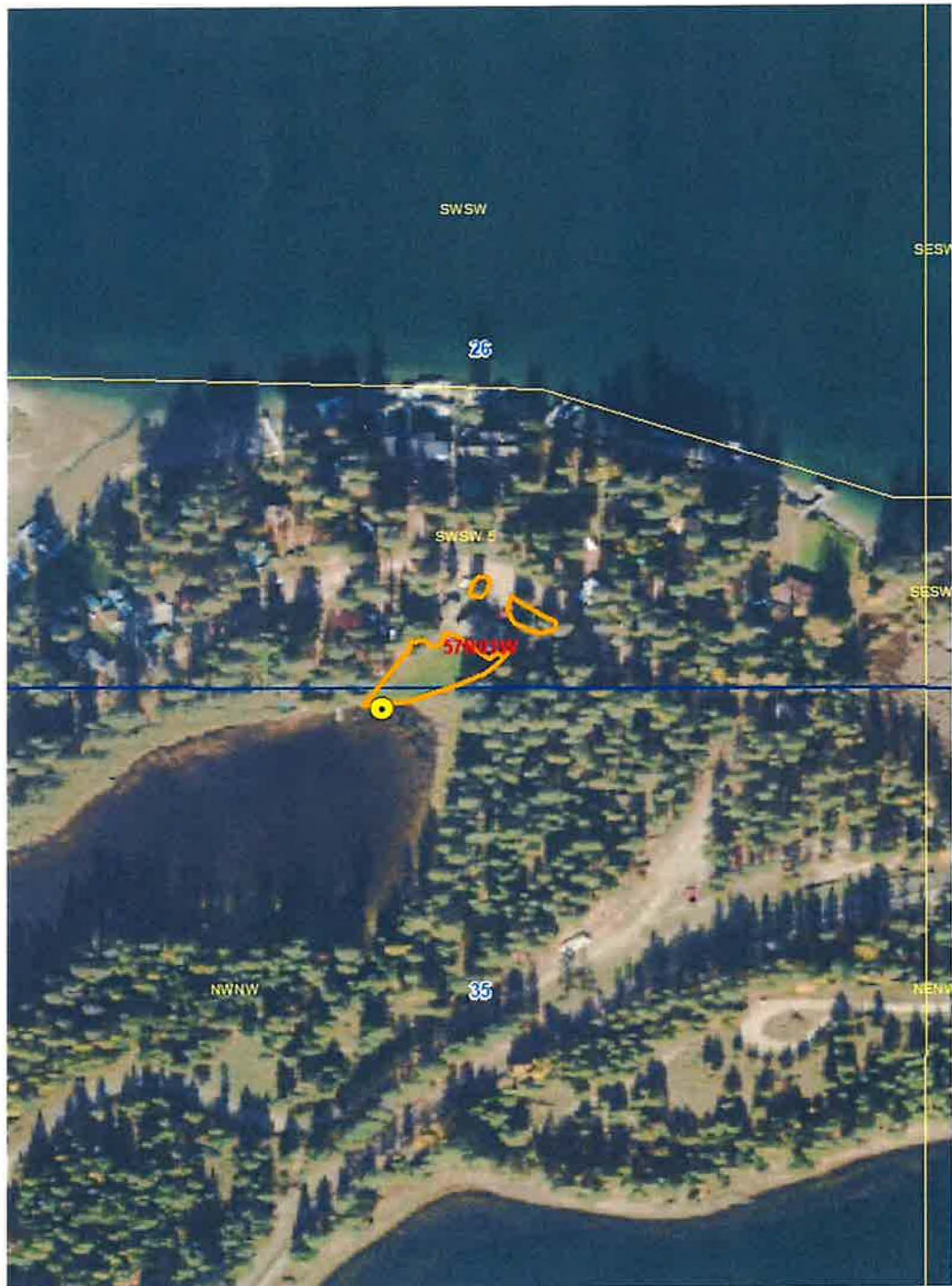
<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Irrigation	04/01-12/31	0.01 CFS	0.9 AF
	<u>Totals:</u>	0.01 CFS	0.9 AF

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**J. AUTHENTICATION**Field Examiner: **Skyler Cheever – Water Resource Agent**Field Examiner's  Date 4/16/2024Reviewer  Date 7/2/24

Field Exam Map

Map showing the authorized point of diversion (yellow point) and irrigated place of use (orange outline).



2023 Bonner County Aerial Imagery

Imagery indicated 0.3 acres of irrigation occurred within the development period.

96-15629 Aerial Imagery



THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 96-15629
Examiner: Skyler C.
Date of Field Exam: 4/16/2024

Option 1

P/D No.:

PUMP HORSEPOWER 0.75
BOOSTER HORSEPOWER 0

PUMPING LEVEL 15.5

DISCHARGE PRESSURE 40

FRICTION 0

RATE OF FLOW (cfs) 0.04
(gpm) 19.2

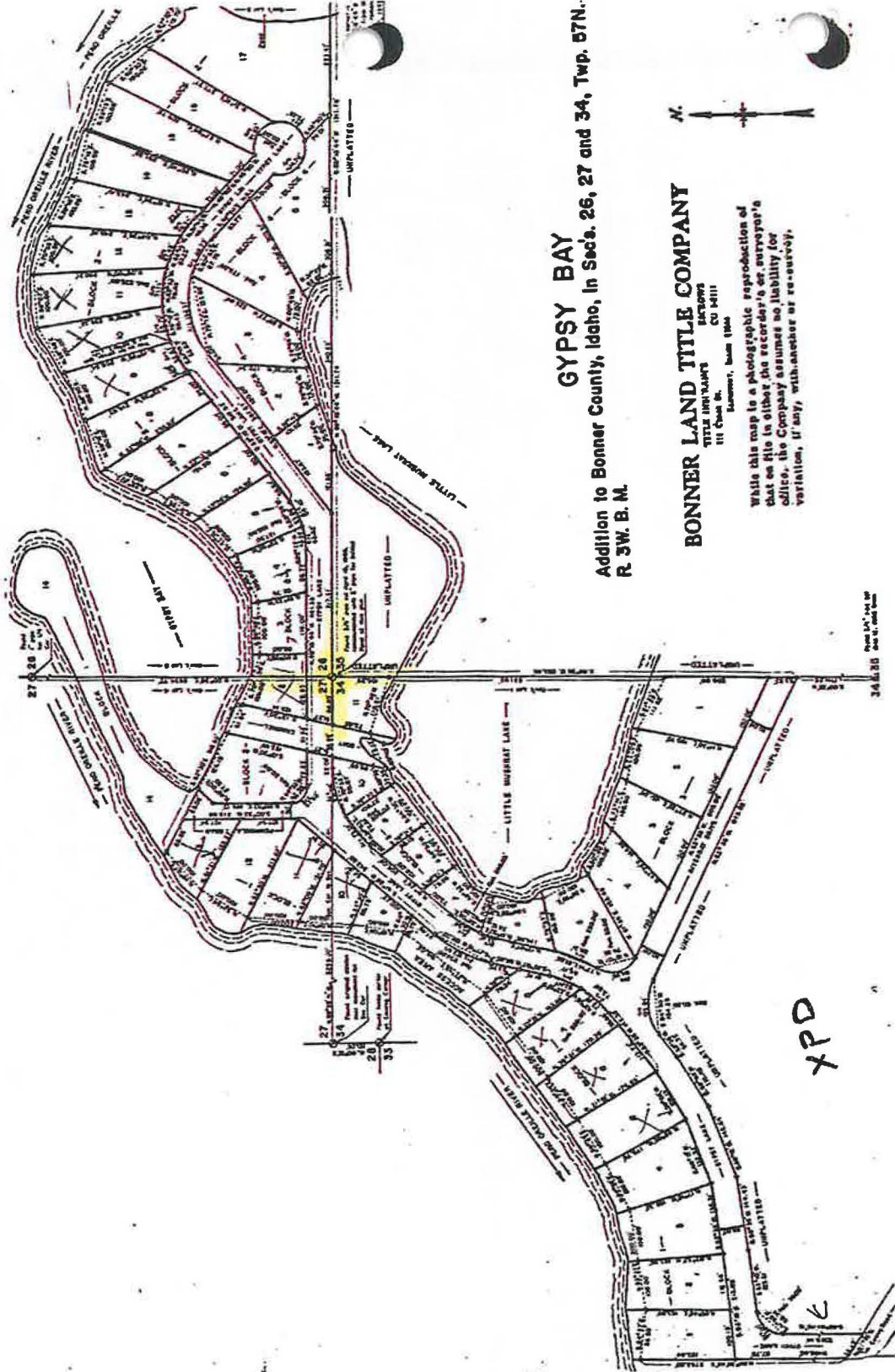
The above calculates the formula =

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

Assumptions: %70 efficiency.

Examiners Notes:

Lift was determined using Google Earth. Hp was provided by the permit holder with their Statement of Completion for Poof of Beneficial Use. A standard psi of 40 to 60 psi was used to estimate the pressure against



GYPSY BAY
 Addition to Bonner County, Idaho, in Sec's. 26, 27 and 34, Twp. 57N.
 R. 3W. B. M.

BONNER LAND TITLE COMPANY
 ATTORNEYS
 111 Chase St.
 Bonner, Idaho 83406

While this map is a photographic reproduction of that on file in either the recorder's or surveyor's office, the Company assumes no liability for variation, if any, with another or re-survey.

xPD

Notice
 line is "broken"

X indicates P.u.

RECORDED
MAY 26 1993