

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

A. GENERAL INFORMATION

Exam Date: 01/14/2024

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 stock water purposes only
 c. ___ Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less.
 d. X Other Domestic

2. Current Owner: **BEN & PAULA DUNN LIVING TRUST**

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: C117437

4. Source: Tributary:

GROUNDWATER**NA**Method of Determination: GIS and Tax lot data.Change 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
NONE	NA	NA	NA

Comments: There are no 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	¼	¼	¼	Sec.	Twp.	Rge.		County
Well Pump			NW	NW	10	59N	01W	B.M.	BONNER

Method of Determination: GIS and Tax lot data.Change in POD? ___ Y X N Amendment Required? ___ Y X N

2. Place of Use: IRRIGATION

TWP	RGE	Sec	NE				NW				SW				SE				Total
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
59N	01W	10						0.8											0.8
		Lot#																	
Total Acres =																			0.8

Place of Use: DOMESTIC

TWP	RGE	Sec	NE				NW				SW				SE				Total
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
59N	01W	10						X											
		Lot #																	

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

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

____X_ Photo of Diversion and System Attached

3. Diversion Id No.*	Motor Make	HP	Pump Model	Pump Make	Pump Serial No. or Discharge Size
Well Pump	GOULDS	1.0	J-10	XYLEM	1"

*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 provided a photo of the 1.0 Hp pump and a copy of the pump technical brochure. A maximum head of about 35-ft was estimated using Google Earth measurements, the DRG map, and the head reported by the permit holder in section 5 of the Proof of Beneficial received.

E. FLOW CALCULATIONS

____Additional Computation Sheets Attached

Measured Method:

A theoretical rate based on the pump technical specs. and Administrative Memo #17 were used to determine a reasonable rate of diversion.

1cfs=448.83117 GPM

Tech. Specs. Output for J-10 (twin pipe-deep well) @35PSI+35 ft head=16.8 GPM, or approximately 0.04cfs

The maximum output supported by the technical information (see figure A below) is 0.04cfs.

TWIN PIPE PERFORMANCE RATINGS

HP/Model	½ HP - J5						¾ HP - J7						1 HP - J10						1½ HP - J16			
Well Casing min. I.D.	4						4						4						4½			
Pressure	1						1						1						1½			
Suction	1½						1½						1½						1½			
Jet Assembly Package ①	FT4B-13	FT4B-31	FT4B-08	FT5B-14	FT4B-14	FT4B-34	FT4B-18	FT5B-47	FT5B-48	FT4B-44	FT4B-43	FT4B-18	FT5B-49	FT5B-11	FT5B-12	FT5B-11						
Jet Body (only)	AT4B						AT4B						AT5B						AT5B			
Nozzle	AN017	AN016	AN015	AN018	AN017	AN016	AN016	AN018	AN017	AN017	AN017	AN016	AN019	AN018	AN019	AN018						
Venturi	AD726	AD723	AD720	AD724	AD729	AD725	AD722	AD730	AD725	AD730	AD727	AD722	AD732	AD727	AD734	AD727						
Control Valve Setting (PSI) ②	30	30	30	30	28	29	30	28	30	31	33	35	30	32	35	40						
Feet	Gallons Per Minute (GPM) 30-50 PSI Pressure Switch Setting																					
30	13.0	11.0			15.8			16.6		17.0			19.3		21.2							
40	11.8	9.0			15.7			16.0		16.6			18.0		20.0							
50		7.6		6.9	13.2			15.0		14.4			16.0		16.1							
60		7.0	5.2	6.4	10.2			13.0		11.5	11.2		14.3		15.0							
70			4.7	5.6		8.2		11.0	10.0		9.3		12.6		14.0	11.2						
80			3.8	4.8		6.5			8.6		7.3	6.2	10.0	10.0	10.6							
90			3.1	4.1		5.0	5.0		7.3			6.1		8.7		9.0						
100						4.4		6.0				5.4		7.0		7.6						
110						3.5		5.0				4.5		5.7		6.2						
120														4.5		5.2						
130																4.0						
140																2.8						
150																1.5						
160																						
170																						

NOTE: An offset of 50 feet will result in a decrease of about 25% from ratings as shown.

① Jet assembly package includes jet body (AT4), venturi, nozzle and foot valve.

② Deep well jet pumps require a pressure control device on the discharge to provide back pressure to the jet assembly. Failure to control the amount of discharge by adjusting the back pressure (pressure control valve setting) will cause the pump to lose prime. On pumps with low control valve settings, up to 40 psi, a simple ball valve or AV15 will work. On systems with control valve settings of 40 - 80 psi an AV22, AV22KIT or AV21 is required. They measure the pressure on the outbound side so that the high pressure does not open the 30-50 psi switch and turn the pump off.

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Figure A. J10 Pump Technical sheet provided by permit holder with Proof of Beneficial Use. The pump is described as a 1 Hp J-10 with a 1" discharge. No tables in the technical brochure for any configuration of the pump provide an output greater than 0.04cfs, even at a lesser static water level.

Theoretical Calculation= 0.04cfs

Pump Technical Rating= >17.0 GPM

Permit allowed = 0.07cfs

Recommendation= 0.04cfs

Comments:

The Proof of Beneficial Use stated 1 acre of irrigation was developed, but I was only able to support an estimated 0.8 acres of arable land via GIS imagery, so the permit holder was notified that I would be processing the license for the confirmed area.

Approximately 0.04cfs is possible with the 1.0 Hp pump and the total confirmed watered area is 0.8 acres. According to Administrative memo #17 up to 0.03cfs per acre is standard for the irrigation of up to 5 acres. I am recommending a diversion rate of 0.02cfs for irrigation on the license. There is 1 home evident within the POU, I am recommending a rate of 0.04cfs for domestic use on the license, as per Administrative Memo #22. Based on the data provided by the permit holder on the pump technical sheets I am recommending the entire system carry a rate of 0.04cfs on the license.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.8\text{-acre} \times 3.0 \text{ AF} = 2.4 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.04\text{cfs} \times 214 \text{ days} \times 1.9835 = 17.0 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 2.4 \text{ AF}$$

Comments:

Based on the field headgate standard of 3.0 AF per acre/annually, I am recommending 2.4 AF annual volume for irrigation on the license. I am recommending an annual volume of 0.6 AF on the license for domestic use, as per Administrative Memo #22.

G. PURPOSE OF USE

Irrigation ☒ Y ☐ N # Stock ☐ NA Domestic # of Homes ☐ 1

Change in Purpose of Use? ☐ Y ☒ N

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

H. NARRATIVE/REMARKS/COMMENTS

This permit for the irrigation of 1 acre and 1 domestic home qualifies for an in-office examination for license. The permit holder submitted the Proof of Beneficial Use, received by IDWR on November 30, 2023, stating in section #5 that the beneficial use was developed for 1 home and 1 acre of irrigation. The proof included photos of the well, pump, and 80-gallon pressure tank. The proof included an aerial image identifying the locations of the home, well, 2 spigots, and a supplemental page with a description of the system. The lawn and garden are irrigated from the spigots via hoses to portable sprinklers. I was able to estimate approximately 0.8 acres irrigation using aerial imagery (figure 1), so I called the permit holder on January 10, 2024, requesting additional information including a map of the irrigated area(s). An email was received from the permit holder on January 13, 2024, with an attached aerial image outlining the irrigation place of use (figure 3). The permit holder also submitted a sketch of the POU with on site measurements he made for planting grass seed, but the sketch was not to scale and was too blurry to provide much useful information (figure 5).

After reviewing the permit holder's response to the information request approximately 0.8 acres of irrigated area was confirmed (see figures 2 & 4). The permit holder submitted a technical brochure with data tables for the pump, which listed the pump output at 16.8 GPM, or 0.04cfs. I am recommending the license be issued for 0.8 acres of irrigation with a rate of 0.02cfs (as per Administrative Memos #17 and 6). I am recommending an annual volume of 2.4 AF for irrigation on the license, based on the standard field headgate calculation found in this report. In aerial imagery 1 structure is visible in the NWNW quarter/quarter. I am recommending a rate of 0.04cfs and an annual volume of 0.6 AF for domestic use on the license, as per Administrative memo #22.

I am recommending the license be issued with a total rate of 0.04cfs and conditions 132, 004, and X31. Condition R66 was replaced with condition X31 at licensing, as the irrigated area is less than 1 acre. Condition 046 was removed at licensing as the development is complete.

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 TO 10/31	0.02CFS	2.4 AF
DOMESTIC	01/01 TO 12/31	0.04CFS	0.6 AF
	<u>Totals:</u>	0.04CFS	3.0 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

J. AUTHENTICATION- Bob Howe- Water Resource Agent

Field Examiner Bob Howe Date 2/13/24

Reviewer PT Date 2/20/24



Figure 1- Bonner County Imagery- Appurtenant parcel at center.



Figure 2- GIS 2021- Irrigation POU outlined in yellow. Domestic POU outlined in blue. The well is identified by a blue point.



Figure 3- Bonner County aerial image with irrigated areas outlined in black. The image was emailed to the Department by the permit holder.



Figure 4- Bonner County GIS aerial imagery-measurement of irrigated areas indicated in the permit holder's images.

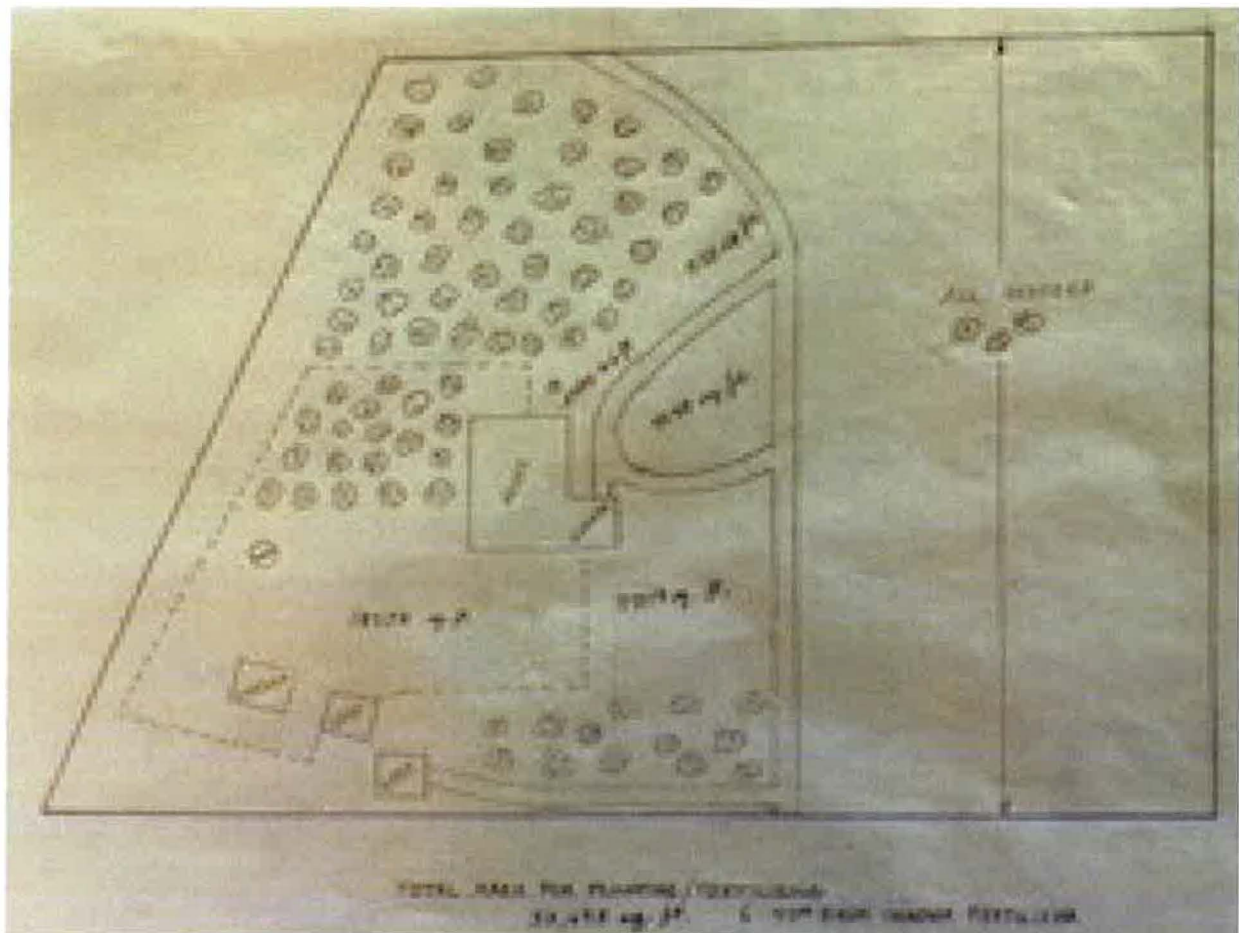


Figure 5- Photo emailed by the permit holder of a sketch of the irrigated area and fence line with measurements taken on site.