

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-10650
Exam Date: 08/16/2022

1. Current Owner:
ARROWHEAD RANCH WATER ASSOCIATION INC PO BOX 1276 SANDPOINT ID 83864-0862
2. Accompanied by: Fred Vincent
Phone No: 206-927-1698
Address: PO Box 184 Cocolalla ID 83813
Relationship to permit Holder: President – Arrowhead Ranch Water Assn.

3. **SOURCE:**
GROUND WATER

Method of Determination: ArcMap and DRG.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap
2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
96-9579	Groundwater	Domestic	License w/Notice of Claim filed in the CFPRBA
96-10650	Groundwater	Domestic	Permit in process for licensing approval

Comments:

- 96-9579 – this license with Notice of Claim filed in the CFPRBA uses the same groundwater well as this water right and 96-9739. I conducted the field exam for both this permit and 96-9739 simultaneously and am currently finalizing both permits for license approval. Due to the direct overlap between PODs, I am recommending condition X35 for licensing approval for this permit, 96-9579, & 96-9739. X35 shall describe that when combined the three water rights shall not exceed a maximum diversion rate of 0.05 cfs, which is the largest diversion rate found between the three water rights at time of their respective beneficial use field examinations. In the future if the applicant changes the well pump configuration a new application for permit shall be required to authorize a larger diversion rate. In sum, the three WRs serve 13 homes for domestic use, which would benefit a department standard diversion rate of 0.17 cfs, but the applicant is limited by pump performance as developed at time of field exam(s). Condition F06 was carried forward from the permit to licensing.

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

GROUND WATER L1 (NW¼ NW¼), Sec. 18, Twp 55N, Rge 02W, B.M. BONNER County

Method of Determination: GPS; POD is located at -116°37.7920, 48°7.2321, well 96-94-N-170.

PLACE OF USE: DOMESTIC

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
55N	03W	13	X																

Method of Determination: Beneficial use field examination & ArcMap aerial imagery.

3.

X 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).

X 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
96-94-N-170	Franklin Electric	5	Unknown	Franklin Electric	Unknown

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: I was unable to perform flow measurements; the main service line from the GW well is buried routing directly to a vaulted 2,000-gal storage reservoir prior to service pipes daylighting in the pump station. A Theoretic Pump Equations derived a flow rate of 20.9 gpm or 0.05 cfs considering department rounding standards.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method: Theoretic Pump Equation with 5 hp pump at depth of 620 ft with system operating pressure of 60 PSI equals 20.9 gpm or 0.046 cfs, which equals 0.05 cfs considering department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

2. Volume Calculations for Other Uses: Maximum diversion rate equals 1 homes x 1.2 afa per home = 1.2 af.

G. NARRATIVE/REMARKS/COMMENTS

Beneficial use field exam conducted on 8/16/2022 with the applicant's representative, Fred Vincent – President of Arrowhead Ranch Water Association Inc., showed groundwater being diverted for domestic purposes. At the POD, well 96-94-N-170 located in Lot 3 - Arrowhead Ranch Sub., has a 5 hp Franklin Electric pump motor installed. The main service line routes downhill to the east to a 2,000-gal community storage reservoir prior to distribution to service connections. The pump station houses multiple pressure tanks that are incorporated in the delivery system. I was unable to perform flow measurements due to inadequate pipe requirements. A Theoretic Pump Equation was evaluated during licensing review, which demonstrates the 5 hp pump capacity of 0.05 cfs considering department rounding standards. This permit is limited to **0.04 cfs** as permit approved, which is recommended for licensing as the maximum diversion rate.

The applicant owns prior WR license 96-9579 & active Permit 96-9739 (in-process licensing), which share this permit's POD. As discussed above, condition F06 was included during the permit approval process describing the three water rights sharing the single POD. Additionally, the three WRs have overlapping concerns for diversion rate from the single GW well.

I have recommended licensing 96-9739 & Permit 96-10650 with condition X35 that describes that when the three WRs are combined, they shall not exceed a maximum diversion rate of 0.05 cfs based on the 5 hp pump installed at time of examination. During the exam Mr. Vincent asserted he was in the process of working with DEQ to evaluate replacement of the current pump with a larger pump. If the water system is changed from current configuration, a new application for permit shall be required to add additional diversion rate above the 0.05 cfs authorized for WRs 96-9579, 96-9739, & 96-10650 when combined.

From the pump station a 2-inch buried poly line routes uphill to serve all the homes uphill of the storage reservoir; downgrade homes are served by a 3-inch main line. The service line has a tee connection and shutoff valve located along the main roadway where it crosses beneath the road and continues to the POU for this permit. Photographs were taken that illustrate the water control boxes located roadside along with the 1 home serving as the POU for this right. ArcMap aerial imagery was used during licensing review to designate the domestic POU. The annual volume & maximum diversion volume recommended for licensing equals the department standard for 1 home with ½ ac irrigation = **1.2 af**.

I removed condition 046 during licensing review as the applicant has complied with the requirements. The applicant's community system is actively regulated by DEQ & is assigned PWS No. ID 1090289. Condition X35 was added to described diversion rate combined use limits between Rights 96-9579, 96-9739, & 96-10650, limiting all three to a maximum diversion rate of 0.05 cfs between the rights from the shared well. All other conditions on the permit shall be carried forward to licensing. Aside from overlap resulting from the shared well between WRs as discussed above, there are no additional overlapping WR concerns toward licensing this right.

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>
DOMESTIC	01/01 to 12/31	0.04 CFS	1.2 AF
<u>Totals:</u>		0.04 CFS	1.2 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

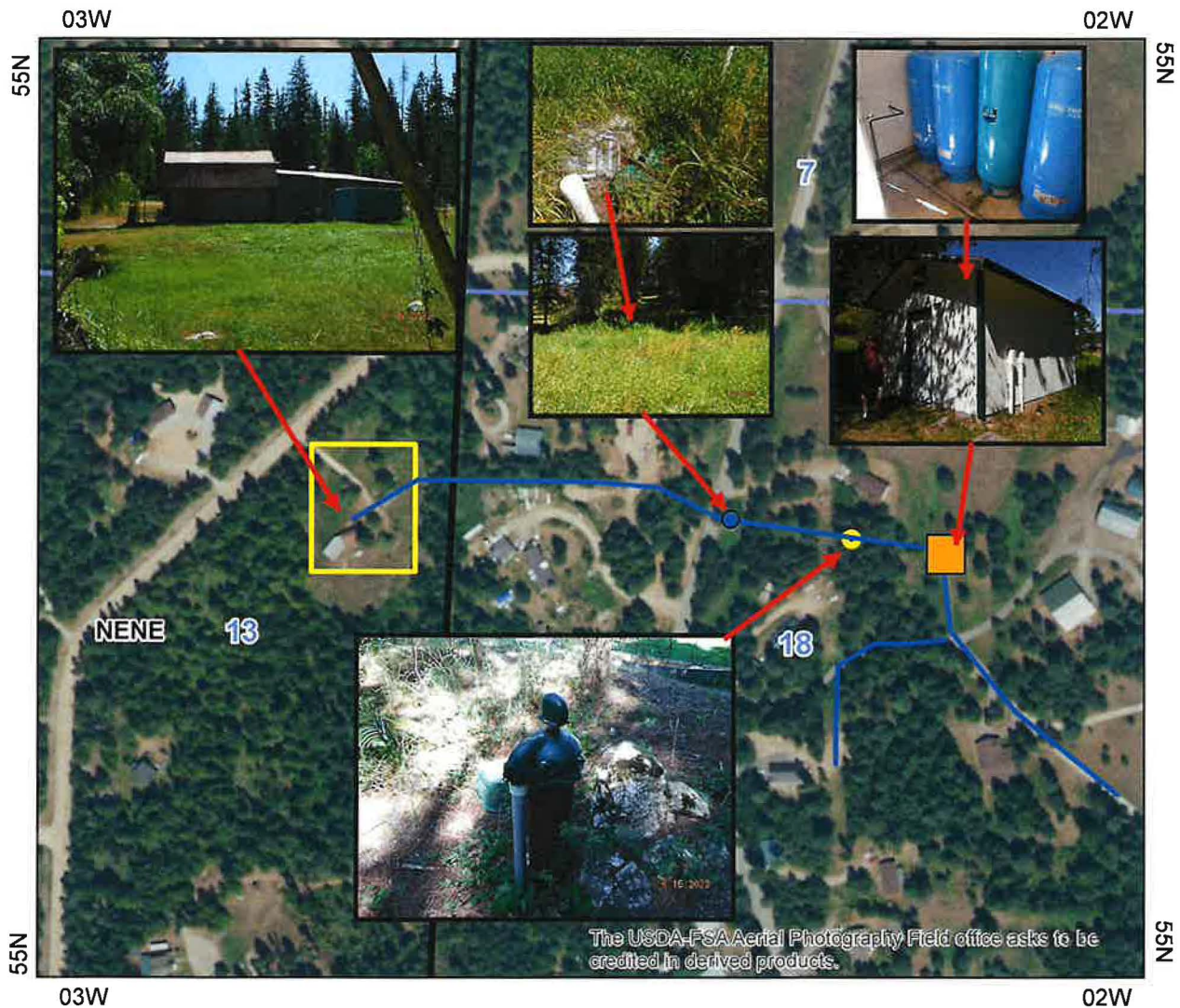
I. AUTHENTICATION

Luke Bates -

Field Examiner's Name *LD* Date 12/20/2023
 Reviewer *Uam Beef* Date 5/30/24

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-10650

This map depicts the DOMESTIC system diagram.



-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters
-  Point of Diversion

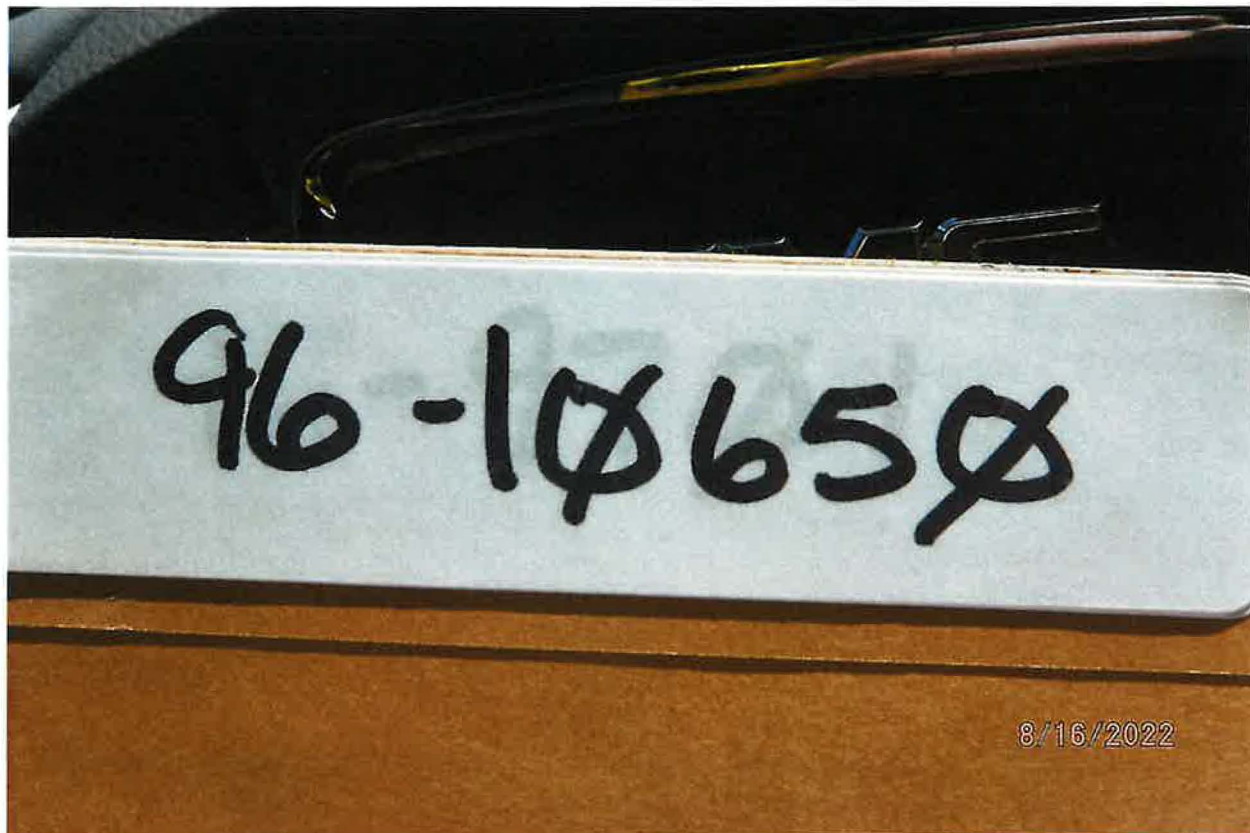
THEORETICAL PUMPING EQUATION(S) FOR WR# 96-10650

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 620 ft, and running at 60 psi.

PUMP EQUATION

WATER RIGHT No. 96-10650

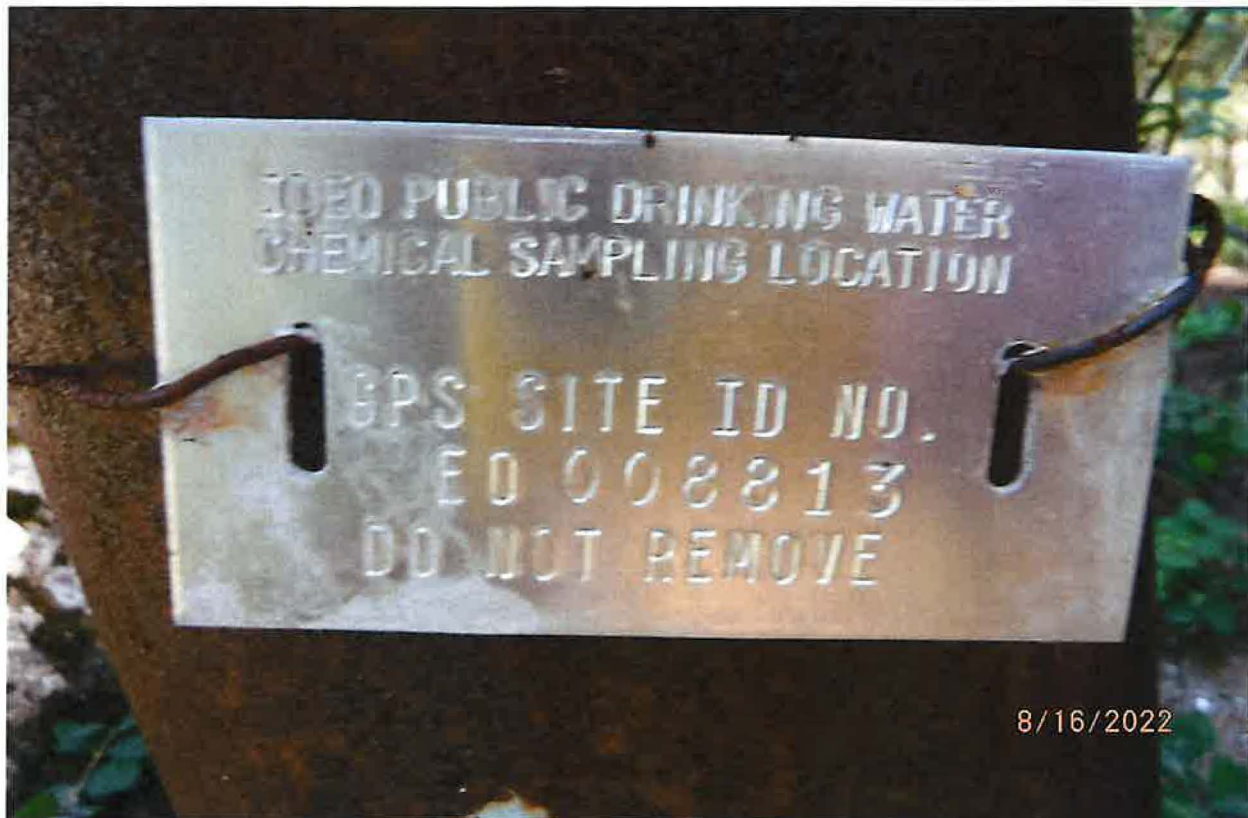
96-94-N-170	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q = $HP \cdot 8.8 \cdot \text{Eff} / H$	5	758.7755	0.8	620	60
Q = 0.046 cfs 20.9 gpm					



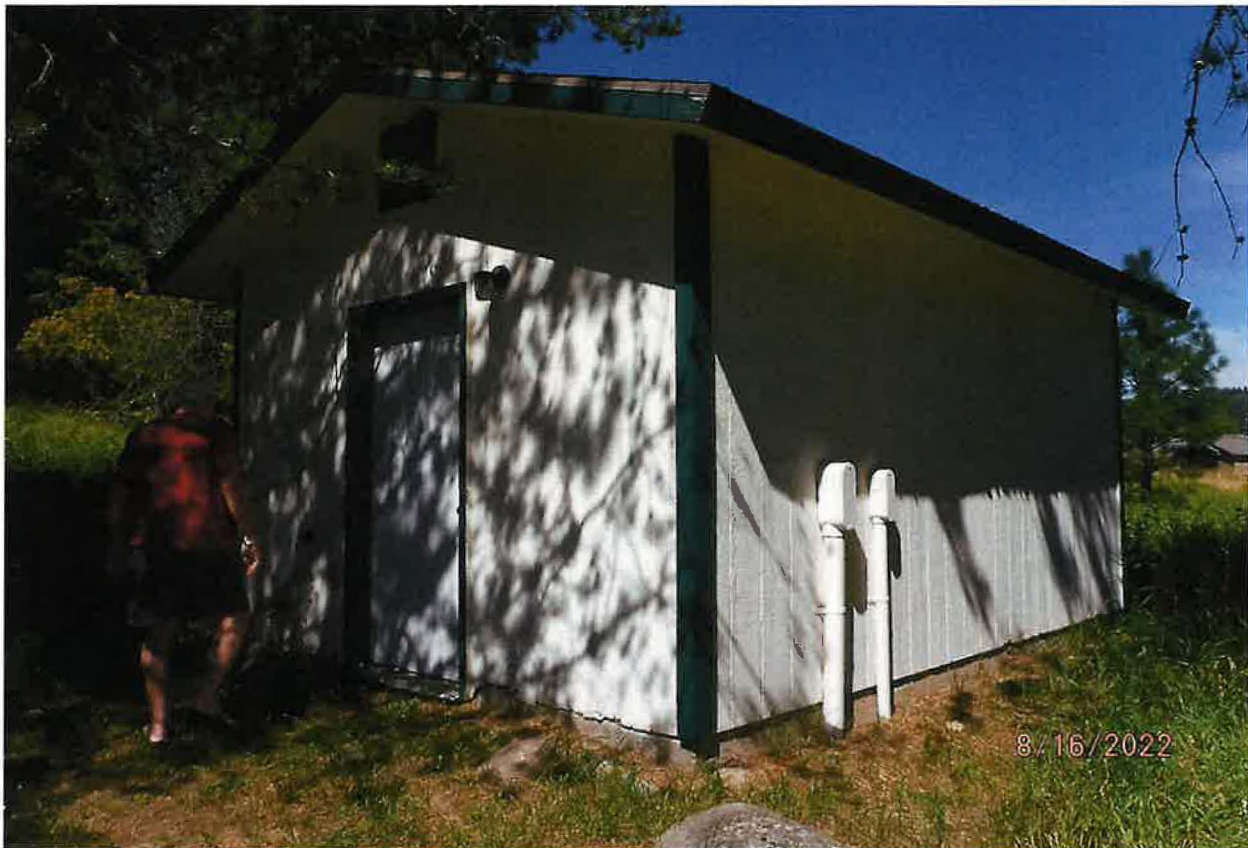
BENEFICIAL USE FIELD EXAMINATION DATE 8/16/2022



POD – WELL 96-94-N-170



DEQ – PWS TAG, CORRESPONDING PWS No. ID1090289



MAIN SERVICE LINE ROUTES DIRECT TO 2,000 GAL STORAGE RESERVOIR & THEN TO PUMP HOUSE WITH PRESSURE TANKS PRIOR TO DISTRIBUTION TO DOMESTIC SERVICE CONNECTIONS



5 HP PUMP MOTOR INSTALLED IN WELL



DIVERTING WORKS INCORPORATES SEVERAL PRESSURE TANKS FOR THE COMMUNITY SYSTEM



WATER LINE & VALVES LOCATED OFF MAIN ROAD





DOMESTIC POU – INCLUDES ½ ACRE IRRIGATION