

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
**BENEFICIAL USE FIELD REPORT**

**A. GENERAL INFORMATION**

**Permit No:** 95-17049  
**Exam Date:** 06/30/2021

1. Current Owner:  
ROBERT A COLVIN 19980 S PROVIDENCE LN WORLEY ID 83876 AND/OR  
SUSAN L COLVIN 19980 S PROVIDENCE LN WORLEY ID 83876
2. Accompanied by: Robert Colvin  
Phone No: 208-215-9080  
Address: Same as above  
Relationship to permit Holder: Permit holder

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: NO Overlap

**C. DIVERSION AND DELIVERY SYSTEM**1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER SE¼ SE¼, Sec. 18, Twp 48N, Rge 04W, B.M. KOOTENAI County  
GROUND WATER L6 ( SW¼ SW¼), Sec. 17, Twp 48N, Rge 04W, B.M. KOOTENAI County

Method of Determination: GPS. 2ea PODs located at -116°53.6934, 47°29.8012; well D-TAG D0033351 &  
-116°53.7276, 47°29.8244; well D-TAG D0056684.

**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  |        |
| 48N | 04W | 18  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1.0 | 1.0    |

Total Acres: 1.0

**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 |        |
| 48N | 04W | 17  |    |    |    |    |    |    |    |    |    |    | X<br>L6 |    |    |    |    |    |        |
| 48N | 04W | 18  |    |    |    |    |    |    |    |    |    |    |         |    |    |    |    | X  |        |

Method of Determination: field exam and Arcmap aerial imagery.

- 3.
- ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☒ 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 |
|---------------------------|------------|-----|------------------|-----------|-----------------------------------|
| D0056684                  | UNK        | 3   |                  |           |                                   |
| D0033351                  | UNK        | 1.5 |                  |           |                                   |

**D. FLOW MEASUREMENTS**

1.

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

2. Measurements: Unable to perform flow measurements due to inadequate pipe requirements. Main water lines from each well routed direct to a common use 2,000-gallon storage tank with pressure pot installed prior to distribution to water uses.

**E. FLOW CALCULATIONS**☒ Additional Computation Sheets Attached

Measured Method: 2ea theoretical pumping equations estimate flow as follows:

- D0056684 – 3 hp pump at 595 ft with 45 PSI operating pressure equals 13.6 gpm or 0.03 cfs
- D0033351 – 1.5 hp pump at 905 ft with 45 PSI operating pressure equals 4.7 gpm or 0.01 cfs
- Combined diversion rate = 13.6 gpm + 4.7 gpm = 18.3 gpm or **0.04 cfs** considering department rounding standards.

**F. VOLUME CALCULATIONS**

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1 \text{ ac} \times 3.0 \text{ afa} = 3.0 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.03 \text{ cfs} \times 246\text{-days} \times 1.9835 = 14.6$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \mathbf{3.0 \text{ af}}$$

2. Volume Calculations for Other Uses:

$$\text{Domestic annual volume} = 3 \text{ homes} \times 0.6 \text{ af} = \mathbf{1.8 \text{ af}}$$

$$\text{Maximum diversion volume} = 3.0 \text{ af} + 1.8 \text{ af} = \mathbf{4.8 \text{ af}}$$

**G. NARRATIVE/REMARKS/COMMENTS**

Field exam performed on 6/30/2021 with the applicant, Robert Colvin, showed 2ea groundwater wells diverting water for domestic and irrigation uses. At the POD(s), well D0033351 & D0056684 pipe direct to a common 2,000-gal storage tank prior to distribution for beneficial uses. I was unable to perform flow measurements due to inadequate pipe requirements, and theoretic pump equations were developed to derive the diversion rate from each well as follows:

- D0056684 – 3 hp pump at 595 ft with 45 PSI operating pressure equals 13.6 gpm or 0.03 cfs
- D0033351 – 1.5 hp pump at 905 ft with 45 PSI operating pressure equals 4.7 gpm or 0.01 cfs

The combined diversion rate equals 18.3 gpm or **0.04 cfs** considering department rounding standards, which is recommended for licensing purposes. The irrigation beneficial use has a department standard rate of 0.03 cfs associated with the 1.0 acres of irrigation observed, and the domestic beneficial use is limited to 0.04 cfs which is the pumping performance for the diverting works installed on the water system. The two B.U. diversion rates are not additive in nature as they are limited by the combined well pump capacity found at time of field exam.

During the field exam, the domestic POU was observed and consists of two separate homes on parcel RP48N04W189600 that are service connected from the common 2,000-gal storage tank, as well as a dedicated stub-in line locate on parcel RP48N04W176300 for future home development. Photographs were taken of each home and a white PVC pipe installed to identify the capped stub-in pipe. Arcmap aerial imagery was used during licensing review to trace out the two homes and a general shape for the stub-in location which is recommended for licensing this permit. This permit includes a separate irrigation B.U., & the annual volume for domestic use equals 3 homes x 0.6 af = **1.8 af**.

The irrigation POU was walked with the applicant, and consists of both pressurized sprinklers, frost free hydrants to hose & sprinkler use, and hose bibs from each home to hose & sprinklers. Irrigation water is used by the applicants for lawn space, landscape plants, trees throughout the POU, and a fenced in garden. Field maps were used to sketch out the irrigation POU, and during licensing review Arcmap aerial imagery was used to accurately trace out the active irrigation occurring on the property equaling 1.0 acres. The annual volume associated with the irrigation B.U. equals 1 ac x 3.0 afa = **3.0 af** which is recommended for licensing. There are several areas within the applicant's property that benefit from sub-irrigation, but do not receive active irrigation and were not included in the POU shape. Additionally, no irrigation was developed in the SW¼SW¼ GL6 of Section 17, and that portion of the permit approved POU was removed during licensing review. In the future once a 3<sup>rd</sup> home is developed, a new application for permit will be required to use irrigation water for the new construction, as it was not able to be credited during the licensing of this permit. The maximum diversion volume recommended for licensing equals 1.8 af (domestic use) + 3.0 af (irrigation use) = **4.8 af**.

Conditions 26A and 046 were removed from the permit during licensing review. All other conditions on the permit shall be carried forward to the license. There are no overlap concerns for this water 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> |
|-----------------------|----------------------|--------------------------|----------------------|
| IRRIGATION            | 03/15 to 11/15       | 0.03 CFS                 | 3.0 AF               |
| DOMESTIC              | 01/01 to 12/31       | 0.04 CFS                 | 1.8 AF               |
| <b><u>Totals:</u></b> |                      | 0.04 CFS                 | 4.8 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 - Water Resource Agent

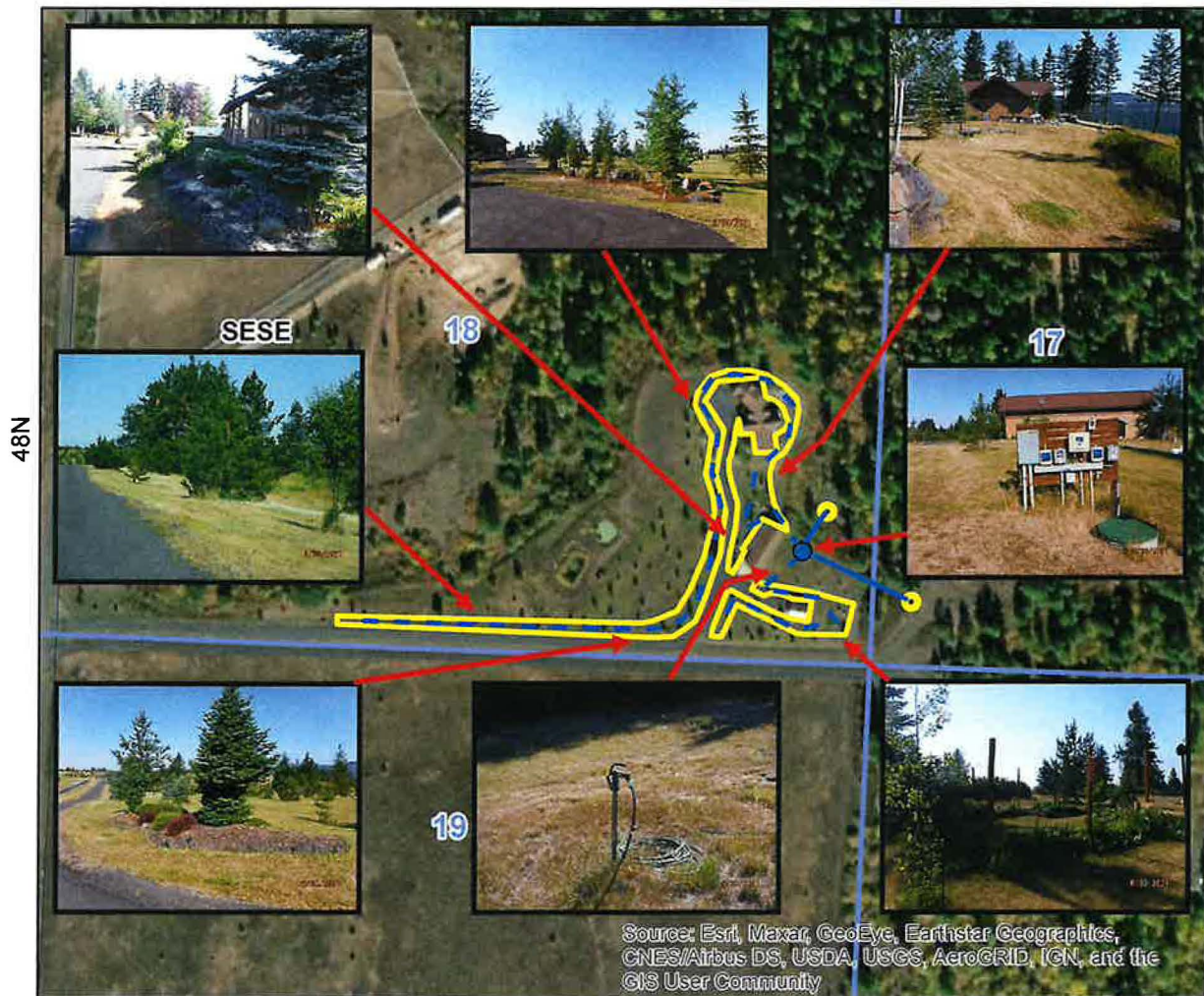
Field Examiner's Name  Date 9/16/2021

Reviewer  Date 10/20/2021

State of Idaho  
Department of Water Resources  
**Attachment to Field Exam**  
95-17049

IRRIGATION system diagram.

04W



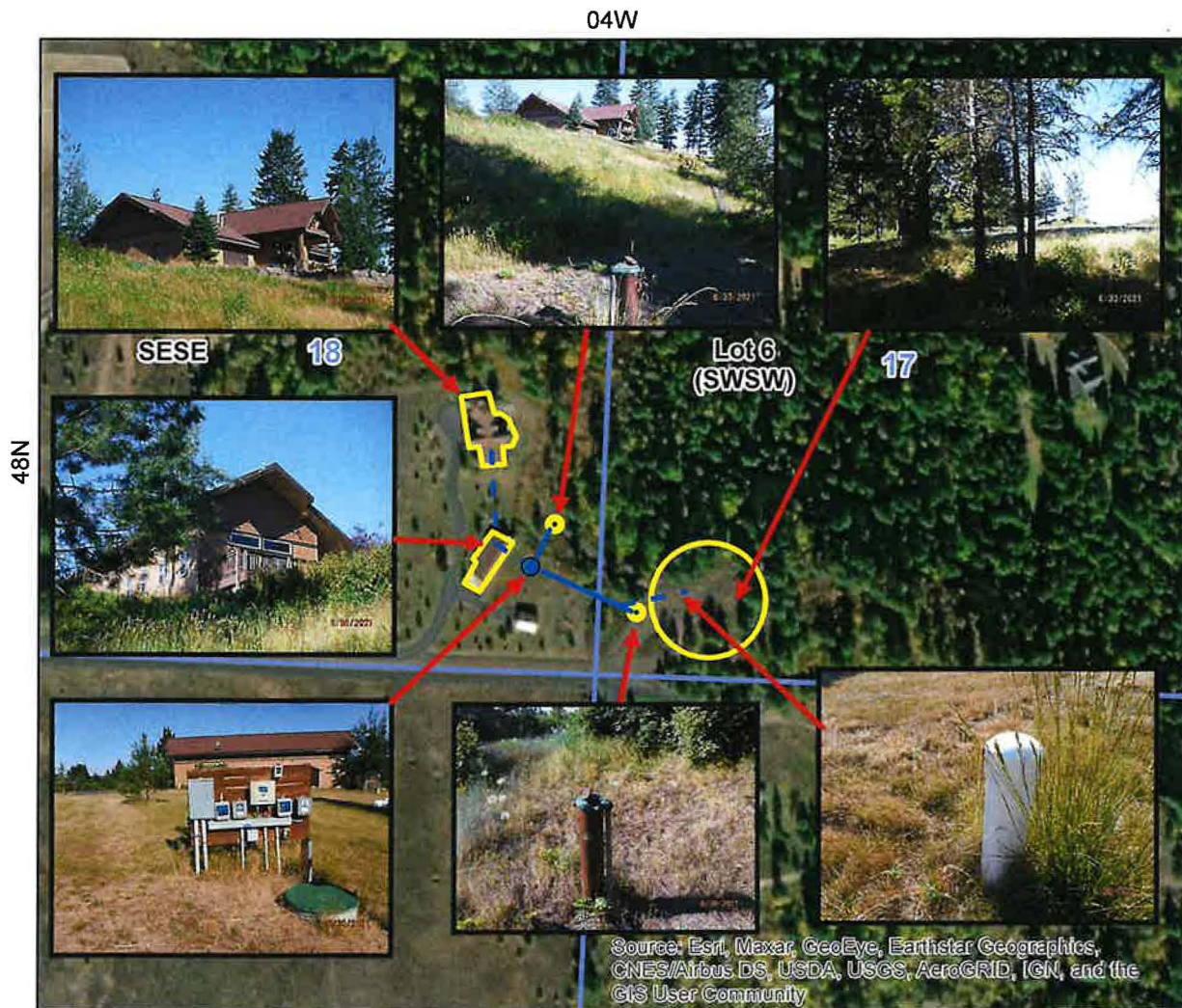
-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.035 0.07 0.14 Miles



State of Idaho  
Department of Water Resources  
**Attachment to Field Exam**  
95-17049

DOMESTIC system diagram.



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

0 0.035 0.07 0.14 Miles



THEORETICAL PUMPING EQUATION(S) FOR WR# 95-17049

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 595 ft, and running at 45 psi.

## PUMP EQUATIONS

**WATER RIGHT No. 95-17049**

|                 |              |           |                  |                                |                             |                               |
|-----------------|--------------|-----------|------------------|--------------------------------|-----------------------------|-------------------------------|
| <b>D0056684</b> |              | <b>HP</b> | <b>H in feet</b> | <b>Efficiency as a decimal</b> | <b>Pumping lift in feet</b> | <b>System pressure in PSI</b> |
| Q =             | HP*8.8*Eff/H | 3         | 699.0816         | 0.8                            | 595                         | 45                            |
| Q =             |              | 0.030 cfs |                  | 13.6 gpm                       |                             |                               |

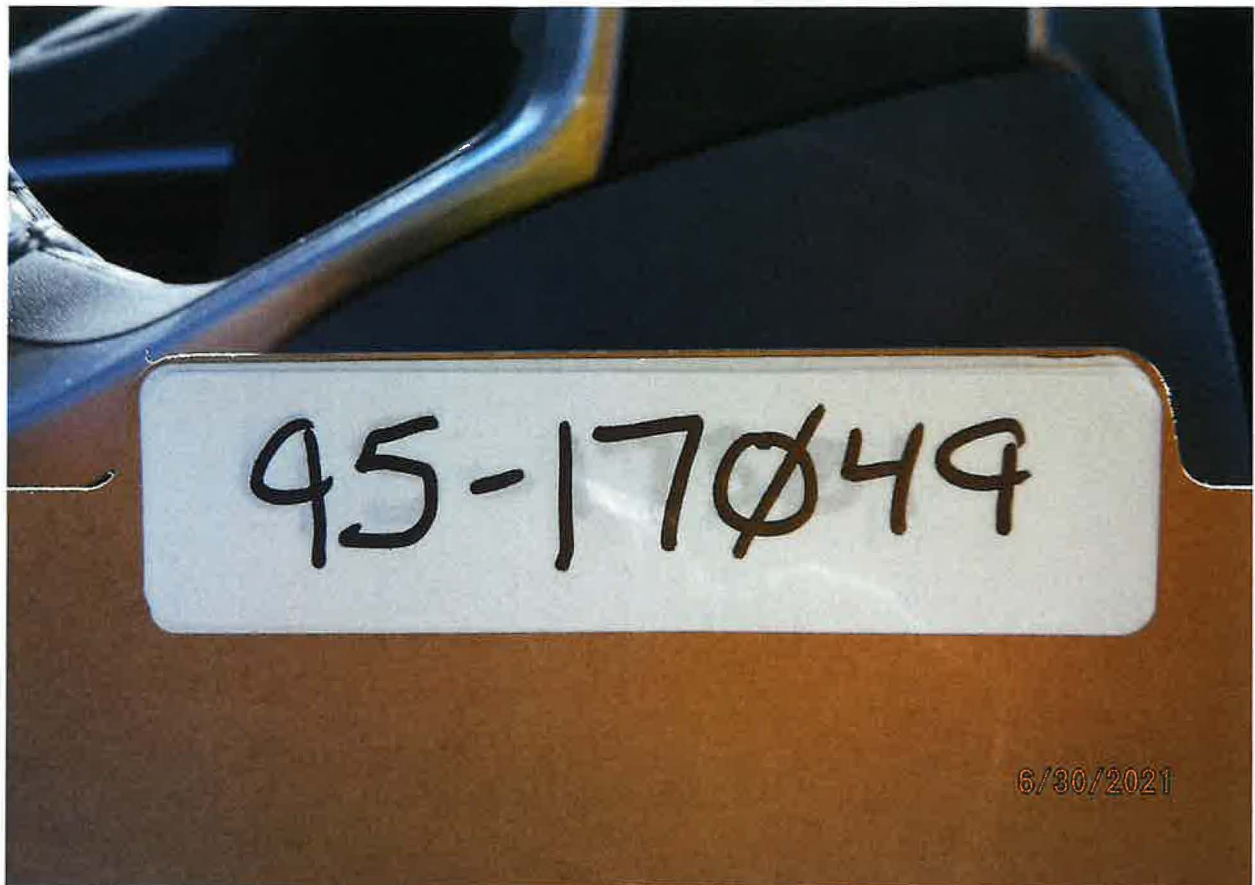
THEORETICAL PUMPING EQUATION(S) FOR WR# 95-17049

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 905 ft, and running at 45 psi.

## PUMP EQUATIONS

**WATER RIGHT No. 95-17049**

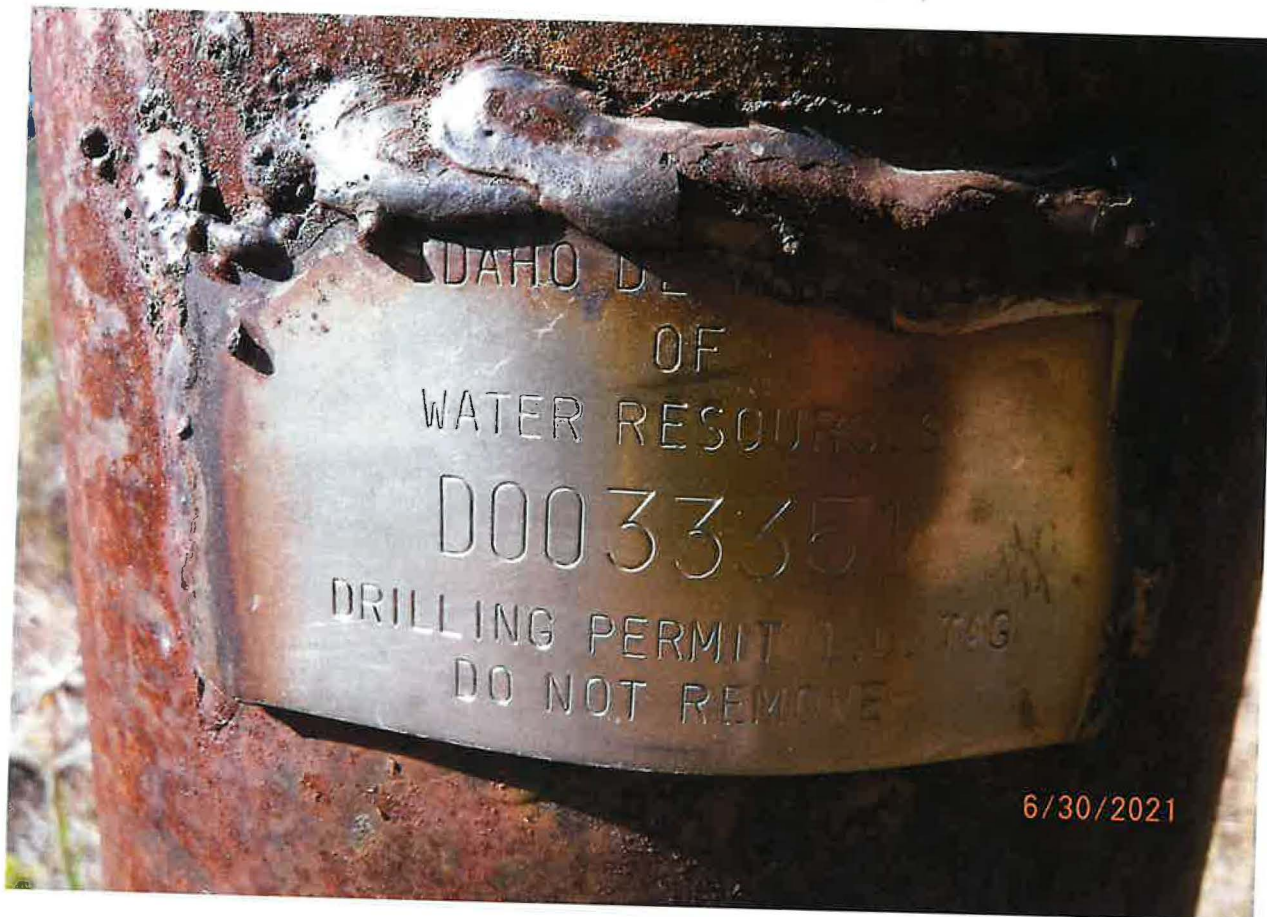
| D0033351 |              | HP                                     | H in feet | Efficiency<br>as a<br>decimal | Pumping<br>lift in feet | System<br>pressure<br>in PSI |
|----------|--------------|----------------------------------------|-----------|-------------------------------|-------------------------|------------------------------|
| Q =      | HP*8.8*Eff/H | 1.5                                    | 1009.082  | 0.8                           | 905                     | 45                           |
| Q =      |              | 0.010 cfs                      4.7 gpm |           |                               |                         |                              |



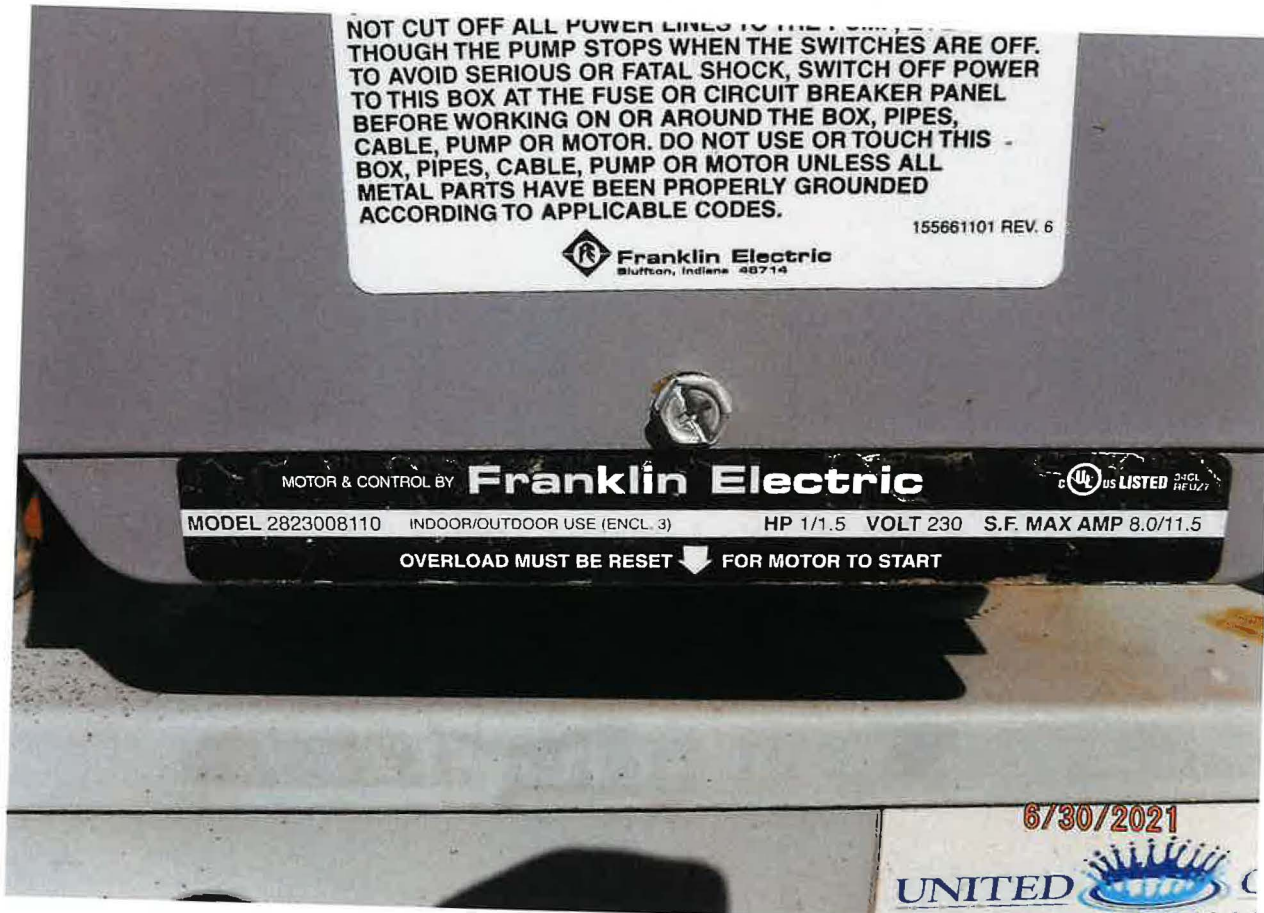
FIELD EXAM DATE 6/30/2021



POD – WELL D0033351



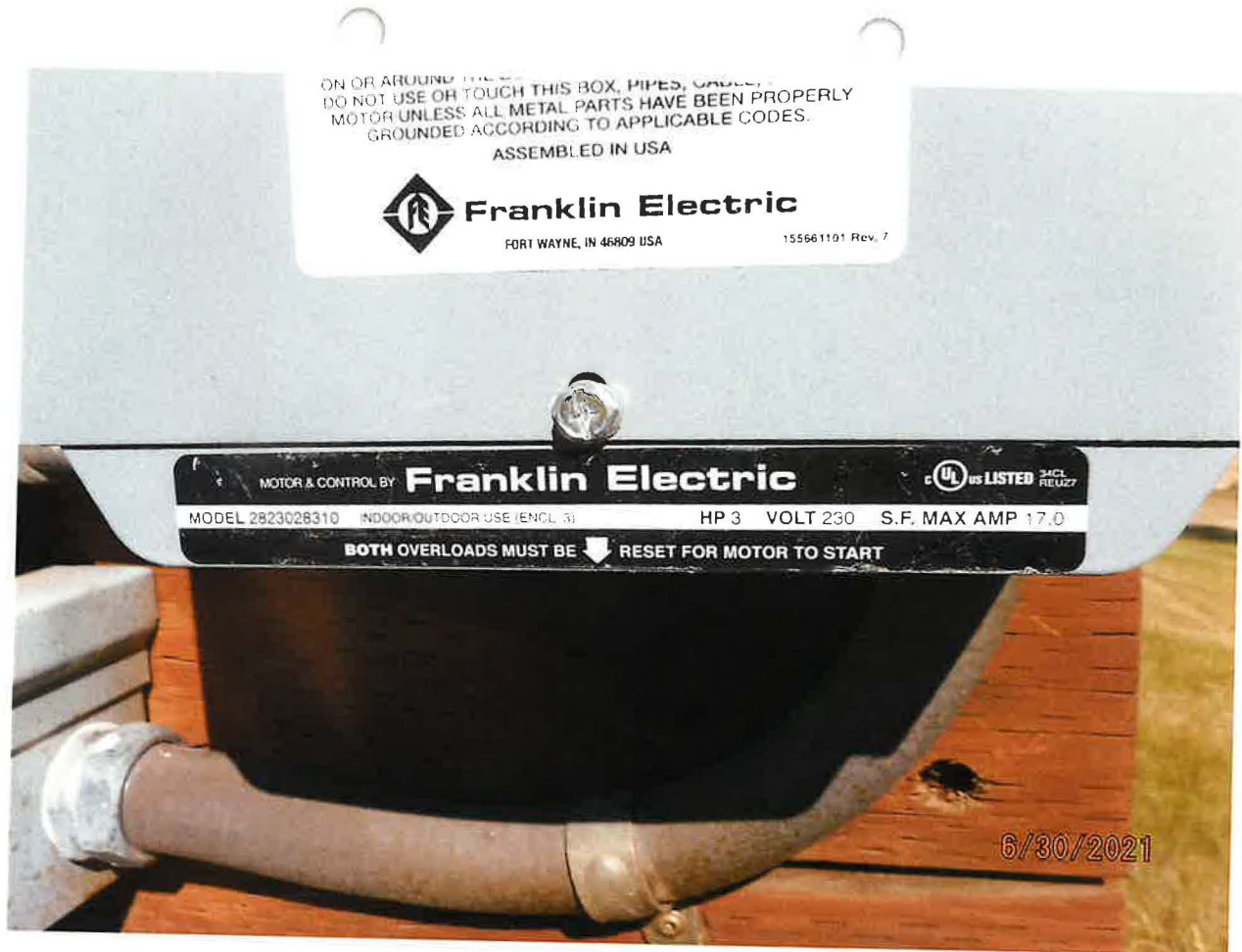
WELL D0033351, WITH 1/5 HP PUMP INSTALLED





POD – WELL D0056684





3 HP PUMP INSTALLED IN WELL D0056684



WATER SYSTEM PUMP CONTROL PANEL

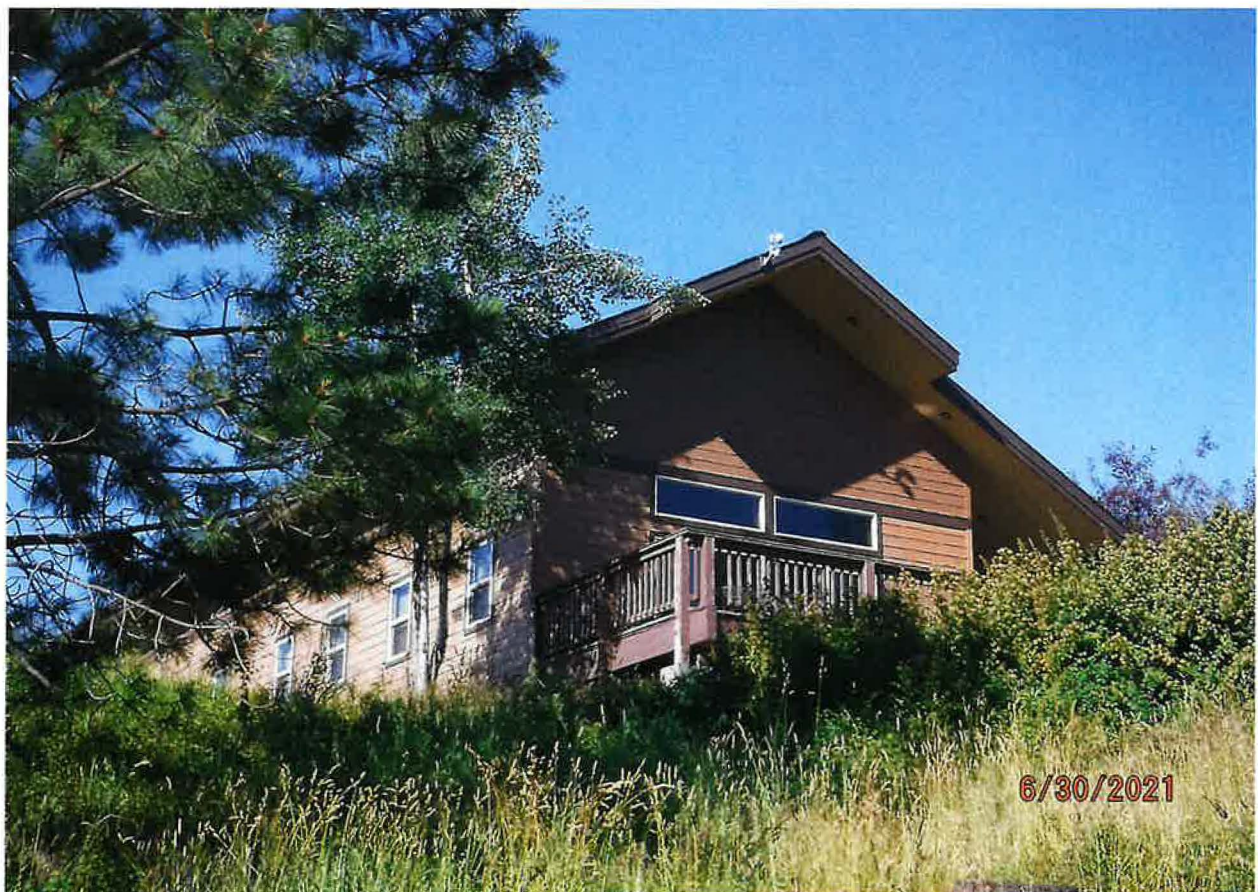


2,000 GALLON STORAGE RESERVOIR WITH PRESSURE POT





DOMESTIC POU – MAIN RESIDENCE



DOMESTIC POU – 2<sup>ND</sup> HOME ON PROPERTY



STUB-IN FOR 3<sup>RD</sup> HOME SERVICE CONNECTION IN SWSW6, SEC 17



IRRIGATION POU



IRRIGATION POU





IRRIGATION BY PRESSURIZED SPRINKLERS, FROST FREE HYDRANT TO HOSE/SPRINKLER, & SMALL EMMITTERS AND SOAKER HOSES.



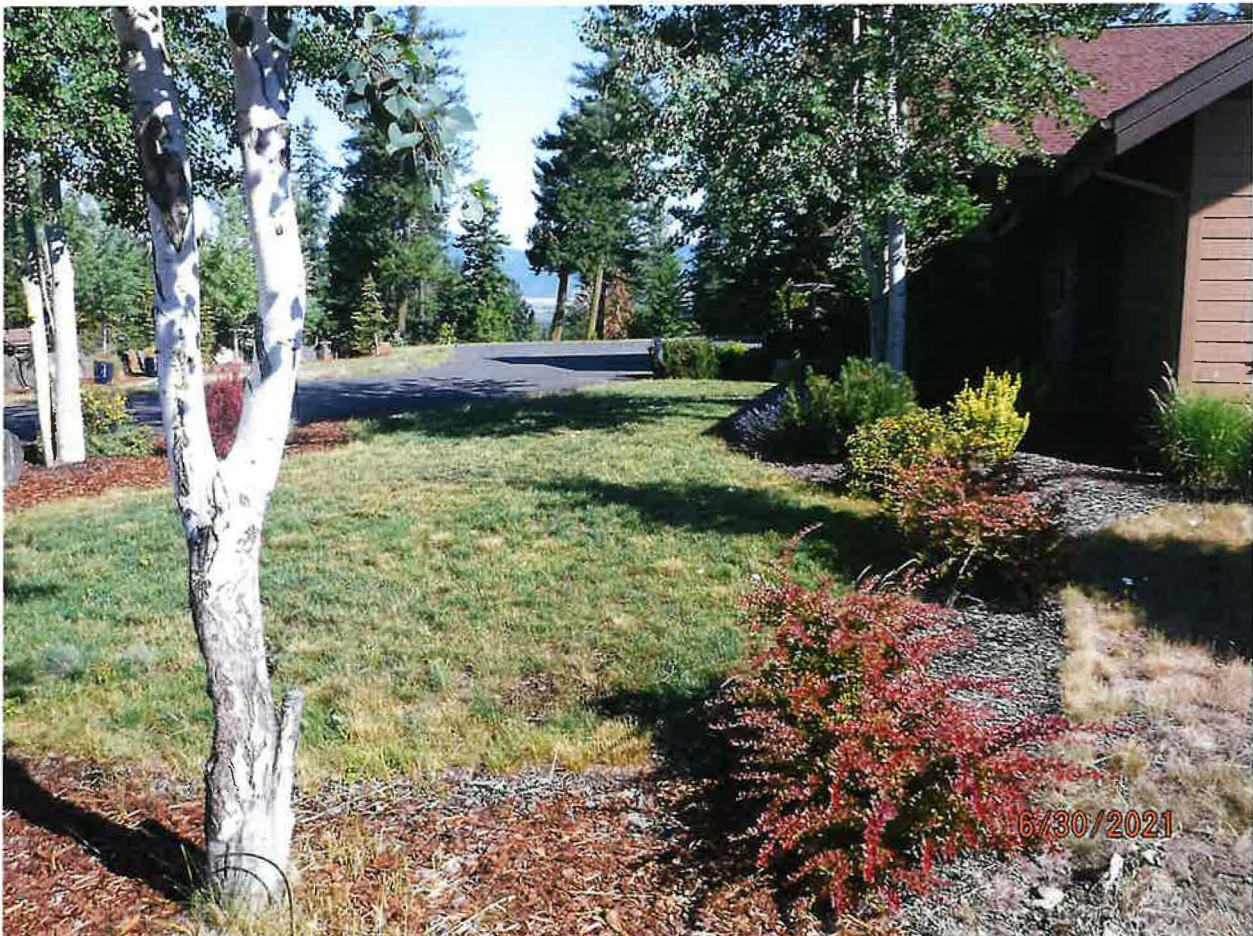


VARIETY OF SPRINKLER APPLICATIONS IN FOR IRRIGATION SYSTEM





IRRIGATION POU





IRRIGATION POU





IRRIGATION POU





IRRIGATION POU

