

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-10945
Exam Date: 05/11/2021

1. Current Owner:
TERRY A KIEFER 16846 N RESERVOIR RD RATHDRUM ID 83858
2. Accompanied by: Terry Kiefer
Phone No: 208-687-0822
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 NE¼ SE¼, Sec. 25, Twp 52N, Rge 05W, B.M. KOOTENAI County

Method of Determination: GPS; POD is a well D0005374 located at -116°53.794, 47°49.462.

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	
52N	05W	25													3.0				3.0

Total Acres: 3.0

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	
52N	05W	25													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
D0005374		2			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
5 GAL BUCKET MEASUREMENT						

2. Measurements: Three 5 gallon bucket tests were completed from frost free hydrant piped direct from well, with average of three resulting in a diversion rate of 5 gal / 13.23 sec x 60 sec/min = 22.68 gpm = **0.05 cfs**, considering department rounding standards.

E. FLOW CALCULATIONS

Measured Method: 5 GAL Bucket Test = (5 gal / 13.04 sec) x 60 sec/min = 23.01 gpm
 = (5 gal / 13.56 sec) x 60 sec/min = 22.12 gpm
 = (5 gal / 13.10 sec) x 60 sec/min = 22.90 gpm
 Average of 3ea 5 GAL Bucket Tests = (23.01 gpm + 22.12 gpm + 22.90 gpm) / 3 = 22.68 gpm = 0.05 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 3.0 \text{ acres} \times 3.0 \text{ afa} = 9.0 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.05 \text{ cfs} \times 246 \text{ days} \times 1.9835 = 24.4 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 9.0 \text{ af}$$

2. Volume Calculations for Other Uses:

$$\text{Domestic annual volume} = 1 \text{ shop home without irrigation of } \frac{1}{2} \text{ acre} = 0.6 \text{ af.}$$

$$\text{Maximum diversion volume} = 0.6 \text{ af (domestic)} + 9.0 \text{ af (irrigation)} = 9.6 \text{ af.}$$

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 5/11/2021 with the current permit holder, Terry Kiefer, showed a well diverting groundwater for domestic and irrigation uses. At the POD, well D0005374 uses a 2 HP pump with main line routing to a nearby shop home where it ties into a pressure tank for distribution for water system. A flow measurement was collected at a frost free hydrant co-located with the well, installed prior to influence from the pressure tank. Three 5 gallon bucket tests were completed from the hydrant, with the average of 3 tests resulting in a diversion rate of 5 gal / 13.23 sec x 60 sec/min = 22.68 gpm = 0.05 cfs, considering department rounding standards. The permit approved diversion rate of 0.12 cfs is limited by the system development and 2 HP pump in well, reducing the irrigation beneficial use diversion from 0.12 cfs down to 0.05 cfs proved at time of field exam. The domestic beneficial use diversion rate of 0.04 cfs is being carried forward to licensing. The maximum diversion rate recommended for licensing purposes equals **0.05 cfs**, which is the pump performance capacity for the water system.

During the exam, the domestic POU was identified as a small shop/home used by the applicant. Indoor plumbing and full water services were developed in the structure along with a stub-in line for future home development co-located with the shop. The structure is visible using Arcmap aerial imagery, and due to the shop/home being constructed and in use, the POU shape was traced out using year 2019 Arcmap aerial imagery. The annual volume recommended for licensing the domestic use equals **0.6 AF**, considering the ½ acre of irrigation is covered under the irrigation beneficial use for this water right. The permit was approved for domestic use in the SE¼NE¼ of Section 25, but current Arcmap aerial imagery shows the entire parcel and domestic POU within the NE¼SE¼ of Section 25; as a result, the SE¼NE¼ location was removed during licensing review.

The irrigation POU was walked with Mr. Kiefer, and the system was operational at time of exam. The irrigation line routes from the well up hill, and seven (7) frost free hydrants were set at intervals using hose splitters for hose & sprinkler use throughout the irrigation POU. Photographs illustrate the irrigation system, and each frost free was operated to demonstrate the functional system, which had sufficient pressure to run hoses throughout a semi-treed POU. Mr. Kiefer asserted he had spent considerable time clearing trees and brush from the POU, while maintaining a healthy stand of small trees that provide a tree canopy which makes the irrigation POU difficult to see on aerial imagery. Arcmap aerial imagery was used to trace out the irrigation POU using field map notes, equaling 3.0 acres. The annual volume for irrigation use equals 3.0 acres x 3.0 afa = **9.0 AF**. The maximum diversion volume recommended for licensing equals 0.6 af (domestic) + 9.0 af (irrigation) = **9.6 af**. The permit was approved for an additional 1.0 acres of irrigation in the SE¼NE¼ of Section 25, but current Arcmap aerial imagery shows the entire parcel and irrigation POU within the NE¼SE¼ of Section 25; as a result, the 1.0 acres associated with the SE¼NE¼ of Sec 25 was removed during licensing review.

This permit was attempted to license in-house at the state office, but due to tree canopy limiting irrigation POU validation, a field exam was performed prior to licensing. In a Department memo DTD 12/2/2020, Department staff inquired about a parcel bordering this permit's parcel to the south, also owned by the current permit Holder with right 95-9415, and whether the water system associated with 95-9415 is connected to this permit's water system. Conferring with Mr. Kiefer, the two systems operate separately and have separate well sources.

Conditions 26A and 046 were removed from the permit during licensing review. Condition WB5 was replaced with condition 132, describing domestic use for 1 home without irrigation of ½ acre which is covered under the irrigation beneficial use on this right. Conditions X59 & X60 were added to describe the POD and POU location occurring in a named subdivision Lot 1, Block 1, Park Ridge Sub. All other conditions on the permit are carried forward to the license. There are no overlap concerns for this water right.

Have conditions of permit approval been met? ☒ 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	0.05 CFS	9.0 AF
DOMESTIC	01/01 to 12/31	0.04 CFS	0.6 AF

Totals: 0.05 CFS 9.6 AF

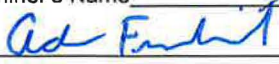
2. Recommended Amendments

____ 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

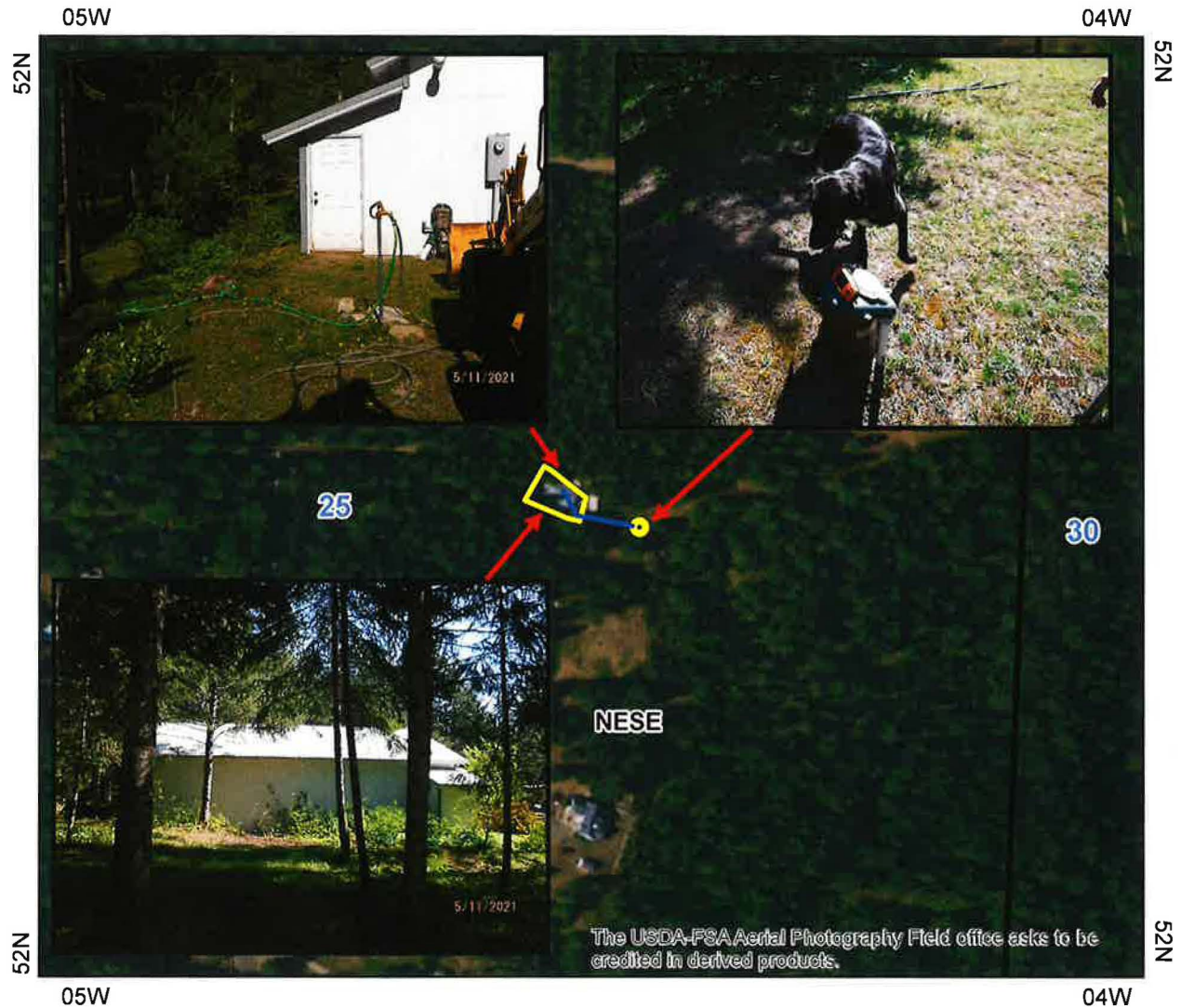
I. AUTHENTICATION Luke Bates - Water Resource Agent

Field Examiner's Name  Date 5/13/2021

Reviewer  Date 5/21/2021

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-10945

DOMESTIC system diagram.



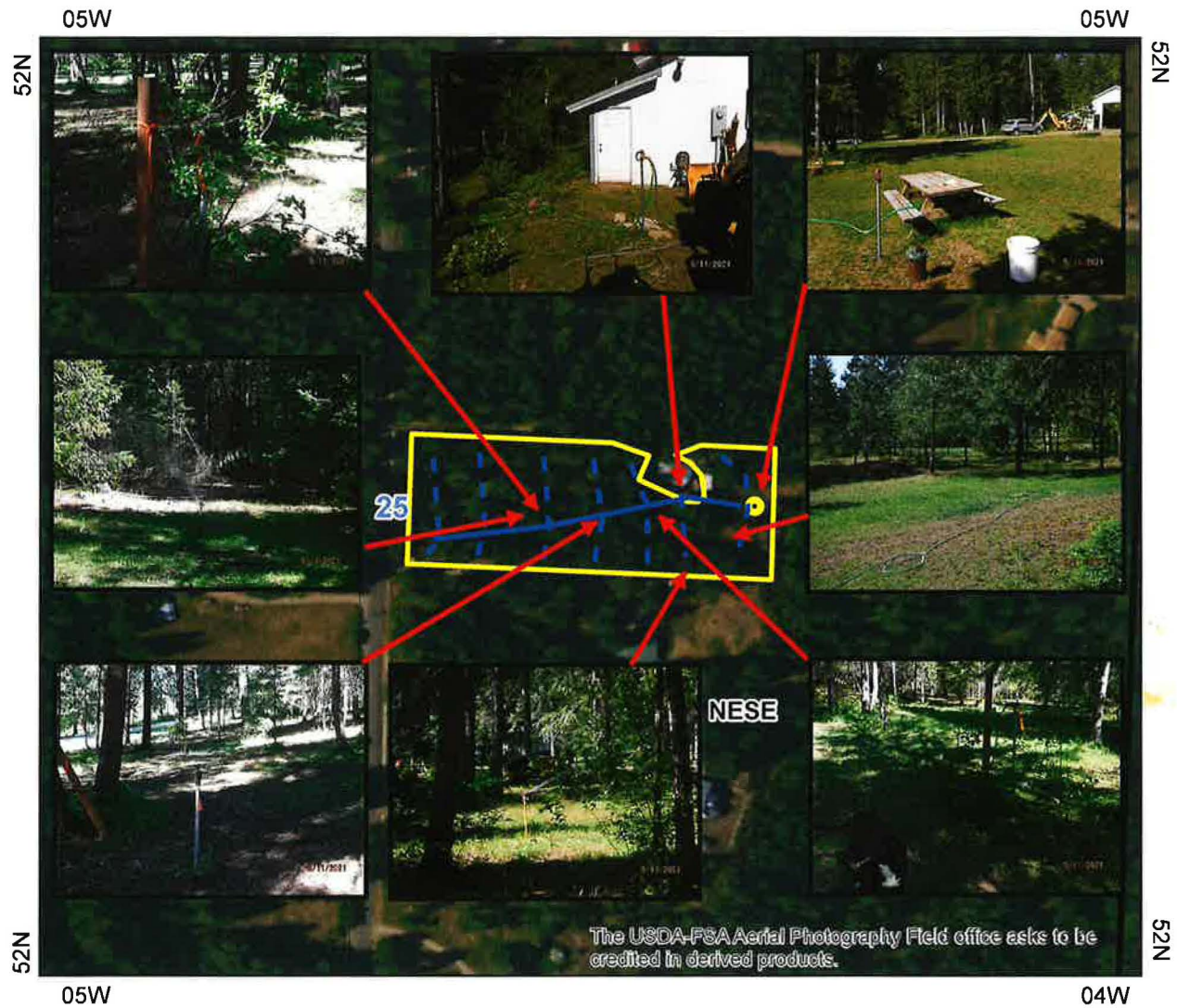
- 05W 04W
- Point of Diversion
 - Place Of Use Boundary
 - Townships
 - PLS Sections
 - Quarter Quarters

0 0.035 0.07 0.14 Miles



State of Idaho
Department of Water Resources
Attachment to Field Exam
95-10945

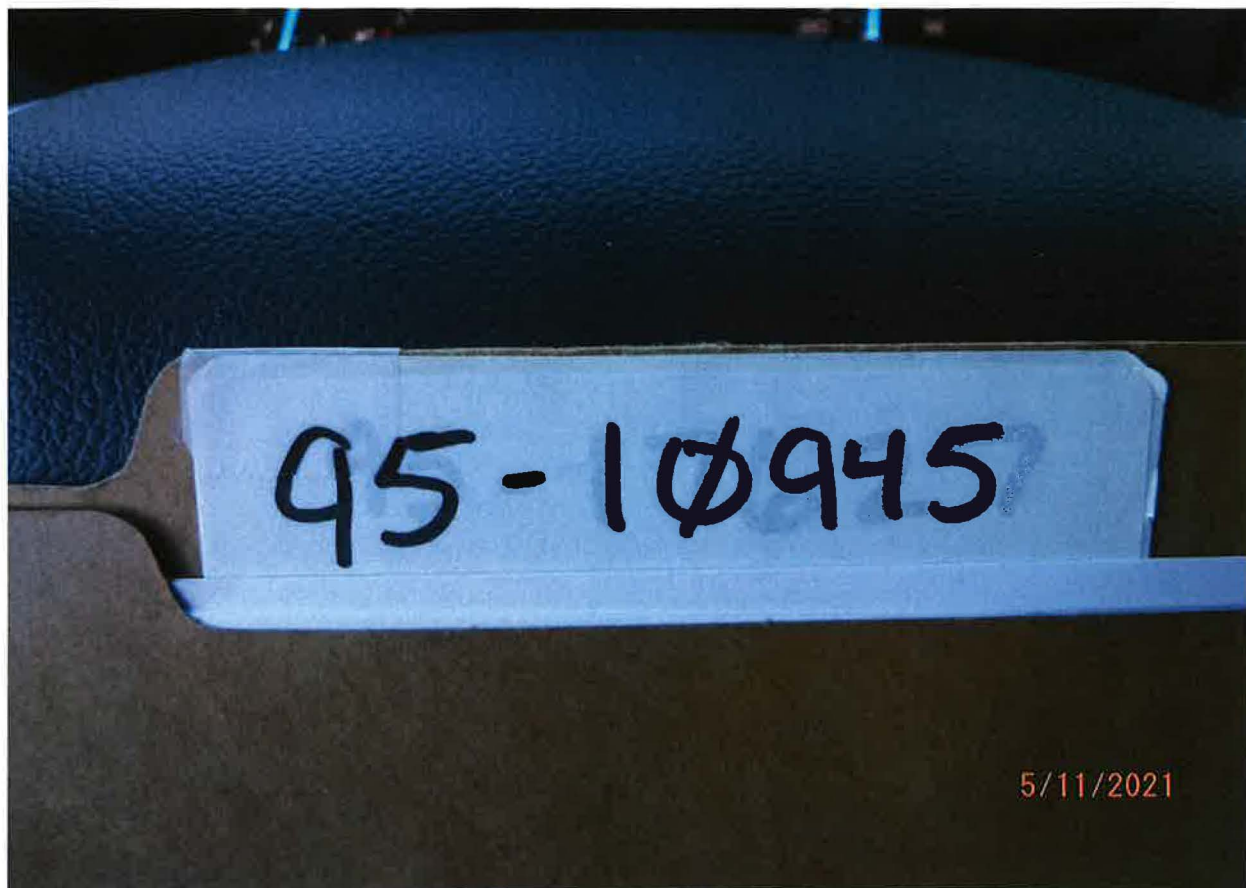
IRRIGATION system diagram.



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

0 0.035 0.07 0.14 Miles

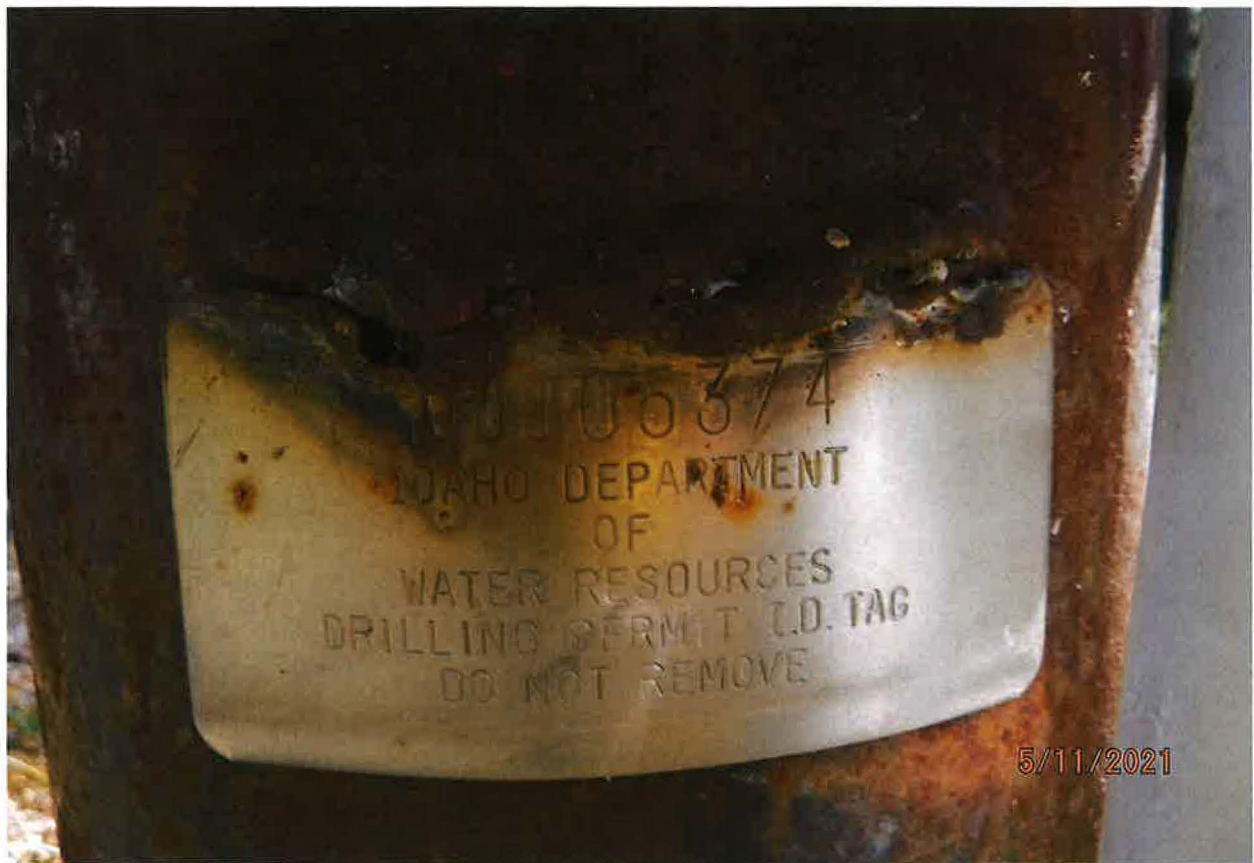




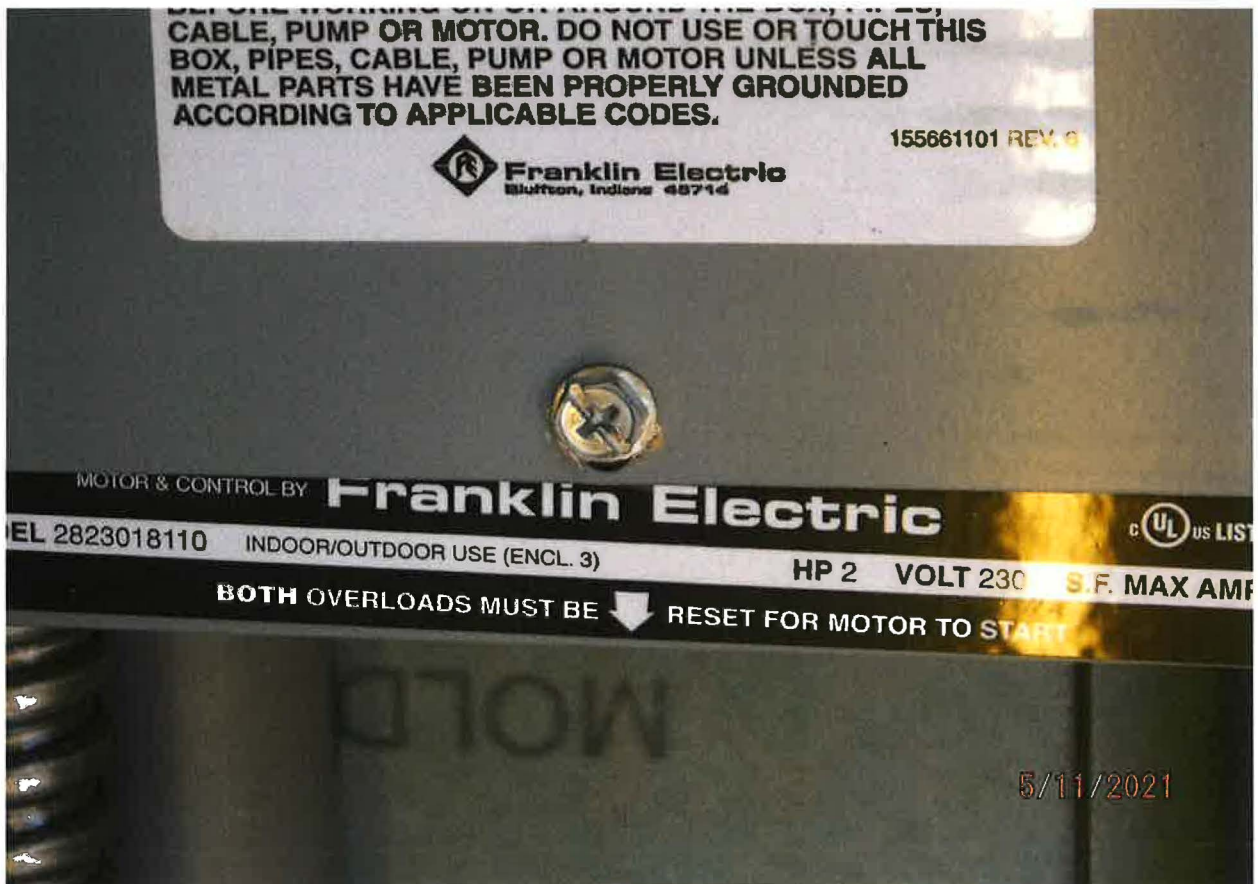
FIELD EXAM DATE – 5/11/2021



POD – WELL D0005374



POD – WELL D-TAG D0005374



2 HP PUMP INSTALLED IN WELL



45 PSI SYSTEM OPERATING PRESSURE



5 GALLON BUCKET TEST COMPLETED FOR FLOW MEASUREMENT



DOMESTIC POU – STUB IN FOR HOUSE; WATER SERVICES TO SHOP FOR RESTROOM & SHOWER





IRRIGATION POU





IRRIGATION POU



IRRIGATION BY FROST FREE HYDRANTS (7EA) AND HOSE-TO-SPRINKLERS



IRRIGATION POU





IRRIGATION POU – FROST FREE HYDRANTS AT INTERVALS UP HILL TO MAIN ROAD

