

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
BENEFICIAL USE FIELD REPORT

**A. GENERAL INFORMATION**

**Permit No:** 85-15714  
**Exam Date:** 07/24/2015

1. Current Owner:  
T SCOTT PERRIN PO BOX 414 COTTONWOOD ID 83522
2. Accompanied by: T Scott Perrin  
Phone No: 208-451-5994  
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 L18 ( NE¼ SE¼), Sec. 34, Twp 34N, Rge 01W, B.M. LEWIS County

Method of Determination: GPS. POD located at -116° 26.1889, 46° 14.6995, well tag D0055515.

**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 |        |
| 34N | 01W | 34  |    |    |    | 20.0<br>L15 |    |    |    |    |    |    |    |    | 0.5<br>L17 |    |    |    | 20.5   |
| 34N | 01W | 34  |    |    |    | 4.1<br>L16  |    |    |    |    |    |    |    |    | 2.5<br>L18 |    |    |    | 6.6    |

Total Acres: 27.1

Method of Determination: Field exam and Arcmap aerial imagery.

3. Delivery System Diagram Attached (required). Indicate all major components and distances between components.  
X 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 Model No. | Pump Make | Pump Serial No. or Discharge Size |
|---------------------------|-------------------|----|-----------------|-----------|-----------------------------------|
| D0055515                  | FRANKLIN ELECTRIC | 20 | 75FA10S6-PE     | UNK       |                                   |

**D. FLOW MEASUREMENTS**

1.

| Measurement Equipment | Type | Make | Model No. | Serial No. | Size | Calib. Date |
|-----------------------|------|------|-----------|------------|------|-------------|
| 275 GAL TANK TEST     |      |      |           |            |      |             |

2. Measurements: A flow measurement was completed at the well, where the applicant's system is set up for direct flow after isolating the filtration system. Two 275 gallon graduated tanks were timed, and the average equaled 98.58 gpm, or 0.22 cfs considering department rounding standards. A separate theoretic pump equation was completed for reference, and shows the 20 HP pump set at 600 ft with 45 PSI operating pressure has an 89.9 gpm flow capacity. The applicant's system operates at < 30 PSI, which supports the slightly higher diversion rate found from flow measurement tests. **0.22 cfs** is recommended for licensing purposes.

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

Measured Method:

- 2ea 275 gal graduated storage tank measurements =
  - 275 gal in 3min 5sec = 90.2 gpm
  - 275 gal in 2min 56sec = 107 gpm
  - AVG = 98.58 gpm or 0.22 cfs considering department rounding standards.
- Theoretic pump equation = 20HP pump installed at depth of 600 ft, with 45 PSI operating pressure = 89.9 gpm or 0.20 cfs considering department rounding standards.
- Applicant provided pump curve data that illustrate 20HP pump at 600 ft, assuming 45 PSI operating pressure has a 90 gpm flow capacity. Due to applicant's system operating at pressures less than 30 PSI, a minimally higher diversion rate is achievable.

**F. VOLUME CALCULATIONS**

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 27.1 \text{ ac} \times 3.0 \text{ afa} = 81.3 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.22 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 93.4 \text{ af}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{81.3 \text{ af}}$$

2. Volume Calculations for Other Uses:

$$\text{Maximum diversion volume} = \text{annual volume} = \mathbf{81.3 \text{ af}}$$

**G. NARRATIVE/REMARKS/COMMENTS**

An initial field exam for this permit was conducted on 7/24/2015, but the license was not finalized at that time. Current time review of the initial B.U. report identified insufficient data to accurately license this permit. A follow-up field exam was performed on 6/17/2021 with the applicant, T Scott Perrin, in order to gain photographs and a flow measurement to support the applicant's beneficial use of water for irrigation purposes. In speaking with Mr. Perrin, the domestic beneficial use was not developed from this groundwater source, and was removed from the permit during licensing review. Additionally, 2ea unnamed stream source PODs were not developed, and are being removed from the permit at time of licensing. There were two separate rows for irrigation as a beneficial use, and Mr. Perrin stated that one was identified for the season of use from the surface source – unnamed stream. One irrigation component was removed, as the surface source was not developed by the applicant.

At the POD, the applicant uses groundwater well D-Tag D0055515 to irrigate trees on his property. Prior to the follow-up exam, department staff corresponded via email with Mr. Perrin to obtain well pump information. Mr. Perrin supplied pump performance curve data showing the 20 HP pump has a pump capacity of approximately 90 gpm. During the exam, Mr. Perrin stationed 2ea 275 gallon graduated water tanks for use with flow measurements. After isolating the filtration system from the well, direct flow by fire hose from the well was used to fill each tank. Two 275 gallon graduated tanks were timed, with the average equaling 98.58 gpm, or 0.22 cfs considering department rounding standards. A separate theoretic pump equation was completed for reference, and shows the 20 HP pump set at 600 ft with 45 PSI operating pressure has an 89.9 gpm flow capacity. The applicant's system operates at < 30 PSI, which supports the slightly higher diversion rate found from flow measurement tests. **0.22 cfs** is recommended for licensing purposes.

During the follow-up exam, the applicant's irrigation system was observed consisting primarily of drip emitters from main truck irrigation riser-to-poly pipes, but also includes hose-to-sprinklers in the holding yard to water trees prepped for sale, and aluminum hand line sprinklers used to irrigate a garden, yard, & hay field. Photographs were taken to provide visual representation of irrigation that is clearly defined using Arcmap aerial imagery. Field maps were used to sketch the irrigation POU, and during licensing review Arcmap aerial imagery was used to accurately trace out the POU which equals 27.1 acres. The POU was updated in ADHOC to reflect current governmental lot designators that were not present at time of permit approval. The annual volume associated with the irrigated acreage = 27.1 ac x 3.0 afa = **81.3 af**, which is also recommended as the maximum diversion volume for licensing purposes. The permit was approved to develop 28 acres, but the applicant's home, drive way, and hardball compound was not included in the irrigation trace out, thus reducing the total acreage by 0.9 acres during licensing review.

Conditions X01, 26A, 029, and a text condition pertaining to surface water were all removed from the permit during licensing review. Condition R62 was added describing the irrigation limitations for 27.1 acres. All other conditions on the permit shall remain on 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            | 04/01 to 10/31       | 0.22 CFS                 | 81.3 AF              |

**Totals:** 0.22 CFS 81.3 AF

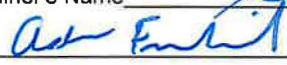
**2. Recommended Amendments**

\_\_\_\_ 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

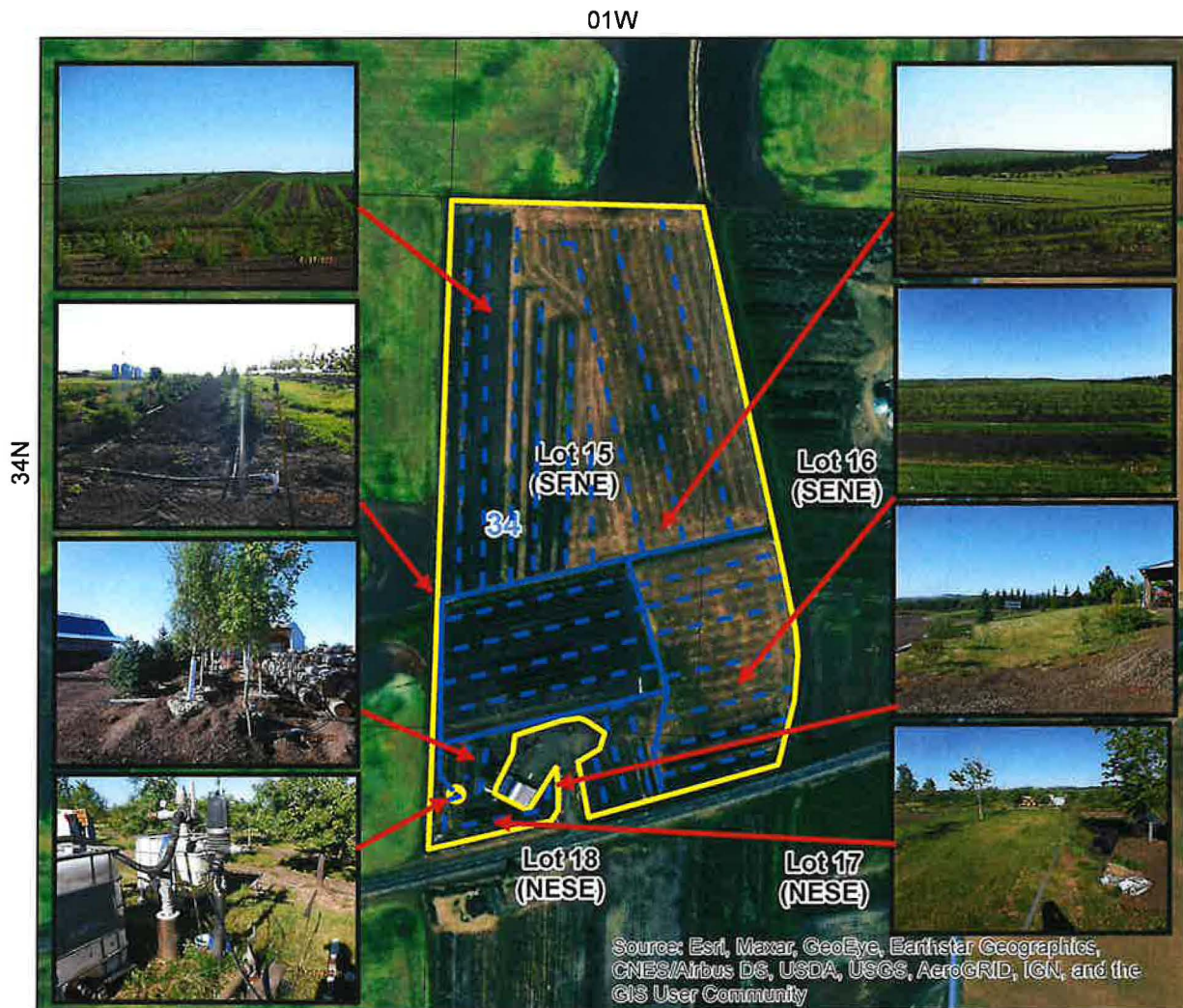
**I. AUTHENTICATION** Luke Bates - Water Resource Agent

Field Examiner's Name  Date 6/24/2021

Reviewer  Date 6/30/2021

State of Idaho  
Department of Water Resources  
**Attachment to Field Exam**  
85-15714

IRRIGATION system diagram.



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

0 0.05 0.1 0.2 Miles



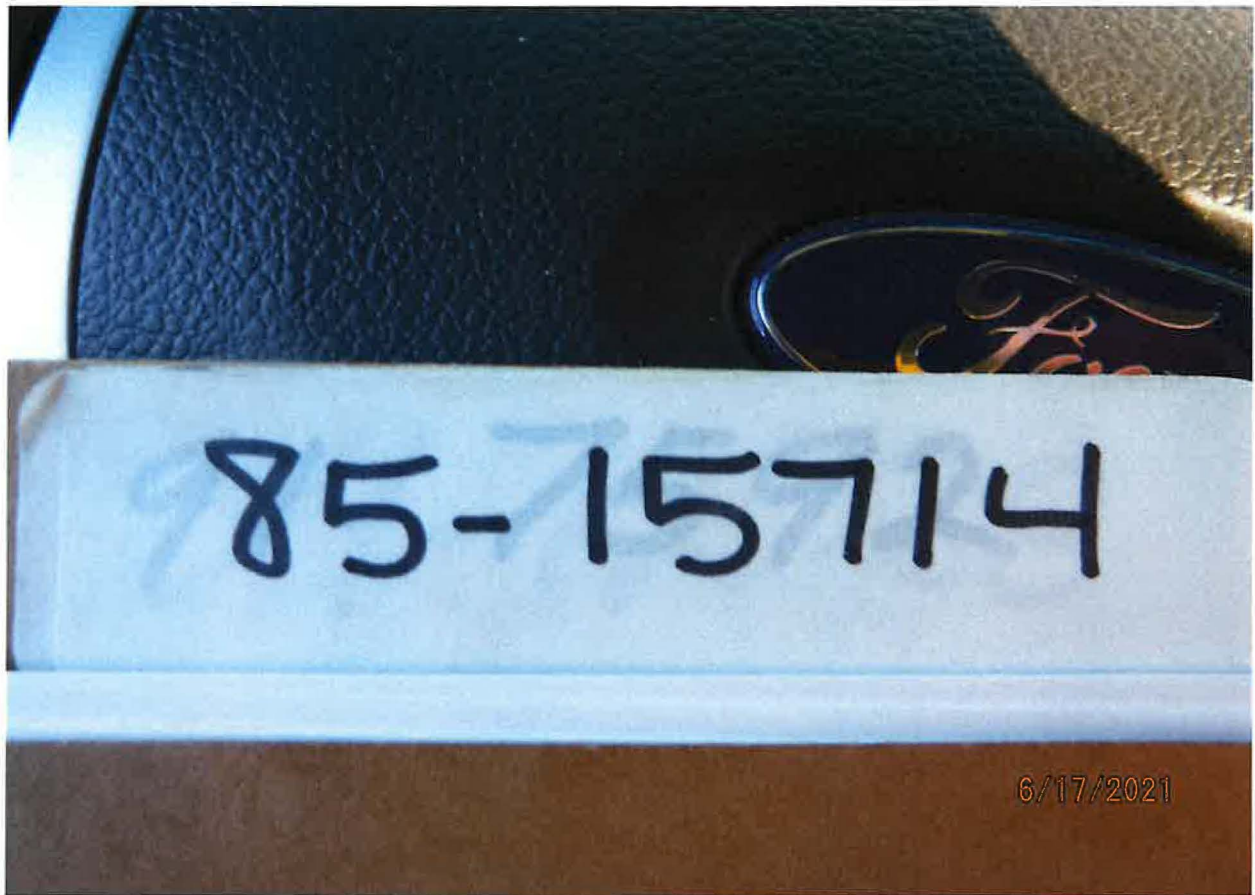
## THEORETICAL PUMPING EQUATION FOR WR# 85-15714

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to be at 600 ft, and running at 45 psi.

## PUMP EQUATIONS

**WATER RIGHT No. 85-15714**

|                                      |              |           |                  |                                        |                                 |                                       |
|--------------------------------------|--------------|-----------|------------------|----------------------------------------|---------------------------------|---------------------------------------|
| <b>D0055515</b>                      |              | <b>HP</b> | <b>H in feet</b> | <b>Efficiency<br/>as a<br/>decimal</b> | <b>Pumping<br/>lift in feet</b> | <b>System<br/>pressure<br/>in PSI</b> |
| Q =                                  | HP*8.8*Eff/H | 20        | 704.0816         | 0.8                                    | 600                             | 45                                    |
| Q = <b>0.200 cfs</b> <b>89.9 gpm</b> |              |           |                  |                                        |                                 |                                       |



FOLLOW-UP FIELD EXAM DATE 6/17/2021



POD – WELL D0055515



WELL D-TAG D0055515



PUMP CONTROL PANEL – 20HP PUMP INSTALLED IN WELL



MULTIPLE FLOW MEASUREMENTS COMPLETED USING 275 GALLON TANKS LOCATED AT WELL



IRRIGATION POU – SPRINKLER HAND LINE



IRRIGATION POU – HOLDING YARD FOR TREES READY TO SELL





IRRIGATION POU – DRIP LINE SYSTEMS





IRRIGATION POU – HAY FIELD IRRIGATED USING SPRINKLER HAND LINE



SPRINKLER HAND LINE



IRRIGATION POU – EXAMPLE IRRIGATION RISER PIPE TO DRIP LINE SYSTEM



IRRIGATION POU – GARDEN AREA BY HOME



IRRIGATION POU – YARD AREA WITH HAND LINE SPRINKLER SYSTEM



IRRIGATION POU – EXAMPLE DRIP LINE EMITTER



IRRIGATION POU



