

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 85-15783
Exam Date: 06/14/2021

1. Current Owner:
JOSEPH N PETERSON 2852 MILLER RD
PO BOX 83 NEZ PERCE ID 83543

2. Accompanied by: Joseph Peterson
Phone No: 208-507-0861
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: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
85-11451	SPRING	DOMESTIC, STOCKWATER	DECREED

Comments: Decreed right 85-11451 uses spring water for domestic & stockwater uses with a 40-acre tract POU assigned during the SRBA, which overlaps this right's POU(s). During the application process for this right, the applicant identified by verbiage and map that the spring was for a separate home & stockwater use east of this right's POU(s) to the east. Condition X35 is not being recommended to license this right.

2. Other water rights with the same point-of-diversion: NO Overlap

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

GROUND WATER L4 (NW¼ NE¼), Sec. 2, Twp 33N, Rge 02E, B.M. LEWIS County

Method of Determination: GPS. POD is well with D-Tag D0061163 located at -116°10.1951, 46°14.1730

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	
33N	02E	2		1.5 L4															1.5

Total Acres: 1.5

PLACE OF USE: STOCKWATER and 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	
33N	02E	2		X L4															

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
D0061163	UNKOWN	1			

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 line routes direct from the well to a pressure tank prior to distribution to uses. A theoretic pump equation was developed which derives a flow rate of 12.0 gpm or 0.03 cfs considering department rounding standards with the 1 HP pump/motor installed at a depth of 160 ft and 45 PSI water system operating pressure.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: Theoretic Pump Equation – 1 HP pump/motor at depth of 160 ft, with 45 PSI pressure = 12.0 gpm or 0.03 cfs considering department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1.5 \text{ ac} \times 3.0 \text{ afa} = 4.5 \text{ af}$$

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

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 4.5 \text{ af}$$

2. Volume Calculations for Other Uses:

- Stockwater annual volume =
 - 25 cows x 12 gpd x 365 day = 109,500 gal
 - 200 chickens = 10 gal per 100 chickens x 2 x 365 day = 7,300 gal
 - 5 pigs x 4 gpd x 365 day = 7,300 gal
 - 30 dogs x 1 gpd x 365 = 10,950 gal
 - Total = (109,500 gal + 7,300 gal + 7,300 gal + 10,950 gal) / 325,850 gal per af = **0.4 af** considering department rounding standards.
- Domestic annual volume = 1 home with in-home use only = **0.6 af**.
- Maximum diversion volume = 4.5 af (irrigation) + 0.4 af (stockwater) + 0.6 af (domestic) = **5.5 af**.

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 6/14/2021 with the applicant, Joseph Peterson, showed a groundwater well providing water for irrigation, stockwater, & domestic uses. At the POD, well D0061163 has a 1 HP pump/motor installed. I was unable to perform flow measurements due to inadequate pipe requirements. Main water line routes direct from the well to a pressure tank prior to distribution to uses. A theoretic pump equation was developed and derived a flow rate of 12.0 gpm or 0.03 cfs considering department rounding standards with the 1 HP pump/motor installed at a depth of 160 ft and 45 PSI water system operating pressure. The 0.03 cfs diversion rate is consistent with well driller report discharge/yield rates, and while it is less than all three beneficial use component permit approved rates the applicant is limited by pump performance. The maximum diversion rate and individual beneficial use rates recommended for licensing equals **0.03 cfs**, considering department rounding standards.

During the exam, the irrigation POU was evaluated with the applicant and area sketched out on field maps. During licensing review, Arcmap aerial imagery was used to accurately trace out the irrigation POU that equates to 1.5 acres. Annual volume equals $1.5 \text{ ac} \times 3.0 \text{ afa} = \mathbf{4.5 \text{ af}}$. The applicant uses multiple frost-free hydrants and hoses to connect to poly-pipe and soaker hose/drip system runs for orchard trees and vegetables rows throughout the POU. Additional irrigation by hose and sprinkler is also uses by the applicant to water lawns space, dog kennel pens, and small areas around the home.

The stockwater POU consists of a large dog kennel area & stock pens with fenced in pastures areas. The applicant operates a small hobby farm, and has a variety of animals including 30 dogs, 25 cattle, 200 chickens & 5 pigs. Arcmap aerial imagery was used to trace out the stockwater POU during licensing review. Annual volume for stockwater use equals $[109,500 \text{ gal (cattle)} + 7,300 \text{ gal (chickens)} + 7,300 \text{ gal (pigs)} + 10,950 \text{ gal (kennel dogs)}] / 325,850 \text{ gal per af} = \mathbf{0.4 \text{ af}}$ considering department rounding standards. The applicant uses a 4-wheeler with trailer water tank to provide water to portable stock tanks within the POU. Photographs were taken to illustrate the stockwater use & POU for licensing purposes.

The domestic POU consists of a small house located in the center of all the applicant's water use. The pressure tank is situated in a small shed that houses what used to be a concrete cistern, which has been repurposed by the applicant. During the exam, 5-gallon bucket tests were taken which produced excessively high flow rates for a 1 HP well pump to achieve identifying the frost-free hydrants receive water after being cycled through the pressure tank. The domestic annual volume equals **0.6 af**, for in-home use only. The maximum diversion volume recommended to license this permit equals the sum of the three beneficial uses equaling **5.5 af**.

Conditions 046 & X02 were removed from the permit during licensing review. All other conditions shall be carried to licensing. Overlap concerns: decreed right 85-11451 uses spring water for domestic & stockwater uses with a 40-acre tract POU assigned during the SRBA, which overlaps this right's POU(s). During the application process for this right, the applicant identified by verbiage and map that the spring was for a separate home & stockwater use east of this right's POU(s) to the east. Condition X35 is not being recommended to license this right. There are no additional 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	4.5 AF
STOCKWATER	01/01 to 12/31	0.03 CFS	0.4 AF
DOMESTIC	01/01 to 12/31	0.03 CFS	0.6 AF

Totals: 0.03 CFS 5.5 AF

2. Recommended Amendments

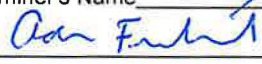
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION

Luke Bates -

Field Examiner's Name  Date 11/9/2021

Reviewer  Date 1/31/2022

State of Idaho
Department of Water Resources
Attachment to Field Exam
85-15783

IRRIGATION system diagram.



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

0 0.035 0.07 0.14 Miles



STOCKWATER system diagram.



-
- A horizontal number line representing distance in miles. The line starts at 0 on the left and ends at 0.14 Miles on the right. There are major tick marks labeled 0, 0.035, 0.07, and 0.14 Miles. Between each of these major tick marks, there are four smaller, unlabeled tick marks, dividing each 0.035-mile segment into five equal parts of 0.007 miles each.



State of Idaho
Department of Water Resources
Attachment to Field Exam
85-15783

DOMESTIC system diagram.



- 02E
- Point of Diversion
 - Place Of Use Boundary
 - Townships
 - PLS Sections
 - Quarter Quarters

0 0.035 0.07 0.14 Miles



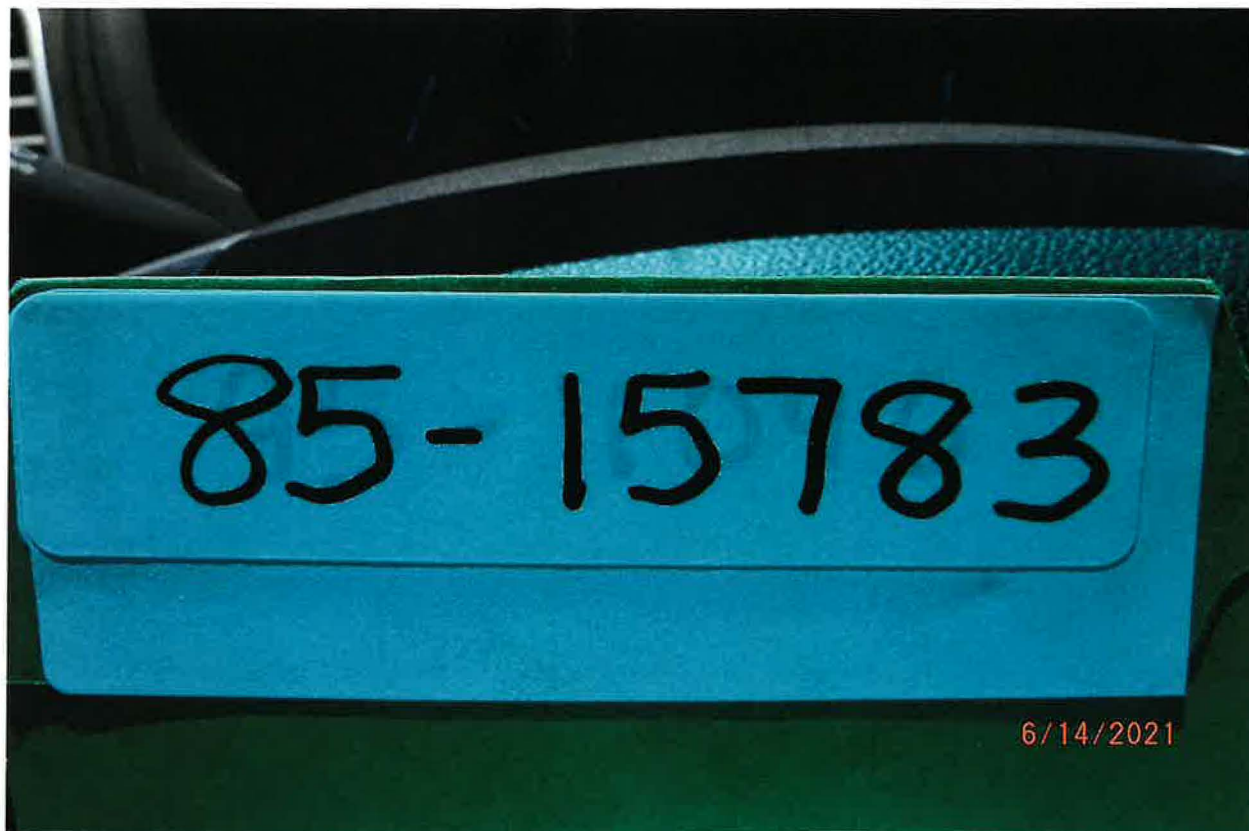
THEORETICAL PUMPING EQUATION(S) FOR WR# 85-15783

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 160 ft, and running at 45 psi.

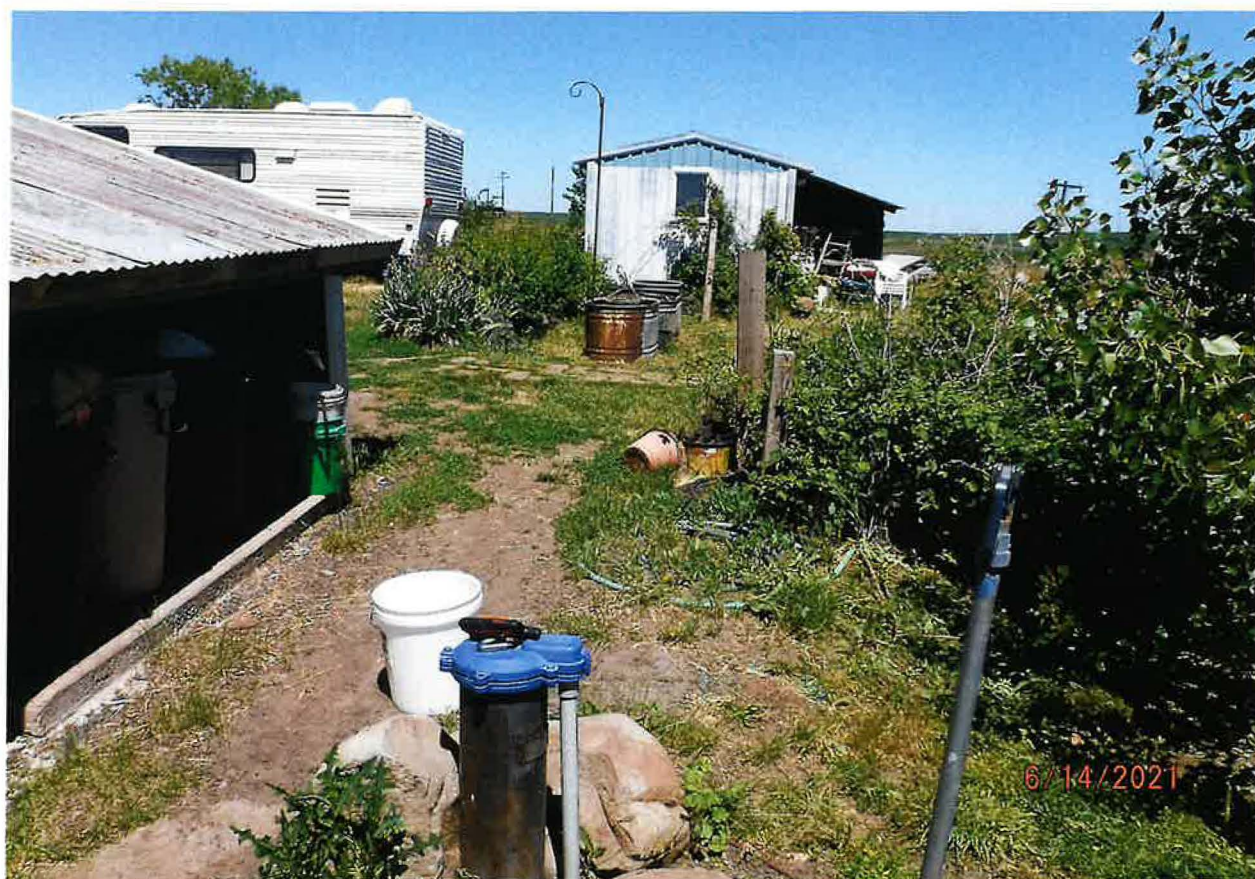
PUMP EQUATIONS

WATER RIGHT No. 85-15783

D0061163	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
$Q = \frac{HP \cdot 8.8 \cdot \text{Eff}}{H}$	1	264.0816	0.8	160	45
$Q =$ 0.027 cfs 12.0 gpm					



FIELD EXAM DATE 6/14/2021



POD – GROUNDWATER WELL D0061163



WELL D-TAG D0061163



DIVERSION WORKS – PIPE FROM WELL DIRECT TO PRESSURE TANK



WATER CONVEYANCE SYSTEM



DOMESTIC POU



STOCKWATER POU





STOCKWATER POU – 25 DOG KENNEL





STOCKWATER POU



IRRIGATION POU



IRRIGATION POU





IRRIGATION POU – SOAKER HOSE WATER LINE SYSTEM





IRRIGATION AND STOCKWATER USE BY FROST FREE HYDRANT TO HOSE, DRIP, SPRINKLER, & WATER
TANK TRAILER





IRRIGATION POU – ALONG DRIVEWAY FROM ROAD



IRRIGATION POU – INSIDE KENNEL AREA