

Method of Determination: Arcmap and Field Exam.

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

X 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.

X

Aerial Photo Attached (required for irrigation of 10+ acres).

X

Photo of Diversion and System Attached

X

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0054348	AERMOTOR	5			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: 5 Gallon Bucket test completed see below

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method: 5 gal / 17 sec x 60 sec/min = 17 gpm = 0.04 cfs

See attached Theoretic Pumping Equation worksheet. Theoretic pump equation calculated 17.1 gpm, and validate the 5 gal bucket test values above.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 12.1 \text{ acres} \times 4 \text{ af} = 48.4 \text{ af}$$

$$V_{D.R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.04 \text{ cfs} \times 294 \text{ days} \times 1.9835 = 23.3 \text{ af}$$

$$V = \text{Smaller of } V_{I.R} \text{ and } V_{D.R} = 23.3 \text{ af}$$

2. Volume Calculations for Other Uses:

$$\text{STOCKWATER volume} = 25 \text{ head mixed stock} \times 12 \text{ gpd} \times 365 \text{ days} = 109,500 \text{ gpy} / 325,850 \text{ gp af} = 0.4 \text{ af}$$

$$\text{Maximum diversion volume} = 23.3 \text{ af (irrigation)} + 0.4 \text{ af (stockwater)} = 23.7 \text{ af}$$

G. NARRATIVE/REMARKS/COMMENTS

Field exam with applicant, Richard Woods Jr., showed a well with 5 hp pump diverting water to storage tank. 5 gallon bucket test measurement was completed using pipe that was filling storage tank. 5 gallon bucket was filled in 17 seconds equating to 17 gpm. A theoretical pumping equation was completed that supports 17 gpm (see attached). Applicant used water for irrigation and stockwater purposes for a small horse ranch.

At time of exam, there was no home built and water was not being used for domestic purposes. The domestic component was removed at time of licensing. At time of exam, irrigation was not occurring, underground sprinkler heads were found, and irrigated area was clearly defined. It was requested that the applicant send photos when irrigation was in use, which he did (see photos attached). It was challenging to rely on arcmap aerial imagery to show irrigation, as all years showed dead grass ground at different times of capture. Incorporated Sentinel satellite imagery to further identify area of irrigation was historically put to beneficial use, and it was determined irrigation was used in past years.

Irrigation acreage was traced out equaling 12.1 acres, and while the standard rate would be 4 af per acre for this property applicant's well can't produce that volume. Thus, the alternate measurement (V_{DR}) value of 23.3 af maximum diversion volume will be applied at licensing. Stockwater volume = 25 head of mixed stock x 12 gpd x 365 days = 109,500 gallons per year. 109,500 gallons / 325850 gal per af = 0.4 af. Total maximum diversion volume applied to license = 23.3 af + 0.4 af = 23.7 af.

Conditions 26A, 046, and 132 were removed from license. All other conditions will remain on license. Water right 85-7632 overlaps this water right, but is for municipal purposes, and there are no overlap concerns.

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	02/15 to 11/30	0.02 CFS	23.3 AF
STOCKWATER	01/01 to 12/31	0.02 CFS	0.4 AF

Totals: 0.04 CFS 23.7 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 - Water Resource Agent

Field Examiner's Name Adam F. Smith Date 4/16/2020

Reviewer [Signature] Date 4/16/2020

State of Idaho
Department of Water Resources
Attachment to Field Exam
85-15696

STOCKWATER system diagram.

05W



- 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
85-15696

IRRIGATION system diagram.



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

0 0.0425 0.085 0.17 Miles



THEORETICAL PUMPING EQUATION FOR WR# 85-15696

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to be at 835 ft, and running at 40 psi.

<u>PUMP EQUATIONS</u>						
WATER RIGHT No.		85-15696				
		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	927.517	0.8	835	40
Q =		0.038 cfs	17.1 gpm			

INSTALLED
PUMP 1-25-15

AERMOTOR®

89216-00SS

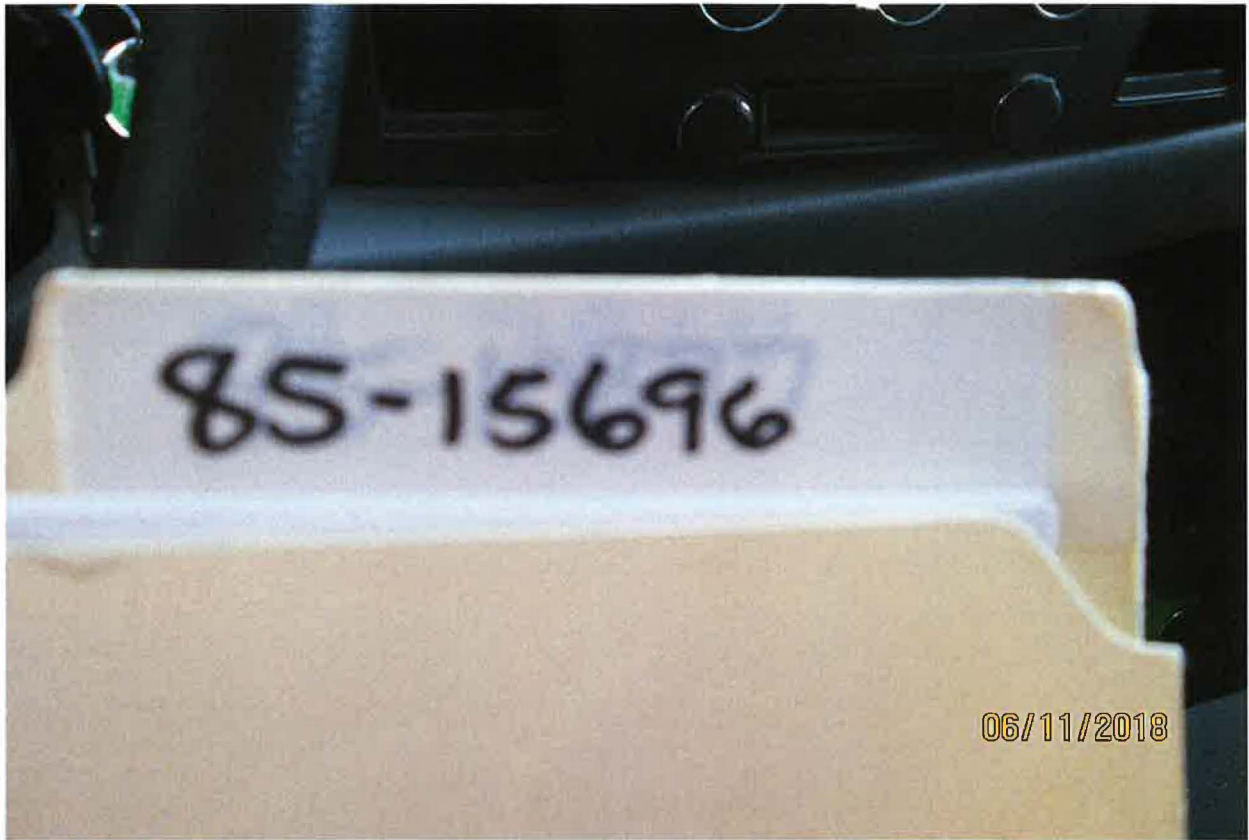
A+ 16-500 PEA

5HP 16GPM

1

Code: 001C130

Assembled in USA



POD



POD - D0054348



PUMP CONTROLLER



PRESSURE TANK



STORAGE TANK



POU





POU – STOCK BARN





POU - IRRIGATION SYSTEM





POU – IRRIGATION SPRINKLER HEAD



POU – IRRIGATION



POU – IRRIGATION



POU – PRESSURIZED SPRINKLER SYSTEM IN USE



POU – IRRIGATION

