

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 43-13538
Exam Date: 04/19/2017

1. Current Owner:
DONALD F JOHNSON PO BOX 761 BURLEY ID 83318 (208) 670-4194
2. Accompanied by: Donald Johnson and Bill Mills (IDWR employee)
Phone No: (208) 670-4194
Address: P.O. Box 761 Burley Idaho 83318
Relationship to Permit Holder: Permit Holder

3. **SOURCE:**
UNNAMED SPRING

TRIBUTARY:
SINKS

B. OVERLAP REVIEW

1. Other water rights with the same place of use: stock water right 43-10207 (see narrative) owned by the applicant Donald F. Johnson
2. Other water rights with the same point-of-diversion: none

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

UNNAMED SPRING SE¼NW¼NE¼ Sec. 15, Twp 12S, Rge 28E, B.M. CASSIA County

Method of Determination: GPS'd with Garmin receiver "GPSmap 60CSx"

2.

PLACE OF USE: STOCKWATER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
12S	28E	4									X					X	X		
12S	28E	9									X								
12S	28E	15					X					X							

Method of Determination: GPS'd with Garmin receiver "GPSmap 60CSx"

- 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.

D. FLOW MEASUREMENTS

2. Measurements: No measurement taken per IDAPA Rule 37.03.02 (Rule 35)

E. FLOW

_____ Additional Computation Sheets Attached

CALCULATIONS

Measured Method: Hazen Williams Full Pipe Flow Calculation: from
<http://onlinecalc.sdsu.edu/onlinehazenwilliams.php>

$$Q = 0.432 C_1 D^{2.63} S^{0.54}$$

Where:

C_1 = roughness coefficient D = Diameter in feet S = Slope (elevation drop/distance)

C_1 = 150 D = 0.104 S = 185' elevation drop/7097' = 0.029

$$Q = (0.432 \times 150) \times (.104)^{2.63} \times (.029)^{0.54}$$

$$Q = 64.8 \times (.0026) \times (.148)$$

$$Q = 0.03 \text{ cfs}$$

F. VOLUME CALCULATIONS

1. Volume Calculations for Other Uses: Stock water

300 range cattle + 6 horses = 306 x 12 gpd/head = 3672 gpd:

3672 gpd x 365 days/325850 gal/AF = 4.11 AFA

8 round troughs (6 ft. diameter by 2 ft. depth) = 1691.2 gallons combined (includes overflow troughs)

7 rectangular troughs (3 ft. by 12 ft. by 2 ft. in depth) = 3231.4 gallons combined (includes overflow troughs)

G. NARRATIVE/REMARKS/COMMENTS

Permit 43-13538 is for 0.07 cfs for stock water at four places of use for up to 300 range cattle and 6 horses and shall not exceed 13,000 gallons per day. Application for permit was filed by Don Johnson on November 30, 2007 and proof of beneficial use was submitted by Don Johnson on April 10, 2008.

Don Johnson took us for a tour of the stock water improvements in pastures on his property on April 19, 2017. The stock water system consists of a spring that supplies gravity-fed water through 1 1/4 inch poly pipe to troughs. Water at the spring is diverted at a buried wood collection box fed by buried plastic-covered perforated sewer pipe laid out in a herringbone pattern. The spring is 5001 feet above sea level and supplies troughs at places of use that range from 4816 to 4968 feet above sea level (elevation data obtained using Google™ Earth). We observed 8 round troughs that measure 24 inches in depth by 6 feet in diameter and 7 rectangular troughs that measure 3 feet by 12 feet by 24 inches in depth. During the field exam we observed two additional places of use (NE1/4SW1/4 Sec 04, Twp 12S, Rge 28E and SW1/4SE1/4 Sec 04, Twp 12S, Rge 28E) and an application for amendment was sent to the applicant which was signed and returned, with a \$100.00 filing fee, to IDWR southern office on April 26, 2017.

With the amendment the permit can be licensed for a total of six places of use. Also during the field exam Don Johnson filled out a change in address form to update his telephone number.

Note that permit 43-13538 was flagged and includes a condition indicating that the right is for the diversion of Trust Water. However, the right is for a surface water source that would eventually be tributary to the Snake River above Milner Dam (located within Basin 43). Surface water sources tributary to the Snake River above Milner Dam are not Trust Water by definition. Therefore, it is recommended that the Trust Water flag and any Trust Water conditions be removed when license 43-13538 is issued.

IDWR guidelines suggest 12 gallons per day for range cows and 12 gallons per day for horses. Calculated water use is 3672 gallons per day for 300 range cattle and 6 horses. The 8 round troughs hold approximately 1691 gallons and the 7 rectangular troughs hold approximately 3231 gallons.

A review indicates a POU overlap with stock water right 43-10207 (0.07cfs) in NE1/4NW1/4 of Sec. 15, Twp 12S Rge 28E. Stock water right 43-10207 is a completely separate system of pipes and troughs and has a separate POD (Butler Spring). Water right 43-10207 is limited to 13,000 gallons per day, and is also approved for 300 cows and 6 horses.

Analysis of the diversion rate was performed using the Hazen Williams Full Pipe Flow Calculation that indicates the stock water system is capable of a diversion rate of up to 0.03 cfs. which is representative of the developed system.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
STOCKWATER	01/01 to 12/31	0.03 CFS	
<u>Totals:</u>		0.03 CFS	

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

Field Examiner's Name  Date 8/28/2017

Reviewer _____ Date _____



Figure 1: 12S28E15NENW. Elevation 4972 ft. (west of unnamed spring). First trough fed by spring with sub-surface inlet control valve/overflow control valve.



Figure 2: 12S28E15NENW. Elevation 4972 ft. Looking south to the overflow troughs fed by 1 ¼ inch poly pipe from sub-surface inlet control valve/overflow control valve



Figure 3: 12S28E15NWSW. Elevation 4896 ft. Troughs (looking south toward Shirley Creek).



Figure 4: 12S28E09NESW Elevation 4815 ft. Looking northwest



Figure 5: 12S28E09NESW Elevation 4815 ft. Overflow troughs.

Tire Troughs: No Photo

12S28E04SWSE Elevation 4872ft. Two tire troughs added by Don Johnson with Application for Amendment received 04/26/2017.



Figure 6: 12S28E04NWSE Elevation 4847 ft. Troughs being utilized by the applicants range cattle.



Figure 7 (above) 12S28E04NESW Elevation 4829 ft. Trough

Figure 8 (below) 12S28E04NESW Elevation 4827 ft. Overflow trough

The POU with these two troughs added with Application for
Amendment received 04/26/2017 by Don Johnson



$$Q = (.432 C_1) \times D^{2.63} \times S^{0.54}$$

C_1 = Roughness coefficient

D = Pipe Diameter (ft).

S = Slope (elevation/distance)

$$S = \frac{185}{7097} = (.026)^{.54} = .139$$

$$D = (.104)^{2.63} = .0026$$

$$C_1 = 150$$

$$= 3.5$$

$$64.8 \times$$

Elevation:

POD: 5001 ft.

Distance from POD:

POD: ~~0~~ Google Earth

ArcMap

Trough 1: 4968 ft. (33)

Trough 1: 715 ft → 1161 ft

Trough 2: 4895 ft. (106)

Trough 2: 3788 ft 3682 ft

Trough 3: 4816 ft. (185)

Trough 3: 6600 ft → 7097 ft

Trough 4: 4846 ft. (155)

Trough 4: 9813 ft 10161 ft.

Trough 5: 4829 ft. (172)

Trough 5: 9980 ft → 10470

Tire Troughs: 4870 ft. (131)

Tire Trough: 7916 ft

8376 ft.