

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-15093

Exam Date: 2/6/2014

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? ☒ Yes ☐ No
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other < >
2. Current Owner: Name: Jim Mead
Owner of Record Correct? ☒ Yes ☐ No
Address of Record Correct? ☒ Yes ☐ No
If No: Address
3. Beneficial Use Fees have been paid: ☒ Yes ☐ No Receipt No: CO97961
4. SOURCE TRIBUTARY
Springs Grays Creek
Method of Determination: Applicant submitted an aerial photo of the property identifying a diversion from this spring.
Change in Source: ☐ Yes ☒ No

B. OVERLAP REVIEW

1. Other water rights with the same place of use: Overlap? ☐ Yes ☒ No

Water Right No.	Source	Purpose of Use	Basis

Comments: No other water rights exist on property

2. Other water rights with the same point of diversion: Overlap? ☐ Yes ☒ No

Water Right No.	Source	Purpose of Use	Basis

Comments: There are no other diversions identified.

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Spring		SW	NW	NE	32	15N	01W	B.M.	Adams
Spring		SE	NW	NE	32	15N	01W	B.M.	Adams
								B.M.	

Method of Determination: Legal Description in permit validated by PLS data and mapping. There are 2 springs; 1 for each use.

Change in POD? ☐ Yes ☒ NoAmendment Required? ☐ Yes ☒ No

2. **PLACE OF USE:** Use: Domestic & 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	
15N	01W	32		X															

Method of Determination: Aerial map of property submitted by land owner identifies POU clearly.

Change in POU? ☐ Yes ☒ No Amendment Required? ☐ Yes ☒ No☐ Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

☒ Aerial Photo Attached (required for irrigation of 10+ acres).☐ Photo of Diversion and System Attached

4. Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
No pump in system					

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

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

2. Measurements: In-office field exam. Theoretical taken.**E. FLOW CALCULATIONS**☒ Additional Computation Sheets Attached

Measured Method: Mannings equation

Used Manning Equation for Stockwater Use. (See file attachment)

For domestic use, 0.04 cfs and irrigation of up to a half acre with an annual volume of 1.2 af is allowable per administrators memo #22.

Measurement = 0.06 cfs**Permit allowed = 0.06 cfs****License recommend for 0.06 cfs.****F. VOLUME CALCULATIONS**

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\quad \quad \quad} \times 3.5 = \underline{\quad \quad \quad}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{\quad \quad \quad} \times 214 \times 1.9835 = \underline{\quad \quad \quad}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{\quad \quad \quad}$$

2. Volume Calculations for Other Uses:

Stock water volume: 5 head (mule) * 12 gpd/head * 365 days = 21,900 gpy -> 21,900 / 325,850 = 0.067 afa

G. PURPOSE OF USE

Irrigation ☐ Yes ☒ No # Stock 5 Domestic # of Homes 1

Other: < >

Change in Purpose of Use? ☐ Yes ☒ No

Method of Determination: Verified home on property where domestic use is applied.

If Yes: From Use _____ To Use _____ Amount _____ CFS _____ AFA _____

H. NARRATIVE/REMARKS/COMMENTS

Permit 67-15093 authorized the use of 0.6 cfs of spring water for domestic and stock water purposes. The proof of beneficial use form indicates the system provides water for use in one home and waters 4 mules. There are two diversions on the property from two springs, one for each of the uses described.

Proof of beneficial use was filed on 11/13/2013

There were no problems matching ownership names with taxlot data. Latest aerial imagery and a map provided by the applicant gave enough information to accurately identify locations of diversions and use on the property.

There were no overlapping water rights or diversions on the property.

Gravity stream system for the stock water has 72 feet of ¾" galvanized iron in place before the property was owned by Mr. Mead in 2005. Since then he has fixed and flushed the system with 1" pipe. Rise and run were calculated by observing DRG topography maps and distance measuring tools through ArcMap. 0.02 cfs was applied for and the result of the theoretical calculation.

There were no details to describe the diversion system for domestic use on the property. Based on the diversion location marked on the map in relation to the home that was recently built, I was able to come up with a flow using Mannings equation. To obtain a flow rate of 0.04 cfs given the slope of the land, the water user only needs to have 1.25" pvc in place to gain this rate. This is a reasonable assumption for any system providing water to a home.

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

I. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Domestic	01/01 to 12/31	0.04	1.2
Stock water	01/01 to 12/31	0.02	0.1
	<u>Totals</u>	0.06 CFS	1.3 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

Other: < >

J. AUTHENTICATION

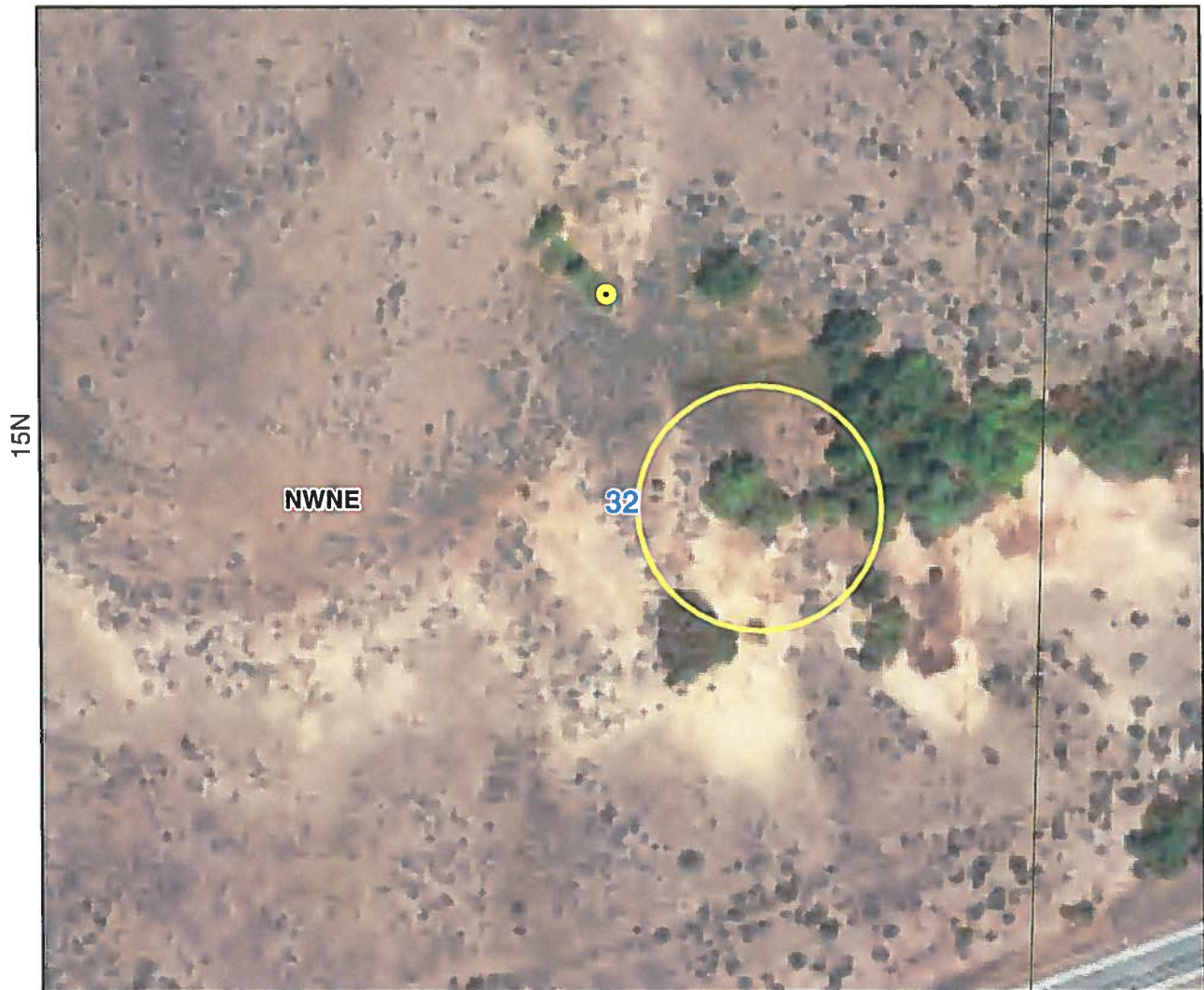
Field Examiner's Name Patrick Miller Date 02/11/14

Reviewer David A. Miller Date 2-14-14

State of Idaho
Department of Water Resources
Field Exam Map
67-15093

This map depicts the STOCKWATER place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

01W



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

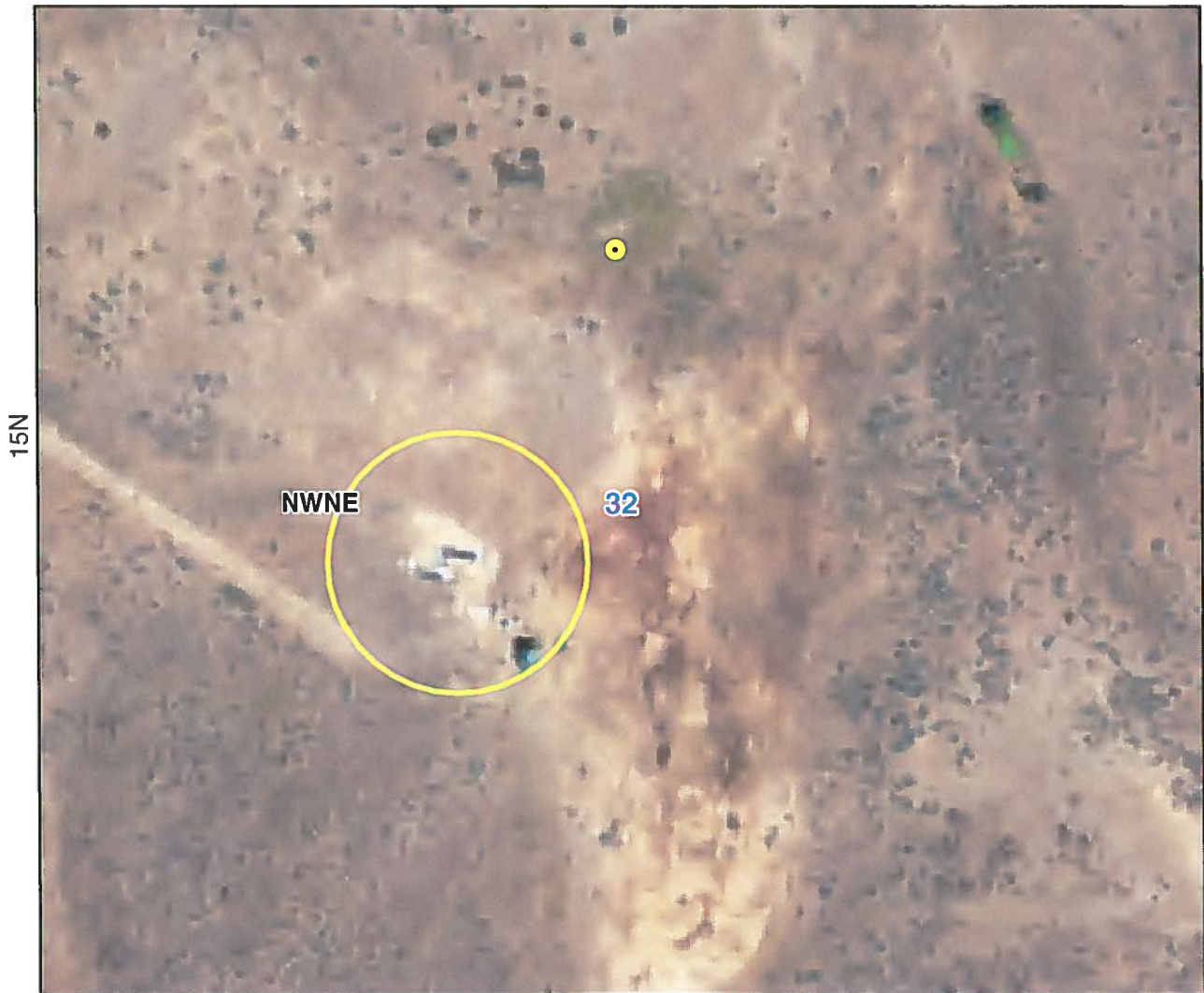
0 0.0125 0.025 0.05 Miles



State of Idaho
Department of Water Resources
Field Exam Map
67-15093

This map depicts the DOMESTIC place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

01W



15N

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

0 0.0125 0.025 0.05 Miles



THEORETICAL: STOCK WATER

Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

S = 0.7639 ft/ft
 n = 0.016 manning's coefficient
 d = 0.8 pipe diameter (inches)
 D = 0.06 pipe diameter (feet)
 r = 0.03 pipe radius (feet)
 A = 0.00 area (ft²)
 WP = 0.20 wetted perimeter (ft)
 R = 0.02 hydraulic radius (ft)

Q = 0.02 flow rate (CFS)

Channel Slope

Slope Options

☐ Manual Entry
 ☒ Slope Calculator

Slope Calculator

Rise = 55 feet

Run = 72 feet

Slope, S = 0.7639 ft/ft

Pipe Material, (n):

galvanized iron

Pipe Diameter (inches)

1.5 inches

READ ME

Manning's Equation (1), is an empirical formula that solves for velocity (v) in a open channel under uniform flow. The continuity equation (2) when combined with equation (1) allows for the computation of the flow rate (Q) in an open channel under uniform flow.

In equations (1) and (3), η refers to Manning's Coefficient of Roughness and can be found in tabulated form for many open channel types. R is the hydraulic radius of the open channel and is equal to the area of the open channel divided by the wetted perimeter, $R = A/P$. S is the slope of the energy grade line which is often assumed to be equal to the slope of the channel.

Because Manning's Equation is empirical the units are not arbitrary. To obtain a velocity in ft/s and a flow rate in ft³/s, area must be reported in ft², hydraulic radius must be reported in ft, and S must be reported in ft/ft. Manning's Coefficient of Roughness is a unitless constant.

$$(1) \quad v = 1.49 \left(\frac{1}{\eta} \right) \left(R^{\frac{2}{3}} \right) \sqrt{S}$$

$$(2) \quad Q = vA$$

$$(3) \quad Q = 1.49 \left(\frac{1}{\eta} \right) (A) \left(R^{\frac{2}{3}} \right) \sqrt{S}$$

THEORETICAL: DOMESTIC

Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

S = 0.1176 ft/ft
 n = 0.009 manning's coefficient
 d = 1.3 pipe diameter (inches)
 D = 0.10 pipe diameter (feet)
 r = 0.05 pipe radius (feet)
 A = 0.01 area (ft²)
 WP = 0.33 wetted perimeter (ft)
 R = 0.03 hydraulic radius (ft)

Q = 0.04 flow rate (CFS)

Channel Slope

Slope Options

☐ Manual Entry
 ☒ Slope Calculator

Slope Calculator

Rise = 20 feet

Run = 170 feet

Slope, S = 0.1176 ft/ft

Pipe Material, (n): plastic (pvc, abs)

Pipe Diameter (inches) 1.5 inches

READ ME

Manning's Equation (1), is an empirical formula that solves for velocity (v) in a open channel under uniform flow. The continuity equation (2) when combined with equation (1) allows for the computation of the flow rate (Q) in an open channel under uniform flow.

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