

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 74-15702

Exam Date: 6/18/2014

1. Current Owner: R TERRY LOFT
167 WIMPEY CREEK RD
SALMON ID 83467
(208)756-1497
2. Accompanied by: R. Terry Loft
Phone No:
Address:
Relationship to Permit Holder:

3. **SOURCE**
WASTEWATER

TRIBUTARY
Wimpey Creek

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None
2. Other water rights with the same point of diversion: None

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

WASTEWATER NW1/4NW1/4 Sec. 36, Twp 21N, Rge 23E, B.M. LEMHI County

Method of Determination: Site Visit, GPS (-113.688143, 45.11545)

2.

<u>PLACE OF USE:</u>				IRRIGATION																<u>Totals</u>
Twp	Rge	Sec		NE				NW				SW				SE				
				<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
21N	23E	35		.3																.3

Total Acres: 0.3

Method of Determination: Site Visit

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.

<u>Well or Diversion</u> <u>ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge</u> <u>Size</u>
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*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.

<u>Measurement</u> <u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
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2. Measurements: This is a closed gravity feed system.. There is no way to measure the actual inflow. The Hazen Williams Equations was used to obtain a theoretical system capacity. This produced a theoretical maximum diversion rate of 0.99 cfs for a 4" pipe and 0.03 cfs for a 1" pipe. The diversion rate was limited by the permit.

E. FLOW CALCULATIONS

___x___ Additional Computation Sheets Attached

Measured Method:

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.3 \text{ acres} \times 3.5 \text{ AF} = 1.05 = 1.1 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = .01 \times 215 \times 1.9835 = 4.26 = 4.3 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 1.1 \text{ AF}$$

2. Volume Calculations for Other Uses: NONE

G. NARRATIVE/REMARKS/COMMENTS

The point of diversion was changed upon development to improve flow efficiency. An amendment will be required to correct the point of diversion. The inlet for the diversion system is a screen 4" pipe, after 200 feet the pipe size is reduced to 3", after 50 feet the pipe size is reduced to 2". 1" pipe with bubblers are used to facilitate the irrigation of each tree.

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>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	04/01 to 11/01	0.010 CFS	1.1 AF
<u>Totals:</u>		0.010 CFS	1.1 AF

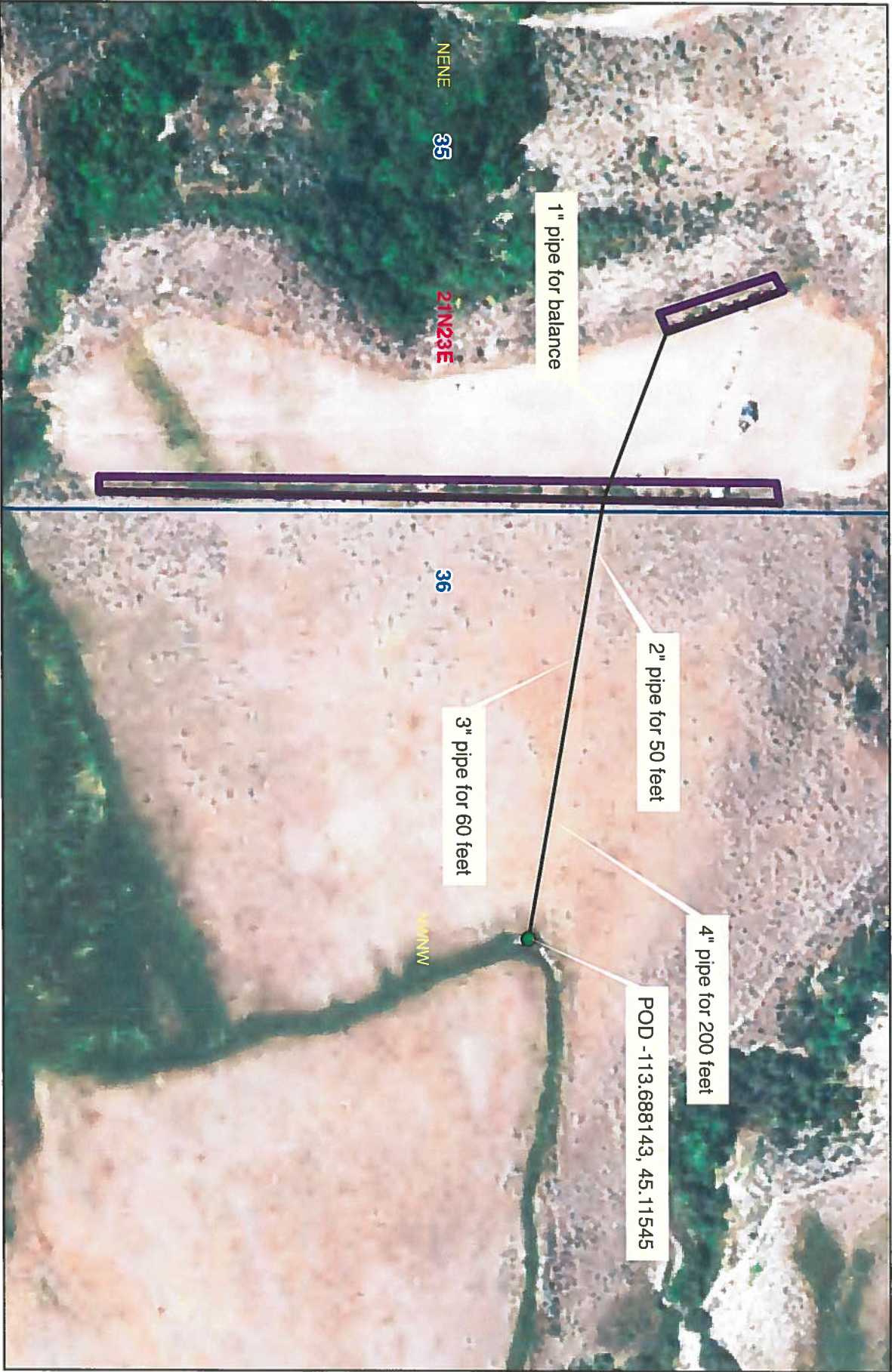
2. Recommended Amendments

___x___ 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 ___ Other

I. AUTHENTICATION

Field Examiner's Name Kerrie Matthews Date 6-18-14
 Reviewer James Cefalo Date 12/18/14



Field Exam - 74-15702 - June 18, 2014

— Distribution System 74-15702

Place of Use 74-15702

Township/Range

Sections

QA



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POD – 113.688143, 45.11545



Splitter 113.68963, 45.111731



Tree line on West side – 8 bubblers



Tree line on the East side, looking South 15 bubblers



Tree line on the East side, looking North, 15 bubblers

AJ Design

Math Geometry

Physics Force

Fluid Mechanics

Finance

Mortgage

Hazen Williams Equations Formulas Calculator**Hydraulics and Fluid Mechanics**

Solving for flow rate or discharge

$$Q = 0.285CD^{2.63}s^{0.54}$$

Note: Valid only for ambient temperatures and turbulent flow

Inputs:Hazen Williams friction coefficient
(C)

150

PVC Pipe

pipe diameter (D)

0.333333333

foot

4" pipe

hydraulic grade line slope (s)

.09

Slope = $\frac{\text{Rise}}{\text{Run}} = \frac{18}{200}$

Calculate

Conversions:

Hazen Williams friction coefficient (C)

=150

=150

pipe diameter (D)

=0.333333333

foot

=3.999999996

inch

hydraulic grade line slope (s)

=.09

=0.09

Solution:

flow rate or discharge (Q)

=446.31846032755

gallon/minute

Other Units:

=0.028158319319011	meter ³ /second
=101369949.54844	cc/hour
=28158.319319011	centimeter ³ /second
=101369949.54844	centimeter ³ /hour
=16894.991591373	deciliter/minute
=59.664099731287	foot ³ /minute
=0.99440166218812	foot ³ /second
=446.31846032755	gallon/minute
=2432878.7898087	liter/day
=1689.4991557617	liter/minute
=28.158319319011	liter/second
=2432.8787891571	meter ³ /day
=1.6894991591373	meter ³ /minute
=101369949.54844	milliliter/hour
=1689499.1591407	milliliter/minute

Change Equation

Select an equation to solve for a different unknown

Mean Fluid Velocity

$v = 1.318Cr^{0.63}s^{0.54}$	mean flow velocity
$C = \frac{v}{1.318r^{0.63}s^{0.54}}$	friction coefficient
$r = \left(\frac{v}{1.318Cs^{0.54}} \right)^{\frac{1}{0.63}}$	hydraulic radius
$s = \left(\frac{v}{1.318Cr^{0.63}} \right)^{\frac{1}{0.54}}$	hydraulic grade line slope

Fluid Flow Rate

$Q = 0.285CD^{2.63}s^{0.54}$	discharge or flow rate
$C = \frac{Q}{0.285D^{2.63}s^{0.54}}$	friction coefficient
$D = \left(\frac{Q}{0.285Cs^{0.54}} \right)^{\frac{1}{2.63}}$	pipe diameter

[AJ Design](#)[Math Geometry](#)[Physics Force](#)[Fluid Mechanics](#)[Finance](#)[Mortgage](#)**Hazen Williams Equations Formulas Calculator****Hydraulics and Fluid Mechanics**

Solving for flow rate or discharge

$$Q = 0.285CD^{2.63}s^{0.54}$$

Note: Valid only for ambient temperatures and turbulent flow

Inputs:Hazen Williams friction coefficient
(C)

PVC Pipe

pipe diameter (D)

1" pipe

hydraulic grade line slope (s)

 $S = \frac{\text{Rise}}{\text{Run}} = \frac{18}{200}$ **Conversions:**

Hazen Williams friction coefficient (C)

=150

=150

pipe diameter (D)

=0.083333333

foot

=0.999999996

inch

hydraulic grade line slope (s)

=.09

=0.09

Solution:

flow rate or discharge (Q)

=11.647348484271

gallon/minute

Other Units:

=0.00073483350341193 meter³/second
 =2645400.6122829 cc/hour
 =734.83350341193 centimeter³/second
 =2645400.6122829 centimeter³/hour
 =440.90010204627 deciliter/minute
 =1.5570240161266 foot³/minute
 =0.025950400268776 foot³/second
 =11.647348484271 gallon/minute
 =63489.614711653 liter/day
 =44.090010116536 liter/minute
 =0.73483350341193 liter/second
 =63.489614694648 meter³/day
 =0.044090010204627 meter³/minute
 =2645400.6122829 milliliter/hour
 =44090.010204716 milliliter/minute

Change Equation

Select an equation to solve for a different unknown

Mean Fluid Velocity

$v = 1.318Cr^{0.63}s^{0.54}$	mean flow velocity
$C = \frac{v}{1.318r^{0.63}s^{0.54}}$	friction coefficient
$r = \left(\frac{v}{1.318Cs^{0.54}} \right)^{\frac{1}{0.63}}$	hydraulic radius
$s = \left(\frac{v}{1.318Cr^{0.63}} \right)^{\frac{1}{0.54}}$	hydraulic grade line slope

Fluid Flow Rate

$Q = 0.285CD^{2.63}s^{0.54}$	discharge or flow rate
$C = \frac{Q}{0.285D^{2.63}s^{0.54}}$	friction coefficient
$D = \left(\frac{Q}{0.285Cs^{0.54}} \right)^{\frac{1}{2.63}}$	pipe diameter



State of Idaho

DEPARTMENT OF WATER RESOURCES

Eastern Region • 900 North Skyline Drive, Suite A • Idaho Falls, ID 83402-1718

Phone: (208) 525-7161 • Fax: (208) 525-7177 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

06/26/2014

Terry Loft
167 Wimpey Creek Rd
Salmon, ID 83467

RE: Water Right Permit No. 74-15702

Dear Permit Holder:

The Department of Water Resources is reviewing the permit referenced above prior to issuing a water right license. By issuing a license, the Department validates the extent of development that has been established in compliance with the terms of the permit.

On June 18, 2014 I was on location verifying your water use and found that the point of diversion was different than what is listed on the application for permit. Copies of the permit, a map, and the beneficial use report have been included for your reference. Before a license can be issued, your permit must be amended to depict your water use as it was actually developed.

The enclosed Application for Amendment form depicts the elements of the water right as they will appear on the license when it is issued. Please review the amendment form carefully. If you concur with the information presented, please sign the form and return it with the \$100.00 filing fee. If you do not agree with the findings of the exam please give me a call at the number above to discuss the issue.

If you have any questions, please let me know.

Sincerely,

Kerrie A Mathews
Sr. Water Resource Agent

November 24, 2014

Robert T. Loft
167 Wimpey Creek Rd.
Salmon, ID 83467-5284

**Department of Water Resources, State of Idaho
Eastern District Office
900 N. Skyline Dr., Suite A
Idaho Falls, Idaho 83402-1718**

RECEIVED

NOV 25 2014

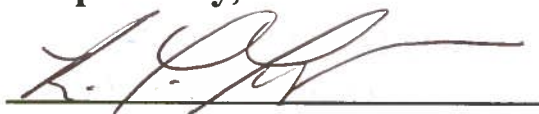
Department of Water Resources
Eastern Region

Attention: Kerrie Mathews

In response to your letter of November 20, 2014, Regarding Water Permit 74-15702, please find the accompanying form and authorization letter from Kurt Williams.

If any additional questions remain, please feel free to contact me.

Respectfully,

A handwritten signature in dark ink, appearing to read 'R. Terry Loft', is written over a horizontal line.

R. Terry Loft