

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

A. GENERAL INFORMATION

Permit No: 97-7529

Exam Date: 11/10/2015

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? ☒ Yes ☐ Noa. ☒ Irrigation of 5 acres or less

b. Storage of up to 14.6 AF for stockwater purposes only

c. ☒ Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less

d. Other < >

2. Current Owner: Name: Patrick Scott Gardenhour

Owner-of-Record Correct? ☒ Yes ☐ NoAddress-of-Record Correct? ☒ Yes ☐ No

If No: <Address>

3. Beneficial Use Fees have been paid: ☒ Yes ☐ No Receipt No: C101148*

*Permit is for 0.20 cfs. Applicant stated rate of 0.26 cfs on proof of beneficial use submitted. Fee for 0.20 cfs is \$50. Refund for \$50 should be requested by fiscal at time of generating cover letter for signed license.

4. SOURCE

Albeni Falls Creek

TRIBUTARY

Pend Oreille River

Method of Determination: Aerial photography and GIS

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
97-7528	Ground water	Domestic	License -in processing

Comments: Water right 97-7528 is also owned by Patrick Scott Gardenhour for the same property and is for domestic use including outdoor irrigation but from a different source. No other overlaps with water rights in the QQ.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: No other water rights share the same point of diversion.

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

Source	Govt. Lot	¼	¼	¼	Sec.	TWP	RGE		County
Albeni Falls Creek	6		SW	SE	17	56N	05W		Bonner

Method of Determination: The legal description in the permit is validated by PLS data and aerial photography. The point of diversion is located within the stream channel of Albeni Falls Creek. The exact location of the diversion is unknown for this review however the application map along with the field work conducted by hydrogeologist Mr. Eugene St. Godard refer that the point of diversion is within the boundaries of Mr. Gardenhour's parcels.

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

2. **LOCATION OF PLACE(S) OF USE:** Use: Domestic

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
56N	05W	17															1.2		1.2
																	L6		

Method of Determination: Aerial photography and GIS. According to 3/12/2015 taxlot information provided by Bonner County, Patrick Scott Gardenhour owns the property listed on the permit.

Change in POU? ☐ Yes ☒ No Amendment Required? ☐ Yes ☒ No

3.

☐ 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 – A photo was submitted with the field work done by hydrogeologist Mr. Eugene St. Godard and is attached.

4. Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Unknown.					

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

D. **FLOW MEASUREMENTS** – See attached field report from hydrogeologist measuring the stream flow, not the flow of the irrigation system

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

2. Measurements: In-office field exam. No measurements taken.

E. **FLOW CALCULATIONS**

☒ Additional Computation Sheets Attached

Calculated Irrigation standard = 0.04 cfs

Per App. Processing Memo #17, up to 0.03 cfs/acre for irrigation of up to 5 acres is acceptable.

1.2 acres x (0.03 cfs) = 0.036 cfs

Theoretical pump calculation – 0.05 cfs

Permit allowed = 0.04 cfs for irrigation

Permit allowed = 0.02 cfs for stockwater

Permit allowed = 0.20 cfs (includes fire protection)

License recommended for 0.04 cfs for irrigation

License recommended for 0.02 cfs for stockwater

License recommended for 0.20 cfs fire protection*

*The rate listed for fire protection is higher than the theoretical pump rate however the permit holder stated the original house burnt down due to a fire and fire protection was a concern. If the stream volume was sufficient enough and if the permit holder had a temporary pump or other means to divert water at a higher rate to fight an active fire, 0.20 cfs would be acceptable.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: No volume is recorded as the source is from a stream.
 Volume Calculations for Other Uses: Stockwater
 According to application processing memo No.3, 10 cattle x 12 gpd = 0.1 AF
 Volume Calculation for Other Uses: Fire Protection
 No volume necessary for fire protection.

G. PURPOSE OF USE

Irrigation ☒ Yes ☐ No # Stock 10 cattle (or mixed stock) Domestic # of Homes _____

Other: Fire Protection

Change in Purpose of Use? ☐ Yes ☒ No

Method of Determination: Information in the water right file is consistent with aerial photography of the property.

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

H. NARRATIVE/REMARKS/COMMENTS

Permit 97-7529 authorized a diversion of 0.20 cfs from Albeni Falls Creek for irrigation, stockwater, and fire protection use. Due to the smaller quantity of water being diverted along with only 1.2 acres of irrigation, this permit qualifies for an in-office exam.

Permit 97-7529 originated from a split of application for permit 97-7469. Application 97-7469 was protested and was eventually resolved by splitting the application into two parts (97-7528 and 97-7529). Permit 97-7528 became the permit for a single family domestic right from a ground water source served by an existing well. Permit 97-7529 became the permit for the irrigation of 1.3 acres served by surface water for the same property. As permit 97-7528 includes up to a half an acre of irrigation, the two water rights (97-7528 and 97-7529) should have limiting conditions on the total amount of area to be irrigated.

The amount of irrigation allowed under the permit was 1.3 however this number was reduced to 1.2 acres per the actual amount of irrigation observed with aerial photography during the development period of the permit.

The Water Natural Resource Group was retained by Scott Gardenhour to conduct surface water gauging activities on Albeni Falls Creek and the report is attached. The report stated that the flow of Albeni Falls Creek on October 8, 2015 was 0.04 cfs. It was also noted that at the time of this measurement, stream flows are at annual low flow conditions and the area was currently within a drought year. With this flow information confirmed, it is reasonable to say that the recommended diversion rate of 0.04 cfs is possible from Albeni Falls Creek.

Conditions-004 should be removed at licensing as the point of diversion is referenced as being on the property of Mr. Gardenhour's parcels on the application and the field report from The Water and Natural Resource Group, Inc. Condition X02 should be removed at licensing per condition suggestion. Condition X35 should be carried over to licensing however the amount of land to be irrigated is being reduced to 1.2 acres. All other conditions (R66, 077, and x15) should be carried over to licensing.

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>
Irrigation	04/01 to 10/31	0.04 cfs	
Stockwater	01/01 to 12/31	0.02 cfs	0.1 AF
Fire Protection	01/01 to 12/31	0.20 cfs	
<u>Totals</u>		0.20 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 ☐ Other

Other: < >

I. AUTHENTICATION – Steven Visosky, Water Resource Agent

Field Examiner's Name Steven Visosky Date 11/10/2015

Reviewer Patricia Skaggs Date 11/12/2015

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 97-7529
 Reviewer: Steven Visosky
 Date of Review: 11/10/2015

P/D No.:

PUMP HORSEPOWER
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

Well #1
0.75
0
5
30
0.06
28

Well #2
0.75
0
5
40
0.05
21

Well #3
0.75
0
5
50
0.04
17

0.05
22.13

The above calculates the formula =

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

A 3/4 HP pump is a standard size pump for residential irrigation systems. By looking at the field photo of the diversion culvert, it does not appear that more than 5 feet of lift would be necessary to pump water from the diversion. With the assumption of this standard size pump, it would be reasonable to say that the diversion rate of 0.04cfs could be obtained for the irrigation with reasonable operating pressures.

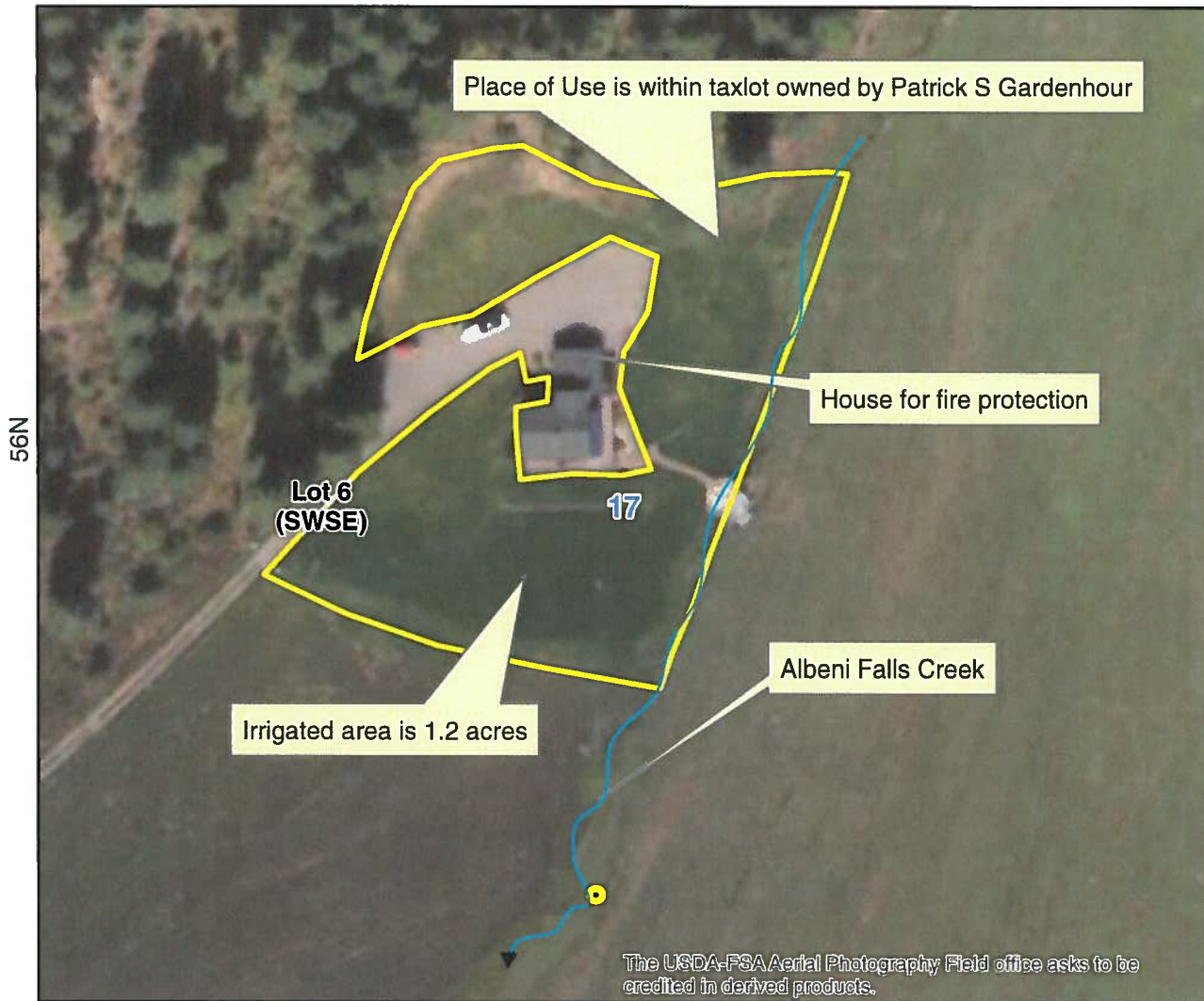
Attachment to in-office field exam

97-7529

Map created by Steven Visosky

November 11, 2015

05W



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

0 0.0125 0.025 0.05 Miles





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MEMORANDUM

To: Elizabeth A. Tellessen
Winston & Cashatt, Lawyers
601 W. Riverside Ave., Ste. 1900
Spokane, WA 99201
From: Eugene N.J. St.Godard, P.G., L.Hg., CWRE
Date: October 12th, 2015
Subject: Hydrologic Review, Scott Gardenhour Property, Oldtown, Idaho

--CONFIDENTIAL ATTORNEY WORK PRODUCT--

The Water & Natural Resource (WNR) Group, Inc. was retained by Elizabeth Tellessen, attorney for Mr. Scott Gardenhour, to review the hydrologic conditions and conduct surface water (stream) gauging activities on Albeni Falls Creek. This work is being conducted in order to support Mr. Gardenhour's water right application No. 97-7469 which is currently being reviewed.

Field work was conducted by Mr. Eugene St.Godard, a principal hydrogeologist and owner of the Water & Natural Resource Group, Inc. Gene has over 25 years' experience working in the consulting industry, specializing in hydrogeology and water rights. He has completed over 250 related ground water and/or water right projects in eastern Washington and northern Idaho. Mr. St.Godard is a licensed geologist in Idaho (#862) and Oregon, and a licensed geologist and hydrogeologist in Washington State and California. He is also a certified water right examiner in Idaho (#134) and Washington (#004).

The WNR Group visited Mr. Gardenhour's property on October 8th, 2015 which is located at 973 Freeman Lake Road near Oldtown, ID. Inspection of the hydrogeologic conditions only occurred within the property boundaries of Mr. Gardenhour's parcels. Albeni Falls Creek was flowing during our site visit and appears to be derived from a narrow incised valley located northeast of Mr. Gardenhour's house/property. Surface and groundwater is inferred to be hydraulically connected as water, which is interpreted to be mostly derived from precipitation and groundwater, enters Mr. Gardenhour's property. Albeni Falls Creek flows in a south-southwesterly direction and is contained within a shallow channel that is only 2 to 3 feet wide. The channel walls are sloughing and the creek channel is heavily choked with vegetation. The stream was flowing to the location of Mr. Gardenhour's surface water diversion which is used for irrigation. The location of the diversion is presented in Table 1 and shown in Photo 1. The creek flows past the Gardenhour house and continues in a southwesterly direction. In the southwestern part of Mr. Gardenhour's property, the creek is dammed from its natural course and all water is diverted to the south in a conveyance channel to the neighbor's property.

TABLE 1: GPS COORDINATES FOR GARDENHOUR STREAM DIVERSION

Station No.	Latitude	Longitude
GRDNHR	N48.19804	W-116.98781



Photo 1: Picture of surface water diversion used for irrigation of lawn.

In order to collect a flow of the creek, a straight channelized section of the creek was selected approximately 20-feet downstream of the diversion point. Stream gauging was conducted using a FlowTracker Handheld ADV (Acoustic Doppler Velocimeter) flow meter produced by SonTek/YSI Inc. Data is analyzed using Firmware Version 3.7 and the Smart QC Software Version 2.30. Measurements are collected at the transect station by measuring depth of water and collecting a velocity reading at $0.6 \times \text{depth}$ (Mid Section Discharge Equation method). Due to the narrow channel, measurements were collected at approximately every 0.25 foot across the stream section. The software then computes a mean discharge velocity for the stream. Parameters for the instrument are set to: 1) 30 second average time, 2) Discharge Mode, 3) 0.0 salinity, and 4) English units.

Table 2 presents the results of the measurement made on October 8th, 2015.

TABLE 2: SUMMARY OF STREAM FLOW MEASUREMENTS

Station	DATE	Time (ending)	Stream Width (ft)	Mean Depth (ft)	Mean Temp (F)	Mean Velocity (ft/s)	Total Discharge (cfs)
GRDNHR	10/8/2015	11:47	1.75	0.141	52.65	0.1626	0.0400

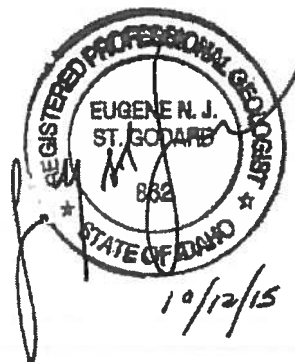
Flow in the creek was observed throughout Mr. Gardenhour's property. However, flow appeared to be obstructed beyond the diversion in the conveyance channel due to sloughing of sides and abundant vegetation. A good location to collect an additional flow in the constructed conveyance channel could not be conducted due to the poor conditions in the channel. But water was still present in the channel.

It should be noted that the measurement collected on October 8th is at a time when typically the hydrograph of creeks in this area are at annual low flow conditions. Also, it should be noted that the area is currently within a drought year. Therefore the flow which is currently observed can be inferred to be representative of the yearly low flow in a very low precipitation year. Essentially representative of the worst case scenario. Flow at the time of this site visit was recorded at 0.04 cfs. In my professional opinion, flows in higher precipitation years will most likely be greater than those observed at the current time. It should also be noted that flows within Albeni Creek are being restricted from the abundant vegetation within the creek (see Photo 2) and the sedimentation of the channel.



Photo 2: View looking upstream from diversion point showing existing condition of stream channel.

This Memorandum was prepared by:
Mr. Eugene St. Godard,
#862 licensed Geologist in Idaho.





Discharge Measurement Summary

Date Generated: Mon Oct 12 2015

File Information

File Name GRDNHR.WAD
Start Date and Time 2015/10/08 11:47:00

Site Details

Site Name
Operator(s)

System Information

Sensor Type FlowTracker
Serial # P3683
CPU Firmware Version 3.9
Software Ver 2.30
Mounting Correction 1.0%*

Units (English Units)

Distance ft
Velocity ft/s
Area ft²
Discharge cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.8%	5.8%
Velocity	3.2%	24.1%
Width	0.3%	0.3%
Method	4.2%	-
# Stations	6.6%	-
Overall	8.5%	24.8%

Summary

Averaging Int. 30 # Stations 8
Start Edge LEW Total Width 1.750
Mean SNR 32.8 dB Total Area 0.246
Mean Temp 52.65 °F Mean Depth 0.141
Disch. Equation Mid-Section Mean Velocity 0.1626
Total Discharge 0.0400

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:46	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	11:49	0.50	0.6	0.200	0.6	0.080	0.0474	1.00	0.0474	0.075	0.0036	8.9
2	11:49	0.75	0.6	0.200	0.6	0.080	0.1064	1.00	0.1064	0.040	0.0043	10.6
3	11:50	0.90	0.6	0.150	0.6	0.060	0.1425	1.00	0.1425	0.026	0.0037	9.3
4	11:51	1.10	0.6	0.150	0.6	0.060	0.1663	1.00	0.1663	0.030	0.0050	12.5
5	11:52	1.30	0.6	0.150	0.6	0.060	0.0987	1.00	0.0987	0.030	0.0030	7.4
6	11:55	1.50	0.6	0.200	0.6	0.080	0.4563	1.00	0.4563	0.045	0.0205	51.3
7	11:55	1.75	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.



Discharge Measurement Summary

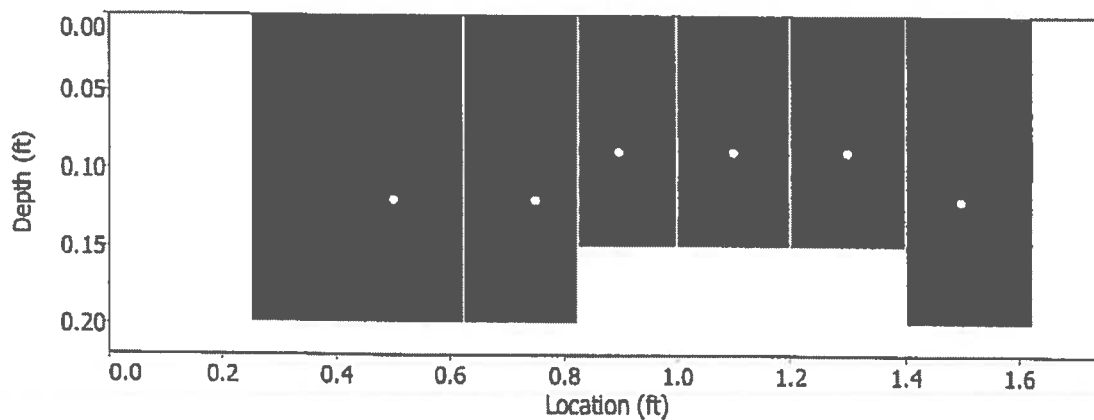
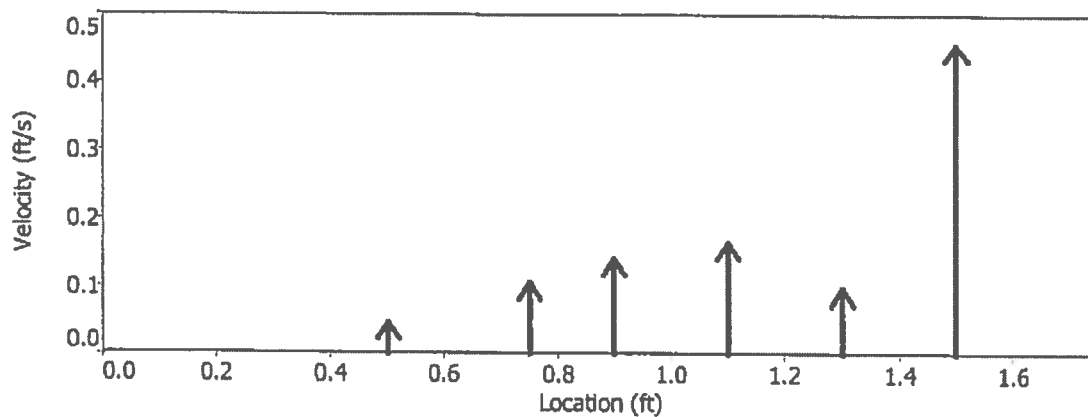
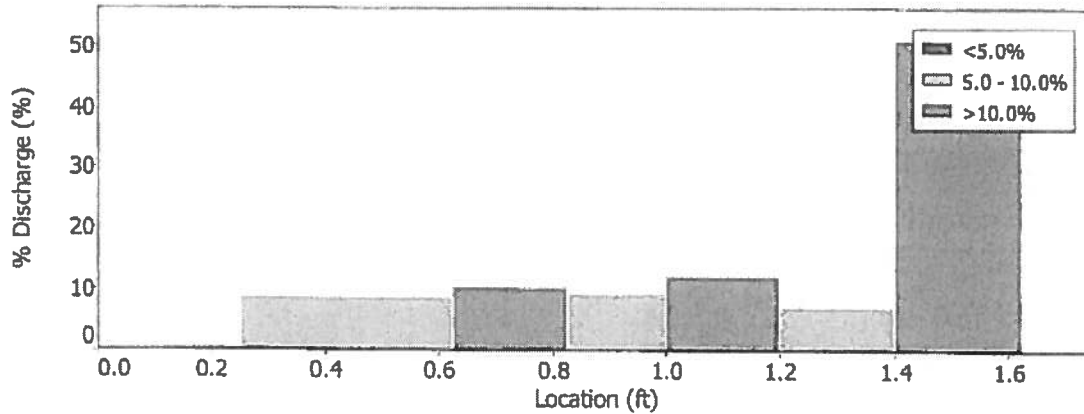
Date Generated: Mon Oct 12 2015

File Information

File Name GRDNHR.WAD
Start Date and Time 2015/10/08 11:47:00

Site Details

Site Name
Operator(s)





Discharge Measurement Summary

Date Generated: Mon Oct 12 2015

File Information

File Name GRDNHR.WAD
Start Date and Time 2015/10/08 11:47:00

Site Details

Site Name
Operator(s)

Quality Control

St	Loc	%Dep	Message
Data file was originally recorded with a mounting correction of 0.0%. It has been adjusted for a mounting correction of 1.0%.			
1	0.50	0.6	SNR (44.0) is different from typical SNR (32.8)
		0.6	Boundary QC is Good; possible boundary interference
2	0.75	0.6	Boundary QC is Good; possible boundary interference
4	1.10	0.6	Boundary QC is Poor; possible boundary interference
5	1.30	0.6	Boundary QC is Fair; possible boundary interference

Water Right	97-7528	Y	GARDENHOUR, PATRICK SCOTT	GROUND WATER	POD	X	0	Permit holders domestic use
Water Right	97-7528	Y	GARDENHOUR, PATRICK SCOTT	GROUND WATER	POU	X	0	Permit holders domestic use
Water Permit	97-7367	N	DOCKINS, BRIAN L; DOCKINS, CINDY L	UNNAMED STREAM	POD		0	Not in same QQ
Water Permit	97-7367	N	DOCKINS, BRIAN L; DOCKINS, CINDY L	UNNAMED STREAM	POU		1.5	Not in same QQ
Water Permit	97-7528	N	GARDENHOUR, PATRICK SCOTT	GROUND WATER	POD	X	0	Permit holders domestic use
Water Permit	97-7528	N	GARDENHOUR, PATRICK SCOTT	GROUND WATER	POU	X	0	Permit holders domestic use
Water Permit	97-7529	N	GARDENHOUR, PATRICK SCOTT	ALBENI FALLS CREEK	POD	X	0	PERMIT UNDER REVIEW
Water Permit	97-7529	N	GARDENHOUR, PATRICK SCOTT	ALBENI FALLS CREEK	POU	1.3	1.3	PERMIT UNDER REVIEW
Water Permit	97-7529	N	GARDENHOUR, PATRICK	ALBENI FALLS CREEK	POU	X	0	PERMIT UNDER REVIEW