

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 57-11838
Exam Date: 6/12/2018

1. Current Owner:
CHRIS UNRUH 25289 HIPWELL LN GRAND VIEW ID 83624 (208) 834-2879
2. Accompanied by: Chris Unruh
Phone No: 208-834-2879
Address: 25289 Hipwell Ln, Grandview, ID
Relationship to Permit Holder: Permit Holder

3. SOURCE:
SHOOFLY CREEK

TRIBUTARY:
SNAKE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
2-2176B	Snake River	Irrigation	Decree
2-2405B	Snake River	Irrigation	Decree
2-10198	Snake River	Irrigation	Decree
2-10201	Snake River	Irrigation	Decree

Comments: Water rights 2-2176B, 2-2405B, 2-10198, and 2-10201 provide for a combined water use that allows 11.70 cfs, 2702.5 af for the irrigation of 600.5 acres from the Snake River. This permit shares most of the same place of use as the Snake River rights, but the place of use for the permit does not include the Mennonite Church located at the southeast border of the place of use. This permit is from a different source, and is used mainly as a supplemental water right when the Snake River rights are not available. Therefore, the overlapping rights must be addressed in conditions.

2. Other water rights with the same point of diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
57-2228	Shoofly Creek	Irrigation	Decree
57-7100	Shoofly Creek	Irrigation	Decree

Comments: Water rights 57-2228 and 57-7100 are diverted from the same point of diversion as this permit, but that water is separated in a bubbler to different water systems for each water right. Please see the Shoofly Creek Pump Station Diagram for a better understanding of the system. Therefore, each water right can be operated individually, without any affect to the diversion rate of any of the water rights using the bubbler.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

SHOOFLY CREEK SW¼SW¼ Sec. 25, Twp 05S, Rge 03E, B.M. OWYHEE County

Method of Determination: Field exam, GPS

2.

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05S	03E	25											2.0	10.0					12.0
05S	03E	36	6.0	29.0	41.0	40.0	41.0	21.0	23.0	41.0	30.0	6.0			41.0	41.0	8.0	26.0	394.0
05S	04E	31							26.0 L 3	1.0	30.0	48.0 L 4	46.0 L 5	36.0					187.0
06S	04E	6					2.0 L 3	1.0 L 4											3.0

Total Acres: 596

PLEASE NOTE: This permit is for 130 acres within the permissible place of use described above.Method of Determination: Field Exam, aerial imagery

3.

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

X Indicate weir size/pipe as applicable.X 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

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Diversion Pump	Techno Westing House	15	P608E077024	Parma Pump	87305091GLS
Relift Pump	General Electric	75	GR303001	Cornel 30282	8.5" impeller

*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
State Office Panametric	Polysonic	Panametric	PT878	282124	403 Transducers	4/17/2018

2. Measurements: Panametric -- Average Rate of Discharge-2.74 cfs

E. FLOWX Additional Computation Sheets Attached**CALCULATIONS**

A measurement was made using the GE Panametric flow meter. A theoretical calculation was used to verify the flow measurement.

Flow measurement = 2.74 cfs

Theoretical Calculation = 2.63 cfs

At 0.02 cfs Per Acre = 130 acres X 0.02 cfs = 2.60 cfs

Permit allowed = 2.60 cfs

I am recommending a diversion rate of 2.60 cfs, since this system can easily supply the amount of water authorized by the permit.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 130 \text{ ac} \times 4.5 = 585 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 2.60 \times 260 \times 1.9835 = 1340.846 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 585 \text{ af}$$

PLEASE NOTE: A volume isn't required for this permit, since it is for irrigation from a surface water source per IDAPA Rule 37.03.02.035.01.j.viii

2. Volume Calculations for Other Uses:

N/A

G. NARRATIVE/REMARKS/COMMENTS

Water rights 57-11796 and 57-11838 belong to Mr. Chris Unruh. Dan Nelson and Chelsey Serrano conducted the field exam on these rights with Mr. Unruh present. The exam comprised of measuring the pumping rate, evaluating the place of use, and taking note of the systems in place. Dan Nelson completed the field report, since Ms. Serrano is no longer with the Department.

History:

Water permit no. 57-11838 was filed to allow irrigation of the 130 acres within the permissible place of use described in Snake River water rights 2-2176B, 2-2405B, 2-10198, and 2-10201. The Snake River rights authorized adequate water to irrigate the permissible place of use described. The Snake River rights are all delivered through the Bybee Canal, and the permit holder could not call for water in the Bybee Canal until the other water users in the canal agreed to release the water. This caused problems for the permit holder due to the poor soil being farmed. Therefore, he requested that this permit be authorized to allow him to irrigate from Shoofly Creek early in the season and late in the season after water was no longer being delivered in the Bybee Canal. The permit holder only requested the irrigation of 130 acres, which is approximately the amount of water needed to operate a single pivot. This would allow him the ability to finish up early and late water irrigation for a single pivot each year.

Applicant:

Chris Unruh is the current owner of this water right.

Points of Diversion and Diversion Rate:

Water permit no. 57-11838 is diverted from Shoofly Creek. The GIS coordinate was and can be seen in the correct location the attached map. This point of diversion has been updated based on the GPS coordinated collected. The point was moved and is within the same QQ so no changes need to be made to the license. The water from Shoofly Creek is diverted into a small pond from which a pump lifts the water from the pond and irrigates the desired POU.

During the field exam, the panametric flow meter was used to determine the appropriate flow rate to license. The average meter reading was 2.74 cfs. The water permit was permitted with 2.60 cfs. I also checked the flow rate by calculated a theoretical rate. The theoretical rate equaled 2.63 cfs. Therefore, I have recommended a diversion rate of 2.60 cfs as requested in the permit.

There are two other water rights, 57-2228 and 57-7100, that are diverted out of the same pond. The water in the pond is pumped to a bubbler through a 15 Hp Parma Pump. Please the attached Shoofly Diversion diagram for the additional information. I performed a theoretical calculation on the diversion or lift pump, and I discovered that the total diversion rate was 6.49 cfs. When all of the rights using this diversion are combined, the total diversion rate is 6.08 cfs, which is well below the 6.49 cfs capacity of the diversion/lift pump.

A combined limitation condition will be needed with 2-2176B, 2-2405B, 2-10198, and 2-10201, since these rights already authorize 0.02 cfs per acre for the acres being irrigated with this permit. The condition will limit the diversion rate to total of 2-2176B, 2-2405B, 2-10198, and 2-10201 or 11.70 cfs.

Place of Use:

Mr. Unruh used a blank map to demonstrate where 57-11838 water was being applied. This is a supplemental water right, and is used to extend the season that the canal does not run. The area that Mr. Unruh outlined provided a reasonable match to the proposed POU and the place of use for water rights 2-2176B, 2-2405B, 2-10198, and 2-10201. There is a small area in the southeast corner of the original place of use that is now owned by the Mennonite Church that is no longer owned by the permit holder. Therefore, I did not include these acres in my place of use.

Volume:

This water right was not permitted with a volume and will not be licensed with a volume because it is surface water. Water rights 2-2176B, 2-2405B, 2-10198, and 2-10201 were all decreed with a volume, so we will limit the volume when combined with those water rights to 2,700 af or 4.5 af for the 601 acres authorized by water rights 2-2176B, 2-2405B, 2-10198, and 2-10201.

Overlapping Water Rights

The place of use has overlapping water rights 2-2176B, 2-2405B, 2-10198, and 2-10201, and the point of diversion has overlapping water rights 57-2228 and 57-7100. As mentioned above there will need to be combined limitation. Also stated above, a portion of the place of use for 2-2176B, 2-2405B, 2-10198, and 2-10201 has been sold to the Mennonite Church, so there will be a discrepancy between the permissible place of use for this permit and the permissible place of use for 2-2176B, 2-2405B, 2-10198, and 2-10201.

Conditions:

Conditions 1 (004) and 3 (R65) will be carried forward to licensing. Condition 2 (121) will be changed to condition 103 and condition 4 (01J) will be changed to R43. Condition 5 (051) will be changed to 933 and 935. Condition 6 will be changed to condition X27. Condition 7 is no longer needed with the use of 933 and 935. As stated above a combined condition will be needed for the overlapping Snake River rights. It will state the following:

Rights 2-2176B, 2-2405B, 2-10198, 2-10201, and 57-11838 when combined shall not exceed a total diversion rate of 11.70 cfs, a total annual maximum diversion volume of 2700 af at the field headgate, and the irrigation of 601 acres.

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>
IRRIGATION	03/15 to 10/31	2.60 CFS	
	<u>Totals:</u>	2.600 CFS	

2. Recommended Amendments

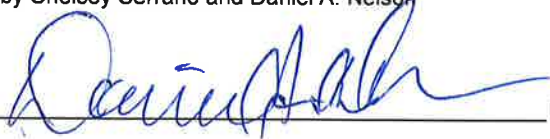
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION

Report was prepared by Chelsey Serrano and Daniel A. Nelson

Field Examiner's



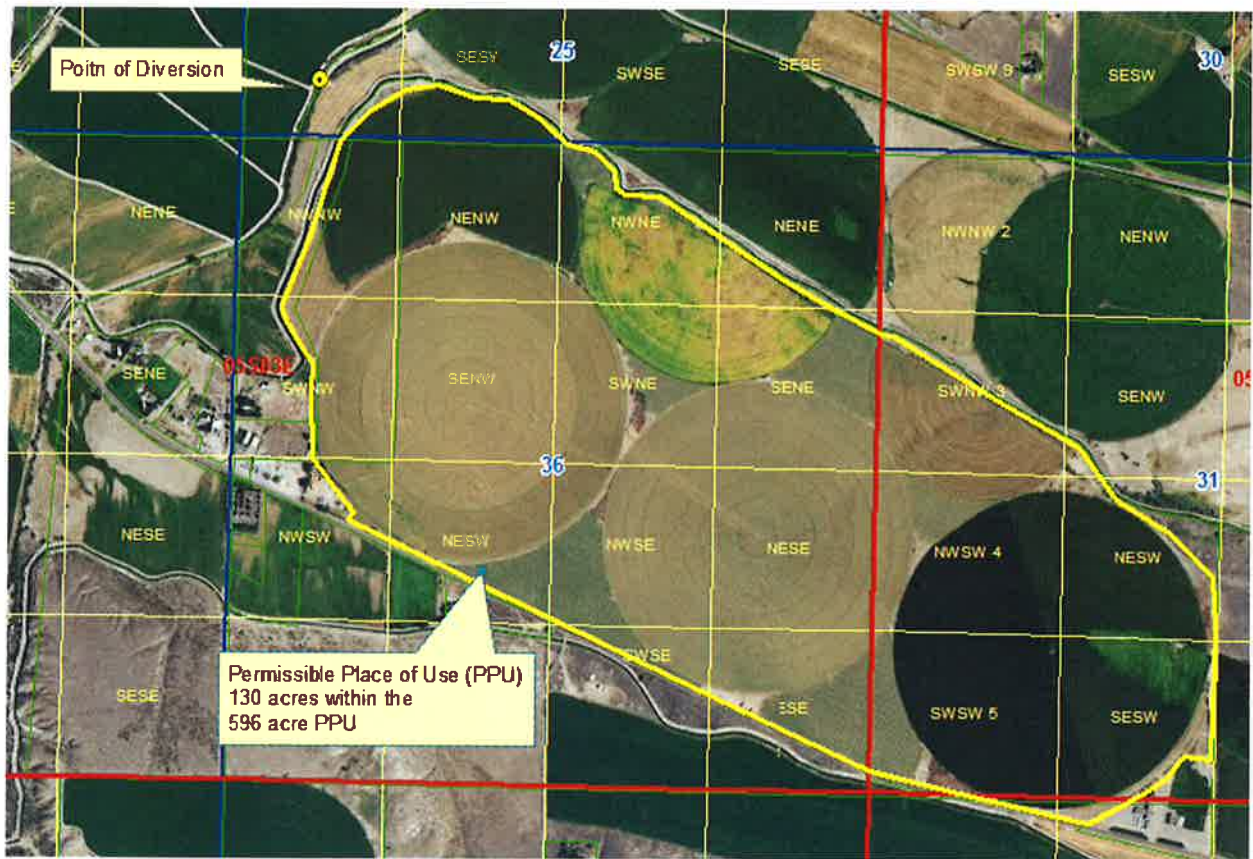
Date

7-10-18

Reviewer

Date

Permit Place of Use Map – Permit 57-11838



Shoofty Pump Station

Shoofty Point of Diversion

Chris Unruh's South Fields
57-2228

Place of Use for Cantrell
2-202A, 57-7100, ad 57-7051A

Place of use for Chris Unruh's North Fields
2-2176B
2-2405B
2-10198
and this permit 57-11038

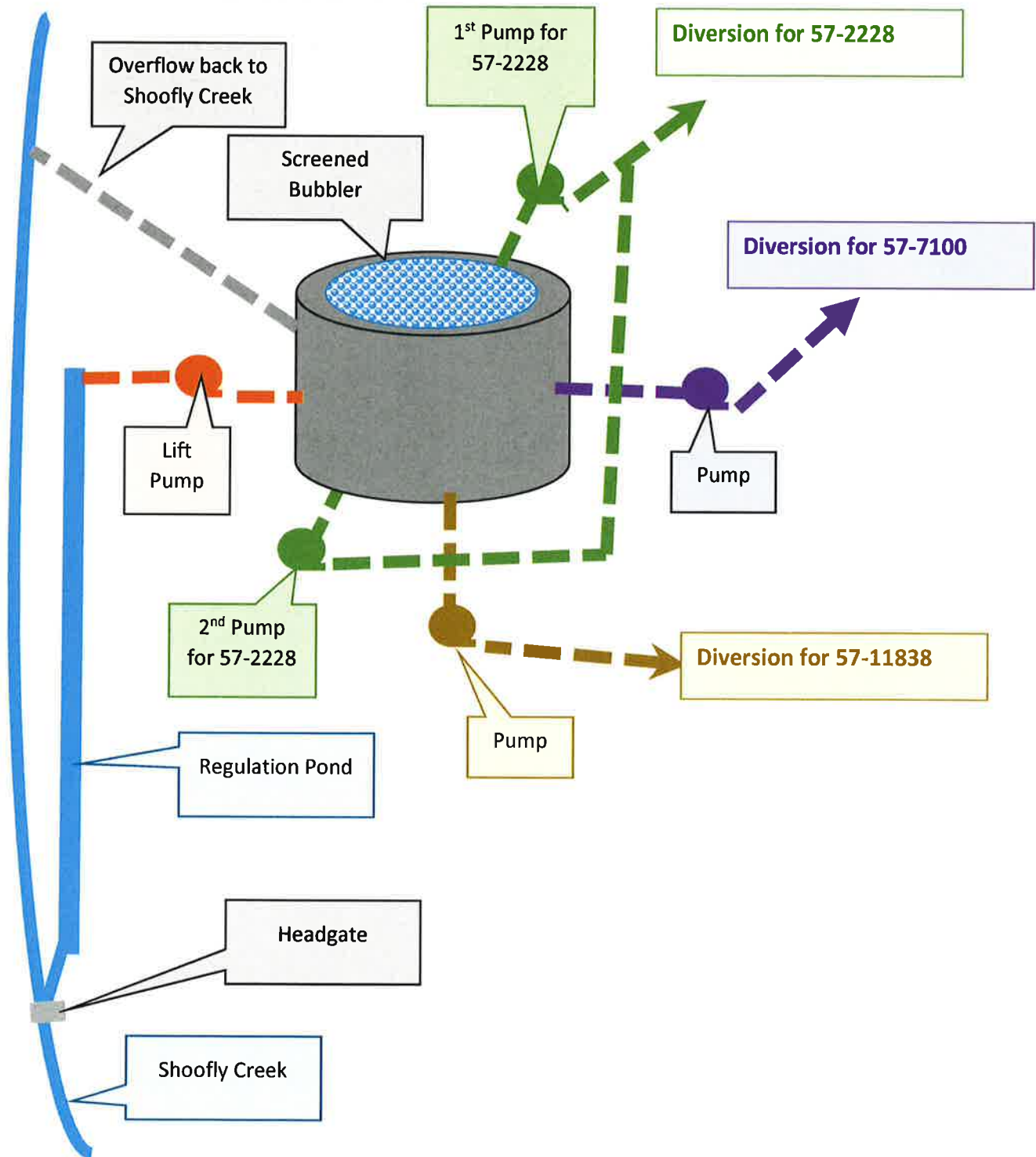
Approximate Location of a Bybee Canal Diversion
2-2176B, 2-2405B, and 2-10198

Approximate Location of a Bybee Canal Diversion
2-2176B, 2-2405B, and 2-10198



Permit 57-11838 – Shoofly Creek Pump Station

Water for this permit is diverted from Shoofly Creek (Blue Line) into a small regulation Pond (Larger Blue Line). that is then diverted by a 15 Hp Parma pump (orange pump) into a common bubbler that is used to divert water for multiple water rights. The water is then pumped from the bubbler by a 75 Hp pump that diverts the water to the fields (see brown pumps below). Each water right is diverted by a separate pump or in the case of 57-2228, 2-pumps (green pumps). Water right 57-7100 (purple pump) is for property not owned by the permit holder.



Cyclic Flags: 2
Error Flags: 8208

Date/Time	(+)Total (gal)	Velocity (ft/s)	Volume (gal/m)	CFS	Error #
6/12/2018 11:00	113175.6873	5.342	1244.738	2.738	0
6/12/2018 11:01	114424.3779	5.32	1239.649	2.727	0
6/12/2018 11:02	115675.2537	5.36	1248.84	2.747	0
6/12/2018 11:03	116937.3541	5.345	1245.412	2.74	0
6/12/2018 11:04	118123.1996	5.329	1241.623	2.732	0
6/12/2018 11:05	119431.0813	5.364	1249.744	2.749	0
6/12/2018 11:06	120633.3035	5.401	1258.341	2.768	0
6/12/2018 11:07	121906.4944	5.363	1249.684	2.749	0
6/12/2018 11:08	123152.902	5.346	1245.607	2.74	0
6/12/2018 11:09	124401.315	5.309	1237.001	2.721	0
6/12/2018 11:10	125657.0756	5.318	1239.082	2.726	0
Average				2.74 CFS	

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 57-11838
 Reviewer: Chelsey Serrano and Dan Nelson
 Date of Review: 6/12/2018

P/D No.:

PUMP HORSEPOWER
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

Lift Pump
15
0
5
4
6.49
2912

Re-lift Pump
75
0
0
76
2.63
1181

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:

The Lift Pump:

The lift was measured, and the pressure was calculated based on the water level height in the bubbler. There are three water rights diverted at this location. 57-2228 (2.42 cfs), 57-7100 (1.06 cfs), and 57-11838 (2.60 cfs) for a total of 6.08 cfs, which is less than the lift pump can easily provide.

The Relift Pump:

There is no lift for this pump. The pressure was read from the owner's gauge. The theoretical calculation is 2.63 cfs and the measured flow was 2.74 cfs. The permit is limited to 2.60 cfs, so this system can easily provide the flow authorized by the permit.

CHELSEY SERRANO 06/12/18

FILE NUMBER 57-11838
Diversion from Shoofly Creek



Photo 1: Diversion from Shoofly Creek



Photo 2: Diversion and Relift Pumps



Photo 3: Flow through Shoe fly Creek



Photo 4: Pressure Gage