

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

A. GENERAL INFORMATIONPermit No: 96-9776

Exam Date: 12/17/2020

1. Does this qualify for an in-office field exam (IDAPA 37.03.02.035.01.r)? X Y N
- 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: Daniel W. and Cathryn A. Schwerin
Owner of Record Correct? X Y N
Address of Record Correct? Y N
If No: Address

The Department's tax parcel data shows the property for the place of use is in the ownership of the Schwerin Trust, Cathryn a. and Daniel Schwerin Trustees

3. Beneficial Use Fees have been paid: X Y N Receipt No: C109657

4. **SOURCE****TRIBUTARY**

Pend Oreille River

Columbia River

Method of Determination: GIS and Tax Parcel DataChange in Source: Y X N**B. OVERLAP REVIEW**

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

Water Right No.	Source	Purpose of Use	Basis
96-8626	Ground Water	License	Domestic

Comments: Water right 96-8626 is a licensed water right for domestic use for this property. Water right 96-8626 does not prevent irrigation of up to a ½ acre, but all of the homes are limited to 0.6 af per home, which suggests that 96-8626 is for in-house use only. This permit provides up to ½ acre of irrigation. Due to the trees, it is actually difficult to determine exactly how much irrigation occurs. I can confirm that there irrigation of a yard in the back of the home and a garden in front of the shop, so I can confirm 0.5 acres of irrigation. Other than the approximately 0.3 acres of driveway, house and shop area, there is approximately another 0.4 acres that is hidden by trees that could be irrigation form the domestic right if the two were combined. The entire lot is approximately 1.2 acres. Water right 96-7372 is diverted from the same well as 96-8626, but is for different homes and trailers.

2. Other water rights with the same point of diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis

Comments: The only other points of diversion in the 40 acre tract are either for other homes, or from wells. This permit is from the river from the river, so it is the only water used on this property.

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
River Pump	3		SW	NW	36	57N	3W	B.M.	BONNER
								B.M.	
								B.M.	

Method of Determination: GIS and Tax Lot data.Change in POD? X N Amendment Required? X N**2. PLACE OF USE:** 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	
57N	3W	36							0.5										0.5
		Lot #							3										
Total Acres =																			0.5

Method of Determination: GIS and Tax Lot DataChange in POU? X N Amendment Required? X N Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

 X 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
River Pump	Unknown	1.5			

*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
NONE						

2. Measurements: No measurement is required for an in-house exam.

E. FLOW CALCULATIONS

___ Additional Computation Sheets Attached

Measured Method:

The permit states that a gas powered 1.5 Hp pump would be used for the irrigation practices. Gas powered irrigation pumps are known to not be as efficient as electrical pumps with the same horsepower, so it is really difficult to perform a theoretical calculation. Depending on the size, manufacturer, and model, the efficiency of gas powered pumps can vary greatly. I have found that on average, they operate at an efficiency of between 25 to 35 percent. Please see the attached theoretical calculation to see my estimations of what this 1.5 Hp pump could provide. Below I have compared the Administrative Memorandum #17, the theoretical calculations for a 1.5 Hp pump, and the permit.

Administrative Memo #17 = 0.5 acres X 0.03 cfs/ac = 0.015 cfs rounded to 0.02 cfs for this permit

Theoretical Calculations = 0.02 cfs at a efficiency rating of 25%

Permit allowed = 0.02 cfs

I am recommending a diversion rate of 0.02 cfs, since all of the different ways to calculate the diversion shown above seem to agree that this system operates at approximately 0.02 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.5 \text{ acres} \times 3 = 1.5 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.02 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 8.5 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 1.5 \text{ af}$$

2. Volume Calculations for Other Uses:

N/A

G. PURPOSE OF USEIrrigation ☒ Y ☐ N # Stock _____ Domestic # of Homes _____

Other: < >

Change in Purpose of Use? ☐ Y ☐ NMethod of Determination: Taxlot data and conversations with owner.

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

H. NARRATIVE/REMARKS/COMMENTS

This permit qualifies for an in-house examination. The in-house water for this property is supplied by water right 96-8626. Water right 96-8626. The volumes authorized by 96-8626 suggest that it use is limited to in-house use only, but there are no conditions or recommendations that clearly states that it is for in-house use only and doesn't allow irrigation.

The actual place of use for this permit is hard to determine due to all of the trees on the property. This is a heavily wooded area, so the trees may or may not need irrigation water. The parcel is approximately 1.2 acres, and the home, driveway, and shop take up approximately 0.3 acres of the 1.2 acres, so there is approximately 1 acre of yards, garden, and trees. I only included the areas shown in the application for permit map, and I was able to confirm that the garden and the back lawn are approximately 0.5 acres. I did not include the landscaping in front of the home or the trees on the southeast side, because that was not included in the permit, and would have put the irrigated acres over the 0.5 acres requested by this permit. Taking all of this into account, I believe that this permit should be considered additive to any irrigation that may or may not have occurred under 96-8626.

The fish screen condition X29 was placed on this permit. The permit holder stated on the *Statement of Completion* form that a fish screen was not required. I emailed the permit holder on December 17, 2020, to determine if a fish screen had been installed on this pump system. The permit holder responded by email on December 17, 2020, confirming that a fish screen was installed.

Conditions 004 should be carried forward to licensing. Condition R66 should be replaced with condition X31 that would limit the irrigation use of the ½ acre to 0.02 cfs and 1.5 af. Condition 029 should not be carried forward to licensing, since the permit holder has confirmed that a fish screen is on the system. The remaining conditions on the permit should be removed.

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	0.02 CFS	1.5 AFA
<u>Totals:</u>		0.02 CFS	1.5 AFA

Please Note: This is a surface water right, so no volume will be included on the water right license.

2. Recommended Amendments

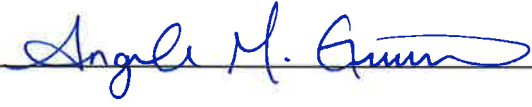
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

Other: < >

J. AUTHENTICATION – DANIEL A. NELSON – WATER RIGHT ANALYST 3

Field Examiner's Name  Date 12-18-20

Reviewer  Date 12/21/2020

Field Exam Map:

The yellow border shows the place of use I can confirm is irrigated, and the yellow dot shows the point of diversion.



SEE NEXT PAGE FOR GOOGLE EARTH MAP OF THE PLACE OF USE.

Google Earth aerial image of the place of use location for permit. Please note that there is some landscaping in front of the home and along the road that was not included in the application for permit map or the place of use shown above. There is also some trees in the southeastern corner of the property that wasn't included. These areas were not included in the application for permit maps, so I am not sure whether or not they are being irrigated. You can clearly see the garden area south of the shop being irrigated in this image, and there is a clear lawn area between the home and the river. The entire lot is approximately 1.2 acres, and the home, driveway, and shop take up approximately 0.3 acres, so there could be up to 0.9 acres irrigated. That would require that 0.4 acres be irrigated by the domestic water right. All these numbers are estimates based on the aerial imagery, so I believe that this permit and any possible irrigation component of the overlapping domestic right be considered additive.



THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 96-9776
 Reviewer: Dan Nelson
 Date of Review: 12/17/2020

P/D No.:

PUMP HORSEPOWER
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

1.5 Hp @ 25% Efficiency
1.5
0
70
0
0.04
19

1.5 Hp @ 70% Efficiency
1.5
0
70
0
0.13
59

Estimated Actual Pumping Flows
1.5
0
40
40
0.02
11

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 application states that the pump being used is a 1.5 Hp gas powered pump. It is well known that gas powered water pumps are no near as efficient as electrical powered pumps, so it is very difficult to determine flow without a pump curve from that specific pump. Without a pump curve or any information on the pump being used by the permit holder, I explored the internet to see if I could find information on a comparable pump. The information I could find was for a Sportsman 1.4 Hp motor with specifications that state that this pump can divert 1,119 gallons per hour or 18.65 gpm at a lift of 70 feet. I plugged these numbers into our normal theoretical sheet above, and found that this size gas powered pump would probably have an efficiency of approximately 25 %. If we used the normal 70% efficiency rate you can see that it would greatly over estimate the flow of this pump. Therefore, I used the 25% efficiency and used some estimations of maximum pump lift based on the contours of 40 feet, and a normal pressure used on rainbird type sprinklers of 40 psi. Using these estimated numbers, I determined that a diversion rate of 0.02 cfs is more than reasonable and that this system could probably run a normal sprinkler zone of between 10 and 12 gpm.

PLEASE SEE ATTACHED INSERTS FROM SPORTSMAN PUMP WEB SITE.

Internet #30292210 Model #303210



1.4 HP 1 in. 2 Cycle Gas Powered Water Transfer Utility Pump with 3/4 in. Garden Hose Adapter
by Sportsman [Shop the Collection](#)

★★★★★ 42 W. With A Review Questions & Answers (1)

- Quickly connects to standard garden hose for convenience
- Maximum flow of 2,020 GPH (gallons per hour)
- Includes quick-attach (s.k.) with necessary lock and adapters
- Gas Flow (GPH)

\$183¹⁴

Save up to \$100* on your qualifying purchase.
Apply for a Home Depot Consumer Card.

How To Get It

This item is currently out of stock.
Receive an email if this item is back in stock.

Notify Me

Details

Actual Suction Capacity	1/4 In. Suction Hose	Discharge Flow @ 0 ft. (gallons/hour)	2020
Discharge Flow @ 0 ft. (gallons/hour)	34	Discharge Flow @ 10 ft. (gallons/hour)	1500
Discharge Flow @ 12 ft. (gallons/hour)	30	Features	Portable
Fuel Tank Capacity (gallons)	21	Head Pressure (ft.)	26
Housing Material	Steel	Installed	Hardware
Intake Connection	Threaded Inlet	Maximum Discharge Flow (gallons/hour)	2020
Maximum Horsepower (hp)	1.4	Maximum Pressure (psi)	42
Maximum Working Temperature (°F)	122	Maximum Working Temperature (°F)	122
Oil Capacity (oz.)	5	Outlet Connection	Threaded Inlet
Pack Size	1	Power Type	Gas Powered
Product Weight (lb.)	21.00 lb.	Pump Switch Type	Electric
Returnable	180 Day	Vertical Lift (ft.)	88

- California residents see [Prop 65 WARNINGS](#)
- **Drain a flooded basement or empty a pool or pond**, ideal for emergencies or general home and garden use
- **Adapts to fit a standard home garden hose** for easy of use and versatility
- **Water goes in at the top and out at the bottom**
- **1.3 HP, 43cc, 2-stroke, 2-cycle, recoil start, air-cooled OHV engine with TCI ignition, 6,600 RPM**
- **1 hour run time with full tank, 26 oz. tank, gas and oil mix**
- **1 in. discharge port, 1 inch outlet, with 2 adapters to fit a standard 3/4 in. garden hose**
- **Max lift head of 99 ft. (30 m), and max suction head of 26 ft. (8 m)**
- **Max flow of 2,020 GPH (gallons per hour) with zero lift at 85 percent engine capacity (2,020 x 85% GPH at 0 lift)**
- **Lift flow of 1,119 GPH (gallons per hour) with 70 ft. lift at 85 % engine capacity (1,119 x 85% GPH at 70 ft. lift)**
- **Comes with an intake strainer, coupler, two 3/4 in. garden hose adapters, screwdriver, and spark plug removal tool**
- **1 year limited manufacturer's warranty, 2 year emissions warranty**
- **EPA and CARB approved, for sale in California**

Nelson, Dan

From: Nelson, Dan
Sent: Friday, December 18, 2020 7:00 AM
To: 'Daniel Schwerin'
Subject: RE: Water Right Permit 96-9776

Thank you Mr. Schwerin, I will work to get your permit prepared for licensing as soon as possible. Hopefully, you see the license for your permit within the next couple of weeks.

Daniel Nelson
Water Right Analyst 3
Idaho Department of Water Resources
Telephone (208) 287-4856
Fax (208) 287-6700 (attn: Dan Nelson)

From: Daniel Schwerin [mailto:48.madog@gmail.com]
Sent: Thursday, December 17, 2020 4:52 PM
To: Nelson, Dan <Dan.Nelson@idwr.idaho.gov>
Subject: Re: Water Right Permit 96-9776

Yes, the intake hose does indeed have a screen.

On Thu, Dec 17, 2020 at 9:29 AM Nelson, Dan <Dan.Nelson@idwr.idaho.gov> wrote:

Dear Mr. and Ms. Schwerin;

On February 7, 2020, the Idaho Department of Water Resources (Department) issued permit 96-9776 authorizing the development of a right to divert 0.02 cfs for irrigation use from Pend Oreille River in the Government Lot 3 (SW¼ NW¼) of Section 36, Township 57 North, Range 3 West. For your convenience, I have attached a copy of permit listed above.

On December 15, 2020, the Department received a *Statement of Completion* form from you stating that you had completed the work proposed on your permit. The final step in the water appropriation process is the issuance of a Water Right License. By issuing a license, the Department recognizes that water has been put to beneficial use in accordance with the permit.

This permit qualifies for what is known as in-house exam or desk top review instead of an in-field verification inspection of the property. A verification review is necessary to move this permit forward to a water right license.

During my review of your file for licensing purposes, I was able to verify most of the elements needed to license your permit. However, on the *Statement of Completion* form you marked that a fish screen was not required as part of your permit. Condition 4 of your permit states the following:

Prior to the diversion and use of water under this approval, the right holder shall comply with all fish screening and/or fish passage requirements of the Idaho Department of Fish and Game.

In order to move forward with the licensing of this permit, we need verification that a fish screen is installed on your pump intake hose or you need to provide a copy of the written document that waived the need of a fish screen from the Idaho Fish and Game for your water pump. Most intake hoses for these small irrigation pumps come equipped with a trash screen or basket at the end of the intake hose to prevent fish and trash from being run through the pump. If your system has this type of screen, all I need from you is a return email confirming that your pump intake is equipped with a screen.

If you wish, you can request that Department personnel visit your property to collect this information accompanied by yourself or your representative. For this to occur, please contact me within 30 days. If you would like your representative to be present, please have the name, telephone number, and email of your representative. Be aware that you and the representative must be available to be contacted for scheduling of the required visit in a timely manner.

Please provide the requested information January 18, 2021. If I do not receive the requested information or I have not been contacted by you to request an in-field verification by January 18, 2021, I will need to take action to void your permit under the provision of Section 42-219(8) of the Idaho Code.

If you have any questions, please contact me at 208-287-4856. Thank you for your attention to this matter.

Respectfully,

Daniel A. Nelson

Water Right Analyst 3

Telephone # (208) 287-4867

Fax (208) 287-6700 (attn: Dan Nelson)

Email dan.nelson@idwr.idaho.gov