

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

A. GENERAL INFORMATIONPermit No: 3-10280

Exam Date: 3/30/2017

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y N
- a. 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: Sara or Richard Gragg
Owner of Record Correct? X Y N
Address of Record Correct? Y N
If No: Address

Tax lot data shows Juanita F. Klahr as the owner of the property. Ms. Klahr is aunt of the Gragg's and they have an agreement to irrigate the property and hold the water right for the property.

3. Beneficial Use Fees have been paid: X Y N Receipt No: C103106

4. SOURCE TRIBUTARY

Snake 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: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: This property is within the borders of Riverside Irrigation District. The application for permit states that there are no other water rights available to the property.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: This property is within the borders of Riverside Irrigation District. The application for permit states that there are no other water rights available to the property.

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

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
River Diversion	3		NE	SW	14	5N	6W	B.M.	CANYON
								B.M.	
								B.M.	

Method of Determination: GIS and Tax Lot Parcel.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	
5N	6W	14									0.5								0.5
		Lot #									3								
Total Acres =																			0.5

Method of Determination: GIS and Tax Parcel 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	6.5 (212cc)			2 inch

*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 holder supplied photos of the sprinkler system, and the pump. From these photos, I was able to find the pump curve for his pump. The photos also show 4 Rainbird sprinklers on a line, and a portable sprinkler. The permit holder states he can either run the portable sprinkler or the 4 sprinkler line, but he can't run both of them together. The permit holder stated that the 4 rainbird sprinklers had 5/32 nozzles, but he didn't give me the nozzle size of the portable sprinkler. The sprinkler on the portable sprinkler is a Aqua Burst X65, which has the capability of running 7/32 to a 3/8 inch nozzle. Without knowing the exact nozzle size, it is difficult to estimate the flow rate based on the portable sprinkler. The pump being used was not designed to run a large pressurized system, so I back calculated to find a flow rate that could be used on a 4 sprinkler system with 5/32 nozzles. There is approximately 20 feet of lift from the river to the property. The following is what I found:

4 - 5/32 nozzles at 30 psi = 12 gpm

30 psi X 2.31 = 69.3 ft of head

69.3 ft of head + 20 ft of lift = 89 ft of discharge head.

Pump curve suggests that 12 gpm would be at 93 ft of discharge head.

Taking into account the lift from the river variance and friction loss, 12 gpm seems reasonable for the sprinkler set. A 12 gpm flow rate would fit the 1/4 to 9/32 inch sprinkler nozzles for the portable sprinkler.

The permit allows up to 0.02 cfs (9 gpm), so considering the possible margin of error in estimating the pump capacity, I feel they have pumped at least the amount allowed by the permit. I recommend that this permit be licensed for 0.02 cfs as was permitted.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.5 \times 4.5 = 2.3$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.02 \text{ cfs} \times 260 \text{ days} \times 1.9835 = 10.3 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 2.3 \text{ af}$$

PLEASE NOTE: No volume is required, since this is a surface water right.

2. Volume Calculations for Other Uses:

G. PURPOSE OF USE

Irrigation ____Y____N # Stock _____ Domestic # of Homes ____1____

Other: < >

Change in Purpose of Use? ____Y____N

Method of Determination: Tax data, GIS, and Well Driller's Report.

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

H. NARRATIVE/REMARKS/COMMENTS

This permit diverts water from the Snake River through a 6.5 Hp (212CC) Pacific Hydrostar pump. The water is then delivered to a single portable sprinkler or 4 impact sprinklers with 5/32 nozzles. I am estimating that the sprinkler system

The only concerns that I have on this system is that they are in the borders of the Riverside Canal Company, but it appears as though the canal shares were removed from the property when it was subdivided. Since this permit is for a surface water source and there is no record in the file of canal shares on the property, there is no need for combined condition limitations or supplemental language in the conditions. The other issue is that the permit holder does not actually own the property. However, the property is owned by their aunt, and they have been using this property as a pasture for some time.

Conditions 1 (004) and 3 (X31) should be carried forward to the license. Condition 2 (121) should be changed to condition 103 as is standard.

Have conditions of permit approval been met? X 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	03/01 to 11/15	0.02 CFS	2.3 AF
	<u>Totals:</u>	0.02 CFS	2.3 AF

PLEASE NOTE: No volume is required, since this is a surface water right.

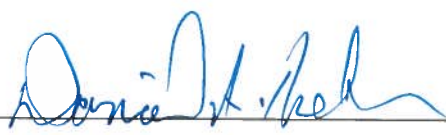
2. Recommended Amendments

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 – Analyst 3

Field Examiner's Name  Date 3-20-17

Reviewer _____ Date _____

Field Exam Map
Permit 3-10280

Yellow Dot is Point of Diversion
Yellow Border is Place of Use



2016 Google Map Imagery for Permit 3-10280



Owner's Manual & Safety Instructions

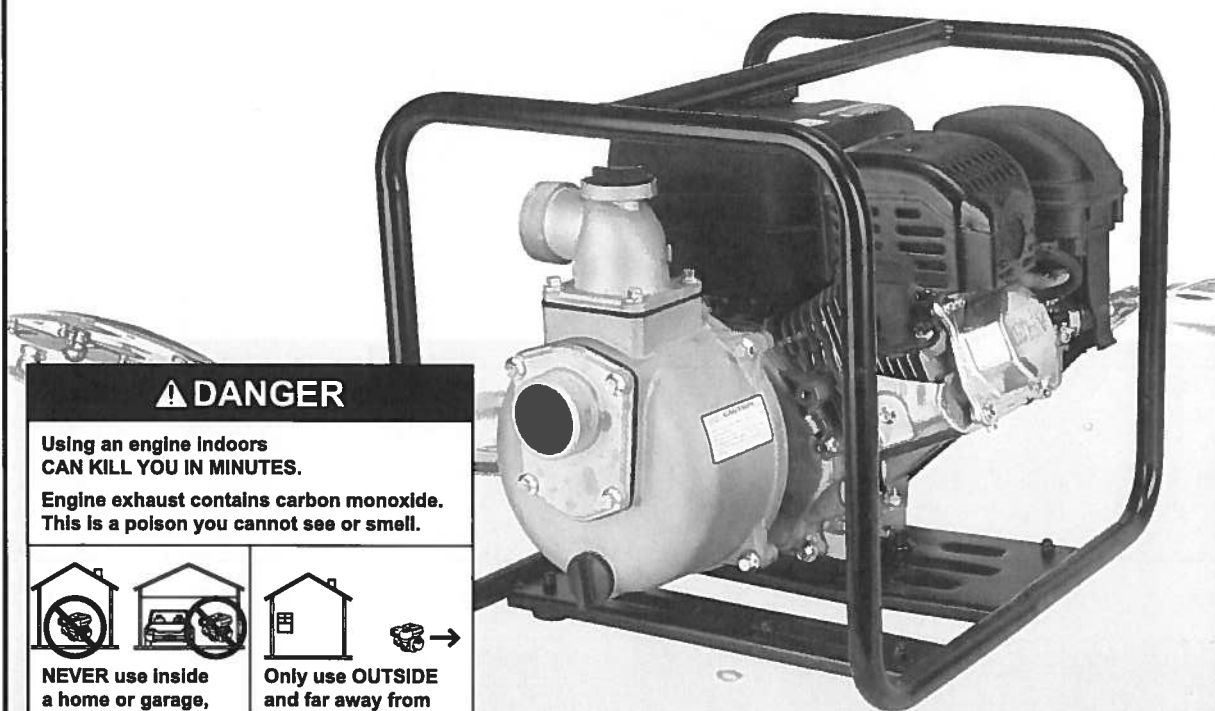
Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

 **PACIFICHYDROSTAR®**

ITEM 69774

**212cc GASOLINE POWERED
CLEAR WATER PUMP**

POWERED BY
PREDATOR®
ENGINES



⚠ DANGER

Using an engine indoors
CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide.
This is a poison you cannot see or smell.



NEVER use inside
a home or garage,
EVEN IF doors and
windows are open.



Only use **OUTSIDE**
and far away from
windows, doors,
and vents.

Visit our website at: <http://www.harborfreight.com>

Email our technical support at: tech@harborfreight.com

or engine technical support at: predator@harborfreight.com

When unpacking, make sure that the product is intact and undamaged.

If any engine parts are missing or broken,
please call 1-800-520-0882 (engine parts) or
1-800-444-3353 (other parts) as soon as possible.

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Diagrams within this manual may not be drawn proportionally. Due to continuing
improvements, actual product may differ slightly from the product described herein.
Tools required for assembly and service may not be included.

⚠ WARNING

Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.

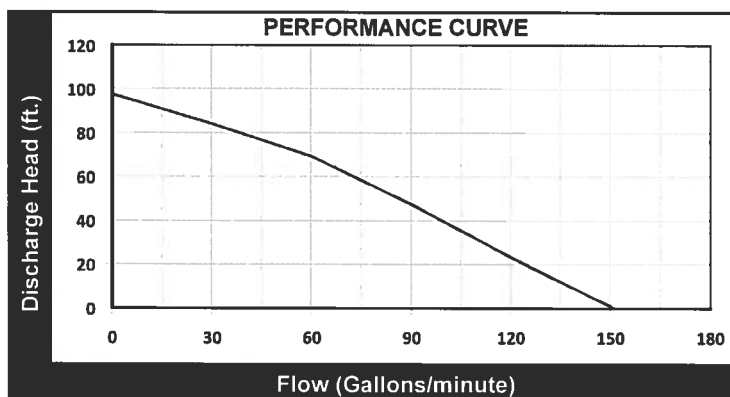
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Specifications

Pump	
Suction & Discharge Size	2" NPT
Discharge Capacity	151 GPM
Maximum Discharge Head	97.5 ft.
Maximum Suction Head	26 ft.
Maximum Pressure	42.2 PSI
Mechanical Seal	Ceramic
Included Accessories	Intake Strainer, Hose Clamps, Spark Plug Wrench

Engine		
Displacement		212cc
Engine Type		Horizontal Single Cylinder 4 stroke OHV EPA phase III compliant
Cooling System		Forced air cooled
Fuel	Type	87+ octane unleaded gasoline
	Capacity	0.9 Gallons / 3.6 Liters
Engine Oil	Type SAE	10W-30 above 32° F 5W30 at 32° F or below
	Capacity	0.5 Quarts / 0.5 Liters
Run Time @ 50% Load with full tank		3 hr.
Sound Level at 22 feet		104 dB
Bore x Stroke		70 mm x 55 mm
Compression Ratio		8.5:1
Rotation viewed from PTO (power takeoff - the output shaft)		Counterclockwise
Shaft	Shaft	3/4" x 2.41"
	Keyway	3/16" (4.76 mm)
	End Tapped	5/16" - 24 UNF
Spark Plug	Type	NGK® BP-6ES NHSP® / Torch® F6TC
	Gap	0.7 - 0.8 mm
Valve Clearance	Intake	0.10 - 0.15 mm
	Exhaust	0.15 - 0.20 mm
No Load Speed		3,800 ±100 RPM



Permit 3-10280 – sprinkler sheet.

Download of X65 Aqua Burst Sprinkler Rating Table:

AQUA BURST® Performance Chart Normal Stream Height At 8' Above Nozzle at Normal Pressure Single Nozzle Radius - GPM									
PSI	7/32" nozzle	1/4" nozzle	9/32" nozzle	19/64" nozzle	5/16" nozzle	21/64" nozzle	11/32" nozzle	23/64" nozzle	3/8" nozzle
30	50 - 7.5	53 - 10.1	57 - 12.3	57 - 13.8	58 - 15.4	60 - 16.6	61 - 18.2	62 - 19.5	63 - 21.1
35	52 - 8.1	54 - 10.8	58 - 13.5	59 - 14.6	59 - 16.5	61 - 17.9	62 - 19.5	64 - 21.2	64 - 22.7
40	54 - 8.7	56 - 11.5	61 - 14.5	62 - 15.8	62 - 17.8	64 - 19.3	65 - 21.3	65 - 22.8	68 - 24.5
45	56 - 9.2	58 - 12.2	63 - 15.2	64 - 16.8	64 - 18.8	66 - 20.4	67 - 22.2	67 - 24.0	71 - 25.9
50	59 - 9.9	61 - 12.9	64 - 16.0	67 - 17.6	67 - 19.9	68 - 21.4	69 - 23.4	69 - 25.3	72 - 27.2
55	61 - 10.2	63 - 13.4	66 - 16.9	68 - 18.5	69 - 20.8	71 - 22.5	72 - 24.5	72 - 26.4	74 - 28.4
60	62 - 10.7	65 - 14.2	67 - 17.6	70 - 19.2	71 - 21.9	72 - 23.4	73 - 25.6	74 - 27.8	76 - 29.5
65	64 - 11.2	66 - 14.8	69 - 18.4	71 - 20.3	73 - 22.8	74 - 24.3	75 - 26.5	76 - 28.7	79 - 30.8
70	65 - 11.8	67 - 15.4	70 - 19.2	72 - 21.1	74 - 23.7	76 - 25.4	77 - 27.7	79 - 29.9	81 - 32.1
75	66 - 12.2	69 - 16.1	72 - 19.8	74 - 21.8	76 - 24.2	78 - 26.4	79 - 28.8	81 - 30.8	83 - 33.3
80	67 - 12.6	70 - 16.4	74 - 20.2	76 - 22.6	77 - 25.1	79 - 27.3	80 - 29.6	82 - 31.9	84 - 34.2

Aqua Burst™ impact sprinklers are only guaranteed to function optimally with nozzle type and sizes from each individual model's performance chart.
All Prices Subject To Change Without Notice

Nelson, Dan

From: Sarah Gragg <sarahlgragg@gmail.com>
Sent: Wednesday, March 29, 2017 7:15 PM
To: Nelson, Dan
Subject: Re: Water Right Permit 3-10280
Attachments: 9.jpg; lt.jpg; IMG_41901.jpg; IMG_41911.jpg; IMG_41891.jpg; IMG_41921.jpg; IMG_41931.jpg

Dan,

I have attached several pictures of the sprinklers we use, the pump and the pipe. Yes it is a 212cc pump and yes I believe the sprinklers are all 5/32.

You are correct it does not move alot of water but we are able to water a half acre area for my sheep and goats to graze.

We water for about one hour on half the area and then one hour on the other half. It has been beneficial but does not pull alot of water.

I hope this answers all the questions, if you need to come out please let us know.

Regards,

Sarah Gragg

On Mar 29, 2017 10:32 AM, "Nelson, Dan" <Dan.Nelson@idwr.idaho.gov> wrote:

Dear Mr. and Ms. Gragg,

I have been asked to verify the water use for your permit 3-10280, so we can get the permit licensed. In my review of the application for permit, you stated that you planned on using a 6.5 Hp 212 cc pump to divert the water to a small ½ acre pasture owned by your aunt. I have reviewed the file, and I have a question about how you irrigate the pasture. This size pump does not appear to be able to lift water from the river to the pasture and run a full sprinkler system. Could you give me a little more information on the system? I need the following information:

- 1.) Are you still using the 212 cc pump, or did you go to a larger pump system?
- 2.) How are you irrigating the system? (for example – you have 4 rainbird type sprinklers with 5/32 nozzles)

With the above information, I think we can license this permit without going out and visiting the property. I have aerial photography that shows you have irrigated the pasture, so I just need to know how it was irrigated.

I tried to contact you by telephone, and left a voice message. You can either call me or email the answers to the above question, or if you have any questions at all about the process, please don't hesitate to give me a call.

Thank you so much for time and patience.

Respectfully,

Daniel Nelson

Water Right Analyst 3

Idaho Department of Water Resources

Telephone (208) 287-4856

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

Pictures from email dated 3/29/2017 from Sarah Gragg for permit 3-10280

