

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 65-23440
Exam Date: 07/18/2019

1. Current Owner:
HANGING VALLEY HOMEOWNERS ASSN INC PO BOX 2598 BOISE ID 83701
2. Accompanied by: Paul Kunz
Phone No: 208-259-3445
Address: 40 Valley Rd, Lowman, ID
Relationship to permit Holder: President of HOA

3. SOURCE:
GROUND WATER

Method of Determination: Field Observation

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
65-23231	Burn Creek	Domestic	Decreed

Comments: N/A

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

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: N/A

C. DIVERSION AND DELIVERY SYSTEM

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

GROUND WATER NW¼ NW¼, Sec. 32, Twp 10N, Rge 10E, B.M. BOISE County

Method of Determination: Garmin Handheld GPS

PLACE OF USE: MUNICIPAL

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
10N	10E	29											X	X					
10N	10E	32						X											

Method of Determination: Handheld GPS, Aerial Imagery, and ArcMap Tools.

3.
 - x Delivery System Diagram Attached (required). Indicate all major components and distances between components. 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.
 - N/A 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
D0059028	Sun Pumps	2	SCS 17-280-180 BL	Sun Pumps	SCS 17-280-180 BL
D0059028	Grundfos	3	MS4000	Grundfos	25S30-15

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
N/A	N/A	N/A	N/A	N/A	N/A	N/A

2. Measurements: Buried system did not provide access to measure diversion rates.

E. FLOW CALCULATIONS

x Additional Computation Sheets Attached

Measured Method: A theoretical calculation was used on this permit. Additionally, specific pump curves were used to calculate flow.

Theoretical: 0.08 cfs
 Pump Curves: 0.09 cfs
 Permit allowed: 0.3 cfs

I am recommending a diversion rate of 0.09 cfs, since the specific pump curves for both submersible pumps were obtained. Additionally, because one pump is solar powered, and the other is generator powered, the system allows for both to run at the same time if needed. As per Permit Processing memo 16, the field examiner may refine the theoretical measurement by a variety of techniques including review of pump design information to improve the estimate of efficiency. *Please see attached theoretical measurement and pump curves.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A irrigation is provided under surface water right 65-23231

2. Volume Calculations for Other Uses: As per apps memo 22, 0.6 af per unit/stubbed lot used to determine annual volume: 35 lots with service connections x (0.6 af) = 21 af

G. NARRATIVE/REMARKS/COMMENTS

Field exam was completed by agent Justin Shearer on July 18, 2019 and was accompanied by member and president of Hanging Valley Homeowners Association Paul Kunz. Hanging Valley Homeowners Association, Inc. is the active permit owner and original applicant. The application for permit was submitted on November 1, 2010 and proof of beneficial use was made on April 5, 2016.

The POD from groundwater comes from a 10" well tagged D0059028. A well log was secured showing a 10" well drilled in 2010 for this permit. The well diverts groundwater to a 5,000 gallon storage tank for municipal purposes. From the storage tank the system provides water to 35 units and/or stubbed-in lots. The system relies two submersible pumps within the well, a 2 hp solar powered submersible pump, and a 3 hp generator powered submersible pump to pump water uphill to the storage tank. The groundwater source diversion is located in the NWNW QQ and is accurately described by the permit. Water right overlap did not discover any other water rights associated with the well. No amendment required to correct the legal description of the POD.

Kunz provided a system diagram of the subdivision during the exam that details the well, storage tank, water lines, and the 35 stubbed-in lots. ArcMap tools and aerial imagery were used to verify the 35 lots. No irrigation is taking place under this permit, and is covered under surface water right 65-23231. All 35 lots of the subdivision fall within the described QQ's of the permit. No amendment required to correct the legal description of the POU.

The 5,000 gallon storage tank was found uphill, immediately east of the POD. Elevations of the storage tank and well were recorded to determine head. Pump system design information was obtained from Custom Pump Services of Emmett, ID who designed and installed both pumps for Hanging Valley HOA. The pumps are presumed to sit at 154 ft below surface. The calculated head is 289 ft. Using the pump curve for the Grundfos 25S30-15 and the head of 289 ft., a rate of 0.06 cfs was calculated. Using the pump curve for the SCS 17-280-180 BL and a head of 289 ft., a rate of 0.03 cfs was calculated. Because the system allows both pumps to run at the same time, a rate of 0.09 cfs is being recommended. Kunz provided meter readings for the pump over the last 5 years. The estimated rate of 0.09 cfs correlates to the meter readings as feasible to provide the annual amounts observed by the installed measuring device. Thus, a recommended rate of 0.09 cfs is capable of providing ample water for the permit holder's system and needs.

Condition 134 was removed because there is already documentation within the file showing that the water supply system is being regulated by the Idaho Department of Environmental Quality as a public water supply and that it has been issued a public water supply number. Condition 26A was removed as per licensing standards. Condition 121 was updated to 103 as per licensing standards.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

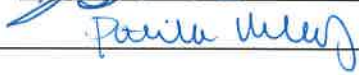
1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
MUNICIPAL	01/01 to 12/31	0.09 CFS	21.0 AF
<u>Totals:</u>		0.09 CFS	21.0 AF

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 Justin Shearer - Water Resource Agent, Senior

Field Examiner's Name  Date 9/3/19
 Reviewer  Date 9-3-2019

HANGING VALLEY HOMEOWNER'S ASSOCIATION

Surface water right Permit No. 65-23231

Approx. waterline from surface water intake

Valve box

Irrigation line installed in High Dr 2019

WATER TANK SITE
2,000 gal

EASEMENT AREA AND WATERLINES

Parcel added to HOA

Cabin location (approx)

Well water right permit No. 65-23440

*well
Revised Well site on Ranch property
(min. 100' diameter)

659.66
S 89°39'E

30 29
31 32

T. 10 N., R. 10 E.,
B.M.

WELL

~ 150'

Approx. access road

Water Lines

HIGH DRIVE

BLOCK 2

100' 100'

100' 100'

100' 100'

100' 100'

100' 100'

100' 100'

100' 100'

100' 100'

100' 100'

100' 100'

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HANGING VALLEY
RANCH SUBDIVISION
BOISE COUNTY, ID.

Currently 17 cabins are connected
to the potable water system.
Possible 35 cabins in the future.

From available records, all 35 "lots"
have a potable water connection and
service piping except Lot 13, Blk 2.

All 35 lots had service connections
installed in 2018 & 2019 for irrigation.

July 2019

0 100 200 300 400 FEET

RANCH PROPERTY BOUNDARY APPROX.

Address (Valley Rd or High Dr)

65-23440

System Diagram

New water line (2015)
~ 800'

Generator Pump

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 65-23440
Reviewer: Justin Shearer
Date of Review: 8/30/2019

P/D No.:	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	3	3	3
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	289	289	289
DISCHARGE PRESSURE	40	50	60
RATE OF FLOW (cfs)	0.05	0.05	0.04 0.05

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:

Field exam reports a 3 hp pump. Lift is recorded at 289 ft. A range of discharge pressures were used base on expected system pressures (40-60 psi). Theoretical average flow rate is 0.05 cfs. Pump curve indicates a rate of 26.3 gpm @ 289 ft, or 0.06 cfs.

Solar Pump

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 65-23440
Reviewer: Justin Shearer
Date of Review: 8/30/2019

P/D No.:	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	2	2	2
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	289	289	289
DISCHARGE PRESSURE	40	50	60
RATE OF FLOW (cfs)	0.03	0.03	0.03 0.03

The above calculates the formula =

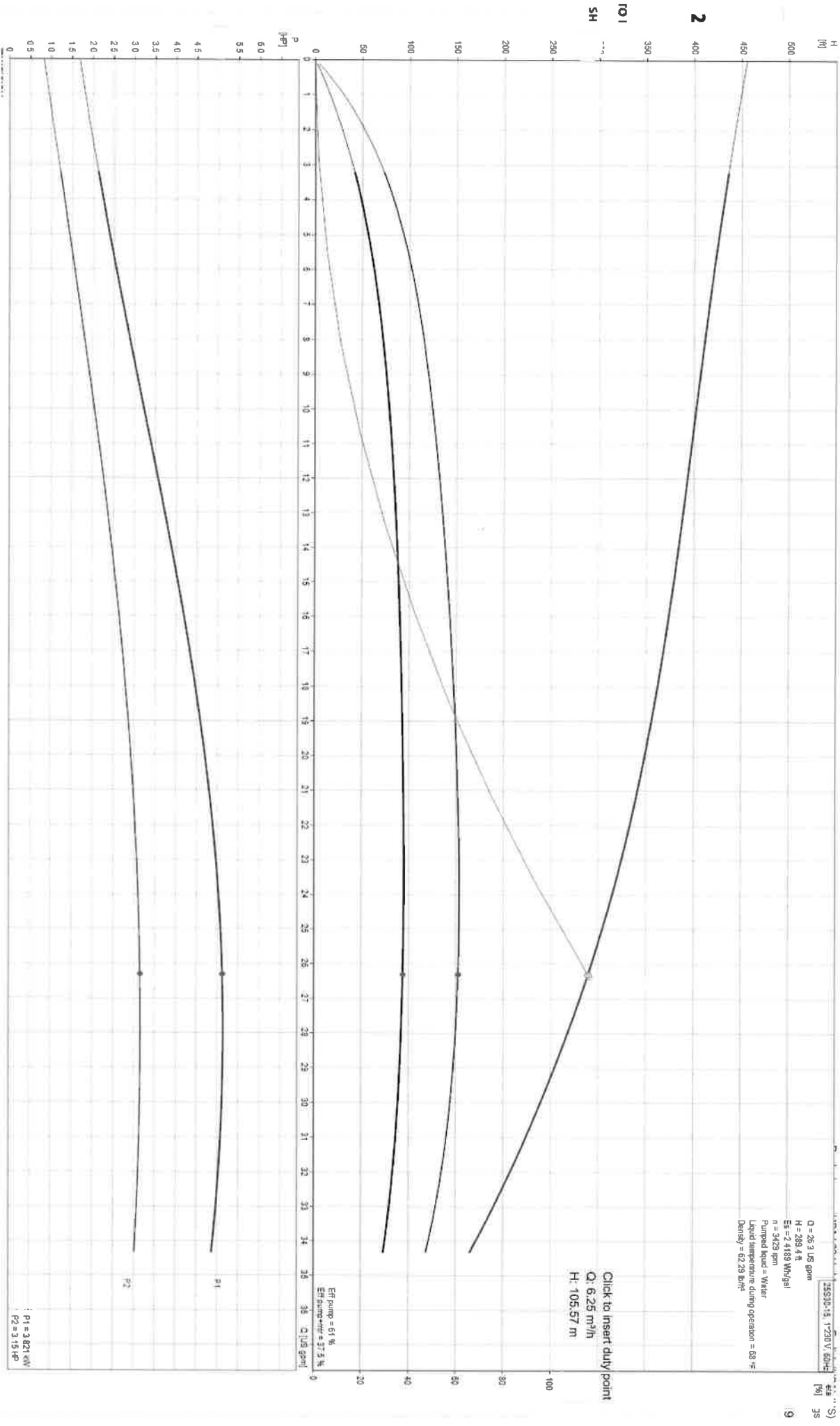
$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
No Friction

Examiners Notes:

Field exam reports a 2.0 hp pump. Lift is recorded at 289 ft. A range of discharge pressures were used base on expected system pressures (40-60 psi). Theoretical average flow rate is 0.03 cfs. Pump curve indicates a rate of 16 gpm @ 289 ft, or 0.03 cfs.

PRODUCT CENTER

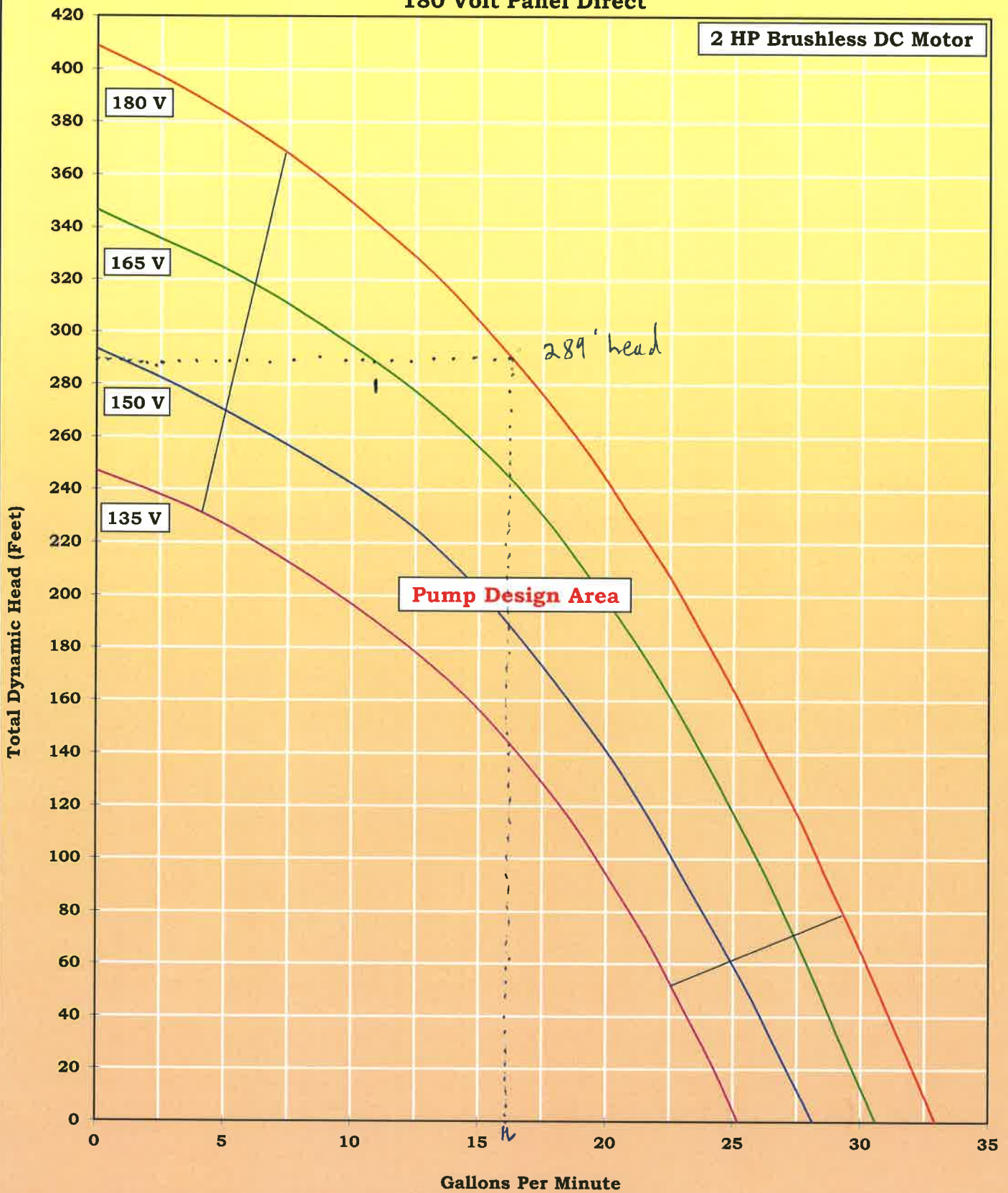


Liquid temperature during operation

**SunPumps Brushless DC Submersible
Model SCS 17-280-180 BL**

180 Volt Panel Direct

2 HP Brushless DC Motor



SunPumps Brushless DC Submersible Model SCS 17-280-180BL

2 HP Brushless DC Motor

180 Volt Panel Direct System

PSI	TDH Feet	TDH Meters	Motor Voltage	Motor Amps	U.S. GPM	LPM	Motor Watts	Solar Array Watts *	System Efficiency
0	0	0.0	135	6.59	25.2	95.4	890	1112	0%
10	23	7.0	135	6.73	24.1	91.3	909	1136	12%
20	46	14.1	135	6.84	22.9	86.6	923	1154	22%
30	69	21.1	135	6.99	21.6	81.8	944	1180	30%
40	92	28.2	135	7.08	20.1	76.2	956	1195	37%
50	116	35.2	135	7.10	18.6	70.3	959	1198	42%
60	139	42.3	135	7.00	16.7	63.1	945	1181	46%
70	162	49.3	135	6.76	14.5	54.8	913	1141	48%
80	185	56.3	135	6.41	11.7	44.2	865	1082	47%
90	208	63.4	135	5.88	8.3	31.5	794	992	41%
100	231	70.4	135	5.04	4.2	15.9	680	851	27%
107	247	75.4	135	4.62	0.0	0.0	624	780	0%

PSI	TDH Feet	TDH Meters	Motor Voltage	Motor Amps	U.S. GPM	LPM	Motor Watts	Solar Array Watts *	System Efficiency
0	0	0.0	150	7.77	28.1	106.5	1166	1457	0%
10	23	7.0	150	7.90	26.9	101.9	1185	1481	10%
20	46	14.1	150	8.04	25.8	97.5	1206	1508	19%
30	69	21.1	150	8.12	24.4	92.5	1218	1523	26%
40	92	28.2	150	8.19	23.1	87.3	1229	1536	33%
50	116	35.2	150	8.27	21.7	82.1	1241	1551	38%
60	139	42.3	150	8.28	20.2	76.4	1242	1553	42%
70	162	49.3	150	8.17	18.4	69.7	1226	1532	46%
80	185	56.3	150	8.03	16.5	62.6	1205	1506	48%
90	208	63.4	150	7.63	14.5	54.7	1145	1431	49%
100	231	70.4	150	7.17	11.7	44.4	1076	1344	48%
110	254	77.5	150	6.64	8.0	30.3	996	1245	38%
120	277	84.5	150	5.93	3.6	13.7	890	1112	21%
127	293	89.4	150	5.34	0.0	0.0	801	1001	0%

PSI	TDH Feet	TDH Meters	Motor Voltage	Motor Amps	U.S. GPM	LPM	Motor Watts	Solar Array Watts *	System Efficiency
0	0	0.0	165	9.02	30.6	115.8	1488	1860	0%
10	23	7.0	165	9.18	29.5	111.8	1515	1893	8%
20	46	14.1	165	9.34	28.5	107.9	1541	1926	16%
30	69	21.1	165	9.44	27.5	103.9	1558	1947	23%
40	92	28.2	165	9.57	26.3	99.7	1579	1974	29%
50	116	35.2	165	9.66	25.1	95.0	1594	1992	34%
60	139	42.3	165	9.73	23.8	90.2	1605	2007	39%
70	162	49.3	165	9.76	22.5	85.0	1610	2013	43%
80	185	56.3	165	9.69	21.0	79.3	1599	1999	46%
90	208	63.4	165	9.56	19.3	72.9	1577	1972	48%
100	231	70.4	165	9.36	17.5	66.1	1544	1931	49%
110	254	77.5	165	9.02	15.2	57.7	1488	1860	49%
120	277	84.5	165	8.68	12.5	47.4	1432	1790	46%
130	300	91.6	165	8.09	9.1	34.6	1335	1669	39%
140	323	98.6	165	7.52	5.2	19.7	1241	1551	26%
150	347	105.6	165	6.31	0.0	0.0	1041	1301	0%

PSI	TDH Feet	TDH Meters	Motor Voltage	Motor Amps	U.S. GPM	LPM	Motor Watts	Solar Array Watts *	System Efficiency
0	0	0.0	180	10.14	32.9	124.6	1825	2282	0%
10	23	7.0	180	10.30	31.9	120.7	1854	2318	7%
20	46	14.1	180	10.43	30.8	116.7	1877	2347	14%
30	69	21.1	180	10.54	29.8	112.8	1897	2372	21%
40	92	28.2	180	10.67	28.7	108.6	1921	2401	26%
50	116	35.2	180	10.75	27.6	104.4	1935	2419	31%
60	139	42.3	180	10.83	26.4	99.8	1949	2437	35%
70	162	49.3	180	10.88	25.1	95.2	1958	2448	39%
80	185	56.3	180	10.88	23.8	90.1	1958	2448	42%
90	208	63.4	180	10.82	22.5	85.0	1948	2435	45%
100	231	70.4	180	10.70	20.9	79.0	1926	2408	47%
110	254	77.5	180	10.49	19.3	73.0	1888	2360	49%
120	277	84.5	180	10.28	17.4	66.0	1850	2313	49%
130	300	91.6	180	9.76	15.4	58.1	1757	2196	49%
140	323	98.6	180	9.39	13.1	49.7	1690	2113	47%
150	347	105.6	180	8.90	10.4	39.2	1602	2003	42%
160	370	112.7	180	8.41	7.3	27.5	1514	1892	33%
170	393	119.7	180	7.62	3.4	12.9	1372	1715	18%
177	409	124.7	180	7.08	0.0	0.0	1274	1593	0%

* Solar array watts using a 20% deration factor.

This
item
can
be



[Irrigation](#) [Home Water Systems](#) [Livestock Watering](#)

used in the following applications. Click to view more available products.

SCS 17-280-180 BL

Solar Submersible Pump, 17GPM, 280FT Head, 180VDC, Brushless Motor

Category: [SCS - Submersible Pumps](#)

Shipping Weight: 35.00 lbs

Specifications

Flow Range: 10-25 GPM (38-95 LPM)

Controller: 170-320 Ft. (52-98 Mt.)

DC Voltage Range: 120-180

Controller: PCC 180-BLS-M2S

Minimum Well Diameter: 4" (100mm)

Discharge Size: 1 1/4" NPT

Product Details

Sun Pumps SCS series submersibles are high quality, maintenance-free, DC powered pumps specifically made for water delivery in remote locations. They operate on 160 to 3000 watts of DC power with voltage choices ranging from 30 to 240 volts.

The submersible motors incorporate the latest in high efficiency, permanent magnet, sensorless brushless DC technology and there are no electronics inside the motor. They are constructed of corrosion resistant, stainless steel.

The pump ends are multi-stage centrifugals constructed of stainless steel. The impellers are wear resistant glass filled, engineered composite and are resistant to mineral and algae deposits. The bowls are constructed of stainless steel for strength and abrasive resistance.

Sun Pumps SCS series pumps can be installed below the water level in a water well, lake, river, or cistern. They can be used to fill an open tank or used to pressurize water systems.

Sun Pumps SCS series pumps are designed for use in stand alone water delivery systems. They are pollution free, corrosion-free, self-lubricating and quiet. There is no better way to provide water for remote homes, small farms, villages, livestock, irrigation as well as many other needs beyond grid power.

Sun Pumps PCA and PCC Sensorless Brushless DC Controllers incorporate the latest state of art technology. The controllers are micro-processor based and have MPPT, Maximum Power Point Tracking to keep the solar array operating at peak efficiency at all times. The control box is powder



coated, die-cast aluminum with an extra large heat sink and rated for outdoor use.

Attachments



[SCS-17-280-180-BL-Pump-Curve.pdf](#)



[SCS Pump Data Sheet, 2014.pdf](#)

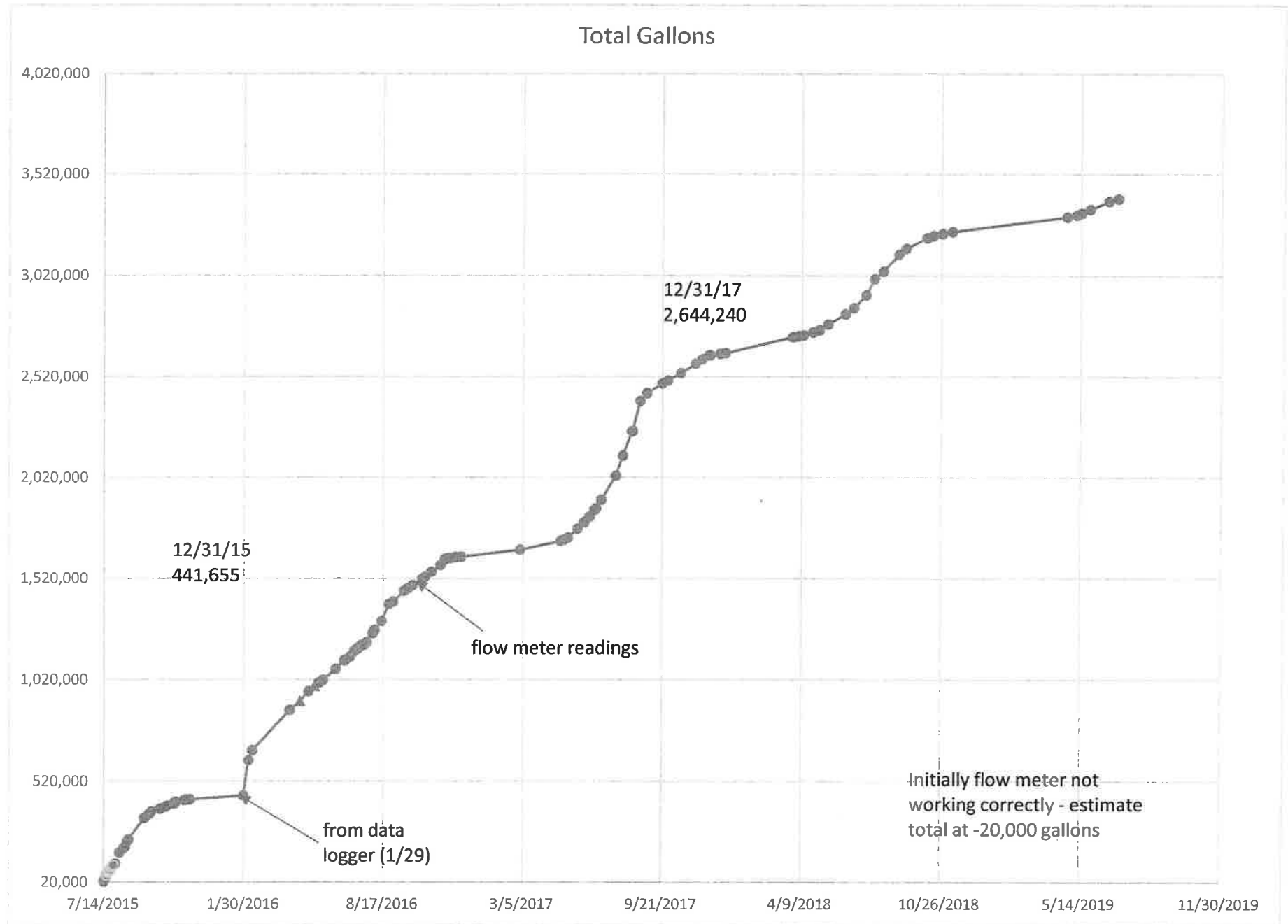


[SCS & PCC-120&180&240-BLS-M2 Manual.pdf](#)



[SCS 4 Inch 180V, Weights & Dims.pdf](#)

HANGING VALLEY HOA WATER METER READINGS



859887

* Signature of Principal Driller and rig operator are required



Pic of Well ID Tag.



Pic of Well.



Pic of Solar Panels.



Pic of Installed Measuring Device.



Pic of PSI Gauge.



Pic of Grundfos Pump Specs and Service Sticker for Custom Pump Services.



Pic of Sun Pumps Control Panel.



Pic of Storage Tank.



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 W Airport Way • Boise ID 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348

Website: idwr.idaho.gov • Email: westerninfo@idwr.idaho.gov

BRAD LITTLE
Governor

GARY SPACKMAN
Director

June 14, 2019

HANGING VALLEY RANCH INC
6263 N FAIR OAKS PL
BOISE ID, 83703

COPY

RE: Scheduling Field Exam for Water Right Permit No. 65-23440

Dear Permit Holder:

We are planning to conduct water right examinations in the vicinity of the above-referenced permit **this season**. An examination is needed to verify the water use in order to issue a water right license.

The above-referenced permit authorizes **0.300 CFS** from **GROUND WATER** for **MUNICIPAL** uses. **If you have developed a beneficial use and still own the place of use property, please contact me at your earliest convenience to schedule an examination.**

If you did not develop a beneficial use of water under the permit during the beneficial use period, a license cannot be issued and the permit should be relinquished. If that use was developed, but have ceased using the water and you currently carry no interest in it, please relinquish the permit by submitting the enclosed Relinquishment of Permit form (no fee required).

If you did develop a beneficial use of water under the permit, but you no longer own the place of use property identified in the permit, please submit the enclosed Assignment of Permit form with the applicable \$25 processing fee.

Please contact me within the next thirty (30) days at (208) 334-2190 to either schedule an examination or submit a relinquishment or assignment form. If you no longer own the place of use property and/or do not respond to this letter, the department will work with the current property owner to issue a license or void the permit.

Sincerely,

A handwritten signature in blue ink, appearing to read "Justin Shearer", is written over a horizontal line.

Justin Shearer
Water Resource Agent, Sr.

Enclosures: Relinquishment of Permit form
Assignment of Permit form
Water Permit Report and Map



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 W Airport Way • Boise ID 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348

Website: idwr.idaho.gov • Email: westerninfo@idwr.idaho.gov

BRAD LITTLE
Governor

GARY SPACKMAN
Director

April 29, 2019

COPY

HANGING VALLEY HOMEOWNERS ASSN INC
PO BOX 2598
BOISE, ID 83701

RE: Scheduling Field Exam for Water Right Permit No. 65-23440

Dear Permit Holder:

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Sincerely,

Justin Shearer
Water Resource Agent, Sr.

Enclosures: Relinquishment of Permit form
Assignment of Permit form
Water Permit Report and Map