

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED

SEP 10 2018

DEPARTMENT OF
WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 21-132091. Owner YRROW ON LLC C/O AMBER BOYCEPhone No. 208-360-5200Current address 4125 SAWTELLE PEAK ROAD, ISLAND PARK, IDAHO, 834292. Examiner's name PAUL SCORESBYEXAM DATE JULY 30, 20183. Accompanied by LANCE BOYCEEmail LANCE@MONOSLABEZFORM.COMAddress P.O. BOX 371 ISLAND PARK, IDAHO 83429Relationship to permit holder OWNERPhone No. 208-360-52004. Source GROUNDWATER

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use NONE2. Other water rights with the same source and point of diversion NONE**C. DIVERSION AND DELIVERY SYSTEM**

1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
			NE	SW	24	14N	43E	FREMONT	IDWR GIS MAPS, IN-PERSON OBSER.

2. Place(s) of Use:

Method of determination _____

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
14N	43E	24									X	X							

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

SEE ATTACHED RECORD DRAWINGS SHOWING THE SITE PLAN, WELL, AND DIVERSION PIPING WORKS.			
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Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☐ 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
0073943	FRANKLIN	5	UNKNOWN	FRANKLIN	17G191102873P

*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
FLOW METER	EM	BADGER	M2000	1706-220	2"	

2. **Measurements:** _____

EM = Electromagnetic

The flow meter was visually read during the field examination.

E. NARRATIVE/REMARKS/COMMENTS

This well will serve the domestic needs of 11 separate rental cabins and accompanying auxiliary buildings that include a garage and a hot tub, which totals 13 separate buildings. The two bedroom rental cabin is a two-story building with an on-site laundry facility on the main floor. The laundry facility has 3 washers installed. The garage has a sink and toilet installed. The hot tub has a volume of 380 gallons and the hot tub is filled and water changed around 3 times a year. We assumed 6 water changes per year for our calculations. The hot tub has no sewer connection and is filled via a water hose. The volume calculations sheet is attached.

This report requests licensing for 0.17 cfs instead of .18 cfs since a total of 14 units were developed instead of 15 units where the two-story building includes the two bedroom rental cabin and laundry facility counted as two separate units.

The type of system is a submersible pump/motor controlled by a VFD and two bladder-style pressure tanks. Refer to photos and record drawings attached at the end of this document.

Also, attached at the end of this document is the water well test pump report indicating that the static water level was at 25 feet below top of casing and that 89 gpm at 54 psi is possible when plotting the theoretical system curve over the actual pump curve. A variation of 7 gpm (96 gpm - 89 gpm) seems within reason to accept the assertion that the installed pump will supply 96 gpm at 54 psi measured by a liquid filled pressure gauge installed near the flow meter.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

F. FLOW CALCULATIONS☐ Additional computation sheets attached

Measured Method:

The flow was measured by a calibrated electromagnetic flow meter with a 96 gpm (.21 cfs) at a pressure of 54 psi on July 30, 2018.

See attached flow meter manufacturer calibration certificate, photo of the meter installed, and letter from the manufacturer for the electromagnetic flow meter.

See attached calculations and pump curve illustrating that the flow is possible.

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{N/A}$$

$$V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = \underline{N/A}$$

$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} = \underline{N/A}$$

2. Volume Calculations for Other Uses:

SEE ATTACHED SHEET FOR VOLUME CALCULATIONS.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
COMMERCIAL	1/01	12/31	0.17	2.04
Totals:				

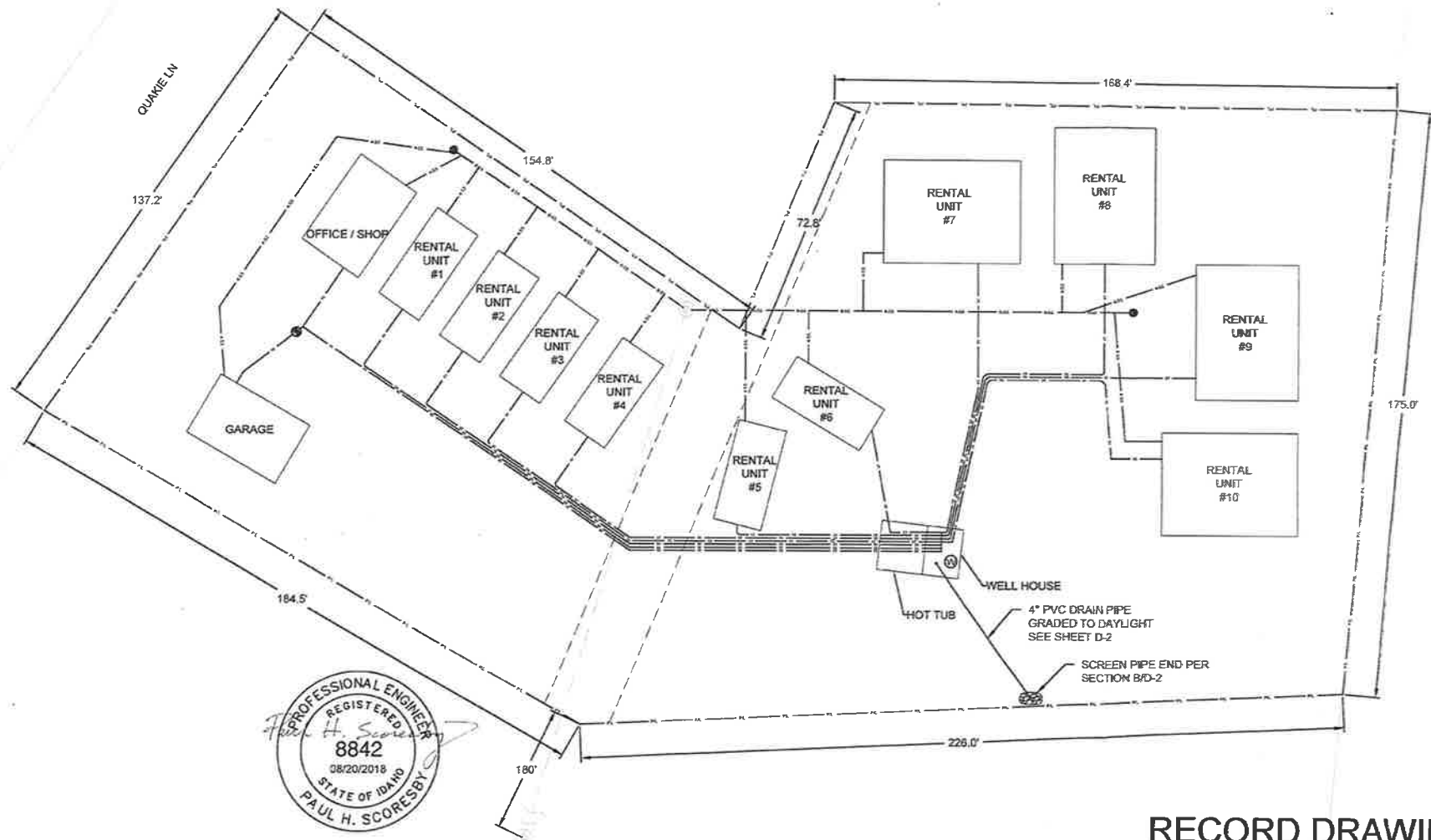
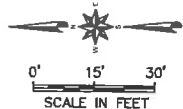
2. Recommended Amendments

☐ Change P.D. as reflected on page 1☐ Add P.D. as reflected on page 1☒ None☐ Change P.U. as reflected on page 1☐ Add P.U. as reflected on page 1☐ Other**I. AUTHENTICATION**

Field Examiner's Signature _____ Date _____

Reviewer _____ Date _____





RECORD DRAWING

NO.	REVISIONS	BY	DATE

DRAWN:	JR
DESIGNED:	PHS
HORIZ. SCALE:	1"=30'
VERT. SCALE:	N/A

Schiess & Associates
 IMPROVING COMMUNITY INFRASTRUCTURE
 Idaho Falls, ID Phone 208.522.1244

YELLOWSTONE PRESERVE

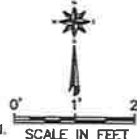
TRANSIENT WELLMATER SYSTEM AND SEWER COLLECTION SYSTEM
 ENGINEERING

PROPERTY SITE PLAN

PROJECT NO.
 16031

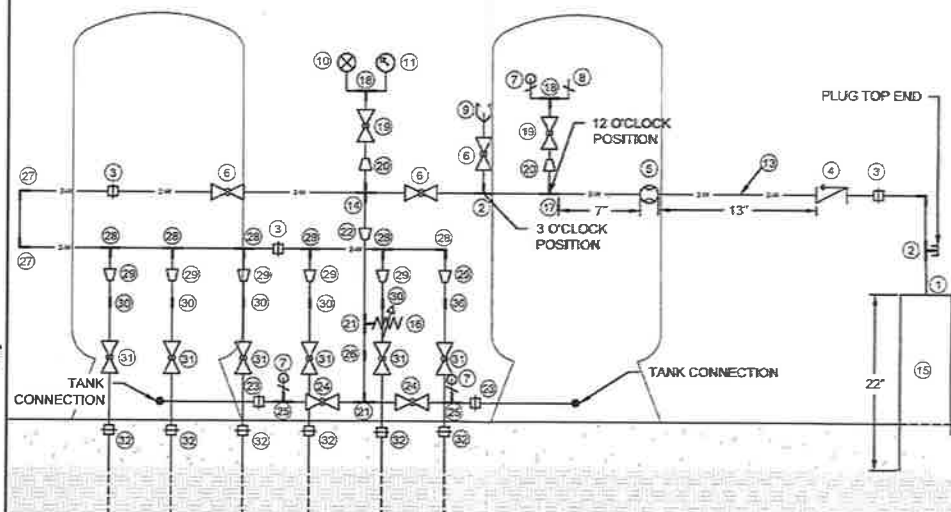
SHEET NO.
 C-2

SIZE
 B



1. COMPONENTS ARE SHOWN IN SCHEMATIC FORM ONLY AND NOT ALL ARE SHOWN WITH CORRECT ORIENTATION. SPECIFIC ORIENTATIONS FOR SELECT COMPONENTS ARE SPECIFIED IN THE EQUIPMENT SCHEDULE.
2. ENSURE ADEQUATE HEATING, LIGHTING AND VENTILATION OF PUMP HOUSE PER LOCAL & STATE RULES. ELECTRICAL, STRUCTURAL, HEATING AND VENTILATION WORKS ARE TO BE DESIGNED BY OTHERS. AVOID THE USE OF BASEBOARD HEATING UNIT. USE WALL MOUNT CADET TYPE HEATING UNIT INSTEAD.
3. ENSURE DURABLE CONSTRUCTION OF STRUCTURE USING FIRE & WEATHER RESISTANT MATERIALS.
4. SLOPE FLOOR AT 2.5% TOWARDS DRAIN.
5. FIELD DETERMINE FINISHED FLOOR ELEVATION OF THE PUMP STATION, SET FLOOR ELEVATION SO THERE IS POSITIVE DRAINAGE AWAY FROM BUILDING AND FINISH FLOOR IS 6" ABOVE OUTSIDE GRADE AROUND THE BUILDING.
6. HOLD ALL PIPING FREE OF EQUIPMENT OTHER THAN THAT SHOWN.
7. USE GALVANIZED STEEL AND COMPATIBLE FITTINGS/COMPONENTS FOR ALL MAIN PIPING IN THE BUILDING.
8. ALL EQUIPMENT MARKED WITH " " HAS MANUFACTURER'S SUBMITTAL DATA PROVIDED AT END OF DRAWINGS.

1	*SIMMONS WELL SEAL WITH VENT. SEE ALSO SHEET D-1.	9	2" CAM LOCK PROVIDE 30 FT OF 2" SOFT HOSE WITH OPPOSING GENDER FITTING	17	2"x2"x1/2" TEE	28	2"x2"x1" TEE
2	2" TEE	10	420MA PRESSURE SENSOR 0 TO 180 PSI (PROVIDE WITH VFD)	18	3/4" TEE	29	2"x1" REDUCER
3	2" UNION	11	PRESSURE GAUGE	19	3/4" BALL VALVE	30	1" 90° ELBOW
4	*NIBCO BRONZE RING CHECK VALVE OR APPROVED EQUIVALENT	12	"FLEXCON PL-65 BLADDER TYPE PRESSURE TANK	20	2"x3/4" REDUCER	31	1" BALL VALVE
5	*110V 2" BADGER FLANGED ELECTROMAGNETIC FLOW METER	13	2" GALVANIZED STEEL PIPE	21	1 1/2" TEE	32	1" UNION
6	2" BALL VALVE	14	2" CROSS	22	2"x1 1/2" REDUCER		
7	3/4" HOSE BIB WITH WATTS MODEL 8 VACUUM PREVENTOR.	15	WELL CASING	23	1 1/2" UNION		
8	3/4" SAMPLE TAP, NO THREADS	16	1" AY MCDONALD PRESSURE RELIEF VALVE	24	1 1/2" BALL VALVE		
				25	1 1/2"x1 1/2"x3/4" TEE		
				26	1 1/2" 90° ELBOW		
				27	2" 90° ELBOW		



A diagram of a pipe section. It consists of a circle divided horizontally by a line. The top half of the circle is shaded. The letter 'A' is centered in the unshaded top half, and a minus sign '-' is centered in the shaded bottom half. To the right of the circle, the text 'PIPE SECTION' is written above a horizontal line, and 'N.T.S.' is written below the line.

TRANSIENT WELLWATER SYSTEM AND SEWER COLLECTION SYSTEM

WELL HOUSE PLAN & SECTION VIEW

PROJECT NO.	16031
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SHEET NO.	SIZE
C-3	B

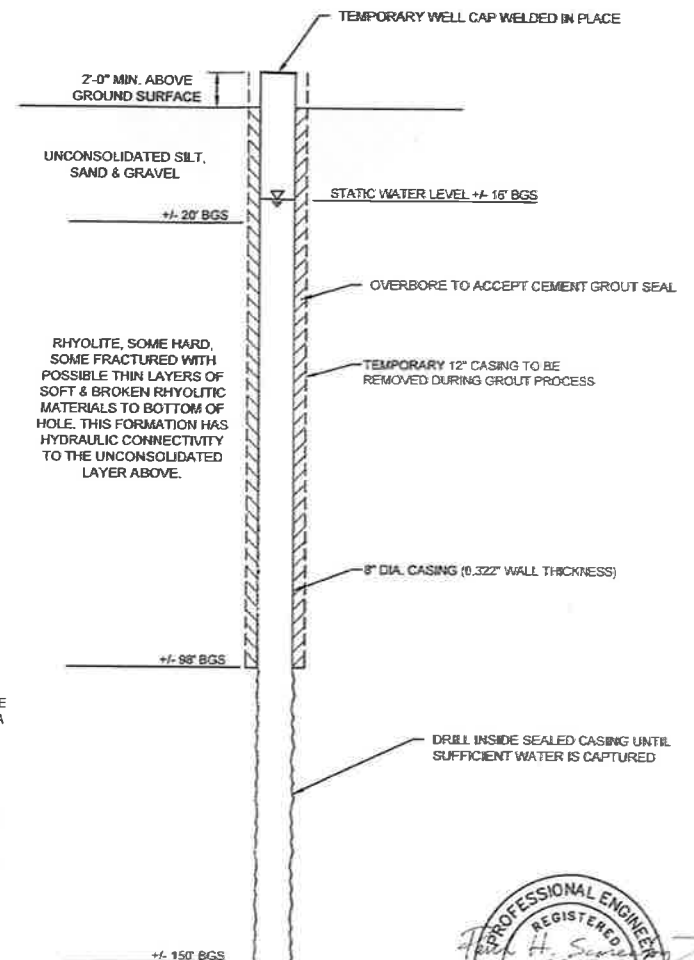
				DRAWN	JR
NO.	REVISIONS	BY	DATE	DESIGNED	PHS
This document or any part thereof in detail or design concept is the property of Schless & Associates and shall not be copied in any form without the written authorization of Schless & Associates.					
				HORIZ. SCALE:	1"=2'
				VERT. SCALE:	N/A



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Idaho Falls, ID Phone 208.522.1244

YELLOWSTONE PRESERVE

P:\2010\10031 Lucky Boy Inc LLC\5.0 Design\CAD\FINAL DRAWING SET\Final Record Drawing\10031 - COVER, G-1, G-2, C-1, C-2, C-3, C-4, C-5.dwg





Permit # 21-13209

2017 Aerial Photography



Place of Use



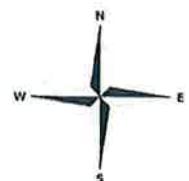
Township and Range



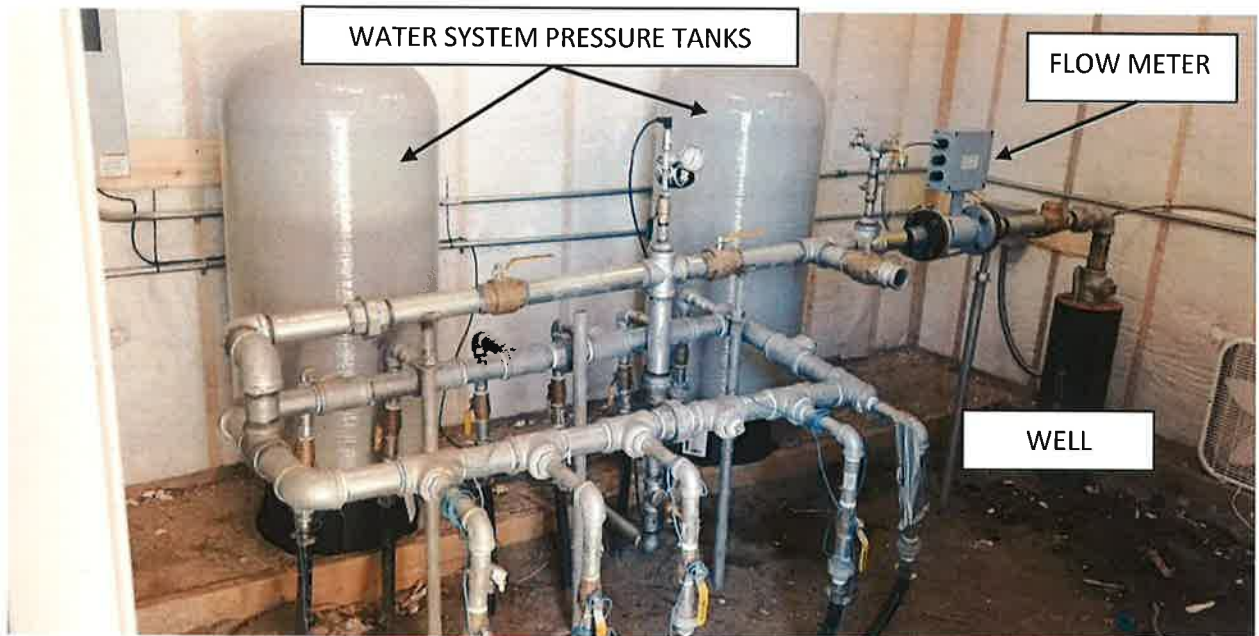
Well



New Well



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Schiess & Associates

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7103 SOUTH WEST, IDAHO FALLS, ID 83402

OFFICE: (208) 522-1244 FAX: (208) 522-9232

PAGE ____ OF ____

JOB _____

JOB NUMBER _____ SCALE _____

CALCULATED BY PHS DATE 8-31-18

CHECKED BY _____ DATE _____

Plot of System Curve

$$\begin{array}{lcl} \text{Shut-off head} & = & 54 \text{ psi system pressure} = 125' \\ (\text{at } 0 \text{ gpm}) & & \text{Static head} = \frac{25'}{150'} \end{array}$$

$$\text{At } 96 \text{ gpm} = \frac{11' \text{ headloss (80')}}{100' \text{ Pipe}} = 9'$$

2" Pipe to meter
(mostly PVC Drop Pipe)

$$= \text{Drawdown (see test pump round to 1')} = 1'$$

$$\text{Total Dynamic Head} = 160' @ 96 \text{ gpm}$$

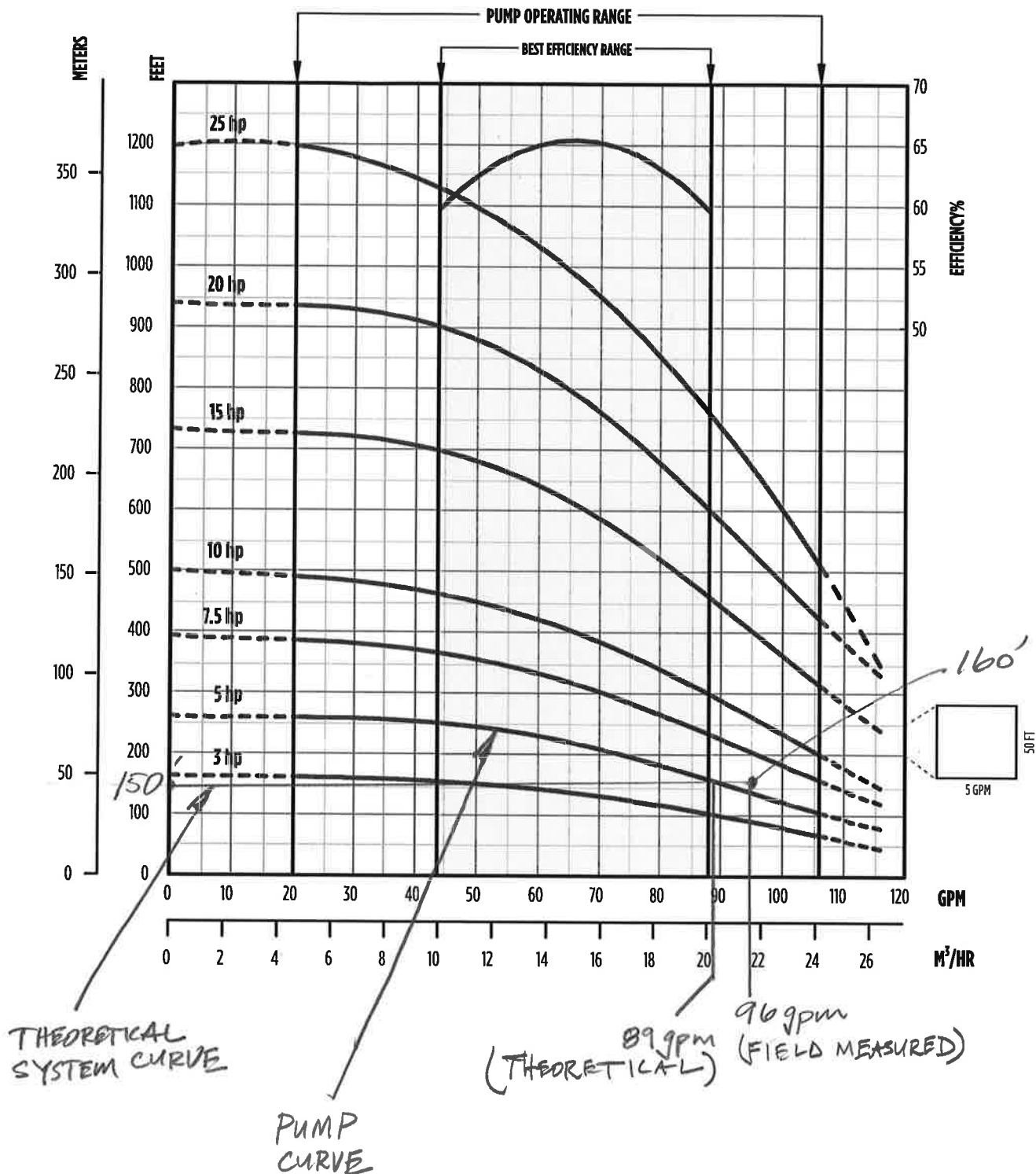
Flow	Head
0	150'
96	160'

Plot on pump curve (see following page)

Pump curve illustrates that Q should be 89 gpm instead of 96 gpm, which is a pretty good fit considering the assumptions made. Therefore accept results.

6" HIGH CAPACITY PUMPS - 75 GPM

PERFORMANCE



VOLUME CALCULATIONS

TYPES OF ESTABLISHMENTS	GAL/DAY*
COTTAGES WITH SEASONAL OCCUPANCY (PER RESIDENT)	50
LAUNDRIES (PER WASHING/CUSTOMER)	50
WORKERS (DAY (PER PERSON/SHIFT))	15

BUILDING TYPE	NUMBER OF UNITS
1 BEDROOM CABIN	6
2 BEDROOM CABIN	1
3 BEDROOM CABIN	4
GARAGE	1
LAUNDRY MAT	1

YEAR	365		
SUMMER	365	0.4	146
WINTER	365	0.6	219

OCCUPANCY	
SUMMER (ASSUME MAX)	1
WINTER (ASSUME MAX)	0.5

PEOPLE PER BUILDING	
1 BEDROOM CABIN	2
2 BEDROOM CABIN	4
3 BEDROOM CABIN	6
GARAGE (8 WORKERS SUMMER/ 2 WORKERS WINTER)	8
	2

BUILDING TYPE	VOL.	CALCULATIONS
1 BEDROOM (SUMMER)	87,600	GAL (50*6*146*2*1)
1 BEDROOM (WINTER)	131,400	GAL (50*6*219*2*.5)
2 BEDROOM (SUMMER)	29,200	GAL (50*1*146*1*4)
2 BEDROOM (WINTER)	21,900	GAL (50*1*219*4*.5)
3 BEDROOM (SUMMER)	175,200	GAL (50*4*146*1*6)
3 BEDROOM (WINTER)	131,400	GAL (50*4*219*6*.5)
GARAGE (SUMMER)	17,520	GAL (15*1*146*8*1)
GARAGE (WINTER)	3,285	GAL (15*1*219*2*.5)
LAUNDRY MAT (ASSUME 25 WASHES PER WEEK)	65,179	GAL (50*1*365*25/7)
TOTAL	662,684	GAL
	88,588	FT^3 (662,684/7.48)
	2.03	ACRE-FEET (88,588/43,560)
HOT TUB (ASSUME .01 ACRE-FEET/YEAR)	0.01	
TOTAL	2.04	ACRE-FEET

*PER IDWR NON-IRRIGATION WATER REQUIREMENTS TABLE 3

PREPARED ON: SEPTEMBER 4, 2018 BY SCHIESS & ASSOCIATES



CERTIFIED

Order 319093

BME Serial Number: 1706-220

BMI Serial Number: 49562980

Part Number: 9008405

Part Code: MID 2-50/150-A/St-HG-ML/HC-St M20AM

Detector Type 2

Nominal Size: 50

Connection: Type 2

Liner: Hard rubber

Electrode: Measuring and empty pipe electrodes (Hastelloy C)

Detector Housing: C-Steel painted

Detector Constant: 1938.500

Pressure Rating: 150 ASA

Material: 1.4301 SST

Max Temperature: 80

Protection Class: IP 67

Amplifier M2000

Mounting: Detector mounted

Transformer Housing: Cast aluminium

Flow Range: 0.93 to 373.00 GPM

Min/Max Alarm: Min = 0.00% Max = 100.00%

Power Supply: 85 - 265 VAC

Low Flow Cut Off: 0.20%

Empty Pipe Detection Active: Yes

Analog Output: 4...20 mA

Amplifier Constant: 2.50

Pulse Rate: 1 Gallon

Pulse Output: 24 V DC / Optocoupler

Pulse Length: 1:1

Interface: NO

Software Version: V1.18es

Coil Adjustment: NONE

Cable Length: 0ft.

Protection Class: IP 67

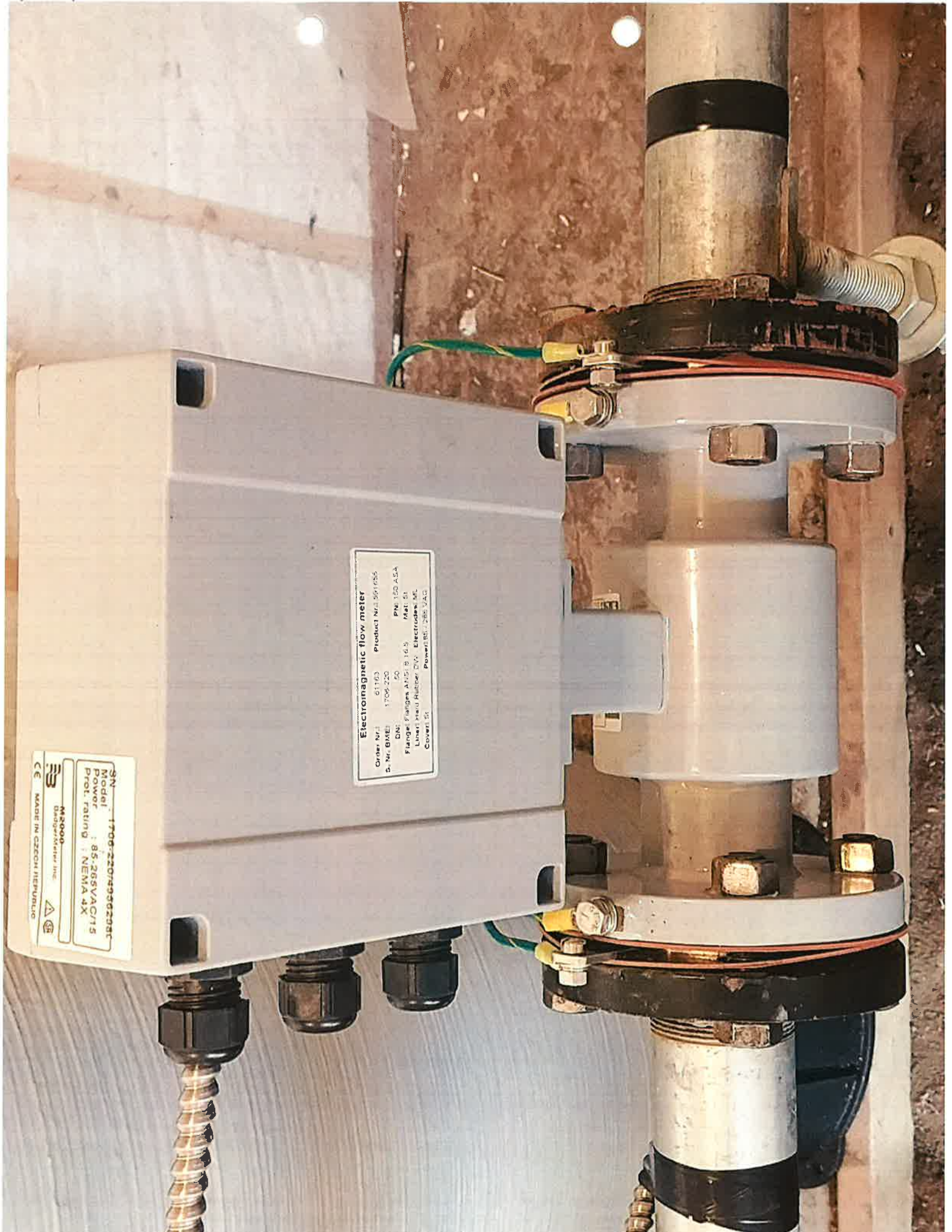
Flow Direction: Bi-directional

Pre Selection Counter: Yes

Full Scale(20mA): 80.00 GPM

Hydraulic Zero: -0.004

	<u>Flow Rate (% f. Qn)</u>	<u>% Deviation</u>
Measure Point 1:	25.0	+0.15
Measure Point 2:	50.0	+0.05
Measure Point 3:	75.0	-0.05



Electromagnetic flow meter
Order No. 61163 Product No. 591655
S. Nr. BMEI 1706-220 PNE 100 ASA
DN: 150
Flange Flanges A751 B 14.5 Mat: St
Liner: Hard Rubber DVT Electrodes: MC
Covert: St Power: 85, 285 VAC

SN 1706-220/4936298T
Model
Power : 85, 285 VAC/15
Prot. rating : NEMA 4X
MAGNET
Bridgeman Inc.
CE MADE IN CZECH REPUBLIC



4545 West Brown Deer Road
PO Box 245036
Milwaukee, Wisconsin 53224-9536
414-355-0400 | 800-876-3837
www.badgermeter.com

August 29, 2016

RE: ModMAG® M2000 Meters

To Whom It May Concern:

The Badger Meter ModMAG M2000 electromagnetic flow meters are tested and certified to the following standards by the CSA Group (file 047648_0_000, classes 2252-05 and 2252-85):

- ANSI/UL Standard 61010-1 Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements (Second Edition)
- ANSI/ISA-61010-1 (82.02.01) Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements (Second Edition)
- CSA Standard C22.2 No. 0 General Requirements - Canadian Electrical Code, Part II
- CAN/CSA-C22.2 No. 61010-1-04 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements (Second Edition)

CSA Group is recognized and accredited in the U.S. by the U.S. Occupational Safety and Health Administration (OSHA), which lists CSA Group as a Nationally Recognized Testing Laboratory (NRTL), enabling CSA Group to test products against the U.S. standards written or administered by organizations including the American National Standards Institute (ANSI), Underwriters Laboratories (UL), CSA Group (CSA), NSF International (NSF) and other organizations.

Respectfully,

A handwritten signature in black ink that reads 'Beth AB Thomas'.

Beth Thomas
Marketing Director

INDEPENDENT DRILLING, INC.
WATER WELL TEST PUMPING RESULTS

Project No. _____ Date: 9/20/2017

Owner: Lance Boyce Location: 4125 Sawtell Peak Rd, Island Park

Well Location: Sec. 24 TWP. 14N Rge. 43E

Pumping Company: Independent Drilling Operator: Stephen Dickmann

Observers: _____

Measuring Point is top of well casing which is 2 feet above ground.

Static water level is 25 feet below top of well casing at 9:00 (AM)

Well Casing: Type: Steel Dia. 8" Wall Thickness: 0.375 (inches)
Condition: New

Power Cable: Type: Sub Awg: 12-Jan Condition: New

Pump Setting is 80 feet below top of well casing. Sand Production: .2 PPM

Pump Manuf. Franklin Model No. 100 GPM 5HP

Pump Condition: New

Total Well depth is 140 feet below top of well casing.

Clock Time	Elapsed Time Since Pumping Stopped/Started (hr:min)	Depth to Water, Below Land Surface (feet)	Drawdown or Recovery (feet)	Pumping Rate (GPM)	Remarks
9:00 AM		25.00		125	Brown color
9:01 AM		25.75		125	
9:02 AM		26.00		125	
9:03 AM		26.00		125	
9:04 AM		26.00		125	Clearing brown
9:05 AM		26.00		125	
9:06 AM		26.00		125	
9:07 AM		26.00		125	
9:08 AM		26.00		125	
9:09 AM		26.00		125	
9:10 AM		26.00		125	
9:15 AM		26.00		125	.5 PPM Sand
9:20 AM		26.00		125	
9:25 AM		26.00		125	
9:30 AM		26.00		125	
9:35 AM		26.00		125	.2 PPM Sand
9:40 AM		26.00		125	
9:45 AM		26.00		125	Clear
9:50 AM		26.00		125	

INDEPENDENT DRILLING, INC.
WATER WELL TEST PUMPING RESULTS

[illegible]

Nelson, Dan

From: Nelson, Dan
Sent: Thursday, September 06, 2018 3:09 PM
To: 'Paul Scoresby'
Subject: RE: Permit 21-13209

Thank you Paul.

I will start working on it once it is received. If I find anything else, I will let you know.

Dan

From: Paul Scoresby [mailto:pscoresby@schliesseng.com]
Sent: Thursday, September 06, 2018 2:58 PM
To: Nelson, Dan <Dan.Nelson@idwr.idaho.gov>
Subject: Re: Permit 21-13209

It is in the mail.

On Thu, Sep 6, 2018 at 8:10 AM, Nelson, Dan <Dan.Nelson@idwr.idaho.gov> wrote:

Paul,

I just went through your revised field examination, and you did a very good job of clarifying the diversion rate. Originally, I did not have access to the pump test that was done, so I didn't realize that the pumping water level maintained such a high level. Using your information, the theoretical flow rate I came up with was 92 gpm, which is much more reasonable than what I was finding upon my first review. The pump curve also helps to define the diversion rate. The pump curve is -7% and my adjusted theoretical was -4% of the measurement that you made. It appears as though the pump was operating at approximately 73% efficiency, which is reasonable for small submersible pumps. I feel I can easily explain the difference in the measurements now.

I also appreciate the work you did on the annual volume calculations. This amount seems more reasonable, and fits the intent of the application for permit and the permit.

Good job on the supplement. I think I can move forward once I receive the original form back.

Thank you.

Daniel Nelson

Water Right Analyst 3

Idaho Department of Water Resources

Telephone (208) 287-4856

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

ilto:pscoresby@schuesseng.com

Sent: Wednesd

From: Paul Scoresby [mailto:pscoresby@schuesseng.com], September 05, 2018 5:52 PM

To: Nelson, Dan <Dan.Nelson@idwr.idaho.gov>

Subject: Re: Permit 21-13209

Dan,

I have attached a scan of the revised BUFR in its entirety. Please see if you can accept the added documentation. If you accept this as prepared and if you need a wet stamp, we will put it in the mail.

Sincerely,

On Thu, Aug 30, 2018 at 9:43 AM, Nelson, Dan <Dan.Nelson@idwr.idaho.gov> wrote:

Dear Mr. Scoresby,

Attached to this email is a letter I sent today concerning the field report you submitted for water right permit 21-13209. If you have any questions, please don't hesitate to contact me.

Respectfully,

Daniel Nelson

Water Right Analyst 3

Idaho Department of Water Resources

Telephone (208) 287-4856

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

--

Paul H. Scoresby, MS, PE

Schiess & Associates

7103 S. 45th W. I Idaho Falls, Idaho 83402

208-522-1244 I FAX 208-522-9232 I Cell 208-313-2454

pscoresby@schliesseng.com

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Paul H. Scoresby, MS, PE

Schiess & Associates

7103 S. 45th W. I Idaho Falls, Idaho 83402

208-522-1244 I FAX 208-522-9232 I Cell 208-313-2454

pscoresby@schliesseng.com