

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 98-7803
Exam Date: 08/02/2012

1. Current Owner:
BEE LINE WATER ASSN INC PO BOX 676 BONNERS FERRY ID 83805
2. Accompanied by: Ivan Wedel, Steve Gorton, and Robert Hansen
Phone No: 208-290-3280 (Mr. Wedel); 208-267-4415 (Mr. Gorton); 208-265-4270 (Mr. Hansen)
Address: 67 Wild Horse Trail, Sandpoint ID 83864 (Mr. Hansen)
Relationship to permit Holder: Applicant's representative(s); Mr. Hansen serves as the water system operator.

3. SOURCE:
GROUND WATER

Method of Determination: Arcmap and DRG.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
98-2133	MEADOW CREEK	DOMESTIC	LICENSE
98-7819	GROUND WATER	IRRIGATION	LICENSE
98-7821	GROUND WATER	IRRIGATION	LICENSE

Comments: 98-2133 is a surface source license that overlaps this permit's municipal POU, and serves as the primary water source as a provider for 206 water service connections. Condition X35 was added at time of licensing to mitigate overlap concern between 98-2133 and 98-7803.

98-7819 & 98-7821 are both groundwater source licenses with irrigation POU(s) that overlap this right's municipal POU. Both rights have been transferred in the past to share the same POD(s) as permit 98-7803. Historic irrigation use has changed in the past decade, and at the time of licensing overlap concern is not justified between the irrigation water rights and the municipal use. Furthermore, it is likely that large scale irrigation that had been occurring under rights 98-7819 & 98-7821 is no longer occurring and may lead to forfeiture in the event future adjudication of basin 98 were to take place. Based on this consideration, condition X35 is not recommended and the two irrigation rights will remain stand alone and not a concern for overlap with this permit.

Both North Bench Water Assn Inc. and Three Mile Water District have several water rights with irrigation, domestic, and municipal service POU's that overlap this permit's POU, but are not a concern for overlap as each respective water service provider has separate water systems and service connections.

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

Water Right No.	Source	Purpose of Use	Basis
98-7819	GROUND WATER	IRRIGATION	LICENSE
98-7821	GROUND WATER	IRRIGATION	LICENSE

Comments: Both rights 98-7819 & 98-7821 are rights with approved transfers that aligned their POD(s) with this permit's POD(s). Condition F06 was added to the permit at time of licensing describing that the three rights 98-7819, 98-7821, and 98-7803 have the same point(s) of diversion.

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

GROUND WATER NE¼ SW¼, Sec. 1, Twp 62N, Rge 01E, B.M. BOUNDARY County

GROUND WATER NW¼ SE¼, Sec. 1, Twp 62N, Rge 01E, B.M. BOUNDARY County

Method of Determination: GPS; primary well No.1 is located at -116°16.577, 48°44.971 (old well no tag); back-up well No.2 is located at -116°16.556, 48°45.047 (old well no tag).

3.

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

☒ Indicate weir size/pipe as applicable.

Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be

☒ 1:24,000 or greater.☒ Aerial Photo Attached (required for irrigation of 10+ acres).☒ 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
WELL No.1 - DEQ tag - E006790	UNKNOWN	20			
WELL No.2 - DEQ tag - E0005395	UNKNOWN	7.5			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: Unable to perform flow measurement because system pumped directly into storage reservoir without access to adequate pipe requirements to complete a measurement. Flow meter installed in system provided total gallons but did not reflect instantaneous flow rates.

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Measured Method: Two theoretic pump equations were calculated, resulting in the following flow rates:

- Well No. 1 – 20 HP pump installed at a depth of 90 feet, with 45 PSI operating pressure = 285.4 gpm
- Well No. 2 – 7.5 HP pump installed at a depth of 53 feet, with 45 PSI operating pressure = 132.2 gpm
- Total flow rate for both wells = 285.4 gpm + 132.2 gpm = 417.6 gpm or 0.93 cfs, considering department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

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

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

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

2. Volume Calculations for Other Uses:

Historical annual volume data provided by Bee Line Water Assn Inc. representative, Ivan Wedel, and water operator Robert Hansen to be used for overlap considerations:

- Year 2014, well No.1 & No.2 (98-7803): 32,664,400 gal (end of year 2014 reading) – 27,739,800 gal (start of year 2014 reading) = 4,924,600 gal / 325,850 gal per AF = 15.1 AF, considering department rounding standards.
- Year 2018, well No.1 & No.2 (98-7803) + Meadow Creek diversion (98-2133): 138,600 gal (98-7803) + 5,490,720 gal (98-2133) = 5,629,320 gal / 325,850 gal per AF = 17.3 AF combined annual volume.
- Year 2019, well No. 1 & No.2 (98-7803) + Meadow Creek diversion (98-2133): 1,765,300 gal (98-7803) + 9,833,000 gal (98-2133) = 11,598,300 gal / 325,850 gal per AF = 35.6 AF combined annual volume.
- Year 2020, well No. 1 & No.2 (98-7803) + Meadow Creek diversion (98-2133): 3,224,700 gal (98-7803) + 18,757,852 gal (98-2133) = 21,982,552 gal / 325,850 gal per AF = 67.5 AF combined annual volume.

Maximum diversion volume = largest year diversion from 2ea wells = Year 2014 annual volume = **15.1 AF**

G. NARRATIVE/REMARKS/COMMENTS

Following submission of the statement of completion by Bee Line Water Assn Inc. (Applicant) on 8/18/2007, an initial field exam by Department staff was completed on 8/2/2012. It is unclear why the permit was not finalized for licensing purposes following the initial exam, but file documents do not show field exam data collected at that time. As a result, a follow-up exam was performed on 8/4/2020 with the Applicant's water system operator, Mr. Robert Hansen, in order to collect accurate data pertaining to the permit. Mr. Ivan Wedel and Mr. Steve Gorton, Applicant's representatives, were also present at time of the 2nd exam. Due to the large gap in time between the statement of completion and 2nd field exam, historical use water system data was requested in an attempt to ascertain the beneficial use developed during that time.

During the 2nd field exam, two groundwater wells were observed diverting water for municipal purposes as part of the Applicant's water system. At the POD(s), the main well No.1 had a 20 HP pump installed; a back-up well No.2 has a 7.5 HP pump installed. Both wells diverted water to a 160,000 gallon storage reservoir before distribution to the systems service connections. Due to inadequate piping requirements, flow measurements were not able to be completed. There are flow meters installed, but they do not capture instantaneous flow, rather captures volume for reporting purposes. As a result, theoretic pump equations were used to calculate diversion rates from each of the wells as follows:

- Well No. 1 – 20 HP pump installed at a depth of 90 feet, with 45 PSI operating pressure = 285.4 gpm
- Well No. 2 – 7.5 HP pump installed at a depth of 53 feet, with 45 PSI operating pressure = 132.2 gpm
- Total flow rate for both wells = 285.4 gpm + 132.2 gpm = 417.6 gpm or 0.93 cfs, considering department rounding standards.

The total diversion rate for two wells is estimated to be 0.93 cfs, but the Applicant is limited by the permit approved diversion rate of **0.56 cfs**, which is recommended for licensing purposes. The difference between the two well's pumping capacity of 0.93 cfs and 0.56 cfs permit approved is covered under existing rights 98-7819 (0.14 cfs) and 98-7821 (0.51 cfs), which both share the POD(s) with permit 98-7803. Based on this, there is no concern of over-diversion from the Applicant's combined use(s) authorized diversion rates from the two wells.

The applicant's permit authorizes two points of diversion in the SE¼SW¼, Sec. 1, Twp 62N, Rge 01E, B.M. During the 2nd exam, GPS validated the wells are located in the NW¼SE¼ and NE¼SW¼ of Sec. 1 respectively. An application for amendment of permit to change the legal description of the two PODs prior to licensing was mailed to the applicant on 2/26/2021.

The municipal POU associated with this permit constitutes a large area POU, and Arcmap was used to trace out the Applicant's water system service area. Email correspondence from the Applicant's representative on 2/19/2021 identified that there are currently 206 service connections. Due to the lapse in time between statement of completion and 2nd field exam, 206 service connections is being used for volume considerations during licensing review. Email correspondence between Mr. Hansen and Mr. Wedel following the 2nd exam provided volume data that was referenced when determining the volume to apply to both the maximum diversion volume and for overlap consideration. Complete yearly volume data was provided for years 2014 and 2018-2020. Out of these years, 2014 represents the largest diversion volume from the two wells in what the Applicant calls their 'well field'. Computing the annual volume for 2014 equals 32,664,400 gal (end of year 2014 reading) – 27,739,800 gal (start of year 2014 reading) = 4,924,600 gal / 325,850 gal per AF = 15.1 AF, considering department rounding standards. **15.1 AF** is recommended as the annual diversion volume and maximum diversion volume for licensing purposes.

The Applicant's water system incorporates both groundwater and surface water from Meadow Creek (98-2133) to fulfill their water service needs. Both sources are piped direct to the 160,000 gallon storage reservoir prior to distribution. During normal operational years, the surface source is the primary water source, and the 2 wells associated with this permit are used for back-up during times of low flow from the surface source. This practice is validated in volume reports for years 2018-2020, where volume diverted annually from Meadow Creek is vastly larger than that from the 2 groundwater wells. Year 2020 represents the largest combined water source usage by the Applicant's referencing provided volume data as shown below:

- Year 2020, well No. 1 & No.2 (98-7803) + Meadow Creek diversion (98-2133): 3,224,700 gal (98-7803) + 18,757,852 gal (98-2133) = 21,982,552 gal / 325,850 gal per AF = 67.5 AF combined annual volume.

I use the following calculations to better understand average service connection usage for year 2020:

- 67.5 AF x 325,850 gal per AF = 21,408,345 gal for year 2020
- 21,408,345 gal (2020) / 206 service connections = 103,924 gal per year per connection on average
- 103,924 gal / 325,850 gal per AF = 0.3 AF average per service connection for year 2020, considering department rounding standards.

Considering a 0.3 AF average per service connection using volume data for the largest combined water source year (2020), it is reasonable to state that the majority of connections are seasonal use only. It is fair to state that some connections utilize closer to the 0.6 AF prescribed for domestic in home use only. If we were to apply 0.6 AF to each of the 206 service connections, the total annual volume would equal 123.6 AF. This volume is still 20.4 AF less than the 144.0 AF covered by domestic use under surface water source right 98-2133. Based on the facts that combined annual volume for years 2018-2020 prove 17.3 AF, 35.6 AF, and 67.5 AF respectively, it is clear that the Applicant's water system historically is not diverting near the 144.0 AF covered with existing right 98-2133. The 15.1 AF recommended for municipal use under this permit is not additive to the 144.0 AF for domestic use under right 98-2133; condition X35 will be added to the permit at time of licensing to limit the Applicant's combined use from rights 98-2133 and 98-7803.

All the conditions on the permit will be carried forward to licensing. Additionally, F06 was added describing that 98-7803, 98-7819, and 98-7821 share the same POD(s). Condition X35 was added limiting right(s) 98-2133 and 98-7803 to a maximum diversion volume of 144.0 AF annually. Condition 180 was added describing the POU boundary of the water right.

Condition 128 was added describing Bee Line Water Assn Inc.'s public water supply No. and POU description.

Overlap concerns:

98-2133 is a surface source license that overlaps this permit's municipal POU, and serves as the primary water source as a provider for 206 water service connections. Condition X35 was added at time of licensing to mitigate overlap concern between 98-2133 and 98-7803.

98-7819 & 98-7821 are both groundwater source licenses with irrigation POU(s) that overlap this right's municipal POU. Both rights have been transferred in the past to share the same POD(s) as permit 98-7803. Historic irrigation use has changed in the past decade, and at the time of licensing overlap concern is not justified between the irrigation water rights and the municipal use due to an average of 0.3 AF per service connection for year 2020. Furthermore, it is likely that large scale irrigation that had been occurring under rights 98-7819 & 98-7821 is no longer occurring and may lead to forfeiture in the event future adjudication of basin 98 were to take place. Based on this consideration, condition X35 is not recommended and the two irrigation rights will remain stand alone and not a concern for overlap with this permit.

Both North Bench Water Assn Inc. and Three Mile Water District have several water rights with irrigation, domestic, and municipal service POUs that overlap portions of this permit's POU, but are not a concern for overlap as each respective water service provider has separate water systems and dedicated service connections. There are no additional overlap concerns for this right.

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

H. RECOMMENDATIONS

1. Recommended Amounts

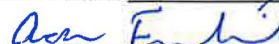
<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
MUNICIPAL	01/01 to 12/31	0.56 CFS	15.1 AF
<u>Totals:</u>		0.56 CFS	15.1 AF

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

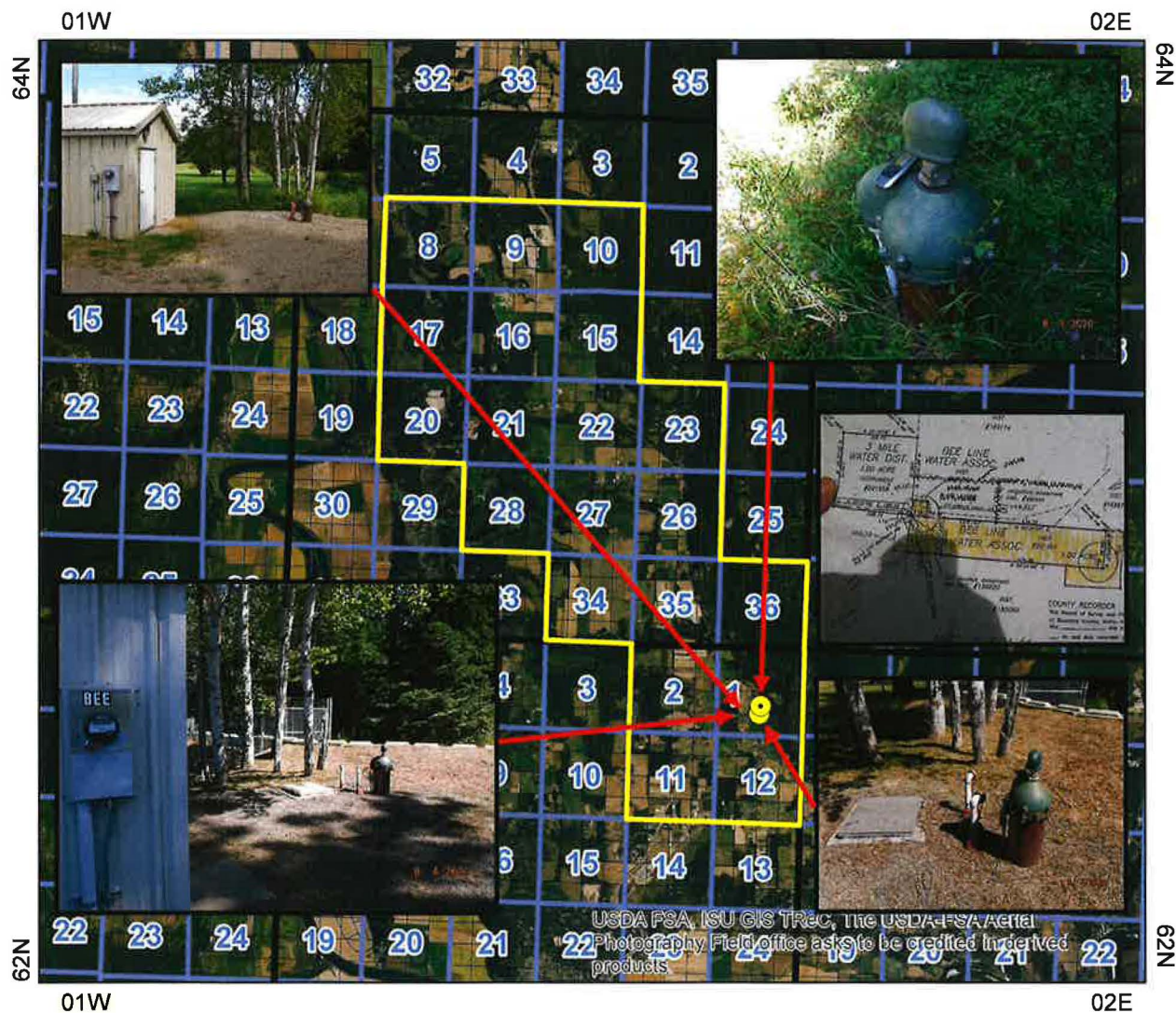
Luke Bates - Water Resource Agent

Field Examiner's Name  Date 5 March 2021
 Reviewer  Date 3/12/2021

Attachment to Field Exam

98-7803

MUNICIPAL system diagram.



- Point of Diversion
- Water Service Area Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 1.25 2.5 5 Miles



THEORETICAL PUMPING EQUATION FOR WR# 98-7803

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to be at 90 ft, and running at 45 psi.

PUMP EQUATIONS

WATER RIGHT No. 98-7803

Well No.1	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
$Q = \frac{HP \cdot 8.8 \cdot \text{Eff}}{H}$	20	194.0816	0.7	90	45
Q = 0.636 cfs 285.4 gpm					

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to be at 53 ft, and running at 45 psi.

PUMP EQUATIONS

WATER RIGHT No. 98-7803

Well No.2	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
$Q = \frac{HP \cdot 8.8 \cdot \text{Eff}}{H}$	7.5	157.0816	0.7	53	45
Q = 0.295 cfs 132.2 gpm					

BEE LINE WATER ASSN INC – PERMIT 98-7803

YEAR 2014 ANNUAL VOLUME DATA

START OF 2014 READING:

MONTHLY CHLORINATION REPORT				Month of: January 2014		
System Name: BEE LINE WATER ASSOCIATION				 DEQ 2110 Ironwood Parkway Coeur d'Alene, ID 83814 (208) 769-1422 (208) 769-1404 Fax		
County: BOUNDARY		PWS# 1110001				
Operator Signature: HOPS WELLS						
Date	Meter Reading	Water Used	Results of Chlorine Residual (mg/l)			Comments
			Location	Time	Result	
1	27740800	1000	FIRST TAP	10:30	0.52	

Volume reading at start of year = 27,739,800 gallons.

END OF 2014 READING:

MONTHLY CHLORINATION REPORT				Month of: December 2014		
System Name: BEE LINE WATER ASSOCIATION				 DEQ 2110 Ironwood Parkway Coeur d'Alene, ID 83814 (208) 769-1422 (208) 769-1404 Fax		
County: BOUNDARY		PWS# 1110001				
Operator Signature: HOPS WELLS						
Date	Meter Reading	Water Used	Results of Chlorine Residual (mg/l)			Comments
			Location	Time	Result	
29	32662400	0	FIRST TAP	10:00	0.51	
30	32663400	1000	FIRST TAP	10:00	0.53	
31	32664400	1000	FIRST TAP	10:00	0.53	32665400

Volume reading at end of year = 32,665,400 gal.

Volume Calculation for Year 2014 = 32,665,400 gal – 27,739,800 gal = 4,925,600 gal

AND

4,925,600 gal / 325,850 gal per AF = **15.1 AF**

BEELINE WATER ASSOCIATION

Well Field (600 Usher Lane, Bonners Ferry, ID 83805)				Permit # 98-7803			
Mo. No.	Month	Gallons per Month		DATE: 02/12/21		BY: Ivan Wedel (Board Member)	
2020							
	Dec-20						
	Nov-20						
	Oct-20						
1	Sep-20	1,519,200					
	Aug-20						
2	Jul-20	348,600					
3	Jun-20	92,100					
4	May-20	15,400					
5	Apr-20	1,249,400					
	Mar-20						
	Feb-20						
	Jan-20		TOTAL 2020 Volume (GAL)			3224700	
2019							
6	May-19	230,600					
7	Apr-19	1,088,800					
8	Mar-19	312,900					
9	Feb-19	133,000					
	Jan-19		TOTAL 2019 VOLUME (GAL)			1,765,300	
2018							
10	Dec-18	32,200					
11	Nov-18	45,400					
	Oct-18						
	Sep-18						
	Aug-18						
	Jul-18						
	Jun-18						
	May-18						
	Apr-18						
	Mar-18						
12	Feb-18	22,400					
13	Jan-18	38,600	TOTAL 2018 VOLUME (GAL)			138,600	

TOTAL 5,128,600 GPM (13 months reported)

Average Gallons Per Month 394,508

SUMMARY	
Meter Start - 1/11/2018	64,355,100
Meter End - 02/11/2021	76,408,500
Total Gallons	12,053,400
Average Gallons Per Month (37 mo)	325,768

BEELINE WATER ASSOCIATION

Meadow Creek Surface Water Report/Slow Sand Filter						Permit # 98-2133	
Mo. No.	Month	Gallons per Month		DATE: 02/12/21		BY: Ivan Wedel (Board Member)	
2021							
1	Jan-21	872,985					
2020							
2	Dec-20	1,031,970					
3	Nov-20	869,675					
4	Oct-20	1,230,431					
5	Sep-20	463,776					
6	Aug-20	4,988,000					
7	Jul-20	3,679,000					
8	Jun-20	3,103,000					
	May-20						
	Apr-20						
9	Mar-20	783,000					
10	Feb-20	1,802,000					
11	Jan-20	807,000	TOTAL 2020 VOLUME (GAL)			18,757,852	
2019							
12	Dec-19	707,000					
13	Nov-19	636,000					
14	Oct-19	1,866,000					
	Sep-19						
15	Aug-19	3,452,000					
	Jul-19						
	Jun-19						
16	May-19	1,312,000					
17	Apr-19	930,000					
18	Mar-19	930,000					
	Feb-19						
	Jan-19		TOTAL 2019 VOLUME (GAL)			9,833,000	
2018							
19	Dec-18	1,026,720					
20	Jul-18	4,464,000	TOTAL 2018 VOLUME (GAL)			5,490,720	
2017							
21	Dec-17	1,018,000					
22	Nov-17	1,098,000					
23	Oct-17	2,136,000					
24	Sep-17	1,544,000					
25	Aug-17	2,015,000					
26	Jul-17	3,379,000					
27	Jun-17	2,500,000	TOTAL 2017 VOLUME			13,690,000	

TOTAL **48,644,557 GPM** (27 months reported)

Average Gallons Per Month **1,801,650**



POD - WELL No. 1 - NO TAG, 20 HP PUMP



8/ 4/2020

DEQ TAG WELL No. 1 – E0006790



8/ 4/2020

POD WELL No. 2 – NO TAG, 7.5 HP PUMP



DEQ TAG WELL No. 2 – E0005395

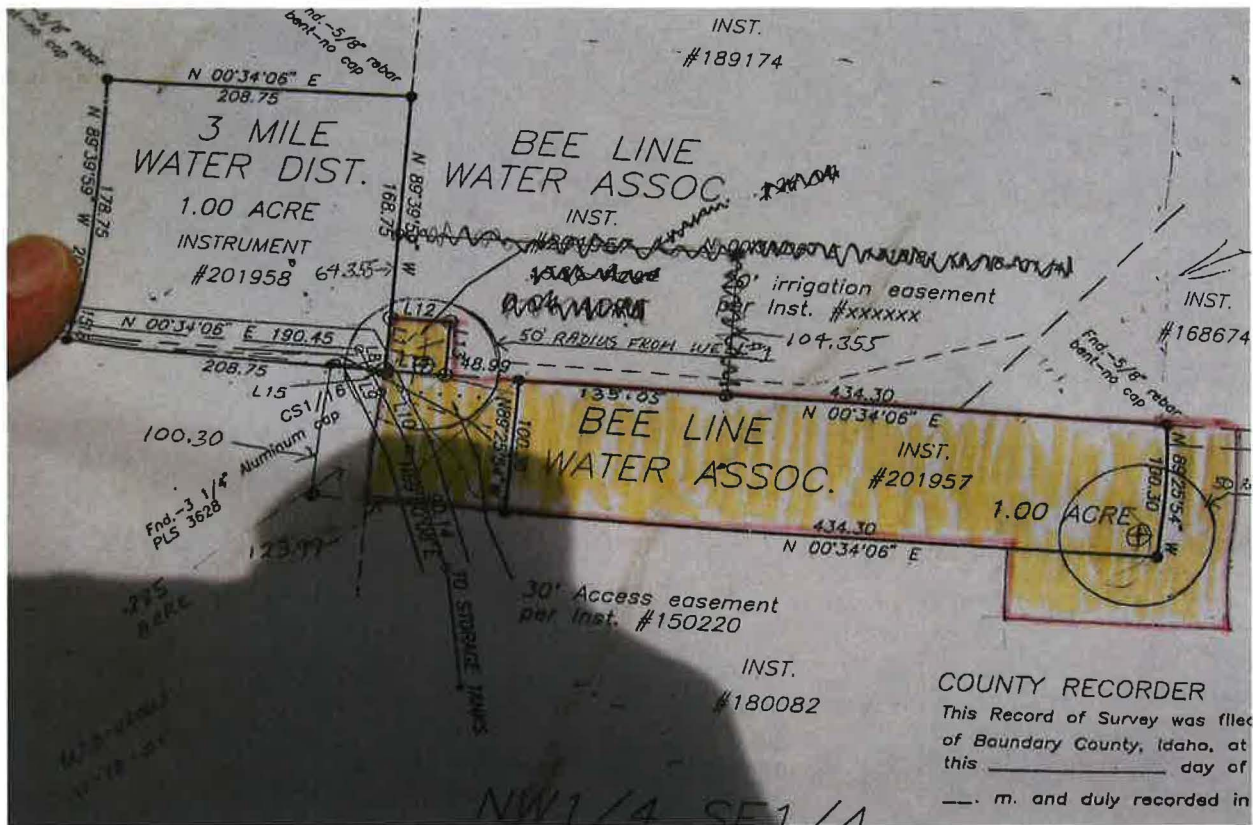


PUMP STATION CO-LOCATED WITH WELL No. 1

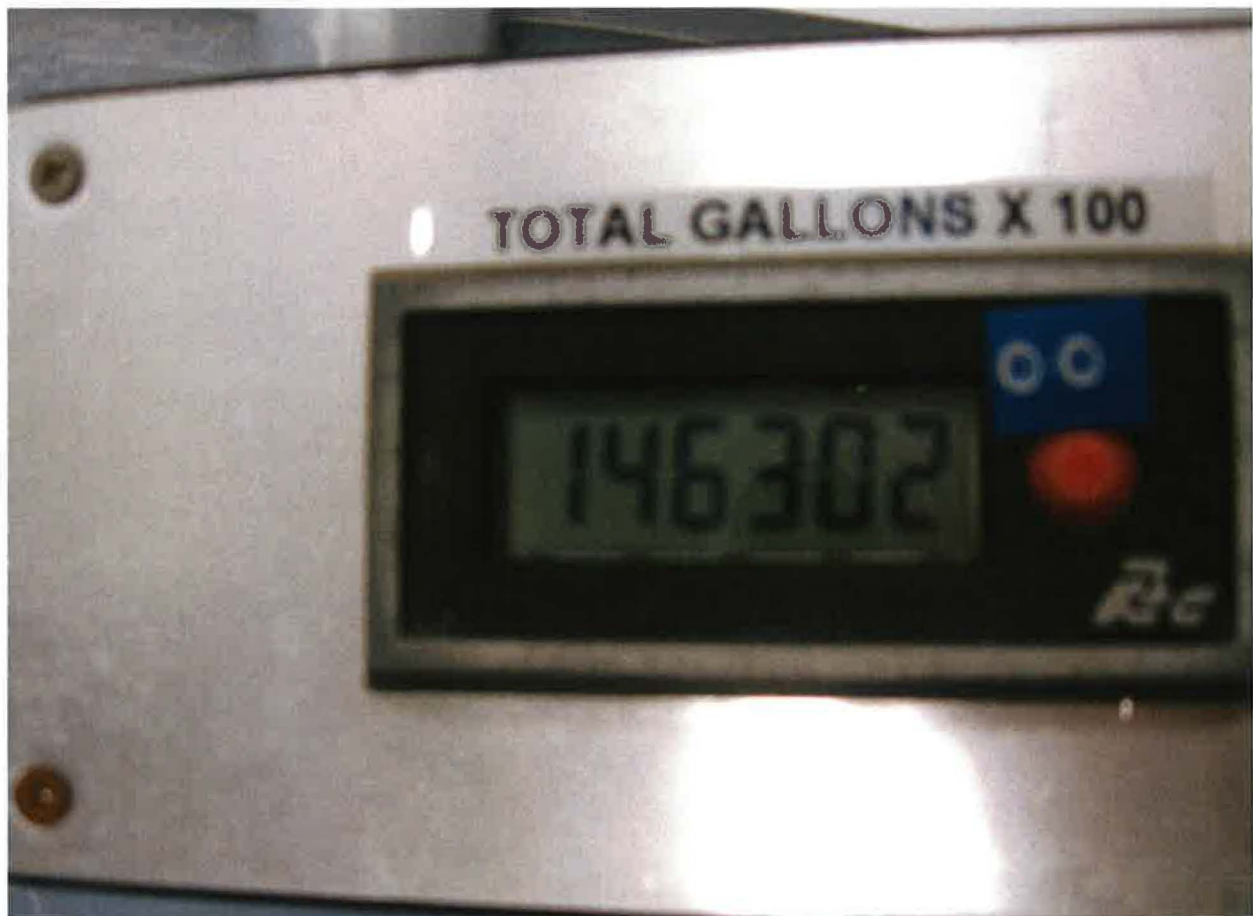


WELL PUMP(S) CONTROL PANEL & ELECTIC WORKS





WELL LOCATION SYSTEM DIAGRAM



VOLUME METER (PHOTO TAKEN 8/2/2012)