

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-17203
Exam Date: 07/28/2022

1. Current Owner:
ALK ABELLO SOURCE MATERIALS INC 448 S LOCHSA ST POST FALLS ID 83854-5413
2. Accompanied by: Frank Phillips
Phone No: 208-618-9377
Address: 448 S Lochsa St. Post Falls ID 83854
Relationship to permit Holder: Representative

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
95-9222	Groundwater	Irrigation	Decreed
95-17174	Groundwater	Domestic	Decreed

Comments:

- Decreed Right 95-9222 uses the older of two groundwater wells for irrigation with the majority of acreage directly overlapping Permit 95-17203's POU. During licensing review irrigation acreage was evaluated and condition X35 was revised to reflect that the two Rights when combined shall not exceed a total diversion rate of 0.14 cfs nor 45.6 af for the irrigation of 15.2 acres. All three values are linked to field exam findings from the current irrigation system which uses two wells. I note that on paper in the NW¼NW¼ of Section 16 95-9222 is authorized 6.4 acres whereas 95-17203 is being recommended for 5.5 acres. This difference of 0.9 acres is due to carve-out of acreage for the area of the property that houses the facilities and graveled yard which exactly aligns with 0.9 acres in the NW¼NW¼. As a result, the 5.5 acres is consistent with active & historic irrigation within the last 5 years based on aerial imagery.
- Decreed Right 95-17174 uses the original groundwater well for domestic use at the applicant's office building. There is only an overlap between 95-17174's domestic POU and 95-17203's fire protection POU. As a result, there is not a concern for overlap due to the fire suppression system only being used to fight an active fire. No overlap between these two rights is recommended for licensing.

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

Water Right No.	Source	Purpose of Use	Basis
95-9222	Groundwater	Irrigation	Decreed
95-17174	Groundwater	Domestic	Decreed

Comments:

- The original groundwater well (95-92-N-87-100) serves both 95-9222 & 95-17174 prior to the current permit filing which added the new GW well D0072232 to the system. As a result, all three water rights share the two groundwater PODs and I've recommended licensing for 95-17203 with addition of condition F06 describing the shared POD between the three water rights.
- I notified the applicant's representative during the exam that a transfer to add PODs to both prior Rights was recommended. As it sits at time of licensing if the old well becomes inoperable both 95-9222 & 95-17174 are not authorized to divert water from the new well on the face of the water rights. Mr. Frank Phillips asserted he would consider the transfer process moving forward.

C. DIVERSION AND DELIVERY SYSTEM

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

GROUND WATER NW¼ NW¼, Sec. 16, Twp 46N, Rge 04W, B.M. BENEWAH County

GROUND WATER NE¼ NW¼, Sec. 16, Twp 46N, Rge 04W, B.M. BENEWAH County

Method of Determination: GPS; POD(s) are located at -116°50.887, 47°20.198 well 95-92-N-87-100 and
 -116°50.7932, 47°20.1262 well D0072232.

PLACE OF USE: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
46N	04W	16					9.7	5.5											15.2

Total Acres: 15.2

PLACE OF USE: FIRE PROTECTION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
46N	04W	16					X	X											

Method of Determination: Beneficial use field exam and ArcMap aerial imagery.

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
95-92-N-87-100	PENTAIR	5	176L8223278104D385		
D0072232	PENTAIR	5	176L8223261004D375		

D. FLOW MEASUREMENTS

1.

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

2. Measurements: I was unable to perform flow measurement due to inadequate pipe requirements. Water from each well is pumped directly to two pressure tanks located within each pump station prior to distribution to frost free hydrants. During licensing review Theoretic Pump Equations were used to calculate each well & pump's flow rate resulting in a combined total diversion rate of 0.14 cfs considering department rounding standards.

E. FLOW CALCULATIONSX Additional Computation Sheets Attached

Measured Method: Two Theoretic Pump Equations as follows:

- 95-92-N-87-100 – 5 hp pump installed at depth of 385 ft with operating pressure of 45 PSI = 32.4 gpm or 0.072 cfs.
- D0069867 – 5 hp pump installed at depth of 405 ft with operating pressure of 45 PSI = 31.1 gpm or 0.069 cfs
- Combined total = 63.5 gpm or 0.055 cfs = **0.14 cfs** considering department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 15.2 \text{ ac} \times 3.0 \text{ afa} = 45.6 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.14 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 59.4$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{45.6 \text{ af}}$$

2. Volume Calculations for Other Uses: due to the fire protection beneficial use there shall be no Maximum Diversion Volume assigned to the face of the license, but irrigation volume is represented for annual usage and in conditions of approval.

G. NARRATIVE/REMARKS/COMMENTS

Beneficial use field examination conducted on 7/28/2022 with the applicant's representative, Frank Phillips, showed two groundwater well sources being used for irrigation purposes. Each well, 95-92-N-87-100 & D0072232, have pump houses and nearly identical diverting system components as described below:

- Well 95-92-N-87-100 – pump station built around well head. 5 HP Pentair pump motor pipes directly to two pressure tanks prior to distribution. A 5 HP Marathon Electric horizontal centrifugal pump is installed inline from the well serving as a booster pump, which has never been operated by the applicants. This pump is presumed to be operated during fire suppression events. Mr. Phillips asserts the booster pump isn't needed with both well pumps serving active irrigation.
 - There was a memo to file entered on 9/15/2016 by Adam Frederick, which stated the application annotated well D0022658 was the incorrect well. During the exam I discussed this with Mr. Phillips and he in turn provided the well log for 95-92-N-87-100, which he asserts has been the well in use from the initial built of the facility. As there is no well tag associated with the casing, it's reasonable to link this well with the applicant's system; the well centroid for 95-92-N-87-100 has been data entered as a bulk centroid center mass of the 40-acre tract legally described as the NW ¼ NW ¼, Section 16, Twp 46N, Rge 04W which is consistent with the Permit approved POD legal description.
- Well D0072232 is situated in the SE corner of the irrigation POU on the applicant's property. A small pump station is co-located with the well head, which has a 5 HP Pentair pump motor piped directly to two pressure tanks prior to distribution. Similar to the other well, a 5 hp centrifugal pump was installed inline but has never been operated.

I was unable to perform flow measurements due to both wells pumping directly to pressure tanks with inadequate pipe requirements. Two Theoretic Pump Equations were calculated during licensing review deriving the following flow rates:

- Well 95-92-N-87-100 – 5 HP pump at depth of 385 ft with 45 PSI pressure equates to 32.4 gpm
- Well D0072232 – 5 HP pump at depth of 405 ft with 45 PSI pressure equates to 31.1 gpm.

- Maximum diversion rate recommended for licensing equals the sum of two pumps = 63.5 gpm or **0.14 cfs** considering department rounding standards.

The wells are system connected and work to serve numerous main trunk irrigation lines that route throughout the irrigation POU. Irrigation riser pipes with lateral hose connections are installed at intervals allowing irrigation by impact sprinklers for various cover crops and tree plantings. I noted the water system uses ¾ inch nozzle brass impact sprinklers from lateral lines for much of the irrigation practices. Additionally, there are several line splitter controls that use hoses to micro emitters and soaker hoses for various runs of irrigation for plant plots that require less water than those irrigated by impact sprinklers. The applicant also irrigates grass area along the road frontage of the facility by hose and sprinklers. Photographs were taken of the irrigation POU, and I sketched out the POU as we walked it during the exam.

During licensing review, I used ArcMap aerial imagery to accurately trace out the irrigation POU, which consists of 15.2 acres irrigation. The permit authorized irrigation up to 16 acres, but the applicants hadn't developed a strip of land on the southern extent of the permit approved POU as found during the field exam and don't gain credit for that 0.8 acres toward licensing this permit. The annual volume recommended for licensing equals 15.2 ac x 3.0 afa = **45.6 af**.

The fire protection POU was traced out similarly to the irrigation POU, but also includes the facility and out-buildings located on the property. Fire protection beneficial use doesn't receive volume metrics for licensing but is recommended for licensing with a diversion rate of 0.14 cfs. If booster pumps are turned on in the future solely to suppress an active fire, enlargement of the 0.14 cfs flow rate shall be considered an exempt use for fire protection. The applicant is not authorized to irrigate with a larger diversion rate unless a new application for permit secures added diversion rate to the existing licenses owned by the applicant. There will be no maximum diversion volume associated with the face of the license.

Conditions 26A and 046 were removed from the permit during licensing review. Condition X35 was revised to reflect combined use limitations between the applicant's prior right 95-9222 & 95-17203 for irrigation as described above on page 1-2. Condition F06 was added describing shared POD(s) between three water rights owned by the applicant associated with the facility and irrigation system. All other conditions on the permit shall be carried forward to licensing. The only overlapping water right concerns have been discussed above and mitigated. There are no additional overlapping water rights concerns toward licensing this right.

Have conditions of permit approval been met? X 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>
IRRIGATION	04/01 to 10/31	0.14 CFS	45.6 AF
FIRE PROTECTION	01/01 to 12/31	0.14 CFS	

Totals: 0.14 CFS

2. Recommended Amendments

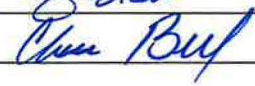
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION

Luke Bates -

Field Examiner's Name  Date 12/29/2023

Reviewer  Date 6/6/2024

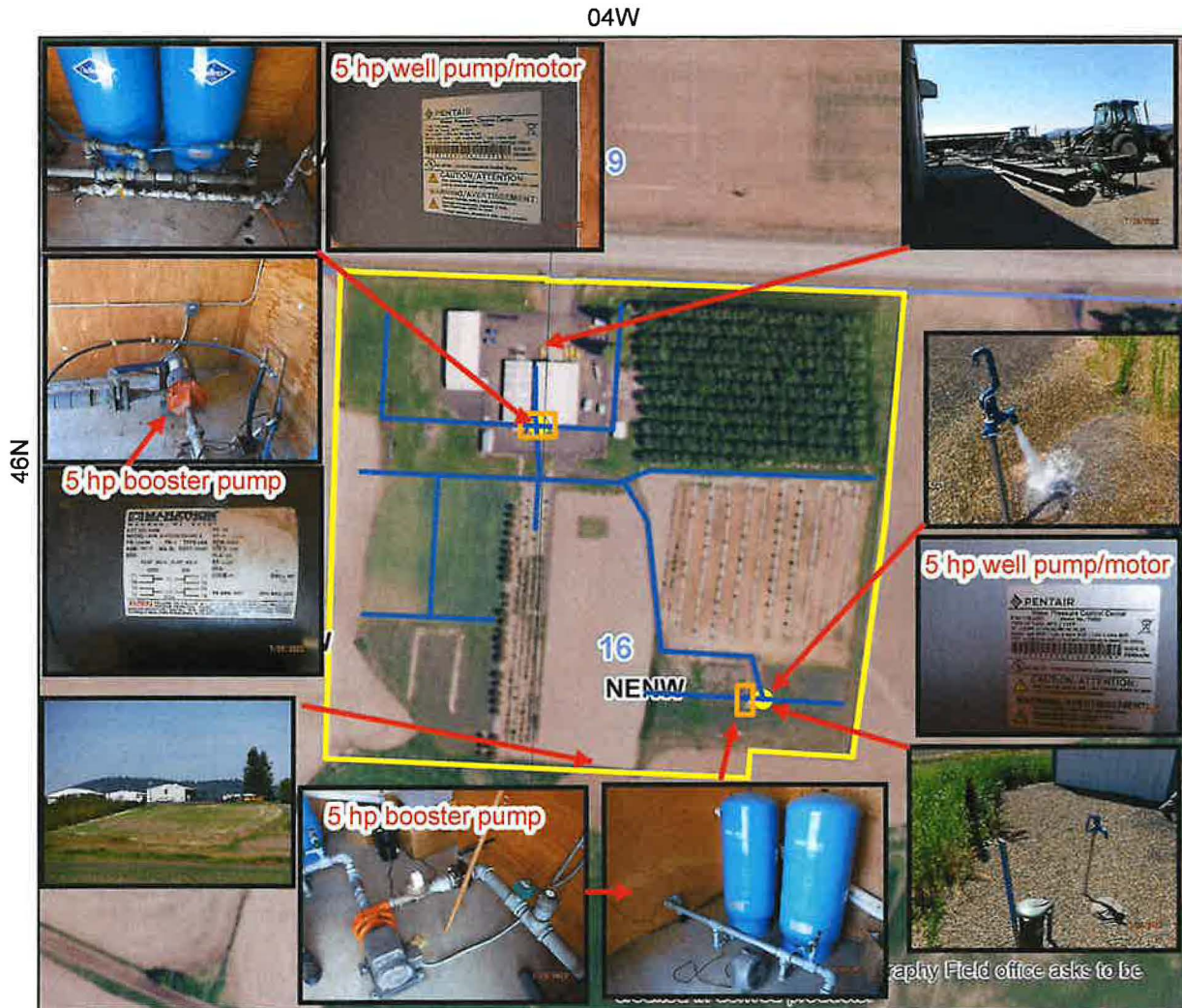
State of Idaho
Department of Water Resources
Attachment to Field Exam
95-17203

This map depicts the IRRIGATION system diagram.



State of Idaho
Department of Water Resources
Attachment to Field Exam
95-17203

This map depicts the FIRE PROTECTION system diagram.



0 0.035 0.07 0.14 Miles

- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters
- Point of Diversion



THEORETICAL PUMPING EQUATION(S) FOR WR# 95-17203

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 385 ft, and running at 45 psi.

PUMP EQUATION

WATER RIGHT No. 95-17203

95-92-N-87	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q = HP*8.8*Eff/H	5	489.0816	0.8	385	45

Q = **0.072 cfs** **32.4 gpm**

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 410 ft, and running at 45 psi.

PUMP EQUATION						
WATER RIGHT No. 95-17203						
D0072232		HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q =	HP*8.8*Eff/H	5	509.0816	0.8	405	45
Q =		0.069 cfs		31.1 gpm		

32.4 GPM + 31.1 GPM = 63.5 GPM or 0.14 CFS based on Department rounding standards.

9/22/95 d

IDAHO DEPARTMENT OF WATER RESOURCES

Typewriter
or
Ball Point Pen

WELL DRILLER'S REPORT

1. DRILLING PERMIT NO. 95-92-N-87-100
Other IDWR No. 467

2. OWNER:
Name BETTY ROECKS
Address RT. 1 BOX 162
City FAIRFIELD State WA Zip 99201

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N
W E
Twp. 46 North ☐ or South ☐
Rge. 4 W East ☐ or West ☒
Sec. 16 NW 1/4 SE 1/4 SW 1/4
Gavt Lot _____
County BENEFAH

Address of Well Site _____

(Days at least) (name of road) = Distance to Road or Landmark

Lt. _____ Blk. _____ Sub. Name _____

4. PROPOSED USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK

☐ New Well ☒ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD

☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES

BEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Becks or Pounds	

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____

Was drive shoe seal tested? Y ☐ N ☐ How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Unr	Welded	Threaded
4"	-5	400'		PVC	☐	☒	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☐ Perforations Method _____

☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Line
360'	400'	1/8"	60			☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

150' ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or
control devices:

control devices: NW NW 16 46N 4W

FORWARD WHITE COPY TO WATER RESOURCES

11. WELL TESTS:

☐ Pump ☐ Baller ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
60+			1 HR

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments:

12. LITHOLOGIC LOG: (Describe repairs or abandonment) Water

[illegible]

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name VERMILLION WELL DRILLING Firm No. 467

Firm Official **KEITH D. VERMILLION** Date **8/16/95**

and

Supervisor or Operator Wesley G. Smith Date 8-16-95

(Sign once if Firm Official & Operator)

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0072232

Drilling Permit No. 879724

Water right or injection well # _____

2. OWNER:

Name ALK-Abello Source Materials INCAddress 448 South LochsaCity Post Falls State ID Zip 83854

3. WELL LOCATION:

Twp. 46 North ☒ or South ☐ Rge. 4 East ☐ or West ☒Sec. 16 1/4 NE 1/4 NW 1/4Gov't Lot _____ County BenewahLat. 47 20.126 (Deg. and Decimal minutes)Long. 116 50.792 (Deg. and Decimal minutes)Address of Well Site 1901 State Hwy 5City Plummer

(Give at least name of road - Distance to Road or Corner)

Lot _____ Blk _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method/procedure
Bentonite	0	38	1050 lbs	pour around pipe

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Linear	Threaded	Welded
6"	+2	-38	2.50	Steel	☐	☐	☐	☒
4"	-16	-425	sch 40	PVC	☐	☒	☐	☐

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____

9. PERFORATIONS/SCREENS:

Perforations ☒ Y ☐ N Method Skill SawManufactured screen ☐ Y ☐ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number(ft)	Diameter (nominal)	Material	Gauge or Schedule
-315	-415	1/4x8	75	4"	PVC	Sch 40

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method
NONE				

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____Describe control device Well Cap

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 320 ft Static water level (ft) 136 ftWater temp. (°F) Cold Bottom hole temp. (°F) _____Describe access port Well Cap

Well test:

Test method:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowing artesian
100+ gpm	at 425 ft for	4 hrs	☐	☐	☒	☐

Water quality test or comments: Cold and Clear/ No Odor

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
10	0	3	top soil		X
	3	6	clay		X
	6	15	broken basalt		X
6"	15	320	hard basalt		X
	320	326	broken basalt w/little clay-20 gpm	X	
	326	425	broken soft basalt w/water	X	
			100+ gpm at 425 ft		

RECEIVED

AUG 17 2016

IDWR / NORTH

Completed Depth (Measurable): 425 ftDate Started: 8-8-16Date Completed: 8-10-16

14. DRILLER'S CERTIFICATION:

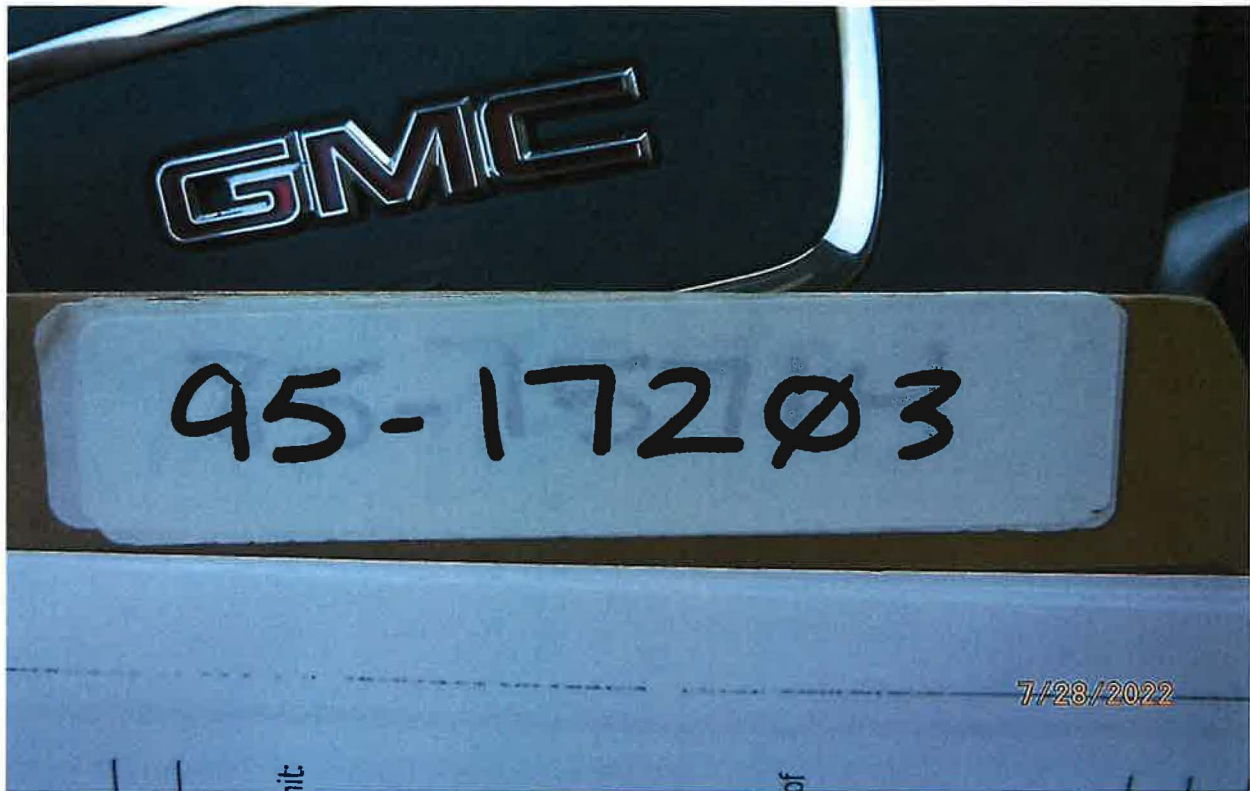
We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Interstate Drilling LLC Co. No. 689Principal Driller Ryan Suchacki Date 8-12-16Driller [Signature] Date 8-12-16

Operator II _____ Date _____

Operator I Wendy Suchacki Date 8-12-16

* Signature of Principal Driller and rig operator are required.



BENEFICIAL USE FIELD EXAMINATION DATE 7/28/2022



POD – WELL 95-92-N-87-100 – WELL WITH CONCRETE PAD AND PUMP HOUSE DEVELOPED OVER WELL



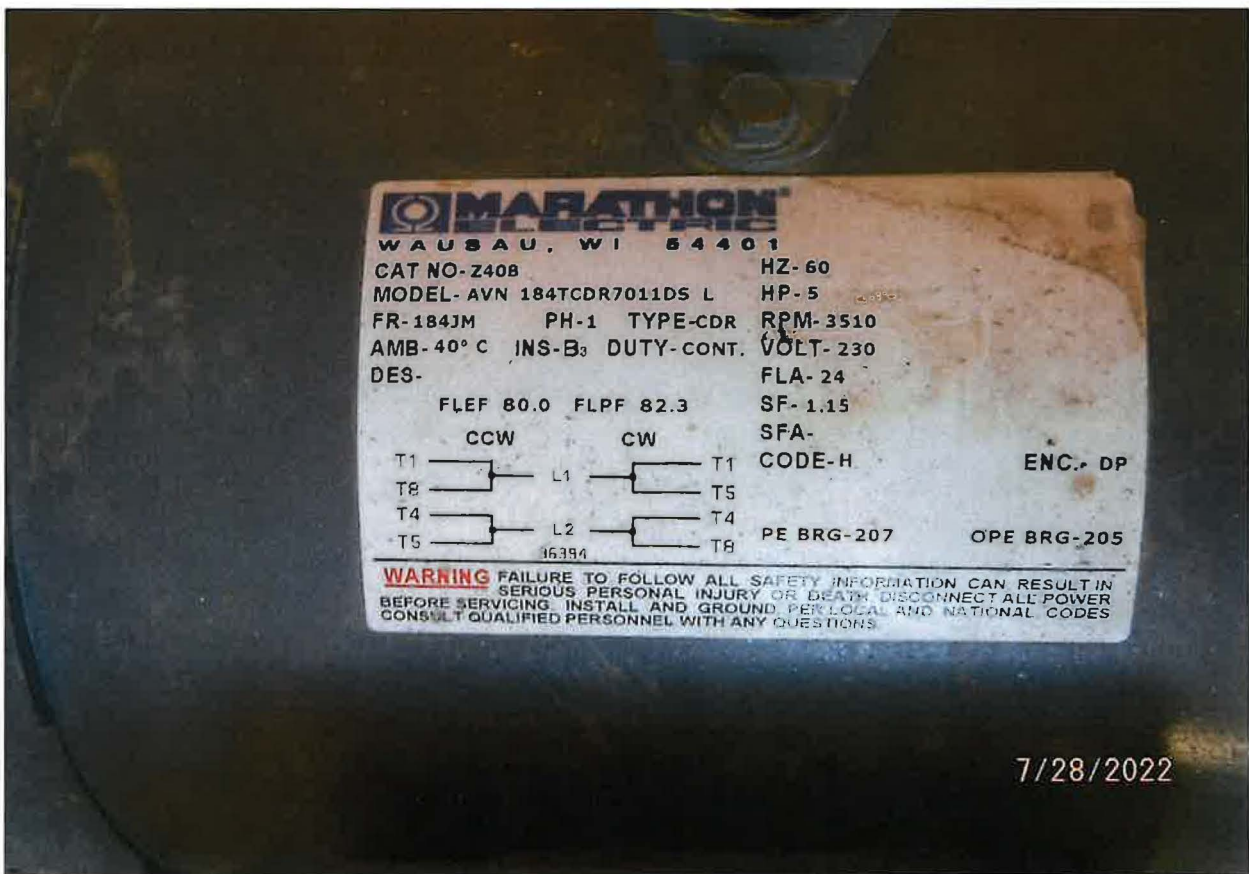
PENTAIR 5 HP 3 PHASE VARIABLE FREQUENCY DRIVE PUMP MOTOR INSTALLED IN WELL BY BUILDING



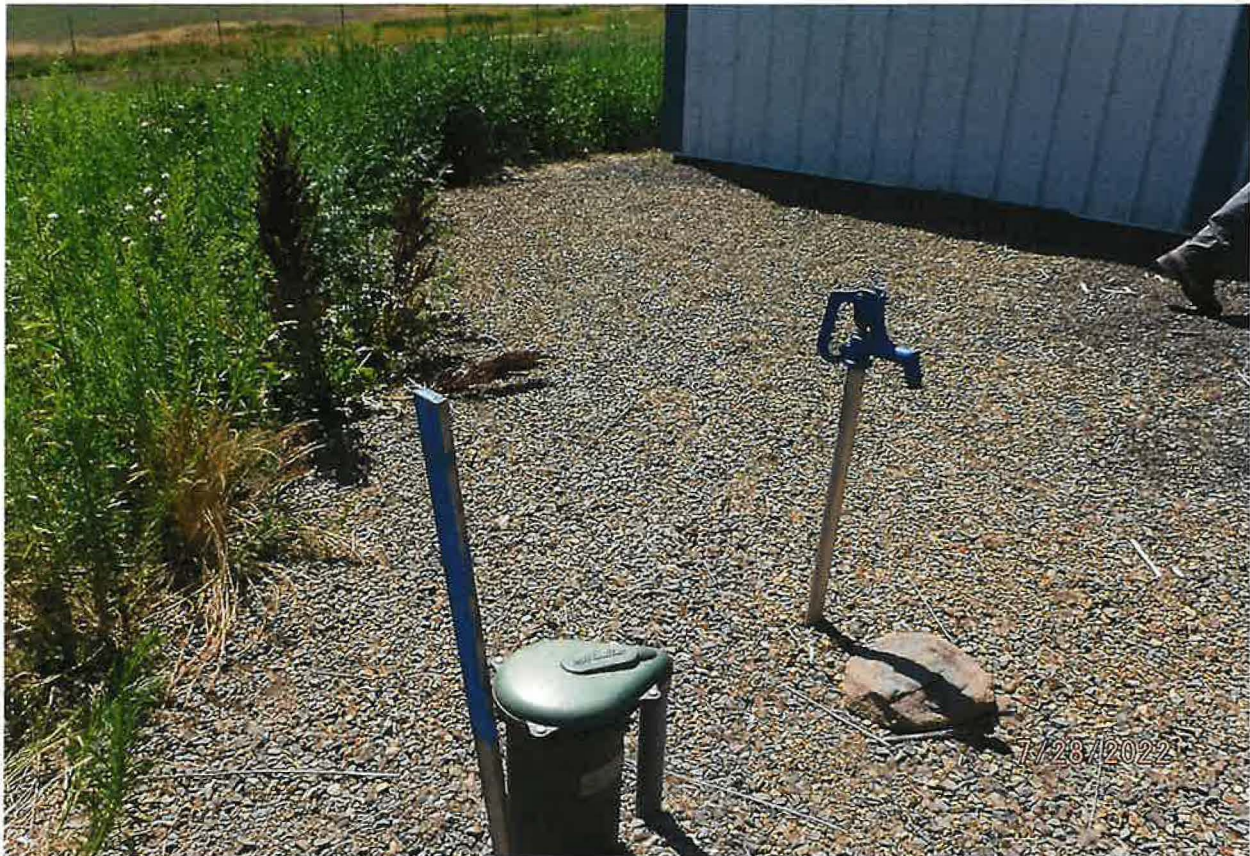
65 PSI OPERATING PRESSURE FROM PRESSURE TANKS



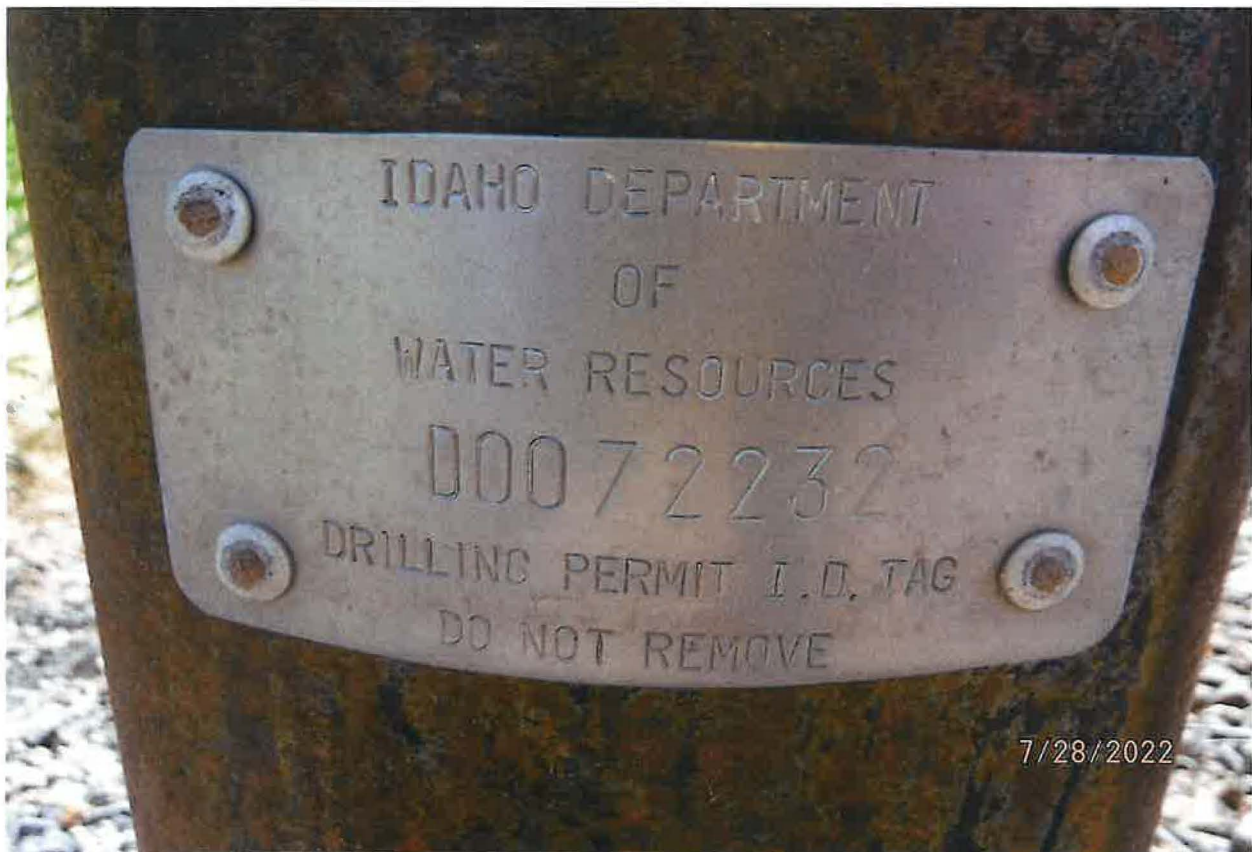
CENTRIFUGAL BOOSTER PUMP (NEVER BEEN USED) INSTALLED ON SYSTEM FOR FIRE PROTECTION USE



5 HP BOOSTER PUMP – BUILT IN TO USE IN EVENT FIRE SUPPRESSION IS REQUIRED



POD – 2ND NEW WELL LOCATED IN IRRIGATED FIELD; D-TAG D0072232





5 HP PENTAIR VARIABLE FREQUENCY DRIVE PUMP MOTOR INSTALLED; 62 PSI OPERATING PRESSURE FROM 2 PRESSURE TANKS





MAIN WATER LINE FROM WELL TO 2 PRESSURE TANKS BEFORE DISTRIBUTION TO IRRIGATION SYSTEM



BOOSTER PUMP INSTALLED IN DIVERSION WORKS FOR WELL D0072232 – NEVER BEEN TURNED ON, INTENDED FOR USE IN EVENT FIRE SUPPRESSION IS REQUIRED.



IRRIGATION POU



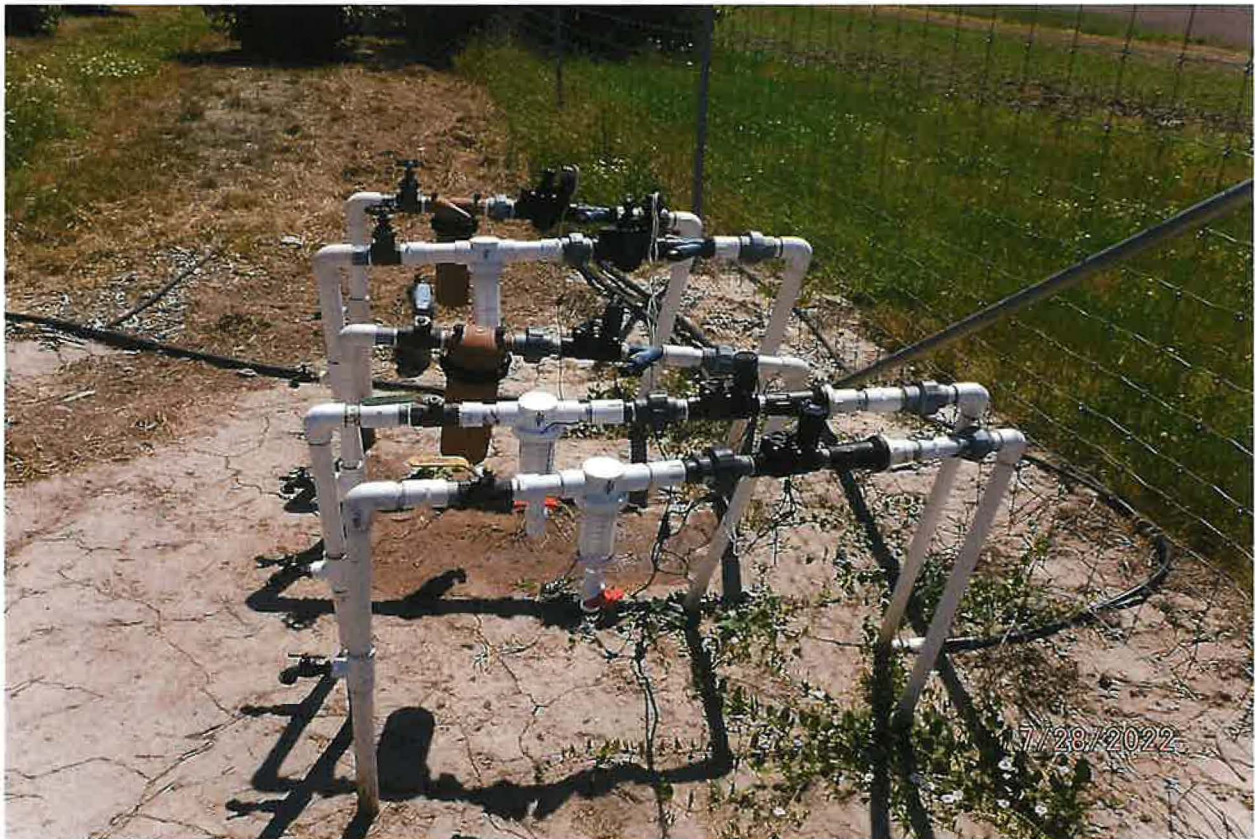


IRRIGATION POU – 1 ½ INCH RISER PIPES TO DRIP LINES, MICRO EMITTERS, & ¾ NOZZLE BRASS IMPACT SPRINKLERS





IRRIGATION RISER PIPES



NUMEROUS HOSE SPLITTER(S) TO MICRO EMITTERS AND SOAKER HOSE IRRIGATION RUNS



PRESSURE INDUCED FLOW FROM FROST-FREE HYDRANT CO-LOCATED WITH WELL D0072232



IRRIGATION POU

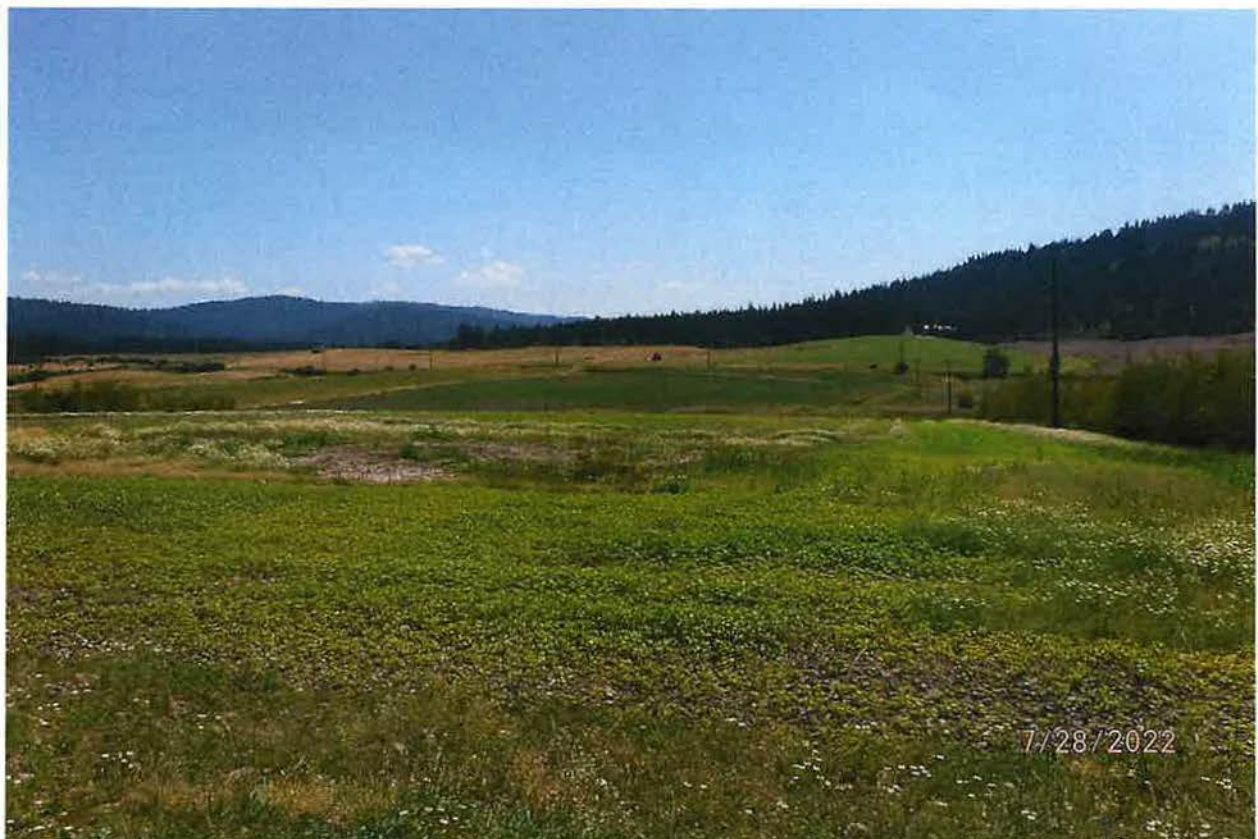


IRRIGATION POU





IRRIGATION POU





IRRIGATION POU

