

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 67-15153

Exam Date: 7/3/2017

1. Current Owner:

THOMAS B YANKEY 1011 INDIANHEAD RD WEISER ID 83672 2085492524 And

JACKIE J YANKEY 1011 INDIANHEAD RD WEISER ID 83672 2085492524

2. Accompanied by: Current Owner.

Phone No:

Address:

Relationship to Permit Holder:

3. SOURCE:

GROUND WATER

TRIBUTARY:

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None.

2. Other water rights with the same point-of-diversion: 67-7863

C. DIVERSION AND DELIVERY SYSTEM1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER SW¼NW¼ Sec. 26, Twp 11N, Rge 06W, B.M. WASHINGTON County

Method of Determination: GPS coordinates collected. GPS point compared with digital PLSS boundary map.

2. PLACE OF 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	
11N	06W	26							5.3										5.3

Total Acres: 5.3

Method of Determination: Irrigation area measured using ArcMap tools and 2013 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
67-15153 POD	Berkley	15	(6T15-325) G240595		Imp. 4.35 x 3.75

*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
IDWR tag: 281888	Ultrasonic	GE Panametrics	PT878	PCC1316085	#403	3/28/2017

2. Measurements: Measuring device placed on wheel lines prior to sprinkler heads.

E. FLOW

Additional Computation Sheets Attached

CALCULATIONS

Measured Method: Ultrasonic

First wheel line (18 sprinklers):

Date/Time	Velocity ft/s	Error	Volume ft ³ /s	Error	Soundspeed f/s	Error	Volume gal/m	Error
7/3/2017 12:01	21.12	0	1.70	0	4,848.88	0	762.54	0
7/3/2017 12:02	3.34	0	0.27	0	4,855.72	0	120.40	0
7/3/2017 12:03	12.24	0	0.98	0	4,841.45	0	441.83	0
7/3/2017 12:04	-10.74	0	-0.86	0	4,834.49	0	-387.68	0
7/3/2017 12:05	3.59	0	0.29	0	4,834.90	0	129.48	0
7/3/2017 12:06	3.58	0	0.29	0	4,834.72	0	129.33	0
7/3/2017 12:07	3.57	0	0.29	0	4,834.15	0	128.96	0
7/3/2017 12:08	3.58	0	0.29	0	4,834.87	0	129.12	0
7/3/2017 12:09	3.58	0	0.29	0	4,834.33	0	129.21	0
7/3/2017 12:10	3.58	0	0.29	0	4,833.90	0	129.31	0
7/3/2017 12:11	3.62	0	0.29	0	4,840.70	0	130.52	0
	3.59		0.29		4,838.92		129.42	

Second wheel line (23 sprinklers):

Date/Time	Velocity ft/s	Error	Volume ft ³ /s	Error	Soundspeed f/s	Error	Volume gal/m	Error
7/3/2017 12:22	4.39	0	0.35	0	0.00	0	158.29	0
7/3/2017 12:23	4.40	0	0.35	0	4,852.99	0	158.94	0
7/3/2017 12:24	4.42	0	0.36	0	4,852.69	0	159.43	0
7/3/2017 12:25	4.41	0	0.35	0	4,852.60	0	159.22	0
7/3/2017 12:26	4.39	0	0.35	0	4,852.81	0	158.51	0
7/3/2017 12:27	4.39	0	0.35	0	4,853.27	0	158.50	0
7/3/2017 12:28	4.39	0	0.35	0	4,853.12	0	158.44	0
7/3/2017 12:29	4.39	0	0.35	0	4,852.80	0	158.38	0
7/3/2017 12:30	4.39	0	0.35	0	4,852.80	0	158.56	0
7/3/2017 12:31	4.39	0	0.35	0	4,853.15	0	158.34	0
7/3/2017 12:32	4.39	0	0.35	0	4,853.16	0	158.46	0
	4.39		0.35		4,852.94		158.64	

Measured Method: Theoretical

P/D No.:	Scenario 1	Scenario 2	Scenario 3	
PUMP HORSEPOWER	15	15	15	
BOOSTER HORSEPOWER	0	0	0	
PUMPING LEVEL	20	30	40	
DISCHARGE PRESSURE	60	60	60	
RATE OF FLOW (cfs)	0.58	0.55	0.52	0.55
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			

Permit	0.11 cfs
B.U. Standard Allowance	0.11 cfs
B. U. Proof Fee	\$50 → 0.01 to 0.20 cfs
Measurement Rate	0.64 cfs
Theoretical Rate	0.55 cfs
License Recommendation	0.11 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 5.3 * 4.5 = 23.9$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.11 * 260 * 1.9835 = 56.7$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 23.9 \text{ af}$$

2. Volume Calculations for Other Uses: None.

G. NARRATIVE/REMARKS/COMMENTS

The field exam was conducted by agent Patrick Kelly who met Tom Yankey at the field on July 3, 2017. Mr. and Mrs. Yankey are owners of the permit and current land owners to the 19 acre field and well. An assignment or ownership change is not warranted at this time.

Water right 67-7863 was licensed in 1993 for 0.27 cfs on 13.7 acres. Application for permit 67-15153 was filed in 2016 to cover the remaining 5.3 acres on a 19 acre field.

Water was being used for irrigation purposes at the time of the exam. A well was found at 44d 15.773, -117d 02.000 on the west end of the field, along Pringle Rd. Pump & motor records were available at the time of the exam. A 15 hp Berkeley submersible turbine diverts water from the well to two wheel lines. The 12" well supplies water to a 6" aluminum mainline that runs along the north end of the field. The wheel lines connect to the mainline through a number of risers. Nozzle sizes at the time of the exam were found to be 9/64". At an observed pressure of 60 psi, these nozzles are rated at 4.5 gpm.

I was able to collect a measurement of both wheel lines using the GE Panametrics device. Transducers were attached prior to the first sprinkler of each line. The first line runs 18 sprinkler heads and measured an average diversion rate of 0.29 cfs. The second line runs 23 sprinklers at an average rate of 0.35 cfs. Diagnostics were checked during the test and maintained acceptable levels. Total flow from the well totaled 0.64 cfs. This is a particularly high diversion rate for 19 acres, and Tom was informed that he should probably reduce his system to support one line instead of two.

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>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/01 to 11/15	0.11 CFS	23.9 AF
<u>Totals:</u>		0.11 CFS	23.9 AF

2. Recommended Amendments

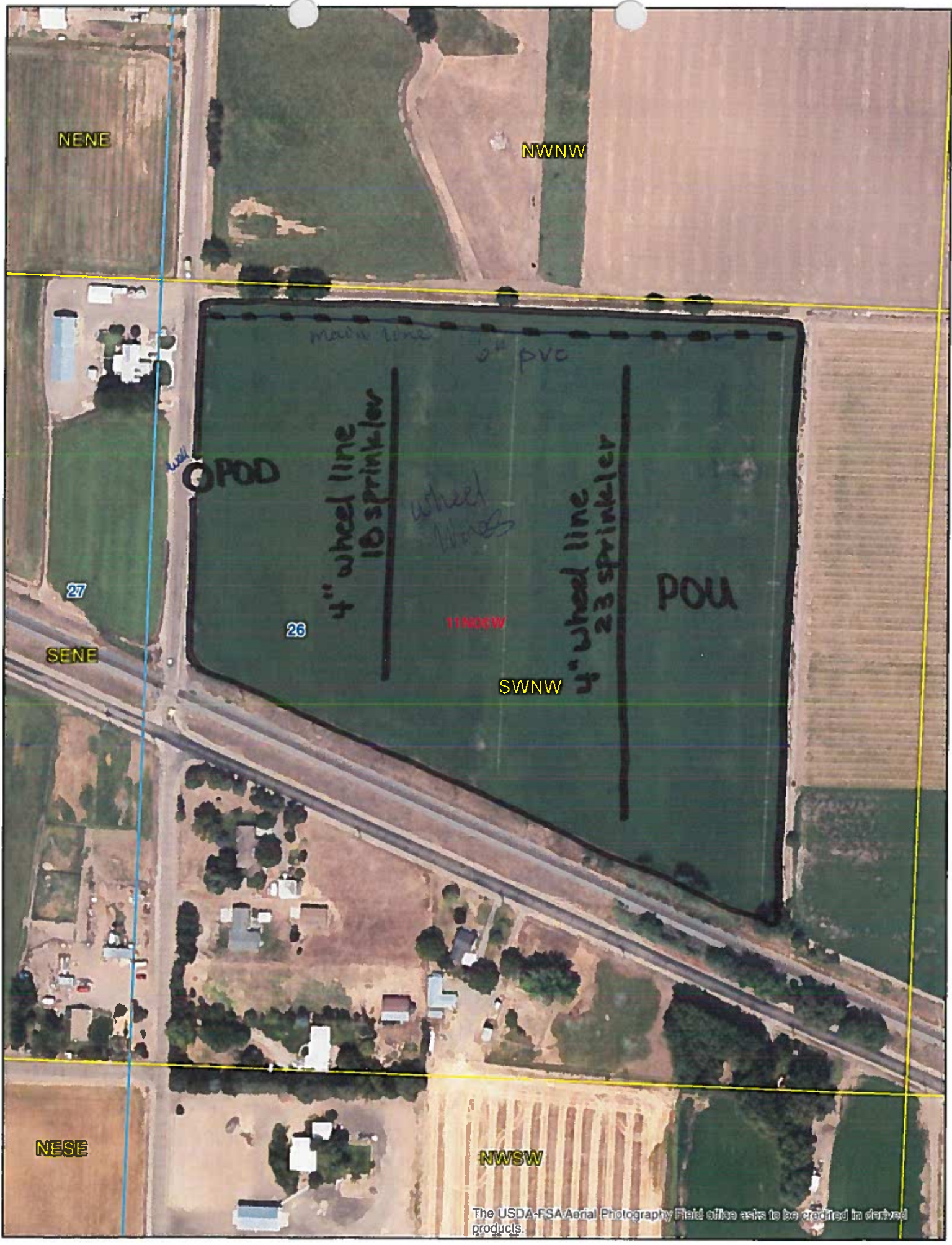
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION

Field Examiner's Name Patrick Kelly Date 7-6-2017

Reviewer _____ Date _____



NENE

NWNW

well

OPD

4" wheel line
10 sprinkler

wheel
lines

4" wheel line
23 sprinkler

POU

110000W

SWNW

NWSW

NESE

27

26

SENE

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

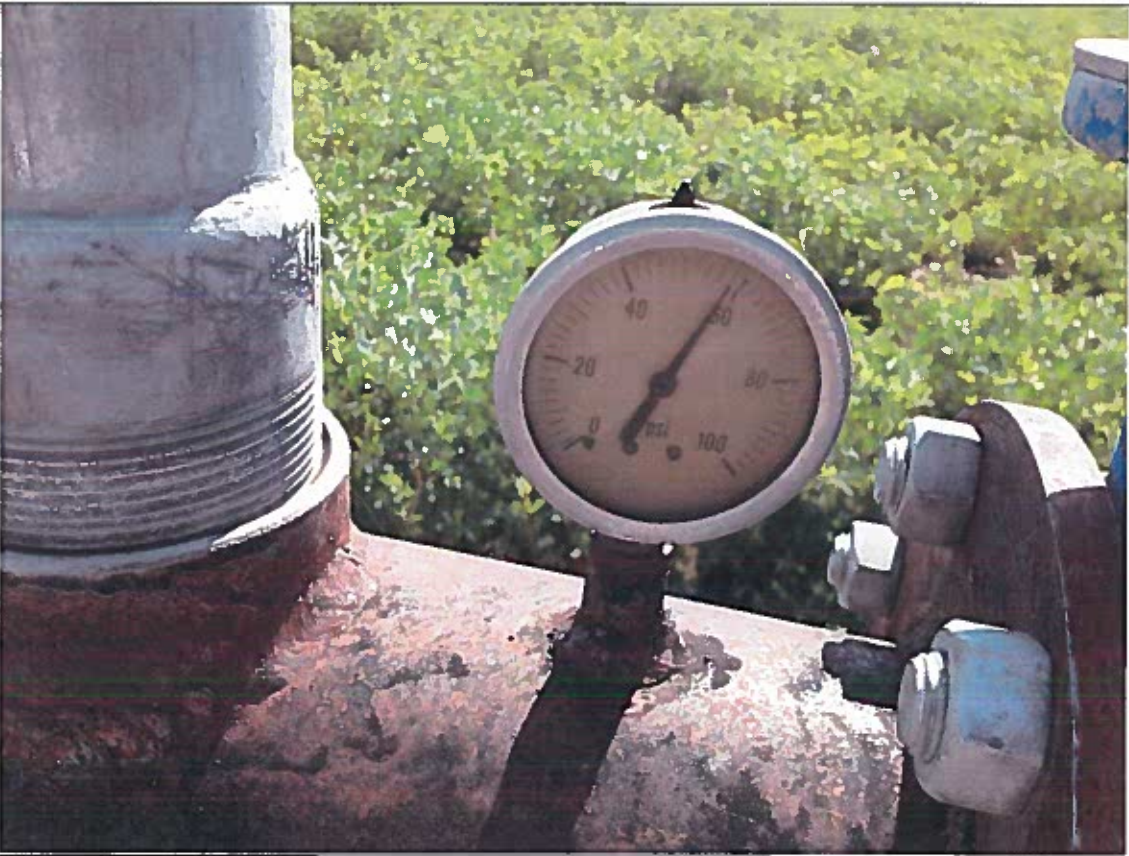
USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE WHITE COPY TO THE DEPARTMENT



Well (POD)

44d 15.773
-117d 02.000

DP#
67-91-W-012



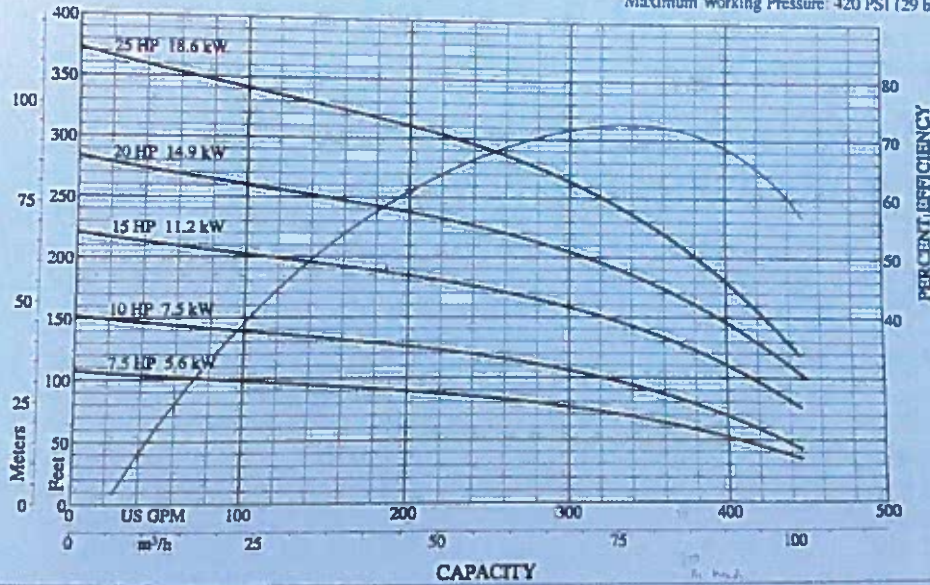
System runs at ~60 psi



SUBMERSIBLE TURBINE

6T-325

Nominal RPM: 3450
Based on Fresh Water @ 68° F (20° C)
Maximum Working Pressure: 420 PSI (29 bar)



Berkeley Submersible
Turbine installed in
well.



Dimension Information

HP	Stages	Motor Size	"P"		"M"		"MD"		Motor Weight		Pump Weight	
			Inches	Meters	Inches	Meters	Inches	Meters	Lbs.	Kg.	Lbs.	Kg.
7.5	2	6"	23.7	0.60	28.0	0.71	5.38	0.14	108	49	63	29
10	3	6"	28.6	0.73	30.6	0.78	5.38	0.14	116	53	75	34
15	4	6"	33.5	0.85	33.1	0.84	5.38	0.14	129	59	88	40
20	5	6"	38.4	0.97	30.6	0.78	5.38	0.14	145	66	101	46
25	7	6"	48.1	1.22	33.1	0.84	5.38	0.14	156	71	125	57

Specifications

Minimum Well I.D.	6"/152 mm
Minimum Submergence @BEP (above inlet)	10 Feet/3 Meters
Capacity Range U.S. GPM-m³/h	140-400/31.8-90.9
Discharge (as ordered)	4" FNPT

SUPERSEDES
4/1596

Date 11/12/02
Section ST
Page 16.01

Mod # 6T15-325

SN- G240595

Rm# - B69559

Imp. 4.35 X 3.75

42' - 4" BL. Pipe

47' well

10' - To water

15 hp.

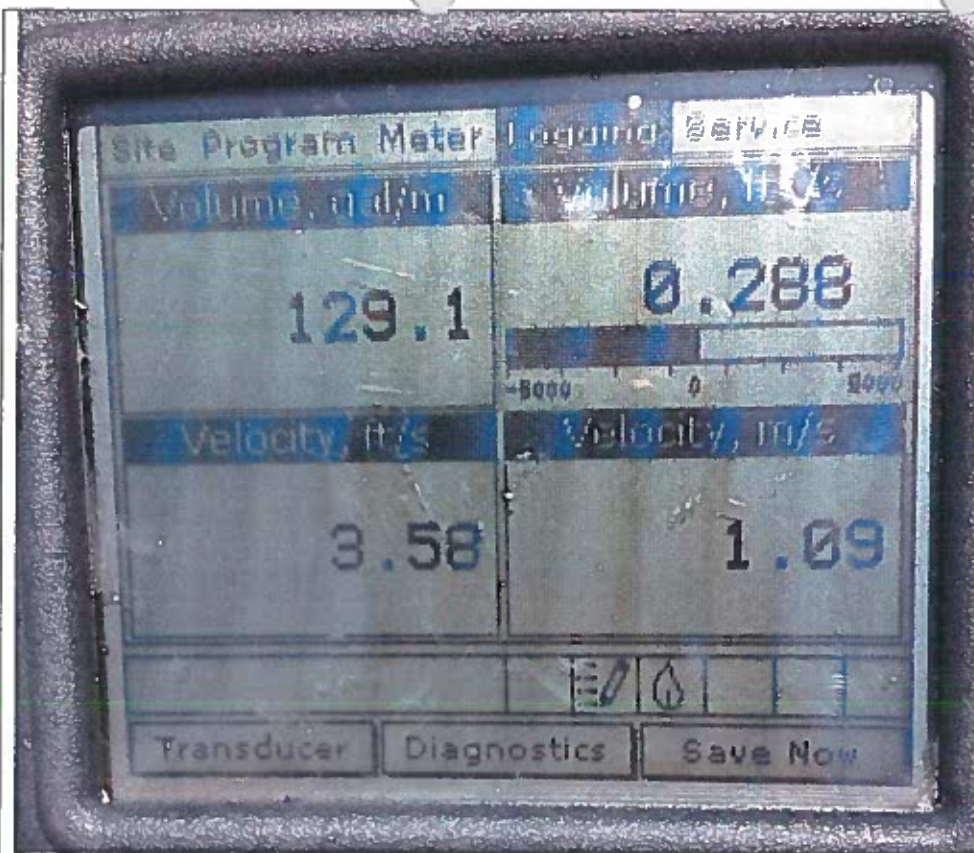
Information collected
at the time of pump
install.



There were a number of different nozzle types on the wheel line system. Many of them observed to be 9/64".



First wheel line measured. GE Panametrics device installed prior to first sprinkler head.



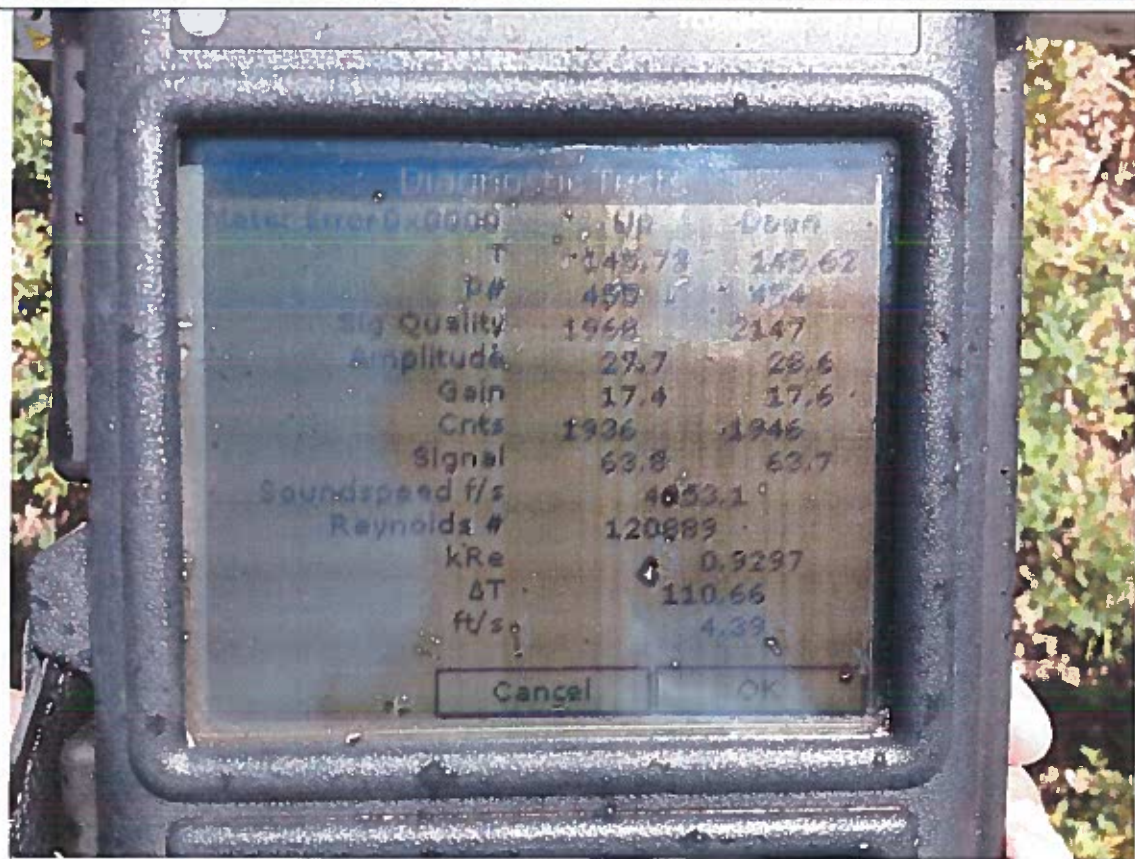
Sample photo of first wheel line test.



Diagnostics during first run within acceptable parameters.



Sample photo of second wheel line test.



Diagnostics during second run within acceptable parameters.