

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-34453

Exam Date: 9/10/2019

1. Current Owner:
RODNEY SEQUEIRA 18840 GOODSON RD CALDWELL ID 83607 OR
PAM SEQUEIRA 18840 GOODSON RD CALDWELL ID 83607
2. Accompanied by: Rodney Sequeira
Phone No: (208) 459-3158
Address: 18840 Goodson Rd.
Relationship to permit Holder: same

3. **SOURCE:**
GROUND WATER

Method of Determination: Permit application, ArcMap, aerial imagery, USGS topography, and field examination.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
63-2878	ELIJAH DRAIN	IRRIGATION	DECREED
65-2900	TUNNEL NO 2 DRAIN	IRRIGATION	DECREED
63-2878	WILSON DRAIN	IRRIGATION	DECREED

Comments: 63-2878, 65-2900, 63-2878 are part of Black Canyon Irrigation District from Payette River & provides surface water for this supplemental irrigation.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

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

GROUND WATER L4 (SW¼ SW¼), Sec. 13, Twp 05N, Rge 04W, B.M. CANYON County

GROUND WATER L4 (SW¼ SW¼), Sec. 13, Twp 05N, Rge 04W, B.M. CANYON County

Method of Determination: Field examination, Garmin Handheld GPS, and ArcMap tools with aerial imagery.

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	
05N	04W	13											35.0 L4						35.0

Total Acres: 35.0

PLACE OF USE: DOMESTIC

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	04W	13											X L4						

PLACE OF USE: STOCKWATER

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	04W	13											X L4						

Method of Determination: Aerial Imagery, ArcMap Tools, and observation during field exam.

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.

X 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
D0077169	Wolf 7MH5V	25		Hitachi 480 volt, 3-phse	

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Ultrasonic Flow Meter	Clamp On	GE	PT878	GAA1834221		08/2018

2. Measurements: Data collected from GE Panametrics PT878 meter.

Pipe: ASME SA53 GR. B Steel Pipe
 Pipe Diameter: 6.65" O.D.
 Wall thickness: 0.285"
 Transducer spacing: 6.139"

Time	Q (gpm)	Q (ft ³ /s)
12:00	285.2	0.630

Pipe: Diamond 6" PIP SDR41 100 psi PVC
 Pipe Diameter: 6.15"
 Wall thickness: 0.125"
 Transducer spacing: 5.411"

Time	Q (gpm)	Q (ft ³ /s)
12:51	380.6	0.848

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method:

Theoretical calculation

Open discharge from well into concrete ditch with 25 hp pump set estimated at 168 feet.

$(8.8) \times (25 \text{ hp}) \times 0.70 / 168 = 0.92 \text{ cfs or } 411.4 \text{ gpm}$

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = (35 \text{ acres}) \times (4.5 \text{ af}) = 157.5 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = (0.70 \text{ cfs}) \times (260 \text{ days}) \times 1.9835 = 361 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 157.5 \text{ af}$$

2. Volume Calculations for Other Uses:

Volume calculation for stockwater use:

The permit was based on 30 dairy cattle and 20 range cattle. The volume recommended by Admin. Memorandum #3 is:

$V = 0.4 \text{ AF/yr}$ or $Q = 0.02 \text{ cfs}$ for 11-25 head of range cattle, roughly based on 12 gpd per head

$V = 2.0 \text{ AF/yr}$ or $Q = 0.04 \text{ cfs}$ for 26-50 head of dairy cattle, roughly based on 35 gpd per head.

However, approximately 25 head of beef cattle were observed during the field exam.

The volume recommended by Admin. Memorandum #22 for single household domestic use is:

$V = 1.2 \text{ AF/yr}$ for a single household when irrigation is included or $Q = 0.04 \text{ cfs}$ for a single household.

G. NARRATIVE/REMARKS/COMMENTS

A field exam was conducted by WRA Allen Bradbury and accompanied by Rodney Sequeira on September 10, 2019. Current Canyon County taxlot data represents that the permit holder owns the land pertinent to the Place of Use (POU) and Point of Diversion (POD).

The well was drilled under drilling permit 978807-884864 and tagged with #D0077169. The well was completed on March 28, 2018 with a completed depth of 420 feet. The pump set was reported to be set at 168 feet based on communication with Mr. Sequeira. The permit also includes the well near the house with tag #D0029195 which is a domestic well drilled on March 3, 2003 to depth of 251 feet. This well is used for the household water supply including landscaping and lawn.

The system consists of a 25 hp Hitachi 480V, 3-phase motor with a Wolf Model 7MH5V 3-stage pump in the irrigation well. Water is pumped from the well to the north. Water can be discharged at two separate valve locations. The first can discharge into open collection basin (figure 7) irrigating fields to the west. The second valve (figure 8) open discharges into a concrete ditch to a headgate which irrigates fields to the south. The irrigator has built two CMP collection basins with trash screens which he plans to install this fall after irrigation season ends. The devices are capable of receiving both surface water and groundwater while screening the surface water and receiving open discharge of the groundwater. A nearby headgate in the northeast corner of the property controls surface water from Black Canyon. All fields are irrigated by a gated pipe and furrow system. Stockwater troughs located on the south end of the property were from the domestic well and stockwater could be supplied by the open ditch system from any well or surface water. Approximately 25 head of beef cattle were observed during the field exam, therefore I am recommending a rate of 0.02 cfs and a volume of 0.4 AF/yr for the stockwater portion.

The POU was determined using aerial photography, GIS, and field exam observation to determine irrigation within the beneficial use period. The permit authorized the irrigation of 41 acres and proof of beneficial use was submitted on October 30, 2018. Review of 2013 through 2017 aerial imagery shows continual irrigation within the 41 acre POU during the beneficial use period, however the amount of area irrigated has been modified due to the addition of out buildings. Aerial photography and field observation documented that the supplemental well water could be delivered to approximately 35 acres. The original permitted POU incorporated unirrigated farm yard areas, corrals, and roads. Not evident in existing Department aerial photography but observed in the field exam are an additional shop and garage near the residence. These new areas with their associated roadways and parking areas have been clipped from the POU. This reduces the POU area from 41 to 35 acres. I am recommending a POU based on the apparent acres irrigated as calculated from GIS of 35 acres.

To measure rate of flow from the well, a GE Panametric PT878 Ultrasonic Flow Meter was attached near the center of a 20 foot section of steel pipe with a 6.65-inch O.D. and a thickness of 0.285 inches. The flow from the well open discharged into collection area before entering a gravity flow pipe. The device measured a flow of 285.2 gpm or 0.63 cfs. At the landowners request a measurement was taken at a second location, purported to be where the pump installer calibrated the system. The GE Panametric PT878 Ultrasonic Flow Meter was attached to a section of 6" PIP SDR41 100 psi PVC Pipe near the first discharge point. The pipe measured 6.15-inch O.D. with a thickness of 0.125 inches. The device measured a flow of 380.6 gpm or 0.848 cfs. During both measurements the control panel display read 59.7 Hz, 27.4 A, and 11.0 Kw. Due in part to the inconsistency in the two measured values, I am recommending the beneficial use rate for irrigation of 0.70 cfs for licensing. Also I recommend 0.02 cfs for stockwater, and 0.04 cfs for domestic.

Overlap review found surface water delivery for irrigation from Black Canyon Irrigation District that covers the extent of the

property. Water right 63-34453 should hence remain conditioned as supplemental groundwater. Overlap analysis found no overlap for the POD.

Conditions 046 removed as per department licensing standards. Condition 01M will remain. Condition X02 was removed as per department licensing standards. Condition 121 was updated to 103 as per department 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>Volume</u>
IRRIGATION	03/01 to 11/15	0.70 CFS	158 AF
DOMESTIC	01/01 to 12/31	0.04 CFS	1.2 AF
STOCKWATER	01/01 to 12/31	0.02 CFS	0.4 AF

Totals: 0.76 CFS 160 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 Allen Bradbury - Water Resource Agent, Senior

Field Examiner's Name Allen Bradbury Date 2/3/20

Reviewer Patricia Kelly Date 2-5-2020

BENEFICIAL USE FIELD REPORT CALCULATIONS

Permit #: 63-34453
Owner: Rodney Sequeira

Proof Due: 1/1/2019
Priority Date 9/18/2017

Proof Subm: 10/30/2018
Exam Date: 9/6/2019

Flow Rate 0.21 to 1.00
Fee Rate 0.90
Exam Fee \$100.00

0.00 to 0.20	\$50.00	2.01 to 3.00	\$150.00
0.21 to 1.00	\$100.00	3.01 to 4.00	\$175.00
1.01 to 2.00	\$125.00	4.01 to 5.00	\$200.00

Proposed Well Use: irrigation **Drill Date** 3/28/2018 **Depth:** 420 ft **Pump Set:** 168 ft
Permit Uses: irrigation domestic stockwater
 1 home 30 dairy, 20 range

	cfs	gpm
Application Rate	0.93	417.41
Permit Rate	0.90	403.95
Proof Report	0.90	403.95
Irrig. Only	0.82	368.04
Stockwater	0.04	17.95
Domestic	0.04	17.95

Acres Proposed:	41.0
Acres Permitted:	41.0
Acres Developed:	35.0

FLOW CALCULATIONS

Meter Type: GE Panametric Transport PT878
Meter Reading 1 285.20 gpm
 0.635 cfs
Meter Reading 2 380.60 gpm
 0.848 cfs

Nozzle Size	
Input # heads:	
Input gpm/head	
gpm/line	0.0
cfs/line	0.00

Theoretical Method

Est. Pump Set	minus 10' =					
HP =	E =	H =	PSI =	Q =	Q =	
25.0	70.0%	168	0	0.92	411.43	
TDH				cfs	gpm	

$$TDH = [(LIFT) + (PSI \times 2.31)]$$

TDH =	Lift =	PSI =	2.31
168.0	168	0	2.31

HP = Total Brake Horsepower of pumping plant (including booster)

Eff. = Pumping plant efficiency (assume 70% or 0.70)

TDH = Total dynamic head = [(LIFT) + (PSI X 2.31)]

PSI = Pumping pressure measured in PSI near pump
 (if open discharge assume [0])

Q = rate of flow in cubic feet per second,

Recommended Flow Rate: 0.70

Consumptive Use	4.5	Headgate Requirement	4.5	
Season of Use	3/1	11/15	=	260 days
Volume (VIR)	35.0	X	4.5	= 157.5 af
Volume (DR)	0.700	x	260	x 1.9835 = 361.00 af
BU Standard Rate	35.0	X	0.02	= 0.70 cfs
Rate/acre	0.700	/	35.0	= 0.020 cfs/acre

V I.R. = (Acres Irrigated) x (Irrigation Requirement)

V D.R. = [Diversion Rate (cfs)] x (Days in Irrigation season) x 1.9835

V = Smaller of V I.R. and V D.R

Recommendation Standards for diversion rate (choose most restrictive)

0.90 Permit Rate – the rate applied for

0.90 Fee Rate – the maximum rated paid for on the fee schedule.

0.70 Beneficial Use (BU) standard = x.x ac * 0.020 cfs/acre

0.85 Measured Value – the value measured in the field

0.92 Theoretical Rate - the rate calculated

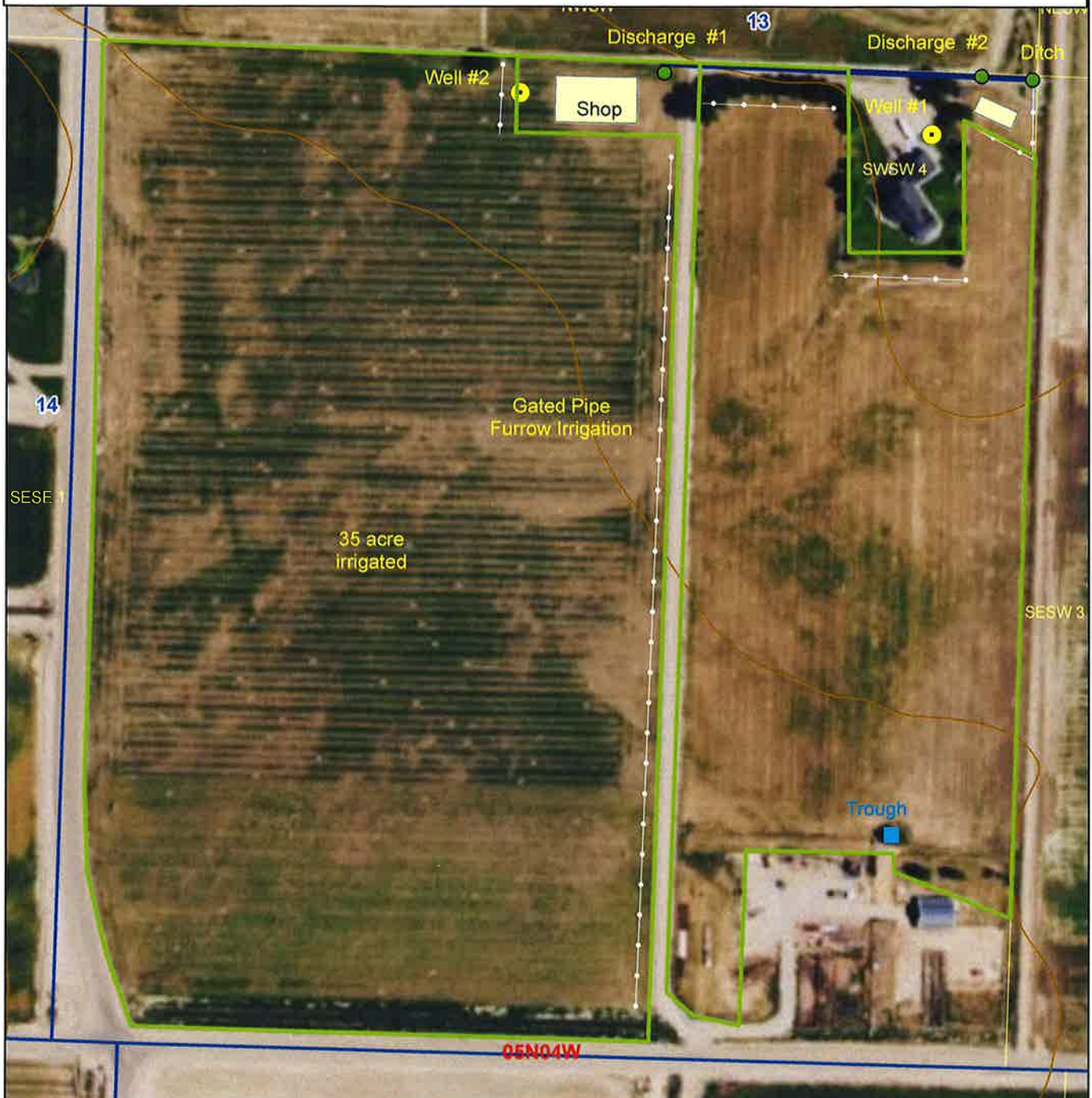
Recommending a license for the beneficial use rate of 0.70 cfs for 35.0 acres.

Right No. 63-34453

Beneficial Use Field Report

System Design

WRA Allen Bradbury



Legend

63-34453_NewPOU
Contours

0 0.015 0.03 0.06 Miles



Pumping Capacity

25 HP WOLF7MH5V 3-stage pump set @ 168 ft with open discharge into concrete ditch..

Pump Equation: $(8.8) \times (25) \times (0.7) / (168 + (2.31 \times 0))$
 $Q = 0.92 \text{ cfs or } 411.4 \text{ gpm.}$

Panametric Transport PT878 Flow meter measurement of 380.6 gpm or 0.85 cfs

BU Standard $(35.0 \text{ acres} \times 0.02 \text{ cfs/acre}) = 0.70 \text{ cfs}$

Bradbury, Allen

From: HD222 <highdesert222@yahoo.com>
Sent: Tuesday, September 10, 2019 1:27 PM
To: Bradbury, Allen
Subject: Rodney Sequeira

Hi Allen,

I spoke to Riverside Pump:

The Pump is a WOLF Model #: 7MH5V 3 stage pump

The motor is a : HITACHI 480 VOLT - 3 PHASE 25 HP

Thanks very much.

Rodney

05N04W13

63-34453 Overlap Analysis

Process	Basin Sequence	Draft	Owner	Source	POD POU	Use	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	Total Acres
Water Permit	63-34453	N	SEQUEIRA, PAM; SEQUEIRA, RODNEY	GROUND WATER	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	41	X	X	X	X	X	41
Water Right	63-2878	N	BLACK CANYON IRRIGATION DIST	ELIJAH DRAIN	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Water Right	65-2900	N	BLACK CANYON IRRIGATION DIST	TUNNEL NO 2 DRAIN	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Water Right	63-2878	N	BLACK CANYON IRRIGATION DIST	WILSON DRAIN	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Water Permit	63-34216	N	RIPPLINGER, DAVID; RIPPLINGER, KATIE	GROUND WATER	POU	IRRIGATION										9.5							9.5
Water Right	63-33754	N	SHUPE, JAMES H; SIMONSON, DARLA ANN	ELIJAH SLOUGH	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1.8
Water Right	63-2322	N	UNITED STATES OF AMERICA ACTING THROUGH	PAYETTE RIVER	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Water Right	65-2433	N	UNITED STATES OF AMERICA ACTING THROUGH	WILSON SLOUGH	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Water Right	63-2322	N	UNITED STATES OF AMERICA ACTING THROUGH	WILSON SLOUGH	POU	IRRIGATION	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

☐ BLACK CANYON IRRIGATION DIST



Figure 1. Well tag #D0077169.



Figure 2. Well head and control panel.



Figure 3. Outlet pipe extends over another underground pipeline.



Figure 4. Pipe specifications show ASTM A53/ASME SA53 GR.B 6 inch 0.280 thick carbon steel alloy pipe.

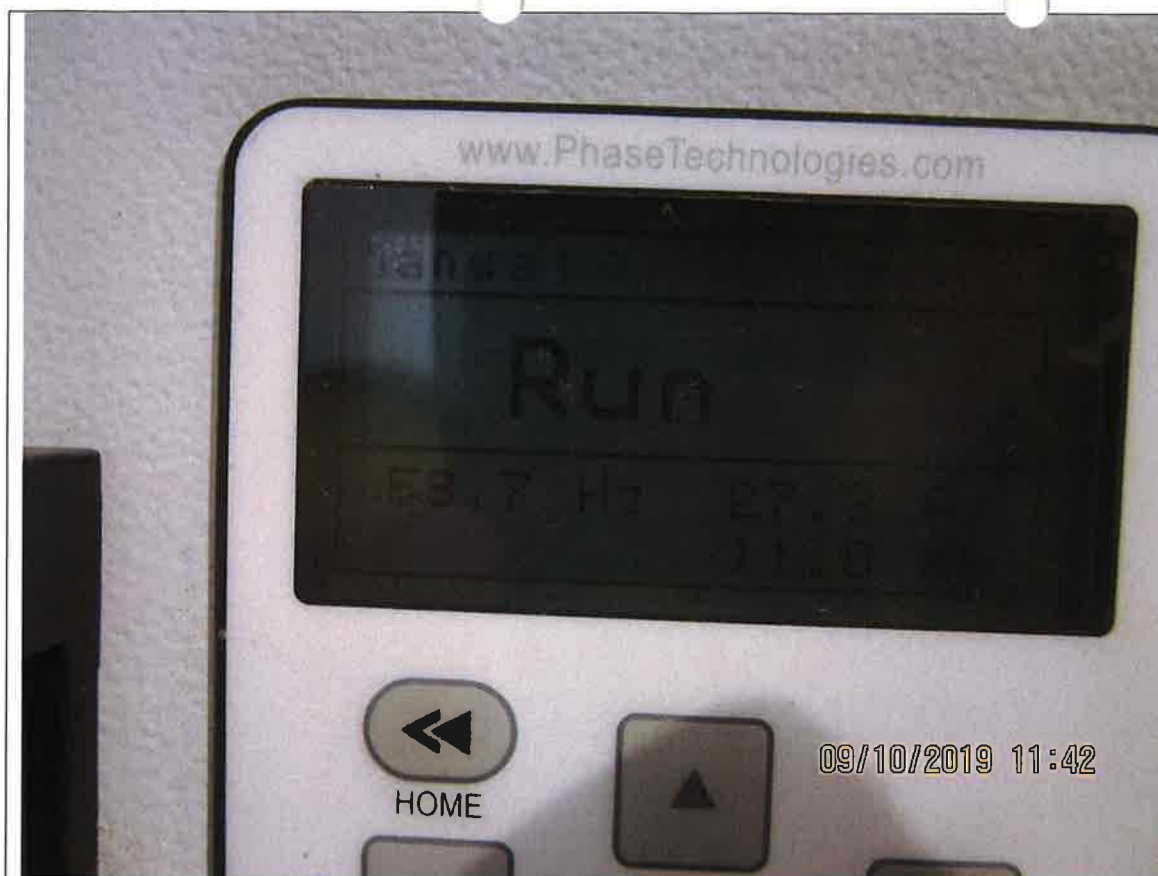


Figure 5. Control panel display shows pump running at 53.7 Hz, 27.9 Amps, and 11.0 KW.



Figure 6. The first Panametric flow meter measurement taken along steel pipe was 285.4 gpm or 0.64 cfs.



Figure 7. Well open discharging into collection basin.



Figure 8. Secondary discharge into concrete ditch for delivery to other fields.



Figure 8. Looking east at inflow from ditch.



Figure 9. Second measurement location 10 feet from discharge.



Figure 10.
Measurement
taken on Diamond
6 inch SDR
41100PSI PVC
plastic irrigation
pipe.



Figure 10.
Panametric flow
meter
measurement was
380.6 gpm or 0.85
cfs.



Figure11. Furrow irrigation from gated pipe.



Figure 12. Stockwater is provided to beef cattle.



Figure 13.
Domestic well tag
#D0029195.



Figure 14. Well
#D0029195.

