

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-11594
Exam Date: 09/29/2015

1. Current Owner:
THE DAVID L HAMAN TRUST PO BOX 3311 HAYDEN ID 83835
2. Accompanied by: David Haman
Phone No: 208-210-9219
Address: Same as above
Relationship to permit Holder: Permit holder

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
95-7133B	GROUNDWATER	IRRIGATION	DECREED
95-7164	GROUNDWATER	IRRIGATION	DECREED

Comments: Decreed Right(s) 95-7133B & 95-7164 have the same 80 ac tract POU as this permit; during the CSRBA condition E60 was applied to each right creating combined uses limitations for a total diversion rate of 1.60 cfs & annual diversion volume of 280.0 af. Right 95-7164 proof report comments entered on 11/13/2017 identify that due to the accomplished transfer during the adjudication process the two rights were "stacked" and were limited to the water necessary to irrigate 80 acres at that time (80 ac x 3.5 afa = 280 af). Both rights overlap this permit's POU and condition X35 has been included during licensing review to describe the combined use limitation between the three (3) rights for diversion rate & diversion volume.

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

Water Right No.	Source	Purpose of Use	Basis
95-7133B	GROUNDWATER	IRRIGATION	DECREED
95-7164	GROUNDWATER	IRRIGATION	DECREED

Comments: Decreed Right(s) 95-7133B & 95-7164 use the same groundwater source POD as this permit; condition F06 was added during licensing review to describe the shared well between three water rights.

C. DIVERSION AND DELIVERY SYSTEM

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

GROUND WATER SW¼ NW¼, Sec. 13, Twp 51N, Rge 05W, B.M. KOOTENAI County

Method of Determination: GPS. POD is a groundwater well permit No. 95-72-N-86 located at -116°54.631, 47°46.005.

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	
51N	05W	13							40.0	40.0									80.0

Total Acres: 80.0

Method of Determination: Beneficial use field examination & 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
95-72-N-86	GE	200	5KE445DTT6008		

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
GE PANEMETRIC TRANSPORT	ULTRASONIC		PT900	M06210067		4/6/2022

2. Measurements: Two sets of flow measurements were taken using GE Panemetric PT900 Ultrasonic flowmeter during the field exam. The flow measurement resulting in the largest average derived GPM flow rate equaling 1227.5 gpm or 2.74 cfs considering department rounding standards.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: GE Panemetric PT900 Ultrasonic flowmeter = 2.74 cfs (see attached)

- Permit approved maximum diversion rate of **0.50 cfs** limits applicant at time of licensing.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 80 \text{ ac} \times 3.0 \text{ afa} = 240.0 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.50 \text{ cfs} \times 246 \text{ day} \times 1.9835 = 243.97 \text{ af}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{240.0 \text{ af}}$$

2. Volume Calculations for Other Uses: N/A

G. NARRATIVE/REMARKS/COMMENTS

An initial field examination was conducted on 9/29/2015 with the applicant, but a flow measurement was not completed at that time resulting in insufficient data to license the Permit. A follow-up exam was performed on 7/12/2022 with the applicant, Mr. David Haman, which showed a groundwater well being used for center pivot irrigation. At the POD, existing well 95-72-N-86 uses a 200 HP pump motor to divert water to a center pivot that irrigates 180 degree arc for 80 acres. Two sets of flow measurements were taken using GE Panametric PT900 Ultrasonic flowmeter during the field exam. The flow measurement resulting in the largest derived average flow rate equaled 1227.5 gpm or 2.74 cfs, but the applicant is limited to the Permit's approved maximum diversion rate of **0.50 cfs** for licensing purposes. A theoretic pumping equation was developed during licensing review to identify the hypothetical pump capacity for the 200 HP pump motor, resulting in a diversion rate of 2.78 cfs which supports the flowmeter measurements obtained by Department staff.

The applicant had applied for an additional 0.50 cfs due to the extension sections on the center pivot which allow him to irrigate to the corners of the 80-acre POU. At time of application submission by Mr. Haman, the combined maximum diversion rate for existing rights and new permit were calculated as follows:

- $1.10 \text{ cfs (95-7133B)} + 1.20 \text{ CFS (95-7164)} + 0.50 \text{ cfs (95-11594)} = 2.8 \text{ CFS}$

During the CSRBA adjudication process, the applicant's prior right(s) recommendation and subsequent decree(s) resulted in conditions limiting the two rights to 1.60 cfs. This value is based on the Department standard diversion rate of 0.02 cfs per acre x 80 ac = 1.60 cfs. Unfortunately, the application for permit was submitted prior to the adjudication process taking place. The applicant's center pivot operational diversion rate of 2.74 cfs now exceeds the three WRs total authorized diversion of 1.6 cfs + 0.5 cfs = 2.1 cfs.

The permit is being recommended for licensing at 0.5 cfs because the diverting works provide sufficient diversion rates, but the applicant will need to file a new application for permit for the additional 0.70 cfs the 200 HP pumping capacity can achieve beyond 2.1 cfs (combined diversion rate totals for 3 water rights). Note: Department's flowmeter was calibrated on 4/5/2022 with a standard deviation of +/- 3.5%. Based on this standard of error the flowmeter derived value of 1227.5 gpm + 3.5% = 1264 gpm; the applicant asserts the pump produces 1250 gpm (2.8 cfs). It's reasonable to assume the pumping capacity of 1250 gpm pump capacity can be achieved considering it's within the standard deviation limits, and the highest observed reading taken at time of exam equaled 1244.89 gpm (reference flow measurement sheet). A new application for permit for 0.70 cfs would be justified to water in a condensed time-period based on the center pivot design necessitating higher diversion rates.

The irrigation 80-acre POU was traced out on field maps and is the same as existing WRs 95-7133B & 95-7164. During licensing review, I used 95-7164's POU shape to designate this Permit's POU for licensing purposes. Review of aerial imagery from 2011 when the statement of completion was submitted leading up to current year illustrate active irrigation has taken place at the POU throughout the years. Current year 2022 crop consists of hybrid canola seed crop & active irrigation was taking place at time of exam. The maximum diversion volume equals 80 acres x 3.0 afa = **240.0 af** which is recommended for licensing.

Condition 046 was removed from the permit during licensing review. A text condition for combined use between the applicant's 3 rights was replaced with condition X35. Condition F06 was added describing the same POD for 3ea WRs. Condition 175 was added due to Rathdrum Prairie Groundwater Management Area (RPGWMA) requirements. All other conditions on the permit are being carried to licensing.

Overlap concerns: Decreed Right(s) 95-7133B & 95-7164 have the same 80 ac tract POU as this permit; during the CSRBA condition E60 was applied to each right designating combined uses limitations of a total diversion rate = 1.60 cfs & annual diversion volume = 280.0 af. Right 95-7164 proof report comments entered on 11/13/2017 identify that due to the accomplished transfer during the adjudication process the two rights were "stacked" and were limited to the water necessary to irrigate 80 acres at that time (80 ac x 3.5 afa = 280 af). Both rights overlap this permit's POU and condition X35 has been included during licensing review to describe the combined use limitation between WRs 95-7133B, 95-7164, & 95-11594 for diversion rate & diversion volume. There are no additional overlap concerns for this water right.

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

H. RECOMMENDATIONS

1. Recommended Amounts

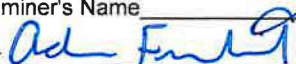
<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
IRRIGATION	03/15 to 11/15	0.50 CFS	240.0 AF
<u>Totals:</u>		0.50 CFS	240.0 AF

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

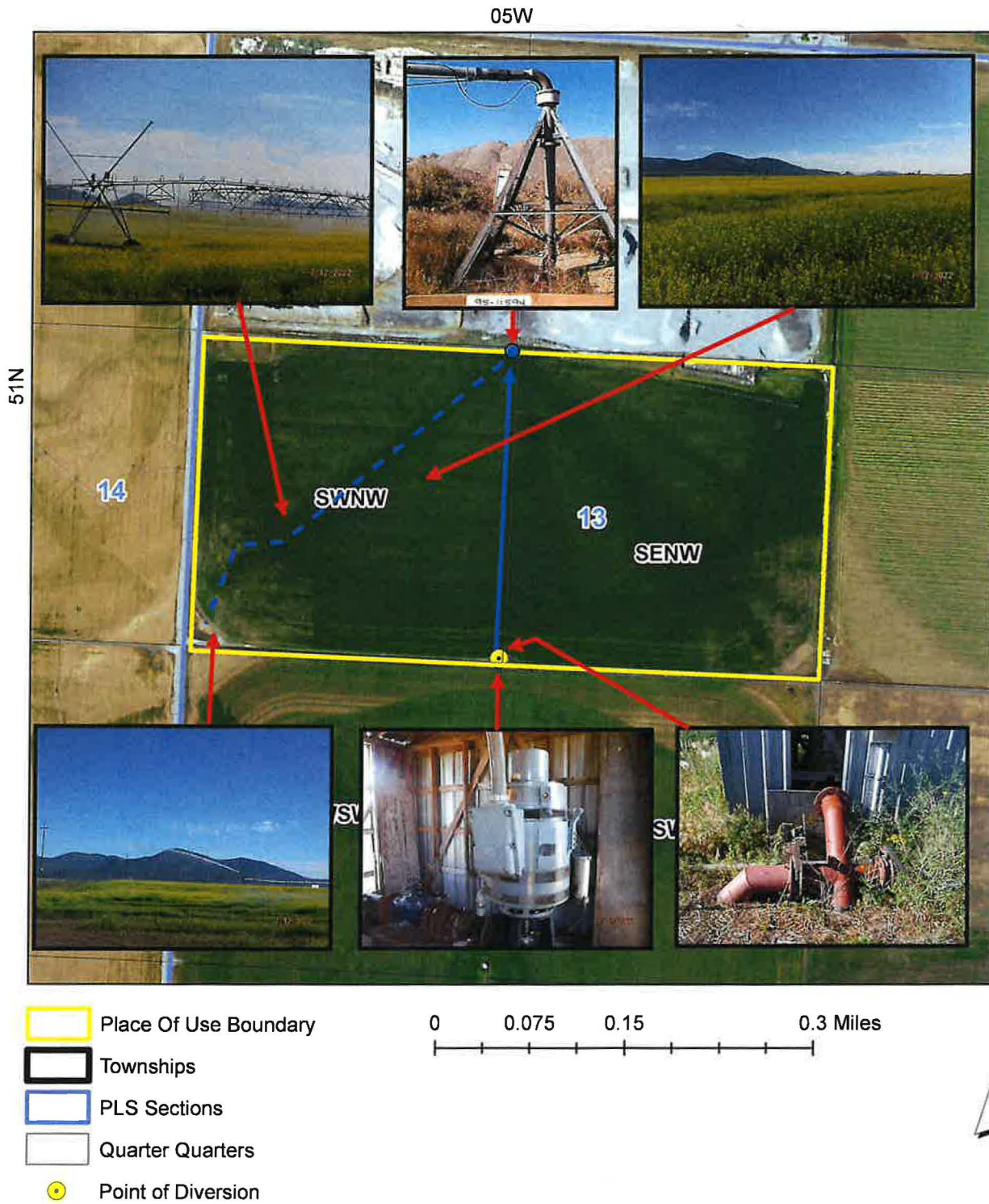
I. AUTHENTICATION

Luke Bates -

Field Examiner's Name  Date 7/15/2020
 Reviewer  Date 7/22/2022

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-11594

IRRIGATION system diagram.

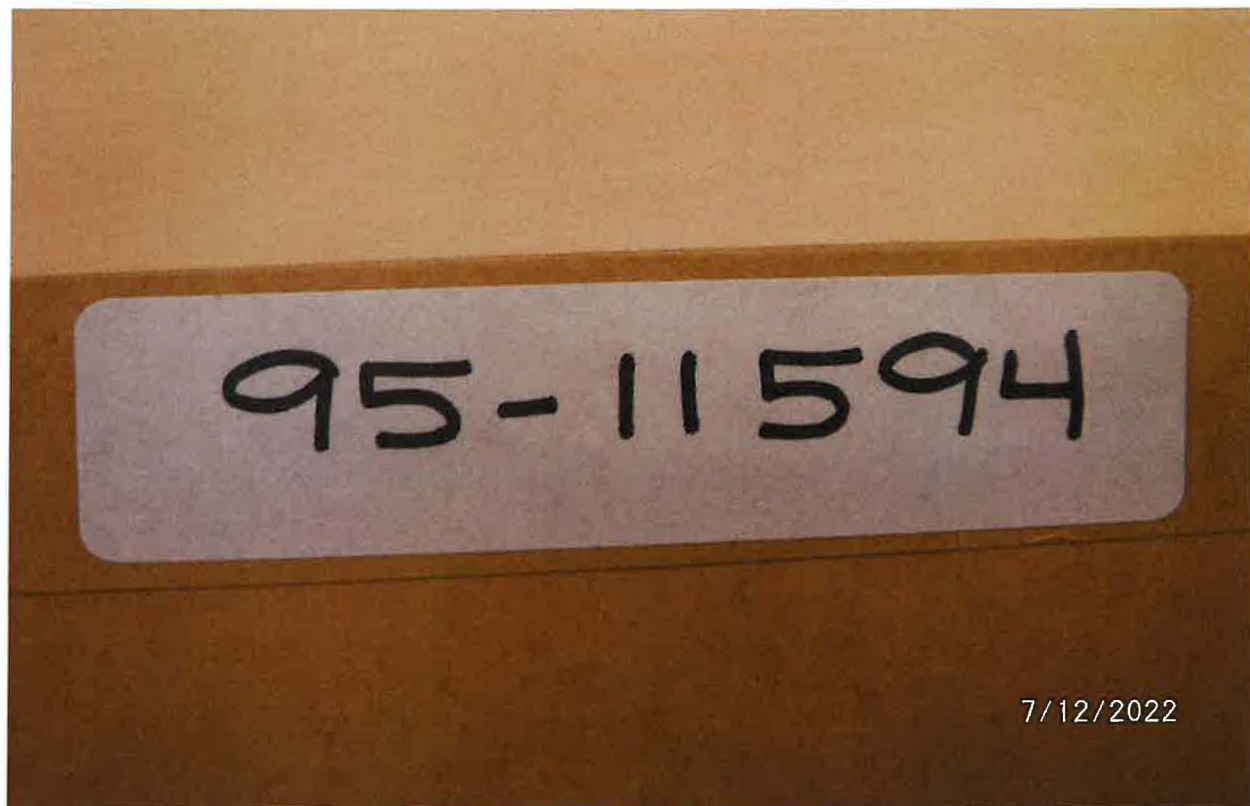


Flow Measurement for permit 95-11594				
Date/Time 22/07/12	Velocity ft/s	Volume Gallons/min	Fwd Totalizer Fwd Gallons	Error
8:10:00	8.1782	1219.3591	9852.107	Error:0
8:11:00	8.3184	1229.0759	11081.183	Error:0
8:12:00	8.1208	1241.8782	12323.061	Error:0
8:13:00	8.4254	1244.8978	13567.959	Error:0
8:14:00	8.2739	1222.5018	14790.461	Error:0
8:15:00	8.1765	1208.1219	15998.583	Error:0
8:16:00	8.2244	1215.1986	17213.781	Error:0
8:17:00	8.1501	1236.2074	18449.989	Error:0
8:18:00	8.1886	1227.9028	19677.891	Error:0
8:19:00	8.3249	1230.0448	20907.936	Error:0
8:20:00	8.2498	1218.9379	22126.874	Error:0
Average Velocity		8.24		
Max Velocity		8.4254		
Min Velocity		8.1208		
Average GPM		1226.7		
Max GPM		1244.9		
Min GPM		1208.1		
Beginning Reading			9852.107	
Ending Reading			22126.874	
Difference in Readings			12274.767	
Difference / 10 readings			1227.477	GPM
Conversion from GPM to CFS (/448.83)			2.735	CFS

THEORETICAL PUMPING EQUATION(S) FOR WR# 95-11594

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 274 ft, and running at 120 psi.						
<u>PUMP EQUATION</u>						
WATER RIGHT No. 95-11594						
WELL No. 95-72-N-86	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI	
Q = $\frac{HP * 8.8 * \text{Eff}}{H}$	200	551.551	0.85	274	120	
Q = 2.717 cfs 1219.3 gpm						

T.P. Equation Calculation Supports Flowmeter derived flow measurement
taken on 7/12/2022 (L. Bates)



INITIAL EXAM DATE 9/29/2015; FOLLOW-UP EXAM DATE 7/12/2022



POD - GROUNDWATER WELL 95-72-N-86 WITH 200 HP PUMP INSTALLED



8 INCH MAIN LINE EXITING PUMP STATION ROUTING TO CENTER PIVOT, WITH OPTION TO ROUTE WATER Laterally EAST/WEST FOR HAND LINE OPERATIONS.



120 PSI OPERATING PRESSURE



FLOWMETER MEASUREMENT TAKEN ON 7/12/2022



IRRIGATION POU – 80 ACRES (CENTER PIVOT 180 DEGREE ARC) WITH CORNER EXTENSIONS



IRRIGATION POU





IRRIGATION POU – 5 HP END GUN ENABLES IRRIGATION OF OUTSIDE CORNERS OF POU



IRRIGATION POU



IRRIGATION POU – FULLY EXTENDED CENTER PIVOT IRRIGATING AT TIME OF FLOW MEASUREMENT

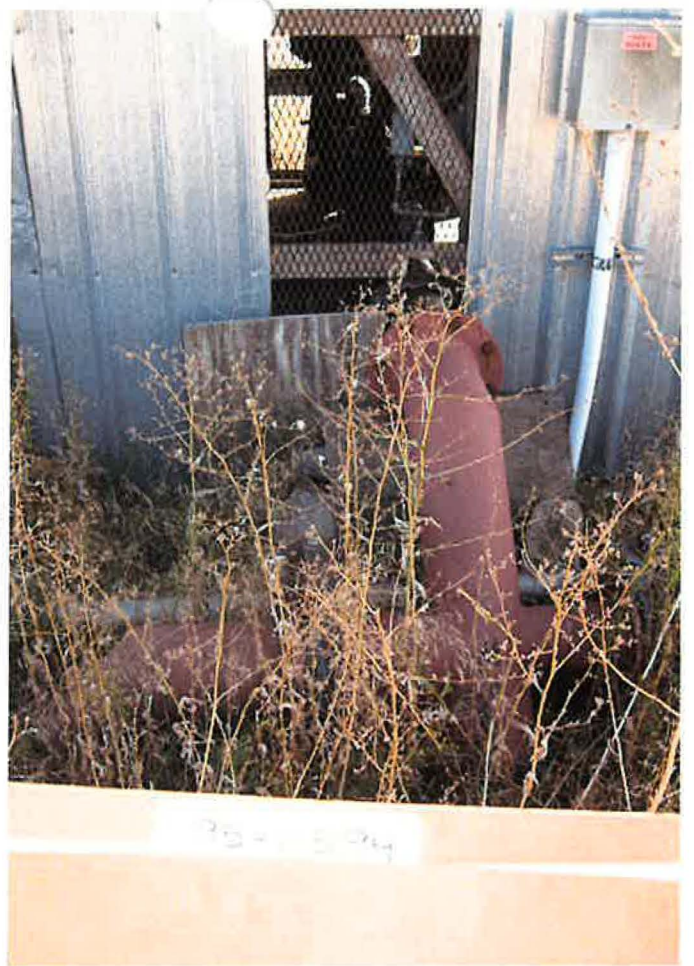


2022 HYBRID CANOLA SEED CROP

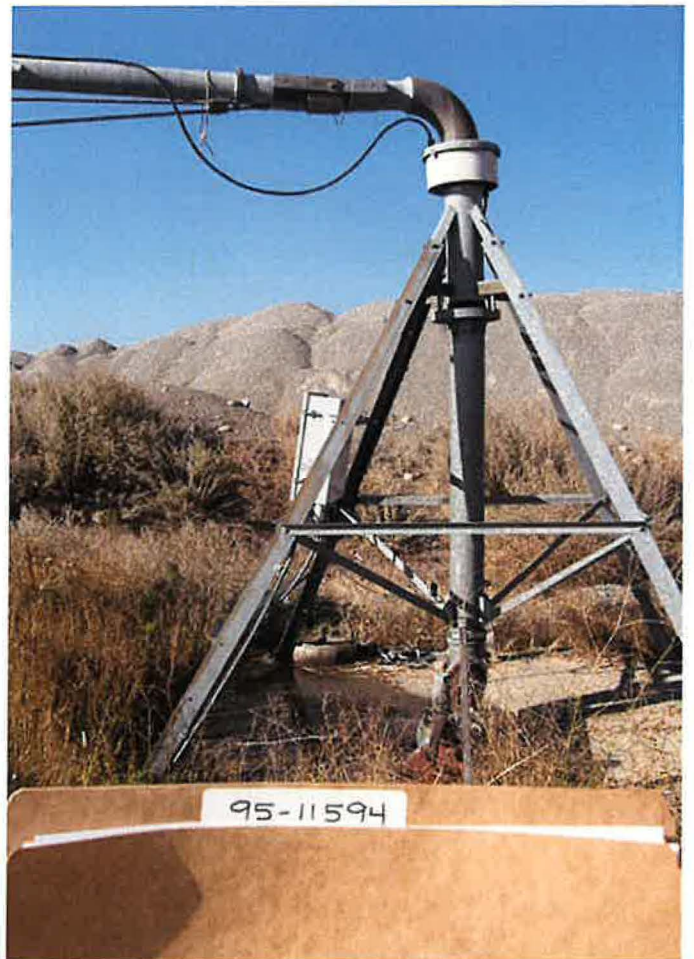


Field exam Photographs taken on 9/29/2015





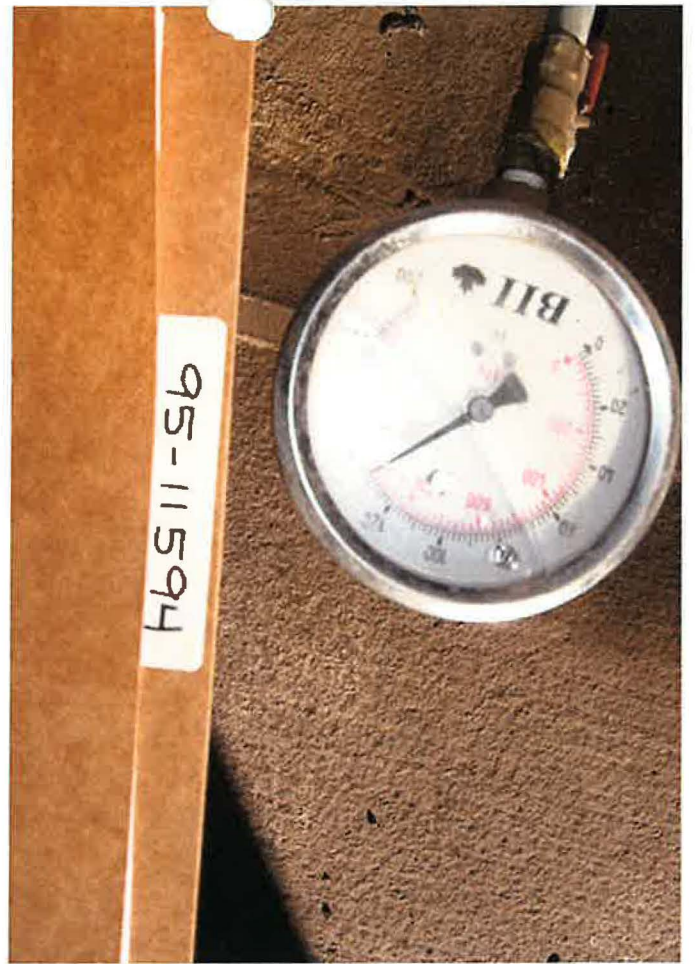
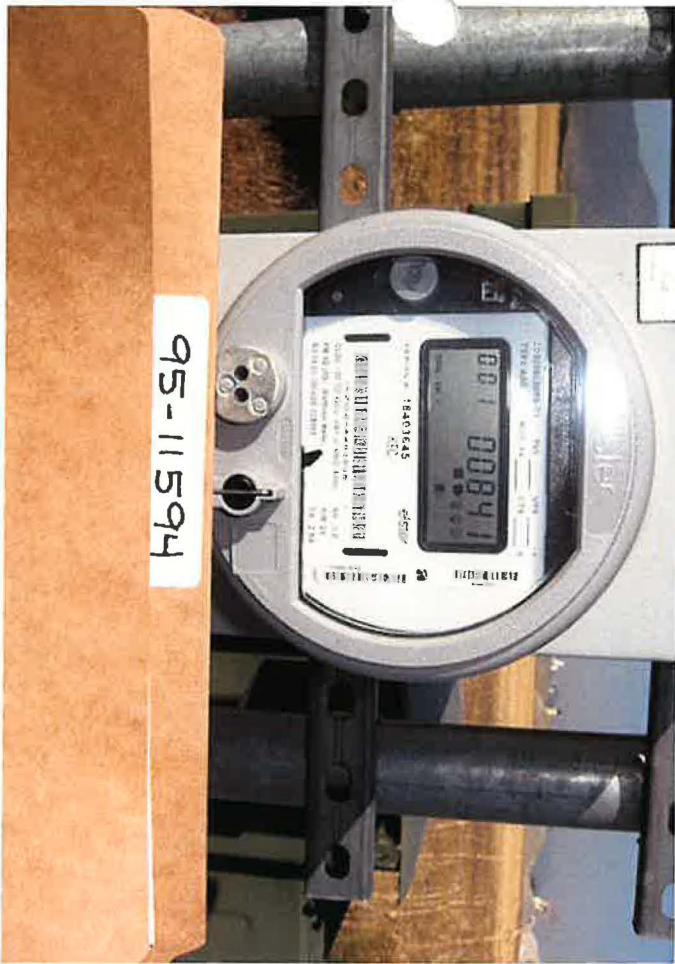
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