

**BW-036**

**ANNUAL  
REPORT**

**2021**

# **2021 ANNUAL CLASS III WELL REPORT**

**H.R.C. INC.**

**Schubert Farms Well # 1 (BW-036)**

**API 30-025-37548**

**May 9, 2022**

**GARY M. SCHUBERT**

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## **SUMMARY OF CLASS III OPERATIONS 2021**

Schubert Farms Well # 1 (BW-36) production operations in 2021 recorded an upward trend as the industry recovered from the COVID pandemic. An annual total of 295,614 bbl. of brine was extracted at an average weight of 9.89 PPG (1.1851 SG), an increase of 32.2% over 2020. Steady sales are expected in 2022.

Analysis of water samples from the designated monitor well showed no changes in water quality.

All facility lines and connections receive a daily visual inspection. Readings on pressure gauges are recorded daily, along with the produced brine and injected water volumes. Safety shut off mechanisms are tested to ensure that the high and low pressure shut down systems are fully functional. In 2021 there were no leaks that occurred during the year. The fresh water systems and well are insulated to protect the fresh water system from freezing. All meters and valves were protected and are in good working condition.

H.R.C., Inc. preventive maintenance plan is to replace any connections or valves that could be showing wear. This will continue as a safe operating procedure in 2022. Connections are changed when the first sign of salt is seen behind the threaded end. During 2021 the transfer pump that transports brine to the sales tanks required a mechanical seal replaced in the month of April. This is a common task due to the abrasion of the 9.98 PPG brine. When replacing the seals, fresh water was used to clean out the lines, and valves were shut in allowing the connecting unions to be broken to prevent any impact to the ground within the pump shop where the pump resides.

There were no deviations from normal operations of the well.

Surface subsidence monitoring results show no changes in elevations at the designated monitoring points.

Solution cavern characterization results show that the cavern size and shape remain within NMOCD recommended limits.

H.R.C., Inc. has continued its COVID protection plan for employees, requiring appropriate masks, hand sanitizers, aerosols and nitrile gloves in the field and office. Field tickets are stored in plastic bags and handled diligently for the least exposure possible to its employees.

H.R.C., Inc. Schubert Farms # 1 is an asset to industry and continues to support oil & gas production operations in New Mexico.

## FLUID INJECTION & BRINE PRODUCTION VOLUMES

### 2021 MONTHLY TOTALS PRODUCED BRINE & INJECTED FRESH WATER

MONTH	PROD. BRINE	INJ. FRESH WATER
JANUARY	27269	26995
FEBRUARY	18003	17807
MARCH	24908	24705
APRIL	15721	15543
MAY	14740	14579
JUNE	18825	18816
JULY	26873	26569
AUGUST	29354	29026
SEPTEMBER	31288	30924
OCTOBER	28870	28579
NOVEMBER	30780	30446
DECEMBER	28983	28674
TOTAL	295614	292663

### ANNUAL TOTALS PRODUCED BRINE & INJECTED FRESH WATER

YEAR	PROD. BRINE	INJ. FRESH WATER
2017	153,518	148,678
2018	306,806	303,899
2019	264,276	261,658
2020	223,625	221,247
2021	295,614	292,663
TOTAL	1,243,839	1,228,145

## EXTRACTION VS. INJECTION RATIOS

### 2021 FLUID INJECTION & BRINE PRODUCTION VOLUME RATIO

MONTH	BRINE	BRINE PSI	FRESH WATER	FW PSI	RATIO (RAW)	RATIO (CALC)
JANUARY	27269	20	26995	257	27269:26995	1.010150
FEBRUARY	18003	24	17807	255	18003:17807	1.011000
MARCH	24908	22	24705	256	24908:24705	1.008210
APRIL	15721	23	15543	255	15721:15543	1.011452
MAY	14740	21	14579	254	14740:14579	1.011043
JUNE	18825	22	18816	255	18825:18816	1.000478
JULY	26873	20	26569	256	26873:26569	1.011442
AUGUST	29354	20	29026	257	29354:29026	1.011300
SEPTEMBER	31288	21	30924	255	31288:30924	1.011771
OCTOBER	28870	19	28579	257	28870:28579	1.010182
NOVEMBER	30780	20	30446	256	30780:30446	1.010970
DECEMBER	28983	21	28674	257	28983:28674	1.010776

## INJECTION PRESSURE

Injection pressure remains consistent with 2020. Annulus average is 21 PSIG and the tubing average is at 256 PSIG. RFD pump runs at 53.6 Hz. with a yield of 28 to 29 GPM. The leaseoperator checks the pressure daily and records it on his daily logs.

Please find production & injection pressure and volume data attached in Appendix A, and can be seen in the table above.

## **MONITOR WELL WATER SAMPLE CHEMICAL ANALYSIS DATA**

The BW-36 order requires that the specified monitor well be sampled semi-annually and chemical analysis results be reported to the OCD. H.R.C. Inc. has been performing this sampling on a semi-annual basis. However, quarterly sampling and analysis for the produced brine and injected fresh water has been instituted as of January 2022 and the monitor well will be sampled at the same time and same interval, so therefore will also begin and then remain on a quarterly basis going forward. Cardinal Laboratories sampled water from the designated monitor well on 06/02/2021 and 12/17/2021. Summary of the analyses from June 2021 and December 2021 for Inorganic Compounds and Total Recovery Metals by ICP (E200.7) are shown below. There were no appreciable changes in the designated monitor well water quality throughout 2021, and as compared to 2020.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13 for 06/16/21 and certificate number T104704398-21-14 for 12/27/21.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Total Halo acetic Acids (HAA-5)

Method EPA 524.2 Total Trihalomethanes (TTHM)

Method EPA 524.4 Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B Total Coliform and E. coli (Colilert MMO-MUG)

Method EPA 524.2 Regulated VOCs and Total Trihalomethanes (TTHM)

Method EPA 552.2 Total Halo acetic Acids (HAA-5)

Full details of the analytical results are attached at the end of this report in Appendix B.

**JUNE 2021 RESULTS**

**MONITOR WELL INOGRANIC COMPOUNDS**

<b>Analyte</b>	<b>Result</b>	<b>MDL</b>	<b>Reporting Limit</b>	<b>Units</b>	<b>Analyzed Date</b>	<b>Method</b>
<b>Alkalinity, Bicarbonate</b>	220		5.0	MG/L	6-3-21	310.0
<b>Alkalinity Carbonate</b>	< 1.00		1.0	MG/L	6-3-21	310.0
<b>Chloride</b>	392		4.0	MG/L	6-3-21	4500-C1.B
<b>Conductivity</b>	2080		1.0	US/CM	6-4-21	120.1
<b>pH</b>	7.34		0.100	pH Units	6-4-21	150.1
<b>Sulfate</b>	262		50	MG/L	6-3-21	375.4
<b>TDS</b>	1340		5.0	MG/L	6-7-21	160.1
<b>Alkalinity Total</b>	180		4.0	MG/L	6-3-21	310.1

**MONITOR WELL TOTAL RECOVERABLE METALS by ICP (E220.7)**

<b>Analyte</b>	<b>Result</b>	<b>MDL</b>	<b>Reporting Limit</b>	<b>Units</b>	<b>Analyzed Date</b>	<b>Method</b>
<b>Calcium</b>	204		0.500	MG/L	6-14-21	EPA200.7
<b>Magnesium</b>	55		0.500	MG/L	6-14-21	EPA200.7
<b>Potassium</b>	5.53		5.0	MG/L	6-14-21	EPA200.7
<b>Sodium</b>	134		5.0	MG/L	6-14-21	EPA200.7

**DECEMBER 2021 RESULTS**

**MONITOR WELL INORGANIC COMPOUNDS**

<b>Analyte</b>	<b>Result</b>	<b>MDL</b>	<b>Reporting Limit</b>	<b>Units</b>	<b>Analyzed Date</b>	<b>Method</b>
<b>Alkalinity, Bicarbonate</b>	224		5.00	MG/L	12-20-21	310.0
<b>Alkalinity Carbonate</b>	<1.00		1.00	MG/L	12-20-21	310.0
<b>Chloride</b>	68.0		4.00	MG/L	12-20-221	4500. C1.B
<b>Conductivity</b>	671		1.00	UMHOS/CM	12-17-21	120.1
<b>pH</b>	7.83		0.100	pH units	12-17-21	150.1
<b>Sulfate</b>	81.6		25.0	MG/L	12-20-21	375.4
<b>TDS</b>	417		5.0	MG/L	12-20-21	160.1
<b>Alkalinity Total</b>	184		4.00	MG/L	12-20-21	310.1

**MONITOR WELL TOTAL RECOVERABLE METALS by ICP (E220.7)**

<b>Analyte</b>	<b>Result</b>	<b>MDL</b>	<b>Reporting Limit</b>	<b>Units</b>	<b>Analyzed Date</b>	<b>Method</b>
<b>Calcium</b>	49.8		1.00	MG/L	1-6-22	EPA 200.7
<b>Magnesium</b>	15.2		1.00	MG/L	1-5-22	EPA 200.7
<b>Potassium</b>	1.89	1.83	10.00	MG/L	1-5-22	EPA 200.7
<b>Sodium</b>	63.3		10.00	MG/L	1-5-22	EPA 200.7

## **PRODUCED BRINE & INJECTED FRESH WATER CHEMICAL ANALYSIS DATA**

The BW-36 order requires that the produced brine and injected fresh water be sampled quarterly and chemical analysis results be reported to the OCD. H.R.C. Inc. has erroneously been performing this sampling on a semi-annual basis instead of quarterly. Quarterly sampling and analysis has been instituted as of January 2022, and will remain on a quarterly basis going forward. Cardinal Laboratories sampled produced brine and injected fresh water from the BW-36 facility on 06/02/2021 and 12/17/2021. Summary of the analyses from June 2021 and December 2021 for Inorganic Compounds and Total Recovery Metals by ICP (E200.7) are shown below. There were only no appreciable changes in both the produced brine chemistry and injected fresh water chemistry throughout 2021, and as compared to 2020.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13 for 06/16/21 and certificate number T104704398-21-14 for 12/27/21.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Total Halo acetic Acids (HAA-5)

Method EPA 524.2 Total Trihalomethanes (TTHM)

Method EPA 524.4 Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B Total Coliform and E. coli (Colilert MMO-MUG)

Method EPA 524.2 Regulated VOCs and Total Trihalomethanes (TTHM)

Method EPA 552.2 Total Halo acetic Acids (HAA-5)

Full details of the analytical results are attached at the end of this report in Appendix B.

**BRINE ANALYTICAL RESULTS: JUNE 2021****INORGANIC COMPOUNDS**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed Date	Method
Alkalinity, Bicarbonate	244		5.00	MG/L	6-3-21	310.0
Alkalinity Carbonate	<1.00		1.00	MG/L	6-3-21	310.0
Chloride	178,000		4.00	MG/L	6-3-21	4500.C1.B
Conductivity	263,000		1.00	UMHOS/CM	6-3-21	120.1
pH	6.77		0.100	Ph Units	6-4-21	150.1
Sulfate	2520		500	MG/L	6-3-21	375.4
TDS	291,000		5.00	MG/L	6-7-21	160.1
Alkalinity Total	200		4.00	MG/L	6-3-21	310.1

**TOTAL RECOVERABLE METALS by ICP (E220.7)**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed Date	Method
Calcium	783		50.0	MG/L	6-14-21	EPA 200.7
Magnesium	184		50.0	MG/L	6-14-21	EPA200.7
Potassium	265	91.5	500	MG/L	6-14-21	EPA 200.7
Sodium	111,000		500	MG/L	6-14-21	EPA 200.7

**FRESH WATER ANALYTICAL RESULTS: JUNE 2021****INORGANIC COMPOUNDS**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed	Method
Alkalinity, Bicarbonate	244		5.00	MG/L	6-3-21	310.0
Alkalinity Carbonate	<1.00		1.00	MG/L	6-3-21	310.0
Chloride	468		4.00	MG/L	6-3-21	4500.C1.B
Conductivity	2 760		1.00	UMHOS/CM	6-4-21	120.1
pH	7.25		0.100	pH units	6-4-21	150.1
Sulfate	537		125	MG/L	6-3-21	375.1
TDS	1860		5.00	MG/L	6-7-21	160.1
Alkalinity Total	200		4.00	MG/L	6-3-21	310.1

**TOTAL RECOVERABLE METALS by ICP (E220.7)**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed	Method
Calcium	243		0.500	MG/L	6-14-21	EPA 200.7
Magnesium	78.2		0.500	MG/L	6-14-21	EPA 200.7
Potassium	7.09	0.915	5.00	MG/L	6-14-21	EPA 200.7
Sodium	226		5.00	MG/L	6-14-21	EPA 200.7

**BRINE ANALYTICAL RESULTS: DECEMBER 2021****INORGANIC COMPOUNDS**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed Date	Method
Alkalinity Bicarbonate	264		5.00	MG/L	12-20-21	310.0
Alkalinity Carbonate	<1.00		1.00	MG/L	12-20-21	310.0
Chloride	190,000		4.00	MG/L	12-20-21	4500. C1.B
Conductivity	283,000		1.00	UMHOS/CM	12-17-21	120.1
pH	6.59		0.100	Ph Units	12-17-21	150.1
Sulfate	6880		1250	MG/L	12-20-21	375.1
TDS	319,000		5.00	MG/L	12-20-21	160.1
Alkalinity Total	216		4.00	MG/L	12-20-21	310.1

**TOTAL RECOVERABLE METALS by ICP (E220.7)**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed Date	Method
Calcium	915		20.0	MG/L	1-5-22	EPA 200.7
Magnesium	645		20.0	MG/L	1-5-22	EPA 200.7
Potassium	1370		200	MG/L	1-5-22	EPA 200.7
Sodium	104,000		500	MG/L	1-5-22	EPA 200.7

**FRESH WATER ANALYTICAL RESULTS: DECEMBER 2021****INORGANIC COMPOUNDS**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed	Method
Alkalinity, Bicarbonate	303		5.00	MG/L	12-20-21	310.0
Alkalinity Carbonate	<1.00		1.00	MG/L	12-20-21	310.0
Chloride	292		4.00	MG/L	12-20-21	4500.C1.B
Conductivity	1630		1.00	UMHOS/CM	12-17-21	120.1
pH	7.44		0.100	pH Units	12-17-21	150.1
Sulfate	158		25.0	MG/L	12-20-21	375.1
TDS	1000		5.00	MG/L	12-20-21	160.1
Alkalinity Total	248		4.00	MG/L	12-20-21	310.1

**TOTAL RECOVERABLE METALS by ICP (E220.7)**

Analyte	Result	MDL	Reporting Limit	Units	Analyzed	Method
Calcium	124		1.00	MG/L	1-5-22	EPA 200.7
Magnesium	24.3		1.00	MG/L	1-5-22	EPA 200.7
Potassium	12.2	1.83	10.00	MG/L	1-5-22	EPA 200.7
Sodium	168		10.00	MG/L	1-5-22	EPA 200.7

## **PIPE LINE HYDROSTATIC TEST RESULTS**

Lines that lead to the storage tanks from the wellhead have a hydrostatic pressure of 8.3 pounds of pressure at the base of the line at the fill tank when idle. The operating static pressure average is 11.7 psi respectively. The operating pressure is at around 20 psig. Discharge line is of 3" Polyethylene SDR 11 with a max operating pressure of 160 PSI.

Brine Water transfer line from storage tanks at the Schubert Farms Well # 1 facility to the storage point located 1.5 miles south of the Schubert Farms Well # 1 has an operating pressure of 130 psi. The second point of diversion is the transfer of brine from the storage tanks known as the Peanut Shed to the A.N. ETZ sales facility located 0.8 miles east of HWY 18 on Nadine Rd. (P-26-19S-38E) this line is constructed of 2" SDR 11 Polyethylene Line with a max pressure of 160 psi the line enters into the west 16' holding tank at the top and has a hydrostatic pressure at the base of the line of 0 pounds of pressure at the base of the line due to the (Peanut Shed) storage tanks being higher in elevation. In the transferring operation of brine from the storage tanks (Peanut Shed) it takes 20 to 30 static pounds to move fluid through the 2" line to the A.N. ETZ sales point. Pump # 1 runs at 26 GPM and Pump # 2 runs at 42 GPM depending on demand both pumps can be run together.

## **VISUAL LEAK INSPECTION MONITORING**

H.R.C. Inc. operations personnel walks each above ground facility line daily, and inspects all lines and connections for any sign of leaks or sweating of threads.

The H.R.C. lease operator drives out the lines that are underground and below frost level and visually inspects for any signs of compromised line integrity. This is done up to four times daily, but at a minimum once daily.

No leaks were detected in 2021. Because there were no leaks or spills detected in 2021, there are no leak or spill corrective action reports required.

## **MECHANICAL INTEGRITY TESTS**

For 2021, the last required mechanical integrity test was performed on 2/23/17.

A mechanical integrity test was completed on February 25, 2022. Please find a copy of the MIT Chart, Procedure Report, and C-103 in Appendix C. This test will also be reported in the 2022 Annual Report.

## **AREA OF REVIEW (AOR) UPDATE**

H.R.C., Inc. has updated the 2021 AOR for the Schubert Farms Well # 1 (BW-36), showing no new permits or new drilled wells have been located within the ½ or 2 mile AOR since the 2020 report.

Please find a copy of the ½ and 2 mile AOR review map in Appendix D.

## **DEVIATIONS FROM NORMAL FLOW CONFIGURATION**

H.R.C. Inc. certifies that the well was operated in compliance with its permitted normal flow configuration throughout 2021 (inject fresh water down tubing, produce brine up annulus).

## **MAJOR FACILITY ACTIVITIES OR EVENTS**

There were no major facility activities or events in 2021. A minor facility modification was done to add additional brine and fresh water tanks. Normal operations of the facility were not impacted during the modifications. Please find a copy of the BW-36 facility schematic in Appendix E for the current tank configuration.

## **SURFACE SUBSIDENCE MONITORING PLAN RESULTS**

Surface subsidence surveys were conducted in June 2021, September 2021, and December 2021, by Basin Surveys, certified by Gary L. Jones, Texas PLS. Three elevation markers are in place. No changes in elevation have been found.

Please find a copy of the BW-36 surveyor's plat in Appendix F, with locations of the BW-36 EM markers, and stating no changes found as of December 27, 2021.

## SOLUTION CAVERN CHARACTERIZATION DATA RESULTS

The characterization of the cavern can be mathematically calculated using  $V = \pi R^2 h / 3$ , where the cavern is assumed to be conical in shape,  $V =$  volume of salt removed in  $\text{ft}^3$ ,  $R =$  cavern radius in ft at bottom, and  $h =$  height of cavern in ft.

The Litho Density Compensated Neutron logs showed approximately 54' of good Halite net pay showing less than 4 API units on the Gamma Ray side of the log that is presently being mined. This interval is from 2661'-2715'. Height of cavern,  $h = 54$  ft.

BW-36 has produced 1,243,839 Bbl. of brine from the Salado formation from March, 2017 to December 31, 2021. It takes 122.136 Lbs. of salt to produce one barrel of quality brine yielding a Specific Gravity of 1.195. Multiplying salt ratio to total fluid bbl. equals 151,917,520 lbs of salt mined during this period. The amount of salt mined, 151,917,520 lbs, divided by 80 lbs salt/ft.<sup>3</sup> equals 1,898,969 ft.<sup>3</sup> volume of salt removed through December 31, 2021. Volume of cavern,  $V = 1,898,969 \text{ ft}^3$ .

Substituting into  $V = \pi R^2 h / 3$  for  $V$  and  $h$ , and solving for  $R$  shows that the radius of the cavern,  $R = 183$  ft. Diameter of cavern,  $D = 2R = 366$  ft.

Depth of cavern is taken to be depth of casing window, 2661 ft.

In respect to the recommended maximum allowable  $D/\text{depth}$  cavern size factor of 0.5, the Schubert Farms Well No. 1 (BW-36) has a factor value of  $(366' / 2661') = 0.137$ , which is well below the maximum allowable.

BW-36 has years of remaining life to continue mining for the salt that is used throughout the oil and gas industry in Southeastern New Mexico. New horizons above 2661' can be considered in the future to increase the lifespan of this facility.

Please find a copy of the BW-36 wellbore schematic and input data for the cavern characterization calculations in Appendix G.

## CONCLUSIONS & RECOMMENDATIONS

This well and facility are in good working order and maintained regularly. The cavern diameter/depth ratio is well within recommended maximum limits, and will not cause cavern collapse. There has been no evidence of surface subsidence. The nearby monitor well shows no evidence of contamination of USDW's. H.R.C. Inc. has not been fully in compliance with reporting to OCD, but procedures have been implemented to bring this well into full reporting compliance, and will remain so going forward.

### ANNUAL CERTIFICATION

H.R.C. Inc. certifies that continued salt solution mining of the Schubert Farms Well #1 (BW-36) will not cause cavern collapse, surface subsidence, property damage, or otherwise threaten public health and the environment, based on geologic and engineering data.

Signature *Greg M. Schubert* for H.R.C., Inc. Date *5/5/22*  
Name *Greg M. Schubert* Title *Pres.*

**APPENDIX A**

<b>2021 Production &amp; Injection Pressures and Volumes</b>				
<b>Month</b>	<b>Brine Production (Bbls)</b>		<b>Fresh Injection (Bbls)</b>	
	<b>Average Pressure (psi)</b>		<b>Average Pressure (psi)</b>	
January	27,269	20	26,995	257
February	18,003	24	17,807	255
March	24,908	22	24,705	256
April	15,721	23	15,543	255
May	14,740	21	14,579	254
June	18,825	22	18,816	255
July	26,873	20	26,569	256
August	29,354	20	29,026	257
September	31,288	21	30,924	255
October	28,870	19	28,579	257
November	30,780	20	30,446	256
December	28,983	21	28,674	257
<b>Yearly Total</b>	295,614	21	292,663	256
<b>Cumulative Totals</b>	<b>Brine Production (Bbls)</b>		<b>Fresh Injection (Bbls)</b>	
	<b>1,243,839</b>		<b>1,235,740</b>	

## APPENDIX B



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

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June 16, 2021

BEN DONAHUE

ETZ WATER STATION

PO BOX 6056

HOBBS, NM 88241

RE: SCHUBERT

Enclosed are the results of analyses for samples received by the laboratory on 06/02/21 14:47.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERT FARMS #1 WATERS SAM Project Manager: BEN DONAHUE Fax To:	Reported: 16-Jun-21 11:17
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MONITOR WELL	H211404-01	Water	02-Jun-21 09:40	02-Jun-21 14:47
FRESH WATER	H211404-02	Water	02-Jun-21 09:47	02-Jun-21 14:47
BRINE WATER	H211404-03	Water	02-Jun-21 09:38	02-Jun-21 14:47

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETZ WATER STATION  
 PO BOX 6056  
 HOBBS NM, 88241

 Project: SCHUBERT  
 Project Number: SHUBERT FARMS #1 WATERS SAM  
 Project Manager: BEN DONAHUE  
 Fax To:

 Reported:  
 16-Jun-21 11:17

**MONITOR WELL**  
**H211404-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	220		5.00	mg/L	1	1042813	GM	03-Jun-21	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	1042813	GM	03-Jun-21	310.1	
Chloride*	392		4.00	mg/L	1	1060207	GM	03-Jun-21	4500-C1-B	
Conductivity*	2080		1.00	umhos/cm @ 25°C	1	1060306	GM	04-Jun-21	120.1	
pH*	7.34		0.100	pH Units	1	1060306	GM	04-Jun-21	150.1	
Temperature °C	22.8			pH Units	1	1060306	GM	04-Jun-21	150.1	
Sulfate*	262		50.0	mg/L	5	1060307	GM	03-Jun-21	375.4	
TDS*	1340		5.00	mg/L	1	1052704	GM	07-Jun-21	160.1	
Alkalinity, Total*	180		4.00	mg/L	1	1042813	GM	03-Jun-21	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	204		0.500	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	
Magnesium*	55.0		0.500	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	
Potassium*	5.53	0.915	5.00	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	
Sodium*	134		5.00	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERT FARMS #1 WATERS SAM Project Manager: BEN DONAHUE Fax To:	Reported: 16-Jun-21 11:17
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**FRESH WATER**  
**H211404-02 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	244		5.00	mg/L	1	1042813	GM	03-Jun-21	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	1042813	GM	03-Jun-21	310.1	
Chloride*	468		4.00	mg/L	1	1060207	GM	03-Jun-21	4500-Cl-B	
Conductivity*	2760		1.00	umhos/cm @ 25°C	1	1060306	GM	04-Jun-21	120.1	
pH*	7.25		0.100	pH Units	1	1060306	GM	04-Jun-21	150.1	
Temperature °C	22.8			pH Units	1	1060306	GM	04-Jun-21	150.1	
Sulfate*	537		125	mg/L	12.5	1060307	GM	03-Jun-21	375.4	
TDS*	1860		5.00	mg/L	1	1052704	GM	07-Jun-21	160.1	
Alkalinity, Total*	200		4.00	mg/L	1	1042813	GM	03-Jun-21	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	243		0.500	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	
Magnesium*	78.2		0.500	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	
Potassium*	7.09	0.915	5.00	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	
Sodium*	226		5.00	mg/L	5	B211250	AES	14-Jun-21	EPA200.7	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERT FARMS #1 WATERS SAM Project Manager: BEN DONAHUE Fax To:	Reported: 16-Jun-21 11:17
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**BRINE WATER**  
**H211404-03 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	244		5.00	mg/L	1	1042813	GM	03-Jun-21	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	1042813	GM	03-Jun-21	310.1	
Chloride*	178000		4.00	mg/L	1	1060207	GM	03-Jun-21	4500-Cl-B	
Conductivity*	263000		1.00	umhos/cm @ 25°C	1	1060306	GM	04-Jun-21	120.1	
pH*	6.77		0.100	pH Units	1	1060306	GM	04-Jun-21	150.1	
Temperature °C	22.7			pH Units	1	1060306	GM	04-Jun-21	150.1	
Sulfate*	2520		500	mg/L	50	1060307	GM	03-Jun-21	375.4	
TDS*	291000		5.00	mg/L	1	1052704	GM	07-Jun-21	160.1	
Alkalinity, Total*	200		4.00	mg/L	1	1042813	GM	03-Jun-21	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	783		50.0	mg/L	500	B211250	AES	14-Jun-21	EPA200.7	
Magnesium*	184		50.0	mg/L	500	B211250	AES	14-Jun-21	EPA200.7	
Potassium*	265	91.5	500	mg/L	500	B211250	AES	14-Jun-21	EPA200.7	J
Sodium*	111000		500	mg/L	500	B211250	AES	14-Jun-21	EPA200.7	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERT FARMS #1 WATERS SAM Project Manager: BEN DONAHUE Fax To:	Reported: 16-Jun-21 11:17
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**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Notes
<b>Batch 1042813 - General Prep - Wet Chem</b>										
<b>Blank (1042813-BLK1)</b> Prepared: 28-Apr-21 Analyzed: 29-Apr-21										
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	5.00	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							
<b>LCS (1042813-BS1)</b> Prepared: 28-Apr-21 Analyzed: 29-Apr-21										
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	305	12.5	mg/L				80-120			
Alkalinity, Total	250	10.0	mg/L	250		100	80-120			
<b>LCS Dup (1042813-BSD1)</b> Prepared: 28-Apr-21 Analyzed: 29-Apr-21										
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	305	12.5	mg/L				80-120	0.00	20	
Alkalinity, Total	250	10.0	mg/L	250		100	80-120	0.00	20	
<b>Batch 1052704 - Filtration</b>										
<b>Blank (1052704-BLK1)</b> Prepared: 27-May-21 Analyzed: 28-May-21										
TDS	ND	5.00	mg/L							
<b>LCS (1052704-BS1)</b> Prepared: 27-May-21 Analyzed: 28-May-21										
TDS	517		mg/L	500		103	80-120			
<b>Duplicate (1052704-DUP1)</b> Source: H211352-01 Prepared: 27-May-21 Analyzed: 28-May-21										
TDS	10200	5.00	mg/L	9450				7.23	20	
<b>Batch 1060207 - General Prep - Wet Chem</b>										
<b>Blank (1060207-BLK1)</b> Prepared & Analyzed: 02-Jun-21										
Chloride	ND	4.00	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERT FARMS #1 WATERS SAM Project Manager: BEN DONAHUE Fax To:	Reported: 16-Jun-21 11:17
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**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1060207 - General Prep - Wet Chem</b>										
<b>LCS (1060207-BS1)</b> Prepared & Analyzed: 02-Jun-21										
Chloride	104	4.00	mg/L	100		104	80-120			
<b>LCS Dup (1060207-BSD1)</b> Prepared & Analyzed: 02-Jun-21										
Chloride	104	4.00	mg/L	100		104	80-120	0.00	20	
<b>Batch 1060306 - General Prep - Wet Chem</b>										
<b>LCS (1060306-BS1)</b> Prepared: 03-Jun-21 Analyzed: 04-Jun-21										
Conductivity	99700		uS/cm	100000		99.7	80-120			
pH	2.11		pH Units	2.00		106	90-110			
<b>Duplicate (1060306-DUP1)</b> Source: H211404-01 Prepared: 03-Jun-21 Analyzed: 04-Jun-21										
pH	7.33	0.100	pH Units		7.34			0.136	20	
Conductivity	2080	1.00	umhos/cm @ 25°C		2080			0.241	20	
Temperature °C	22.7		pH Units		22.8			0.440	200	
<b>Batch 1060307 - General Prep - Wet Chem</b>										
<b>Blank (1060307-BLKJ)</b> Prepared & Analyzed: 03-Jun-21										
Sulfate	ND	10.0	mg/L							
<b>LCS (1060307-BS1)</b> Prepared & Analyzed: 03-Jun-21										
Sulfate	20.6	10.0	mg/L	20.0		103	80-120			
<b>LCS Dup (1060307-BSD1)</b> Prepared & Analyzed: 03-Jun-21										
Sulfate	20.2	10.0	mg/L	20.0		101	80-120	1.96	20	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERT FARMS #1 WATERS SAM Project Manager: BEN DONAHUE Fax To:	Reported: 16-Jun-21 11:17
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**Total Recoverable Metals by ICP (E200.7) - Quality Control**
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B211250 - Total Rec. 200.7/200.8/200.2</b>										
<b>Blank (B211250-BLK1)</b> Prepared: 07-Jun-21 Analyzed: 14-Jun-21										
Calcium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							
Magnesium	ND	0.100	mg/L							
<b>LCS (B211250-B51)</b> Prepared: 07-Jun-21 Analyzed: 14-Jun-21										
Magnesium	19.6	0.100	mg/L	20.0		98.2	85-115			
Potassium	7.98	1.00	mg/L	8.00		99.7	85-115			
Sodium	3.28	1.00	mg/L	3.24		101	85-115			
Calcium	3.96	0.100	mg/L	4.00		99.0	85-115			
<b>LCS Dup (B211250-BSD1)</b> Prepared: 07-Jun-21 Analyzed: 14-Jun-21										
Calcium	4.03	0.100	mg/L	4.00		101	85-115	1.75	20	
Magnesium	20.0	0.100	mg/L	20.0		99.8	85-115	1.59	20	
Potassium	7.93	1.00	mg/L	8.00		99.1	85-115	0.613	20	
Sodium	3.35	1.00	mg/L	3.24		104	85-115	2.21	20	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

J	Estimated concentration. Analyte concentration between MDL and RL.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C. Samples reported on an as received basis (wet) unless otherwise noted on report.

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Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

<b>Company Name:</b> ETR Water System <b>Project Manager:</b> Ben Danvers <b>Address:</b> PO Box 562 <b>City:</b> Hobbs <b>State:</b> NM <b>zip:</b> 88241 <b>Phone #:</b> 575 393 3494 <b>Fax #:</b> <b>Project #:</b> <b>Project Name:</b> Shubert Farms #1 Water Samples <b>Project Location:</b> Shubert Farms Well #1 <b>Sampler Name:</b> Ben Danvers		<b>P.O. #:</b> <b>Company:</b> <b>Attn:</b> <b>Address:</b> <b>City:</b> <b>State:</b> <b>Phone #:</b> <b>Zip:</b> <b>Fax #:</b>	
<b>FOR LAB USE ONLY</b> <b>Lab I.D.:</b> H21144 <b>Sample I.D.:</b> 1 Monitor Well 2 Fresh Water 3 Bar Water		<b>BILL TO</b> <b>ANALYSIS REQUEST</b>	
<b>Matrix:</b> <input type="checkbox"/> G/RAB OR (C)OMP <input type="checkbox"/> # CONTAINERS <input type="checkbox"/> GROUNDWATER <input type="checkbox"/> WASTEWATER <input type="checkbox"/> SOIL <input type="checkbox"/> OIL <input type="checkbox"/> SLUDGE <input type="checkbox"/> OTHER: <input type="checkbox"/> ACID/BASE <input type="checkbox"/> ICE / COOL <input type="checkbox"/> OTHER:		<b>PRESERV:</b> <b>SAMPLING:</b>	
<b>Date:</b> 6/21/21 <b>Time:</b> 9:47 <b>Date:</b> 6/21/21 <b>Time:</b> 9:36		<b>DATE</b> <b>TIME</b> 6/21 9:46 6/21 9:47 6/21 9:36	
<b>Relinquished By:</b> [Signature] <b>Received By:</b> [Signature] <b>Turnaround Time:</b> Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/> <b>Bacteria (only) Sample Condition:</b> Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <b>Observed Temp. °C:</b> 0.4 <b>Corrected Temp. °C:</b>		<b>Remarks:</b> Cation / Anion All Results are emailed. Please provide Email address: gordon.sivak@gmail.com	



January 10, 2022

BEN DONAHUE  
ETZ WATER STATION  
PO BOX 6056  
HOBBS, NM 88241

RE: SCHUBERT

Enclosed are the results of analyses for samples received by the laboratory on 12/17/21 12:22.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accr\\_cred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accr_cred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Caley D. Keene  
Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERTFARMS #1 WATER SAMPL Project Manager: BEN DONAHUE Fax To:	Reported: 10-Jan-22 12:15
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FRESH WATER	H213654-01	Water	17-Dec-21 08:30	17-Dec-21 12:22
BRINE WATER	H213654-02	Water	17-Dec-21 08:35	17-Dec-21 12:22
MONITOR WELL	H213654-03	Water	17-Dec-21 08:50	17-Dec-21 12:22

Cardinal Laboratories

\*—Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETZ WATER STATION  
 PO BOX 6056  
 HOBBS NM, 88241

 Project: SCHUBERT  
 Project Number: SHUBERTFARMS #1 WATER SAMPL  
 Project Manager: BEN DONAHUE  
 Fax To:

 Reported:  
 10-Jan-22 12:15

**FRESH WATER**  
**H213654-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	322		5.00	mg/L	1	1120308	AC	20-Dec-21	310.1	
Alkalinity, Carbonate Chloride*	<1.00		1.00	mg/L	1	1120308	AC	20-Dec-21	310.1	
Chloride*	276		4.00	mg/L	1	1121717	GM	20-Dec-21	4500-Cl-B	
Conductivity*	1610		1.00	umhos/cm @ 25°C	1	1121716	GM	17-Dec-21	120.1	
pH*	7.74		0.100	pH Units	1	1121716	GM	17-Dec-21	150.1	
Temperature °C	21.5			pH Units	1	1121716	GM	17-Dec-21	150.1	
Sulfate*	160		25.0	mg/L	2.5	1122003	AC	20-Dec-21	375.4	
TDS*	976		5.00	mg/L	1	1120903	AC	20-Dec-21	160.1	
Alkalinity, Total*	264		4.00	mg/L	1	1120308	AC	20-Dec-21	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	123		0.100	mg/L	1	B213157	JDA	05-Jan-22	EPA200.7	
Magnesium*	24.2		0.100	mg/L	1	B213157	JDA	05-Jan-22	EPA200.7	
Potassium*	12.6	0.183	1.00	mg/L	1	B213157	JDA	05-Jan-22	EPA200.7	
Sodium*	153		1.00	mg/L	1	B213157	JDA	05-Jan-22	EPA200.7	

Cardinal Laboratories

\*—Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

ETZ WATER STATION PO BOX 6056 HOBBS NM, 88241	Project: SCHUBERT Project Number: SHUBERTFARMS #1 WATER SAMPL Project Manager: BEN DONAHUE Fax To:	Reported: 10-Jan-22 12:15
---	---	------------------------------

**BRINE WATER  
H213654-02 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	317		5.00	mg/L	1	1120308	AC	20-Dec-21	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	1120308	AC	20-Dec-21	310.1	
Chloride*	176000		4.00	mg/L	1	1121717	GM	20-Dec-21	4500-Cl-B	
Conductivity*	270000		1.00	umhos/cm @ 25°C	1	1121716	GM	17-Dec-21	120.1	
pH*	6.73		0.100	pH Units	1	1121716	GM	17-Dec-21	150.1	
Temperature °C	21.6			pH Units	1	1121716	GM	17-Dec-21	150.1	
Sulfate*	8040		1250	mg/L	125	1122003	AC	20-Dec-21	375.4	
TDS*	296000		5.00	mg/L	1	1120903	AC	20-Dec-21	160.1	
Alkalinity, Total*	260		4.00	mg/L	1	1120308	AC	20-Dec-21	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	708		20.0	mg/L	200	B213157	JDA	05-Jan-22	EPA200.7	
Magnesium*	148		20.0	mg/L	200	B213157	JDA	05-Jan-22	EPA200.7	
Potassium*	176	36.6	200	mg/L	200	B213157	JDA	05-Jan-22	EPA200.7	J
Sodium*	100000		500	mg/L	500	B213157	JDA	06-Jan-22	EPA200.7	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETZ WATER STATION  
 PO BOX 6056  
 HOBBS NM, 88241

 Project: SCHUBERT  
 Project Number: SHUBERTFARMS #1 WATER SAMPLI  
 Project Manager: BEN DONAHUE  
 Fax To:

 Reported:  
 10-Jan-22 12:15

**MONITOR WELL**  
**H213654-03 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	259		5.00	mg/L	1	1120308	AC	20-Dec-21	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	1120308	AC	20-Dec-21	310.1	
Chloride*	364		4.00	mg/L	1	1121717	GM	20-Dec-21	4500-Cl-B	
Conductivity*	1970		1.00	umhos/cm @ 25°C	1	1121716	GM	17-Dec-21	120.1	
pH*	7.42		0.100	pH Units	1	1121716	GM	17-Dec-21	150.1	
Temperature °C	21.7			pH Units	1	1121716	GM	17-Dec-21	150.1	
Sulfate*	264		50.0	mg/L	5	1122003	AC	20-Dec-21	375.4	
TDS*	1160		5.00	mg/L	1	1120903	GM	21-Dec-21	160.1	
Alkalinity, Total*	212		4.00	mg/L	1	1120308	AC	20-Dec-21	310.1	

**Green Analytical Laboratories**
**Total Recoverable Metals by ICP (E200.7)**

Calcium*	182		2.50	mg/L	25	B213157	JDA	05-Jan-22	EPA200.7	
Magnesium*	50.7		2.50	mg/L	25	B213157	JDA	05-Jan-22	EPA200.7	
Potassium*	5.36	4.58	25.0	mg/L	25	B213157	JDA	05-Jan-22	EPA200.7	J
Sodium*	127		25.0	mg/L	25	B213157	JDA	05-Jan-22	EPA200.7	

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\*—Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETZ WATER STATION  
 PO BOX 6056  
 HOBBS NM, 88241

 Project: SCHUBERT  
 Project Number: SHUBERTFARMS #1 WATER SAMPL  
 Project Manager: BEN DONAHUE  
 Fax To:

 Reported:  
 10-Jan-22 12:15

**Inorganic Compounds - Quality Control**  
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1120308 - General Prep - Wet Chem</b>										
<b>Blank (1120308-BLK1)</b> Prepared & Analyzed: 03-Dec-21										
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	5.00	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							
<b>LCS (1120308-BS1)</b> Prepared & Analyzed: 03-Dec-21										
Alkalinity, Carbonate	ND	2.50	mg/L				80-120			
Alkalinity, Bicarbonate	292	12.5	mg/L				80-120			
Alkalinity, Total	240	10.0	mg/L	250		96.0	80-120			
<b>LCS Dup (1120308-BSD1)</b> Prepared & Analyzed: 03-Dec-21										
Alkalinity, Carbonate	ND	2.50	mg/L				80-120		20	
Alkalinity, Bicarbonate	305	12.5	mg/L				80-120	4.18	20	
Alkalinity, Total	250	10.0	mg/L	250		100	80-120	4.08	20	
<b>Batch 1120903 - Filtration</b>										
<b>Blank (1120903-BLK1)</b> Prepared: 09-Dec-21 Analyzed: 13-Dec-21										
TDS	ND	5.00	mg/L							
<b>LCS (1120903-BS1)</b> Prepared: 09-Dec-21 Analyzed: 13-Dec-21										
TDS	523		mg/L	500		105	80-120			
<b>Duplicate (1120903-DUP1)</b> Source: H213532-06 Prepared: 09-Dec-21 Analyzed: 13-Dec-21										
TDS	613	5.00	mg/L		591			3.65	20	
<b>Batch 1121716 - General Prep - Wet Chem</b>										
<b>LCS (1121716-BS1)</b> Prepared & Analyzed: 17-Dec-21										
Conductivity	105000		uS/cm	100000		105	80-120			
pH	7.11		pH Units	7.00		102	90-110			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETZ WATER STATION  
 PO BOX 6056  
 HOBBS NM, 88241

 Project: SCHUBERT  
 Project Number: SHUBERTFARMS #1 WATER SAMPL  
 Project Manager: BEN DONAHUE  
 Fax To:

 Reported:  
 10-Jan-22 12:15

**Inorganic Compounds - Quality Control**  
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1121716 - General Prep - Wet Chem</b>										
<b>Duplicate (1121716-DUP1)</b>		<b>Source: H213653-01</b>			<b>Prepared &amp; Analyzed: 17-Dec-21</b>					
Conductivity	1610	1.00	umhos/cm @ 25°C		1630			1.17	20	
pH	7.47	0.100	pH Units		7.44			0.402	20	
Temperature °C	21.3		pH Units		21.2			0.471	200	
<b>Batch 1121717 - General Prep - Wet Chem</b>										
<b>Blank (1121717-BLK1)</b>		<b>Prepared &amp; Analyzed: 17-Dec-21</b>								
Chloride	ND	4.00	mg/L							
<b>LCS (1121717-BS1)</b>		<b>Prepared &amp; Analyzed: 17-Dec-21</b>								
Chloride	100	4.00	mg/L	100	100	100	80-120			
<b>LCS Dup (1121717-BSD1)</b>		<b>Prepared &amp; Analyzed: 17-Dec-21</b>								
Chloride	104	4.00	mg/L	100	104	104	80-120	3.92	20	
<b>Batch 1122003 - General Prep - Wet Chem</b>										
<b>Blank (1122003-BLK1)</b>		<b>Prepared &amp; Analyzed: 20-Dec-21</b>								
Sulfate	ND	10.0	mg/L							
<b>LCS (1122003-BS1)</b>		<b>Prepared &amp; Analyzed: 20-Dec-21</b>								
Sulfate	22.4	10.0	mg/L	20.0	112	112	80-120			
<b>LCS Dup (1122003-BSD1)</b>		<b>Prepared &amp; Analyzed: 20-Dec-21</b>								
Sulfate	23.1	10.0	mg/L	20.0	116	116	80-120	3.21	20	

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 Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 ETZ WATER STATION  
 PO BOX 6056  
 HOBBS NM, 88241

 Project: SCHUBERT  
 Project Number: SHUBERTFARMS #1 WATER SAMPLI  
 Project Manager: BEN DONAHUE  
 Fax To:

 Reported:  
 10-Jan-22 12:15

**Total Recoverable Metals by ICP (E200.7) - Quality Control**
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Notes
<b>Batch B213157 - Total Rec. 200.7/200.8/200.2</b>										
<b>Blank (B213157-BLK1)</b> Prepared: 28-Dec-21 Analyzed: 05-Jan-22										
Magnesium	ND	0.100	mg/L							
Calcium	ND	0.100	mg/L							
Sodium	ND	1.00	mg/L							
Potassium	ND	1.00	mg/L							
<b>LCS (B213157-B51)</b> Prepared: 28-Dec-21 Analyzed: 05-Jan-22										
Sodium	3.15	1.00	mg/L	3.24		97.1	85-115			
Potassium	7.86	1.00	mg/L	8.00		98.3	85-115			
Magnesium	20.2	0.100	mg/L	20.0		101	85-115			
Calcium	3.93	0.100	mg/L	4.00		98.3	85-115			
<b>LCS Dup (B213157-B5D1)</b> Prepared: 28-Dec-21 Analyzed: 05-Jan-22										
Magnesium	20.2	0.100	mg/L	20.0		101	85-115	0.397	20	
Potassium	7.86	1.00	mg/L	8.00		98.2	85-115	0.0388	20	
Sodium	3.14	1.00	mg/L	3.24		96.8	85-115	0.252	20	
Calcium	3.93	0.100	mg/L	4.00		98.3	85-115	0.00694	20	

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\*—Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

J	Estimated concentration. Analyte concentration between MDL and RL.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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**Cardinal Laboratories**

\*—Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2478

Company Name: <u>ETA Water Station</u> Project Manager: <u>Ben Donahue</u> Address: <u>PO Box 5102</u> City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88241</u> Phone #: <u>575 393 3444</u> Fax #: _____ Project #: _____ Project Owner: _____ Project Name: <u>Scrubba Farms #1 Water Samples</u> Project Location: <u>Scrubba Farms #1 Brine Well</u> Sampler Name: <u>Ben Donahue</u>		P.O. #: _____ Company: _____ Attn: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone #: _____ Fax #: _____	
FOR LAB USE ONLY Lab I.D. _____ Sample I.D. _____ H218154 1 Fresh Water 2 Brine Water 3 Monitor Well (G/RAB OR C/OMP. # CONTAINERS) G/A ✓ G/A ✓ G/A ✓ MATRIX: GROUNDWATER _____ WASTEWATER _____ SOIL _____ OIL _____ SLUDGE _____ OTHER: _____ ACID/BASE: _____ ICE / COOL _____ OTHER: _____ DATE TIME 12/11/21 8:30a ✓ 12/11/21 8:35a ✓ 12/11/21 8:50a ✓ Cation/Anion		<b>BILL TO</b> <b>ANALYSIS REQUEST</b>	
Retinquished By: <u>[Signature]</u> Date: <u>12-17-21</u> Received By: <u>[Signature]</u> Date: <u>12-22</u> Retinquished By: _____ Date: _____ Received By: _____ Date: _____		Turnaround Time: _____ Standard _____ Rush _____ Bacteria (only) Sample Condition _____ Cool Intact _____ Yes _____ No _____ Observed Temp. °C _____ Corrected Temp. °C _____ Verbal Results: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #: _____ All Results are emailed. Please provide Email address: <u>gspransawant@gmail.com</u> REMARKS: _____	

† Cardinal cannot accept verbal changes. Please email changes to caley.keene@cardinalabnm.com

APPENDIX C

HRC Inc.

MIT BW-36 Chart  
2/25/2022  
API 30-025-37548



BW-36

API # 30-025-37548

2/25/2022 MIT Test

2/25/2022

8:00 AM: Rig up Maclaskey Oil Field Service (David Aaron); Shut in discharge @ casing & begin pumping down tubing to reach test pressure. Well required approx. 260 bbl. pumped down tubing to bring cavern pressure from normal working pressure (approx. 245 psig) to cavern test pressure (approx. 318 psig).

2:00 PM: Install chart on chart recorder; open valve to chart recorder & isolate chart recorder from pump truck.

2:10 PM: Begin Test (cavern pressure approx. 318 psig)

6:12 PM: Complete Test (cavern pressure approx. 309 psig); bleed pressure off of chart recorder

6:30 PM: Rig down/release Maclaskey Pump Truck

7:20 PM: Open casing to production tanks and bleed off pressure overnight

2/26/2022

8:15 AM: Put well back on production (cavern pressure approx. 240 psig)

\*Chart recorder was set on 12 hour clock setting, see American Valve certification page for chart recorder calibration.

# American Valve & Meter, Inc.

1113 W. BROADWAY

P.O. BOX 166  
HOBBS, NM 88240

T0: Maclaskey Oilfield Services

DATE: 2/7/22

This is to certify that:

I, Justin Harris, Technician for American Valve & Meter Inc. Has checked the calibration of the following instrument.

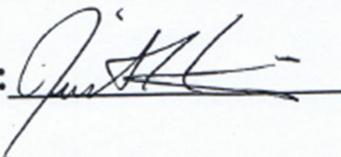
08" Pressure recorder

S/N: 50071501800

at these points.

Pressure #1000			Temperature *or Pressure #		
Test	Found	Left	Test	Found	Left
- 0	-	- 0	-	-	-
- 500	-	- 500	-	-	-
- 700	-	- 700	-	-	-
- 1000	-	- 1000	-	-	-
- 200	-	- 200	-	-	-
- 0	-	- 0	-	-	-

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature: 

Submit 1 Copy To Appropriate District Office  
 District I - (575) 393-6161  
 1625 N. French Dr., Hobbs, NM 88240  
 District II - (575) 748-1283  
 811 S. First St., Artesia, NM 88210  
 District III - (505) 334-6178  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 District IV - (505) 476-3460  
 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
 Energy, Minerals and Natural Resources

Form C-103  
 Revised July 18, 2013

OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 87505

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-025-37548
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <u>Brine Well</u>	5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>	6. State Oil & Gas Lease No. N/A
2. Name of Operator <u>HRC Inc.</u>	7. Lease Name or Unit Agreement Name <u>Schubert Farms (31632A)</u>	8. Well Number <u>001</u>
3. Address of Operator <u>P.O. Box 5102 Hobbs, NM 88241</u>	9. OGRID Number <u>B31652</u>	10. Pool name or Wildcat <u>Salado</u>
4. Well Location Unit Letter <u>B</u> : <u>330</u> feet from the <u>N</u> line and <u>1650</u> feet from the <u>E</u> line Section <u>25</u> Township <u>19-S</u> Range <u>38-E</u> NMPM County <u>Lea</u>	11. Elevation (Show whether DR, RKB, RT, GR, etc.)	

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL. <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
CLOSED-LOOP SYSTEM <input type="checkbox"/>			
OTHER: <input type="checkbox"/>		OTHER: <input checked="" type="checkbox"/>	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Performed 5-year MIT on Brine Well

\* SEE ATTACHED WORKOVER PROCEDURE & COMPLETION REPORT

Spud Date:  Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Gary M. Schubert TITLE Owner DATE 2/25/2022  
 Type or print name Gary M Schubert E-mail address: garymschubert@gmail.com PHONE: (575) 393-6662  
 For State Use Only

APPROVED BY: \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
 Conditions of Approval (if any): \_\_\_\_\_

District 1  
1525 N. French Dr., Hobbs, NM 88200  
Phone: (575) 393-6181 Fax: (575) 391-0720

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division Hobbs District Office

BRADENHEAD TEST REPORT

Operator Name <b>HRC INC</b>		API Number <b>30-025-37548</b>
Property Name <b>Schubert Farms</b>		Well No. <b>001</b>

Surface Location

UL - Lot <b>B</b>	Section <b>25</b>	Township <b>19-S</b>	Range <b>38-E</b>	Feet from <b>330</b>	NS Line <b>N</b>	Feet from <b>1650</b>	EW Line <b>E</b>	County <b>Lea</b>
----------------------	----------------------	-------------------------	----------------------	-------------------------	---------------------	--------------------------	---------------------	----------------------

Well Status

**Brine Well**

TA'D WELL YES <input checked="" type="checkbox"/>	SHUT-IN YES <input checked="" type="checkbox"/>	INJ	INJECTOR SWD	PRODUCER OIL	GAS	DATE <b>2-25-22</b>
--	--	-----	-----------------	-----------------	-----	------------------------

OBSERVED DATA

*no packer*

	(A)Surface	(B)Interm(1)	(C)Interm(2)	(D)Prod Csmg	(E)Tubing
Pressure	<b>0</b>	<b>NA</b>	<b>NA</b>	<b>260</b>	<b>260</b>
Flow Characteristics					
Puff	<b>Y / <del>N</del></b>	<b>Y / N</b>	<b>Y / N</b>	<b>Y / N</b>	CO2
Steady Flow	<b>Y / <del>N</del></b>	<b>Y / N</b>	<b>Y / N</b>	<b>Y / N</b>	WTR
Surges	<b>Y / <del>N</del></b>	<b>Y / N</b>	<b>Y / N</b>	<b>Y / N</b>	GAS
Down to nothing	<b>0 / N</b>	<b>Y / N</b>	<b>Y / N</b>	<b>Y / N</b>	Type of Fluid Injected for Waterflood if applies
Gas or Oil	<b>Y / <del>N</del></b>	<b>Y / N</b>	<b>Y / N</b>	<b>Y / N</b>	
Water	<b>Y / <del>N</del></b>	<b>Y / N</b>	<b>Y / N</b>	<b>Y / N</b>	

Remarks - Please state for each string (A,B,C,D,E) pertinent information regarding bleed down or continuous build up if applies.

**Annual  
UTC Test (Brine Well)  
Maclaskley (David)  
ser# 50671501800  
CAL 2-7-22**

**START 320#  
END 305#**

Signature:	OIL CONSERVATION DIVISION
Printed name:	Entered into RBDMS
Title:	Re-test
E-mail Address:	<b>[Signature]</b>
Date:	
Phone:	
Witness: <b>Kerry Fortner - OCD</b>	

**575-263-6633**

INSTRUCTIONS ON BACK OF THIS FORM

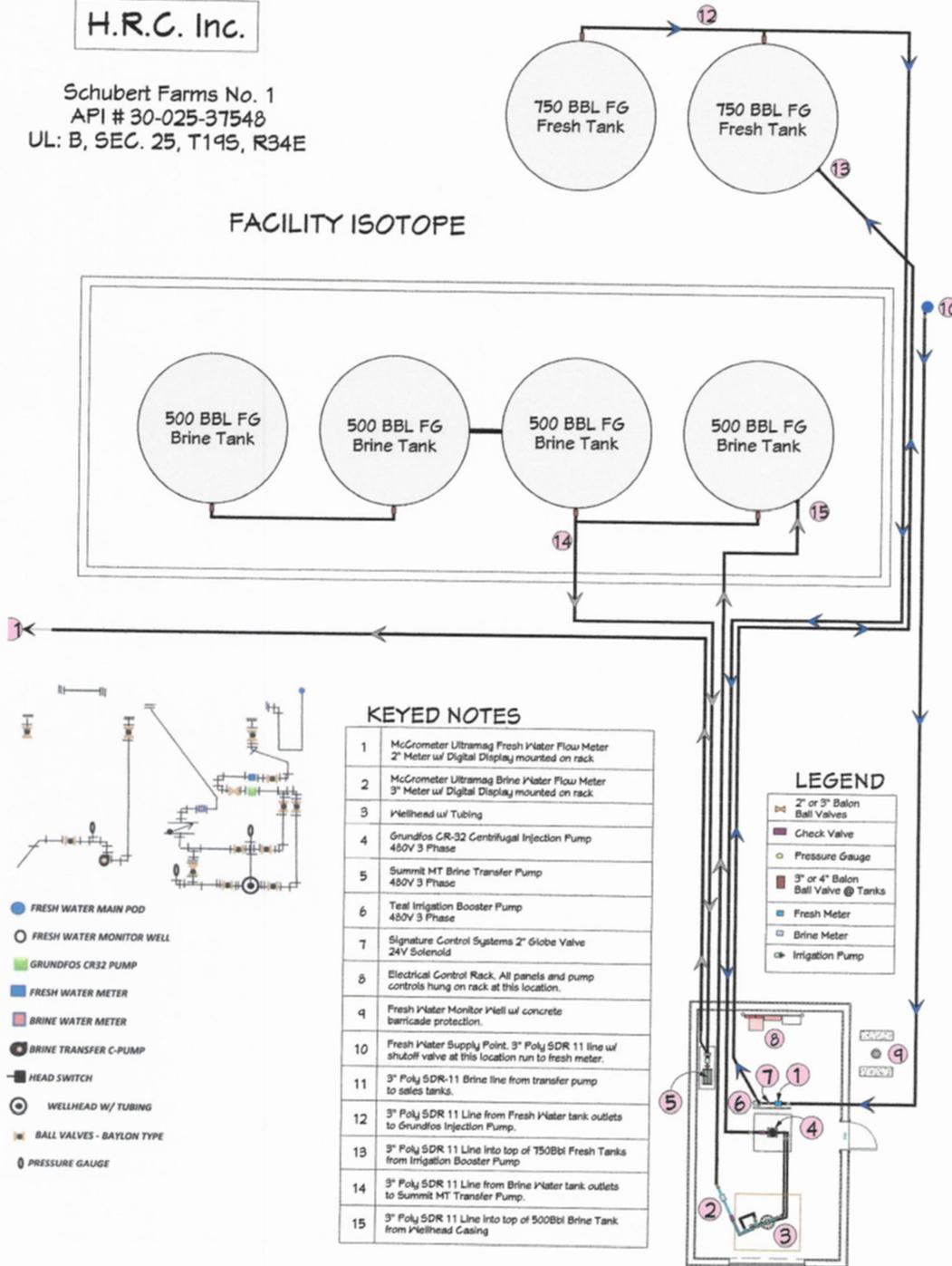


# APPENDIX E

H.R.C. Inc.

Schubert Farms No. 1  
 API # 30-025-37548  
 UL: B, SEC. 25, T19S, R34E

## FACILITY ISOTOPE

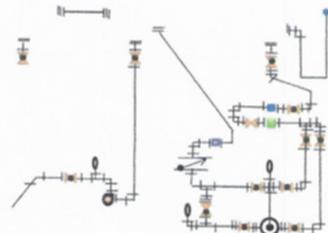


### KEYED NOTES

1	McCrometer Ultramag Fresh Water Flow Meter 2" Meter w/ Digital Display mounted on rack
2	McCrometer Ultramag Brine Water Flow Meter 3" Meter w/ Digital Display mounted on rack
3	Wellhead w/ Tubing
4	Grundfos CR-32 Centrifugal Injection Pump 480V 3 Phase
5	Summit MT Brine Transfer Pump 480V 3 Phase
6	Teal Irrigation Booster Pump 480V 3 Phase
7	Signature Control Systems 2" Globe Valve 24V Solenoid
8	Electrical Control Rack. All panels and pump controls hung on rack at this location.
9	Fresh Water Monitor Well w/ concrete barricade protection.
10	Fresh Water Supply Point. 3" Poly SDR 11 line w/ shutoff valve at this location run to fresh meter.
11	3" Poly SDR-11 Brine line from transfer pump to sales tanks.
12	3" Poly SDR 11 Line from Fresh Water tank outlets to Grundfos Injection Pump.
13	3" Poly SDR 11 Line into top of 750Bbl Fresh Tanks from Irrigation Booster Pump
14	3" Poly SDR 11 Line from Brine Water tank outlets to Summit MT Transfer Pump.
15	3" Poly SDR 11 Line into top of 500Bbl Brine Tank from Wellhead Gasing

### LEGEND

- 2" or 3" Ball Valves
- Check Valve
- Pressure Gauge
- 3" or 4" Ball Valve @ Tanks
- Fresh Meter
- Brine Meter
- Irrigation Pump



- FRESH WATER MAIN POD
- FRESH WATER MONITOR WELL
- GRUNDFOS CR32 PUMP
- FRESH WATER METER
- BRINE WATER METER
- BRINE TRANSFER C-PUMP
- HEAD SWITCH
- WELLHEAD W/ TUBING
- BALL VALVES - BAYLON TYPE
- PRESSURE GAUGE

**H.R.C. Inc.**

**Pipeline Overlay Map**



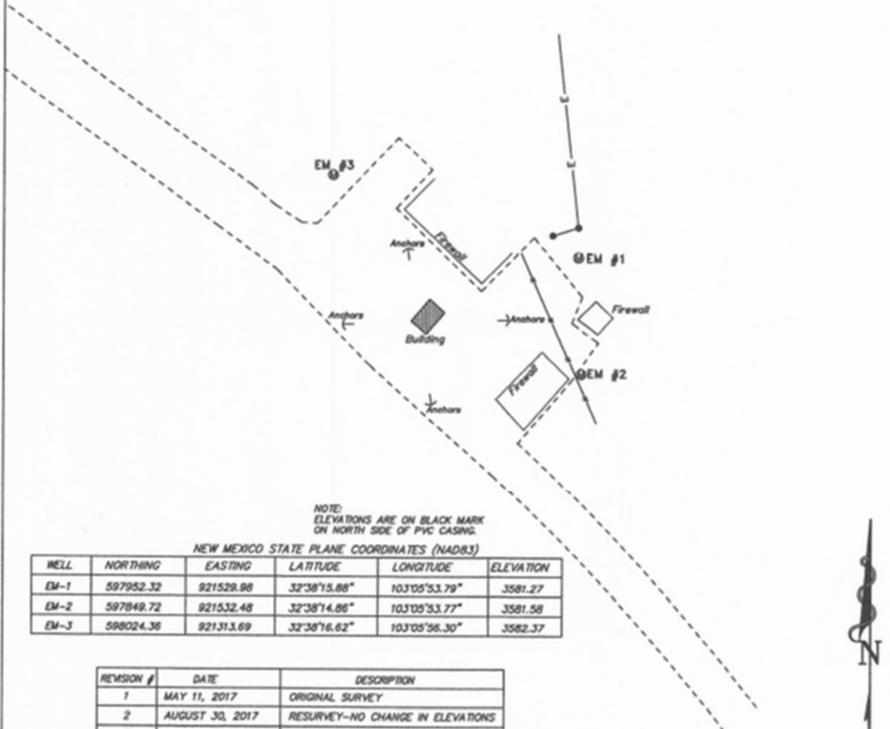
<b>A</b>	Schubert 7 Well # 1 32.675995, -103.083677
<b>B</b>	Schubert Farms Well # 1 32.637603, -103.048728
<b>C</b>	Peanut Shed Storage Battery 32.628787, -103.111053
<b>D</b>	ETZ Water Station 32.624077, -103.113627

	3" SDR 11 Poly pipeline from Schubert 7 Well # 1 to ETZ Water Station
	3" SDR 11 Poly pipeline from Schubert Farms Well # 1 to Peanut Shed Storage Battery
	3" SDR 11 Poly pipeline from transfer pump at Peanut Shed to ETZ Water Station
	2" SDR 11 Poly pipeline from transfer pump at Peanut Shed to ETZ Water Station
	2" SDR 11 Poly pipeline from transfer pump at Peanut Shed to ETZ Water Station



# APPENDIX F

SECTION 25, TOWNSHIP 19 SOUTH, RANGE 38 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.



NOTE:  
ELEVATIONS ARE ON BLACK MARK  
ON NORTH SIDE OF PVC CASING.

NEW MEXICO STATE PLANE COORDINATES (NAD83)

WELL	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION
EM-1	597952.32	921529.98	32°38'15.86"	103°05'53.79"	3581.27
EM-2	597849.72	921532.48	32°38'14.86"	103°05'53.77"	3581.58
EM-3	598024.36	921313.69	32°38'16.62"	103°05'56.30"	3582.37

REVISION #	DATE	DESCRIPTION
1	MAY 11, 2017	ORIGINAL SURVEY
2	AUGUST 30, 2017	RESURVEY-NO CHANGE IN ELEVATIONS
3	JANUARY 10, 2018	RESURVEY-NO CHANGE IN ELEVATIONS
4	MAY 1, 2018	RESURVEY-NO CHANGE IN ELEVATIONS
5	SEPTEMBER 5, 2018	RESURVEY-NO CHANGE IN ELEVATIONS
6	JANUARY 15, 2019	RESURVEY-NO CHANGE IN ELEVATIONS
7	MAY 7, 2019	RESURVEY-NO CHANGE IN ELEVATIONS
8	OCTOBER 14, 2019	RESURVEY-NO CHANGE IN ELEVATIONS
9	JANUARY 31, 2020	RESURVEY-NO CHANGE IN ELEVATIONS
10	MAY 12, 2020	RESURVEY-NO CHANGE IN ELEVATIONS
11	SEPTEMBER 9, 2020	RESURVEY-NO CHANGE IN ELEVATIONS
12	JUNE 21, 2021	RESURVEY-NO CHANGE IN ELEVATIONS
13	Sept. 30, 2021	RESURVEY-NO CHANGE IN ELEVATIONS
14	December 27, 2021	RESURVEY-NO CHANGE IN ELEVATIONS



I HEREBY CERTIFY THAT THIS PLAN PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY MEETS OR EXCEEDS ALL REQUIREMENTS FOR SURVEYS AS SPECIFIED BY THIS STATE.



GARY L. JONES N.E. P.S.  
TEXAS P.L.S.

**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 35545 Drawn By: K. GOAD

Date: 12-28-2021 Disk: KJG - SCHUBERT FARMS 35186

<b>H.R.C. INC.</b>	
REF: ELEVATION MARKERS	
ELEVATION MARKERS LOCATED IN SECTION 25, TOWNSHIP 19 SOUTH, RANGE 38 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.	
Survey Date: 12-27-2021	Sheet 1 of 1 Sheets

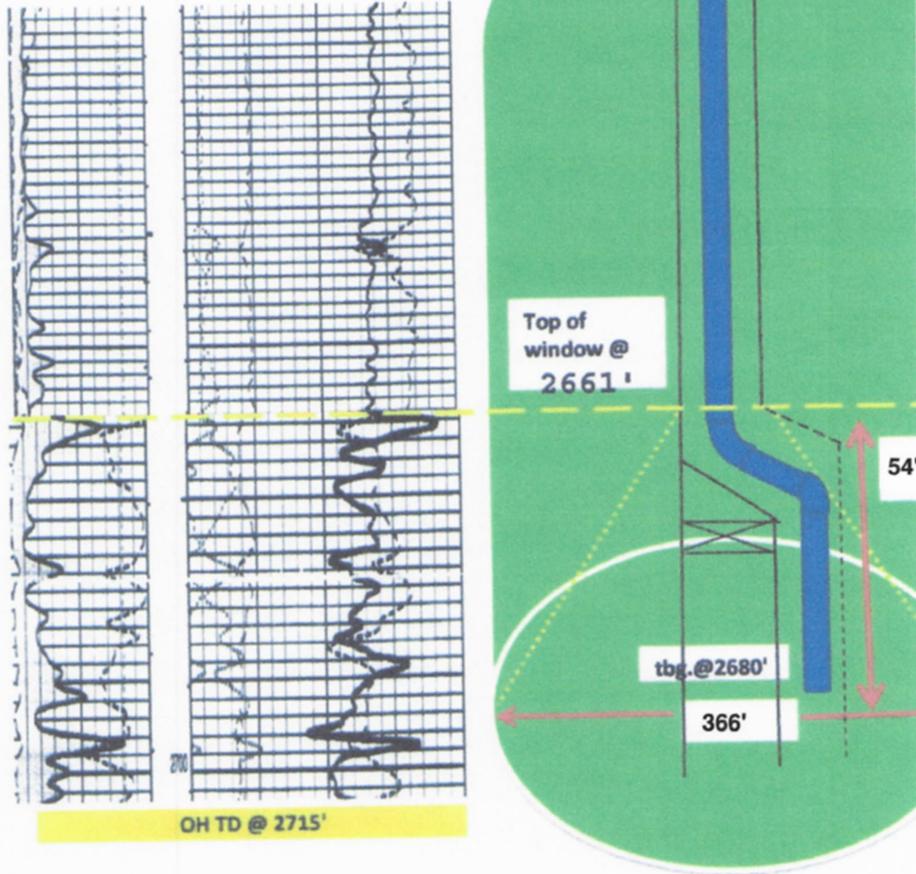
# APPENDIX G

Schubert Farms well no. 1  
 API 30-025-37548  
 B SEC 25 T19S R38E  
 LAT: 32.6375999 LONG:-103.0988007

2 7/8" J-55 6.5# IPC

8 5/8" csg.

## CAVERN SIZE BY CUBIC FOOT OF VOLUME



PPG 9.97 brine  
 PPG 8.34 fresh  
 SG 1.1951

Total Brine = 1,243,839 bbl through December 2021  
 122,136 lbs of salt/bbl = 151,917,520 lbs salt mined  
 151,917,520 lbs / (80 lbs/cu. ft. salt) = 1,898,969 cu. ft. cavern volume

Using  $V = \pi R^2 h / 3$ ,  $h = 54$  ft., and  $V = 1,898,969$  cu. ft

Cavern radius,  $R = 183$  ft.  
 Cavern Diameter,  $D = 366$  ft.  
 Cavern depth,  $d = 2661$  ft

$D/d$  ratio = 0.137, < 0.5 max