UICI - 8 - 3

WDW-3
FOT

2020

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

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

Form C-103
Revised July 18, 2013

WELL API NO.
30-015-26575

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.
B-2071-28

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.)

7. Lease Name or Unit Agreement Name
GAINES WDW-3

1. Type of Well: Oil Well ☐ Gas Well ☒ Other

8. Well Number: WDW-3

2. Name of Operator
HOLLYFRONTIER NAVAJO REFINERY LLC

9. OGRID Number: 15694

3. Address of Operator
P.O. Box 159, Artesia, NM 88210

10. Pool name or Wildcat
PENN 9691

4. Well Location
Unit Letter N 790 feet from the SOUTH line and 2250 feet from the WEST line
Section 1 Township 18S Range: 27E NMPM County: EDDY

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
3,609' GL

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER: PRESSURE FALLOFF TEST / MIT	☒			OTHER:			☐

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.

June 22, **2020; Day 1:** Begin constant-rate injection(+/- 10%) into GAINES WDW-3 as well as the three (3) offset wells for at least 30 hours prior to shut-in of WDW-3 for falloff testing. Target rate for WDW-3 is approximately 160 gpm. Wellhead pressure will not exceed 1,400 psig. Plant personnel will record rate, volume and pressure during the constant-rate injection period to ensure steady flow for analysis. Samples of the injectate will be collected approximately every 10 hours and analyzed for pH and specific gravity.
June 23, **2020; Day 2:** Continue constant-rate injection into all four (4) wells.
June 24, **2020; Day 3:** While injection continues, run dual downhole memory gauges to test depth making flowing gradient stopes every 1,000 feet. Collect pressure data at test depth for at least 1 hour while injecting at constant rate. Shut in WDW-3 and collect falloff data for a minimum of 30 hours. WDW-1, WDW-2 and WDW-4 will continue injection at constant rate until downhole memory gauges are pulled from WDW-3.
June 25, **2020; Day 4:** WDW-3 will remain shut-in while collecting falloff pressure data using downhole memory gauges.
June 26, **2020; Day 5:** After a minimum of 30 hours of falloff data collection, remove gauges from the well making 5-minute gradient stops every 1,000 feet. Note the top of fill will be tagged either with gauges prior to pulling from the well, or on a second run with sinker bars after gauges are removed (TBD). Conduct MIT for 30 min. minimum. Rig down wireline and return well to service.

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 Lewis R Dade TITLE Env. Spec. DATE 6/16/2020

Type or print name L.R. Dade E-mail address: Lewis.Dade@hollyfrontier.com PHONE: 575-746-5281

For State Use Only

APPROVED BY: Carl J. Chavez TITLE Environmental Engineer DATE 6/16/2020

Conditions of Approval (if any): Contact Artesia DO for witnessing of bot. hole gauge install and MIT.

Technical
Report

MECHANICAL INTEGRITY AND RESERVOIR TESTING

CLASS I NON-HAZARDOUS DEEPWELL GAINES WDW-3

(OCD UIC Permit: UICI-008-3)
(API Number: 30-015-26575)

HollyFrontier Navajo Refining Company
Artesia, New Mexico

Section 1, Township 18S, Range 27E
2250 FWL, 790 FSL

September 2020

Petrotek Corporation
5935 South Zang Street, Suite 200
Littleton, Colorado 80127
Phone: (303) 290-9414
Fax: (303) 290-9580

MECHANICAL INTEGRITY AND RESERVOIR TESTING
CLASS I NON-HAZARDOUS DEEPWELL
OCD UIC Permit: UICI-008-3
API Number: 30-015-26575

HollyFrontier Navajo Refining Company
Artesia, New Mexico

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EXECUTIVE SUMMARY

This report summarizes the successful mechanical integrity testing (MIT) and falloff testing activities performed on the Gaines WDW-3 (WDW-3) at the HollyFrontier Navajo Refining Company (HFNR) facility at Artesia, New Mexico. The work was performed as a condition of the applicable UIC permit issued by the New Mexico Oil Conservation Division (OCD). Under contract, Petrotek Corporation (Petrotek) developed the MIT procedures, provided field supervision, provided pressure transient test analysis, and prepared the final report documenting the fieldwork on the Class I non-hazardous injection well.

The test procedures were submitted to the OCD headquarters and OCD District II on June 16, 2020, before field activities commenced. Attachment 1 presents the test notification and procedures submitted to OCD. Approvals were received from regulatory agency staff prior to commencement of activities. No OCD personnel were present to witness testing. MIT activities were supervised by Nolan Beasley (Petrotek) and Lewis R. Dade (HFNR).

The field activities consisted of an annulus pressure test (APT) and an injection falloff test on WDW-3. The well satisfactorily demonstrated mechanical integrity pursuant to the applicable UIC permit, guidelines and regulations. All MIT requirements were satisfied as a result of the work performed. Wellbore and reservoir properties were confirmed as similar to those determined from analysis of the previous testing conducted in the well.

1. FACILITY INFORMATION

a. **Name** - HollyFrontier Navajo Refining Company

b. **Location** - Highway 82 East, Artesia, New Mexico, 88211

c. **Operator's OIL AND Gas Remittance Identifier (GRD) Number** - 15694

2. WELL INFORMATION

a. **OCD UIC Permit number authorizing injection** - OCD UIC Permit: UICI-008-3

b. **Well classification** - Class I Non-hazardous

c. **Well name and number** - Gaines WDW-3

d. **API Number** - 30-015-26575

e. **Legal Location** - Section 1, Township 18S, Range 27E, 2250 FWL, 790 FSL

3. CURRENT WELLBORE SCHEMATIC

A wellbore schematic displaying the well configuration during testing is provided as Figure 1. A wellhead schematic is provided as Figure 2.

4. COPY OF AN ELECTRIC LOG ENCOMPASSING THE COMPLETED INTERVAL

A copy of the dual induction log run in 1991 during the initial completion of the well was submitted with the original permit and can be found online on the OCD website as part of the OCD well files for this well.

5. COPY OF RELEVANT PORTIONS OF ANY POROSITY LOG USED TO ESTIMATE FORMATION POROSITY

A copy of the neutron density log, encompassing the completed interval between 7,660 and 8,620 ft KB, can be found online on the OCD website as part of the well files for this well. From these logs, it was determined that the injection reservoir thickness was approximately 175 feet with an average porosity of 10 percent. Consistent with the most recent test analysis submitted, these values were used for the analysis performed in this report.

6. PVT DATA OF THE FORMATION AND INJECTION FLUID

Fluid samples of connate brine from the injection interval were collected from the WDW-1 (33,000 mg/L) and WDW-2 (20,000 mg/L) during recompletion as Class I UIC wells. The average density and total dissolved solids (TDS) of the fluids recovered from the two wells were 1.03 g/cc and 26,500 mg/l, respectively. The results of formation fluid analysis were provided in documents previously submitted to and approved by OCD. Available analyte values for WDWs 1, 2 and 3 are provided in Table 1. Note that formation fluid samples were collected from WDW-4, but the well was completed in a separate injection zone. As such, WDW-4 geology and formation fluid samples will be discussed separately in the testing report for that well.

TABLE 1
HFNR FORMATION FLUID SAMPLE ANALYSIS RESULTS

Chemical	Mewbourne Well (WDW-1)	Chukka Well (WDW-2)	Gaines Well (WDW-3)	Average
Date	7/31/1998	6/14/1999	9/8/2006	
Fluoride (mg/L)	2.6	9.7	ND	6.15
Chloride (mg/L)	19,000	15,000	10,447	14,816
NO_3-N (mg/L)	<10	<10	--	<10
SO_4 (mg/L)	2,200	2,000	1,908	2,036
$CaCO_3$ (mg/L)	1,000	1,210	--	1,105
Specific Gravity (unitless)	1.0340	1.0249	--	1.0295
TDS (mg/L)	33,000	20,000	--	26,500
Specific Conductance (uMHOs/cm)	52,000	43,000	--	47,500
Potassium (mg/L)	213.0	235.0	85.5	177.8
Magnesium (mg/L)	143	128	155	142
Calcium (mg/L)	390	609	393	464
Sodium (mg/L)	12,770	8,074	6,080	8,975
pH	8.10	7.20	--	7.65

Note: ND: Non-detect; -- indicates no analysis.

The formation viscosity, fluid compressibility, and total compressibility were estimated using recorded bottom hole temperature in conjunction with industry standard correlations. These correlations were taken from the SPE textbook on Pressure Transient Testing which was published as part of the SPE Textbook Series as Volume 9. For the sake of brevity, only page, equation, and figure

numbers from this volume will be listed subsequently in this report as a reference for all correlations presented for the PVT data.

The percent solids for the fluid was approximated as 2.65%, based on the average 26,500 mg/l TDS provided in Table 1. A bottom hole temperature of 127.4 °F has been used as representative of the formation for these correlations. This value was derived from the original temperature log, run in 2006 when the well was recompleted. This log is can be found online on the OCD site as part of the well files for this well.

Fluid viscosity was estimated using multiple equations developed by McCain that first estimate fluid viscosity at atmospheric conditions (equations L-84, 85, and 86), which is converted to viscosity at bottom hole conditions (equation L-87) by using a correction factor. These equations can call be found on page 336. As a primary input for the correlation, pressure is required. The original formation pressure has been estimated at a depth of 7,660 feet BGL using the average formation fluid specific gravity based on the TDS values provided in Table 1. Using this method, a value of 3,404.7 psi has been estimated as the original pressure at gauge depth (7,660 feet BGL). At this pressure and a temperature of 127.4 °F, the following equations have been used to derive viscosity:

$$\mu_{w1} = AT_F^B \quad \text{(L-84)}$$

$$A = 109.574 - 8.40564 * S + 0.313314 * S^2 + 8.72213 * 10^{-3} * S^3 \quad \text{(L-85)}$$

$$B = -1.12166 + 2.63951 * 10^{-2} * S - 6.749461 * 10^{-4} * S^2 \quad \text{(L-86)}$$

$$\frac{\mu_w}{\mu_{w1}} = 0.9994 + 4.0295 * 10^{-5} * P + 3.1062 * 10^{-9} * P^2 \quad \text{(L-87)}$$

Where,

μ_{w1} is the viscosity of the formation fluid at atmospheric conditions
T_F is the bottom-hole temperature in °F
S is the percent of solids
P is the bottom-hole pressure in psi
μ_w is the viscosity of the brine at bottom-hole conditions

Using these equations, a value of 0.62 centipoise is calculated for the formation fluid viscosity.

Formation Compressibility was estimated using equation L-89 provided on page 337. This equation was developed for limestone formations, consistent with the primary composition of the effective injection interval (see discussion in Section 11).

$$cf = \frac{a}{(1+bc\Phi)^{\frac{1}{b}}} \quad \text{(L-89)}$$

Where,

a = 0.8535
b = 1.075
c = 2.303 E06
Φ = 0.10

Based on this equation, a value of 8.20E-6 psi^{-1} is derived for formation compressibility.

Fluid compressibility was estimated using figures L-30 and L-31 on page 338. The estimate is based on a bottom hole temperature of 127.4 °F, a bottom hole pressure of 3,404.7 psi, and a solids weight of 2.65%. Using Figure L-31 to first estimate freshwater compressibility, a value of 2.86E-06 psi^{-1} is derived. Using Figure L-30, the coefficient of isothermal compressibility (ratio of brine compressibility over freshwater compressibility) was determined to be approximately 0.95. This results in a value of 2.70E-06 psi^{-1} for the formation fluid compressibility (c_w).

By combining the formation and formation fluid compressibility, the total system compressibility is determined. The total system compressibility (c_t) is approximately 10.9 E-06 psi^{-1}.

The specific gravity of the test fluid, based on the static gradient survey performed at the end of the test, was 1.007 (gradient of 0.436 psi/ft) with a measured temperature during injection of 105.4 °F. Using Equations L-84 through L-87, the viscosity of the injected fluid at bottom hole conditions at the wellbore during injection is 0.71 cp. The compressibility of the injected fluid is (based on Figures L-30 and 31) is 2.88 E-06 psi^{-1}.

The values presented in this section have been utilized for analysis unless stated otherwise

7. DAILY RATE HISOTRY FOR A MINIMUM OF ONE MONTH PRECEDING THE FALLOFF TEST

The following table summarizes data acquired with HFNR well monitoring equipment.

TABLE 2
MAY AND JUNE INJECTION DATA

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
5/1/2020	1050.2	84.05	780.2
5/2/2020	1021.6	81.69	779.2
5/3/2020	1000.1	75.04	782.3
5/4/2020	1000.0	74.57	792.6
5/5/2020	1000.1	75.51	791.2
5/6/2020	1007.9	75.27	787.9
5/7/2020	976.4	61.69	755.2
5/8/2020	965.4	64.41	703.2
5/9/2020	968.9	54.82	638.5
5/10/2020	975.1	51.76	648.5
5/11/2020	970.3	55.21	657.4
5/12/2020	959.5	42.65	632.8
5/13/2020	984.1	60.41	638.8
5/14/2020	972.6	60.08	645.7
5/15/2020	1018.3	73.42	706.5
5/16/2020	1016.7	74.06	721.4
5/17/2020	1041.8	81.53	729.3
5/18/2020	1050.2	85.47	744.0
5/19/2020	986.3	69.42	713.9
5/20/2020	950.3	51.90	696.6
5/21/2020	947.6	50.55	706.6
5/22/2020	935.2	33.85	734.6
5/23/2020	987.8	55.19	723.9
5/24/2020	986.4	59.36	706.7
5/25/2020	951.4	39.01	663.7
5/26/2020	953.4	18.83	638.7
5/27/2020	949.7	32.19	593.6
5/28/2020	947.8	35.79	588.2
5/29/2020	942.9	35.97	595.0

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
5/30/2020	939.8	32.74	556.0
5/31/2020	992.5	51.15	573.9
6/1/2020	1053.3	81.82	609.9
6/2/2020	1050.2	84.30	618.7
6/3/2020	1050.2	85.77	662.3
6/4/2020	1050.2	86.80	717.1
6/5/2020	1050.1	89.00	681.9
6/6/2020	987.5	69.87	648.7
6/7/2020	931.7	40.07	594.0
6/8/2020	1009.8	77.90	609.2
6/9/2020	1075.4	95.71	655.5
6/10/2020	1044.0	79.34	657.3
6/11/2020	985.3	51.06	613.7
6/12/2020	973.2	48.92	595.0
6/13/2020	966.3	44.54	586.0
6/14/2020	967.2	51.52	601.4
6/15/2020	963.9	49.10	663.7
6/16/2020	952.7	36.10	635.6
6/17/2020	988.3	56.14	624.7
6/18/2020	1050.1	87.77	659.1
6/19/2020	1007.4	74.10	638.9
6/20/2020	989.0	67.08	642.5
6/21/2020	989.3	62.30	652.8
6/22/2020	959.3	54.14	637.7
6/23/2020	965.0	46.93	606.7
6/24/2020	990.1	64.73	618.0
6/25/2020	891.8	23.27	525.0
6/26/2020	789.6	0.00	349.6

8. CUMULATIVE INJECTION INTO THE FORMATION FROM TEST WELL

The cumulative volume of waste injected into this well since operations began, based on OCD records, is 21,187,370 barrels (889,869,540 gallons).

9. PRESSURE GAUGES

a. **Describe the type of downhole surface pressure readout gauge used included manufacturer and type -** Two downhole pressure and temperature memory gauges were utilized for the falloff testing. The gauges were 1.25-inch Quartz pressure and temperature memory gauges manufactured by DataCan (Part No. 100229).

b. **List the full range, accuracy and resolution of the gauge(s) -** The memory gauges are designed to measure pressure to an accuracy of 0.03% of full scale and a resolution of 0.01% of full scale, and operate within a range of 14.7 to 16,000 psi.

c. **Provide the manufacturer's recommended frequency of calibration and a calibration certificate showing the date the gauge was last calibrated -** These gauges are recommended to be calibrated once per year. These gauges were last calibrated on 2/7/2019 (Gauge #242117) and 5/15/2019 (Gauge #242560). Attempts have been made to recertify these gauges, but due to logistical issues related to the coronavirus pandemic, attempts have been unsuccessful. However, these gauges have had limited hours of use since they were last certified. The most recent calibration certificates are provided in Attachment 2. The data collected using the two gauges is in close agreement, indicating that the gauges continue to function properly.

   The bottom gauge (Serial Number - 242560) was utilized for analysis. The bottom gauge was hung at 7,660 feet BGL.

10. ONE-MILE ARE OF REVIEW (AOR)

A standard one-mile Area of Review (AOR) was evaluated for WDW-3 as part of the annual testing and reporting requirements. This evaluation was performed by Federal Abstract Company. The wells located within this one-mile AOR are listed in Attachment 3. This table contains the operator, well name, API number, well type, well status, location, and date of abandonment or completion. A figure displaying the wells located in the AOR and the wells in the surrounding sections has been provided as Figure 17.

There are two wells within the AOR that were plugged and abandoned within the last year. These wells are identified in Table 3 below. The IDs referenced in this table refer to the list of wells provided in Attachment 3. No new wells have been drilled within the AOR in the last year.

TABLE 3
WELLS PLUGGED WITHIN AOR

ID	Operator	Well Name	API	Well Type	Section	Township	Range	Lat Long	Date Plugged
24	APACHE CORPORATION	EMPIRE ABO UNIT #018A	30-015-00706	Oil	1	18S	27E	32.7769661 -104.2342606	9/20/2019
59	APACHE CORPORATION	EMPIRE ABO UNIT #171	30-015-22815	Oil	1	18S	27E	32.7709618 -104.2395248	10/24/2019

a. **Wells Located Within the One-mile AOR -** The wells located within the one-mile AOR are provided as Attachment 3. This table contains the operator, well name, API number, well type, well status, location, and date of abandonment or completion. The only changes to this AOR list are presented in Table 3 above.

b. **Status of Wells Within AOR -** In Attachment 3, SWD indicates Salt Water Disposal, P&A indicates Plugged and Abandoned, TA indicates Temporarily Abandoned, and AL indicates Abandoned Location.

c. **Provide details on any offset producers and injectors completed in the same injection interval -** HFNR operates three other Class I Injection wells, two of which are completed in the same interval, WDW-1 and WDW-2. Only WDW-2 (ID - 106) is located within the AOR. Based on public data, there are three additional wells, not operated by HFNR that are located within the AOR and inject into the same interval. These wells are the AAO Federal SWD No. 1 (ID - 27) operated by Apache Corporation, the Chalk Bluff Federal SWD #001 (ID - 39), and the Federal T SWD #1 (ID - 102), both operated by Limerock Resources. No offset producers exist in the injection interval within the AOR based on public data.

11. GEOLOGY

a. Describe the geologic environment of the injection interval
b. Discuss the presence of geologic features, i.e., pinchouts, channels and faults, if applicable
c. Provide a portion of a relevant structure map, if necessary

The following discussion provides detailed responses to the requirements listed above. This discussion is primarily based on information presented in previous permit applications for this well.

The WDW-1, 2 and 3 wells are located in the northern part of the Delaware Basin. The injection interval for the three wells are composed of carbonates from the Permian-age Lower Wolfcamp Formation, Pennsylvanian-age Cisco Formation, and Pennsylvanian-age Canyon Formation. The Wolfcamp unconformably overlies the Cisco and Canyon Formations. Table 4, sourced from the 2019 MIT report, presents a summary of the logged formation depths for these formations in each of the wells. The geologic interpretations have been confirmed but not revised as part of this report.

TABLE 4
HFNR INJECTION FORMATION TOPS – WDW-1, 2 and 3

Formation	**WDW-1** (KB = 3,693 ft AMSL)		**WDW-2** (KB = 3,623 ft AMSL)		**WDW-3** (KB = 3,625 ft AMSL)	
	MD, KB (ft)	AMSL, KB (ft)	MD, KB (ft)	AMSL, KB (ft)	MD, KB (ft)	AMSL, KB (ft)
Lower Wolfcamp	7,450	-3,757	7,270	-3,647	7,303	-3,678
Cisco	7,816	-4,123	7,645	-4,022	7,650	-4,025
Canyon	8,475	-4,782	8,390	-4,767	8,390	-4,765
Base of Injection Zone (Base of Canyon)	9,016	-5,323	8,894	-5,271	8,894	-5,269

The lower portion of the Wolfcamp Formation, referred to as the Lower Wolfcamp, is the uppermost unit in the injection interval. The top of the zone ranges from 7,303 – 7,450 feet KB in the referenced wells. A structure map of the top of the Lower Wolfcamp is provided in Figure 3. The Wolfcamp ranges from fine to medium-grained, limestones with interbedded shales (Meyer, 1966). The picks for the top of the Wolfcamp were made from log correlations. The Wolfcamp is overlain by the dense, dolomitic Abo Formation. The gross thickness of the Lower Wolfcamp is approximately 363 feet. According to porosity log data from the area, the Wolfcamp porosity is generally greater than 5%.

The Cisco Formation is described as consisting of limestone/dolomite with some interbedded shales and fine-grained sandstones (Lindsay et. al., 2006). The top of the Cisco occurs at approximately 7,645 – 7,816 feet KB. A structure map of the top of the Cisco can be found in Figure 4. Coarse-grained dolomites have been noted to have interstitial to cavernous porosity (Lindsay et. al., 2006). At the three HFNR wells, the Cisco Formation is a porous dolomite that ranges from gross thickness of 659 feet to 745 feet. The net thickness using a porosity cutoff of greater than 10% is approximately 100 feet in WDW-1, 32 feet in WDW-2, and 65 feet in WDW-3.

The Canyon Formation typically consists mostly of brown limestone with interbedded grey shales (Lindsay et. al., 2006). The top of the Canyon occurs at approximately 8,400 KB. Some white sandstone and conglomerates have been noted at the base of the Canyon (Lindsay et. al., 2006). Some dolomites have been noted to be present in the Canyon as well. Gross thickness of the Canyon Formation is approximately 504-541 feet in the three wells. The net thickness using a porosity cutoff greater than 5% is approximately 34 feet in WDW-1, 30 feet in WDW-2, and 10 feet in WDW-3. No intervals appear to have a porosity more than 10% based on log review. A structure map is provided in Figure 5 which displays the top of the Strawn Formation, indicating the bottom of the Canyon.

12. OFFSET WELLS

HFNR operates three other Class I Injection wells, two of which are completed in the same interval, WDW-1 and WDW-2. Only WDW- 2 is listed in Attachment 3 since WDW-1 is not within the 1-mile AOR surrounding WDW-3. WDW-2 is AOR number 106 in Attachment 3. No changes have occurred to either of these wells since testing last year.

WDW-1 is approximately 7,800 feet to the northeast of WDW-3, while WDW-2 is approximately 3,100 feet to the west-southwest of WDW-3. These wells were injected into at a constant rate during the duration of testing, are at a significant distance from the test well in a high permeability system, and are not considered to have had a significant impact on the testing performed on WDW-3.

There are three additional wells, not operated by HFNR, that are within the AOR and inject into the same interval. These wells are the AAO Federal SWD No. 1 (ID - 27) operated by Apache Corporation, and the Chalk Bluff Federal SWD #001 (ID - 39), and the Federal T SWD #1 (ID - 102) both operated by Limerock Resources.

a. **Identify the distance between the test well and any offset wells completed in the same injection interval –** WDW-2 is approximately 3,100 feet to the

west-southwest, the Federal T SWD #1 is approximately 3,500 feet to the east-southeast, the Chalk Bluff Federal SWD #001 is approximately 2,300 feet to the east-northeast, and the AAO Federal SWD #001 is approximately 2,000 feet to the north-northeast.

b. **Report the status of the offset wells during both the injection and shut-in portions of the test -** The offset HFNR wells were operated at a constant rate during testing.

c. **Describe the impact, if any, of the offset wells during both the injection and shut-in portions of the test -** There was no significant impact on the character of the falloff test and the development of a useful test from these offset injectors. Further discussion of possible late-time effects is included in Section 15 of this report.

13. CHRONOLOGICAL LISTING OF THE DAILY TESTING ACTIVITIES

a. **Date of the test -** Testing was performed from June 24 through 26, 2020.

b. **Time of the injection period -** Constant-rate injection occurred for approximately 50 hours before the falloff test began. This injection period exceeded the duration of the falloff.

c. **Type of injection fluid -** Filtered waste was utilized for injection fluid.

d. **Final injection pressure and temperature prior to shutting in the well -** Prior to shutting in the well, the bottom hole injection pressure was 4,186.3 psia (at 7,660 feet BGL) and the injection rate was 47.0 gpm (1,611.4 bpd) with a measured bottom hole temperature of 101.9 °F.

e. **Total shut-in time -** The well was shut-in for approximately 44.4 hours for testing.

f. **Final static pressure and temperature at the end of the falloff portion of the test -** At the conclusion of the test, the final bottom hole pressure was 4,090.0 psia and the final bottom hole temperature was 104.0 °F. Following the conclusion of the test, the gauges were pulled out of the hole, and sinker bars were run in on wireline to find the top of fill. Fill was tagged at 8,639 feet BGL. Positive wellhead pressure was present throughout the test.

14. DESCRIBE THE LOCATION OF THE SHUT-IN VALVE USED TO CEASE FLOW TO THE WELL FOR THE SHUT-IN PORTION OF THE TEST

The well was shut-in using a wing valve located on the inlet side of the wellhead.

15. PRESSURE FALLOFF ANALYSIS

This section addresses requirements 15-19 of Section IX, Report Components, of the OCD's falloff test guidelines.

The equations, parameters and calculations utilized to derive these values are detailed further below. Table 5 contains input values used to perform the specified calculations.

a. **Radius of test investigation -** The radius of investigation for this test was determined to be 3,101 feet.

b. **Time to beginning of the infinite acting portion of the test -** The time at which the test began to display attributes of radial flow was approximately 12.1 hours after shut-in. This value was derived from the log-log plot.

c. **Slope(s) determined from the semi-log plot -** The slope for this radial period, as determined by the semi-log plot, was 5.34614 psi/cycle.

d. **Transmissibility (kh/μ) -** The transmissibility was determined to be 49,010 md-ft/cp.

e. **Permeability (k) -** The permeability was determined to be 174 md.

f. **Skin Factor (s) -** The skin factor was determined to be 11.8 units.

g. **Pressure drop due to skin (ΔP_{skin}) -** The pressure drop due to skin was determined to be 54.8 psi

h. **Flow efficiency -** The flow efficiency was determined to be 0.43.

i. **Flow capacity (kh) -** The flow capacity (permeability-thickness) was determined to be 30,386 md-ft.

j. **P_{1hr} -** The extrapolated pressure at 1-hr was determined to be 4,098.8 psi.

TABLE 5
FALLOFF TEST ANALYSIS INPUT VALUES

Parameter	Value	Unit
Formation Thickness, h	175	feet
Porosity, Φ	10	percent
Viscosity, μ	0.62	centipoise
Formation Compressibility, c_f	8.20E-06	1/psi
Total Compressibility, c_t	10.90E-06	1/psi
Formation Volume Factor, B	1.00	bbl/stb
Wellbore Radius, r_w	0.3246	feet
Final Well Flowing Pressure, p_{wf}	4,186.3	psia
Final Injection Rate, q_{final}	1,611.4 47.0	bwpd (gpm)
Horner Straight Line Slope, m	5.34614	psi/cycle

The average historical injection period used to account for total volume in the analysis was calculated by dividing the cumulative historical injection through the end of May (21,187,370 barrels) by the final injection rate (47.0 gpm). This resulted in a value of 315,556.6 hours of injection at 47.0 gpm. This value was used in conjunction with the injection data collected from the beginning of June through the end of testing. The total waste volume injected up to the time of shut-in utilized for calculations was 889,869,540 gallons (21,187,370 bbls).

To determine the mobility-thickness (transmissibility), the following equation was utilized. The resulting transmissibility was 49,010 md-ft/cp.

$$\frac{kh}{\mu} = 162.6\frac{q_{final}B}{m}$$

Where,

k is the permeability, in md
h is the formation thickness, in feet
μ is the viscosity of the formation fluid, in cp
q is the final flow rate, in bpd
B is the formation volume factor in RB/STB
m is the slope of the line assigned to the radial flow period on the semi-log plot, in psi/cycle

and 162.6 is a units conversion constant

$$\frac{kh}{\mu} = Transmissibility = 162.6\frac{1{,}611.4 * 1.0}{5.34614} = 49{,}010\frac{md-ft}{cp}$$

The transmissibility was then used to determine the permeability thickness. The resulting permeability-thickness was 30,386 md-ft.

$$kh = \left(\frac{kh}{\mu}\right)\mu = 49{,}010\left(\frac{md-ft}{cp}\right)0.62\ cp = 30{,}386\ md-ft$$

The permeability thickness was then used to determine the permeability of the reservoir. The resulting permeability was 174 md.

$$k = \frac{kh}{h} = \frac{30{,}386\ md-ft}{175\ ft} = 174\ md$$

In order to determine if the proper viscosity was utilized in the previous calculations, it must be determined if the pressure transient was traveling through reservoir fluids. This is done by determining the time it is expected to take the pressure transient to travel through the injected fluid. The first step of this is to determine the radius of waste emplaced by injection. The piston-like displacement resulting radius was estimated to be 1,471 feet.

$$r_{waste} = \sqrt{\frac{0.13368 * V}{\pi h \Phi}}$$

Where,

r_{waste} is the distance to the waste front, in feet
V is the total volume of fluid injected into the well, in gallons
h is the formation thickness, in feet
Φ is the porosity, as a fraction
0.13368 is a conversion constant

$$r_{waste} = \sqrt{\frac{0.13368 * (889{,}869{,}540)}{\pi * 175 * 0.10}} = 1{,}471\ feet$$

Based on this radius, the time for a pressure transient to travel through this fluid can be calculated. The resulting time was 9.29 hours.

$$t_{waste} = 948\frac{\Phi\mu_{waste}c_t r_{waste}^2}{k}$$

Where,

t_{waste} is the time for a pressure transient to reach the waste front, in hours
Φ is the porosity, as a fraction
μ_{waste} is the viscosity of the waste, in cp
r_{waste} is the radius of the waste front, in feet
c_t is the total compressibility, in psi^{-1}
k is the permeability, in md
948 is a conversion constant

$$t_{waste} = 948\frac{0.10 * 0.71 * 11.10E-06 * (1{,}471)^2}{174} = 9.29\ hours$$

Based on this result, and the time it took for radial flow to be reached (12.1 hours), it is known that the pressure transient was traveling through reservoir fluid during the middle-time radial flow period, indicating that the appropriate viscosity was used for analysis.

The near wellbore damage, referred to as skin, can be calculated based on the results of the straight line, semi-log analysis as well. This is done by utilizing the following equation. The result of this calculation was 11.8 units.

$$s = 1.151\left(\frac{P_{wf} - P_{1hr}}{m} - log\left(\frac{k}{\Phi\mu c_t r_w^2}\right) + 3.23\right)$$

Where,

s is skin damage, in units
P_{wf} is the shut-in well pressure, in psi
P_{1hr} is the extrapolated pressure at a time of 1 hour, using the slope of the straight line from the semi-log analysis, in psi
m is the slope of the radial line, in psi/cycle
k is the permeability, in md
Φ is the porosity, as a fraction
μ is the viscosity, in cp
r_w is radius of the wellbore in feet
1.151 and 3.23 are constants

$$s = 1.151\left(\frac{4{,}186.3 - 4{,}098.8}{5.34614} - log\left(\frac{174}{0.10 * 0.62 * 10.90E-06 * 0.3246^2}\right) + 3.23\right)$$
$$= 11.8$$

The change in pressure, due to skin, in the wellbore can be calculated using the following equation. The result of this calculation was 54.8 psi of pressure due to skin.

$$\Delta P_{skin} = 0.869 * m * s$$

Where,

ΔP_{skin} is the change in pressure due to skin damage, in psi
m is slope of the radial line, in psi/cycle
s is skin, in units
0.869 is a conversion constant

$$\Delta P_{skin} = 0.869 * 5.34614 * 11.8 = 54.8\, psi$$

The flow efficient (FE) can be determined using the following equation, provided within the OCD Guidelines (Section IX, 15, h). The result of this calculation was 0.43.

$$FE = \frac{P_{wf} - \Delta P_{skin} - P_{end\ of\ test}}{P_{wf} - P_{end\ of\ test}}$$

Where,

P_{wf} is the shut-in well pressure, in psi
ΔP_{skin} is the change in pressure due to skin damage, in psi
$P_{end\ of\ test}$ is the pressure at the end of the falloff test, in psi

$$FE = \frac{4{,}186.3 - 54.8 - 4{,}090.0}{4{,}186.3 - 4{,}090.0} = 0.43$$

The test radius of investigation (r_{inv}) can be determined using the following equation. The result of this calculation was 3,101 feet.

$$r_{inv} = 0.029\sqrt{\frac{kt}{\Phi\mu c_t}}$$

Where,

k is permeability, in md
t is time, in hours
Φ is porosity, as a fraction
μ is viscosity, in cp
c_t is total compressibility, in psi^{-1}
0.029 is a constant

$$r_{inv} = 0.029\sqrt{\frac{174 * 44.4}{0.1 * 0.62 * 10.90E-06}} = 3{,}101\ feet$$

No pressure or temperature anomalies were observed during testing. Based on examination of the log-log diagnostic plot, the test reached what appears to be radial flow approximately 12.1 hours after shutting the well in. Early-time data was dominated by wellbore storage for more than the first hour of the test. The test has been analyzed based on the reasonable assumption that a period of radial flow exists in the data. Figures 9, 10 and 11 present a simple analysis consistent with the pseudo straight-line analysis equations presented in the preceding text. Figures 12 through 14 present a simulation analysis generated for a homogenous isotropic radial flow system using the average pseudo-rate discussed earlier in this report up until May 1 to account for historical injection and actual rate data from May 1 until test shut-in. The simulation analysis generally supports the more simplistic graphical analysis that relies upon the semi-log slope.

There is noise evident in the log-log plots (Figures 9 and 13), and it is possible that multi-layer effects and cross-flow may be impacting the data toward the end of the test. Toward the end of the test it is possible that a late-time period may be developing where the effects of heterogeneity or offset injection may be starting to influence the test. However, the substantial permeability-thickness of this injection zone yield small pressure changes during both middle- and late-time periods of the test that generate a somewhat noisy derivative even with the high-resolution gauges used to collect the pressure-transient data. The character of the fall-off data and the derivative are similar to the patterns evident in previous testing of this well.

The following figures are provided:

- Figure 6 - Cartesian Plot of Pressure, Temperature and Rate vs. Time
- Figure 7 - Full Rate History Plot
- Figure 8 - Cartesian Plot of Pressure Falloff
- Figure 9 - Log-log Derivative Plot
- Figure 10 - Semi-log Horner Plot
- Figure 11 - Semi-log Horner Plot, Radial Zoom
- Figure 12 - Cartesian Plot of Pressure Falloff with Model Match
- Figure 13 - Log-log Derivative Plot with Model Match
- Figure 14 - Semi-log Horner Plot with Model Match
- Figure 15 - Daily Injection Rate History for Month Prior to Test Plot
- Figure 16 - Hall Plot

As specified by OCD requirements, a Hall Plot (Figure 16) generated from the data presented in Table 2 over the month leading up to the falloff test this year is presented. It is noted that this plot of a limited elapsed time of the Hall function is a simplistic presentation based on correcting average daily wellhead pressures to bottomhole conditions based on hydrostatic head and tubing friction loss. The plot has been made with this raw BHP rather than a pressure change (or dp) that would be generated by subtracting original reservoir pressure from the injection pressure value. Because this BHP value is used, the Hall plot slope is not proportional to other indicators, but qualitatively can yield insight to well conditions based on changing slopes. Further, consistent with the Hall method, it is assumed that the reservoir is homogenous and isotropic, that none of the average daily pressures are impacted by transient flow (relatively continuous, constant rate injection took place), and that no offset wells are impacting pressure at this well during the time that the Hall function has been plotted (May of 2020). The slope of the data is fairly linear, and this linearity is consistent with no significant changes in well condition taking place during this time period. Based on this observed linear trend, there are no current concerns noted with regard to well or reservoir performance.

Table 6 contains all historical well test analysis results, including the results from the test this year.

TABLE 6
HISTORICAL AMBIENT RESERVOIR TESTING

Year	Fill Depth (feet)	Permeability (md)	Mobility-thickness (md-ft/cp)	Skin (units)	P* (psia)
2020	8,639	174	49,010	11.8	4,069.4
2019	8,632	340	104,265	12.0	4,170.0
2018	8,632	366	112,323	8.8	4,287.6
2017	9,060	533	163,612	12.2	4,259.3
2016	9,093	409	125,443	8.1	4,281.0
2014	8,946	730	224,096	10.5	4,351.6
2012	8,972	1,248	383,087	8.3	3,941.9
2012	8,986	597	183,293	27.3	3,792.3
2010	8,986	568	174,376	14.6	3,622.2
2009	8,986	719	233,008	54.1	3,475.7
2008	NA	1,322	321,411	107	3,430.3
Permit	NA	250	40,094	NA	NA

All raw data generated by the test will be kept on file by HFNR for a period not less than five years. The raw data has been provided as a part of this report, with additional files available upon OCD request.

16. INTERNAL MECHANICAL INTEGRITY

On June 26, the annulus was pressured to 600.2 psi. The well had been shut in for approximately 48 hours prior to the test, ensuring thermal equilibrium. A calibrated digital pressure gauge (Crystal XP2i 5,000 psi, SN - 901241) supplied by Petrotek was installed on the annulus at the wellhead. The well and test gauge were then isolated from the rest of the system and annulus pressure was then monitored for a period of thirty minutes at 5-minute intervals. During the test the pressure decreased by 11.3 psi. Since a change of 10% (60.0 psi) of the test pressure is allowable, this test is within acceptable specifications.

Attachment 6 presents a copy of the gauge certification. Attachment 4 contains the digital data collected during the APT. Pressures were observed as follows during testing.

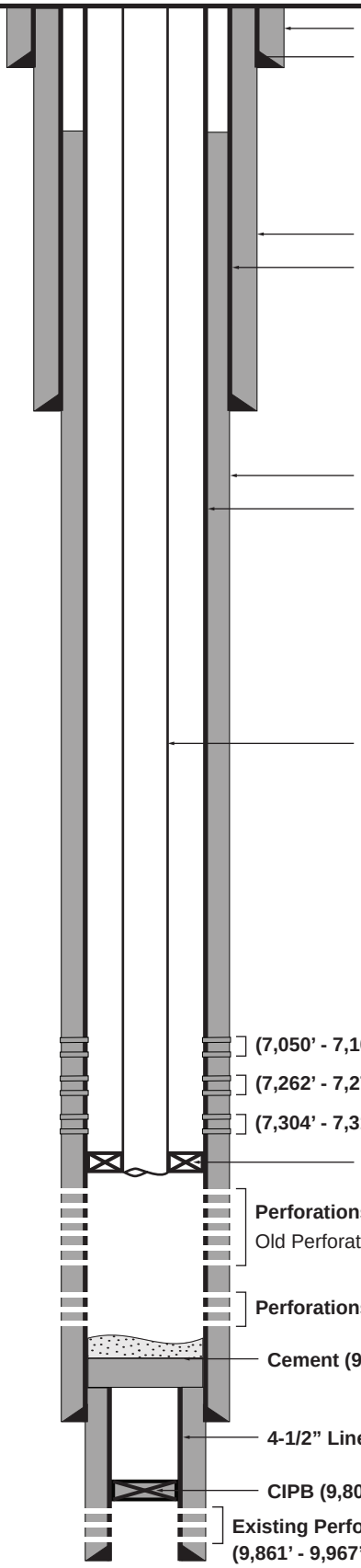
TABLE 7
ANNULUS PRESSURE TEST MEASUREMENTS

Time, Minutes	0	5	10	15	20	25	30
Pressure, Psi	600.2	593.1	590.4	589.6	589.3	589.1	588.9

FIGURES

Petrotek

OCD UIC Permit: UICI-008-3
Well API Number: 30-015-26575
Sec. 1, T18S, R27E - Eddy County, New Mexico
SHL: Lat. 32.771186°, Long. -104.233306°



17.5" Hole

Conductor Casing (0' - 400'): 13-3/8", 54.5 lb/ft, J-55 STC Steel, cemented to surface with 425 sacks of cement.

12.25" Hole

Surface Casing (0' - 2,600'): 9-5/8", 36 lb/ft, J-55 STC Steel, cemented to surface with 1,025 sacks of cement.

8-3/4" Hole

Protection Casing (0' - 9,450'): 7", 26 lb/ft & 29 lb/ft, N-80 & P110 Steel. Top of cement at 900', cement with 1,350 sacks of cement.

Injection Tubing (0' - 7,568'): 4-1/2", 11.6 lb/ft, J-55 LTC Steel, no nipples, Injection Tubing - 10/24/06.

(7,050' - 7,102') Perforations squeezed with 80 sacks

(7,262' - 7,278') Perforations squeezed with 100 sacks

(7,304' - 7,314') Perforations squeezed with 80 sacks

Packer (7,575'): 7" x 2-7/8" Arrow X-1 Packer, no nipples, 37K Tension

Perforations (7,660' - 8,450'): 2 JSPF, 60°, 0.5"
Old Perforations Open: 7,676' - 7,698'

Perforations (8,540' - 8,620'): 2 JSPF, 60°, 0.5"

Cement (9,022')

4-1/2" Liner (9,051' - 10,119')

CIPB (9,800'): 35' of cement

Existing Perforations (9,861' - 9,967')

TD: 10,119'

Top of Fill:
8,986' (Tagged 8/30/09)

Wellbore information from:
Gaines Well #3 Navajo Refining schematic by Subsurface Technology, 2009.

NOT TO SCALE

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Figure 1
Wellbore Diagram,
WDW No. 3

2020 FOT/MIT Report

Scale: NTS	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_01.pdf	By: WEK	Checked: WJ

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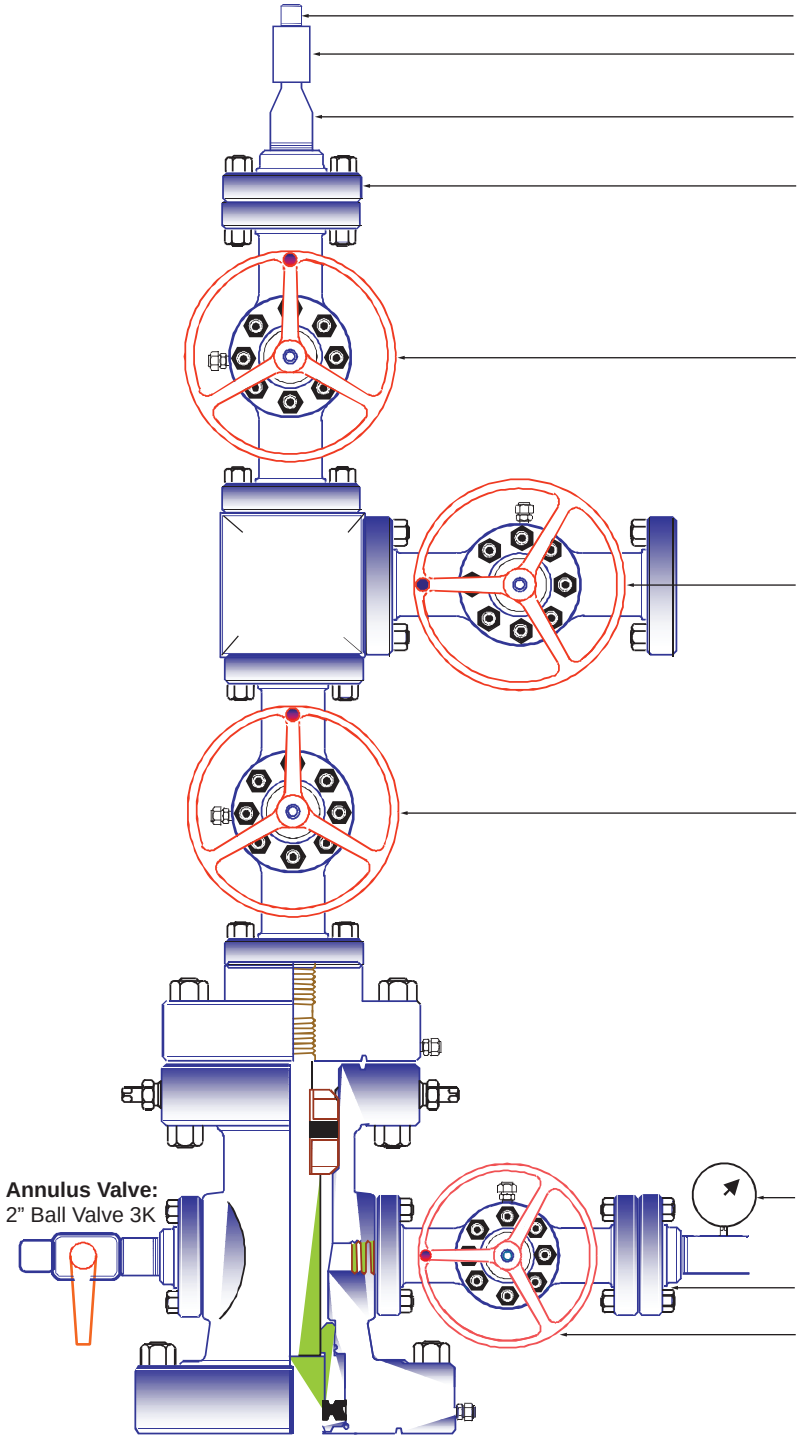

Well Head information partially
from: Well: Navajo Refining
WDW #3, by Subsurface Technology.

NOT TO SCALE

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Figure 2
Wellhead Diagram,
WDW No. 3

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Scale: NTS	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_02.pdf	By: WEK	Checked: WJ

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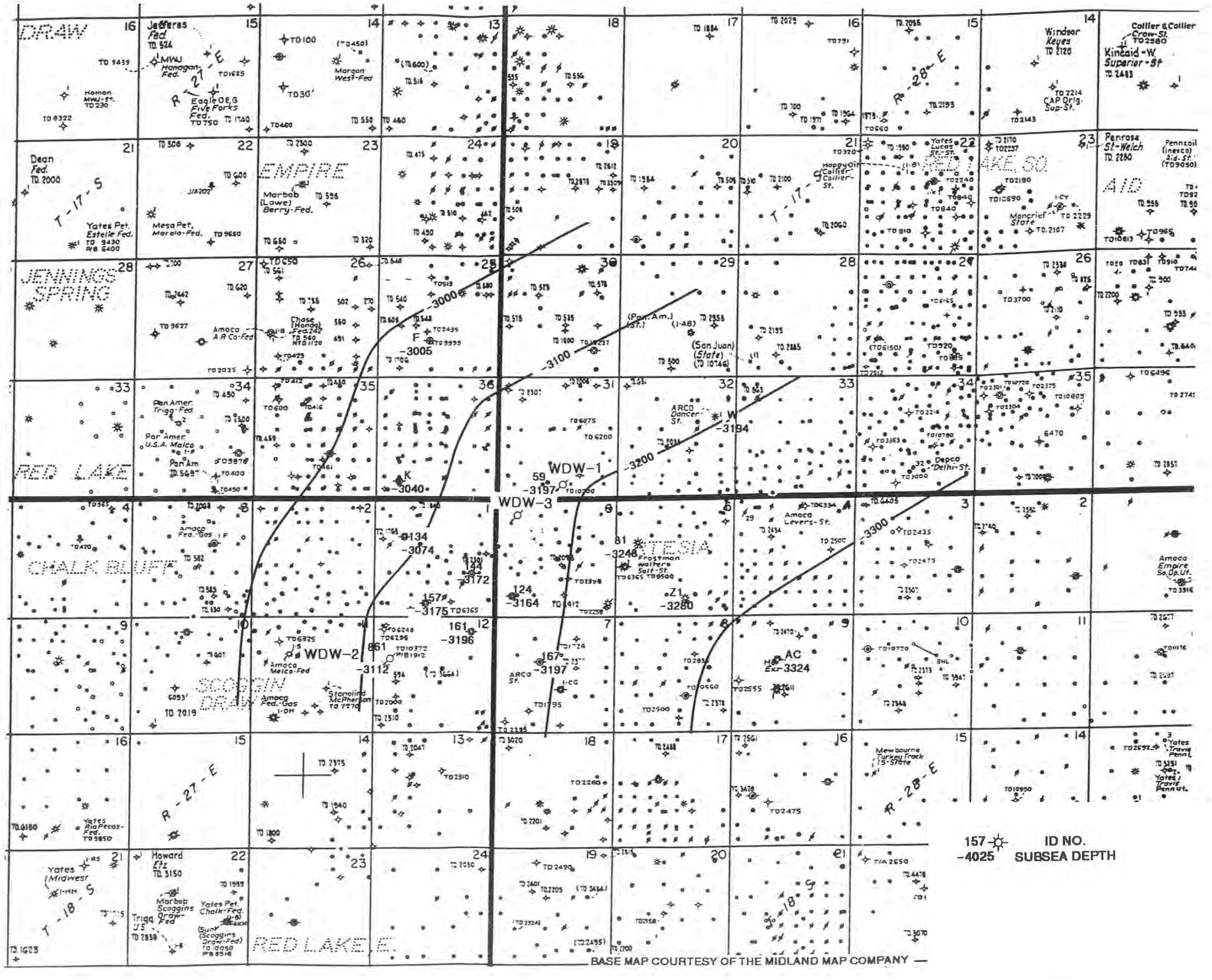

Adapted from Navajo Refining Co., Attachment VIII-12,
Structure - Top of Wolfcamp Formation, Envirocorp, 1998.

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Figure 3
Wolfcamp Formation Structure Map

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Contour Interval = 100'	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_03.pdf	By: WEK	Checked: RW

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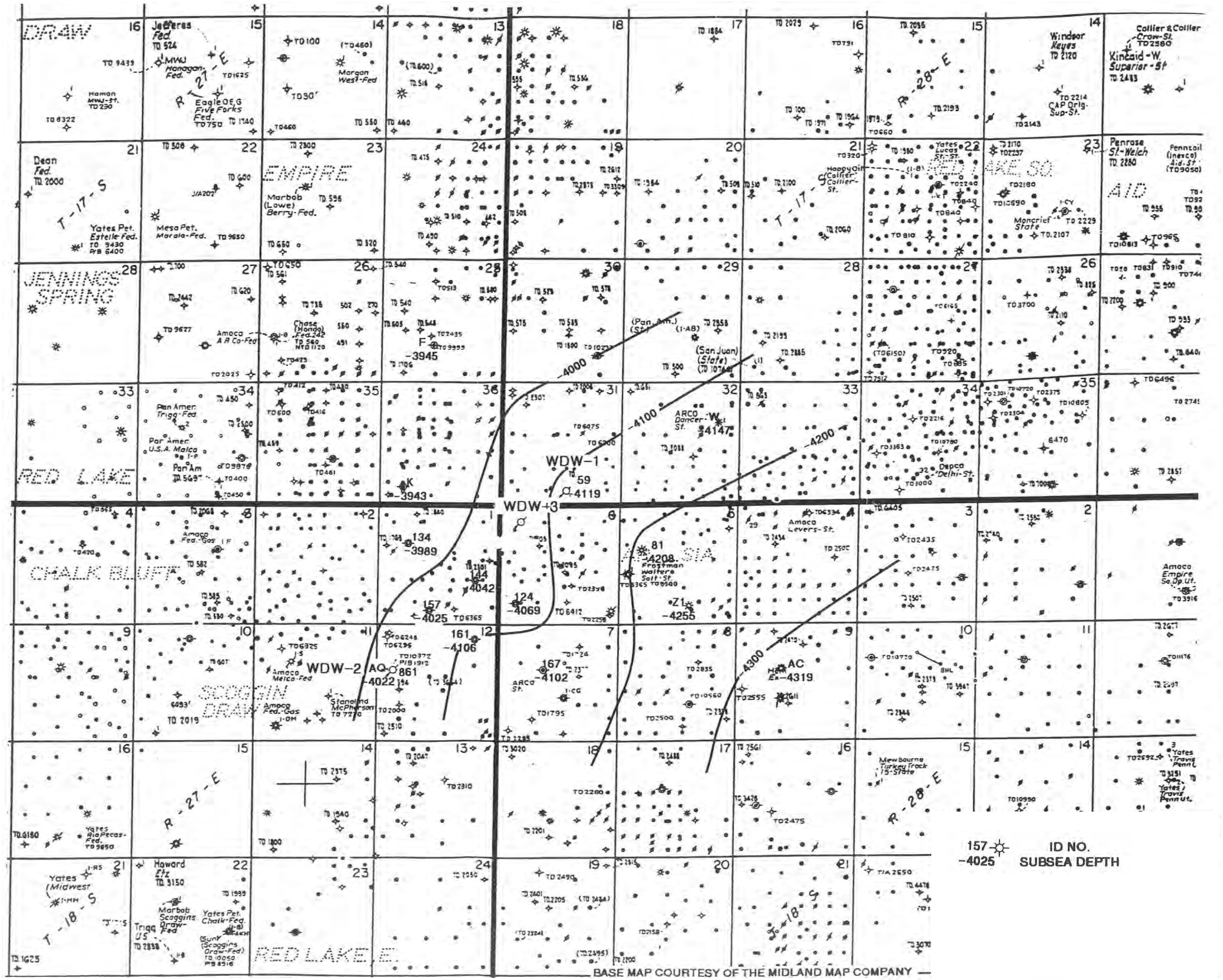

Adapted from Navajo Refining Co., Attachment VIII-13, Structure - Top of Cisco Formation, Envirocorp, 1998.

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Figure 4
Cisco Formation Structure Map

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Contour Interval = 100'	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_04.pdf	By: WEK	Checked: RW

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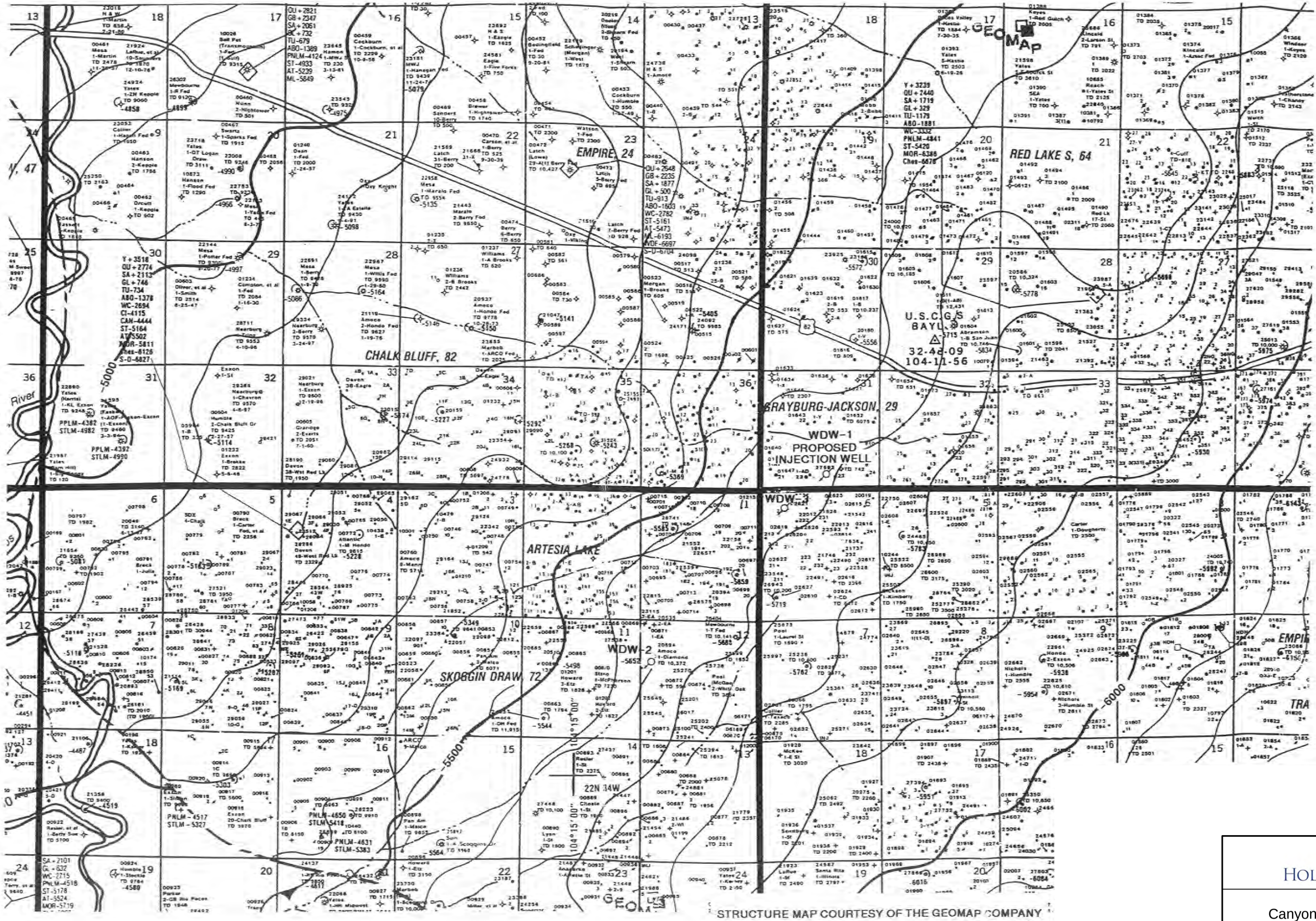

STRUCTURE MAP COURTESY OF THE GEOMAP COMPANY
Poster July 1997

Adapted from Navajo Refining Co., Attachment VIII-11,
Structure Map of the Strawn Formation, Envirocorp, 1999.

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Figure 5
Canyon/Strawn Formation
Structure Map
2020 FOT/MIT Report

Contour Interval = 100'	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_05.pdf	By: WEK	Checked: RW

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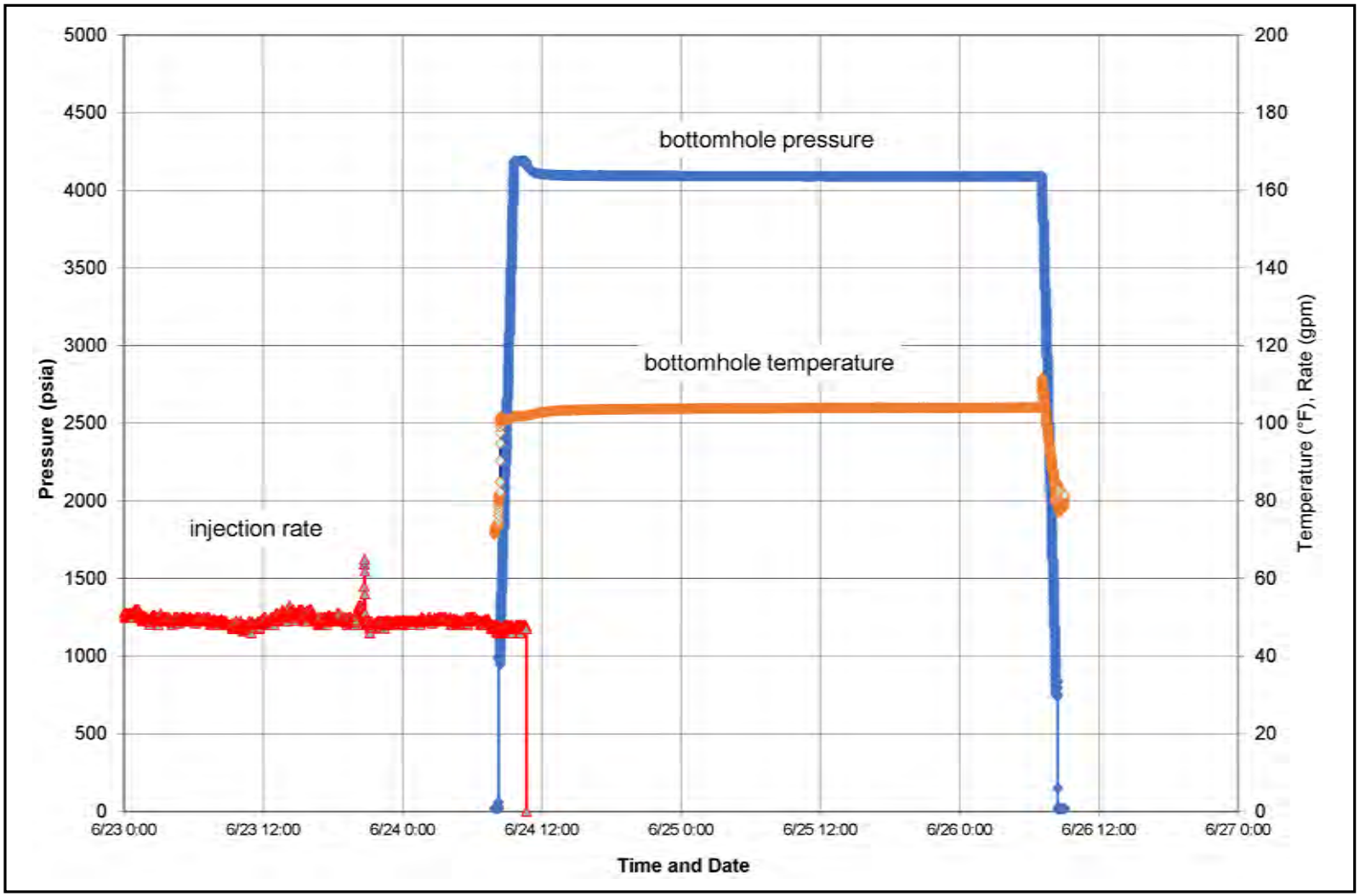

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Figure 6
Cartesian Plot of Pressure, Temperature and Rate vs. Time
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Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_06.pdf	By: RW	Checked: KC

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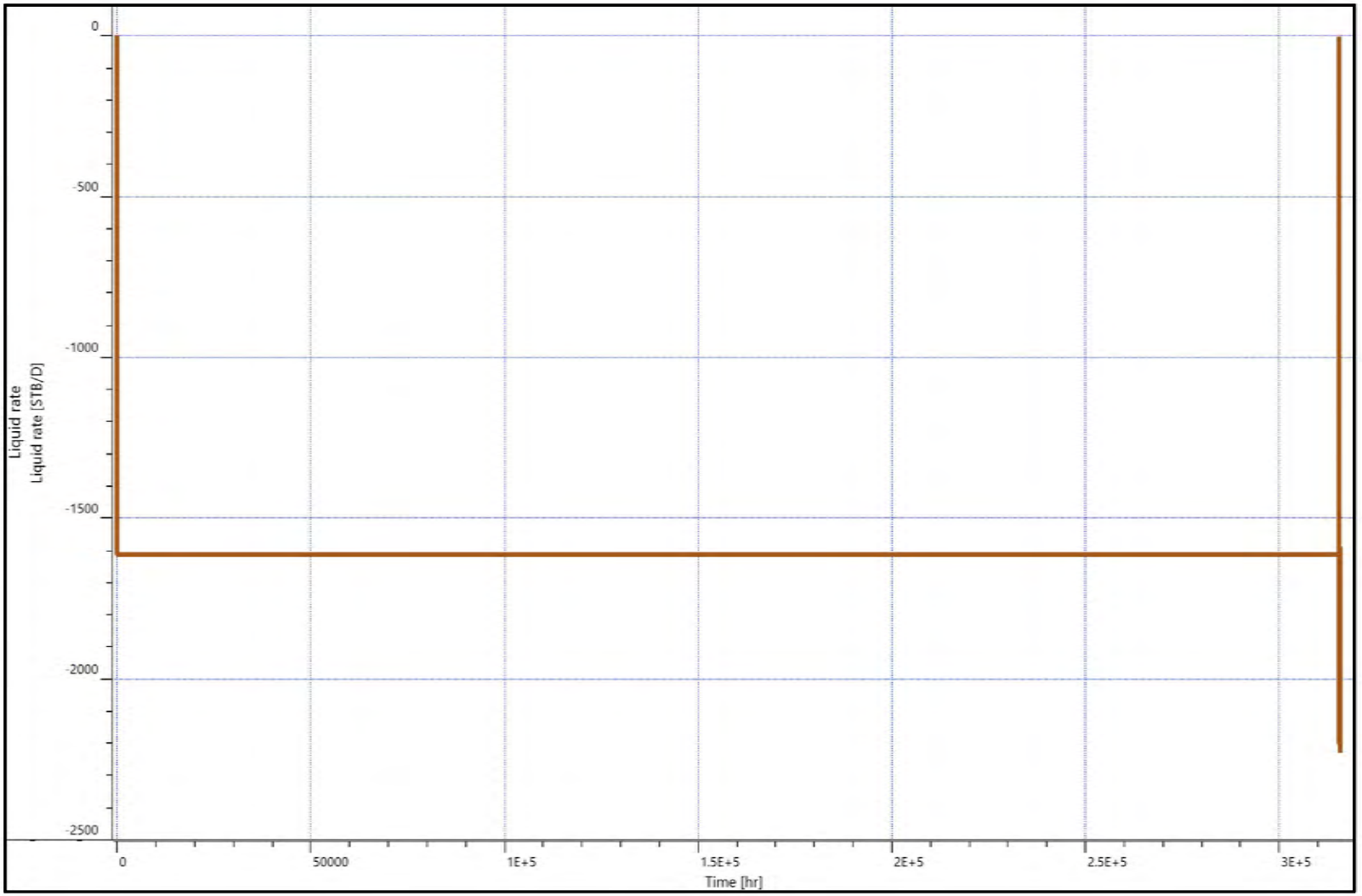

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Figure 7
Full Rate History Plot

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Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_07.pdf	By: RW	Checked: KC

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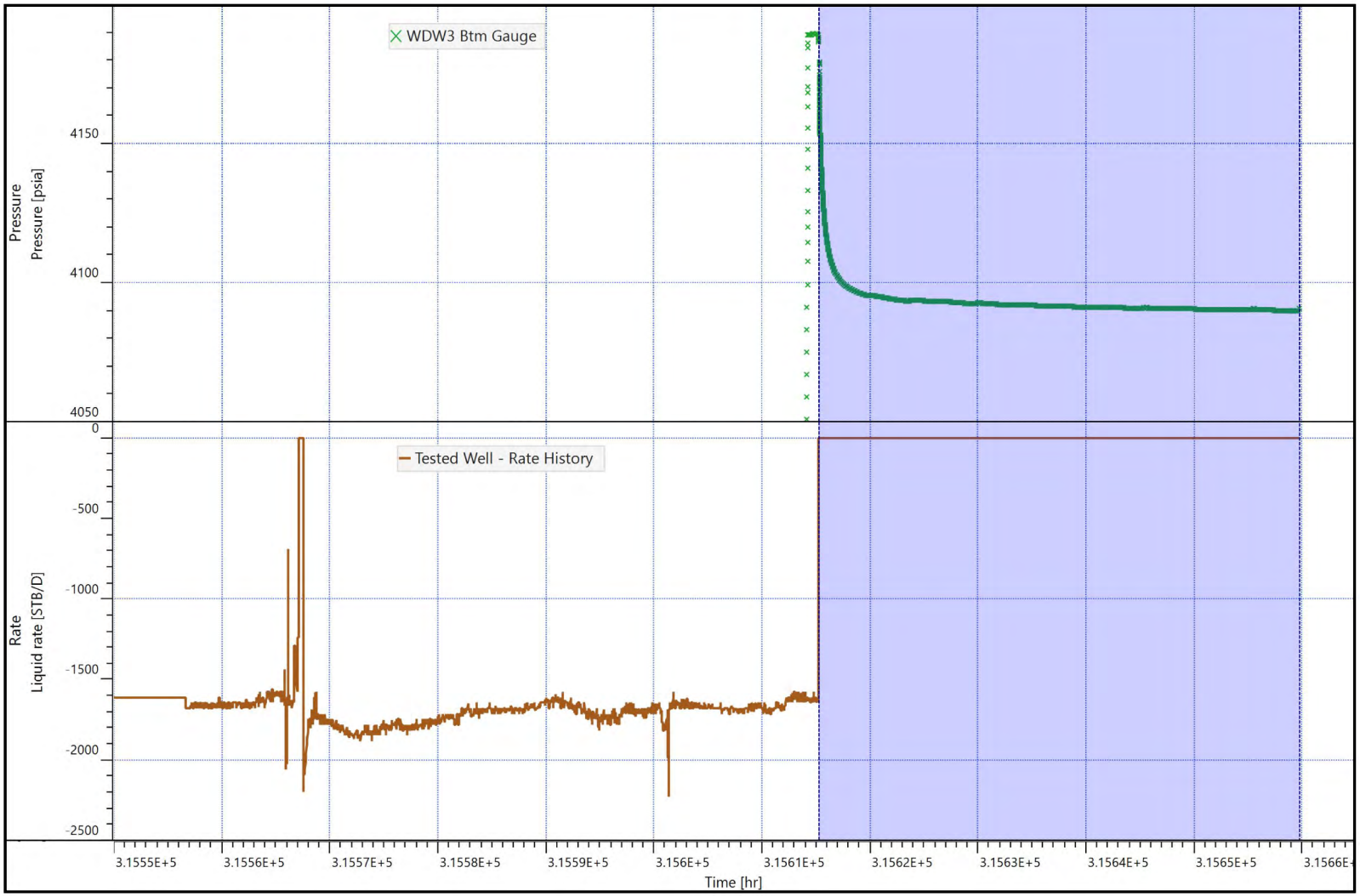

Reservoir and Test Information		
Pwf =	4186.34	psia
Thickness =	175	ft
Porosity =	10	Percent
Viscosity =	0.62	centipoise
Compressibility =	10.90E-06	psi-1
Final Injection Rate =	1611.4 (47.0)	bwpd (gpm)
Po (at 7,660' BGL) =	3404.70	psia
P* =	4069.44	psia

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Figure 8
Cartesian Plot of Pressure Falloff

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Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_08.pdf	By: RW	Checked: KC

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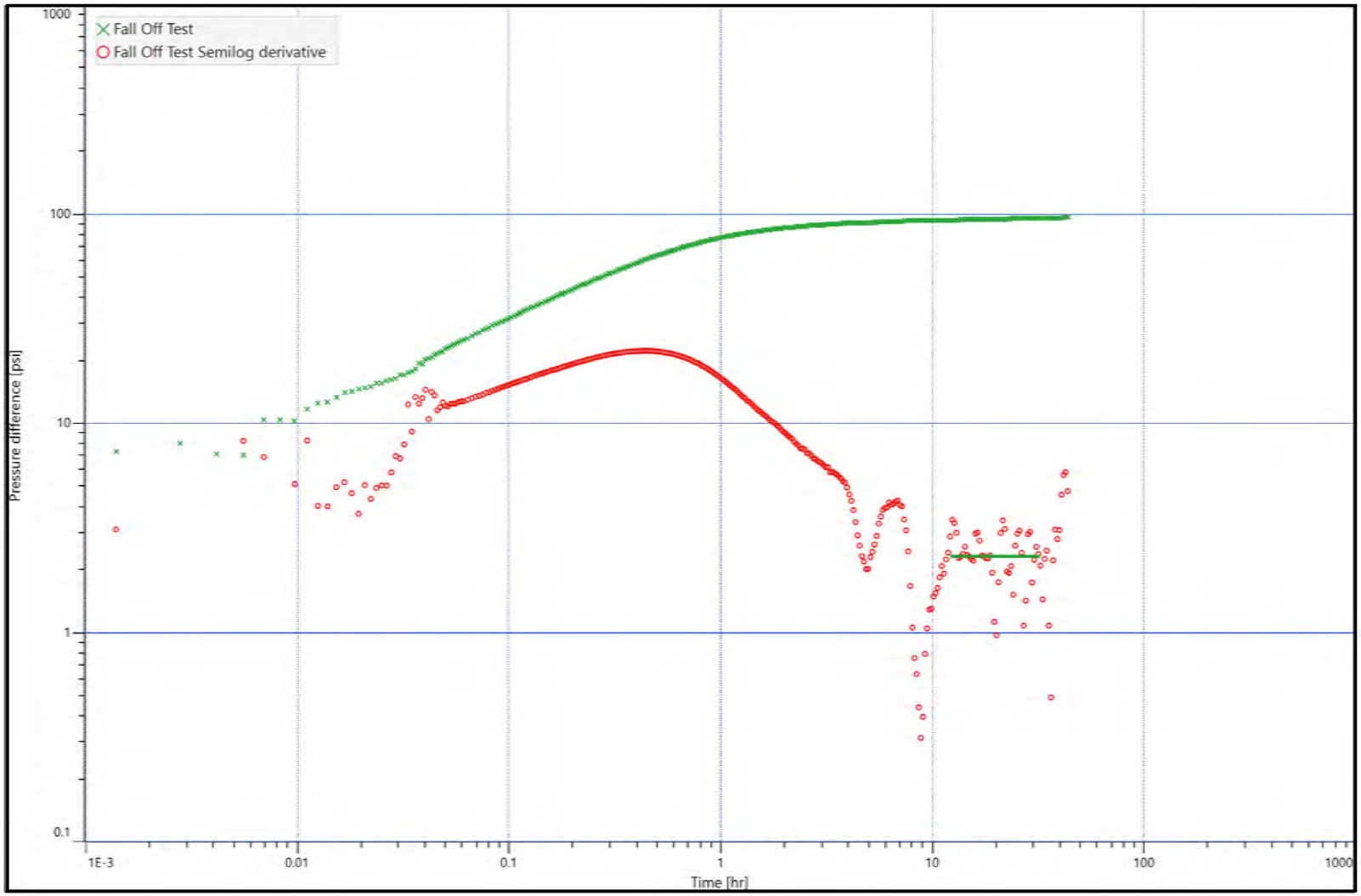

Analysis Information		
Pwf =	4186.34	psia
P* =	4069.44	psia
Thickness =	175	ft
Transmissibility =	30,386	md-ft
Mobility =	49,010	md-ft/cp
Permeability =	174	md
Skin =	11.8	

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Figure 9
Log-log Derivative Plot

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Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_09.pdf	By: RW	Checked: KC

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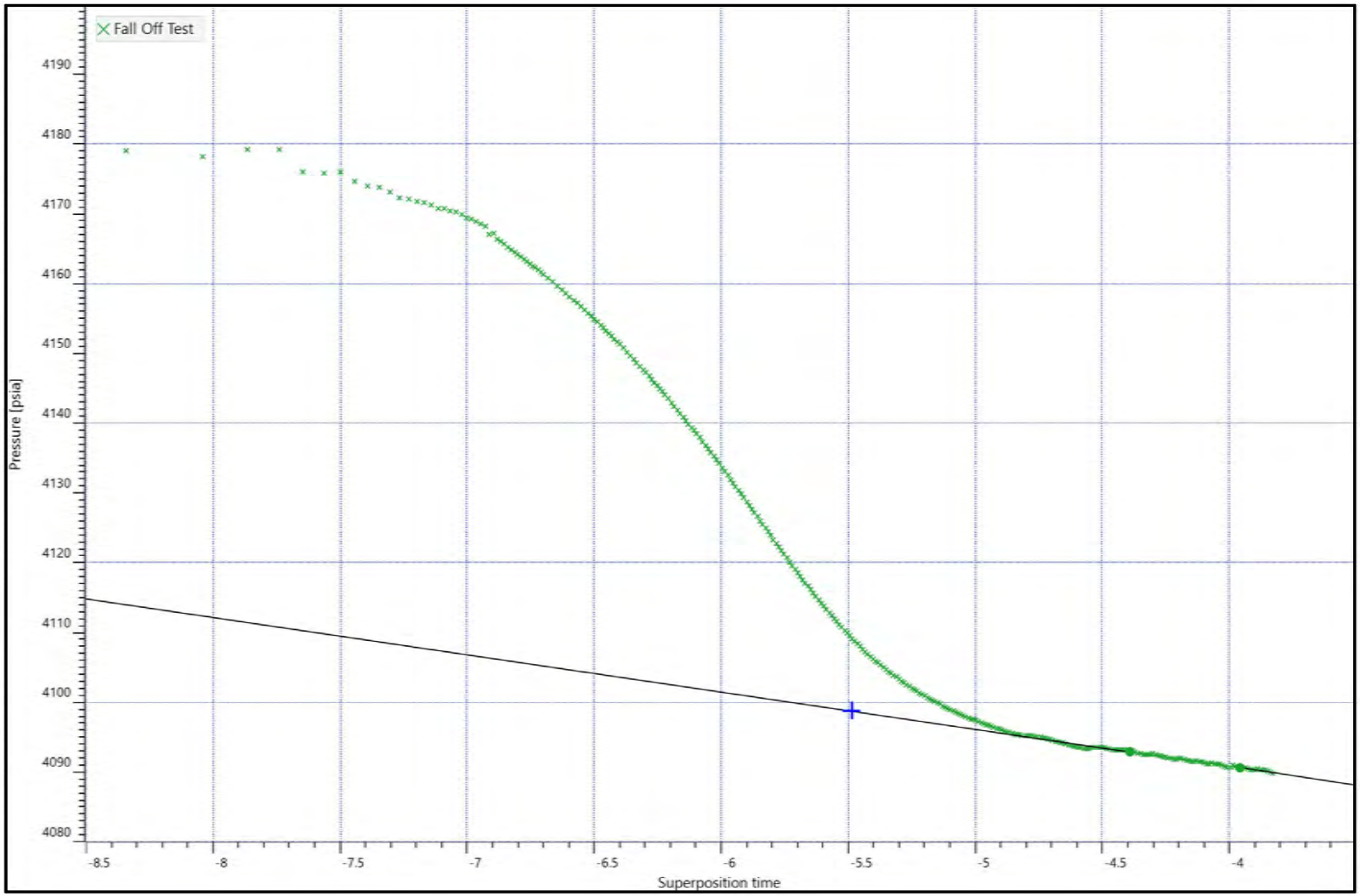

Analysis Information		
Pwf =	4186.34	psia
Start Time of Line =	12.1375	hr
End Time of Line =	32.4038	hr
Slope of Line =	5.34614	psi
P at 1 hour, line =	4098.78	psia
P at 1 hour, raw =	4109.25	psia
P end of Radial =	4090.60	psia
P* =	4069.44	psia
Thickness =	175	ft
Transmissibility =	30,386	md-ft
Mobility =	49,010	md/cp
Permeability =	174	md
Skin =	11.8	

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Figure 10
Semi-log Horner Plot

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Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_10.pdf	By: RW	Checked: KC

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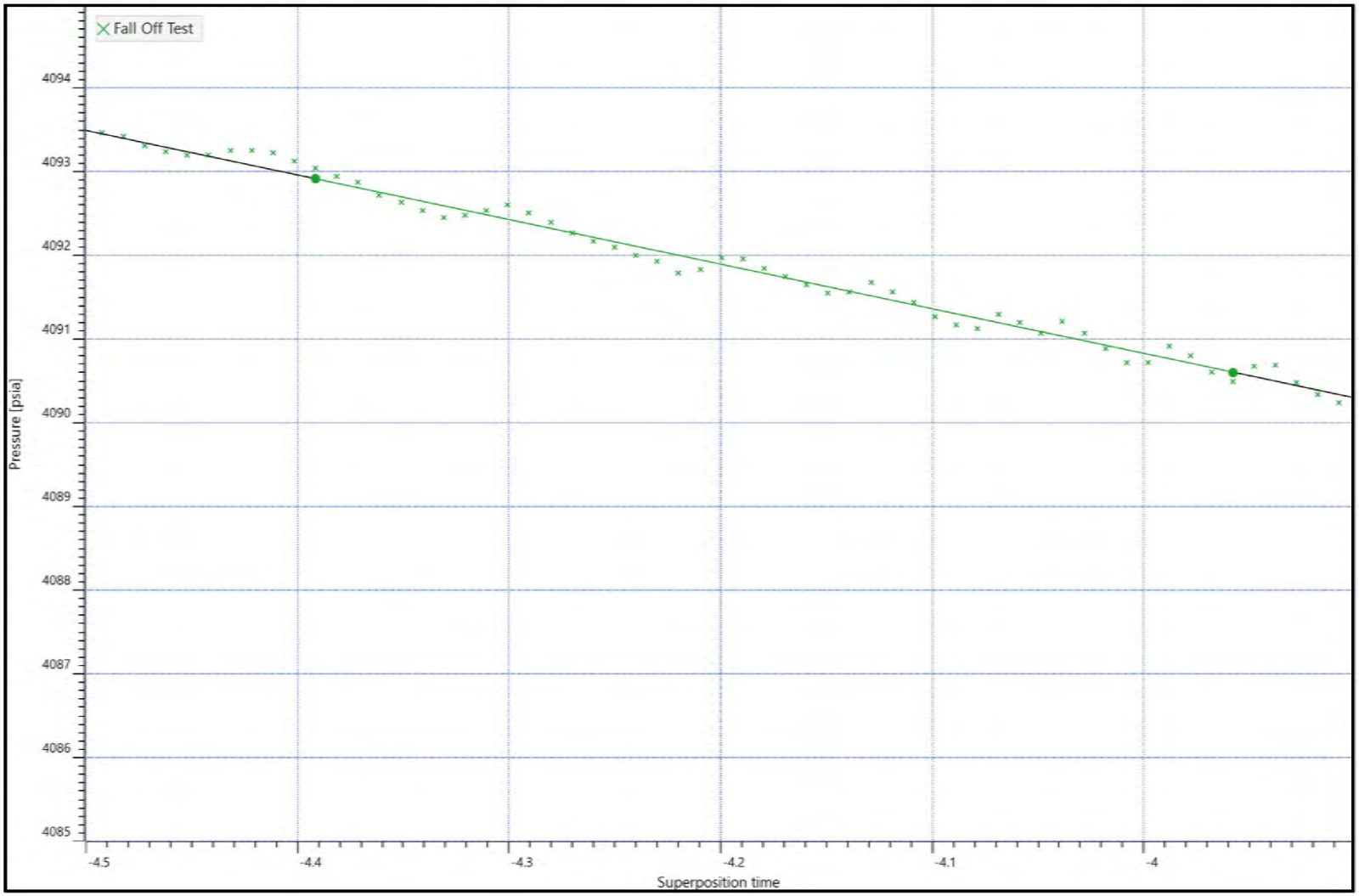

Analysis Information		
Pwf =	4186.34	psia
Start Time of Line =	12.1375	hr
End Time of Line =	32.4038	hr
Slope of Line =	5.34614	psi
P at 1 hour, line =	4098.78	psia
P at 1 hour, raw =	4109.25	psia
P end of Radial =	4090.60	psia
P* =	4069.44	psia
Thickness =	175	ft
Transmissibility =	30,386	md-ft
Mobility =	49,010	md/cp
Permeability =	174	md
Skin =	11.8	

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Figure 11
Semi-log Horner Plot, Radial Zoom

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Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_11.pdf	By: RW	Checked: KC

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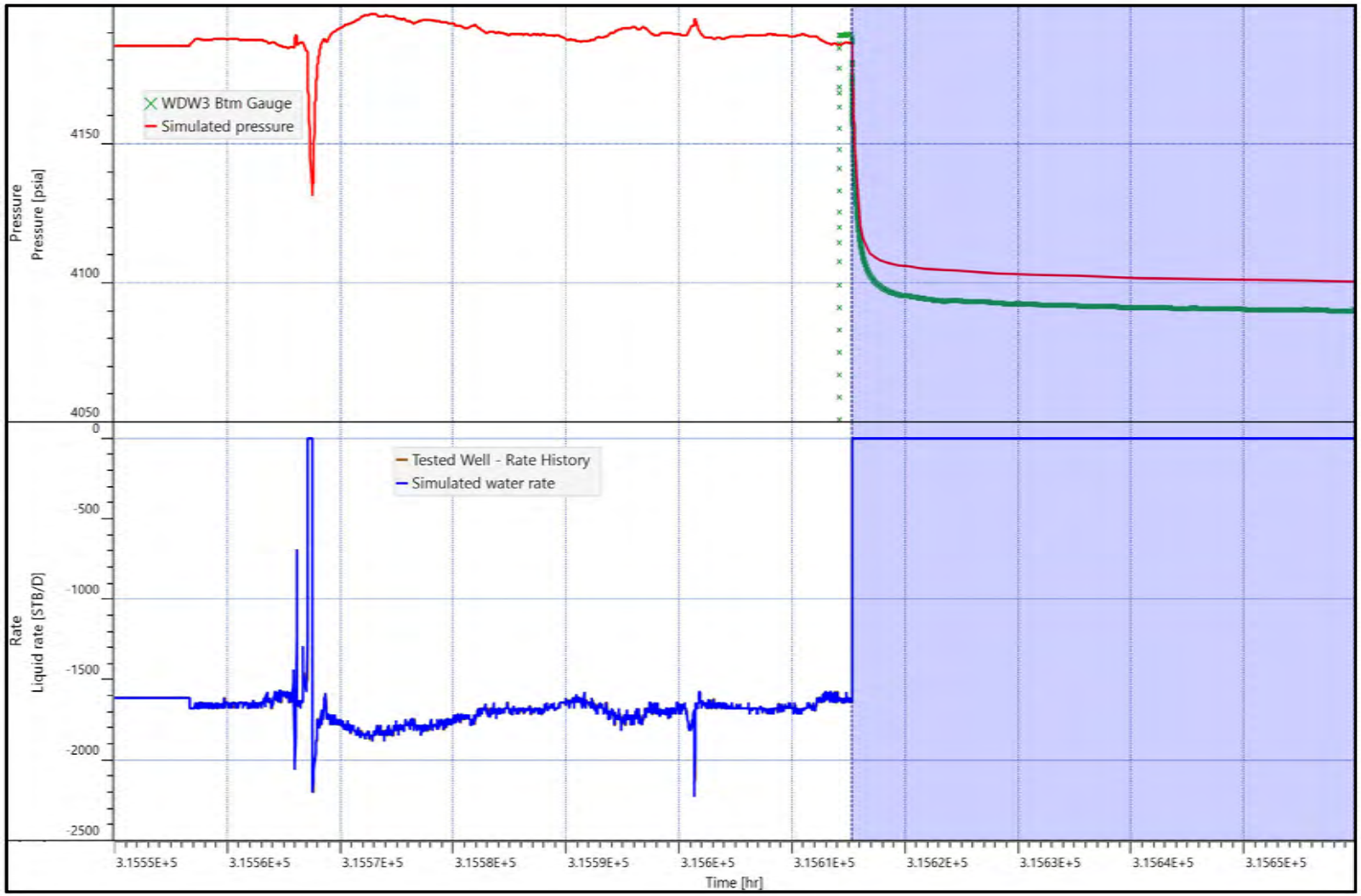

Reservoir and Test Information		
Pwf =	4186.34	psia
Thickness =	175	ft
Porosity =	10	Percent
Viscosity =	0.62	centipoise
Compressibility =	10.90E-06	psi-1
Final Flow Rate =	1611.4 (47.0)	bwpd (gpm)
Po (at 7,660' BGL) =	3404.70	psia
Pi =	4080.75	psia

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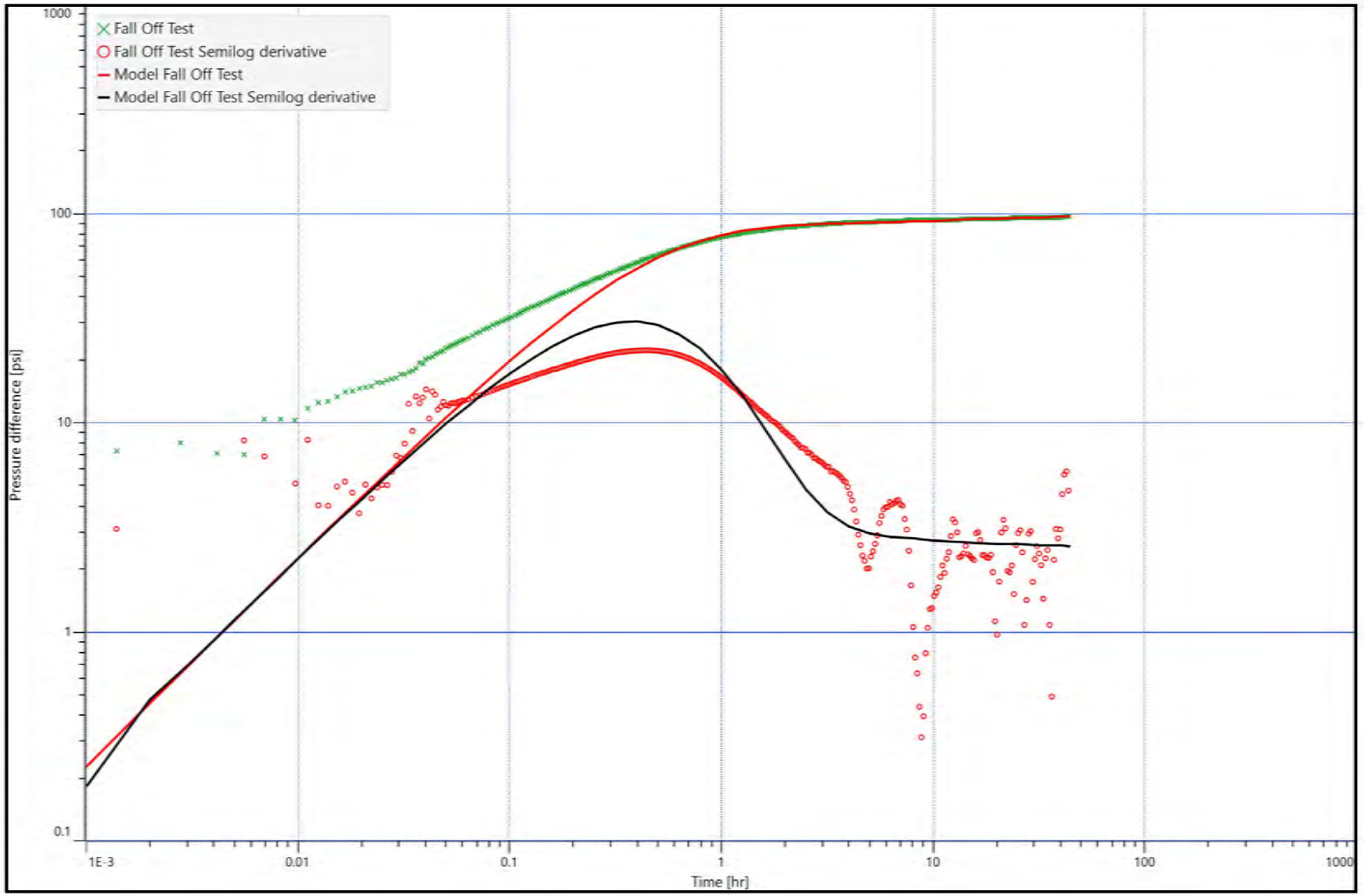
Figure 12
Cartesian Plot of Pressure Falloff with Model Match
2020 FOT/MIT Report

Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_12.pdf	By: RW	Checked: KC

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com



Analysis Information		
Pwf =	4186.34	psia
Pi =	4080.75	psia
Thickness =	175	ft
Transmissibility =	28,272	md-ft
Mobility =	45,600	md-ft/cp
Permeability =	162	md
Skin =	10.1	

HOLLYFRONTIER

Figure 13
Log-log Derivative Plot
with Model Match
2020 FOT/MIT Report

Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_13.pdf	By: RW	Checked: KC

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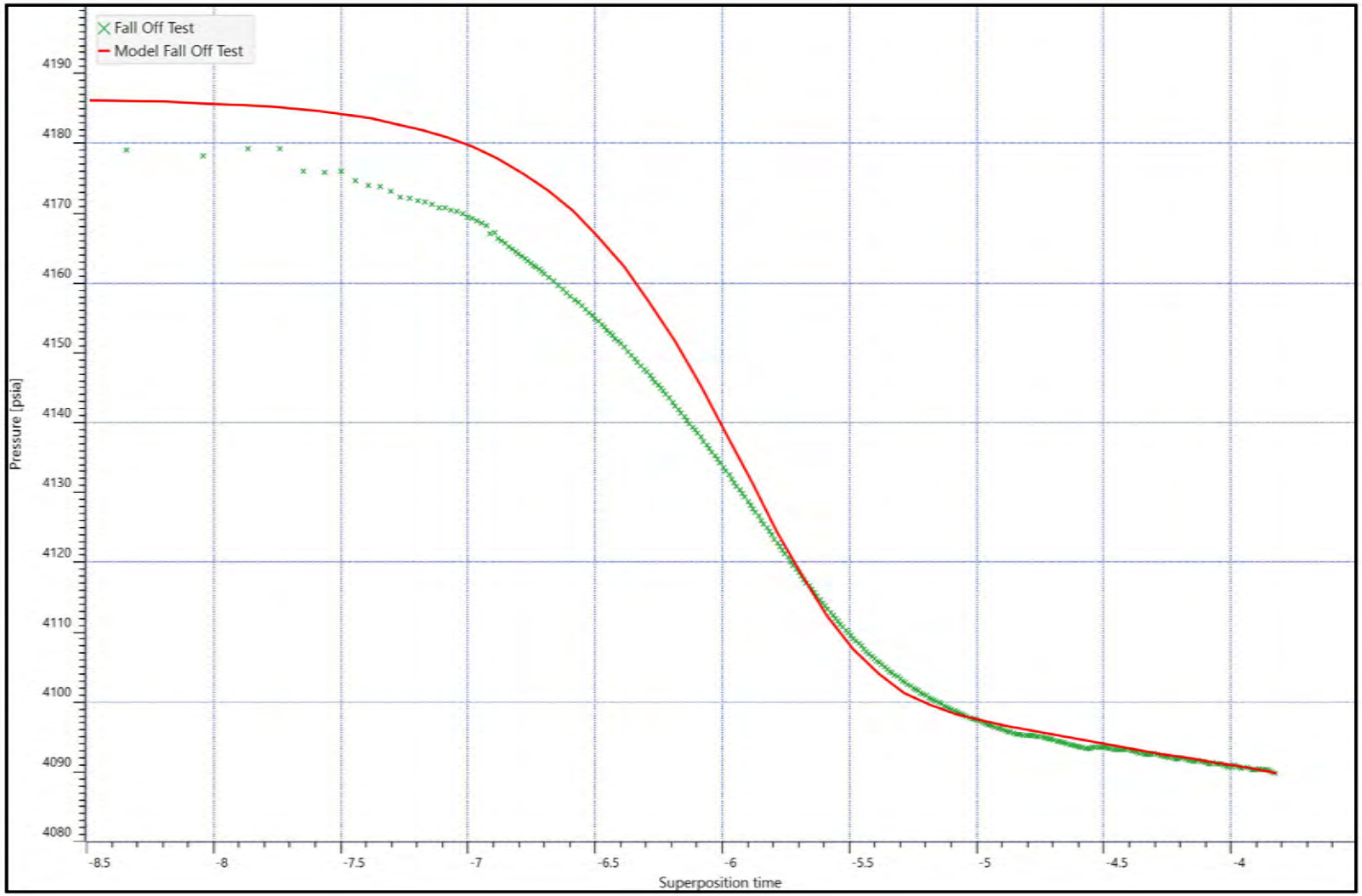
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com



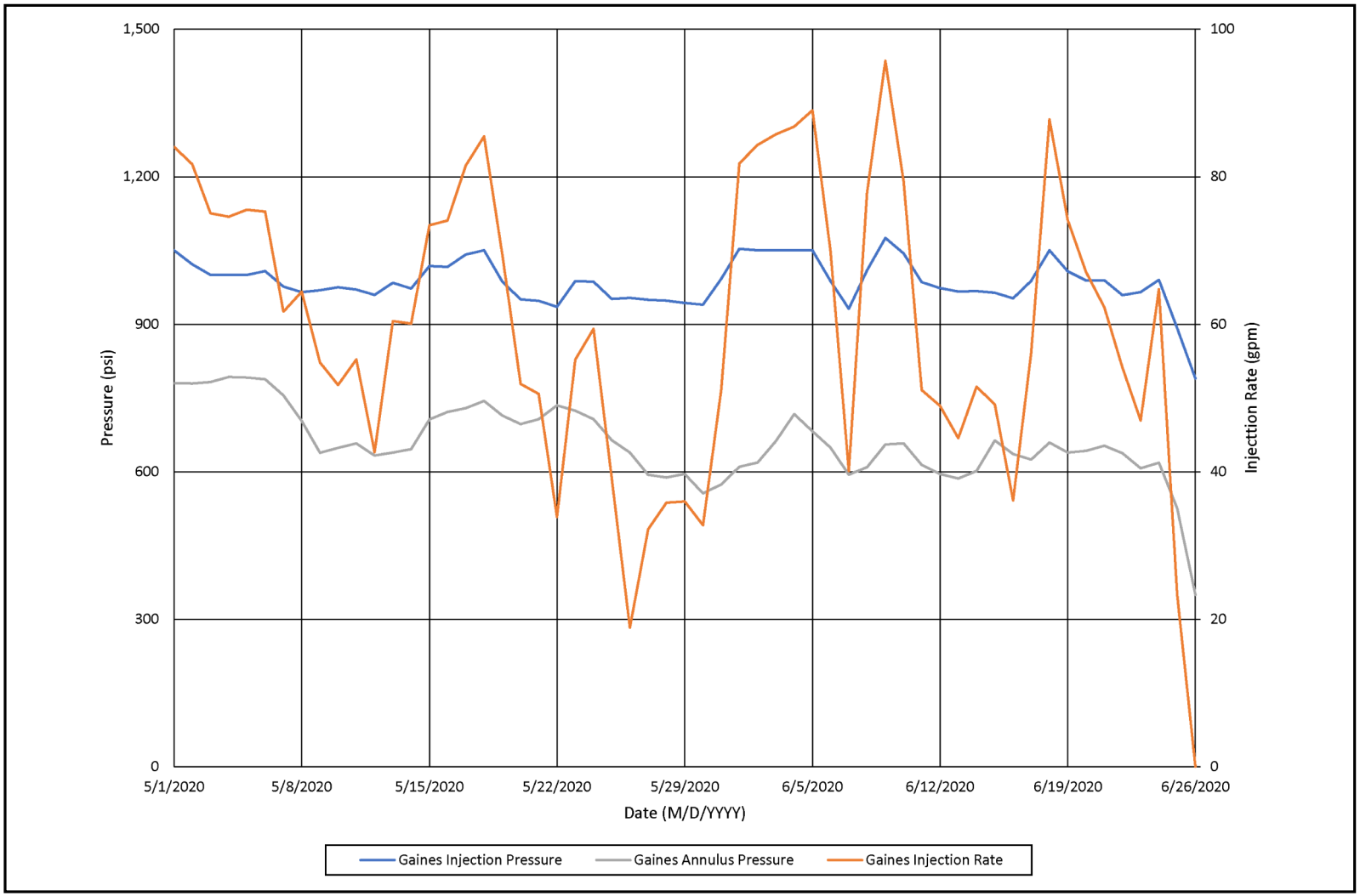
Analysis Information		
Pwf =	4186.34	psia
Pi =	4080.75	psia
Thickness =	175	ft
Transmissibility =	28,272	md-ft
Mobility =	45,600	md/cp
Permeability =	162	md
Skin =	10.1	

HOLLYFRONTIER

Figure 14
Semi-log Horner Plot
with Model Match
2020 FOT/MIT Report

Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_14.pdf	By: RW	Checked: KC

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com



HOLLYFRONTIER

Figure 15
Daily Injection Rate History for Month Prior to Test Plot

2020 FOT/MIT Report

Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_15.pdf	By: RW	Checked: KC

Petrotek
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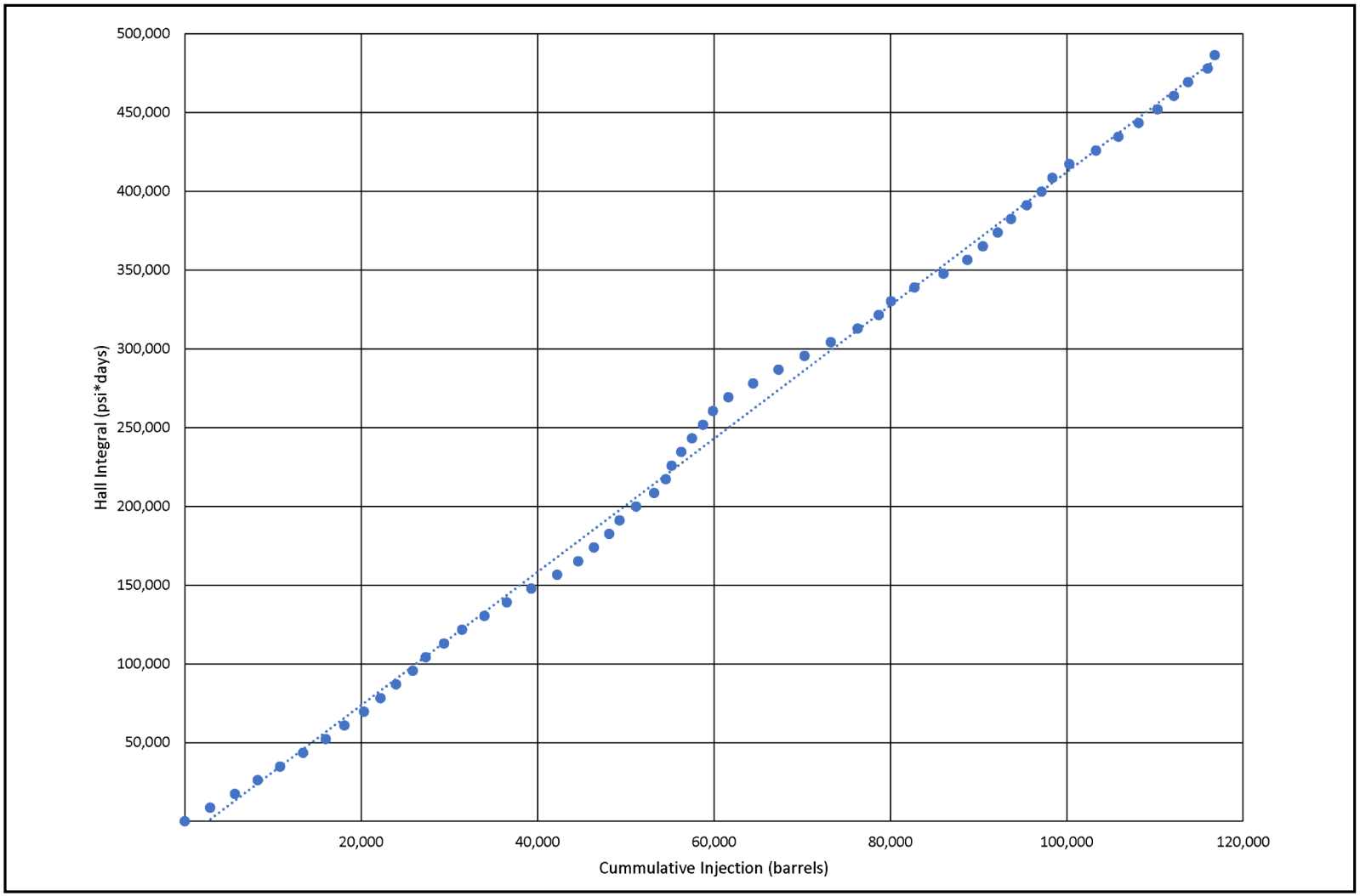
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com



HOLLYFRONTIER

Figure 16
Hall Plot

2020 FOT/MIT Report

Scale: See Figure Scale	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_16.pdf	By: RW	Checked: KC

Petrotek
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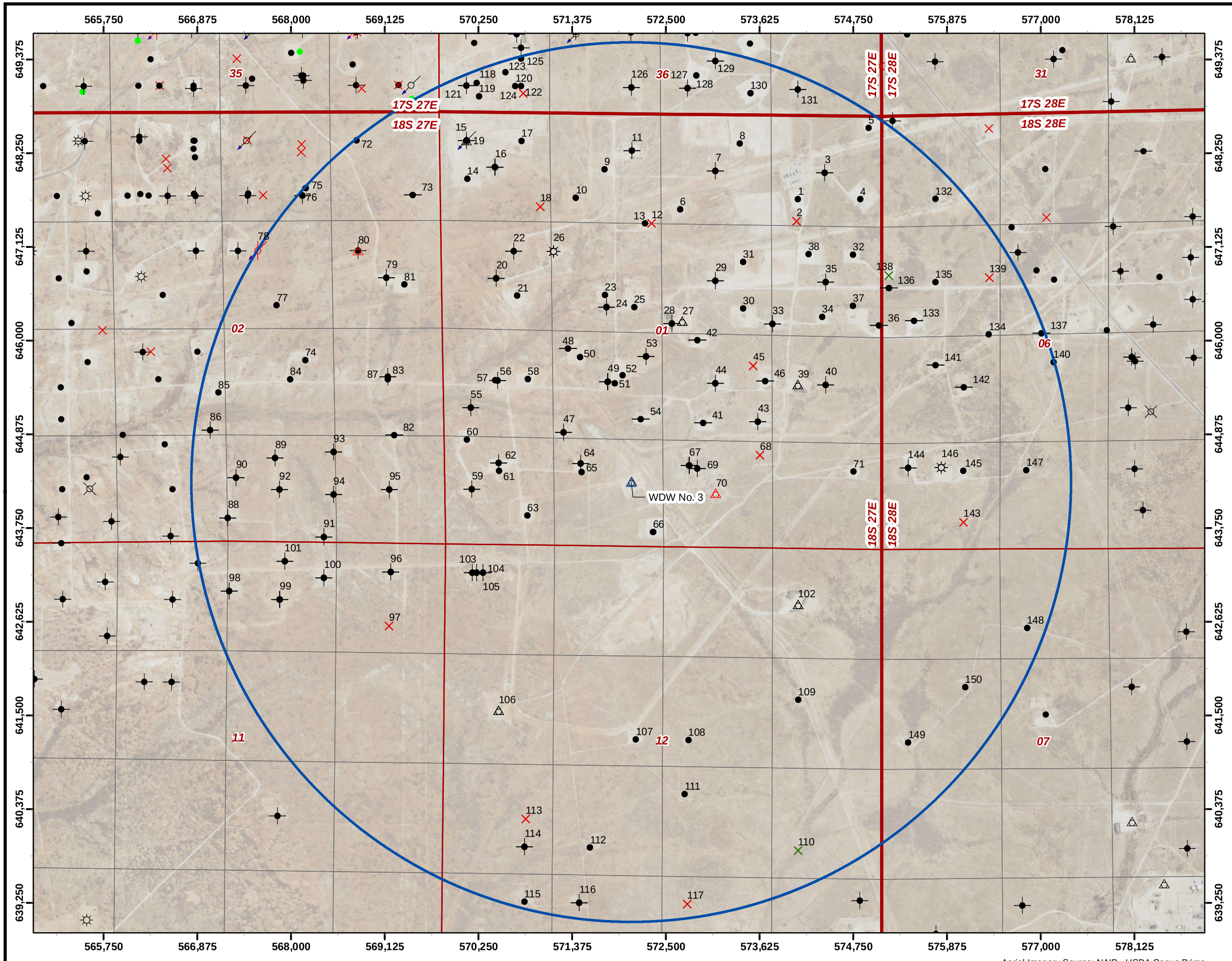
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com



Legend

- WDW No. 3
- New Oil Well
- Active Oil Well
- Temporarily Abandoned Oil Well
- Plugged & Abandoned Oil Well
- Plugged & Abandoned Oil Well (Not Released)
- Abandoned Location, Oil
- Active Gas Well
- Plugged & Abandoned Gas Well
- Abandoned Location, Gas
- Active Injection Well
- Plugged & Abandoned Injection Well
- Active SWD Well
- Plugged & Abandoned SWD Well
- 1-Mile Radius from WDW No. 3

Note:
Well data from the EMNRD, OCD GIS System, downloaded 07/14/2020.
Last modified 06/29/2020.

0 562.5 1,125 1,687.5 2,250 Feet

1 inch = 1,125 feet

Coordinate System: NAD 1983 StatePlane Wyoming East FIPS 4901 Feet

Aerial Imagery Source: NAIP - USDA Conus Prime

HOLLYFRONTIER

Figure 17
One-Mile AOR Map

2020 FOT/MIT Report

Scale: 1:13,500	Date: July 2020	
2020_HF_Artesia_WDW3_Fig_17.mxd	By: WEK	Checked: RW

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

ATTACHMENTS

Attachment 1
OCD Test Notification

Petrotek

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

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

Form C-103
Revised July 18, 2013

WELL API NO.
30-015-26575

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.
B-2071-28

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.)

7. Lease Name or Unit Agreement Name
GAINES WDW-3

1. Type of Well: Oil Well ☐ Gas Well ☒ Other

8. Well Number: WDW-3

2. Name of Operator
HOLLYFRONTIER NAVAJO REFINERY LLC

9. OGRID Number: 15694

3. Address of Operator
P.O. Box 159, Artesia, NM 88210

10. Pool name or Wildcat
PENN 9691

4. Well Location
Unit Letter N 790 feet from the SOUTH line and 2250 feet from the WEST line
Section 1 Township 18S Range: 27E NMPM County: EDDY

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
3,609' GL

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER: PRESSURE FALLOFF TEST / MIT	☒			OTHER:			☐

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.

June 22, **2020; Day 1:** Begin constant-rate injection(+/- 10%) into GAINES WDW-3 as well as the three (3) offset wells for at least 30 hours prior to shut-in of WDW-3 for falloff testing. Target rate for WDW-3 is approximately 160 gpm. Wellhead pressure will not exceed 1,400 psig. Plant personnel will record rate, volume and pressure during the constant-rate injection period to ensure steady flow for analysis. Samples of the injectate will be collected approximately every 10 hours and analyzed for pH and specific gravity.
June 23, **2020; Day 2:** Continue constant-rate injection into all four (4) wells.
June 24, **2020; Day 3:** While injection continues, run dual downhole memory gauges to test depth making flowing gradient stopes every 1,000 feet. Collect pressure data at test depth for at least 1 hour while injecting at constant rate. Shut in WDW-3 and collect falloff data for a minimum of 30 hours. WDW-1, WDW-2 and WDW-4 will continue injection at constant rate until downhole memory gauges are pulled from WDW-3.
June 25, **2020; Day 4:** WDW-3 will remain shut-in while collecting falloff pressure data using downhole memory gauges.
June 26, **2020; Day 5:** After a minimum of 30 hours of falloff data collection, remove gauges from the well making 5-minute gradient stops every 1,000 feet. Note the top of fill will be tagged either with gauges prior to pulling from the well, or on a second run with sinker bars after gauges are removed (TBD). Conduct MIT for 30 min. minimum. Rig down wireline and return well to service.

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 Lewis R Dade TITLE Env. Spec. DATE 6/16/2020

Type or print name L.R. Dade E-mail address: Lewis.Dade@hollyfrontier.com PHONE: 575-746-5281

For State Use Only

APPROVED BY: Carl J. Chavez TITLE Environmental Engineer DATE 6/16/2020

Conditions of Approval (if any): Contact Artesia DO for witnessing of bot. hole gauge install and MIT.

Attachment 2
Downhole Pressure Gauge Certification

Petrotek

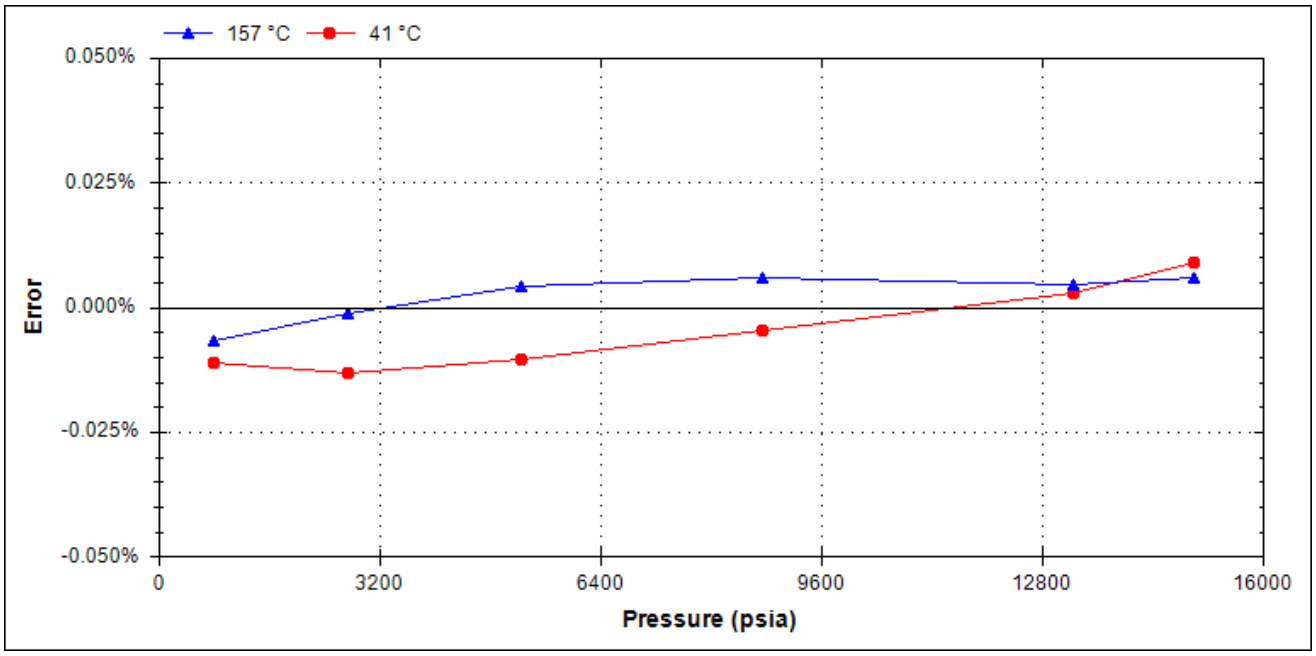
DataCan

"The Next Generation of Down Hole Tools"

Calibration Date:	07-Feb-19	**Calibration System:**	CALIBRATION02
Max Pressure Error:	0.013% F.S.	**Batch Number:**	20190204.163024
Max Temperature Error:	0.194 °C		
Part Number:	100229		
Serial Number:	242117		

1.25 OD_Quartz DXB_Assembly_,			
Max Pressure		Max Temperature	
psi	kPa	ºF	ºC
16,000	110,316	351	177

Accuracy: As shown in the graph below, this DataCan Pressure gauge conforms to within +/- 0.030% F.S. of the pressure standard used in calibration, which is accurate to within +/- 0.01% of reading.



Working Standards

Sun Electronic Systems Environmental Chamber, Model: EC127, Serial: EC0063
DHI Instruments Pressure Controller, Model: PPCH-200M (30,000psi Reference), Serial: 1894

Traceability Statement

All working standards are traceable to nationally or internationally recognized standards.

Approved By:
DataCan Services Corp.

Calibrated By:
Angelo Pulido

DataCan

Quartz Transducer

SO 53177 Shipping Date Feb 7, 2019

Cal Certificate

Certificate Date: Feb 7, 2019

Serial Number: 242117

Max P: 16000 Pressure Error: 0.013 % FS

Max T: 177 Temperature Error: 0.194 °C

- ☐ Flash Drive Loaded
- ☒ Calibration files
- ☒ USB cable functions

Tool Info

- ☒ Serial Number
- ☒ Max P
- ☒ Max T

Calibration Date: Feb 7, 2019

Part Marking

- ☒ Serial Number
- ☒ Max P
- ☒ Max T

Utilities - Diagnostics - Start Sampling

Pressure: 12.251 psia

Temperature: 21.304 degC

Current Draw: mA

☒ Checked By: Renato Herrera Feb 7, 2019

7465 45 Avenue Close | Red Deer, AB | Canada T4P 4C2

www.datacan.ca P 1.403.352.2245 E info@datacan.ca

Gauge Parts

Arrived	Left
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐

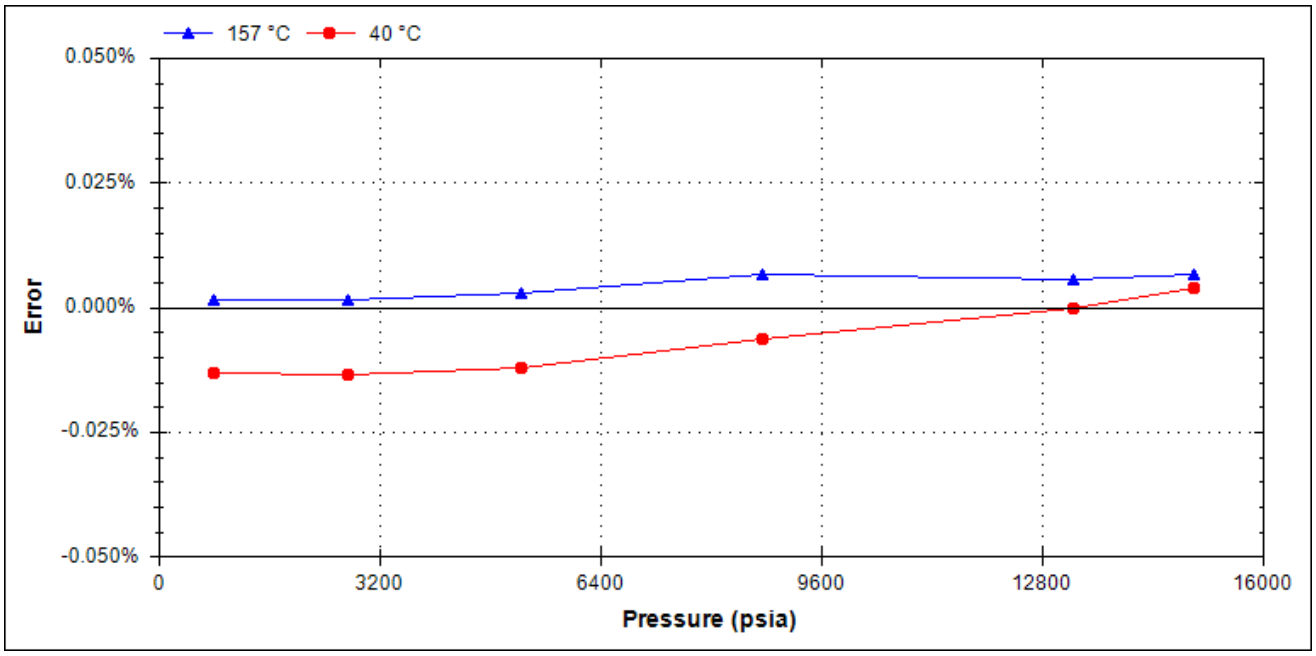
DataCan

"The Next Generation of Down Hole Tools"

Calibration Date:	15-May-19	**Calibration System:**	CALIBRATION03
Max Pressure Error:	0.014% F.S.	**Batch Number:**	20190412.085316
Max Temperature Error:	0.104 °C		
Part Number:	100229		
Serial Number:	242560		

1.25 OD_Quartz DXB_Assembly_,			
Max Pressure		Max Temperature	
psi	kPa	ºF	ºC
16,000	110,316	351	177

Accuracy: As shown in the graph below, this DataCan Pressure gauge conforms to within +/- 0.030% F.S. of the pressure standard used in calibration, which is accurate to within +/- 0.01% of reading.



Working Standards

Sun Electronic Systems Environmental Chamber, Model: EC127, Serial: EC0020
DHI Instruments Pressure Controller, Model: PPCH-200M (30,000psi Reference), Serial: 1529

Traceability Statement

All working standards are traceable to nationally or internationally recognized standards.

Approved By:
DataCan Services Corp.

Calibrated By:
Angelo Pulido

DataCan

Quartz Transducer

SO 54250 Shipping Date May 15, 2019

Cal Certificate

Certificate Date: May 15, 2019

Serial Number: 242560

Max P: 16000 Pressure Error: 0.014 % FS

Max T: 177 Temperature Error: 0.104 °C

- ☐ Flash Drive Loaded
- ☒ Calibration files
- ☒ USB cable functions

Tool Info

- ☒ Serial Number
- ☒ Max P
- ☒ Max T

Calibration Date: May 15, 2019

Part Marking

- ☒ Serial Number
- ☒ Max P
- ☒ Max T

Utilities - Diagnostics - Start Sampling

Pressure: 19.231 psia

Temperature: 20.468 degC

Current Draw: mA

☒ Checked By: Renato Herrera May 15, 2019

7465 45 Avenue Close | Red Deer, AB | Canada T4P 4C2

www.datacan.ca P 1.403.352.2245 E info@datacan.ca

Gauge Parts

Arrived	Left
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
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☐	☐
☐	☐
☐	☐
☐	☐

Attachment 3
AOR Well List

Petrotek

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
1	APACHE CORPORATION	AAO FEDERAL #004	30-015-32310	Oil	Active	01	18S	27E	A	32.7805176	-104.2267761	7/14/2003
2	APACHE CORPORATION	EMPIRE ABO UNIT #412	30-015-39898	Oil	AL	01	18S	27E	A	32.7797813	-104.2268295	1/30/2012
3	APACHE CORPORATION	EMPIRE ABO UNIT #020D	30-015-01215	Oil	P&A	01	18S	27E	A	32.781395	-104.2257233	5/19/2017
4	APACHE CORPORATION	AAO FEDERAL #024	30-015-42337	Oil	Active	01	18S	27E	A	32.7805099	-104.22435	6/3/2014
5	APACHE CORPORATION	AAO FEDERAL #014	30-015-42024	Oil	Active	01	18S	27E	A	32.7828636	-104.2240143	3/7/2014
6	APACHE CORPORATION	AAO FEDERAL #015	30-015-42025	Oil	Active	01	18S	27E	B	32.7801819	-104.2313919	3/15/2014
7	APACHE CORPORATION	EMPIRE ABO UNIT #019B	30-015-00708	Oil	P&A	01	18S	27E	B	32.7814598	-104.2300034	5/22/2013
8	APACHE CORPORATION	AAO FEDERAL #003	30-015-32309	Oil	Active	01	18S	27E	B	32.7823563	-104.2290573	3/12/2003
9	APACHE CORPORATION	AAO FEDERAL #013	30-015-00710	Oil	Active	01	18S	27E	C	32.7815018	-104.2343369	7/13/1959
10	APACHE CORPORATION	AAO FEDERAL #021	30-015-42334	Oil	Active	01	18S	27E	C	32.7805672	-104.2354584	5/27/2014
11	APACHE CORPORATION	AAO FEDERAL #002	30-015-32308	Oil	P&A	01	18S	27E	C	32.7821236	-104.2332687	2/8/2018
12	APACHE CORPORATION	EMPIRE ABO UNIT #413	30-015-39899	Oil	AL	01	18S	27E	C	32.7797127	-104.2324982	1/30/2012
13	APACHE CORPORATION	AAO FEDERAL #016	30-015-42026	Oil	Active	01	18S	27E	C	32.7797127	-104.2327576	3/20/2014
14	APACHE CORPORATION	AAO FEDERAL #022	30-015-42335	Oil	Active	01	18S	27E	D	32.7812004	-104.2397003	7/27/2014
15	ROBERT BIRDWELL	SRLG UNIT #1	30-015-00701	Oil	P&A	01	18S	27E	D	32.7824669	-104.2397232	NA
16	ARCO OIL & GAS	EMPIRE ABO UNIT I #017	30-015-00712	Oil	P&A	01	18S	27E	D	32.7815819	-104.2386093	1/24/1987
17	APACHE CORPORATION	AAO FEDERAL #001	30-015-32307	Oil	Active	01	18S	27E	D	32.782444	-104.2375717	11/20/2002
18	APACHE CORPORATION	EMPIRE ABO UNIT #414	30-015-39900	Oil	AL	01	18S	27E	D	32.7802658	-104.2368393	1/30/2012
19	REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #037	30-015-00715	SWD	Active	01	18S	27E	D	32.7824669	-104.2397232	2/28/1948
20	ARCO OIL & GAS	EMPIRE ABO UNIT J #017	30-015-00704	Oil	P&A	01	18S	27E	E	32.7779198	-104.2385712	1/22/1987
21	APACHE CORPORATION	AAO FEDERAL #020	30-015-42036	Oil	Active	01	18S	27E	E	32.7773361	-104.2377472	4/10/2014
22	APACHE CORPORATION	AAO FEDERAL #005	30-015-32959	Oil	P&A	01	18S	27E	E	32.7788162	-104.2378845	6/14/2017
23	APACHE CORPORATION	AAO FEDERAL #006	30-015-34071	Oil	Active	01	18S	27E	F	32.7773552	-104.2343216	7/6/2005
24	APACHE CORPORATION	EMPIRE ABO UNIT #018A	30-015-00706	Oil	P&A	01	18S	27E	F	32.7769661	-104.2342606	9/20/2019
25	APACHE CORPORATION	AAO FEDERAL #019	30-015-42051	Oil	Active	01	18S	27E	F	32.7769547	-104.2331848	4/2/2014
26	MEWBOURNE OIL CO	CHALK BLUFF FEDERAL COM #002	30-015-26741	Gas	Active	01	18S	27E	F	32.778801	-104.2363358	5/13/1991
27	APACHE CORPORATION	AAO FEDERAL SWD #001	30-015-42549	SWD	Active	01	18S	27E	G	32.7764969	-104.2313004	10/24/2014
28	APACHE CORPORATION	EMPIRE ABO UNIT #191	30-015-21552	Oil	P&A	01	18S	27E	G	32.7764168	-104.2316971	7/23/2013
29	APACHE CORPORATION	EMPIRE ABO UNIT #019C	30-015-00709	Oil	P&A	01	18S	27E	G	32.7778282	-104.2300034	2/18/2013
30	APACHE CORPORATION	AAO FEDERAL #018	30-015-42035	Oil	Active	01	18S	27E	G	32.7769127	-104.2289276	8/9/2014
31	APACHE CORPORATION	AAO FEDERAL #007	30-015-33473	Oil	Active	01	18S	27E	G	32.77845	-104.2289276	10/22/2004
32	APACHE CORPORATION	AAO FEDERAL #008	30-015-33784	Oil	Active	01	18S	27E	H	32.7786827	-104.2246323	2/28/2005
33	APACHE CORPORATION	EMPIRE ABO UNIT #202	30-015-21783	Oil	P&A	01	18S	27E	H	32.7764053	-104.2277832	6/9/2017
34	APACHE CORPORATION	EMPIRE ABO UNIT #203	30-015-22656	Oil	Active	01	18S	27E	H	32.7766304	-104.2258377	9/13/1978
35	APACHE CORPORATION	EMPIRE ABO UNIT #020C	30-015-00711	Oil	P&A	01	18S	27E	H	32.7777863	-104.225708	7/8/2013
36	APACHE CORPORATION	EMPIRE ABO UNIT #201	30-015-21553	Oil	TA	01	18S	27E	H	32.7763329	-104.2236252	1/11/2011
37	APACHE CORPORATION	AAO FEDERAL #023	30-015-42336	Oil	Active	01	18S	27E	H	32.776989	-104.2246323	8/4/2014
38	APACHE CORPORATION	AAO FEDERAL #017	30-015-42027	Oil	Active	01	18S	27E	H	32.778698	-104.2263718	3/27/2014
39	LIME ROCK RESOURCES II-A, L.P.	CHALK BLUFF FEDERAL SWD #001	30-015-27163	SWD	Active	01	18S	27E	I	32.7744064	-104.2267838	5/10/1981
40	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020K	30-015-00697	Oil	P&A	01	18S	27E	I	32.774395	-104.225708	1/5/2003
41	APACHE CORPORATION	EMPIRE ABO UNIT #194	30-015-22658	Oil	TA	01	18S	27E	J	32.7731323	-104.2304916	1/11/2011
42	APACHE CORPORATION	EMPIRE ABO UNIT #193	30-015-22657	Oil	TA	01	18S	27E	J	32.775856	-104.2307205	1/11/2011
43	APACHE CORPORATION	EMPIRE ABO UNIT #191A	30-015-21873	Oil	P&A	01	18S	27E	J	32.7731781	-104.2283478	5/19/2017
44	APACHE CORPORATION	EMPIRE ABO UNIT #019Q	30-015-00696	Oil	P&A	01	18S	27E	J	32.7744484	-104.2300034	7/12/2013
45	MACK ENERGY CORP	SUN DEVILS FEDERAL #001	30-015-36281	Oil	AL	01	18S	27E	J	32.77501396	-104.2285288	8/23/2012
46	APACHE CORPORATION	EMPIRE ABO UNIT #192	30-015-22560	Oil	TA	01	18S	27E	J	32.77451	-104.22807	1/11/2011
47	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #181	30-015-21554	Oil	P&A	01	18S	27E	K	32.7728348	-104.2359467	4/17/2003
48	APACHE CORPORATION	EMPIRE ABO UNIT #183	30-015-22096	Oil	TA	01	18S	27E	K	32.775589	-104.2357635	1/11/2011
49	APACHE CORPORATION	EMPIRE ABO UNIT #018B	30-015-00707	Oil	P&A	01	18S	27E	K	32.774498	-104.2342148	6/7/2017
50	APACHE CORPORATION	AAO FEDERAL #026	30-015-42338	Oil	Active	01	18S	27E	K	32.7753067	-104.2353058	6/10/2014

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
51	APACHE CORPORATION	AAO FEDERAL #027	30-015-42359	Oil	Active	01	18S	27E	K	32.7744408	-104.2339478	7/3/2014
52	APACHE CORPORATION	AAO FEDERAL #010	30-015-34576	Oil	Active	01	18S	27E	K	32.7747116	-104.2336349	6/2/2006
53	APACHE CORPORATION	EMPIRE ABO UNIT #184	30-015-22559	Oil	P&A	01	18S	27E	K	32.7753334	-104.2327194	7/18/2013
54	APACHE CORPORATION	EMPIRE ABO UNIT #182	30-015-21792	Oil	TA	01	18S	27E	K	32.7732544	-104.2329254	1/11/2011
55	HUDSON WM T	HILL NO. 1	30-015-00695	Oil	P&A	01	18S	27E	L	32.7736549	-104.2395706	NA
56	APACHE CORPORATION	AAO FEDERAL #009	30-015-34387	Oil	Active	01	18S	27E	L	32.7745514	-104.2386093	11/7/2005
57	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #017A	30-015-00703	Oil	P&A	01	18S	27E	L	32.7745476	-104.2385101	3/19/2009
58	APACHE CORPORATION	AAO FEDERAL #025	30-015-42361	Oil	Active	01	18S	27E	L	32.7745895	-104.2373352	6/23/2014
59	APACHE CORPORATION	EMPIRE ABO UNIT #171	30-015-22815	Oil	P&A	01	18S	27E	M	32.7709618	-104.2395248	10/24/2019
60	APACHE CORPORATION	AAO FEDERAL #030	30-015-42360	Oil	Active	01	18S	27E	M	32.7725868	-104.2397156	7/20/2014
61	APACHE CORPORATION	AAO FEDERAL #011	30-015-34555	Oil	Active	01	18S	27E	M	32.771553	-104.2384644	2/15/2006
62	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #017B	30-015-00705	Oil	P&A	01	18S	27E	M	32.7718277	-104.238472	7/21/2004
63	APACHE CORPORATION	AAO FEDERAL #029	30-015-42339	Oil	Active	01	18S	27E	M	32.7700844	-104.2373657	6/16/2014
64	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #018D	30-015-00713	Oil	P&A	01	18S	27E	N	32.771801	-104.2352676	9/27/2003
65	APACHE CORPORATION	AAO FEDERAL #012	30-015-34998	Oil	Active	01	18S	27E	N	32.7715149	-104.2352448	8/13/2006
66	APACHE CORPORATION	AAO FEDERAL #028	30-015-42358	Oil	Active	01	18S	27E	N	32.7695351	-104.2324524	7/12/2014
67	ARCO OIL & GAS	EMPIRE ABO UNIT #005	30-015-20388	Oil	P&A	01	18S	27E	N	32.7717361	-104.2310333	NA
68	ARCO OIL & GAS	EMPIRE ABO UNIT L #192	30-015-22816	Oil	AL	01	18S	27E	N	32.77206135	-104.228269	5/17/1979
69	ARCO OIL & GAS	EMPIRE ABO UNIT L #019	30-015-20394	Oil	P&A	01	18S	27E	O	32.7716331	-104.2307129	1/2/1992
70	ARCO PERMIAN	EMPIRE ABO UNIT #191	30-015-00698	SWD	P&A	01	18S	27E	O	32.7708168	-104.2300034	12/8/1989
71	APACHE CORPORATION	EMPIRE ABO UNIT #020B	30-015-00699	Oil	Active	01	18S	27E	P	32.7715225	-104.2246323	11/16/1961
72	REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #036	30-015-00721	Oil	Active	02	18S	27E	A	32.7824707	-104.2440186	10/20/1941
73	APACHE CORPORATION	EMPIRE ABO UNIT #016B	30-015-00724	Oil	TA	02	18S	27E	A	32.7806587	-104.2418365	1/11/2011
74	APACHE CORPORATION	SCBP STATE #001	30-015-32946	Oil	Active	02	18S	27E	B	32.7752151	-104.2460403	3/13/2005
75	BP AMERICA PRODUCTION COMPANY	RIVERWOLF UNIT #004	30-015-00720	Oil	P&A	02	18S	27E	B	32.7806549	-104.2461319	12/4/2008
76	REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #038	30-015-00737	Oil	Active	02	18S	27E	B	32.7808876	-104.2460098	4/20/1948
77	APACHE CORPORATION	EMPIRE ABO UNIT #015B	30-015-00741	Oil	Active	02	18S	27E	G	32.7770233	-104.2471466	5/4/1959
78	MCQUADRANGLE, LC	SOUTH RED LAKE GRAYBURG UNIT #040	30-015-00740	Injection	P&A	02	18S	27E	G	32.7788353	-104.247879	7/10/2002
79	MACK ENERGY CORP	STATE H #001	30-015-00745	Oil	P&A	02	18S	27E	H	32.7779388	-104.2428665	3/7/2008
80	S&J OPERATING CO	SRLG UNIT #039	30-015-00742	SWD	P&A	02	18S	27E	H	32.7788429	-104.2439575	1/31/1991
81	LIME ROCK RESOURCES II-A, L.P.	STATE H #002	30-015-35814	Oil	Active	02	18S	27E	H	32.77771	-104.2421494	10/31/2007
82	APACHE CORPORATION	EMPIRE ABO UNIT #161	30-015-22914	Oil	TA	02	18S	27E	I	32.7727356	-104.2425537	1/11/2011
83	APACHE CORPORATION	EMPIRE ABO UNIT #016	30-015-00717	Oil	Active	02	18S	27E	I	32.7745781	-104.2428055	3/29/1959
84	APACHE CORPORATION	EMPIRE ABO UNIT #015	30-015-00716	Oil	Active	02	18S	27E	J	32.7745819	-104.2466202	2/11/1959
85	APACHE CORPORATION	EMPIRE ABO UNIT #143A	30-015-22896	Oil	Active	02	18S	27E	K	32.774147	-104.2494278	4/15/1979
86	APACHE CORPORATION	EMPIRE ABO UNIT #141A	30-015-22051	Oil	P&A	02	18S	27E	K	32.7729111	-104.2497482	12/21/2011
87	ARCO OIL & GAS	HUDSON B STATE NO. 1	30-015-00726	Oil	P&A	02	18S	27E	L	32.77467	-104.2428	8/18/1980
88	APACHE CORPORATION	EMPIRE ABO UNIT #152	30-015-21825	Oil	P&A	02	18S	27E	O	32.7700233	-104.249054	12/27/2011
89	APACHE CORPORATION	EMPIRE ABO UNIT #155	30-015-22885	Oil	P&A	02	18S	27E	O	32.7719994	-104.2472076	1/3/2012
90	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #154	30-015-22669	Oil	P&A	02	18S	27E	O	32.7713432	-104.2487411	6/30/2009
91	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #153	30-015-22013	Oil	P&A	02	18S	27E	O	32.7693863	-104.2453156	10/30/2008
92	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #015A	30-015-00731	Oil	P&A	02	18S	27E	O	32.7709541	-104.2470474	2/12/2009
93	APACHE CORPORATION	EMPIRE ABO UNIT #151	30-015-21544	Oil	P&A	02	18S	27E	O	32.7721901	-104.2449265	1/6/2012
94	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #156	30-015-22808	Oil	P&A	02	18S	27E	O	32.7707863	-104.2449265	10/7/2009
95	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #016A	30-015-00722	Oil	P&A	02	18S	27E	P	32.7709503	-104.2427521	2/23/2009
96	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #016C	30-015-00869	Oil	P&A	11	18S	27E	A	32.7682266	-104.2427063	1/24/2007
97	MEWBOURNE OIL CO	CHALK BLUFF 11 FED NO. 1	30-015-27538	Oil	AL	11	18S	27E	A	32.76643631	-104.2427608	9/7/1984
98	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #152B	30-015-22569	Oil	P&A	11	18S	27E	B	32.7676048	-104.2490082	10/2/2008
99	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #015C	30-015-00868	Oil	P&A	11	18S	27E	B	32.7673264	-104.2470322	7/16/2004
100	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #151B	30-015-22568	Oil	P&A	11	18S	27E	B	32.7680397	-104.2453003	8/16/2006

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
101	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #153B	30-015-22838	Oil	P&A	11	18S	27E	B	32.768589	-104.2468414	12/22/2008
102	LIME ROCK RESOURCES II-A, L.P.	FEDERAL T SWD #001	30-015-26404	SWD	Active	12	18S	27E	A	32.7671509	-104.2267838	6/28/1990
103	RHONDA OPERATING CO	FEDERAL EA #003	30-015-23115	Oil	P&A	12	18S	27E	D	32.7682114	-104.2393417	12/10/1982
104	RHONDA OPERATING CO	FEDERAL EA #001	30-015-00871	Oil	P&A	12	18S	27E	D	32.7682114	-104.2395096	4/12/1994
105	ROBERT G COX	FEDERAL EA #002	30-015-20535	Oil	P&A	12	18S	27E	D	32.7682076	-104.2390976	8/7/1973
106	NAVAJO REFINING COMPANY, L.L.C.	WDW #002	30-015-20894	SWD	Active	12	18S	27E	E	32.7636642	-104.2384872	5/5/1999
107	BILL L MILLER	CHUKKA FEDERAL #001	30-015-25270	Oil	Active	12	18S	27E	F	32.7626915	-104.2331314	4/22/1985
108	HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #009	30-015-25738	Oil	Active	12	18S	27E	G	32.7626648	-104.2310791	4/25/1987
109	HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #006	30-015-25099	Oil	Active	12	18S	27E	H	32.7639923	-104.2267838	8/18/1985
110	MEWBOURNE OIL CO	CHALK BLUFF 12 FED #001	30-015-27719	Gas	AL	12	18S	27E	I	32.75900903	-104.2268048	10/12/1993
111	HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #007	30-015-00874	Oil	Active	12	18S	27E	J	32.7608833	-104.2312317	7/27/1948
112	HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #002	30-015-25201	Oil	Active	12	18S	27E	K	32.7591209	-104.2349319	3/15/1985
113	MEWBOURNE OIL CO	CHALK BLUFF 12 FED #002	30-015-27727	Oil	AL	12	18S	27E	L	32.76006091	-104.2374456	11/7/1994
114	FRED POOL DRILLING INC	COMSTOCK FEDERAL #008	30-015-25649	Oil	P&A	12	18S	27E	L	32.7591553	-104.2374725	1/1/1987
115	HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #003	30-015-25545	Oil	Active	12	18S	27E	M	32.7573395	-104.2374954	5/19/1986
116	EASTLAND OIL CO	COMSTOCK FEDERAL #010	30-015-26017	Oil	P&A	12	18S	27E	N	32.7573128	-104.2353439	1/23/2003
117	FRED POOL DRILLING INC	COMSTOCK FEDERAL #011	30-015-26018	Oil	AL	12	18S	27E	O	32.75725347	-104.2311203	NA
118	ACREY & ACREY	STATE NO. 2	30-015-00662	Oil	P&A	36	17S	27E	M	32.7842789	-104.2397385	10/24/1942
119	Spur Energy Partners LLC	BIG BOY STATE #002	30-015-40428	Oil	Active	36	17S	27E	M	32.7839165	-104.2392273	4/27/2013
120	LLJ VENTURES, LLC DBA MARKER OIL & GAS	STATE #006	30-015-10184	Oil	Active	36	17S	27E	M	32.7842598	-104.2378159	3/3/1963
121	LLJ VENTURES, LLC DBA MARKER OIL & GAS	STATE #007	30-015-21623	Oil	Active	36	17S	27E	M	32.784359	-104.2393265	9/16/1975
122	APACHE CORPORATION	EMPIRE ABO UNIT #017	30-015-00676	Oil	Active	36	17S	27E	M	32.784256	-104.237587	2/5/1960
123	Spur Energy Partners LLC	BIG BOY STATE #004	30-015-40429	Oil	Active	36	17S	27E	M	32.7847099	-104.2381897	8/28/2014
124	S&J OPERATING CO	SRLG UNIT #048	30-015-26128	Oil	AL	36	17S	27E	M	32.78400865	-104.2375071	3/1/1990
125	MEWBOURNE OIL CO	CHALK BLUFF 36 STATE #001	30-015-27286	Oil	Active	36	17S	27E	M	32.7851639	-104.237587	2/2/1993
126	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #018	30-015-01218	Oil	P&A	36	17S	27E	N	32.784214	-104.2332916	9/9/2009
127	ROJO GRANDE LLC	RAMAPO #007	30-015-31592	Oil	P&A	36	17S	27E	N	32.7841911	-104.2310791	12/21/2001
128	Spur Energy Partners LLC	BIG BOY STATE #006	30-015-39324	Oil	Active	36	17S	27E	O	32.7845993	-104.230751	12/18/2011
129	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #019	30-015-01251	Oil	P&A	36	17S	27E	O	32.7850876	-104.230011	9/9/2009
130	Spur Energy Partners LLC	BIG BOY STATE #008	30-015-39326	Oil	Active	36	17S	27E	O	32.7840157	-104.2286377	5/6/2013
131	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020	30-015-00677	Oil	P&A	36	17S	27E	P	32.7841454	-104.2267838	9/9/2009
132	APACHE CORPORATION	EMPIRE ABO UNIT #021B	30-015-02613	Oil	Active	06	18S	28E	D	32.7805176	-104.2214127	12/8/1959
133	APACHE CORPORATION	EMPIRE ABO UNIT #212	30-015-22637	Oil	TA	06	18S	28E	E	32.7764931	-104.2222595	1/11/2011
134	APACHE CORPORATION	EMPIRE ABO UNIT #211	30-015-21395	Oil	Active	06	18S	28E	E	32.7760429	-104.2193298	12/12/1974
135	APACHE CORPORATION	EMPIRE ABO UNIT #021C	30-015-02619	Oil	Active	06	18S	28E	E	32.777771	-104.2214127	10/7/1959
136	APACHE CORPORATION	EMPIRE ABO UNIT #213	30-015-23116	Oil	TA	06	18S	28E	E	32.7775764	-104.2232361	1/11/2011
137	APACHE CORPORATION	EMPIRE ABO UNIT #223	30-015-22527	Oil	TA	06	18S	28E	F	32.7760773	-104.2172775	1/11/2011
138	ATLANTIC RICHFIELD CO	EMPIRE ABO UNIT J #212	30-015-22635	Gas	AL	06	18S	28E	J	32.7779886	-104.2232312	11/20/1978
139	ATLANTIC RICHFIELD CO	EMPIRE ABO UNIT J #213	30-015-22636	Oil	AL	06	18S	28E	J	32.77791352	-104.2193084	11/2/1978
140	APACHE CORPORATION	EMPIRE ABO UNIT #022F	30-015-02623	Oil	Active	06	18S	28E	K	32.7751236	-104.2168045	1/28/1960
141	APACHE CORPORATION	EMPIRE ABO UNIT #021D	30-015-02622	Oil	TA	06	18S	28E	L	32.775032	-104.2214127	1/11/2011
142	APACHE CORPORATION	EMPIRE ABO UNIT #211A	30-015-23548	Oil	TA	06	18S	28E	L	32.7742958	-104.2203064	1/11/2011
143	COG OPERATING LLC	LP STATE #004M	30-015-31088	Oil	AL	06	18S	28E	M	32.76984128	-104.2203264	3/17/2011
144	MARBOB ENERGY CORP	LP STATE #003	30-015-31087	Oil	P&A	06	18S	28E	M	32.7716484	-104.2224884	3/17/2008
145	RUTH OIL CO, LLC	STATE M-AI #002	30-015-02627	Oil	Active	06	18S	28E	M	32.7715416	-104.2203369	10/3/1960
146	MEWBOURNE OIL CO	CHALK BLUFF 6 STATE #001	30-015-26943	Gas	Active	06	18S	28E	M	32.7716522	-104.2211838	2/17/1992
147	APACHE CORPORATION	EMPIRE ABO UNIT #022C	30-015-02610	Oil	Active	06	18S	28E	N	32.7715645	-104.217865	7/19/1960
148	LLJ VENTURES, LLC DBA MARKER OIL & GAS	LAUREL STATE #001	30-015-25997	Oil	Active	07	18S	28E	C	32.7663536	-104.2178497	12/15/1986
149	LLJ VENTURES, LLC DBA MARKER OIL & GAS	LAUREL STATE #003	30-015-31319	Oil	Active	07	18S	28E	E	32.7625771	-104.222496	10/2/2000
150	LLJ VENTURES, LLC DBA MARKER OIL & GAS	LAUREL STATE #002	30-015-25675	Oil	Active	07	18S	28E	E	32.764397	-104.220268	10/28/1988

Attachment 4
Digital Data

Petrotek

Attachment 5
FESCO Injection Falloff Test Report

Petrotek

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

FLOWING GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	6/24/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Location:	Eddy County, NM
Field:	Davonia	Status:	Flowing
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2.5" EUE	Gauge Type:	Electronic
	Elevation: 15 ft above GL	Gauge SN:	DC-242117
	Tubing: 4" Set at 7575 ft (Packer)	Gauge Range:	15000 psi
	Casing: 7" Set at 9022 ft (PBTD)	Gauge OD:	1.2500"
	Perfs: 7660 - 8450; 8540 - 8620 ft (MD		
	Datum: 8140 ft (MD)		

Depth			Pressure					
MD ft	TVD ft	Delta Depth ft	WHP psia	BHT °F	Gauge Pressure psia	Delta Pressure psi	Pressure Gradient psi / ft	Comments
0	0	0	991	83.03	996.68	0.00	0.0000	Injecting water.
1000	1000	1000		103.09	1411.54	414.86	0.4149	
2000	2000	1000		102.75	1824.40	412.86	0.4129	
3000	3000	1000		102.50	2241.01	416.61	0.4166	
4000	4000	1000		102.37	2657.30	416.29	0.4163	
5000	5000	1000		102.41	3074.57	417.27	0.4173	
6000	6000	1000		102.66	3492.78	418.21	0.4182	
7000	7000	1000		103.10	3911.92	419.14	0.4191	
7660	7660	660	991	103.43	4189.40	277.48	0.4204	Set gauges for 44.4 hr BHP Falloff Test.

BHT at Test Depth:	105.40 °F	Oil Level:	Injecting	Previous BHP:	U/A
Extrapolated BHP at Datum:	4391.00 psia	Water Level:	Injecting	BHP Change:	U/A
BHP Gradient at Datum :	0.4204 psi/ft	Csg Press:	N/A		

Remarks: MIRU slickline. RIH with 1.25" weight bar. Cleared 8639 ft. POOH. RIH with electronic gauges making injecting gradient stops to 7660 ft. Flow well for 1 hr. SI well for 44.4 hr reservoir pressure falloff test. POOH making static gradient stops. RDMO.

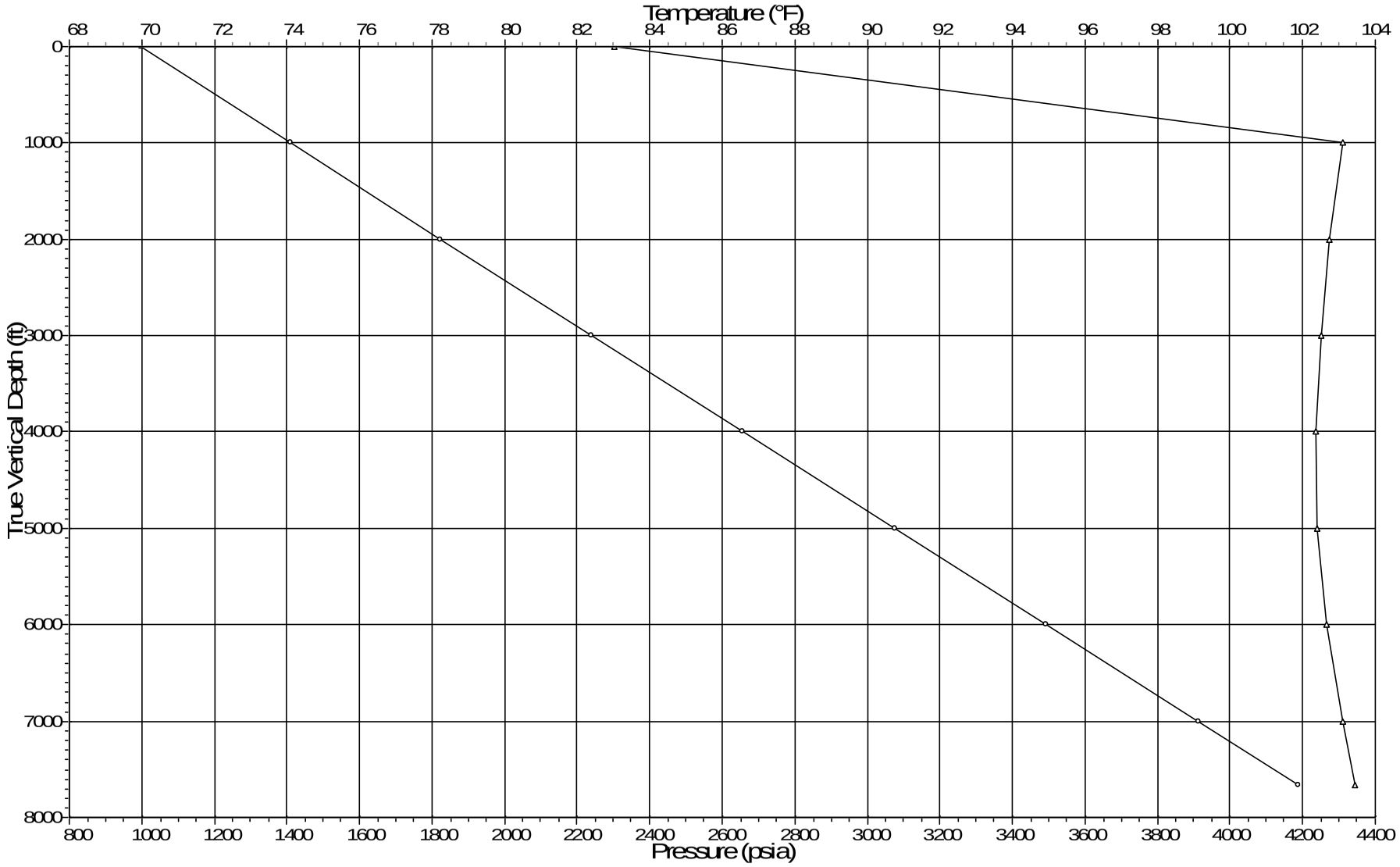
Certified: FESCO, Ltd. - Ozona, Texas

By: Tom Anderson
District Manager - (325) 392-3773

Petrotek Corporation

Flowing Gradient Plot

Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Type:	Electronic
Field:	Davonia	Gauge Range:	15000 psi
Test Date:	06/24/2020	Gauge SN:	DC-242117



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FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

STATIC GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	6/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Location:	Eddy County, NM
Field:	Davonia	Status:	SI for 44.4 hours
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2.5" EUE	Gauge Type:	Electronic
	Elevation: 15 ft above GL	Gauge SN:	DC-242117
	Tubing: 4" Set at 7575 ft (Packer)	Gauge Range:	15000 psi
	Casing: 7" Set at 9022 ft (PBTD)	Gauge OD:	1.2500"
	Perfs: 7660 - 8450; 8540 - 8620 ft (MD		
	Datum: 8140 ft (MD)		

Depth			Pressure					
MD ft	TVD ft	Delta Depth ft	WHP psia	BHT °F	Gauge Pressure psia	Delta Pressure psi	Pressure Gradient psi / ft	Comments
0	0	0	750	83.92	751.39	0.00	0.0000	Water Level at surface.
1000	1000	1000		85.54	1186.53	435.14	0.4351	
2000	2000	1000		89.35	1622.11	435.58	0.4356	
3000	3000	1000		93.26	2057.55	435.44	0.4354	
4000	4000	1000		96.65	2493.25	435.70	0.4357	
5000	5000	1000		100.77	2929.30	436.05	0.4361	
6000	6000	1000		105.28	3365.67	436.37	0.4364	
7000	7000	1000		109.91	3801.63	435.96	0.4360	
7660	7660	660	750	105.37	4090.02	288.39	0.4370	

BHT at Test Depth:	105.40	°F	Oil Level: None	Previous BHP:	U/A
Extrapolated BHP at Datum:	4300.00	psia	Water Level: Surface	BHP Change:	U/A
BHP Gradient at Datum :	0.4370	psi/ft	Csg Press: N/A		

Remarks: POOH with electronic ,memory gauge after 44.4 hr reservoir pressure falloff test making static gradient stops to surface. RDMO.

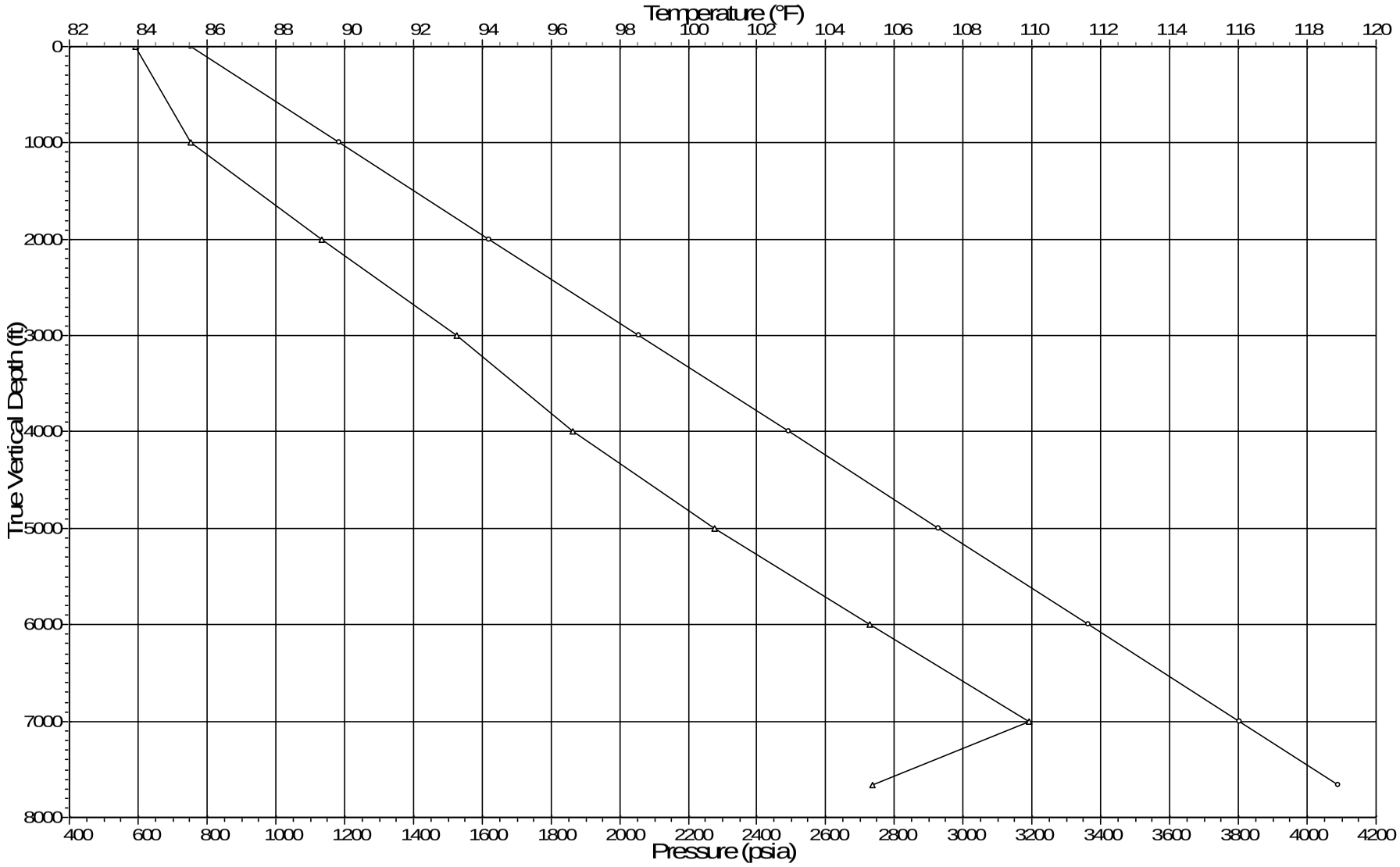
Certified: FESCO, Ltd. - Ozona, Texas

By: Tom Anderson
District Manager - (325) 392-3773

Petrotek Corporation

Static Gradient Plot

Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Type:	Electronic
Field:	Davonia	Gauge Range:	15000 psi
Test Date:	06/26/2020	Gauge SN:	DC-242117



J202006290801.001A

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	07:55:01	-2.75528		13.82		71.98	Powered up gauge.
06/24/20	08:00:00	-2.67222		13.52		73.93	
06/24/20	08:10:00	-2.50556		12.44		75.11	
06/24/20	08:16:00	-2.40556		12.10		77.06	
06/24/20	08:17:05	-2.38750		990.36		79.94	Pressured up lubricator.
06/24/20	08:18:00	-2.37222		996.02		81.92	
06/24/20	08:19:00	-2.35556		997.32		82.21	
06/24/20	08:20:00	-2.33889		998.06		82.38	
06/24/20	08:21:00	-2.32222		996.49		82.55	
06/24/20	08:22:00	-2.30556		996.42		82.67	
06/24/20	08:23:00	-2.28889		996.54		82.75	
06/24/20	08:24:00	-2.27222		997.08		82.90	
06/24/20	08:24:50	-2.25833	991	996.68		83.03	RIH making injecting gradient stops.
06/24/20	08:25:00	-2.25556		942.94		84.66	
06/24/20	08:26:00	-2.23889		1059.37		102.70	
06/24/20	08:27:00	-2.22222		1143.76		103.13	
06/24/20	08:28:00	-2.20556		1248.72		103.21	
06/24/20	08:29:00	-2.18889		1331.66		103.15	
06/24/20	08:29:55	-2.17361		1411.74		103.07	Arrived at 1000 ft stop.
06/24/20	08:30:00	-2.17222		1412.26		103.07	
06/24/20	08:31:00	-2.15556		1411.64		103.06	
06/24/20	08:32:00	-2.13889		1411.81		103.07	
06/24/20	08:33:00	-2.12222		1411.63		103.08	
06/24/20	08:34:00	-2.10556		1411.55		103.09	
06/24/20	08:34:35	-2.09583		1411.54		103.09	Left 1000 ft stop.
06/24/20	08:35:00	-2.08889		1429.13		103.09	
06/24/20	08:36:00	-2.07222		1492.59		103.04	
06/24/20	08:37:00	-2.05556		1567.90		102.97	
06/24/20	08:38:00	-2.03889		1651.40		102.91	
06/24/20	08:39:00	-2.02222		1731.94		102.84	
06/24/20	08:40:00	-2.00556		1812.06		102.78	
06/24/20	08:40:15	-2.00139		1825.12		102.77	Arrived at 2000 ft stop.
06/24/20	08:41:00	-1.98889		1825.11		102.75	
06/24/20	08:42:00	-1.97222		1826.06		102.75	
06/24/20	08:43:00	-1.95556		1825.10		102.75	
06/24/20	08:44:00	-1.93889		1824.80		102.75	
06/24/20	08:45:00	-1.92222		1824.41		102.75	
06/24/20	08:45:20	-1.91667		1824.40		102.75	Left 2000 ft stop.

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	08:46:00	-1.90556		1869.96		102.73	
06/24/20	08:47:00	-1.88889		1941.99		102.69	
06/24/20	08:48:00	-1.87222		2011.62		102.64	
06/24/20	08:49:00	-1.85556		2090.15		102.60	
06/24/20	08:50:00	-1.83889		2168.02		102.55	
06/24/20	08:51:00	-1.82222		2238.39		102.51	
06/24/20	08:51:05	-1.82083		2240.46		102.51	Arrived at 3000 ft stop.
06/24/20	08:52:00	-1.80556		2240.79		102.50	
06/24/20	08:53:00	-1.78889		2240.58		102.50	
06/24/20	08:54:00	-1.77222		2239.89		102.50	
06/24/20	08:55:00	-1.75556		2242.01		102.50	
06/24/20	08:56:00	-1.73889		2240.72		102.50	
06/24/20	08:56:10	-1.73611		2241.01		102.50	Left 3000 ft stop.
06/24/20	08:57:00	-1.72222		2315.53		102.47	
06/24/20	08:58:00	-1.70556		2401.25		102.44	
06/24/20	08:59:00	-1.68889		2497.30		102.40	
06/24/20	09:00:00	-1.67222		2602.03		102.38	
06/24/20	09:00:35	-1.66250		2656.95		102.37	Arrived at 4000 ft stop.
06/24/20	09:01:00	-1.65556		2657.51		102.37	
06/24/20	09:02:00	-1.63889		2657.23		102.37	
06/24/20	09:03:00	-1.62222		2655.54		102.37	
06/24/20	09:04:00	-1.60556		2657.45		102.37	
06/24/20	09:05:00	-1.58889		2656.98		102.37	
06/24/20	09:06:00	-1.57222		2657.30		102.37	Left 4000 ft stop.
06/24/20	09:07:00	-1.55556		2759.61		102.36	
06/24/20	09:08:00	-1.53889		2863.33		102.37	
06/24/20	09:09:00	-1.52222		2978.34		102.38	
06/24/20	09:10:00	-1.50556		3073.41		102.40	
06/24/20	09:10:05	-1.50417		3074.62		102.41	Arrived at 5000 ft stop.
06/24/20	09:11:00	-1.48889		3074.63		102.41	
06/24/20	09:12:00	-1.47222		3074.76		102.41	
06/24/20	09:13:00	-1.45556		3075.20		102.41	
06/24/20	09:14:00	-1.43889		3074.60		102.41	
06/24/20	09:15:00	-1.42222		3074.72		102.41	
06/24/20	09:15:20	-1.41667		3074.57		102.41	Left 5000 ft stop.
06/24/20	09:16:00	-1.40556		3143.70		102.43	
06/24/20	09:17:00	-1.38889		3247.15		102.47	
06/24/20	09:18:00	-1.37222		3333.11		102.52	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refinery: Waste Disposal Well No. 3
Field: Davonia
Location: Eddy County, NM
Perfs: 7660 - 8450; 8540 - 8620 ft (MD)
Formation: Unavailable

Test Date: 06/24 - 06/26/2020
Gauge Depth: 7660 ft
Gauge Type: Electronic
Gauge SN: DC-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	09:19:00	-1.35556		3438.50		102.59	
06/24/20	09:19:35	-1.34583		3493.10		102.63	Arrived at 6000 ft stop.
06/24/20	09:20:00	-1.33889		3493.30		102.65	
06/24/20	09:21:00	-1.32222		3492.33		102.65	
06/24/20	09:22:00	-1.30556		3492.82		102.66	
06/24/20	09:23:00	-1.28889		3492.75		102.66	
06/24/20	09:24:00	-1.27222		3492.70		102.66	
06/24/20	09:24:35	-1.26250		3492.78		102.66	Left 6000 ft stop.
06/24/20	09:25:00	-1.25556		3529.58		102.67	
06/24/20	09:26:00	-1.23889		3636.48		102.76	
06/24/20	09:27:00	-1.22222		3739.77		102.86	
06/24/20	09:28:00	-1.20556		3851.73		102.99	
06/24/20	09:28:40	-1.19444		3911.61		103.06	Arrived at 7000 ft stop.
06/24/20	09:29:00	-1.18889		3912.27		103.09	
06/24/20	09:30:00	-1.17222		3912.30		103.09	
06/24/20	09:31:00	-1.15556		3912.20		103.10	
06/24/20	09:32:00	-1.13889		3912.18		103.10	
06/24/20	09:33:00	-1.12222		3912.03		103.10	
06/24/20	09:33:10	-1.11944		3911.92		103.10	Left 7000 ft stop.
06/24/20	09:34:00	-1.10556		3997.88		103.16	
06/24/20	09:35:00	-1.08889		4099.85		103.28	
06/24/20	09:36:00	-1.07222		4171.06		103.38	
06/24/20	09:36:20	-1.06667	991	4189.81		103.41	Gauge at TD=7660 ft (MD).
06/24/20	09:38:00	-1.03889		4189.40		103.43	
06/24/20	09:40:00	-1.00556		4189.40		103.43	
06/24/20	09:41:20	-0.98333	991	4189.40		103.43	7660 ft stop.
06/24/20	09:45:00	-0.92222		4189.47		103.43	
06/24/20	09:50:00	-0.83889		4189.44		103.44	
06/24/20	09:55:00	-0.75556		4189.51		103.44	
06/24/20	10:00:00	-0.67222		4189.46		103.44	
06/24/20	10:05:00	-0.58889		4189.44		103.43	
06/24/20	10:10:00	-0.50556		4189.47		103.43	
06/24/20	10:15:00	-0.42222		4189.44		103.43	
06/24/20	10:20:00	-0.33889		4189.41		103.43	
06/24/20	10:25:00	-0.25556		4189.40		103.43	
06/24/20	10:30:00	-0.17222		4189.40		103.43	
06/24/20	10:35:00	-0.08889		4189.39		103.43	
06/24/20	10:36:00	-0.07222		4189.40		103.43	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	10:37:00	-0.05556		4189.47		103.43	
06/24/20	10:38:00	-0.03889		4189.40		103.43	
06/24/20	10:39:00	-0.02222		4189.39		103.44	
06/24/20	10:39:45	-0.00972		4189.41		103.44	Water Injection Rate = Unavailable.
06/24/20	10:39:50	-0.00833	837	4189.36		103.44	Stopped injection.
06/24/20	10:39:55	-0.00694		4188.25		103.43	
06/24/20	10:40:00	-0.00556		4187.60		103.43	
06/24/20	10:40:05	-0.00417		4186.98		103.43	
06/24/20	10:40:10	-0.00278		4186.88		103.43	
06/24/20	10:40:15	-0.00139		4186.71		103.43	
06/24/20	10:40:20	0.00000	837	4186.53	0.00	103.43	Shut in well.
06/24/20	10:40:25	0.00139		4179.22	-7.31	103.43	
06/24/20	10:40:30	0.00278		4178.47	-8.06	103.43	
06/24/20	10:40:35	0.00417		4179.62	-6.91	103.43	
06/24/20	10:40:40	0.00556		4179.41	-7.12	103.43	
06/24/20	10:40:45	0.00694		4176.09	-10.44	103.43	
06/24/20	10:40:50	0.00833		4176.15	-10.38	103.43	
06/24/20	10:40:55	0.00972		4176.27	-10.26	103.44	
06/24/20	10:41:00	0.01111		4174.81	-11.72	103.44	
06/24/20	10:41:05	0.01250		4174.12	-12.41	103.44	
06/24/20	10:41:10	0.01389		4173.91	-12.62	103.44	
06/24/20	10:41:15	0.01528		4173.21	-13.32	103.44	
06/24/20	10:41:20	0.01667		4172.53	-14.00	103.44	
06/24/20	10:41:25	0.01806		4172.31	-14.22	103.44	
06/24/20	10:41:30	0.01944		4172.03	-14.50	103.44	
06/24/20	10:41:35	0.02083		4171.77	-14.76	103.44	
06/24/20	10:41:40	0.02222		4171.50	-15.03	103.44	
06/24/20	10:41:45	0.02361		4170.98	-15.55	103.44	
06/24/20	10:41:50	0.02500		4170.92	-15.61	103.44	
06/24/20	10:41:55	0.02639		4170.53	-16.00	103.45	
06/24/20	10:42:00	0.02778		4170.35	-16.18	103.45	
06/24/20	10:42:05	0.02917		4170.14	-16.39	103.45	
06/24/20	10:42:10	0.03056		4169.59	-16.94	103.45	
06/24/20	10:42:15	0.03194		4169.48	-17.05	103.46	
06/24/20	10:42:20	0.03333		4169.00	-17.53	103.46	
06/24/20	10:42:25	0.03472		4168.69	-17.84	103.46	
06/24/20	10:42:30	0.03611		4168.33	-18.20	103.46	
06/24/20	10:42:35	0.03750		4167.19	-19.34	103.46	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	10:42:40	0.03889		4167.46	-19.07	103.46	
06/24/20	10:42:45	0.04028		4166.47	-20.06	103.46	
06/24/20	10:42:50	0.04167		4166.16	-20.37	103.46	
06/24/20	10:42:55	0.04306		4165.91	-20.62	103.46	
06/24/20	10:43:00	0.04444		4165.39	-21.14	103.46	
06/24/20	10:43:05	0.04583		4165.00	-21.53	103.46	
06/24/20	10:43:15	0.04861		4164.35	-22.18	103.46	
06/24/20	10:43:20	0.05000		4163.98	-22.55	103.46	
06/24/20	10:43:25	0.05139		4163.66	-22.87	103.46	
06/24/20	10:43:35	0.05417		4163.01	-23.52	103.46	
06/24/20	10:43:40	0.05556		4162.70	-23.83	103.46	
06/24/20	10:43:45	0.05694		4162.40	-24.13	103.46	
06/24/20	10:43:55	0.05972		4161.79	-24.74	103.47	
06/24/20	10:44:00	0.06111		4161.51	-25.02	103.47	
06/24/20	10:44:10	0.06389		4160.94	-25.59	103.47	
06/24/20	10:44:15	0.06528		4160.65	-25.88	103.47	
06/24/20	10:44:25	0.06806		4160.10	-26.43	103.47	
06/24/20	10:44:35	0.07083		4159.57	-26.96	103.48	
06/24/20	10:44:45	0.07361		4159.05	-27.48	103.48	
06/24/20	10:44:50	0.07500		4158.79	-27.74	103.48	
06/24/20	10:45:00	0.07778		4158.31	-28.22	103.49	
06/24/20	10:45:10	0.08056		4157.82	-28.71	103.49	
06/24/20	10:45:20	0.08333		4157.34	-29.19	103.49	
06/24/20	10:45:30	0.08611		4156.86	-29.67	103.49	
06/24/20	10:45:40	0.08889		4156.40	-30.13	103.49	
06/24/20	10:45:50	0.09167		4155.94	-30.59	103.50	
06/24/20	10:46:05	0.09583		4155.28	-31.25	103.50	
06/24/20	10:46:15	0.09861		4154.85	-31.68	103.50	
06/24/20	10:46:25	0.10139		4154.43	-32.10	103.51	
06/24/20	10:46:40	0.10556		4153.81	-32.72	103.51	
06/24/20	10:46:50	0.10833		4153.40	-33.13	103.51	
06/24/20	10:47:05	0.11250		4152.80	-33.73	103.51	
06/24/20	10:47:20	0.11667		4152.22	-34.31	103.52	
06/24/20	10:47:35	0.12083		4151.65	-34.88	103.52	
06/24/20	10:47:45	0.12361		4151.28	-35.25	103.52	
06/24/20	10:48:00	0.12778		4150.73	-35.80	103.52	
06/24/20	10:48:15	0.13194		4150.20	-36.33	103.52	
06/24/20	10:48:35	0.13750		4149.50	-37.03	103.52	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	10:48:50	0.14167		4148.98	-37.55	103.52	
06/24/20	10:49:05	0.14583		4148.48	-38.05	103.52	
06/24/20	10:49:25	0.15139		4147.82	-38.71	103.52	
06/24/20	10:49:40	0.15556		4147.34	-39.19	103.53	
06/24/20	10:50:00	0.16111		4146.72	-39.81	103.53	
06/24/20	10:50:20	0.16667		4146.11	-40.42	103.53	
06/24/20	10:50:40	0.17222		4145.51	-41.02	103.53	
06/24/20	10:51:00	0.17778		4144.92	-41.61	103.54	
06/24/20	10:51:20	0.18333		4144.35	-42.18	103.54	
06/24/20	10:51:40	0.18889		4143.79	-42.74	103.54	
06/24/20	10:52:00	0.19444		4143.24	-43.29	103.55	
06/24/20	10:52:25	0.20139		4142.56	-43.97	103.55	
06/24/20	10:52:50	0.20833		4141.91	-44.62	103.55	
06/24/20	10:53:10	0.21389		4141.40	-45.13	103.56	
06/24/20	10:53:35	0.22083		4140.77	-45.76	103.56	
06/24/20	10:54:05	0.22917		4140.03	-46.50	103.57	
06/24/20	10:54:30	0.23611		4139.43	-47.10	103.57	
06/24/20	10:54:55	0.24306		4138.84	-47.69	103.58	
06/24/20	10:55:25	0.25139		4138.15	-48.38	103.58	
06/24/20	10:55:55	0.25972		4137.48	-49.05	103.59	
06/24/20	10:56:25	0.26806		4136.82	-49.71	103.59	
06/24/20	10:56:55	0.27639		4136.19	-50.34	103.60	
06/24/20	10:57:25	0.28472		4135.56	-50.97	103.60	
06/24/20	10:58:00	0.29444		4134.85	-51.68	103.61	
06/24/20	10:58:35	0.30417		4134.15	-52.38	103.62	
06/24/20	10:59:10	0.31389		4133.48	-53.05	103.62	
06/24/20	10:59:45	0.32361		4132.82	-53.71	103.63	
06/24/20	11:00:20	0.33333		4132.18	-54.35	103.64	
06/24/20	11:01:00	0.34444		4131.47	-55.06	103.64	
06/24/20	11:01:40	0.35556		4130.77	-55.76	103.65	
06/24/20	11:02:20	0.36667		4130.09	-56.44	103.65	
06/24/20	11:03:00	0.37778		4129.44	-57.09	103.66	
06/24/20	11:03:45	0.39028		4128.71	-57.82	103.67	
06/24/20	11:04:30	0.40278		4128.01	-58.52	103.68	
06/24/20	11:05:15	0.41528		4127.34	-59.19	103.69	
06/24/20	11:06:05	0.42917		4126.61	-59.92	103.69	
06/24/20	11:06:55	0.44306		4125.90	-60.63	103.70	
06/24/20	11:07:45	0.45694		4125.21	-61.32	103.71	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	11:08:35	0.47083		4124.54	-61.99	103.72	
06/24/20	11:09:30	0.48611		4123.83	-62.70	103.73	
06/24/20	11:10:25	0.50139		4123.14	-63.39	103.74	
06/24/20	11:11:20	0.51667		4122.48	-64.05	103.76	
06/24/20	11:12:20	0.53333		4121.78	-64.75	103.78	
06/24/20	11:13:20	0.55000		4121.12	-65.41	103.79	
06/24/20	11:14:25	0.56806		4120.40	-66.13	103.80	
06/24/20	11:15:30	0.58611		4119.73	-66.80	103.81	
06/24/20	11:16:35	0.60417		4119.07	-67.46	103.83	
06/24/20	11:17:45	0.62361		4118.40	-68.13	103.84	
06/24/20	11:18:55	0.64306		4117.75	-68.78	103.86	
06/24/20	11:20:10	0.66389		4117.09	-69.44	103.86	
06/24/20	11:21:25	0.68472		4116.43	-70.10	103.87	
06/24/20	11:22:40	0.70556		4115.83	-70.70	103.89	
06/24/20	11:24:00	0.72778		4115.20	-71.33	103.91	
06/24/20	11:25:25	0.75139		4114.57	-71.96	103.93	
06/24/20	11:26:50	0.77500		4113.96	-72.57	103.94	
06/24/20	11:28:15	0.79861		4113.39	-73.14	103.95	
06/24/20	11:29:45	0.82361		4112.80	-73.73	103.97	
06/24/20	11:31:20	0.85000		4112.21	-74.32	103.98	
06/24/20	11:32:55	0.87639		4111.65	-74.88	104.00	
06/24/20	11:34:35	0.90417		4111.09	-75.44	104.01	
06/24/20	11:36:20	0.93333		4110.53	-76.00	104.03	
06/24/20	11:38:05	0.96250		4109.99	-76.54	104.05	
06/24/20	11:39:50	0.99167		4109.49	-77.04	104.08	
06/24/20	11:41:45	1.02361		4108.98	-77.55	104.10	
06/24/20	11:43:40	1.05556		4108.49	-78.04	104.10	
06/24/20	11:45:40	1.08889		4108.00	-78.53	104.11	
06/24/20	11:47:45	1.12361		4107.50	-79.03	104.12	
06/24/20	11:49:50	1.15833		4107.06	-79.47	104.15	
06/24/20	11:52:00	1.19444		4106.62	-79.91	104.15	
06/24/20	11:54:15	1.23194		4106.18	-80.35	104.19	
06/24/20	11:56:35	1.27083		4105.76	-80.77	104.20	
06/24/20	11:59:00	1.31111		4105.34	-81.19	104.21	
06/24/20	12:01:25	1.35139		4104.96	-81.57	104.24	
06/24/20	12:04:00	1.39444		4104.55	-81.98	104.28	
06/24/20	12:06:35	1.43750		4104.19	-82.34	104.31	
06/24/20	12:09:20	1.48333		4103.81	-82.72	104.32	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	12:12:05	1.52917		4103.46	-83.07	104.33	
06/24/20	12:15:00	1.57778		4103.10	-83.43	104.34	
06/24/20	12:17:55	1.62639		4102.77	-83.76	104.36	
06/24/20	12:21:00	1.67778		4102.43	-84.10	104.39	
06/24/20	12:24:10	1.73056		4102.11	-84.42	104.39	
06/24/20	12:27:25	1.78472		4101.80	-84.73	104.41	
06/24/20	12:30:45	1.84028		4101.48	-85.05	104.42	
06/24/20	12:34:10	1.89722		4101.19	-85.34	104.43	
06/24/20	12:37:45	1.95694		4100.90	-85.63	104.44	
06/24/20	12:41:25	2.01806		4100.61	-85.92	104.47	
06/24/20	12:45:15	2.08194		4100.35	-86.18	104.49	
06/24/20	12:49:10	2.14722		4100.07	-86.46	104.52	
06/24/20	12:53:10	2.21389		4099.83	-86.70	104.55	
06/24/20	12:57:20	2.28333		4099.55	-86.98	104.54	
06/24/20	13:01:35	2.35417		4099.32	-87.21	104.53	
06/24/20	13:06:00	2.42778		4099.07	-87.46	104.53	
06/24/20	13:10:35	2.50417		4098.84	-87.69	104.55	
06/24/20	13:15:15	2.58194		4098.61	-87.92	104.59	
06/24/20	13:20:10	2.66389		4098.41	-88.12	104.60	
06/24/20	13:25:10	2.74722		4098.19	-88.34	104.60	
06/24/20	13:30:15	2.83194		4097.95	-88.58	104.63	
06/24/20	13:35:35	2.92083		4097.76	-88.77	104.61	
06/24/20	13:41:05	3.01250		4097.57	-88.96	104.65	
06/24/20	13:46:45	3.10694		4097.36	-89.17	104.66	
06/24/20	13:52:35	3.20417		4097.18	-89.35	104.68	
06/24/20	13:58:35	3.30417		4096.99	-89.54	104.67	
06/24/20	14:04:45	3.40694		4096.82	-89.71	104.66	
06/24/20	14:11:10	3.51389		4096.62	-89.91	104.64	
06/24/20	14:17:45	3.62361		4096.44	-90.09	104.64	
06/24/20	14:24:30	3.73611		4096.27	-90.26	104.59	
06/24/20	14:31:30	3.85278		4096.12	-90.41	104.65	
06/24/20	14:38:45	3.97361		4095.96	-90.57	104.70	
06/24/20	14:46:10	4.09722		4095.81	-90.72	104.68	
06/24/20	14:53:50	4.22500		4095.65	-90.88	104.73	
06/24/20	15:01:45	4.35694		4095.52	-91.01	104.71	
06/24/20	15:09:55	4.49306		4095.43	-91.10	104.72	
06/24/20	15:18:20	4.63333		4095.37	-91.16	104.77	
06/24/20	15:27:05	4.77917		4095.31	-91.22	104.77	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/24/20	15:36:00	4.92778		4095.29	-91.24	104.77	
06/24/20	15:45:15	5.08194		4095.24	-91.29	104.76	
06/24/20	15:54:45	5.24028		4095.19	-91.34	104.79	
06/24/20	16:04:35	5.40417		4095.07	-91.46	104.80	
06/24/20	16:14:40	5.57222		4094.98	-91.55	104.79	
06/24/20	16:25:10	5.74722		4094.85	-91.68	104.83	
06/24/20	16:35:55	5.92639		4094.73	-91.80	104.79	
06/24/20	16:47:00	6.11111		4094.61	-91.92	104.82	
06/24/20	16:58:25	6.30139		4094.47	-92.06	104.83	
06/24/20	17:10:15	6.49861		4094.32	-92.21	104.82	
06/24/20	17:22:25	6.70139		4094.20	-92.33	104.89	
06/24/20	17:35:00	6.91111		4094.06	-92.47	104.86	
06/24/20	17:47:55	7.12639		4093.96	-92.57	104.89	
06/24/20	18:01:15	7.34861		4093.82	-92.71	104.91	
06/24/20	18:15:00	7.57778		4093.69	-92.84	104.92	
06/24/20	18:29:10	7.81389		4093.59	-92.94	104.89	
06/24/20	18:43:50	8.05833		4093.50	-93.03	104.89	
06/24/20	18:58:55	8.30972		4093.48	-93.05	104.90	
06/24/20	19:14:30	8.56944		4093.56	-92.97	104.92	
06/24/20	19:30:30	8.83611		4093.60	-92.93	104.89	
06/24/20	19:47:05	9.11250		4093.64	-92.89	104.94	
06/24/20	20:04:10	9.39722		4093.60	-92.93	104.92	
06/24/20	20:21:45	9.69028		4093.54	-92.99	104.97	
06/24/20	20:39:50	9.99167		4093.41	-93.12	104.95	
06/24/20	20:58:35	10.30417		4093.31	-93.22	104.98	
06/24/20	21:17:50	10.62500		4093.23	-93.30	104.96	
06/24/20	21:37:45	10.95694		4093.27	-93.26	105.00	
06/24/20	21:58:15	11.29861		4093.35	-93.18	105.02	
06/24/20	22:19:25	11.65139		4093.27	-93.26	105.06	
06/24/20	22:41:15	12.01528		4093.14	-93.39	105.03	
06/24/20	23:03:40	12.38889		4093.01	-93.52	105.04	
06/24/20	23:26:55	12.77639		4092.89	-93.64	105.06	
06/24/20	23:50:50	13.17500		4092.75	-93.78	105.06	
06/25/20	00:15:30	13.58611		4092.59	-93.94	105.03	
06/25/20	00:40:55	14.00972		4092.52	-94.01	105.04	
06/25/20	01:07:05	14.44583		4092.61	-93.92	105.01	
06/25/20	01:34:10	14.89722		4092.65	-93.88	105.10	
06/25/20	02:02:00	15.36111		4092.54	-93.99	105.14	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/25/20	02:30:45	15.84028		4092.39	-94.14	105.14	
06/25/20	03:00:25	16.33472		4092.24	-94.29	105.12	
06/25/20	03:31:00	16.84444		4092.12	-94.41	105.10	
06/25/20	04:02:30	17.36944		4091.98	-94.55	105.11	
06/25/20	04:35:00	17.91111		4091.89	-94.64	105.07	
06/25/20	05:08:35	18.47083		4091.96	-94.57	105.13	
06/25/20	05:43:05	19.04583		4092.05	-94.48	105.17	
06/25/20	06:18:45	19.64028		4091.91	-94.62	105.15	
06/25/20	06:55:30	20.25278		4091.77	-94.76	105.14	
06/25/20	07:33:25	20.88472		4091.64	-94.89	105.18	
06/25/20	08:12:30	21.53611		4091.64	-94.89	105.20	
06/25/20	08:52:50	22.20833		4091.72	-94.81	105.19	
06/25/20	09:34:20	22.90000		4091.54	-94.99	105.20	
06/25/20	10:17:15	23.61528		4091.33	-95.20	105.21	
06/25/20	11:01:25	24.35139		4091.16	-95.37	105.24	
06/25/20	11:47:00	25.11111		4091.34	-95.19	105.26	
06/25/20	12:33:55	25.89306		4091.23	-95.30	105.25	
06/25/20	13:22:25	26.70139		4091.21	-95.32	105.24	
06/25/20	14:12:20	27.53333		4091.16	-95.37	105.29	
06/25/20	15:03:55	28.39306		4090.92	-95.61	105.25	
06/25/20	15:57:00	29.27778		4090.75	-95.78	105.31	
06/25/20	16:51:50	30.19167		4090.97	-95.56	105.29	
06/25/20	17:48:15	31.13194		4090.78	-95.75	105.32	
06/25/20	18:46:35	32.10417		4090.61	-95.92	105.31	
06/25/20	19:46:35	33.10417		4090.72	-95.81	105.31	
06/25/20	20:48:35	34.13750		4090.68	-95.85	105.32	
06/25/20	21:52:25	35.20139		4090.48	-96.05	105.31	
06/25/20	22:58:15	36.29861		4090.32	-96.21	105.30	
06/26/20	00:06:10	37.43056		4090.49	-96.04	105.32	
06/26/20	01:16:15	38.59861		4090.35	-96.18	105.31	
06/26/20	02:28:25	39.80139		4090.41	-96.12	105.35	
06/26/20	03:42:55	41.04306		4090.35	-96.18	105.36	
06/26/20	04:59:45	42.32361		4090.06	-96.47	105.37	
06/26/20	06:18:55	43.64306		4089.89	-96.64	105.36	
06/26/20	07:05:00	44.41111	750	4090.02	-96.51	105.37	Ended falloff test.
06/26/20	07:05:05	44.41250	750	4090.10		105.37	POOH making static gradient stops.
06/26/20	07:06:00	44.42778		4089.19		106.39	
06/26/20	07:07:00	44.44444		4013.55		111.73	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/24 - 06/26/2020
Well:	Navajo Refinery: Waste Disposal Well No. 3	Gauge Depth:	7660 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	DC-242117
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/26/20	07:08:00	44.46111		3943.14		112.85	
06/26/20	07:09:00	44.47778		3867.85		112.00	
06/26/20	07:10:00	44.49444		3805.04		110.30	
06/26/20	07:10:10	44.49722		3802.31		110.16	Arrived at 7000 ft stop.
06/26/20	07:11:00	44.51111		3801.66		109.97	
06/26/20	07:12:00	44.52778		3801.63		109.94	
06/26/20	07:13:00	44.54444		3801.62		109.93	
06/26/20	07:14:00	44.56111		3801.62		109.92	
06/26/20	07:15:00	44.57778		3801.63		109.92	
06/26/20	07:15:30	44.58611		3801.63		109.91	Left 7000 ft stop.
06/26/20	07:16:00	44.59444		3779.04		109.89	
06/26/20	07:17:00	44.61111		3685.23		109.50	
06/26/20	07:18:00	44.62778		3578.14		108.72	
06/26/20	07:19:00	44.64444		3477.43		107.45	
06/26/20	07:20:00	44.66111		3381.34		105.91	
06/26/20	07:20:25	44.66806		3367.22		105.45	Arrived at 6000 ft stop.
06/26/20	07:21:00	44.67778		3365.73		105.32	
06/26/20	07:22:00	44.69444		3365.67		105.30	
06/26/20	07:23:00	44.71111		3365.66		105.29	
06/26/20	07:24:00	44.72778		3365.65		105.28	
06/26/20	07:25:00	44.74444		3365.65		105.28	
06/26/20	07:25:40	44.75556		3365.67		105.28	Left 6000 ft stop.
06/26/20	07:26:00	44.76111		3340.74		105.29	
06/26/20	07:27:00	44.77778		3240.93		104.67	
06/26/20	07:28:00	44.79444		3134.68		103.53	
06/26/20	07:29:00	44.81111		3029.12		102.36	
06/26/20	07:30:00	44.82778		2934.83		101.12	
06/26/20	07:30:10	44.83056		2930.44		100.97	Arrived at 5000 ft stop.
06/26/20	07:31:00	44.84444		2929.53		100.82	
06/26/20	07:32:00	44.86111		2929.49		100.80	
06/26/20	07:33:00	44.87778		2929.49		100.79	
06/26/20	07:34:00	44.89444		2929.47		100.78	
06/26/20	07:35:00	44.91111		2929.47		100.77	
06/26/20	07:35:20	44.91667		2929.30		100.77	Left 5000 ft stop.
06/26/20	07:36:00	44.92778		2855.64		100.21	
06/26/20	07:37:00	44.94444		2735.22		99.18	
06/26/20	07:38:00	44.96111		2622.92		98.15	
06/26/20	07:39:00	44.97778		2516.77		97.07	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refinery: Waste Disposal Well No. 3
Field: Davonia
Location: Eddy County, NM
Perfs: 7660 - 8450; 8540 - 8620 ft (MD)
Formation: Unavailable

Test Date: 06/24 - 06/26/2020
Gauge Depth: 7660 ft
Gauge Type: Electronic
Gauge SN: DC-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/26/20	07:39:20	44.98333		2494.51		96.83	Arrived at 4000 ft stop.
06/26/20	07:40:00	44.99444		2493.36		96.68	
06/26/20	07:41:00	45.01111		2493.30		96.67	
06/26/20	07:42:00	45.02778		2493.29		96.66	
06/26/20	07:43:00	45.04444		2493.28		96.65	
06/26/20	07:44:00	45.06111		2493.27		96.65	
06/26/20	07:44:45	45.07361		2493.25		96.65	Left 4000 ft stop.
06/26/20	07:45:00	45.07778		2462.64		96.59	
06/26/20	07:46:00	45.09444		2348.20		95.69	
06/26/20	07:47:00	45.11111		2245.00		94.87	
06/26/20	07:48:00	45.12778		2126.04		94.10	
06/26/20	07:48:55	45.14306		2058.26		93.42	Arrived at 3000 ft stop.
06/26/20	07:49:00	45.14444		2057.95		93.38	
06/26/20	07:50:00	45.16111		2057.66		93.29	
06/26/20	07:51:00	45.17778		2057.65		93.28	
06/26/20	07:52:00	45.19444		2057.64		93.27	
06/26/20	07:53:00	45.21111		2057.63		93.27	
06/26/20	07:54:00	45.22778		2057.65		93.26	
06/26/20	07:54:30	45.23611		2057.55		93.26	Left 3000 ft stop.
06/26/20	07:55:00	45.24444		2009.52		93.02	
06/26/20	07:56:00	45.26111		1894.40		92.36	
06/26/20	07:57:00	45.27778		1794.22		90.96	
06/26/20	07:58:00	45.29444		1675.15		89.86	
06/26/20	07:58:40	45.30556		1622.34		89.51	Arrived at 2000 ft stop.
06/26/20	07:59:00	45.31111		1621.89		89.41	
06/26/20	08:00:00	45.32778		1621.79		89.38	
06/26/20	08:01:00	45.34444		1621.78		89.37	
06/26/20	08:02:00	45.36111		1621.77		89.36	
06/26/20	08:03:00	45.37778		1622.14		89.36	
06/26/20	08:04:00	45.39444		1622.12		89.36	
06/26/20	08:04:30	45.40278		1622.11		89.35	Left 2000 ft stop.
06/26/20	08:05:00	45.41111		1584.31		89.30	
06/26/20	08:06:00	45.42778		1458.22		88.50	
06/26/20	08:07:00	45.44444		1338.16		87.58	
06/26/20	08:08:00	45.46111		1211.90		86.32	
06/26/20	08:08:30	45.46944		1186.97		85.70	Arrived at 1000 ft stop.
06/26/20	08:09:00	45.47778		1186.56		85.59	
06/26/20	08:10:00	45.49444		1186.56		85.57	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refinery: Waste Disposal Well No. 3
Field: Davonia
Location: Eddy County, NM
Perfs: 7660 - 8450; 8540 - 8620 ft (MD)
Formation: Unavailable

Test Date: 06/24 - 06/26/2020
Gauge Depth: 7660 ft
Gauge Type: Electronic
Gauge SN: DC-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/26/20	08:11:00	45.51111		1186.55		85.56	
06/26/20	08:12:00	45.52778		1186.54		85.55	
06/26/20	08:13:00	45.54444		1186.53		85.54	
06/26/20	08:13:35	45.55417		1186.53		85.54	Left 1000 ft stop.
06/26/20	08:14:00	45.56111		1153.45		85.39	
06/26/20	08:15:00	45.57778		1035.79		86.07	
06/26/20	08:16:00	45.59444		917.92		81.17	
06/26/20	08:17:00	45.61111		799.50		84.56	
06/26/20	08:17:45	45.62361		750.32		82.85	Gauge at surface.
06/26/20	08:18:00	45.62778		750.75		83.37	
06/26/20	08:19:00	45.64444		751.42		83.74	
06/26/20	08:20:00	45.66111		751.47		83.80	
06/26/20	08:21:00	45.67778		751.47		83.84	
06/26/20	08:22:00	45.69444		751.46		83.88	
06/26/20	08:23:00	45.71111		751.45		83.91	
06/26/20	08:23:25	45.71806	750	751.39		83.92	Surface stop.
06/26/20	08:24:00	45.72778		746.32		84.44	
06/26/20	08:25:00	45.74444		741.41		85.23	
06/26/20	08:26:00	45.76111		741.56		85.28	
06/26/20	08:26:35	45.77083		741.46		85.39	SIWHP increased.
06/26/20	08:27:00	45.77778		840.24		85.48	
06/26/20	08:27:40	45.78889		835.01		85.72	Pressured down lubricator.
06/26/20	08:28:00	45.79444		11.98		85.65	
06/26/20	08:28:05	45.79583		11.04		85.64	Test complete.
06/26/20	08:30:00	45.82778		13.76		85.98	
06/26/20	08:35:00	45.91111		14.95		80.46	
06/26/20	08:39:40	45.98889		12.61		78.65	Powered down gauge.

Remarks: MIRU slickline. RIH with 1.25" weight bar. Cleared 8639 ft. POOH. RIH with electronic gauges making injecting gradient stops to 7660 ft. Flow well for 1 hr. SI well for 44.4 hr reservoir pressure falloff test. POOH making static gradient stops. RDMO.

Certified: FESCO, Ltd. - Ozona, Texas

By: Tom Anderson
District Manager - (325) 392-3773

Job No.: J202006290801.001A

Attachment 6
Annulus Pressure Gauge Certification

Petrotek

JMC INSTRUMENTS INC.
9829 E. Easter Ave. • Centennial, CO 80112
303.794.8833 • Fax 303.730.1220
Toll Free 1.800.327.7257
www.jmcinstruments.com

CERTIFIED CALIBRATION

CUSTOMER Petrotek ORDER NO. _____

ITEM Digital Gauge RANGE 0-5000PSIG ITEM NO. 5035-2

TRUE VALUE	INDICATED VALUE	
PSIG	INCREASING READINGS	DECREASING READINGS
0.00	0	
500.00	499.5	499.6
1000.00	999.3	999.5
1500.00	1498.9	1498.9
2000.00	1999.2	1998.8
2500.00	2497.9	2497.5
3000.00	2997.7	2997.4
3500.00	3496.5	3495.7
4000.00	3995.8	3994.2
4500.00	4495.4	4494.0
5000.00	4995.3	4995.3

Tested On: Deadweight Tester S/N# 1GA4474

Traceable to National Institute of Standards and Technology certificate # 17-043

Tested By: BMZ Date 17 January 2020

Remarks:

Crystal	XP2i	SN 901241
Accuracy is +/-		% of Full Scale or Better
Test Conditions	70 °F; 612	mmHg Atm. Pressure