Petrotek

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

December 2021

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

2021 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

TABLE OF CONTENTS

EXECUTIVE SUMMARY 3
1. FACILITY INFORMATION 5
2. WELL INFORMATION 5
3. CURRENT WELLBORE SCHEMATIC 5
4. COPY OF AN ELECTRIC LOG ENCOMPASSING THE COMPLETED INTERVAL 5
5. COPY OF RELEVANT PORTIONS OF ANY POROSITY LOG USED TO ESTIMATE FORMATION POROSITY 5
6. PVT DATA OF THE FORMATION AND INJECTION FLUID 6
7. DAILY RATE HISTORY FOR A MINIMUM OF ONE MONTH PRECEDING THE FALLOFF TEST 9
8. CUMULATIVE INJECTION INTO THE FORMATION FROM TEST WELL 11
9. PRESSURE GAUGES 11
10. ONE-MILE AREA OF REVIEW (AOR) 11
11. GEOLOGY 13
12. OFFSET WELLS 14
13. CHRONOLOGICAL LISTING OF THE DAILY TESTING ACTIVITIES 15
14. DESCRIBE THE LOCATION OF THE SHUT-IN VALVE USED TO CEASE FLOW TO THE WELL FOR THE SHUT-IN PORTION OF THE TEST 15
15. PRESSURE FALLOFF ANALYSIS 16
16. INTERNAL MECHANICAL INTEGRITY 23

Petrotek

Tables

Table 1 - HFNR Formation Fluid Sample Analysis Results
Table 2 - May and June Daily Injection Data
Table 3 - Wells Plugged within AOR
Table 4 - HFNR Injection Formation Tops
Table 5 - Falloff Test Analysis Input Values
Table 6 - Historical Ambient Reservoir Test Measurements
Table 7 - Annulus Pressure Test Measurements

Figures

Figure 1 - Wellbore Diagram
Figure 2 - Wellhead Diagram
Figure 3 - Wolfcamp Formation Structure Map
Figure 4 - Cisco Formation Structure Map
Figure 5 - Canyon/Strawn Formation Structure Map
Figure 6 - Cartesian Plot of Pressure, Temperature and Rate vs. Time
Figure 7 - Full Rate History Plot
Figure 8 - Cartesian Plot of Pressure Falloff with Model Match
Figure 9 - Log-log Derivative Plot with Model Match
Figure 10 - Semi-log Horner Plot with Model Match
Figure 11 - Daily Injection Rate History for Month Prior to Test Plot
Figure 12 - Hall Plot
Figure 13 - One-mile AOR

Attachments

Attachment 1 - OCD Test Notification
Attachment 2 - Annulus Pressure Gauge Certification
Attachment 3 - Downhole Pressure Gauge Certification
Attachment 4 - FESCO Injection Falloff Test Report
Attachment 5 - Falloff Test Summary
Attachment 6 - AOR Well List
Attachment 7 – Digital Data

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, completed 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 David Huffington (Petrotek).

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. Both of these wells are completed in the same injection formation. 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 the average brine salinity along with the recorded bottom hole pressure and temperature in conjunction with industry standard correlations. The correlations used are 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 are 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 brine concentration for the formation samples 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 are used to estimate fluid viscosity at atmospheric conditions (equations B-72, 73, and 74), which is then converted to viscosity at bottom hole conditions (equation B-75) by using a correction factor. These equations can be found on page 527. 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:

$$\mu_{w1} = AT^{B} \quad \text{(B-72)}$$

$$A = 109.574 - 8.40564 * S + 0.313314 * S^2 + 8.72213 * 10^{-3} * S^3 \quad \text{(B-73)}$$

$$B = -1.12166 + 2.63951 * 10^{-2} * S - 6.79461 * 10^{-4} * S^2 - 5.47119 * 10^{-5} * S^3 + 1.55586 * 10^{-6} * S^4 \quad \text{(B-74)}$$

$$\frac{\mu_w}{\mu_{w1}} = 0.9994 + 4.0295 * 10^{-5} * P + 3.1062 * 10^{-9} * P^2 \quad \text{(B-75)}$$

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 0.56 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).

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

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 HISTORY FOR A MINIMUM OF ONE MONTH PRECEDING THE FALLOFF TEST

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

TABLE 2
JULY AND AUGUST INJECTION DATA

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
7/1/2021	936.06	137.28	321.71
7/2/2021	917.22	130.98	338.70
7/3/2021	964.63	143.50	408.40
7/4/2021	987.40	150.50	445.77
7/5/2021	1,020.03	158.36	479.02
7/6/2021	1,023.21	157.12	490.81
7/7/2021	1,028.48	158.56	514.94
7/8/2021	713.52	80.99	303.79
7/9/2021	971.68	149.65	410.74
7/10/2021	916.07	134.30	542.92
7/11/2021	889.12	126.65	579.01
7/12/2021	849.88	118.88	577.27
7/13/2021	857.76	121.57	559.59
7/14/2021	925.10	137.90	608.58
7/15/2021	897.41	130.66	610.54
7/16/2021	917.20	135.01	633.38
7/17/2021	991.75	152.61	689.79
7/18/2021	956.05	145.54	649.21
7/19/2021	951.15	143.84	636.87
7/20/2021	954.62	143.03	647.41
7/21/2021	899.21	129.40	618.83
7/22/2021	977.21	148.21	688.71
7/23/2021	918.06	133.00	712.87
7/24/2021	966.65	144.97	774.08
7/25/2021	959.21	142.69	756.49
7/26/2021	950.50	140.79	761.37
7/27/2021	1,021.49	156.89	752.68
7/28/2021	1,015.16	153.99	703.91
7/29/2021	945.24	138.75	706.95

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
7/30/2021	929.87	136.42	708.60
7/31/2021	950.03	141.05	740.93
8/1/2021	922.48	133.55	731.98
8/2/2021	883.19	123.58	694.16
8/3/2021	883.80	123.17	663.99
8/4/2021	932.26	134.12	702.79
8/5/2021	975.04	144.16	705.71
8/6/2021	962.24	141.29	638.95
8/7/2021	931.56	134.50	582.62
8/8/2021	946.98	137.95	585.26
8/9/2021	950.05	138.63	599.88

8. CUMULATIVE INJECTION INTO THE FORMATION FROM TEST WELL

At the time of shut-in for testing the cumulative volume of waste injected into this well since operations began, based on OCD records, is 22,543,344 barrels (946,820,456 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 11/25/2020 (Gauge #220992) and 12/19/2020 (Gauge #224821). The most recent calibration certificates are provided in Attachment 3. The bottom gauge (Serial Number - 224821) was utilized for analysis. The bottom gauge was hung at a test depth of 7,572 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 6. This table contains the operator, well name, API number, well type, well status, location, and dates of spud and abandonment. A figure displaying the wells located in the AOR and the wells in the surrounding sections has been provided as Figure 13.

There are seven wells within the AOR that were plugged and abandoned within the last year, none of which penetrate the injection interval. These wells are identified in Table 3 below. No new wells have been drilled within the AOR in the last year.

TABLE 3
WELLS PLUGGED WITHIN AOR DURING THE PAST YEAR

Operator	Well Name	API	Well Type	S	T	R	Total Vertical Depth (ft)	Lat Long	Date Plugged
APACHE CORPORATION	EMPIRE ABO UNIT #016B	30-015-00724	Oil	2	18S	27E	5,920	32.78066 -104.24184	2/3/2021
APACHE CORPORATION	EMPIRE ABO UNIT #183	30-015-22096	Oil	1	18S	27E	6,210	32.77559 -104.23576	4/27/2021
APACHE CORPORATION	EMPIRE ABO UNIT #194	30-015-22658	Oil	1	18S	27E	6,325	32.77313 -104.23049	4/19/2021
APACHE CORPORATION	EMPIRE ABO UNIT #193	30-015-22657	Oil	1	18S	27E	6,225	32.77586 -104.23072	4/29/2021
APACHE CORPORATION	EMPIRE ABO UNIT #182	30-015-21792	Oil	1	18S	27E	6,369	32.77325 -104.23293	4/14/2021
APACHE CORPORATION	EMPIRE ABO UNIT #192	30-015-22560	Oil	1	18S	27E	6,250	32.77451 -104.22807	4/22/2021
APACHE CORPORATION	EMPIRE ABO UNIT #223	30-015-22527	Oil	6	18S	28E	6,250	32.77608 -104.21728	7/23/2021

a. **Wells Located Within the One-mile AOR -** The wells located within the one-mile AOR are provided as Attachment 6. 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 6, 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. Additional information is presented in Section 12 of this report.

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 locally, two of which are completed in the same interval, WDW-1 and WDW-2. Only WDW- 2 is listed in Attachment 6 since WDW-1 is not within the 1-mile AOR surrounding WDW-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 relatively high permeability system, and are not considered to have had an unacceptable 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 formation 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. During August 2021, data from the state website indicated average injection rates of approximately 260 gpm for the Federal T SWD #1, 285 gpm for the Chalk Bluff Federal SWD #001 and 22 gpm for the AAO Federal SWD #1.

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 development of a useful test from these offset injectors, although late-time data is likely impacted by the start of non-radial flow effects. 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 August 10 through 12, 2021.

b. **Time of the injection period -** Constant-rate injection occurred for approximately 58 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 4,097.4 psia (at 7,572 feet BGL) and the injection rate was 100.8 gpm (3,455.0 bpd) with a measured bottom hole temperature of 104.1 °F.

e. **Total shut-in time -** The well was shut-in for approximately 44 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 3,978.7 psia and the final bottom hole temperature was 110.7 °F.

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.

The raw digital data collected during the test is provided in Attachment 7. The contracted service company that supplied the gauges used for testing generated an injection falloff test summary report based on the data that was collected. This report is provided in Attachment 4.

a. **Radius of test investigation -** The radius of investigation for this test was determined to be 6,182 feet based on the average permeability derived from test analysis.

b. **Time to beginning of the infinite acting portion of the test -** The time at which the test began to transition into radial flow was approximately 22 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 likely radial period, as determined by the semi-log plot, was 2.8515 psi/cycle.

d. **Transmissibility (kh/μ) -** The transmissibility was determined to be 197,009 md-ft/cp.

e. **Permeability (k) -** The permeability was determined to be 630 md.

f. **Skin Factor (s) -** The skin factor was determined to be 37.3 units.

g. **Pressure drop due to skin (ΔP_{skin}) -** The pressure drop due to skin was determined to be 92.4 psi

h. **Flow efficiency -** The flow efficiency was determined to be 0.22.

i. **Flow capacity (kh) -** The flow capacity (permeability-thickness) was determined to be 110,325 md-ft.

j. **P_{1hr} -** The extrapolated 1-hr pressure was determined to be 3,985.7 psi.

TABLE 5
FALLOFF TEST ANALYSIS INPUT VALUES

Parameter	Value	Unit
Formation Thickness, h	175	feet
Porosity, Φ	10	percent
Viscosity, μ	0.56	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}	4,097.4	psia
Final Injection Rate, q_{final}	3,455.0 100.8	bwpd (gpm)
Horner Straight Line Slope, m	2.8515	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 6/22/2020 (21,187,321 barrels) by the final injection rate (47.0 gpm). This resulted in a value of 315,488.7 hours of injection at 47.0 gpm. This value was used in conjunction with the injection data collected from 6/22/2020 through 8/10/2021. The total waste volume injected up to the time of shut-in utilized for calculations was 946,820,456 gallons (22,543,344 bbls).

To determine the mobility-thickness (transmissibility), the following equation was utilized. The resulting transmissibility was 197,009 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 unit conversion constant

$$\frac{kh}{\mu} = Transmissibility = 162.6\frac{3{,}455.0 * 1.0}{2.8515} = 197{,}009\frac{md-ft}{cp}$$

The transmissibility was then used to determine the permeability thickness. The resulting permeability-thickness was 110,325 md-ft.

$$kh = \left(\frac{kh}{\mu}\right)\mu = 197{,}009\left(\frac{md-ft}{cp}\right)0.56\ cp = 110{,}325\ md-ft$$

The permeability thickness was then used to determine the permeability of the reservoir. The resulting permeability was 630 md.

$$k = \frac{kh}{h} = \frac{110{,}325\ md-ft}{175\ ft} = 630\ md$$

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 1,517 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

$$r_{waste} = \sqrt{\frac{0.13368 * (946{,}820{,}456)}{\pi * 175 * 0.10}} = 1{,}517\ feet$$

Based on this radius, the time for a pressure transient to travel through this fluid can be calculated. The resulting time was 2.11 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

$$t_{waste} = 948\frac{0.10 * 0.56 * 10.90E-06 * (1{,}517)^2}{630.4} = 2.11\ hours$$

Based on this result, and the time it took for radial flow to be reached (20-22 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

$$s = 1.151\left(\frac{4{,}097.4 - 3{,}985.7}{2.8515} - log\left(\frac{630.4}{0.10 * 0.56 * 10.90E-06 * 0.3246^2}\right) + 3.23\right) = 37.3$$

The change in pressure, due to skin, in the wellbore can be calculated using the following equation. The result of this calculation was 92.4 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

$$\Delta P_{skin} = 0.869 * 2.8515 * 37.3 = 92.4\ psi$$

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 0.22.

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

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

$$FE = \frac{4{,}097.4 - 92.4 - 3{,}978.7}{4{,}097.4 - 3{,}978.7} = 0.22$$

The test radius of investigation (r_{inv}) can be determined using the following equation. The result of this calculation was 6,182 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

$$r_{inv} = 0.029\sqrt{\frac{630.4 * 44}{0.1 * 0.56 * 10.90E-06}} = 6{,}182\ feet$$

Based on examination of the log-log diagnostic plot provided as Figure 9, the test reached what appears to be radial flow approximately 20-22 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 using the analytical Horner semi-log method based on the reasonable assumption that a period of radial flow exists in the data. Figure 10 presents a simple analysis consistent with the pseudo straight-line analysis equations presented in the preceding text. Figure 9 presents a simulation analysis generated for a homogenous radial flow system. 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 (Figure 9) 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 with Model Match
- Figure 9 - Log-log Derivative Plot with Model Match
- Figure 10 - Semi-log Horner Plot with Model Match
- Figure 11 - Daily Injection Rate History for Month Prior to Test Plot
- Figure 12 - Hall Plot

As specified by OCD requirements, a Hall Plot (Figure 12) 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. 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. Attachment 5 presents a summary of the falloff test analysis.

TABLE 6
HISTORICAL AMBIENT RESERVOIR TESTING

Year	Fill Depth (feet)	Permeability (md)	Mobility-thickness (md-ft/cp)	Skin (units)	P* (psia)
2021	8,604	630	197,009	37.3	3,969.1
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 September 15, the annulus was pressured to 568.8 psi. The annulus pressure test was conducted under dynamic conditions. As such, tubing injection pressure as well as injection rate readings have been reported in addition to the annulus pressure. Flow conditions were stabilized prior to testing to allow for well equilibrium prior to testing. A calibrated digital pressure gauge (Fluke 700G29, 3,000 psi, SN - 2643157) 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, injection pressure and injection rate were then monitored for a period of thirty minutes at 5-minute intervals. During the Part I internal mechanical integrity test the pressure decreased by 6.3 psi. Since a change of 10% (56.9 psi) of the starting test pressure is allowable, this test is within

acceptable specifications.

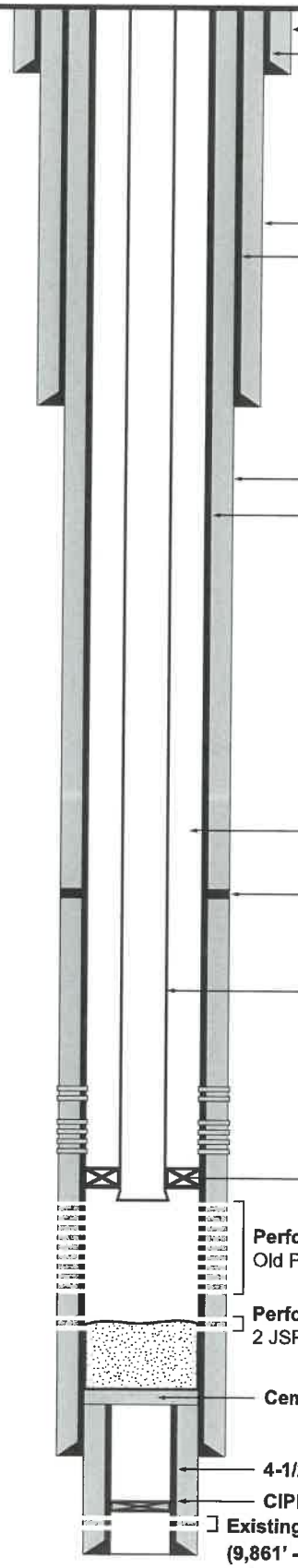
Attachment 2 presents a copy of the gauge certification. Attachment 7 contains the digital data collected during the APT. Pressures were observed as follows during testing.

TABLE 7
ANNULUS PRESSURE TEST MEASUREMENTS

Time, Minutes	0	5	10	15	20	25	30
Annulus Pressure, Psi	568.8	566.0	564.9	564.2	563.6	563.0	562.5
Tubing Pressure, psi	851	850	850	850	850	850	-
Injection Rate, gpm	107	107	108	108	108	108	-

FIGURES

OCD UIC Permit: UICI-008-3
Well API Number: 30-015-26575
Eddy County, New Mexico
Sec. 31, T18S-R27E
Lat. 32.771186° / Long. -104.233306° (NAD 83)



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.

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

DV Tool (5,785')

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

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')

Top of Fill:
8,604' (Tagged 8/2021)
PBTD: 9,022'
TD: 10,119'

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

NOT TO SCALE

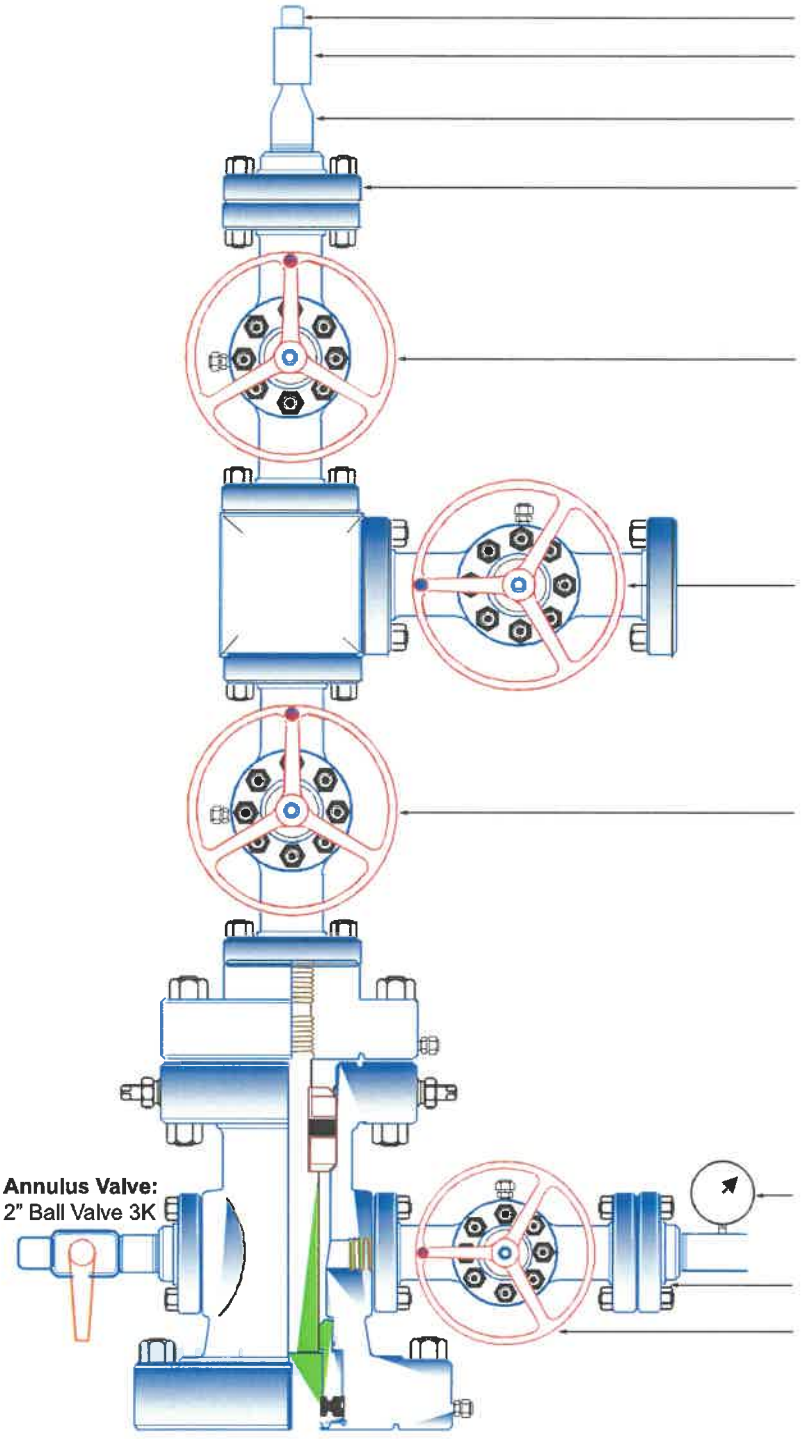
HOLLYFRONTIER

Figure 1
WDW No. 3,
Wellbore Schematic
2021 Schematic Update

Scale: NTS	Date: October 2021	
Fig_01_HF_Artesia_2021_WDW_03.pdf	By: WEK	Checked: LW

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

OCD UIC Permit: UICI-008-3
Well API Number: 30-015-26575
Eddy County, New Mexico
Sec. 31, T17S-R27E
Lat. 32.771186° / Long. -104.233306° (NAD 83)



HOLLYFRONTIER

Figure 2
WDW No. 3,
Wellhead Schematic

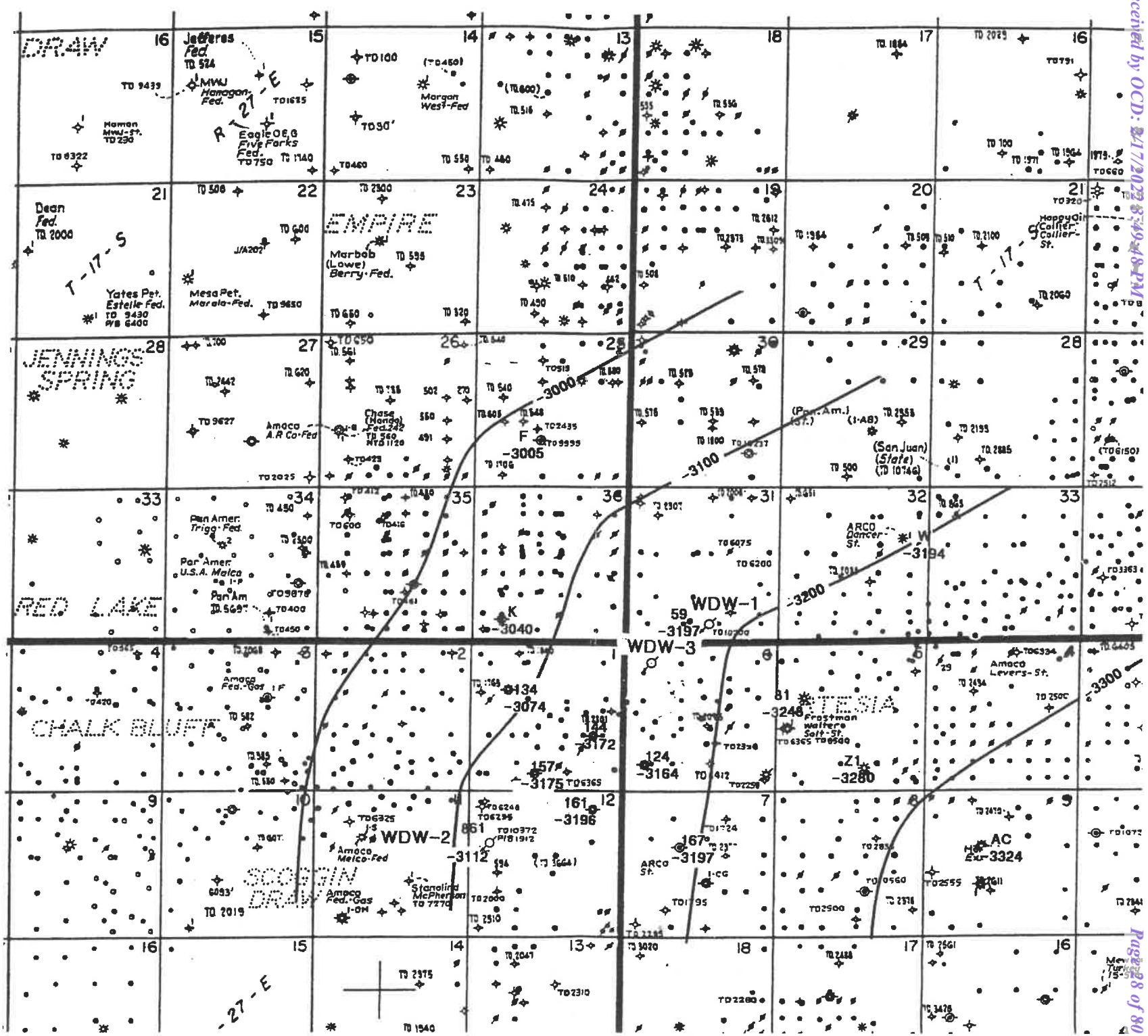
2021 FOT/MIT Report

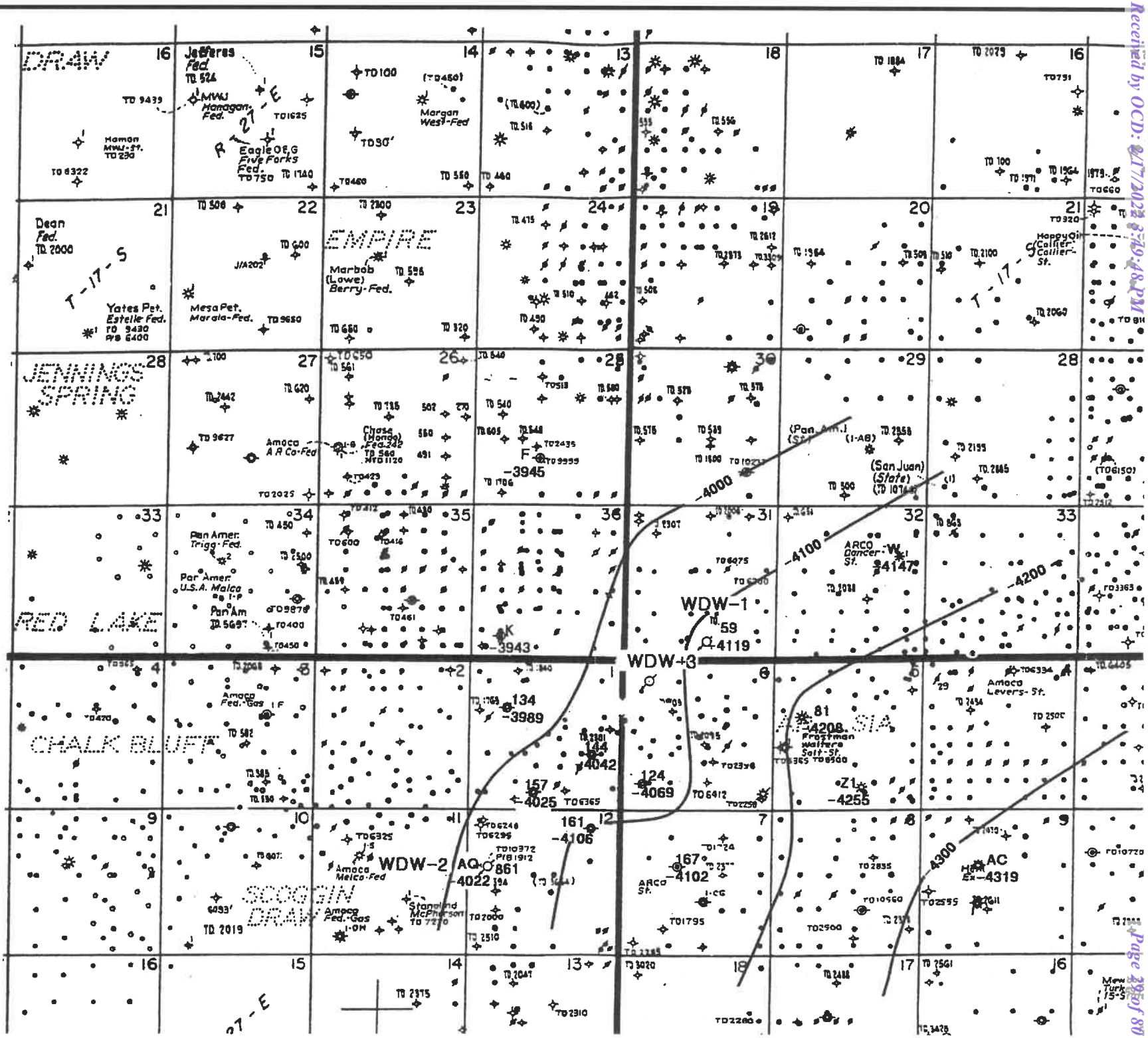
Scale: NTS	Date: October 2021	
Fig_02_HF_Artesia_2021_WDW_03.pdf	By: WEK	Checked: DH

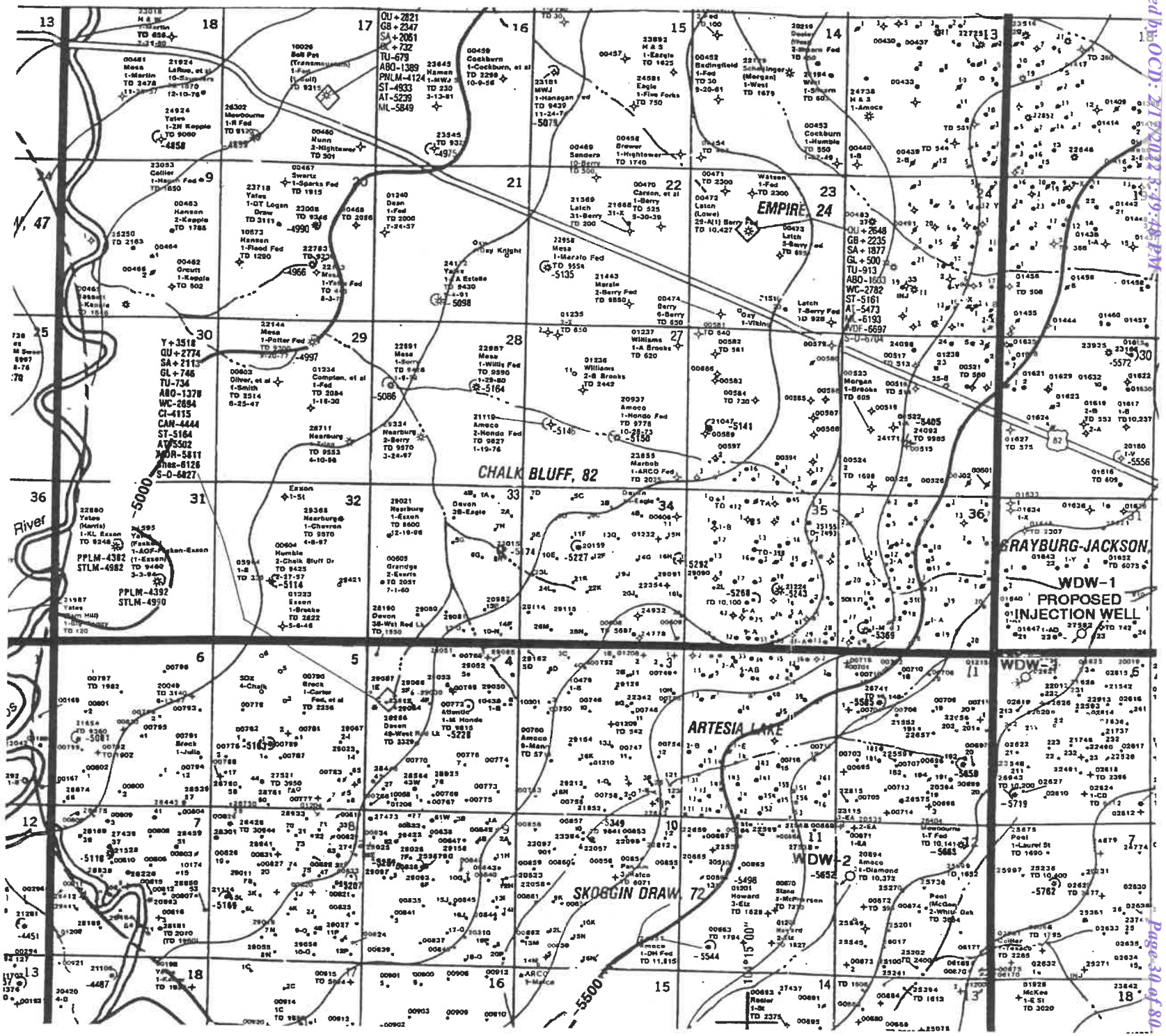
Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

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

NOT TO SCALE







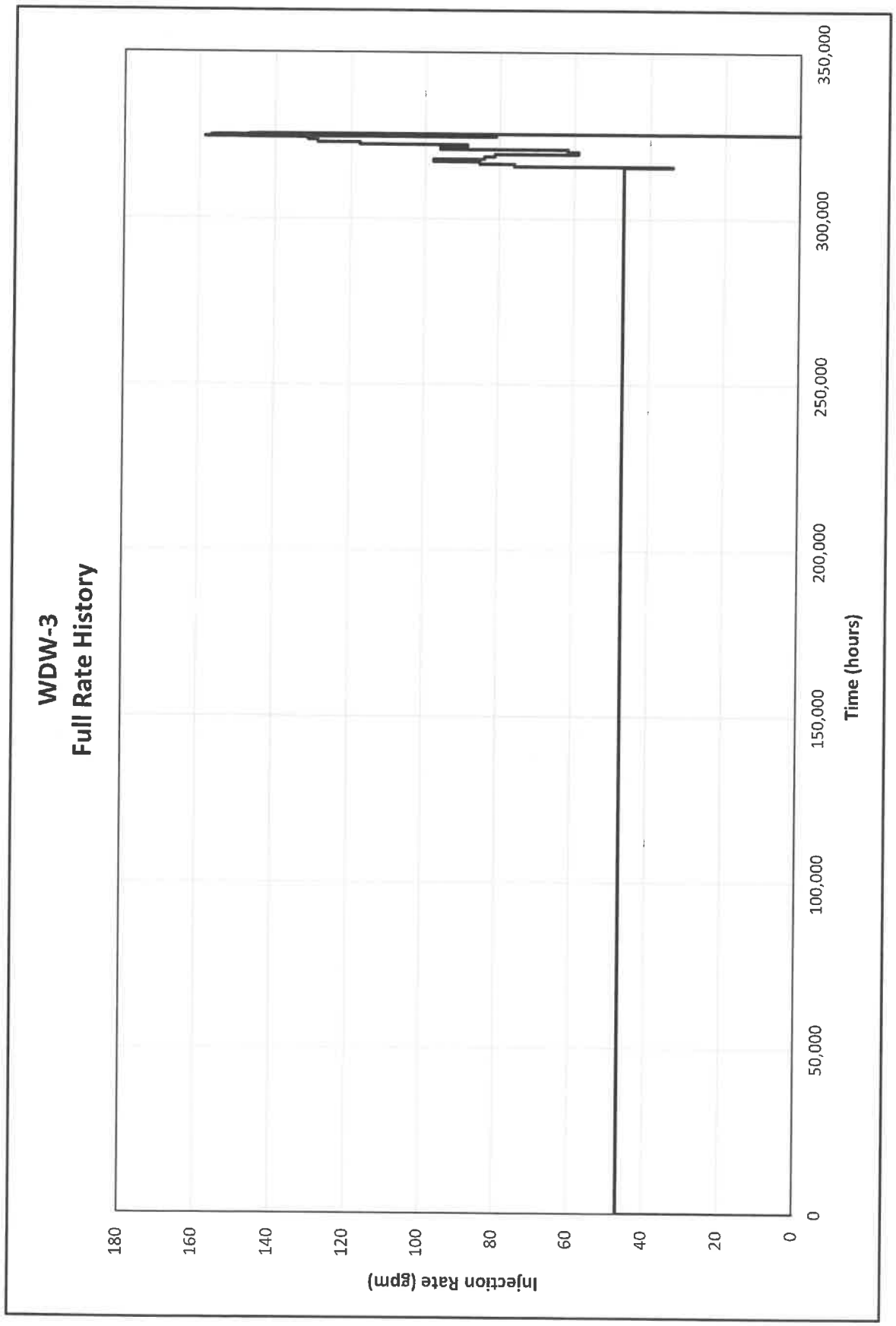


Figure 6
Full Rate History
2021 Well Testing

HOLLYFRONTIER

Petrotek

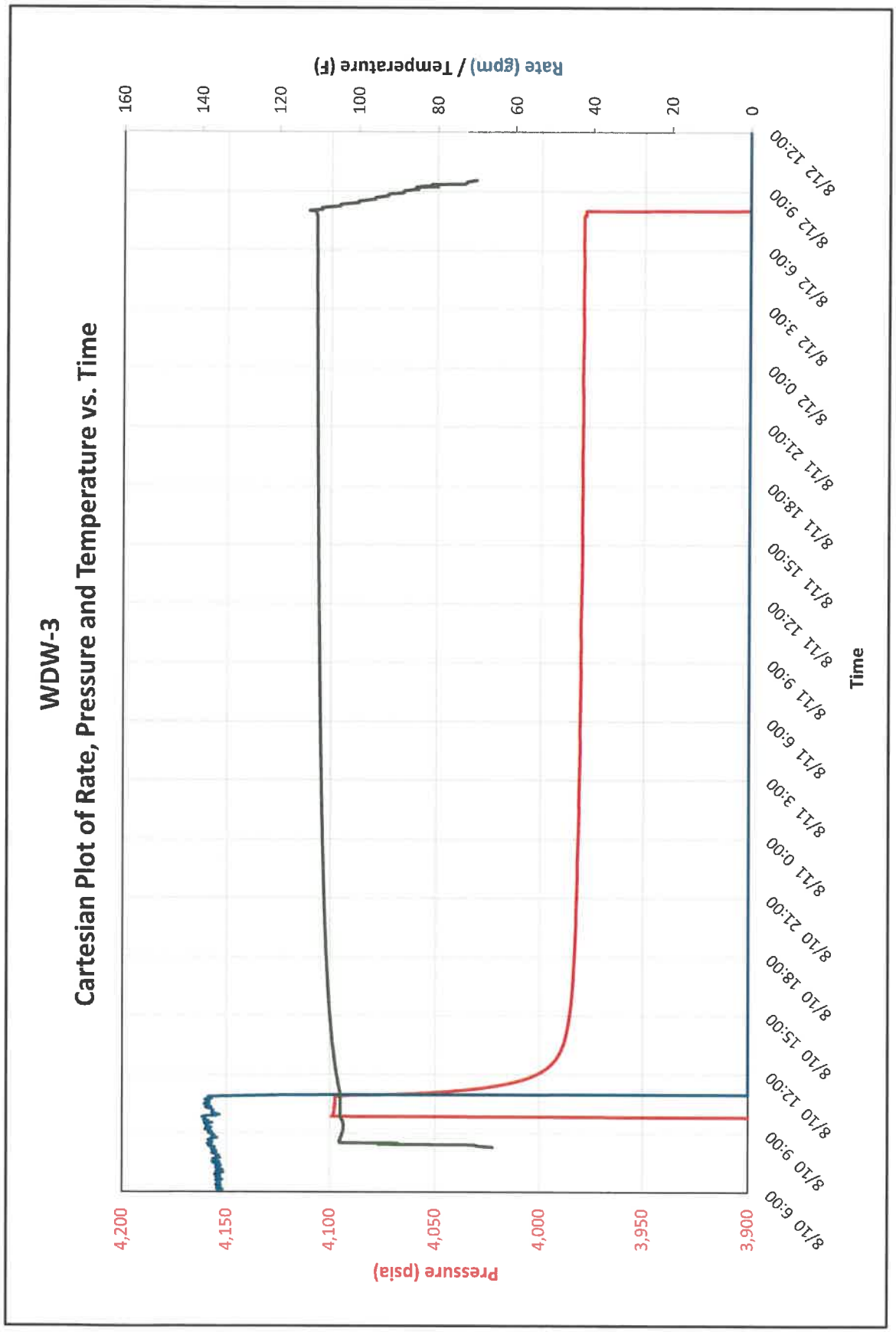


Figure 7
Cartesian Plot of Rate, Pressure and Temperature vs Time
2021 Well Testing

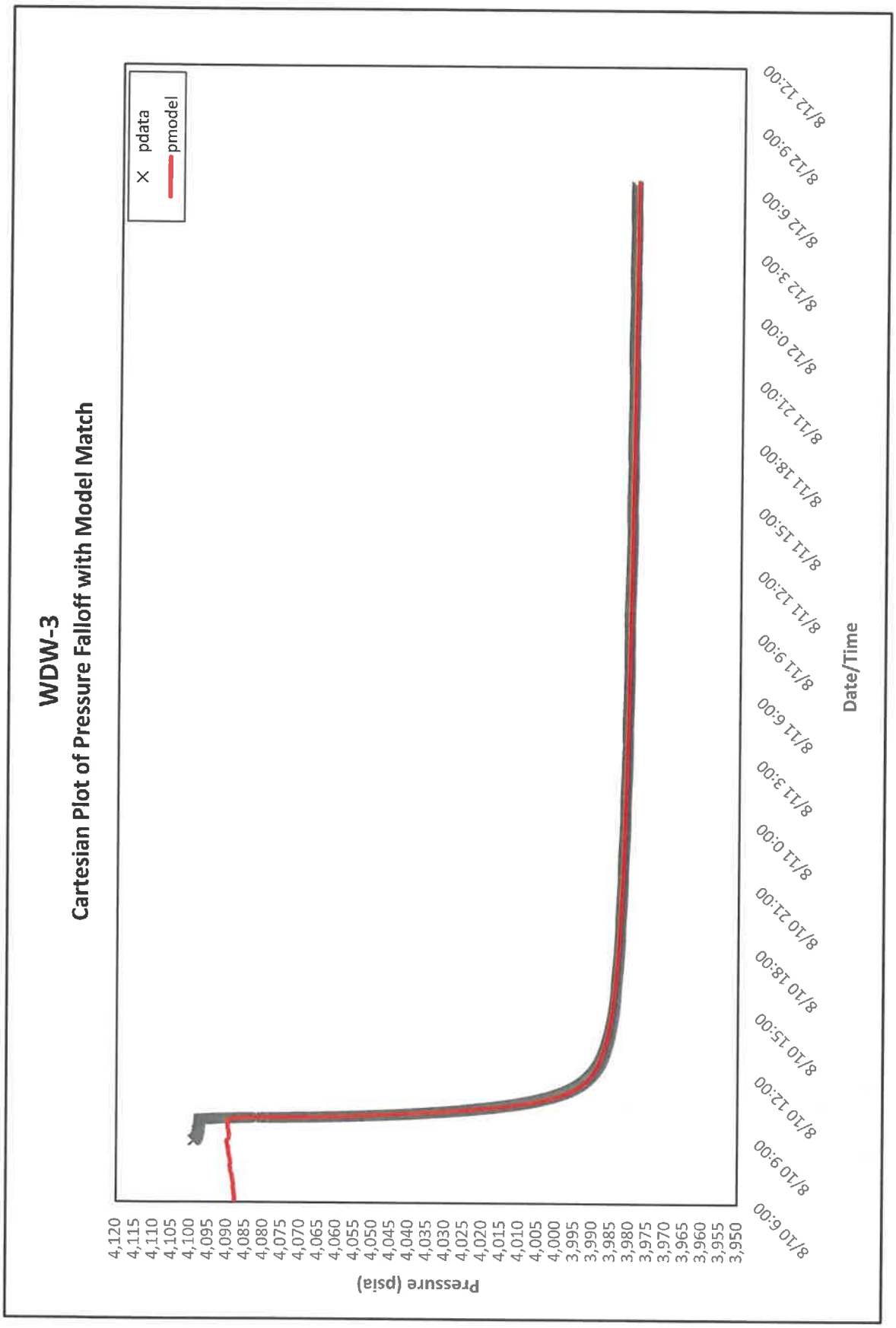


Figure 8
Cartesian Plot of Pressure Falloff with Model Match
2021 Well Testing

HOLLYFRONTIER

Petrotek

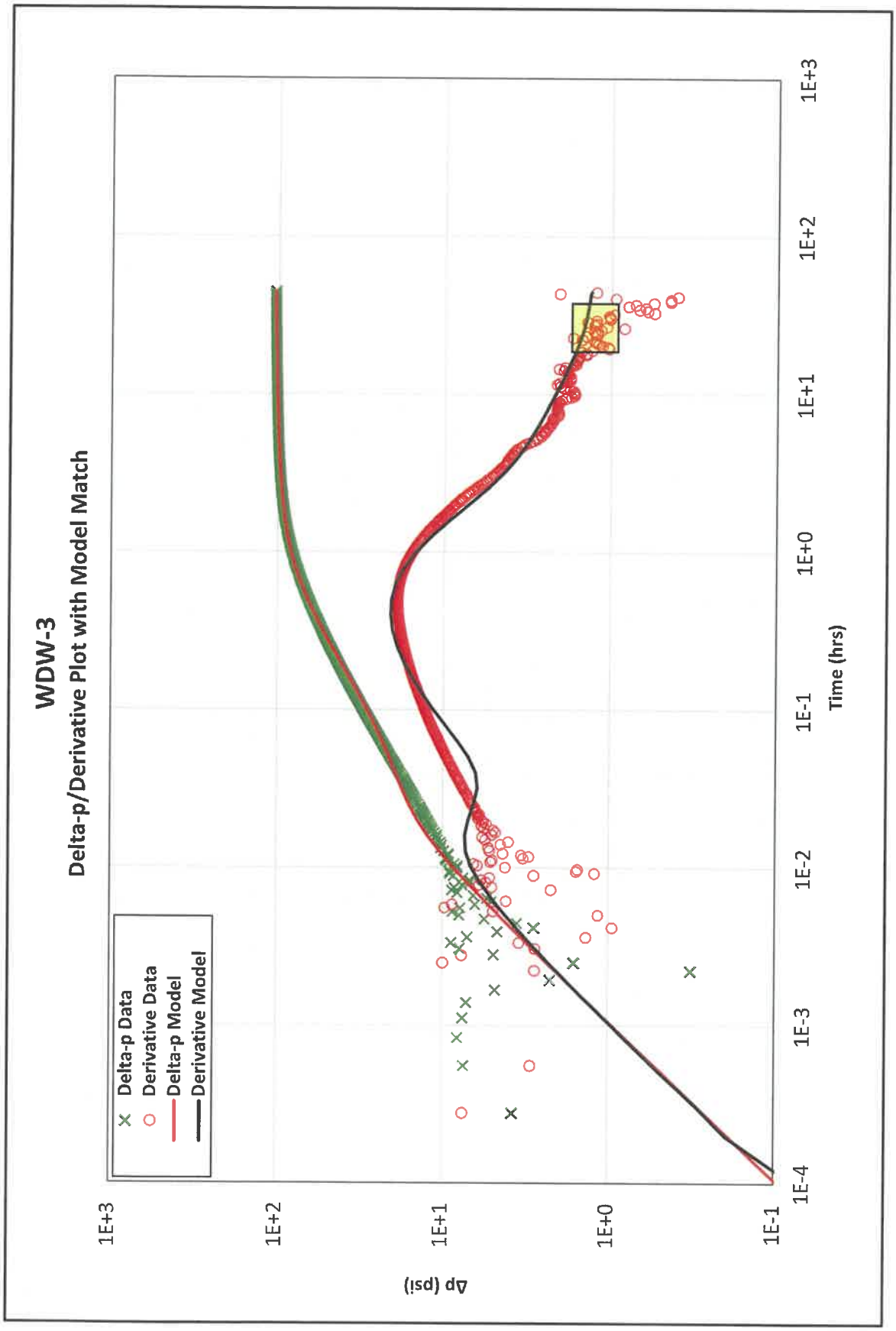


Figure 9
Delta-p/Derivative Plot with Model Match
2021 Well Testing

HOLLYFRONTIER

Petrotek

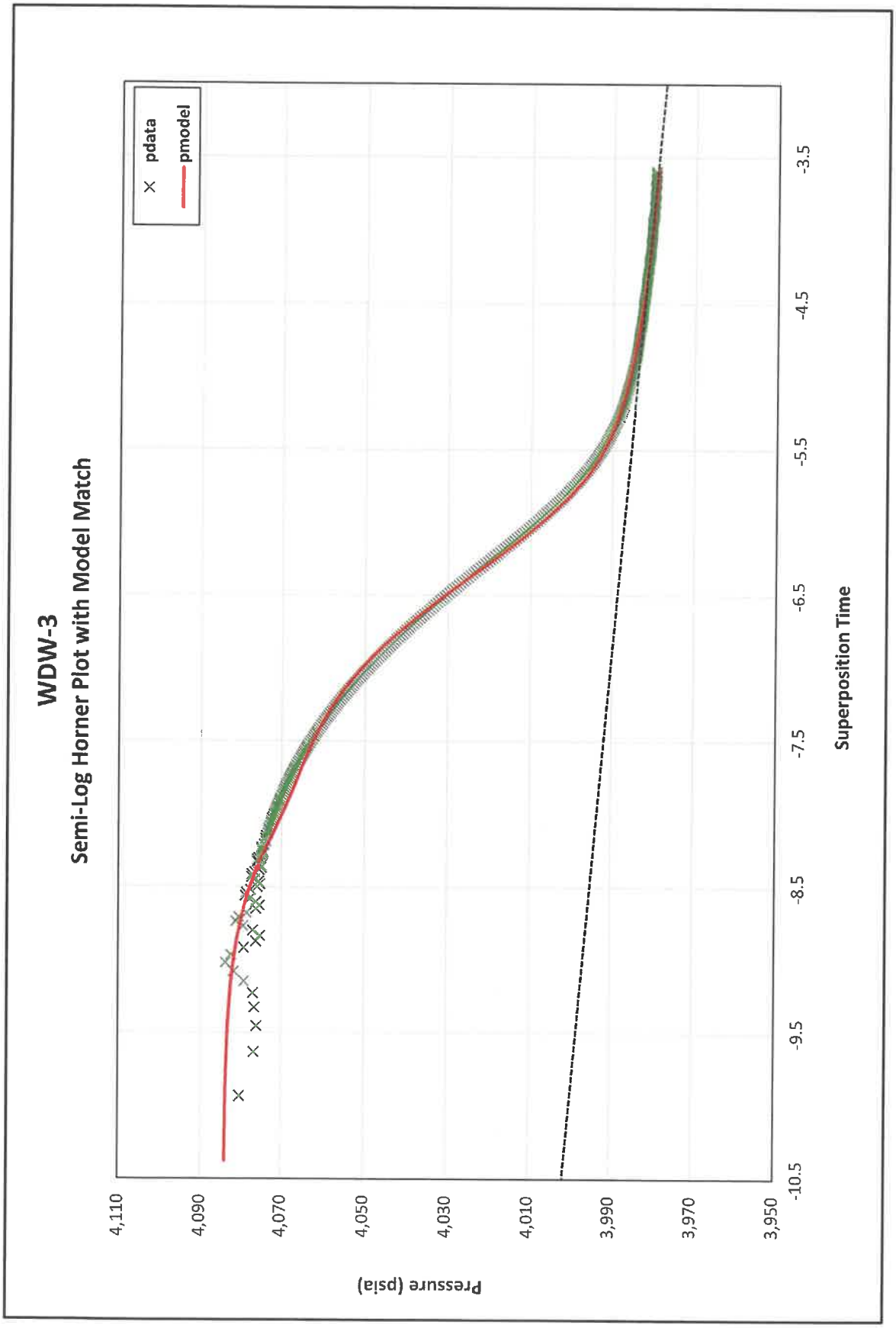
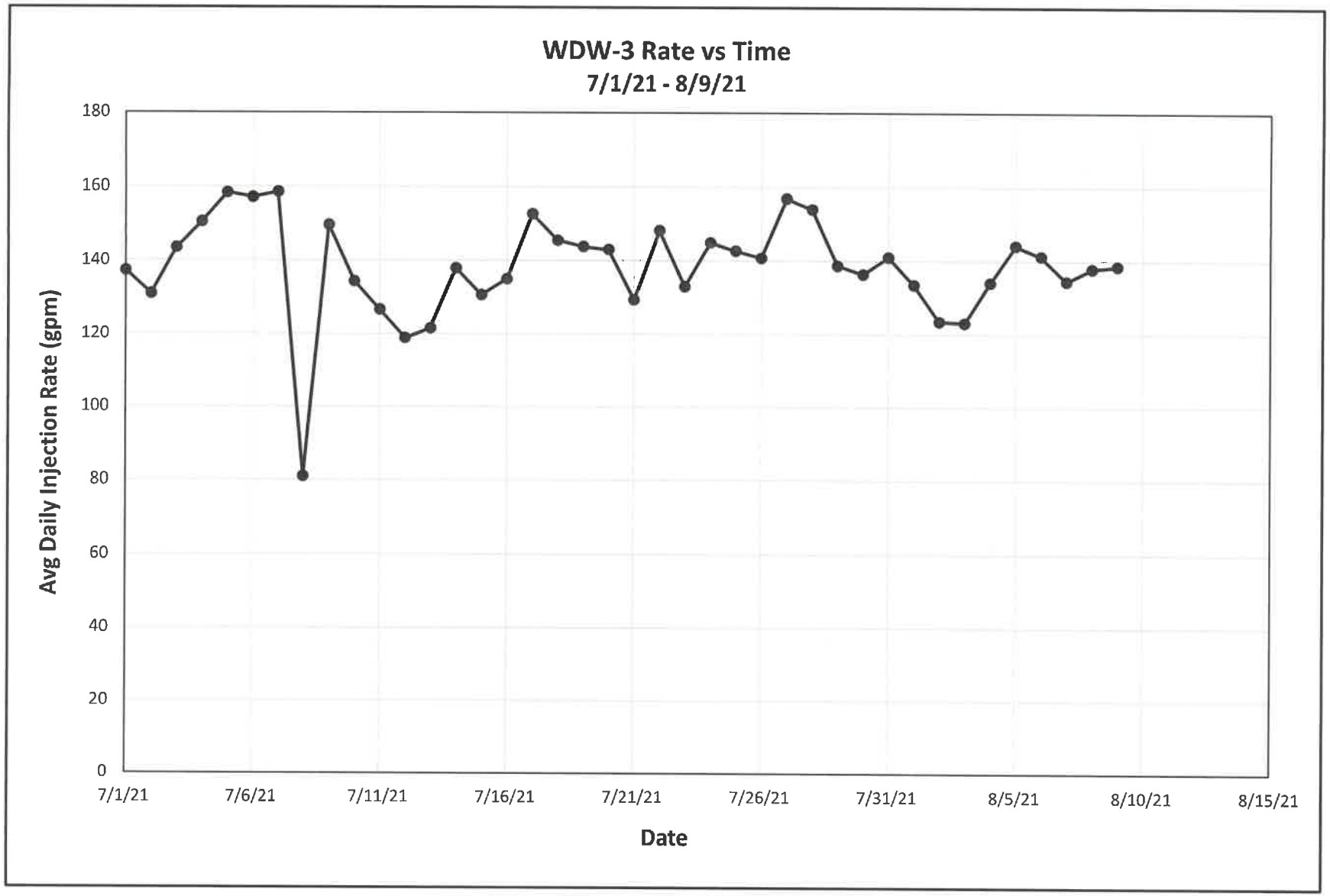


Figure 10
Semi-Log Horner Plot with Model Match
2021 Well Testing

HOLLYFRONTIER

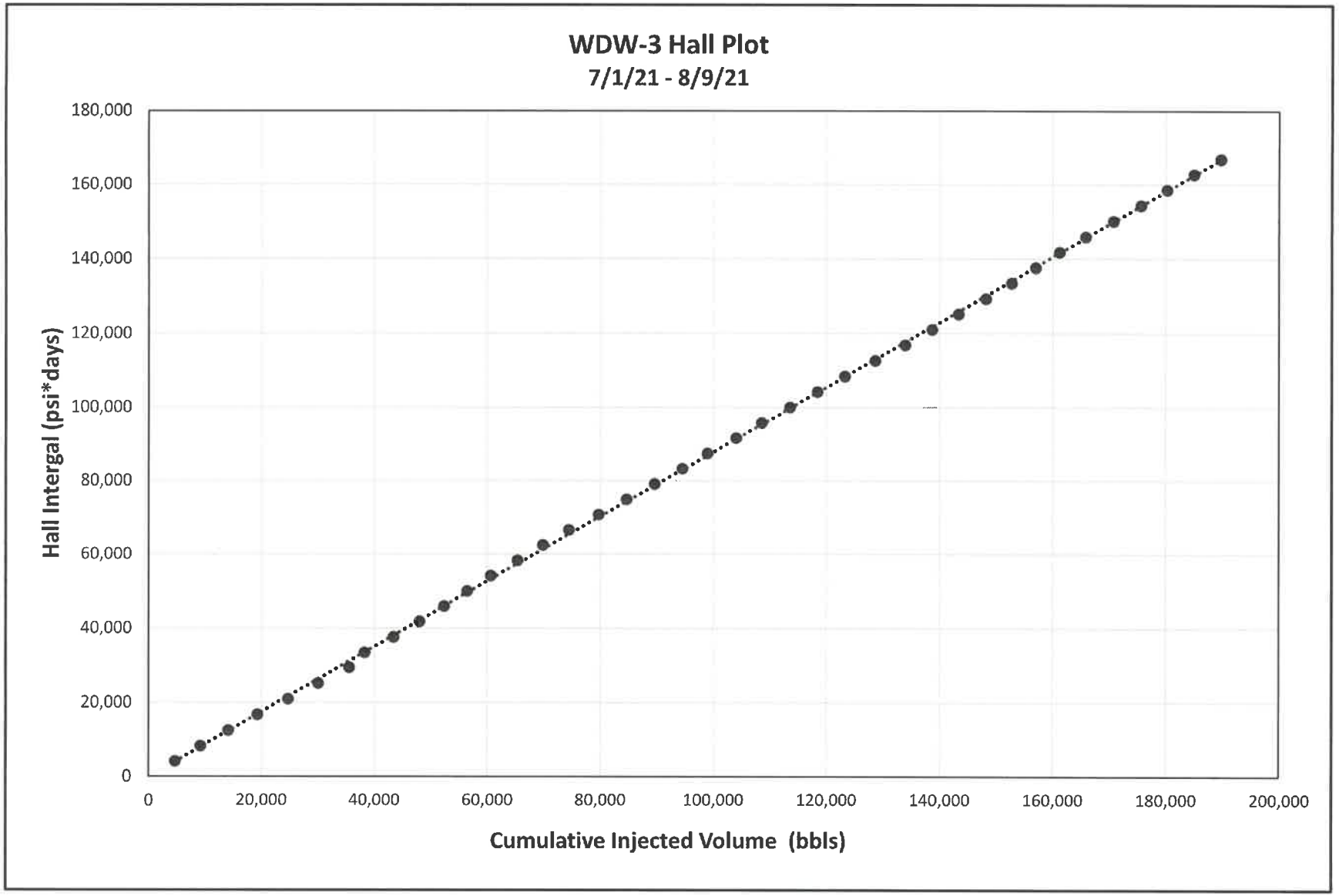
Petrotek



HOLLYFRONTIER

Figure 11
Daily Rate vs Time
2021 Well Testing

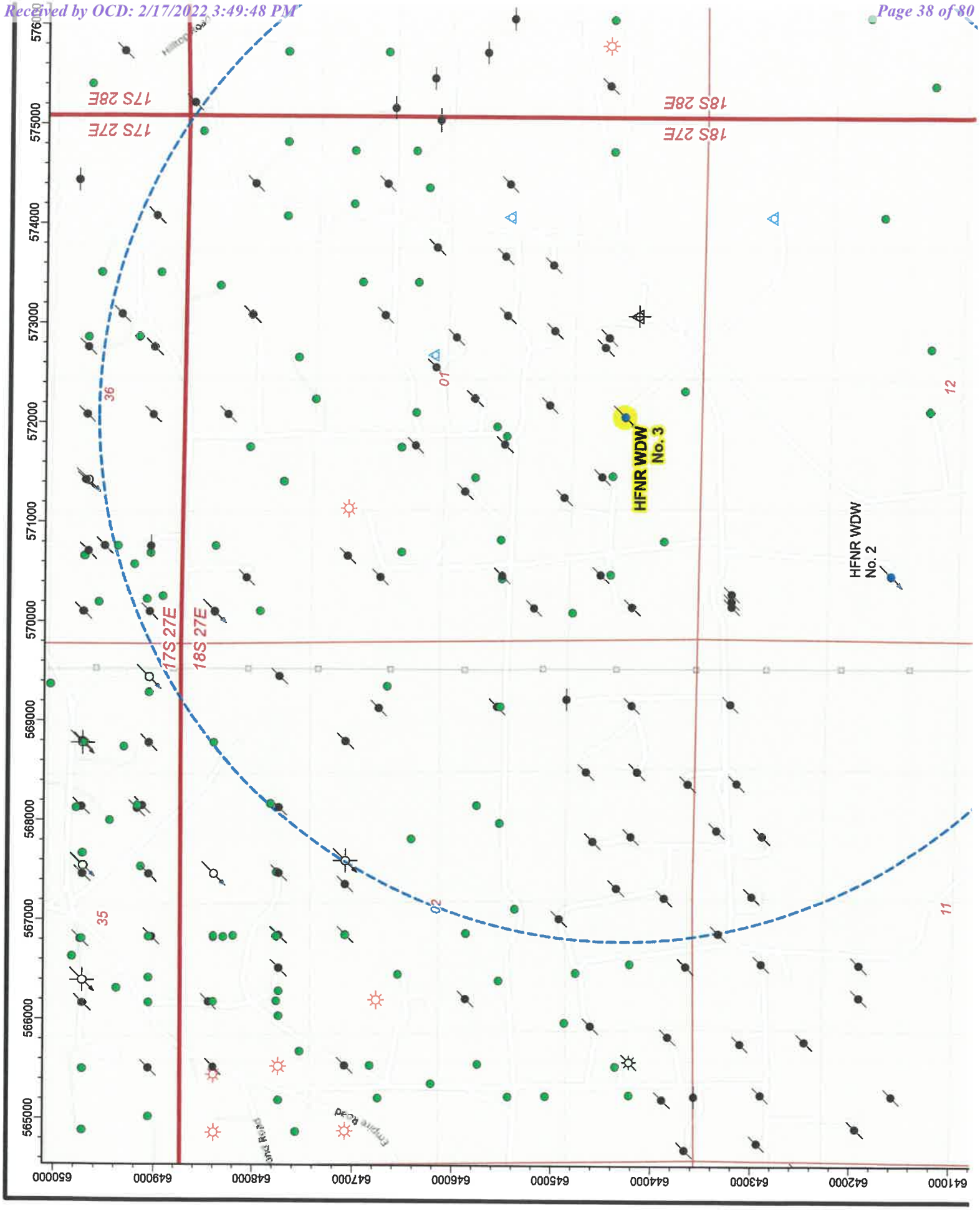
Petrotek



HOLLYFRONTIER

Figure 12
Hall Plot
2021 Well Testing

Petrotek


17S 28E
17S 27E
18S 28E
18S 27E
HFNR WDW No. 3
HFNR WDW No. 2
36
01
12
35
02
11
576000
575000
574000
573000
572000
571000
570000
569000
568000
567000
566000
565000
650000
649000
648000
647000
646000
645000
644000
643000
642000
641000

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 X☐ 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: UIC INJECTION WELL

8. Well Number WDW-3

2. Name of Operator
HOLLYFRONTIER NAVAJO REFINING LLC

9. OGRID Number 15694

3. Address of Operator
P.O. BOX 159, ARTESIA, NM 88211-0159

Pool name or Wildcat: 78890

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 FALL OFF 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.

Sept. 12, 2021; Day 1: Begin constant-rate injection 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
Sept 13, 2021; Day 2: Continue constant-rate injection into all 4 wells
Sep 14, 2021; 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
Sep 15, 2021; Day 4: WDW-3 will remain shut-in while collecting falloff pressure data using downhole memory gauges.
Sep 16, 2021; 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_Environmental Specialist___DATE_7/8/2021

Type or print name Lewis 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 07/09/2021

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 35669

COMMENTS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 35669
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

COMMENTS

Created By	Comment	Comment Date
cchavez	Fall-Off Test (FOT) is not regarded to be a MIT under the UIC Program. FOT Submittals are regarded to be non-Sundry and WQCC permit related into the admin. record.	7/9/2021

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 35669

CONDITIONS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 35669
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
cchavez	1) Follow approved FOT Plan Guidelines. 2) Notify OCD Artesia District Office Engineers of scheduled FOT Date and Time for communication purposes.	7/9/2021

Attachment 2
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 0-3000PSIG ITEM NO. 5095-2

TRUE VALUE	INDICATED VALUE	
PSIG	INCREASING READINGS	DECREASING READINGS
0.00	0	0
300.00	299.6	299.7
600.00	599.4	599.7
900.00	899.2	899.5
1200.00	1199.0	1199.4
1500.00	1498.9	1499.2
1800.00	1798.8	1799.0
2100.00	2098.5	2098.7
2400.00	2398.1	2398.3
2700.00	2698.0	2698.1
3000.00	2997.8	2997.8

Tested On: Deadweight Tester S/N# 1GA4474

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

Tested By: BMZ Date 22 Jan 2021

Remarks:

Fluke	700G29	SN 2643157
Accuracy is +/-	.25	% of Full Scale or Better
Test Conditions	68 °F;	619 mmHg Atm. Pressure

Attachment 3
Downhole Pressure Gauge Certification

Petrotek

DataCan Gauge Program Sheet

Gauge Information

Tool Model	:	Quartz Pressure Recorder 2 Million Samples
Serial Number	:	220992
Max. Calibration Pressure	:	16000 psi
Max. Calibration Temperature	:	175 DegC
Sample Capacity	:	2 000 000
Calibration Date	:	Wednesday, November 25, 2020

Program

Step	Sample Rate	Days	Hours	Minutes	Samples
1	1	0	0	1.08	65
2	5	0	2	0.00	1440
3	1	0	6	0.00	21600
4	5	10	0	0.00	172800

Summary

	Steps	Days	Hours	Minutes	Samples	Power Required
Total	4	10	8	1.08	195905	See Battery Calculator Ah

Overrun (for reference)

Overrun - 637 days 13 hours 51.5 minutes at 30 second sample rate

Date: Friday, July 23, 2021 04:57:58 PM Programmed By: FRANK

DataCan Gauge Program Sheet

Gauge Information

Tool Model	:	Quartz Pressure Recorder 2 Million Samples
Serial Number	:	224821
Max. Calibration Pressure	:	16000 psi
Max. Calibration Temperature	:	175 DegC
Sample Capacity	:	2 000 000
Calibration Date	:	Saturday, December 19, 2020

Program

Step	Sample Rate	Days	Hours	Minutes	Samples
1	1	0	0	1.08	65
2	5	0	2	0.00	1440
3	1	0	6	0.00	21600
4	5	10	0	0.00	172800

Summary

	Steps	Days	Hours	Minutes	Samples	Power Required
Total	4	10	8	1.08	195905	See Battery Calculator Ah

Overrun (for reference)

Overrun - 637 days 13 hours 51.5 minutes at 30 second sample rate

Date: Friday, July 23, 2021 04:55:32 PM Programmed By: FRANK

Attachment 4
FESCO Injection Falloff Test Report

Petrotek

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

FLOWING GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	08/10/2021
Well:	Navajo Refining 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-224821
	Tubing: 4.5" Set at 7568 ft (EOT)	Gauge Range:	15000 psi
	Casing: 7" Set at 9450 ft	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	961	104.26	961.70	0.00	0.0000	
1000	1000	1000		104.00	1369.11	407.41	0.4074	
2000	2000	1000		103.66	1781.01	411.90	0.4119	
3000	3000	1000		103.39	2195.17	414.16	0.4142	
4000	4000	1000		103.24	2610.03	414.86	0.4149	
5000	5000	1000		103.24	3025.43	415.40	0.4154	
6000	6000	1000		103.42	3442.98	417.55	0.4176	
7000	7000	1000		103.78	3861.06	418.08	0.4181	
7572	7572	572	962	104.05	4098.38	237.32	0.4149	

BHT at Test Depth:	104.05	°F	Oil Level:	Flowing	Previous BHP: U/A
Extrapolated BHP at Datum:	4334.04	psia	Water Level:	Flowing	BHP Change: U/A
BHP Gradient at Datum :	0.4149	psi/ft	Csg Press:	590 psig	

Remarks: MIRU slickline. RIH with 2.3" gauge ring. Cleared 7572 ft. POOH. RIH with electronic gauge making injecting gradient stops to 7572 ft. Continue injection for 1 hr. SI well for 44.8 hr falloff test. POOH making static gradient stops to surface. RDMO.

Certified: FESCO, Ltd. - Midland, TX

By: Michael Carnes
District Manager - (432) 332-3211

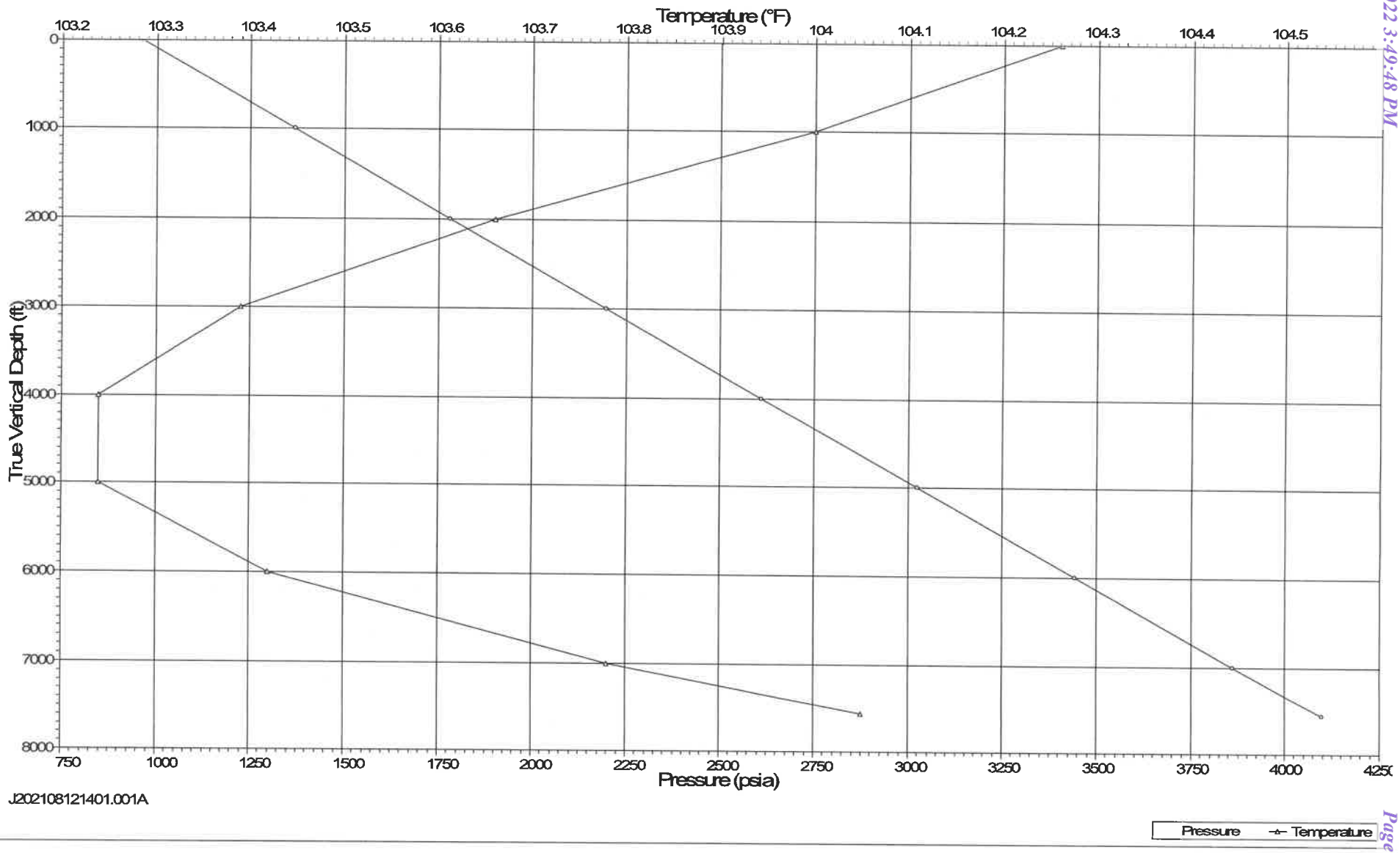
Job No.: J202108121401.001A

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 08/10/2021

Gauge Type: Electronic
Gauge Range: 15000 psi
Gauge SN: DC-224821

Flowing Gradient Plot



J202108121401.001A

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

STATIC GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	08/12/2021
Well:	Navajo Refining Waste Disposal Well No. 3	Location:	Eddy County, NM
Field:	Davonia	Status:	SI for 44.8 hrs
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2.5" EUE	Gauge Type:	Electronic
	Elevation: 15 ft above GL	Gauge SN:	DC-224821
	Tubing: 4.5" Set at 7568 ft (EOT)	Gauge Range:	15000 psi
	Casing: 7" Set at 9450 ft	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	682	81.60	685.37	0.00	0.0000	
1000	1000	1000		84.87	1119.68	434.31	0.4343	
2000	2000	1000		88.64	1553.73	434.05	0.4340	
3000	3000	1000		92.60	1988.51	434.78	0.4348	
4000	4000	1000		95.89	2423.59	435.08	0.4351	
5000	5000	1000		100.04	2858.92	435.33	0.4353	
6000	6000	1000		104.62	3294.07	435.15	0.4352	
7000	7000	1000		109.14	3729.32	435.25	0.4353	
7572	7572	572	682	110.71	3978.74	249.42	0.4360	

BHT at Test Depth:	110.71	°F	Oil Level: None	Previous BHP:	U/A
Extrapolated BHP at Datum:	4226.39	psia	Water Level: Surface	BHP Change:	U/A
BHP Gradient at Datum :	0.4360	psi/ft	Csg Press: 590 psig		

Remarks: POOH after 44.8 hr falloff test making static gradient stops to surface. RDMO.

Certified: FESCO, Ltd. - Midland, TX

By: Michael Carnes
District Manager - (432) 332-3211

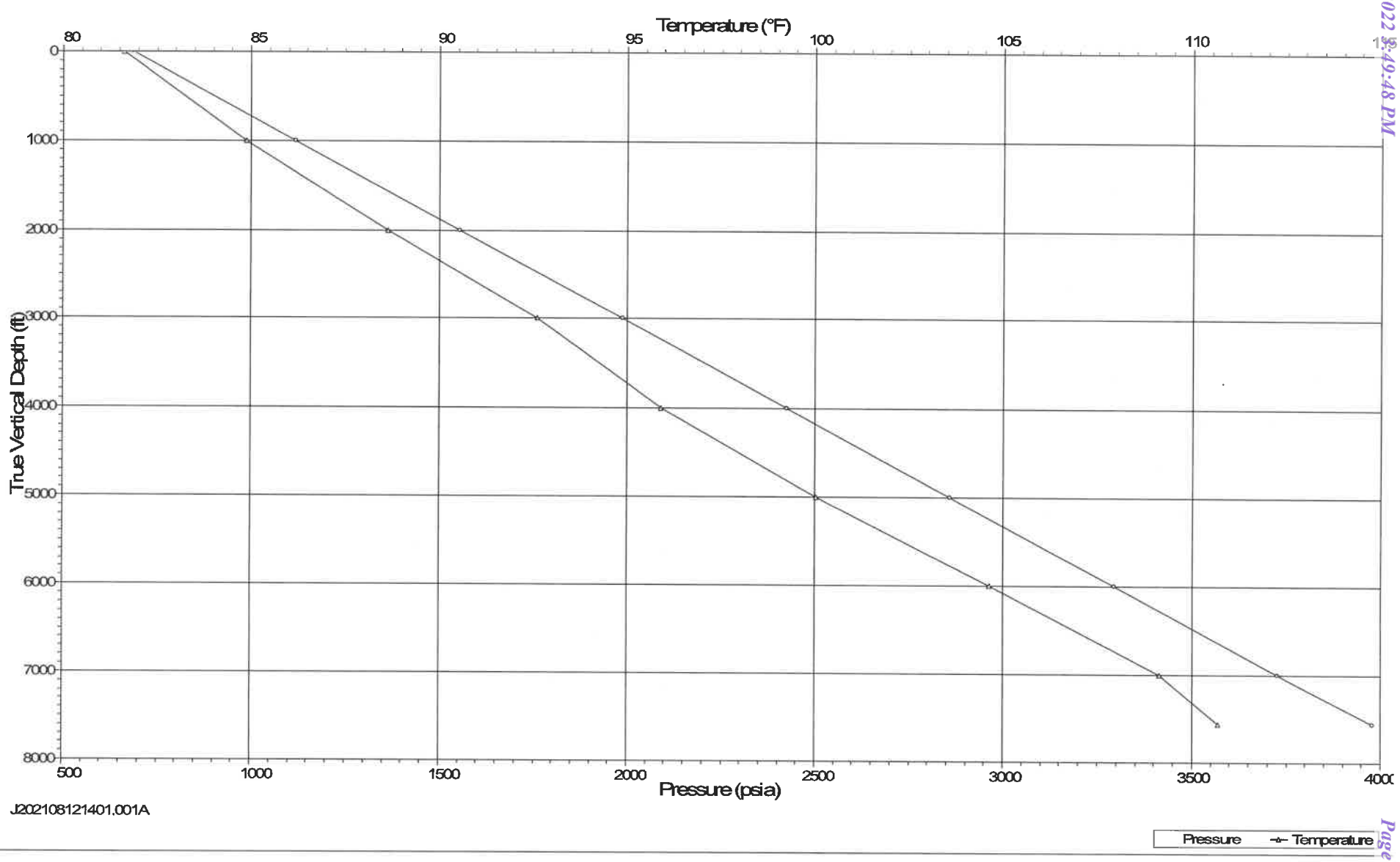
Job No.: J202108121401.001A

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 08/12/2021

Gauge Type: Electronic
Gauge Range: 15000 psi
Gauge SN: DC-224821

Static Gradient Plot



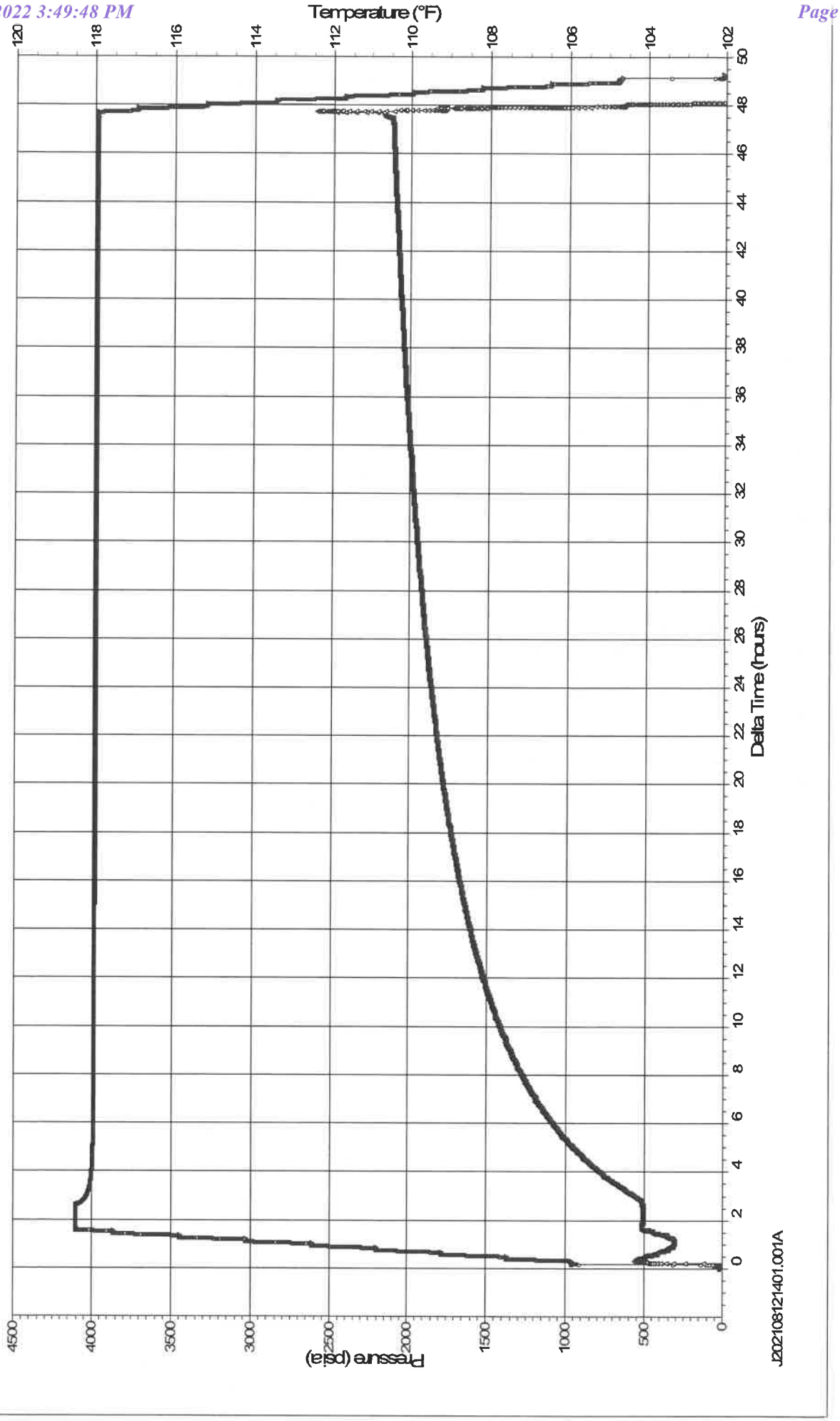
J202108121401.001A

Cartesian Plot

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 08/12 - 08/14/2021

Gauge Type: Electronic
Gauge Range: 15000 psi
Gauge SN: DC-224821

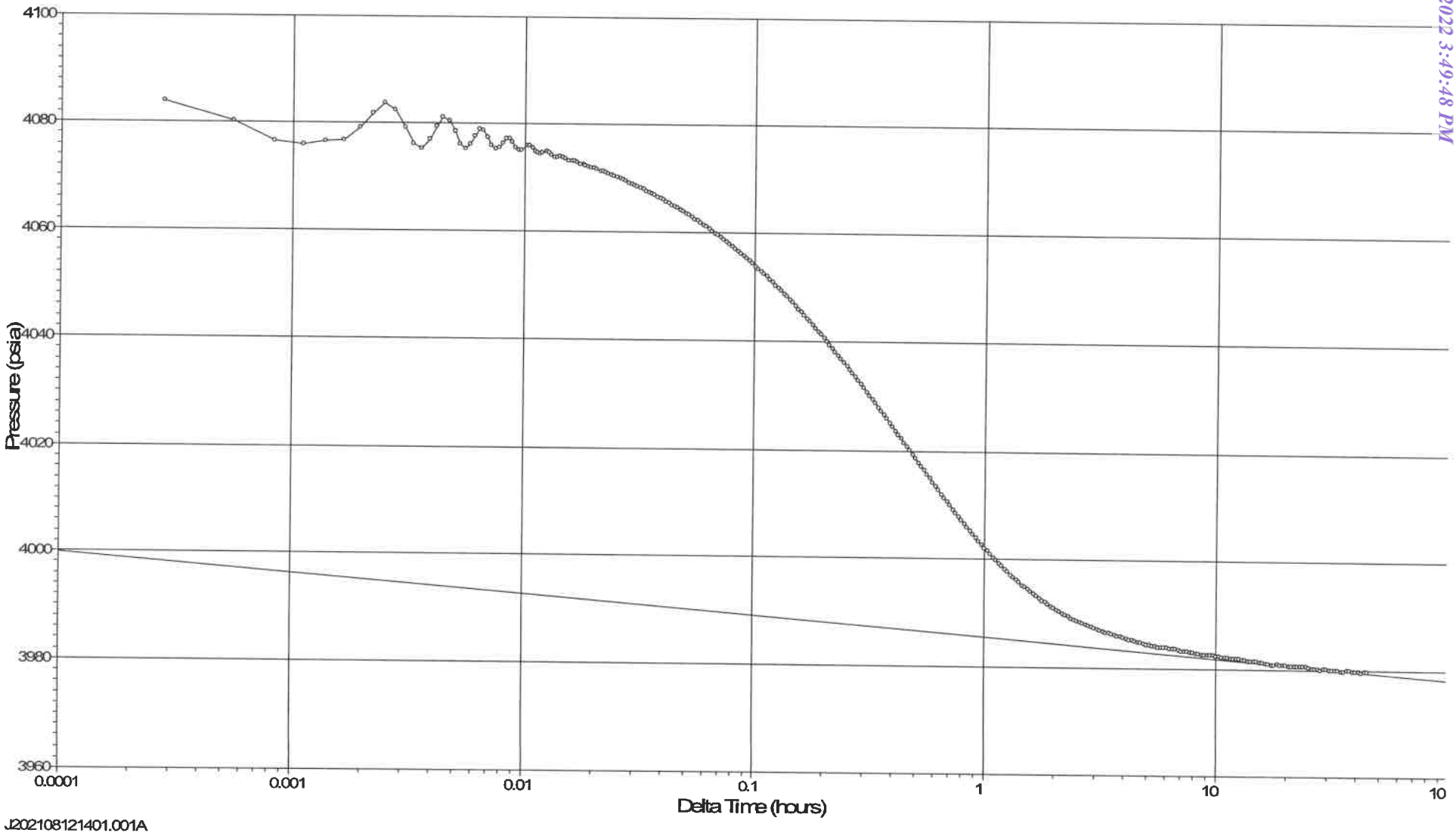


Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 08/10 - 08/12/2021

Gauge Type: Electronic
Gauge Range: 15000 psi
Gauge SN: DC-224821

Semilog Plot (Falloff Test)



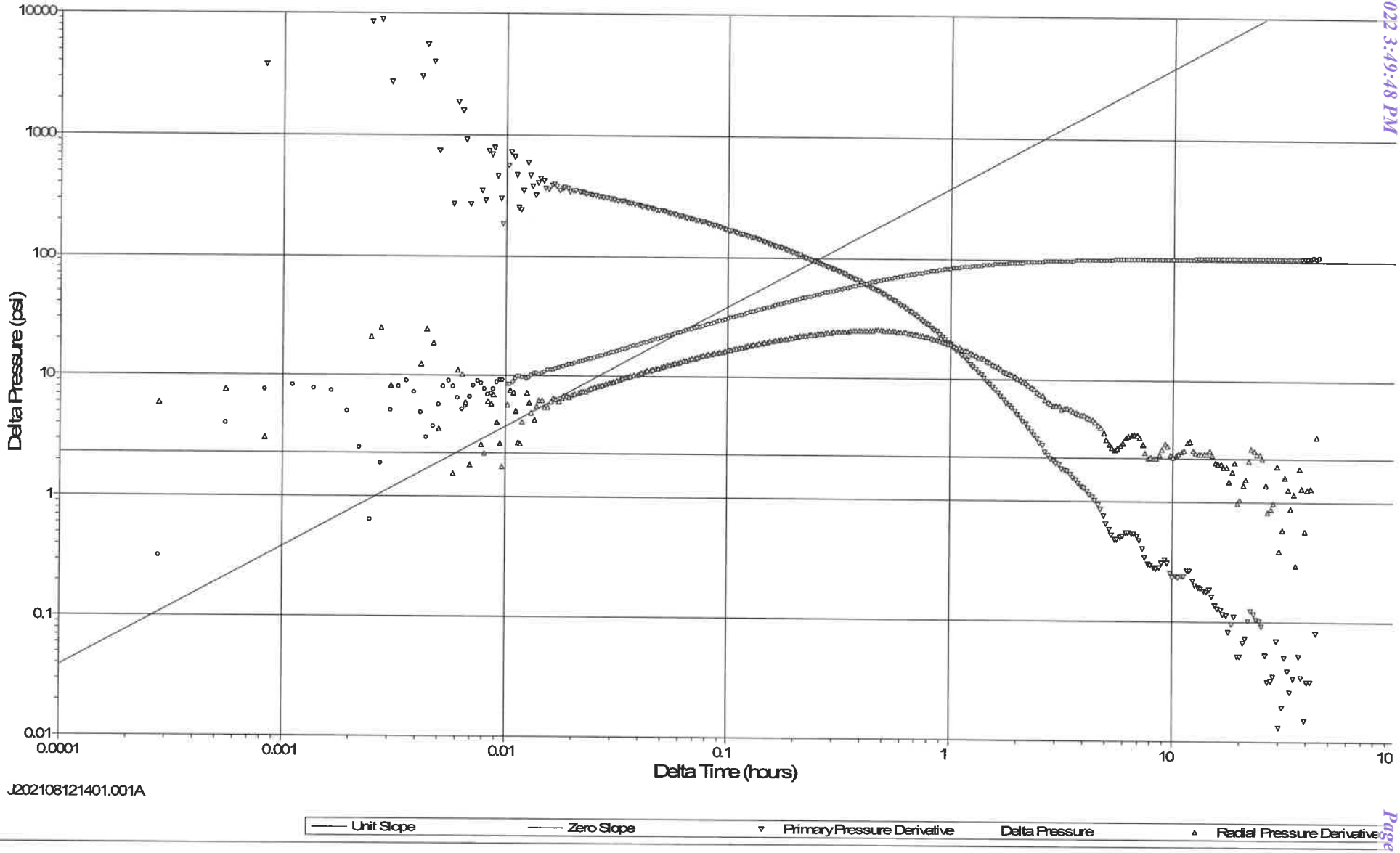
J202108121401.001A

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 08/10 - 08/12/2021

Gauge Type: Electronic
Gauge Range: 15000 psi
Gauge SN: DC-224821

Log Plot (Falloff Test)



FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	08:16:56	-2.67167		12.83		65.48	Powered up gauge.
08/10/21	08:20:00	-2.62056		12.04		68.28	
08/10/21	08:25:00	-2.53722		14.92		76.15	
08/10/21	08:26:00	-2.52056		95.44		89.72	
08/10/21	08:26:20	-2.51500		949.84		92.92	Pressured up lubricator.
08/10/21	08:27:00	-2.50389		958.91		94.27	
08/10/21	08:28:00	-2.48722		959.34		92.88	
08/10/21	08:29:00	-2.47056		959.41		90.79	
08/10/21	08:30:00	-2.45389		929.15		94.79	
08/10/21	08:31:00	-2.43722		960.92		103.86	
08/10/21	08:32:00	-2.42056		961.86		104.11	
08/10/21	08:33:00	-2.40389		961.27		104.20	
08/10/21	08:34:00	-2.38722		961.16		104.23	
08/10/21	08:35:00	-2.37056		960.98		104.25	
08/10/21	08:36:00	-2.35389		962.22		104.26	
08/10/21	08:36:15	-2.34972		961.39		104.26	Casing Pressure = 590 psig.
08/10/21	08:36:20	-2.34833	961	961.70		104.26	RIH making injecting gradient stops.
08/10/21	08:37:00	-2.33722		999.16		104.06	
08/10/21	08:38:00	-2.32056		1076.96		104.23	
08/10/21	08:39:00	-2.30389		1155.26		104.22	
08/10/21	08:40:00	-2.28722		1234.52		104.16	
08/10/21	08:41:00	-2.27056		1313.65		104.06	
08/10/21	08:41:45	-2.25806		1368.60		104.00	Arrived at 1000 ft stop.
08/10/21	08:42:00	-2.25389		1369.63		103.99	
08/10/21	08:43:00	-2.23722		1369.28		103.99	
08/10/21	08:44:00	-2.22056		1369.06		103.98	
08/10/21	08:45:00	-2.20389		1369.40		103.99	
08/10/21	08:46:00	-2.18722		1369.45		103.99	
08/10/21	08:46:50	-2.17333		1369.11		104.00	Left 1000 ft stop.
08/10/21	08:47:00	-2.17056		1375.44		104.00	
08/10/21	08:48:00	-2.15389		1449.81		103.94	
08/10/21	08:49:00	-2.13722		1527.20		103.88	
08/10/21	08:50:00	-2.12056		1604.69		103.81	
08/10/21	08:51:00	-2.10389		1682.37		103.75	
08/10/21	08:52:00	-2.08722		1760.76		103.70	
08/10/21	08:52:25	-2.08028		1781.61		103.67	Arrived at 2000 ft stop.
08/10/21	08:53:00	-2.07056		1781.34		103.66	
08/10/21	08:54:00	-2.05389		1781.43		103.66	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	08:55:00	-2.03722		1781.50		103.66	
08/10/21	08:56:00	-2.02056		1781.50		103.66	
08/10/21	08:57:00	-2.00389		1781.24		103.66	
08/10/21	08:57:25	-1.99694		1781.01		103.66	Left 2000 ft stop.
08/10/21	08:58:00	-1.98722		1822.40		103.64	
08/10/21	08:59:00	-1.97056		1901.64		103.59	
08/10/21	09:00:00	-1.95389		1981.48		103.54	
08/10/21	09:01:00	-1.93722		2061.07		103.50	
08/10/21	09:02:00	-1.92056		2140.70		103.45	
08/10/21	09:02:50	-1.90667		2195.05		103.41	Arrived at 3000 ft stop.
08/10/21	09:03:00	-1.90389		2195.34		103.41	
08/10/21	09:04:00	-1.88722		2195.25		103.40	
08/10/21	09:05:00	-1.87056		2195.10		103.40	
08/10/21	09:06:00	-1.85389		2195.33		103.40	
08/10/21	09:07:00	-1.83722		2195.26		103.39	
08/10/21	09:07:50	-1.82333		2195.17		103.39	Left 3000 ft stop.
08/10/21	09:08:00	-1.82056		2201.02		103.39	
08/10/21	09:09:00	-1.80389		2277.20		103.36	
08/10/21	09:10:00	-1.78722		2352.88		103.32	
08/10/21	09:11:00	-1.77056		2428.03		103.29	
08/10/21	09:12:00	-1.75389		2503.41		103.27	
08/10/21	09:13:00	-1.73722		2579.48		103.25	
08/10/21	09:13:30	-1.72889		2610.31		103.24	Arrived at 4000 ft stop.
08/10/21	09:14:00	-1.72056		2610.25		103.24	
08/10/21	09:15:00	-1.70389		2610.16		103.24	
08/10/21	09:16:00	-1.68722		2610.18		103.24	
08/10/21	09:17:00	-1.67056		2610.08		103.24	
08/10/21	09:18:00	-1.65389		2610.07		103.24	
08/10/21	09:18:30	-1.64556		2610.03		103.24	Left 4000 ft stop.
08/10/21	09:19:00	-1.63722		2646.23		103.24	
08/10/21	09:20:00	-1.62056		2732.70		103.23	
08/10/21	09:21:00	-1.60389		2819.15		103.22	
08/10/21	09:22:00	-1.58722		2906.31		103.22	
08/10/21	09:23:00	-1.57056		2992.07		103.23	
08/10/21	09:23:30	-1.56222		3025.69		103.24	Arrived at 5000 ft stop.
08/10/21	09:24:00	-1.55389		3025.59		103.24	
08/10/21	09:25:00	-1.53722		3025.58		103.24	
08/10/21	09:26:00	-1.52056		3025.66		103.24	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	09:27:00	-1.50389		3025.58		103.24	
08/10/21	09:28:00	-1.48722		3025.62		103.24	
08/10/21	09:28:25	-1.48028		3025.43		103.24	Left 5000 ft stop.
08/10/21	09:29:00	-1.47056		3064.37		103.24	
08/10/21	09:30:00	-1.45389		3152.09		103.27	
08/10/21	09:31:00	-1.43722		3240.29		103.30	
08/10/21	09:32:00	-1.42056		3327.48		103.34	
08/10/21	09:33:00	-1.40389		3415.66		103.39	
08/10/21	09:33:25	-1.39694		3443.25		103.41	Arrived at 6000 ft stop.
08/10/21	09:34:00	-1.38722		3443.21		103.42	
08/10/21	09:35:00	-1.37056		3443.22		103.42	
08/10/21	09:36:00	-1.35389		3443.18		103.42	
08/10/21	09:37:00	-1.33722		3443.16		103.42	
08/10/21	09:38:00	-1.32056		3443.05		103.42	
08/10/21	09:38:25	-1.31361		3442.98		103.42	Left 6000 ft stop.
08/10/21	09:39:00	-1.30389		3491.09		103.44	
08/10/21	09:40:00	-1.28722		3571.90		103.49	
08/10/21	09:41:00	-1.27056		3654.75		103.56	
08/10/21	09:42:00	-1.25389		3741.76		103.64	
08/10/21	09:43:00	-1.23722		3831.77		103.72	
08/10/21	09:43:25	-1.23028		3861.16		103.76	Arrived at 7000 ft stop.
08/10/21	09:44:00	-1.22056		3861.14		103.78	
08/10/21	09:45:00	-1.20389		3861.12		103.78	
08/10/21	09:46:00	-1.18722		3861.08		103.78	
08/10/21	09:47:00	-1.17056		3861.07		103.78	
08/10/21	09:48:00	-1.15389		3861.04		103.78	
08/10/21	09:48:20	-1.14833		3861.06		103.78	Left 7000 ft stop.
08/10/21	09:49:00	-1.13722		3905.33		103.80	
08/10/21	09:50:00	-1.12056		3993.99		103.89	
08/10/21	09:51:00	-1.10389		4078.73		103.98	
08/10/21	09:51:25	-1.09694	962	4099.17		104.02	Arrived at 7572 ft stop.
08/10/21	09:52:00	-1.08722		4099.07		104.05	
08/10/21	09:53:00	-1.07056		4098.77		104.05	
08/10/21	09:54:00	-1.05389		4098.60		104.05	
08/10/21	09:55:00	-1.03722		4098.52		104.05	
08/10/21	09:56:00	-1.02056		4098.44		104.05	
08/10/21	09:56:30	-1.01222	962	4098.38		104.05	7572 ft stop.
08/10/21	09:57:00	-1.00389		4098.36		104.05	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	09:58:00	-0.98722		4098.30		104.05	
08/10/21	09:59:00	-0.97056		4098.28		104.05	
08/10/21	10:00:00	-0.95389		4098.23		104.05	
08/10/21	10:05:00	-0.87056		4098.04		104.05	
08/10/21	10:10:00	-0.78722		4097.92		104.04	
08/10/21	10:15:00	-0.70389		4097.77		104.04	
08/10/21	10:20:00	-0.62056		4097.73		104.04	
08/10/21	10:25:00	-0.53722		4097.60		104.04	
08/10/21	10:30:00	-0.45389		4097.51		104.04	
08/10/21	10:35:00	-0.37056		4097.51		104.04	
08/10/21	10:40:00	-0.28722		4097.46		104.04	
08/10/21	10:45:00	-0.20389		4097.44		104.04	
08/10/21	10:50:00	-0.12056		4097.41		104.04	
08/10/21	10:52:23	-0.08083		4097.36		104.05	Reduced water injection rate.
08/10/21	10:53:00	-0.07056		4095.32		104.04	
08/10/21	10:54:00	-0.05389		4094.05		104.04	
08/10/21	10:55:00	-0.03722		4092.62		104.05	
08/10/21	10:56:00	-0.02056		4089.00		104.05	
08/10/21	10:57:00	-0.00389		4084.87		104.06	
08/10/21	10:57:12	-0.00056		4084.44		104.06	Water Injection Rate = Unavailable.
08/10/21	10:57:13	-0.00028		4084.41		104.06	Casing Pressure = 590 psig.
08/10/21	10:57:14	0.00000	962	4084.37	0.00	104.06	Shut in well for 44.8 hr falloff test.
08/10/21	10:57:15	0.00028		4084.05	-0.32	104.06	
08/10/21	10:57:16	0.00056		4080.31	-4.06	104.06	
08/10/21	10:57:17	0.00083		4076.69	-7.68	104.06	
08/10/21	10:57:18	0.00111		4076.05	-8.32	104.06	
08/10/21	10:57:19	0.00139		4076.58	-7.79	104.06	
08/10/21	10:57:20	0.00167		4076.93	-7.44	104.06	
08/10/21	10:57:21	0.00194		4079.24	-5.13	104.06	
08/10/21	10:57:22	0.00222		4081.82	-2.55	104.06	
08/10/21	10:57:23	0.00250		4083.73	-0.64	104.06	
08/10/21	10:57:24	0.00278		4082.45	-1.92	104.06	
08/10/21	10:57:25	0.00306		4079.15	-5.22	104.06	
08/10/21	10:57:26	0.00333		4076.23	-8.14	104.06	
08/10/21	10:57:27	0.00361		4075.28	-9.09	104.06	
08/10/21	10:57:28	0.00389		4076.98	-7.39	104.06	
08/10/21	10:57:29	0.00417		4079.39	-4.98	104.06	
08/10/21	10:57:30	0.00444		4081.26	-3.11	104.06	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	10:57:31	0.00472		4080.52	-3.85	104.07	
08/10/21	10:57:32	0.00500		4078.51	-5.86	104.07	
08/10/21	10:57:33	0.00528		4076.18	-8.19	104.07	
08/10/21	10:57:34	0.00556		4075.38	-8.99	104.07	
08/10/21	10:57:35	0.00583		4076.27	-8.10	104.07	
08/10/21	10:57:36	0.00611		4077.74	-6.63	104.07	
08/10/21	10:57:37	0.00639		4079.02	-5.35	104.07	
08/10/21	10:57:38	0.00667		4078.70	-5.67	104.07	
08/10/21	10:57:39	0.00694		4077.59	-6.78	104.07	
08/10/21	10:57:40	0.00722		4075.95	-8.42	104.07	
08/10/21	10:57:41	0.00750		4075.31	-9.06	104.07	
08/10/21	10:57:42	0.00778		4075.64	-8.73	104.07	
08/10/21	10:57:43	0.00806		4076.50	-7.87	104.07	
08/10/21	10:57:44	0.00833		4077.28	-7.09	104.07	
08/10/21	10:57:45	0.00861		4077.19	-7.18	104.07	
08/10/21	10:57:46	0.00889		4076.57	-7.80	104.07	
08/10/21	10:57:47	0.00917		4075.52	-8.85	104.07	
08/10/21	10:57:48	0.00944		4075.03	-9.34	104.07	
08/10/21	10:57:49	0.00972		4075.03	-9.34	104.07	
08/10/21	10:57:51	0.01028		4075.93	-8.44	104.07	
08/10/21	10:57:52	0.01056		4075.93	-8.44	104.07	
08/10/21	10:57:53	0.01083		4075.56	-8.81	104.07	
08/10/21	10:57:54	0.01111		4074.92	-9.45	104.07	
08/10/21	10:57:55	0.01139		4074.58	-9.79	104.07	
08/10/21	10:57:56	0.01167		4074.43	-9.94	104.07	
08/10/21	10:57:57	0.01194		4074.67	-9.70	104.07	
08/10/21	10:57:59	0.01250		4074.88	-9.49	104.07	
08/10/21	10:58:00	0.01278		4074.63	-9.74	104.07	
08/10/21	10:58:01	0.01306		4074.25	-10.12	104.07	
08/10/21	10:58:03	0.01361		4073.83	-10.54	104.07	
08/10/21	10:58:04	0.01389		4073.91	-10.46	104.07	
08/10/21	10:58:05	0.01417		4073.95	-10.42	104.07	
08/10/21	10:58:07	0.01472		4073.77	-10.60	104.07	
08/10/21	10:58:08	0.01500		4073.55	-10.82	104.07	
08/10/21	10:58:10	0.01556		4073.20	-11.17	104.07	
08/10/21	10:58:12	0.01611		4073.17	-11.20	104.07	
08/10/21	10:58:13	0.01639		4073.15	-11.22	104.07	
08/10/21	10:58:15	0.01694		4072.85	-11.52	104.07	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	10:58:17	0.01750		4072.57	-11.80	104.07	
08/10/21	10:58:19	0.01806		4072.45	-11.92	104.07	
08/10/21	10:58:20	0.01833		4072.41	-11.96	104.07	
08/10/21	10:58:22	0.01889		4072.17	-12.20	104.07	
08/10/21	10:58:24	0.01944		4071.93	-12.44	104.07	
08/10/21	10:58:26	0.02000		4071.78	-12.59	104.07	
08/10/21	10:58:28	0.02056		4071.61	-12.76	104.07	
08/10/21	10:58:31	0.02139		4071.30	-13.07	104.07	
08/10/21	10:58:33	0.02194		4071.14	-13.23	104.07	
08/10/21	10:58:35	0.02250		4070.96	-13.41	104.07	
08/10/21	10:58:37	0.02306		4070.76	-13.61	104.07	
08/10/21	10:58:40	0.02389		4070.51	-13.86	104.07	
08/10/21	10:58:42	0.02444		4070.34	-14.03	104.07	
08/10/21	10:58:45	0.02528		4070.07	-14.30	104.07	
08/10/21	10:58:48	0.02611		4069.82	-14.55	104.07	
08/10/21	10:58:50	0.02667		4069.65	-14.72	104.07	
08/10/21	10:58:53	0.02750		4069.40	-14.97	104.07	
08/10/21	10:58:56	0.02833		4069.16	-15.21	104.07	
08/10/21	10:58:59	0.02917		4068.91	-15.46	104.07	
08/10/21	10:59:02	0.03000		4068.67	-15.70	104.07	
08/10/21	10:59:05	0.03083		4068.43	-15.94	104.07	
08/10/21	10:59:08	0.03167		4068.19	-16.18	104.07	
08/10/21	10:59:12	0.03278		4067.88	-16.49	104.07	
08/10/21	10:59:15	0.03361		4067.65	-16.72	104.07	
08/10/21	10:59:19	0.03472		4067.34	-17.03	104.07	
08/10/21	10:59:22	0.03556		4067.12	-17.25	104.07	
08/10/21	10:59:26	0.03667		4066.82	-17.55	104.07	
08/10/21	10:59:30	0.03778		4066.53	-17.84	104.07	
08/10/21	10:59:34	0.03889		4066.24	-18.13	104.07	
08/10/21	10:59:38	0.04000		4065.95	-18.42	104.07	
08/10/21	10:59:42	0.04111		4065.66	-18.71	104.07	
08/10/21	10:59:46	0.04222		4065.39	-18.98	104.07	
08/10/21	10:59:51	0.04361		4065.04	-19.33	104.07	
08/10/21	10:59:55	0.04472		4064.77	-19.60	104.07	
08/10/21	11:00:00	0.04611		4064.43	-19.94	104.07	
08/10/21	11:00:05	0.04750		4064.10	-20.27	104.07	
08/10/21	11:00:10	0.04889		4063.77	-20.60	104.07	
08/10/21	11:00:15	0.05028		4063.45	-20.92	104.07	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	11:00:20	0.05167		4063.12	-21.25	104.07	
08/10/21	11:00:26	0.05333		4062.74	-21.63	104.07	
08/10/21	11:00:31	0.05472		4062.43	-21.94	104.07	
08/10/21	11:00:37	0.05639		4062.06	-22.31	104.07	
08/10/21	11:00:43	0.05806		4061.70	-22.67	104.07	
08/10/21	11:00:49	0.05972		4061.34	-23.03	104.07	
08/10/21	11:00:55	0.06139		4060.98	-23.39	104.07	
08/10/21	11:01:02	0.06333		4060.57	-23.80	104.08	
08/10/21	11:01:08	0.06500		4060.23	-24.14	104.08	
08/10/21	11:01:15	0.06694		4059.83	-24.54	104.08	
08/10/21	11:01:22	0.06889		4059.44	-24.93	104.08	
08/10/21	11:01:29	0.07083		4059.06	-25.31	104.08	
08/10/21	11:01:37	0.07306		4058.62	-25.75	104.08	
08/10/21	11:01:44	0.07500		4058.25	-26.12	104.08	
08/10/21	11:01:52	0.07722		4057.83	-26.54	104.08	
08/10/21	11:02:00	0.07944		4057.41	-26.96	104.08	
08/10/21	11:02:09	0.08194		4056.95	-27.42	104.08	
08/10/21	11:02:17	0.08417		4056.55	-27.82	104.08	
08/10/21	11:02:26	0.08667		4056.09	-28.28	104.08	
08/10/21	11:02:35	0.08917		4055.64	-28.73	104.08	
08/10/21	11:02:45	0.09194		4055.16	-29.21	104.08	
08/10/21	11:02:54	0.09444		4054.73	-29.64	104.08	
08/10/21	11:03:04	0.09722		4054.26	-30.11	104.09	
08/10/21	11:03:15	0.10028		4053.76	-30.61	104.09	
08/10/21	11:03:25	0.10306		4053.31	-31.06	104.09	
08/10/21	11:03:36	0.10611		4052.81	-31.56	104.10	
08/10/21	11:03:47	0.10917		4052.33	-32.04	104.10	
08/10/21	11:03:58	0.11222		4051.86	-32.51	104.11	
08/10/21	11:04:10	0.11556		4051.36	-33.01	104.11	
08/10/21	11:04:22	0.11889		4050.86	-33.51	104.11	
08/10/21	11:04:35	0.12250		4050.33	-34.04	104.11	
08/10/21	11:04:48	0.12611		4049.80	-34.57	104.11	
08/10/21	11:05:01	0.12972		4049.29	-35.08	104.12	
08/10/21	11:05:15	0.13361		4048.75	-35.62	104.12	
08/10/21	11:05:29	0.13750		4048.22	-36.15	104.12	
08/10/21	11:05:43	0.14139		4047.69	-36.68	104.12	
08/10/21	11:05:58	0.14556		4047.13	-37.24	104.12	
08/10/21	11:06:13	0.14972		4046.58	-37.79	104.12	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	11:06:29	0.15417		4046.01	-38.36	104.13	
08/10/21	11:06:45	0.15861		4045.44	-38.93	104.13	
08/10/21	11:07:02	0.16333		4044.86	-39.51	104.14	
08/10/21	11:07:19	0.16806		4044.28	-40.09	104.14	
08/10/21	11:07:37	0.17306		4043.69	-40.68	104.14	
08/10/21	11:07:55	0.17806		4043.10	-41.27	104.15	
08/10/21	11:08:13	0.18306		4042.53	-41.84	104.15	
08/10/21	11:08:33	0.18861		4041.90	-42.47	104.16	
08/10/21	11:08:52	0.19389		4041.32	-43.05	104.16	
08/10/21	11:09:13	0.19972		4040.69	-43.68	104.17	
08/10/21	11:09:34	0.20556		4040.07	-44.30	104.17	
08/10/21	11:09:55	0.21139		4039.46	-44.91	104.17	
08/10/21	11:10:18	0.21778		4038.80	-45.57	104.18	
08/10/21	11:10:40	0.22389		4038.19	-46.18	104.18	
08/10/21	11:11:04	0.23056		4037.53	-46.84	104.19	
08/10/21	11:11:28	0.23722		4036.90	-47.47	104.19	
08/10/21	11:11:53	0.24417		4036.24	-48.13	104.20	
08/10/21	11:12:19	0.25139		4035.56	-48.81	104.21	
08/10/21	11:12:45	0.25861		4034.90	-49.47	104.22	
08/10/21	11:13:12	0.26611		4034.24	-50.13	104.23	
08/10/21	11:13:40	0.27389		4033.57	-50.80	104.24	
08/10/21	11:14:09	0.28194		4032.89	-51.48	104.25	
08/10/21	11:14:39	0.29028		4032.21	-52.16	104.25	
08/10/21	11:15:09	0.29861		4031.53	-52.84	104.26	
08/10/21	11:15:41	0.30750		4030.82	-53.55	104.27	
08/10/21	11:16:13	0.31639		4030.14	-54.23	104.28	
08/10/21	11:16:46	0.32556		4029.45	-54.92	104.29	
08/10/21	11:17:20	0.33500		4028.74	-55.63	104.30	
08/10/21	11:17:56	0.34500		4028.02	-56.35	104.31	
08/10/21	11:18:32	0.35500		4027.32	-57.05	104.32	
08/10/21	11:19:09	0.36528		4026.59	-57.78	104.33	
08/10/21	11:19:48	0.37611		4025.89	-58.48	104.34	
08/10/21	11:20:27	0.38694		4025.17	-59.20	104.35	
08/10/21	11:21:08	0.39833		4024.43	-59.94	104.36	
08/10/21	11:21:50	0.41000		4023.71	-60.66	104.37	
08/10/21	11:22:33	0.42194		4022.99	-61.38	104.37	
08/10/21	11:23:17	0.43417		4022.25	-62.12	104.39	
08/10/21	11:24:03	0.44694		4021.51	-62.86	104.42	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	11:24:50	0.46000		4020.79	-63.58	104.44	
08/10/21	11:25:38	0.47333		4020.07	-64.30	104.45	
08/10/21	11:26:28	0.48722		4019.33	-65.04	104.45	
08/10/21	11:27:19	0.50139		4018.60	-65.77	104.47	
08/10/21	11:28:11	0.51583		4017.87	-66.50	104.48	
08/10/21	11:29:06	0.53111		4017.12	-67.25	104.50	
08/10/21	11:30:01	0.54639		4016.40	-67.97	104.50	
08/10/21	11:30:59	0.56250		4015.66	-68.71	104.51	
08/10/21	11:31:58	0.57889		4014.93	-69.44	104.52	
08/10/21	11:32:59	0.59583		4014.20	-70.17	104.53	
08/10/21	11:34:02	0.61333		4013.48	-70.89	104.55	
08/10/21	11:35:06	0.63111		4012.76	-71.61	104.56	
08/10/21	11:36:12	0.64944		4012.02	-72.35	104.61	
08/10/21	11:37:21	0.66861		4011.33	-73.04	104.63	
08/10/21	11:38:31	0.68806		4010.62	-73.75	104.63	
08/10/21	11:39:43	0.70806		4009.91	-74.46	104.64	
08/10/21	11:40:58	0.72889		4009.21	-75.16	104.66	
08/10/21	11:42:14	0.75000		4008.53	-75.84	104.68	
08/10/21	11:43:33	0.77194		4007.84	-76.53	104.70	
08/10/21	11:44:54	0.79444		4007.17	-77.20	104.72	
08/10/21	11:46:18	0.81778		4006.48	-77.89	104.74	
08/10/21	11:47:44	0.84167		4005.82	-78.55	104.78	
08/10/21	11:49:12	0.86611		4005.18	-79.19	104.80	
08/10/21	11:50:43	0.89139		4004.53	-79.84	104.82	
08/10/21	11:52:17	0.91750		4003.90	-80.47	104.85	
08/10/21	11:53:53	0.94417		4003.27	-81.10	104.87	
08/10/21	11:55:32	0.97167		4002.64	-81.73	104.90	
08/10/21	11:57:15	1.00028		4002.04	-82.33	104.92	
08/10/21	11:59:00	1.02944		4001.44	-82.93	104.94	
08/10/21	12:00:48	1.05944		4000.83	-83.54	104.96	
08/10/21	12:02:39	1.09028		4000.29	-84.08	105.02	
08/10/21	12:04:34	1.12222		3999.72	-84.65	105.04	
08/10/21	12:06:32	1.15500		3999.18	-85.19	105.05	
08/10/21	12:08:33	1.18861		3998.64	-85.73	105.07	
08/10/21	12:10:38	1.22333		3998.08	-86.29	105.09	
08/10/21	12:12:47	1.25917		3997.58	-86.79	105.12	
08/10/21	12:14:59	1.29583		3997.08	-87.29	105.13	
08/10/21	12:17:15	1.33361		3996.58	-87.79	105.19	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	12:19:35	1.37250		3996.10	-88.27	105.21	
08/10/21	12:22:00	1.41278		3995.65	-88.72	105.24	
08/10/21	12:24:28	1.45389		3995.16	-89.21	105.26	
08/10/21	12:27:01	1.49639		3994.73	-89.64	105.31	
08/10/21	12:29:38	1.54000		3994.31	-90.06	105.33	
08/10/21	12:32:20	1.58500		3993.88	-90.49	105.35	
08/10/21	12:35:07	1.63139		3993.48	-90.89	105.40	
08/10/21	12:37:58	1.67889		3993.05	-91.32	105.41	
08/10/21	12:40:55	1.72806		3992.67	-91.70	105.46	
08/10/21	12:43:56	1.77833		3992.29	-92.08	105.50	
08/10/21	12:47:03	1.83028		3991.93	-92.44	105.55	
08/10/21	12:50:16	1.88389		3991.59	-92.78	105.55	
08/10/21	12:53:34	1.93889		3991.23	-93.14	105.57	
08/10/21	12:56:57	1.99528		3990.89	-93.48	105.62	
08/10/21	13:00:27	2.05361		3990.58	-93.79	105.65	
08/10/21	13:04:03	2.11361		3990.28	-94.09	105.71	
08/10/21	13:07:45	2.17528		3989.95	-94.42	105.72	
08/10/21	13:11:34	2.23889		3989.65	-94.72	105.78	
08/10/21	13:15:29	2.30417		3989.36	-95.01	105.83	
08/10/21	13:19:31	2.37139		3989.08	-95.29	105.86	
08/10/21	13:23:41	2.44083		3988.81	-95.56	105.90	
08/10/21	13:27:57	2.51194		3988.55	-95.82	105.95	
08/10/21	13:32:21	2.58528		3988.32	-96.05	105.97	
08/10/21	13:36:53	2.66083		3988.04	-96.33	106.01	
08/10/21	13:41:33	2.73861		3987.82	-96.55	106.08	
08/10/21	13:46:21	2.81861		3987.60	-96.77	106.12	
08/10/21	13:51:17	2.90083		3987.39	-96.98	106.15	
08/10/21	13:56:22	2.98556		3987.20	-97.17	106.19	
08/10/21	14:01:36	3.07278		3987.03	-97.34	106.23	
08/10/21	14:06:59	3.16250		3986.81	-97.56	106.26	
08/10/21	14:12:31	3.25472		3986.67	-97.70	106.31	
08/10/21	14:18:13	3.34972		3986.50	-97.87	106.36	
08/10/21	14:24:05	3.44750		3986.32	-98.05	106.39	
08/10/21	14:30:08	3.54833		3986.15	-98.22	106.46	
08/10/21	14:36:21	3.65194		3985.97	-98.40	106.49	
08/10/21	14:42:45	3.75861		3985.80	-98.57	106.56	
08/10/21	14:49:20	3.86833		3985.65	-98.72	106.59	
08/10/21	14:56:06	3.98111		3985.50	-98.87	106.64	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	15:03:05	4.09750		3985.32	-99.05	106.69	
08/10/21	15:10:16	4.21722		3985.18	-99.19	106.75	
08/10/21	15:17:39	4.34028		3985.04	-99.33	106.77	
08/10/21	15:25:15	4.46694		3984.89	-99.48	106.83	
08/10/21	15:33:05	4.59750		3984.74	-99.63	106.88	
08/10/21	15:41:08	4.73167		3984.63	-99.74	106.93	
08/10/21	15:49:25	4.86972		3984.47	-99.90	106.98	
08/10/21	15:57:57	5.01194		3984.34	-100.03	107.02	
08/10/21	16:06:44	5.15833		3984.22	-100.15	107.06	
08/10/21	16:15:46	5.30889		3984.10	-100.27	107.12	
08/10/21	16:25:05	5.46417		3983.99	-100.38	107.17	
08/10/21	16:34:40	5.62389		3983.89	-100.48	107.23	
08/10/21	16:44:30	5.78778		3983.82	-100.55	107.27	
08/10/21	16:54:40	5.95722		3983.75	-100.62	107.32	
08/10/21	17:05:05	6.13083		3983.71	-100.66	107.36	
08/10/21	17:15:50	6.31000		3983.64	-100.73	107.41	
08/10/21	17:26:55	6.49472		3983.56	-100.81	107.47	
08/10/21	17:38:15	6.68361		3983.48	-100.89	107.53	
08/10/21	17:50:00	6.87944		3983.37	-101.00	107.57	
08/10/21	18:02:05	7.08083		3983.26	-101.11	107.62	
08/10/21	18:14:25	7.28639		3983.16	-101.21	107.68	
08/10/21	18:27:15	7.50028		3983.05	-101.32	107.72	
08/10/21	18:40:20	7.71833		3982.96	-101.41	107.79	
08/10/21	18:53:50	7.94333		3982.87	-101.50	107.81	
08/10/21	19:07:45	8.17528		3982.77	-101.60	107.88	
08/10/21	19:22:05	8.41417		3982.68	-101.69	107.92	
08/10/21	19:36:50	8.66000		3982.60	-101.77	107.97	
08/10/21	19:52:00	8.91278		3982.58	-101.79	108.02	
08/10/21	20:07:40	9.17389		3982.56	-101.81	108.07	
08/10/21	20:23:45	9.44194		3982.52	-101.85	108.12	
08/10/21	20:40:15	9.71694		3982.42	-101.95	108.17	
08/10/21	20:57:15	10.00028		3982.33	-102.04	108.22	
08/10/21	21:14:50	10.29333		3982.24	-102.13	108.28	
08/10/21	21:32:50	10.59333		3982.13	-102.24	108.32	
08/10/21	21:51:25	10.90306		3982.05	-102.32	108.36	
08/10/21	22:10:30	11.22111		3981.97	-102.40	108.41	
08/10/21	22:30:10	11.54889		3981.96	-102.41	108.46	
08/10/21	22:50:25	11.88639		3981.95	-102.42	108.51	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/10/21	23:11:10	12.23222		3981.88	-102.49	108.55	
08/10/21	23:32:40	12.59056		3981.77	-102.60	108.61	
08/10/21	23:54:40	12.95722		3981.65	-102.72	108.65	
08/11/21	00:17:25	13.33639		3981.55	-102.82	108.70	
08/11/21	00:40:45	13.72528		3981.45	-102.92	108.74	
08/11/21	01:04:50	14.12667		3981.36	-103.01	108.78	
08/11/21	01:29:35	14.53917		3981.33	-103.04	108.83	
08/11/21	01:55:00	14.96278		3981.36	-103.01	108.88	
08/11/21	02:21:15	15.40028		3981.28	-103.09	108.94	
08/11/21	02:48:15	15.85028		3981.17	-103.20	108.98	
08/11/21	03:16:00	16.31278		3981.07	-103.30	109.03	
08/11/21	03:44:35	16.78917		3980.97	-103.40	109.08	
08/11/21	04:14:00	17.27944		3980.88	-103.49	109.12	
08/11/21	04:44:15	17.78361		3980.81	-103.56	109.17	
08/11/21	05:15:25	18.30306		3980.89	-103.48	109.21	
08/11/21	05:47:30	18.83778		3980.88	-103.49	109.26	
08/11/21	06:20:30	19.38778		3980.78	-103.59	109.30	
08/11/21	06:54:25	19.95306		3980.68	-103.69	109.34	
08/11/21	07:29:25	20.53639		3980.60	-103.77	109.39	
08/11/21	08:05:20	21.13500		3980.51	-103.86	109.43	
08/11/21	08:42:25	21.75306		3980.54	-103.83	109.47	
08/11/21	09:20:30	22.38778		3980.56	-103.81	109.52	
08/11/21	09:59:45	23.04194		3980.48	-103.89	109.56	
08/11/21	10:40:05	23.71417		3980.61	-103.76	109.60	
08/11/21	11:21:40	24.40722		3980.50	-103.87	109.64	
08/11/21	12:04:25	25.11972		3980.35	-104.02	109.69	
08/11/21	12:48:25	25.85306		3980.23	-104.14	109.73	
08/11/21	13:33:45	26.60861		3980.12	-104.25	109.77	
08/11/21	14:20:20	27.38500		3980.02	-104.35	109.81	
08/11/21	15:08:20	28.18500		3979.96	-104.41	109.85	
08/11/21	15:57:40	29.00722		3980.13	-104.24	109.89	
08/11/21	16:48:30	29.85444		3980.02	-104.35	109.93	
08/11/21	17:40:50	30.72667		3979.91	-104.46	109.97	
08/11/21	18:34:40	31.62389		3979.98	-104.39	110.02	
08/11/21	19:30:05	32.54750		3979.98	-104.39	110.05	
08/11/21	20:27:05	33.49750		3979.87	-104.50	110.10	
08/11/21	21:25:45	34.47528		3979.79	-104.58	110.13	
08/11/21	22:26:10	35.48222		3979.75	-104.62	110.17	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/11/21	23:28:20	36.51833		3979.97	-104.40	110.21	
08/12/21	00:32:20	37.58500		3979.82	-104.55	110.25	
08/12/21	01:38:10	38.68222		3979.68	-104.69	110.29	
08/12/21	02:45:55	39.81139		3979.75	-104.62	110.33	
08/12/21	03:55:40	40.97389		3979.72	-104.65	110.37	
08/12/21	05:07:25	42.16972		3979.58	-104.79	110.40	
08/12/21	06:21:20	43.40167		3979.72	-104.65	110.44	
08/12/21	07:37:25	44.66972		3979.61	-104.76	110.48	
08/12/21	07:44:50	44.79333		3979.61	-104.76	110.48	Ended falloff test.
08/12/21	07:44:55	44.79472		3979.47		110.48	
08/12/21	07:45:00	44.79611		3978.93		110.48	
08/12/21	07:45:10	44.79889		3978.53		110.50	SIBHP stabilized.
08/12/21	07:46:00	44.81278		3978.73		110.58	
08/12/21	07:47:00	44.82944		3978.73		110.62	
08/12/21	07:48:00	44.84611		3978.74		110.64	
08/12/21	07:49:00	44.86278		3978.75		110.67	
08/12/21	07:50:00	44.87944		3978.75		110.68	
08/12/21	07:51:00	44.89611		3978.76		110.69	
08/12/21	07:52:00	44.91278		3978.76		110.70	
08/12/21	07:53:00	44.92944		3978.76		110.70	
08/12/21	07:54:00	44.94611		3978.76		110.70	
08/12/21	07:55:00	44.96278		3978.76		110.71	
08/12/21	07:56:00	44.97944		3978.76		110.71	
08/12/21	07:57:00	44.99611		3978.76		110.71	
08/12/21	07:58:00	45.01278		3978.76		110.71	
08/12/21	07:59:00	45.02944		3978.78		110.71	
08/12/21	07:59:15	45.03361	682	3978.74		110.71	POOH making static gradient stops.
08/12/21	08:00:00	45.04611		3946.08		112.09	
08/12/21	08:01:00	45.06278		3886.90		112.16	
08/12/21	08:02:00	45.07944		3818.06		111.78	
08/12/21	08:03:00	45.09611		3746.30		110.02	
08/12/21	08:03:20	45.10167		3730.64		109.48	Arrived at 7000 ft stop.
08/12/21	08:04:00	45.11278		3729.48		109.22	
08/12/21	08:05:00	45.12944		3729.29		109.18	
08/12/21	08:06:00	45.14611		3729.33		109.16	
08/12/21	08:07:00	45.16278		3729.32		109.15	
08/12/21	08:08:00	45.17944		3729.32		109.14	
08/12/21	08:08:20	45.18500		3729.32		109.14	Left 7000 ft stop.

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/12/21	08:09:00	45.19611		3679.99		109.23	
08/12/21	08:10:00	45.21278		3610.15		108.57	
08/12/21	08:11:00	45.22944		3527.93		107.95	
08/12/21	08:12:00	45.24611		3444.19		106.92	
08/12/21	08:13:00	45.26278		3361.35		106.16	
08/12/21	08:14:00	45.27944		3294.83		104.81	Arrived at 6000 ft stop.
08/12/21	08:15:00	45.29611		3294.10		104.66	
08/12/21	08:16:00	45.31278		3294.10		104.64	
08/12/21	08:17:00	45.32944		3294.09		104.63	
08/12/21	08:18:00	45.34611		3294.08		104.63	
08/12/21	08:19:00	45.36278		3294.07		104.62	Left 6000 ft stop.
08/12/21	08:20:00	45.37944		3226.39		104.31	
08/12/21	08:21:00	45.39611		3144.16		103.48	
08/12/21	08:22:00	45.41278		3060.62		102.61	
08/12/21	08:23:00	45.42944		2976.56		101.73	
08/12/21	08:24:00	45.44611		2893.22		100.76	
08/12/21	08:24:35	45.45583		2859.58		100.22	Arrived at 5000 ft stop.
08/12/21	08:25:00	45.46278		2859.04		100.10	
08/12/21	08:26:00	45.47944		2858.93		100.07	
08/12/21	08:27:00	45.49611		2858.91		100.06	
08/12/21	08:28:00	45.51278		2858.92		100.05	
08/12/21	08:29:00	45.52944		2858.92		100.04	
08/12/21	08:29:30	45.53778		2858.92		100.04	Left 5000 ft stop.
08/12/21	08:30:00	45.54611		2825.55		99.88	
08/12/21	08:31:00	45.56278		2742.55		98.95	
08/12/21	08:32:00	45.57944		2658.57		98.22	
08/12/21	08:33:00	45.59611		2575.13		97.54	
08/12/21	08:34:00	45.61278		2491.69		96.88	
08/12/21	08:35:00	45.62944		2424.03		96.04	Arrived at 4000 ft stop.
08/12/21	08:36:00	45.64611		2423.59		95.93	
08/12/21	08:37:00	45.66278		2423.59		95.92	
08/12/21	08:38:00	45.67944		2423.58		95.91	
08/12/21	08:39:00	45.69611		2423.59		95.90	
08/12/21	08:39:55	45.71139		2423.59		95.89	Left 4000 ft stop.
08/12/21	08:40:00	45.71278		2423.26		95.89	
08/12/21	08:41:00	45.72944		2343.48		95.41	
08/12/21	08:42:00	45.74611		2260.06		94.94	
08/12/21	08:43:00	45.76278		2175.56		94.18	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/12/21	08:44:00	45.77944		2090.29		93.58	
08/12/21	08:45:00	45.79611		2005.68		93.03	
08/12/21	08:45:20	45.80167		1989.04		92.77	Arrived at 3000 ft stop.
08/12/21	08:46:00	45.81278		1988.54		92.64	
08/12/21	08:47:00	45.82944		1988.52		92.62	
08/12/21	08:48:00	45.84611		1988.52		92.61	
08/12/21	08:49:00	45.86278		1988.52		92.61	
08/12/21	08:50:00	45.87944		1988.53		92.60	
08/12/21	08:50:15	45.88361		1988.51		92.60	Left 3000 ft stop.
08/12/21	08:51:00	45.89611		1932.62		92.33	
08/12/21	08:52:00	45.91278		1844.67		91.77	
08/12/21	08:53:00	45.92944		1758.37		90.51	
08/12/21	08:54:00	45.94611		1671.78		89.58	
08/12/21	08:55:00	45.96278		1583.14		88.98	
08/12/21	08:55:25	45.96972		1554.18		88.82	Arrived at 2000 ft stop.
08/12/21	08:56:00	45.97944		1553.76	-	88.69	
08/12/21	08:57:00	45.99611		1553.73		88.67	
08/12/21	08:58:00	46.01278		1553.73		88.66	
08/12/21	08:59:00	46.02944		1553.73		88.65	
08/12/21	09:00:00	46.04611		1553.74		88.64	
08/12/21	09:00:20	46.05167		1553.73		88.64	Left 2000 ft stop.
08/12/21	09:01:00	46.06278		1508.66		88.69	
08/12/21	09:02:00	46.07944		1424.74		87.97	
08/12/21	09:03:00	46.09611		1338.42		87.25	
08/12/21	09:04:00	46.11278		1248.92		86.59	
08/12/21	09:05:00	46.12944		1160.67		86.11	
08/12/21	09:05:30	46.13778		1120.34		85.13	Arrived at 1000 ft stop.
08/12/21	09:06:00	46.14611		1119.45		84.94	
08/12/21	09:07:00	46.16278		1119.67		84.91	
08/12/21	09:08:00	46.17944		1119.68		84.89	
08/12/21	09:09:00	46.19611		1119.69		84.88	
08/12/21	09:10:00	46.21278		1119.68		84.87	
08/12/21	09:10:30	46.22111		1119.68		84.87	Left 1000 ft stop.
08/12/21	09:11:00	46.22944		1078.55		84.81	
08/12/21	09:12:00	46.24611		990.66		85.53	
08/12/21	09:13:00	46.26278		909.52		83.77	
08/12/21	09:14:00	46.27944		804.62		81.71	
08/12/21	09:15:00	46.29611		720.36		84.42	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

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

Test Date: 08/10 - 08/12/2021
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: DC-224821
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
08/12/21	09:15:35	46.30583		688.04		82.61	Gauge at surface.
08/12/21	09:16:00	46.31278		686.12		81.89	
08/12/21	09:17:00	46.32944		685.39		81.62	
08/12/21	09:18:00	46.34611		685.43		81.58	
08/12/21	09:19:00	46.36278		685.32		81.58	
08/12/21	09:20:00	46.37944		685.39		81.58	
08/12/21	09:20:45	46.39194	682	685.37		81.60	Surface stop.
08/12/21	09:21:00	46.39611		688.17		81.45	
08/12/21	09:22:00	46.41278		675.76		73.19	
08/12/21	09:23:00	46.42944		675.36		73.00	
08/12/21	09:24:00	46.44611		675.60		72.94	
08/12/21	09:25:00	46.46278		669.40		72.84	
08/12/21	09:25:20	46.46833		667.29		72.80	Pressured down lubricator.
08/12/21	09:26:00	46.47944		19.27		72.74	
08/12/21	09:27:00	46.49611		10.88		72.61	
08/12/21	09:27:35	46.50583		9.16		72.52	Test completed.
08/12/21	09:28:00	46.51278		8.71		72.42	
08/12/21	09:29:00	46.52944		12.45		72.40	
08/12/21	09:30:00	46.54611		13.05		71.89	
08/12/21	09:31:00	46.56278		12.47		71.36	
08/12/21	09:32:00	46.57944		12.72		70.92	
08/12/21	09:33:00	46.59611		12.52		70.26	
08/12/21	09:33:15	46.60028		12.49		70.16	Powered down gauge.

Remarks: MIRU slickline. RIH with 2.3" gauge ring. Cleared 7572 ft. POOH. RIH with electronic gauge making injecting gradient stops to 7572 ft. Continue injection for 1 hr. SI well for 44.8 hr falloff test. POOH making static gradient stops to surface. RDMO.

Certified: FESCO, Ltd. - Midland, TX

By: Michael Carnes
District Manager - (432) 332-3211

Job No.: J202108121401.001A

Attachment 5
Falloff Test Summary

Petrotek

Falloff Test Summary

Reservoir Properties

Net Pay (h)	175	ft
Porosity (Φ)	10.0	%
Formation Compressibility (c_f)	8.20E-06	psi^{-1}
Total Compressibility (c_t)	1.09E-05	psi^{-1}
Wellbore Radius (r_w)	0.3246	ft

Fluid Properties

Water Viscosity (μ_w)	0.56	cp
Water Compressibility (c_w)	2.70E-06	psi^{-1}
Water Formation Volume Factor (B_w)	1.00	bbl/stb

Model Parameters

Wellbore Model	Changing hegeman / limited entry
Reservoir Model	Homogenous
Boundary Model	Infinite-acting

Analysis Results

Well & Wellbore

Initial Wellbore Storage	0.786	bbl/psi
Final Wellbore Storage	3.629	bbl/psi
D_t [changing storage]	0.0655	hr
Skin	37.3	
Perforation Interval	43.9	ft

Reservoir & Boundary

Average Pressure (P*)	3,969.1	psia
Permeability (k)	630	md
Transmissibility	1.10E+05	md-ft
Radius of Investigation (r_i)	6,182	ft

Attachment 6
AOR Well List

Petrotek

Operator	Well Name	API	Type	Well Status	Latitude	Longitude	Spud Date	P&A Date
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #152B	30-015-22569	Oil	Plugged (site released)	32.7676	-104.24901	31-Dec-99	2-Oct-08
APACHE CORPORATION	EMPIRE ABO UNIT #143A	30-015-22896	Oil	Active	32.77415	-104.24943	15-Apr-79	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #015B	30-015-00741	Oil	Active	32.77702	-104.24715	1-Feb-00	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #152	30-015-21825	Oil	Plugged (site released)	32.77002	-104.24905	31-Dec-99	27-Dec-11
APACHE CORPORATION	EMPIRE ABO UNIT #155	30-015-22885	Oil	Plugged (site released)	32.772	-104.24721	29-Mar-79	3-Jan-12
APACHE CORPORATION	EMPIRE ABO UNIT #015	30-015-00716	Oil	Active	32.77458	-104.24662	11-Feb-59	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #141A	30-015-22051	Oil	Plugged (site released)	32.77291	-104.24975	31-Dec-99	21-Dec-11
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #154	30-015-22669	Oil	Plugged (site released)	32.77134	-104.24874	31-Dec-99	30-Jun-09
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #015C	30-015-00868	Oil	Plugged (site released)	32.76733	-104.24703	31-Dec-99	16-Jul-04
APACHE CORPORATION	SCBP STATE #001	30-015-32946	Oil	Active	32.77522	-104.24604	13-Mar-05	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #153	30-015-22013	Oil	Plugged (site released)	32.76939	-104.24532	31-Dec-99	30-Oct-08
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #015A	30-015-00731	Oil	Plugged (site released)	32.77095	-104.24705	31-Dec-99	12-Feb-09
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #151B	30-015-22568	Oil	Plugged (site released)	32.76804	-104.2453	31-Dec-99	16-Aug-06
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #153B	30-015-22838	Oil	Plugged (site released)	32.76859	-104.24684	31-Dec-99	22-Dec-08
MCQUADRANGLE, LC	SOUTH RED LAKE GRAYBURG UNIT #0	30-015-00740	Inj	Plugged (site released)	32.77884	-104.24788	31-Dec-99	10-Jul-02
BP AMERICA PRODUCTION COMPANY	RIVERWOLF UNIT #004	30-015-00720	Oil	Plugged (site released)	32.78065	-104.24613	31-Dec-99	4-Dec-08
APACHE CORPORATION	EMPIRE ABO UNIT #151	30-015-21544	Oil	Plugged (site released)	32.77219	-104.24493	31-Dec-99	6-Jan-12
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #156	30-015-22808	Oil	Plugged (site released)	32.77079	-104.24493	31-Dec-99	7-Oct-09
MACK ENERGY CORP	STATE H #001	30-015-00745	Oil	Plugged (site released)	32.77794	-104.24287	31-Dec-99	7-Mar-08
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #039	30-015-00742	Oil	Plugged (site released)	32.77884	-104.24396	1-Jan-00	1-Jan-00
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00726	Oil	Plugged (site released)	32.77467	-104.2428	1-Jan-00	1-Jan-00
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #016C	30-015-00869	Oil	Plugged (site released)	32.76823	-104.24271	31-Dec-99	24-Jan-07
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #016A	30-015-00722	Oil	Plugged (site released)	32.77095	-104.24275	31-Dec-99	23-Feb-09
APACHE CORPORATION	EMPIRE ABO UNIT #161	30-015-22914	Oil	Temporary Abandonment	32.77274	-104.24255	21-Jun-79	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #016	30-015-00717	Oil	Active	32.77458	-104.24281	29-Mar-59	N/A
REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #036	30-015-00721	Oil	Active	32.78247	-104.24402	20-Oct-41	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #016B	30-015-00724	Oil	Plugged (not released)	32.78066	-104.24184	31-Jul-59	3-Feb-21
Redwood Operating LLC	STATE H #002	30-015-35814	Oil	Active	32.77771	-104.24215	31-Oct-07	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #003	30-015-23115	Oil	Plugged (site released)	32.76821	-104.23934	1-Jan-00	1-Jan-00
APACHE CORPORATION	AAO FEDERAL #022	30-015-42335	Oil	Active	32.7812	-104.2397	27-Jul-14	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00701	Oil	Plugged (site released)	32.78247	-104.23972	1-Jan-00	31-Dec-99
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	30-015-00662	Oil	Plugged (site released)	32.78428	-104.23974	1-Jan-00	1-Jan-00
RHONDA OPERATING CO	FEDERAL EA #001	30-015-00871	Oil	Plugged (site released)	32.76821	-104.23951	31-Dec-99	12-Apr-94
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00695	Oil	Plugged (site released)	32.77365	-104.23957	1-Jan-00	1-Jan-01
APACHE CORPORATION	EMPIRE ABO UNIT #171	30-015-22815	Oil	Plugged (site released)	32.77096	-104.23952	22-May-79	24-Oct-19
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #017	30-015-00704	Oil	Plugged (site released)	32.77792	-104.23857	1-Jan-00	1-Jan-00
APACHE CORPORATION	AAO FEDERAL #009	30-015-34387	Oil	Active	32.77455	-104.23861	7-Nov-05	N/A
APACHE CORPORATION	AAO FEDERAL #030	30-015-42360	Oil	Active	32.77259	-104.23972	20-Jul-14	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #017A	30-015-00703	Oil	Plugged (site released)	32.77455	-104.23851	31-Dec-99	19-Mar-09
REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #038	30-015-00737	Oil	Active	32.78089	-104.24601	1-Feb-00	N/A
Spur Energy Partners LLC	BIG BOY STATE #002	30-015-40428	Oil	Active	32.78392	-104.23923	27-Apr-13	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	30-015-20535	Oil	Plugged (site released)	32.76821	-104.2391	1-Jan-00	1-Jan-00
APACHE CORPORATION	AAO FEDERAL #011	30-015-34555	Oil	Active	32.77155	-104.23846	15-Feb-06	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #017	30-015-00712	Oil	Plugged (site released)	32.78158	-104.23861	1-Jan-00	1-Jan-00
LLJ VENTURES, LLC DBA MARKER OIL & GAS	STATE #006	30-015-10184	Oil	Active	32.78426	-104.23782	3-Mar-63	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #017B	30-015-00705	Oil	Plugged (site released)	32.77183	-104.23847	31-Dec-99	21-Jul-04
LLJ VENTURES, LLC DBA MARKER OIL & GAS	STATE #007	30-015-21623	Oil	Active	32.78436	-104.23933	16-Sep-75	N/A
APACHE CORPORATION	AAO FEDERAL #020	30-015-42036	Oil	Active	32.77734	-104.23775	10-Apr-14	N/A
APACHE CORPORATION	AAO FEDERAL #001	30-015-32307	Oil	Active	32.78244	-104.23757	20-Nov-02	N/A
APACHE CORPORATION	AAO FEDERAL #005	30-015-32959	Oil	Plugged (site released)	32.77882	-104.23788	4-Nov-03	14-Jun-17
APACHE CORPORATION	EMPIRE ABO UNIT #017	30-015-00676	Oil	Temporary Abandonment	32.78426	-104.23759	5-Feb-60	31-Dec-99
Spur Energy Partners LLC	BIG BOY STATE #004	30-015-40429	Oil	Active	32.78471	-104.23819	28-Aug-14	N/A
APACHE CORPORATION	AAO FEDERAL #025	30-015-42361	Oil	Active	32.77459	-104.23734	23-Jun-14	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #008	30-015-25649	Oil	Plugged (site released)	32.75916	-104.23747	1-Jan-00	1-Jan-00
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #181	30-015-21554	Oil	Plugged (site released)	32.77283	-104.23595	31-Dec-99	17-Apr-03
APACHE CORPORATION	EMPIRE ABO UNIT #183	30-015-22096	Oil	Plugged (not released)	32.77559	-104.23576	23-Jun-77	27-Apr-21
APACHE CORPORATION	AAO FEDERAL #029	30-015-42339	Oil	Active	32.77008	-104.23737	16-Jun-14	N/A
APACHE CORPORATION	AAO FEDERAL #013	30-015-00710	Oil	Active	32.7815	-104.23434	13-Jul-59	N/A
EASTLAND OIL CO	COMSTOCK FEDERAL #010	30-015-26017	Oil	Plugged (site released)	32.75731	-104.23534	31-Dec-99	23-Jan-03
APACHE CORPORATION	AAO FEDERAL #006	30-015-34071	Oil	Active	32.77736	-104.23432	6-Jul-05	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #018	30-015-01218	Oil	Plugged (site released)	32.78421	-104.23329	31-Dec-99	9-Sep-09
APACHE CORPORATION	AAO FEDERAL #021	30-015-42334	Oil	Active	32.78057	-104.23546	27-May-14	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #018D	30-015-00713	Oil	Plugged (site released)	32.7718	-104.23527	31-Dec-99	27-Sep-03
APACHE CORPORATION	AAO FEDERAL #012	30-015-34998	Oil	Active	32.77151	-104.23524	13-Aug-06	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #018A	30-015-00706	Oil	Plugged (site released)	32.77697	-104.23426	23-Apr-59	20-Sep-19
APACHE CORPORATION	EMPIRE ABO UNIT #018B	30-015-00707	Oil	Plugged (site released)	32.7745	-104.23421	22-Apr-59	7-Jun-17
APACHE CORPORATION	AAO FEDERAL #026	30-015-42338	Oil	Active	32.77531	-104.23531	10-Jun-14	N/A
APACHE CORPORATION	AAO FEDERAL #027	30-015-42359	Oil	Active	32.77444	-104.23395	3-Jul-14	N/A
APACHE CORPORATION	AAO FEDERAL #002	30-015-32308	Oil	Plugged (site released)	32.78212	-104.23327	20-Aug-02	8-Feb-18
APACHE CORPORATION	AAO FEDERAL #010	30-015-34576	Oil	Active	32.77471	-104.23363	2-Jun-06	N/A
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #003	30-015-25545	Oil	Active	32.75734	-104.2375	19-May-86	N/A
BILL L MILLER	CHUKKA FEDERAL #001	30-015-25270	Oil	Active	32.76269	-104.23313	22-Apr-85	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #184	30-015-22559	Oil	Plugged (site released)	32.77533	-104.23272	31-Dec-99	18-Jul-13
APACHE CORPORATION	AAO FEDERAL #028	30-015-42358	Oil	Active	32.76954	-104.23245	12-Jul-14	N/A
APACHE CORPORATION	AAO FEDERAL #015	30-015-42025	Oil	Active	32.78018	-104.23139	15-Mar-14	N/A
APACHE CORPORATION	AAO FEDERAL #019	30-015-42051	Oil	Active	32.77695	-104.23318	2-Apr-14	N/A
Spur Energy Partners LLC	BIG BOY STATE #006	30-015-39324	Oil	Active	32.7846	-104.23075	18-Dec-11	N/A
APACHE CORPORATION	AAO FEDERAL #016	30-015-42026	Oil	Active	32.77971	-104.23276	20-Mar-14	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #005	30-015-20388	Oil	Plugged (site released)	32.77174	-104.23103	1-Jan-00	1-Jan-01
REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #037	30-015-00715	Inj	Active	32.78247	-104.23972	28-Feb-48	N/A
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #019	30-015-20394	Oil	Plugged (site released)	32.77163	-104.23071	1-Jan-00	1-Jan-00

APACHE CORPORATION	EMPIRE ABO UNIT #194	30-015-22658	Oil	Plugged (not released)	32.77313	-104.23049	18-Oct-78	19-Apr-21
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #002	30-015-25201	Oil	Active	32.75912	-104.23493	15-Mar-85	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #193	30-015-22657	Oil	Plugged (not released)	32.77586	-104.23072	29-Sep-78	29-Apr-21
APACHE CORPORATION	EMPIRE ABO UNIT #182	30-015-21792	Oil	Plugged (not released)	32.77325	-104.23293	6-May-76	14-Apr-21
APACHE CORPORATION	AAO FEDERAL SWD #001	30-015-42549	SWD	Active	32.7765	-104.2313	24-Oct-14	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #191	30-015-21552	Oil	Plugged (site released)	32.77642	-104.2317	31-Dec-99	23-Jul-13
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #009	30-015-25738	Oil	Active	32.76266	-104.23108	25-Apr-87	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #019B	30-015-00708	Oil	Plugged (site released)	32.78146	-104.23	31-Dec-99	22-May-13
APACHE CORPORATION	EMPIRE ABO UNIT #019C	30-015-00709	Oil	Plugged (site released)	32.77783	-104.23	31-Dec-99	18-Feb-13
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #019	30-015-01251	Oil	Plugged (site released)	32.78509	-104.23001	31-Dec-99	9-Sep-09
APACHE CORPORATION	EMPIRE ABO UNIT #191A	30-015-21873	Oil	Plugged (site released)	32.77318	-104.22835	27-Aug-76	19-May-17
APACHE CORPORATION	AAO FEDERAL #003	30-015-32309	Oil	Active	32.78236	-104.22906	12-Mar-03	N/A
Spur Energy Partners LLC	BIG BOY STATE #008	30-015-39326	Oil	Active	32.78402	-104.22864	6-May-13	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #019Q	30-015-00696	Oil	Plugged (site released)	32.77445	-104.23	31-Dec-99	12-Jul-13
APACHE CORPORATION	EMPIRE ABO UNIT #202	30-015-21783	Oil	Plugged (site released)	32.77641	-104.22778	16-Apr-76	9-Jun-17
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #007	30-015-00874	Oil	Active	32.76088	-104.23123	27-Jul-48	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020	30-015-00677	Oil	Plugged (site released)	32.78415	-104.22678	31-Dec-99	9-Sep-09
APACHE CORPORATION	EMPIRE ABO UNIT #192	30-015-22560	Oil	Plugged (not released)	32.77451	-104.22807	30-May-78	22-Apr-21
MEWBOURNE OIL CO	CHALK BLUFF FEDERAL COM #002	30-015-26741	Gas	Active	32.7788	-104.23634	13-May-91	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #203	30-015-22656	Oil	Active	32.77663	-104.22584	13-Sep-78	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #020D	30-015-01215	Oil	Plugged (site released)	32.7814	-104.22572	7-Nov-59	19-May-17
APACHE CORPORATION	EMPIRE ABO UNIT #020C	30-015-00711	Oil	Plugged (site released)	32.77779	-104.22571	31-Dec-99	8-Jul-13
APACHE CORPORATION	EMPIRE ABO UNIT #020B	30-015-00699	Oil	Active	32.77152	-104.22463	16-Nov-61	N/A
APACHE CORPORATION	AAO FEDERAL #008	30-015-33784	Oil	Active	32.77868	-104.22463	28-Feb-05	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #021B	30-015-02613	Oil	Active	32.78052	-104.22141	8-Dec-59	N/A
APACHE CORPORATION	AAO FEDERAL #018	30-015-42035	Oil	Active	32.77691	-104.22893	9-Aug-14	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #201	30-015-21553	Oil	Temporary Abandonment	32.77633	-104.22363	28-Jun-75	N/A
APACHE CORPORATION	AAO FEDERAL #007	30-015-33473	Oil	Active	32.77845	-104.22893	22-Oct-04	N/A
APACHE CORPORATION	AAO FEDERAL #024	30-015-42337	Oil	Active	32.78051	-104.22435	3-Jun-14	N/A
APACHE CORPORATION	AAO FEDERAL #014	30-015-42024	Oil	Active	32.78286	-104.22401	7-Mar-14	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #212	30-015-22637	Oil	Temporary Abandonment	32.77649	-104.22226	4-Dec-78	N/A
APACHE CORPORATION	AAO FEDERAL #004	30-015-32310	Oil	Active	32.78052	-104.22678	14-Jul-03	N/A
APACHE CORPORATION	AAO FEDERAL #023	30-015-42336	Oil	Active	32.77699	-104.22463	4-Aug-14	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #021D	30-015-02622	Oil	Temporary Abandonment	32.77503	-104.22141	27-Dec-59	N/A
Redwood Operating LLC	FEDERAL T SWD #001	30-015-26404	SWD	Active	32.76715	-104.22678	28-Jun-90	N/A
Redwood Operating LLC	CHALK BLUFF FEDERAL SWD #001	30-015-27163	SWD	Active	32.77441	-104.22678	10-May-81	N/A
LLJ VENTURES, LLC DBA MARKER OIL & GA	LAUREL STATE #003	30-015-31319	Oil	Active	32.76258	-104.2225	2-Oct-00	N/A
NAVAJO REFINING COMPANY, L.L.C.	WDW #003	30-015-26575	SWD	Active	32.77121	-104.23328	22-Dec-90	N/A
NAVAJO REFINING COMPANY, L.L.C.	WDW #002	30-015-20894	SWD	Active	32.76366	-104.23849	5-May-99	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #022C	30-015-02610	Oil	Active	32.77156	-104.21787	19-Jul-60	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #022F	30-015-02623	Oil	Active	32.77512	-104.2168	28-Jan-60	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #211	30-015-21395	Oil	Active	32.77604	-104.21933	12-Dec-74	N/A
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020K	30-015-00697	Oil	Plugged (site released)	32.77439	-104.22571	31-Dec-99	5-Jan-03
MARBOB ENERGY CORP	LP STATE #003	30-015-31087	Oil	Plugged (site released)	32.77165	-104.22249	19-Jun-00	17-Mar-08
LLJ VENTURES, LLC DBA MARKER OIL & GA	LAUREL STATE #001	30-015-25997	Oil	Active	32.76635	-104.21785	15-Dec-86	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #021C	30-015-02619	Oil	Active	32.77777	-104.22141	7-Oct-59	N/A
ROJO GRANDE LLC	RAMAPO #007	30-015-31592	Oil	Plugged (site released)	32.78419	-104.23108	14-Feb-01	21-Dec-01
APACHE CORPORATION	AAO FEDERAL #017	30-015-42027	Oil	Active	32.7787	-104.22637	27-Mar-14	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #213	30-015-23116	Oil	Temporary Abandonment	32.77758	-104.22324	9-Mar-80	31-Dec-99
LLJ VENTURES, LLC DBA MARKER OIL & GA	LAUREL STATE #002	30-015-25675	Oil	Active	32.7644	-104.22027	28-Oct-88	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #211A	30-015-23548	Oil	Temporary Abandonment	32.7743	-104.22031	11-Feb-81	31-Dec-99
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #006	30-015-25099	Oil	Active	32.76399	-104.22678	18-Aug-85	N/A
APACHE CORPORATION	EMPIRE ABO UNIT #223	30-015-22527	Oil	Plugged (not released)	32.77608	-104.21728	21-Apr-78	23-Jul-21
RUTH OIL CO, LLC	STATE M-AI #002	30-015-02627	Oil	Active	32.77154	-104.22034	3-Oct-60	N/A
MEWBOURNE OIL CO	CHALK BLUFF 36 STATE #001	30-015-27286	Oil	Active	32.78516	-104.23759	2-Feb-93	N/A
ARCO PERMIAN	EMPIRE ABO UNIT #191	30-015-00698	SWD	Plugged (site released)	32.77082	-104.23	6-Oct-59	8-Dec-89
MEWBOURNE OIL CO	CHALK BLUFF 6 STATE #001	30-015-26943	Gas	Active	32.77165	-104.22118	17-Feb-92	N/A

Attachment 7
Digital Data

Petrotek

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 82495

COMMENTS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 82495
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

COMMENTS

Created By	Comment	Comment Date
cchavez	WDW-3 Fall Off Test (FOT) December 1, 2021	5/10/2022

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 82495

CONDITIONS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 82495
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
cchavez	None	5/10/2022