UICI-8-3

EPA FALL-OFF TEST REPORT

(WDW-3)

2022

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

July 2022

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HollyFrontier Navajo Refining Company
Artesia, New Mexico

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EXECUTIVE SUMMARY

This report summarizes the successful mechanical integrity testing (MIT) and falloff testing activities performed on the Gaines WDW-3 (WDW-3) at the HollyFrontier Navajo Refining Company (HFNR) facility at Artesia, New Mexico. The work was performed as a condition of the applicable UIC permit issued by the New Mexico Oil Conservation Division (OCD). Under contract, Petrotek Corporation (Petrotek) developed the MIT procedures, provided field supervision, 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 May 17, 2022, 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 Jeremiah Demuth (Petrotek) from June 14 through June 16, 2022.

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:

https://ocdimage.emnrd.nm.gov/imaging/WellFileView.aspx?RefType=WL&RefID=30015265750000

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 is approximately 175 feet with an average porosity of 10 percent. Consistent with the most recent test analysis previously 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 WDW-1 (33,000 mg/L) and WDW-2 (20,000 mg/L) during recompletion as Class I UIC wells. WDW-1, 2 and 3 are completed in the same injection formation. The average density and total dissolved solids (TDS) of the fluids recovered from the two wells sampled 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 this year, 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 required recent data acquired with HFNR well monitoring equipment.

TABLE 2
MAY AND JUNE INJECTION DATA

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
5/1/2022	947.1	114.2	217.3
5/2/2022	916.1	110.4	191.3
5/3/2022	930.0	103.4	172.0
5/4/2022	791.5	105.1	103.5
5/5/2022	764.1	69.0	112.4
5/6/2022	934.8	68.3	383.8
5/7/2022	994.5	105.4	447.6
5/8/2022	965.4	117.6	462.0
5/9/2022	947.7	111.1	474.6
5/10/2022	880.0	107.2	436.2
5/11/2022	980.8	92.3	491.4
5/12/2022	1048.9	115.2	450.4
5/13/2022	984.6	127.0	179.0
5/14/2022	944.8	113.7	105.3
5/15/2022	969.8	105.7	35.0
5/16/2022	1039.8	110.6	45.8
5/17/2022	1078.1	123.8	31.9
5/18/2022	1076.7	130.6	117.3
5/19/2022	1061.7	129.8	210.0
5/20/2022	1035.6	128.7	201.9
5/21/2022	1025.9	125.3	259.7
5/22/2022	1013.4	123.8	271.6
5/23/2022	1006.2	119.5	287.1
5/24/2022	1026.2	118.6	285.9
5/25/2022	1063.5	128.1	298.8
5/26/2022	1132.4	144.0	320.2
5/27/2022	1079.6	132.0	304.0
5/28/2022	1056.9	126.5	296.6
5/29/2022	1026.3	118.7	286.0
5/30/2022	940.4	93.1	251.4
5/31/2022	929.9	89.5	246.6
6/1/2022	930.2	86.5	242.4
6/2/2022	988.5	100.3	236.2

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
6/3/2022	1039.5	112.6	295.3
6/4/2022	1022.6	123.1	308.7
6/5/2022	1058.3	119.0	326.8
6/6/2022	978.0	125.0	299.9
6/7/2022	854.5	108.7	231.1
6/8/2022	964.5	81.9	285.8
6/9/2022	998.5	104.6	341.6
6/10/2022	955.3	112.0	335.1
6/11/2022	966.2	104.6	339.8
6/12/2022	1028.0	106.0	390.2
6/13/2022	1045.1	118.9	429.3

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. 101696).

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 10,000 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 5/28/2021. The most recent calibration certificates are provided in Attachment 3. The bottom gauge (Serial Number - 224831) was utilized for analysis and hung at a test depth 7,572 feet BGL.

10. ONE-MILE AREA OF REVIEW (AOR)

A standard one-mile Area of Review (AOR) was evaluated for WDW-3 by Petrotek as part of the annual testing and reporting requirements. The wells located within this one-mile AOR are listed in Attachment 6. This table includes a listing of 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.

No new wells have been drilled or plugged and abandoned within the AOR since the prior report.

a. **Wells located within the one-mile AOR -** The wells located within the one-mile AOR are provided as Attachment 6. This table shows the operator, well name, API number, well type, well status, location, and date of abandonment or completion.

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 is located within the 1-mile AOR of WDW-3. 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. 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 3
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, are completed 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 (API #30-015-42549,) operated by Apache Corporation, and the Chalk Bluff Federal SWD #001 (API #30-015-27163) and Federal T SWD #1 (API #30-015-27163), both operated by Redwood Operating, LLC.

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. Data from the state website, last updated in April 2022 indicated average injection rates of approximately 16 gpm for the AAO Federal SWD #1, 77 gpm for the Chalk Bluff Federal SWD #001 and 313 gpm for the Federal T SWD #1.

c. **Describe the impact, if any, of the offset wells during both the injection and shut-in portions of the test -** Development of a useful test was not prevented by these offset injection wells, although late-time test 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 June 14 through 16, 2022.

b. **Time of the injection period -** Constant-rate injection occurred for approximately 48 hours before the falloff test began. This injection period exceeded the duration of the falloff.

c. **Type of injection fluid -** Filtered waste was utilized as test 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 4,133.7 psia (at 7,572 feet BGL) and the injection rate was 121.6 gpm (4,168.2 bpd) with a measured bottom hole temperature of 102.3 °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 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 5,356 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 6 hours after shut-in. This value was derived from the diagnostic plot and semi-log plot.

c. **Slope(s) determined from the semi-log plot -** The slope for the likely radial period, as determined from the semi-log plot, was 4.69 psi/cycle.

d. **Transmissibility (kh/μ) -** The transmissibility was determined to be 144,601 md-ft/cp.

e. **Permeability (k) -** The permeability was determined to be 463 md.

f. **Skin Factor (s) -** The skin factor was determined to be 20.6 units.

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

determined to be 84.0 psi

h. **Flow efficiency -** The flow efficiency was determined to be 0.31.

i. **Flow capacity (kh) -** The flow capacity (permeability-thickness) was determined to be 80,977 md-ft.

j. **P_{1hr} -** The extrapolated 1-hr pressure was determined to be 4,018.7 psi.

TABLE 4
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}	4,133.7	psia
Final Injection Rate, q_{final}	4,168.2 121.6	bwpd (gpm)
Horner Straight Line Slope, m	4.68703	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 6/14/2022. The total waste volume injected up to the time of shut-in utilized for calculations was 992,151,059 gallons (23,622,644 bbls).

To determine the mobility-thickness (transmissibility), the following equation was utilized. The resulting transmissibility was 144,601 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

$$\frac{kh}{\mu} = Transmissibility = 162.6\frac{4{,}168.2 * 1.0}{4.68703} = 144{,}601\frac{md-ft}{cp}$$

The transmissibility was then used to determine the permeability thickness. The resulting permeability-thickness was 80,977 md-ft.

$$kh = \left(\frac{kh}{\mu}\right)\mu = 144{,}601\left(\frac{md-ft}{cp}\right)0.56\ cp = 80{,}977\ md-ft$$

The permeability-thickness was then used to determine the permeability of the reservoir. The resulting permeability was 463 md.

$$k = \frac{kh}{h} = \frac{80{,}977\ md-ft}{175\ ft} = 463\ md$$

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 1,553 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

$$r_{waste} = \sqrt{\frac{0.13368 * (992{,}151{,}059)}{\pi * 175 * 0.10}} = 1{,}553\ feet$$

Based on this radius, the time for a pressure transient to travel through this fluid can be calculated. The resulting time was 3.02 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

$$t_{waste} = 948\frac{0.10 * 0.56 * 10.90E-06 * (1{,}553)^2}{462.7} = 3.02\ hours$$

Based on this result, and the time it took for the transition to radial flow to start (~ 5 to 10 hours), it is known that the pressure transient was traveling through reservoir fluid during the middle-time flow period used in analysis, indicating that the appropriate viscosity was used for the evaluation.

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 20.6 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

$$s = 1.151\left(\frac{4{,}133.7 - 4{,}018.7}{4.68703} - log\left(\frac{462.7}{0.10 * 0.56 * 10.90E-06 * 0.3246^2}\right) + 3.23\right) = 20.6$$

The change in pressure, due to skin, in the wellbore can be calculated using the

following equation. The result of this calculation was 84.0 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

$$\Delta P_{skin} = 0.869 * 4.68703 * 20.6 = 84.0\ psi$$

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 0.31.

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

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

$$FE = \frac{4{,}133.7 - 84.0 - 4{,}011.6}{4{,}133.7 - 4{,}011.6} = 0.31$$

The test radius of investigation (r_{inv}) can be determined using the following equation. The result of this calculation was 5,356 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

$$r_{inv} = 0.029\sqrt{\frac{462.7 * 45}{0.1 * 0.56 * 10.90E-06}} = 5{,}356\ feet$$

Based on examination of the semi-log diagnostic plot provided as Figure 10, the test appears to start transitioning toward a radial flow period approximately 5 to 10 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 limited-entry, homogenous radial flow system. The somewhat drawn-out transition to what is likely radial flow is complicated by a limited entry wherein the test behavior is consistent with approximately 77 feet of the completion dominating flow at the wellbore prior to more complete communication with the full injection interval thickness occurring in the reservoir. The simulation analysis generally supports the more simplistic graphical analysis based on the linear portion of the semi-log plot.

Toward the end of the test it is possible that a late-time period may be developing where the effects of heterogeneity, multi-layer crossflow and/or offset injection interference may be starting to influence the test. However, the substantial permeability-thickness of this injection zone yields 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 shows historical well test analysis results, including the results from the test this year. Attachment 5 presents a summary of the falloff test analysis.

TABLE 5
HISTORICAL AMBIENT RESERVOIR TESTING

Year	Fill Depth (feet)	Permeability (md)	Mobility-thickness (md-ft/cp)	Skin (units)	P* (psia)
2022	8,657	463	144,601	20.6	3,998.4
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 June 16, the annulus was pressurized to approximately 650 psi to begin the integrity test. A calibrated digital pressure gauge (Crystal XP2i, 5,000 psi, SN - 901241) supplied by Petrotek was installed on the annulus at the wellhead. The well and test gauge were then isolated from the rest of the system and annulus pressure, 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 19.1 psi. Since a change of 10% (65.2 psi) of the starting test pressure is allowable, this test is within acceptable specifications.

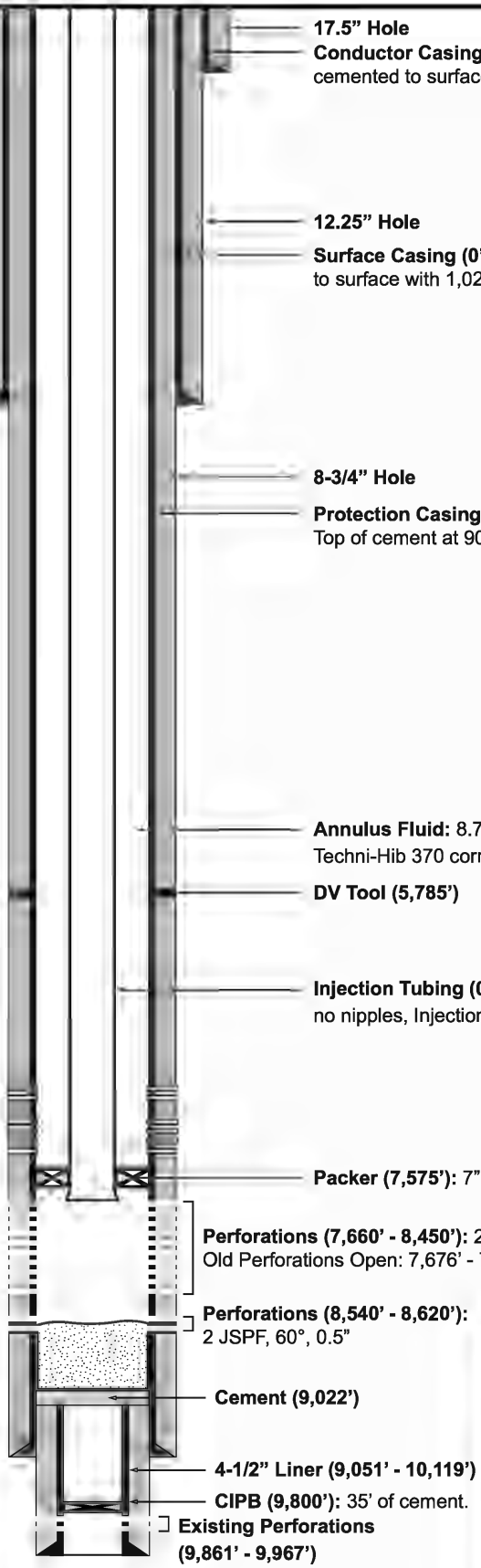
Attachment 2 presents a copy of the gauge certification. Pressures were observed as follows during testing.

TABLE 7
ANNULUS PRESSURE TEST MEASUREMENTS

Time, Minutes	0	5	10	15	20	25	30
Annulus Pressure, Psi	652.1	644.0	638.0	635.2	633.9	633.4	633.0

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

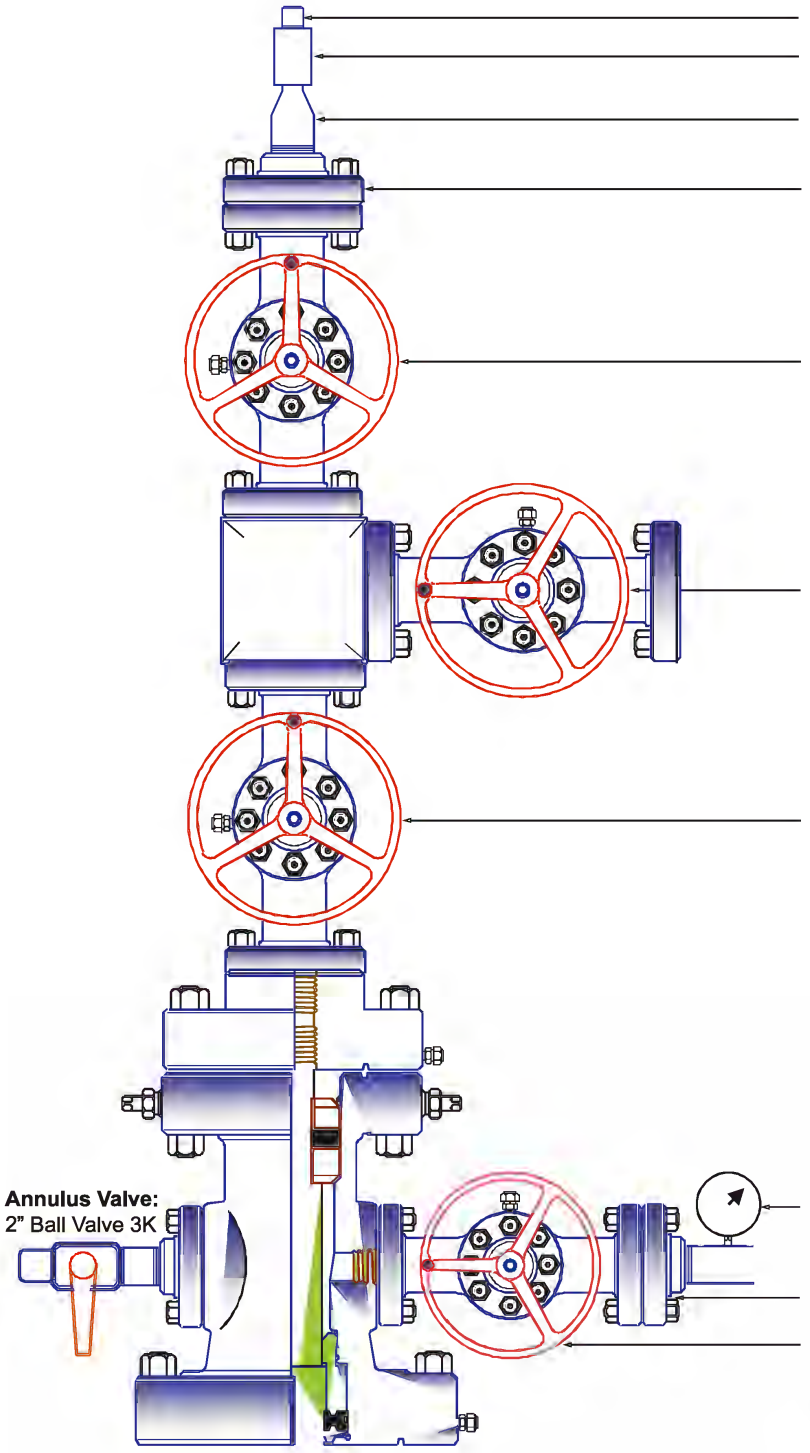
Figure 1
WDW No. 3,
Wellbore Schematic

2022 Schematic Update

Scale: NTS	Date: June 2022	
Fig_01_HF_Artesia_2022_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)



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

NOT TO SCALE

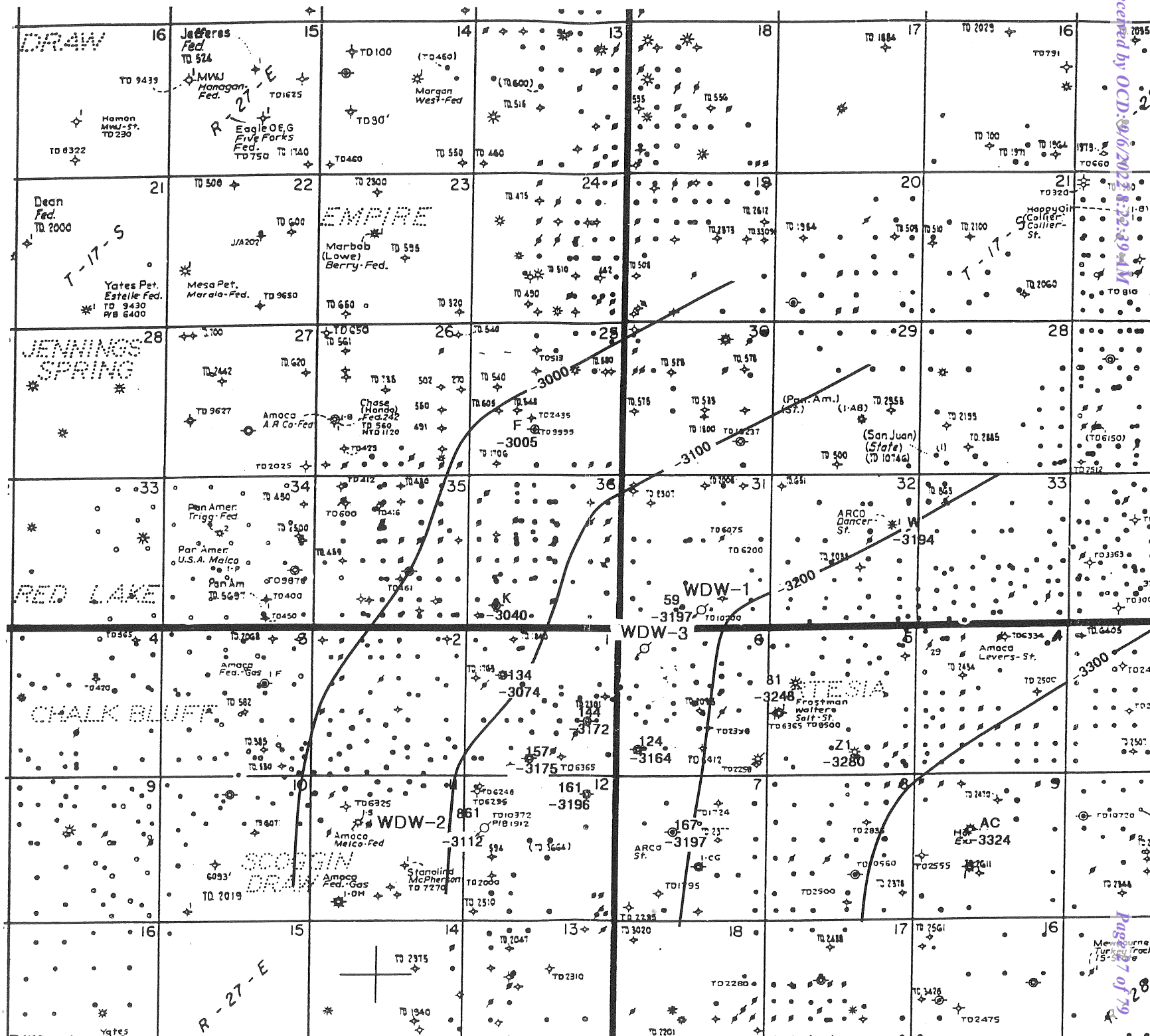
HOLLYFRONTIER

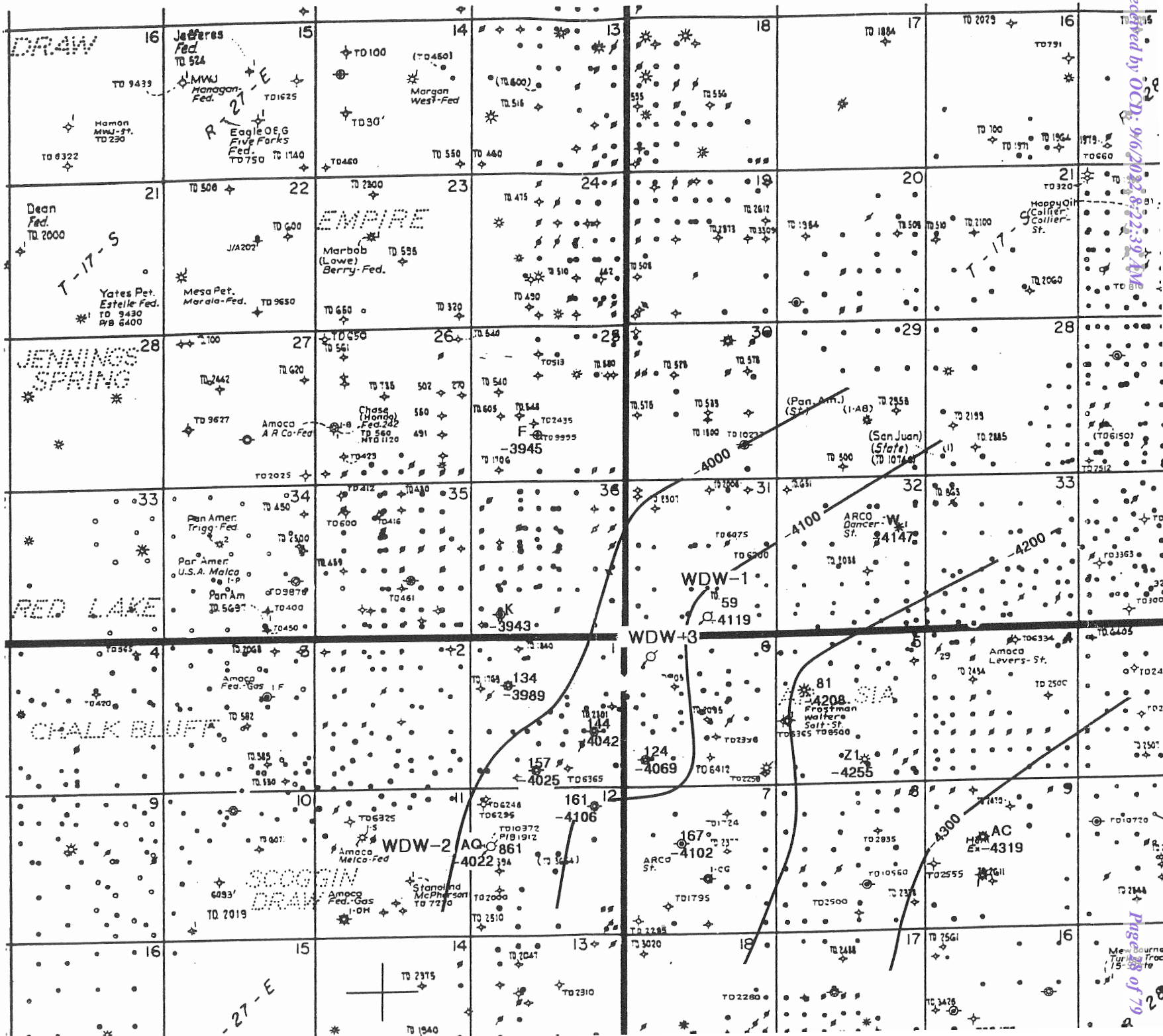
Figure 2
WDW No. 3,
Wellhead Schematic

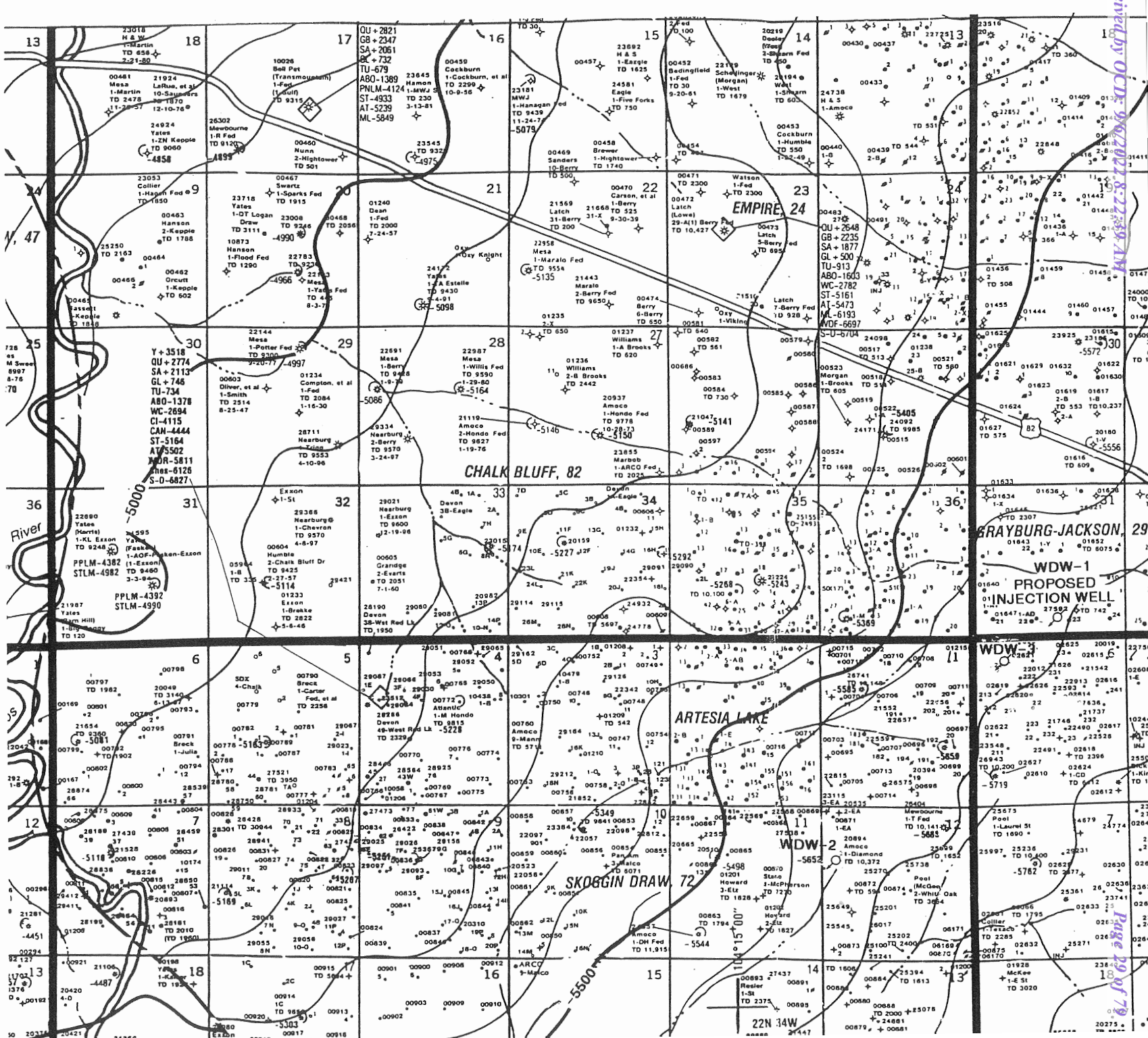
2022 FOT/MIT Report

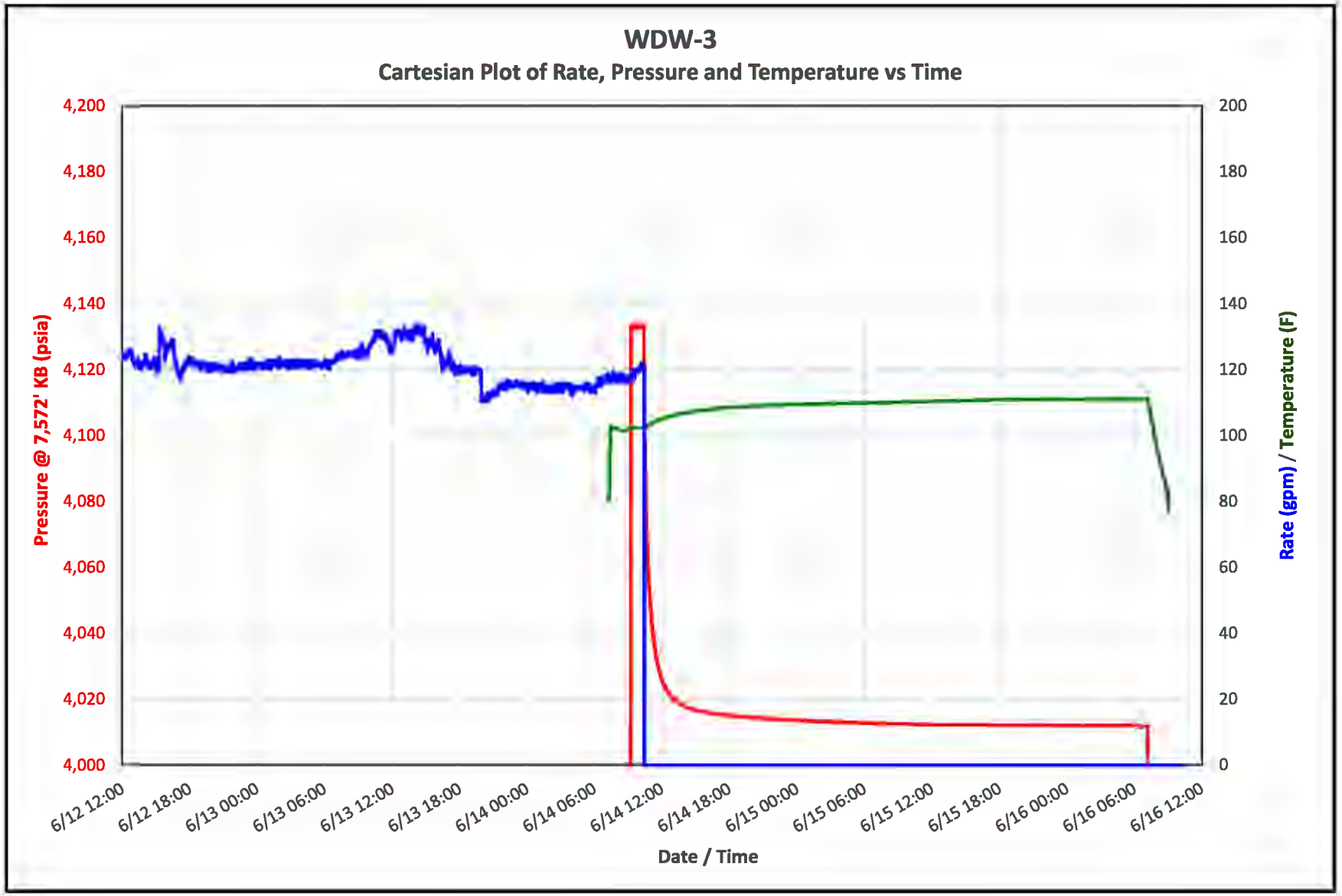
Scale: NTS	Date: June 2022	
Fig_02_HF_Artesia_2022_WDW_03.pdf	By: WEK	Checked: LW

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





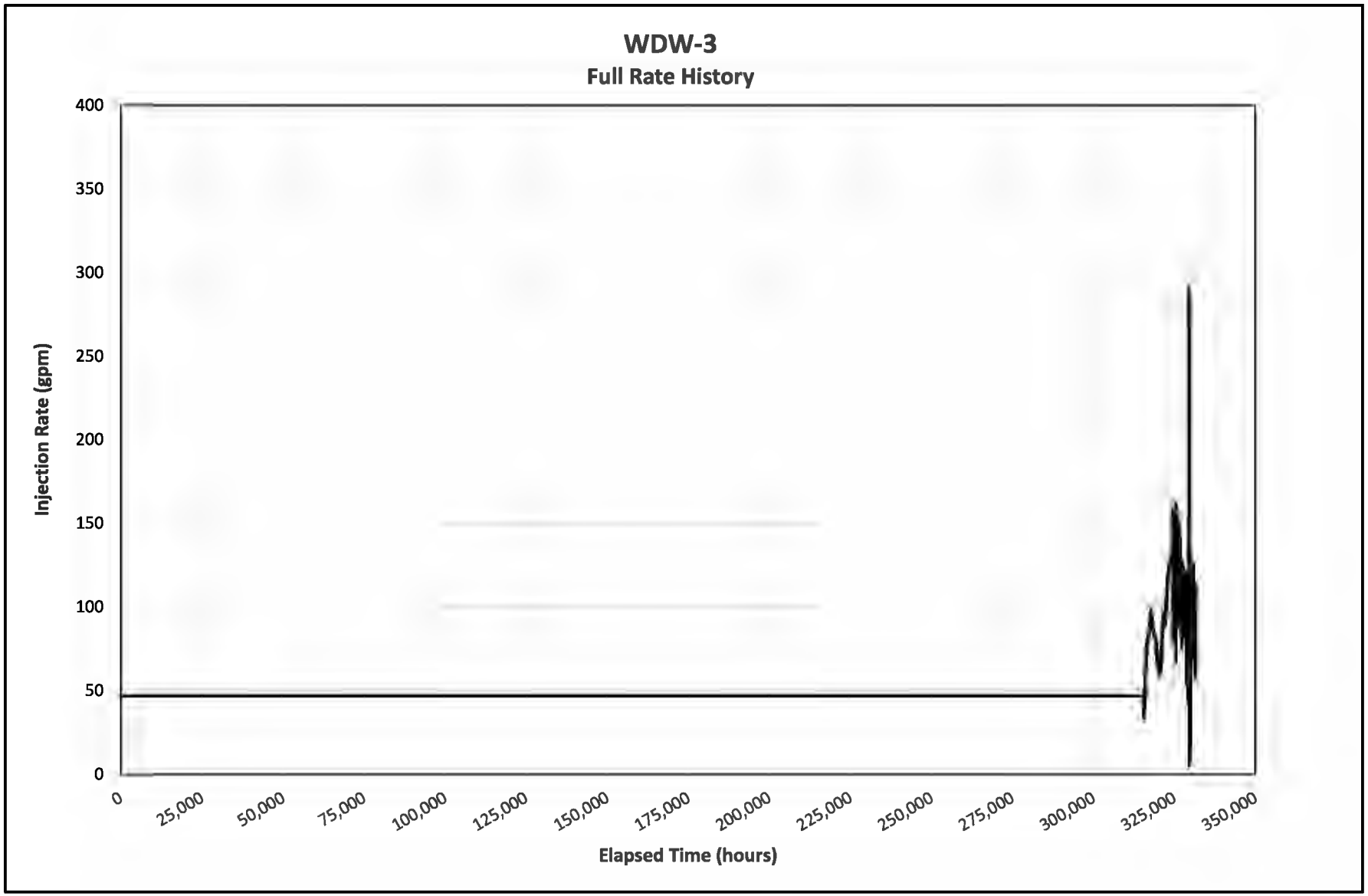




HOLLYFRONTIER

Figure 6
Cartesian Plot of Rate, Pressure and Temperature vs Time
2022 Well Testing

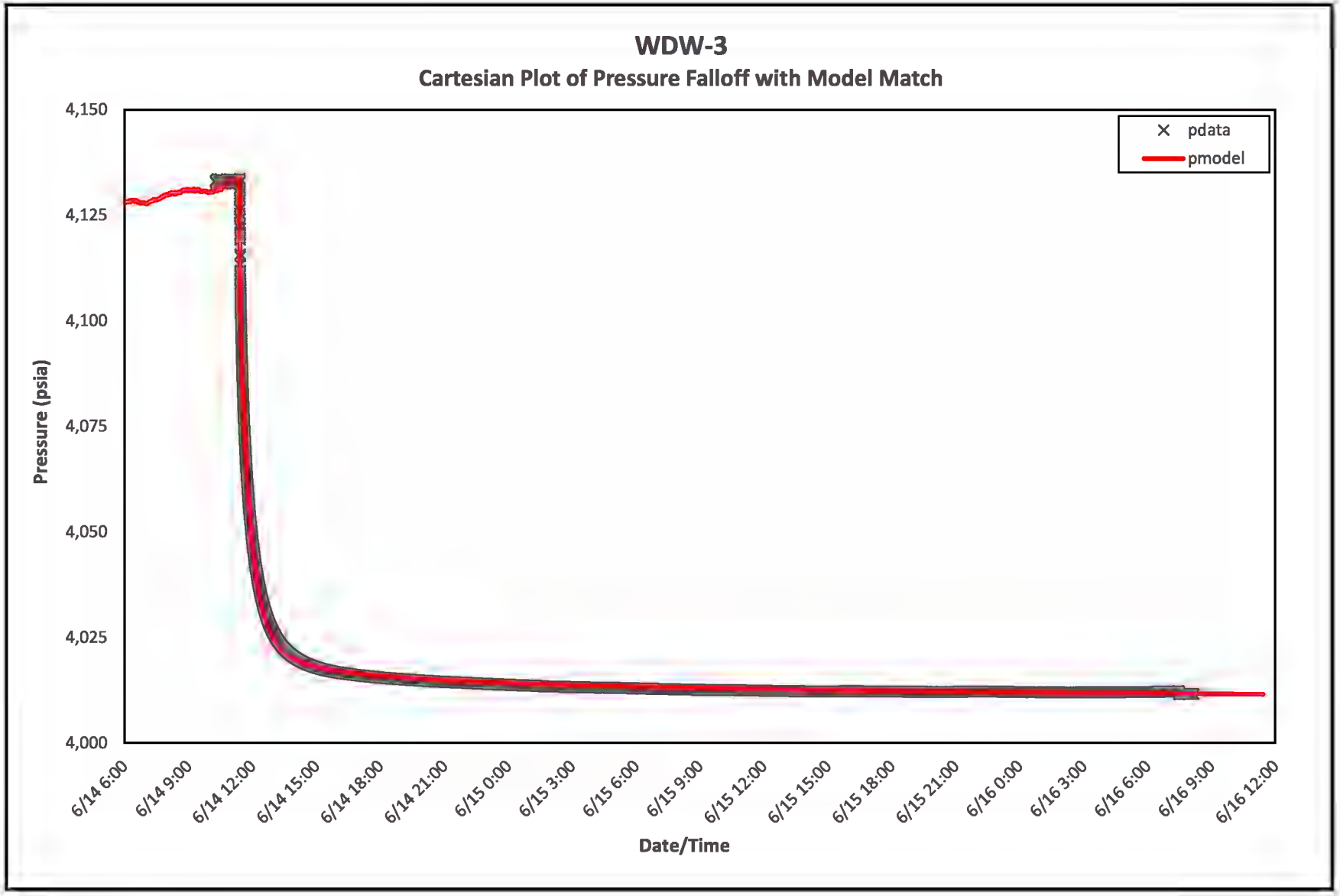
Petrotek



HOLLYFRONTIER

Figure 7
Full Rate History
2022 Well Testing

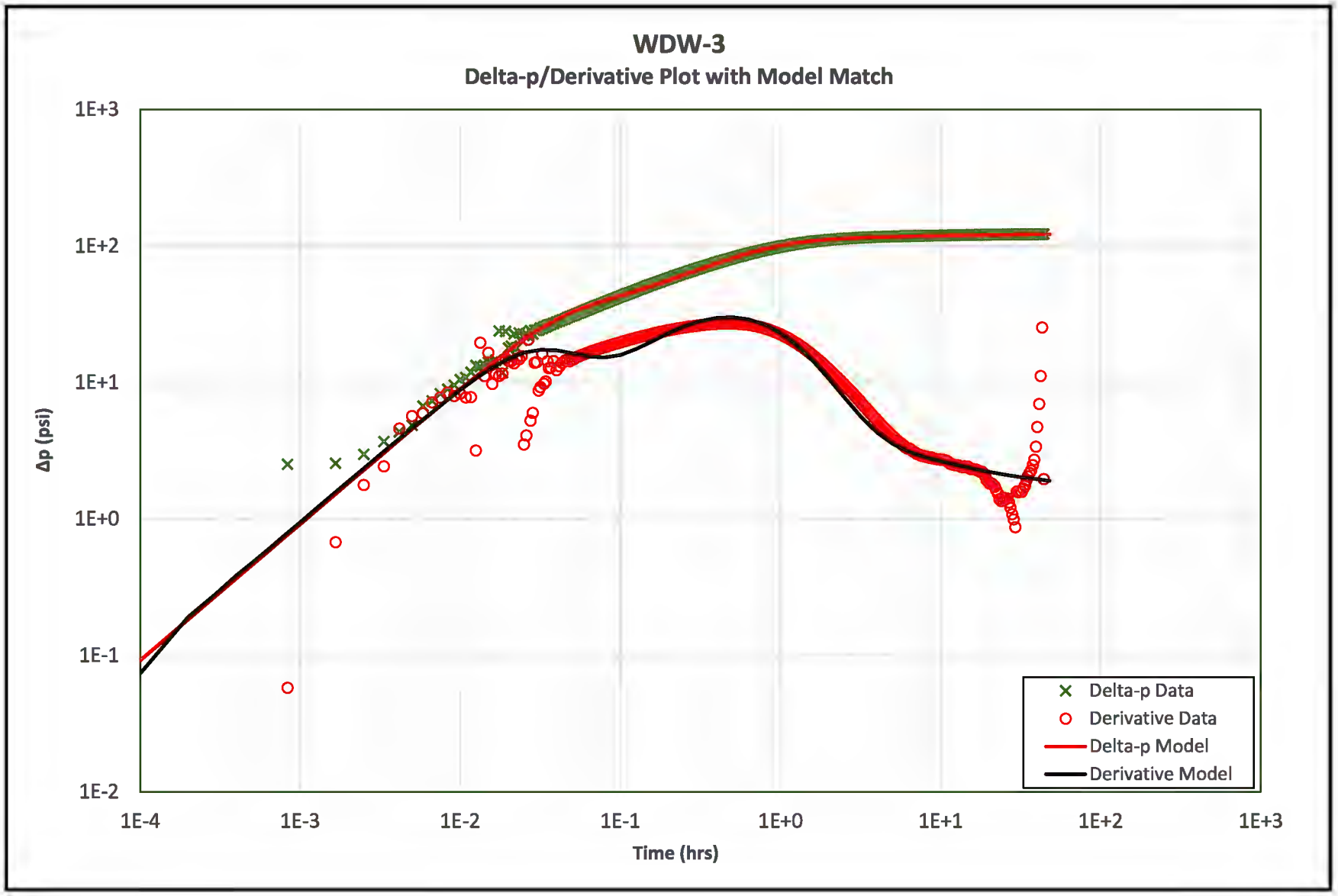
Petrotek



HOLLYFRONTIER

Figure 8
Cartesian Plot of Pressure Falloff with Model Match
2022 Well Testing

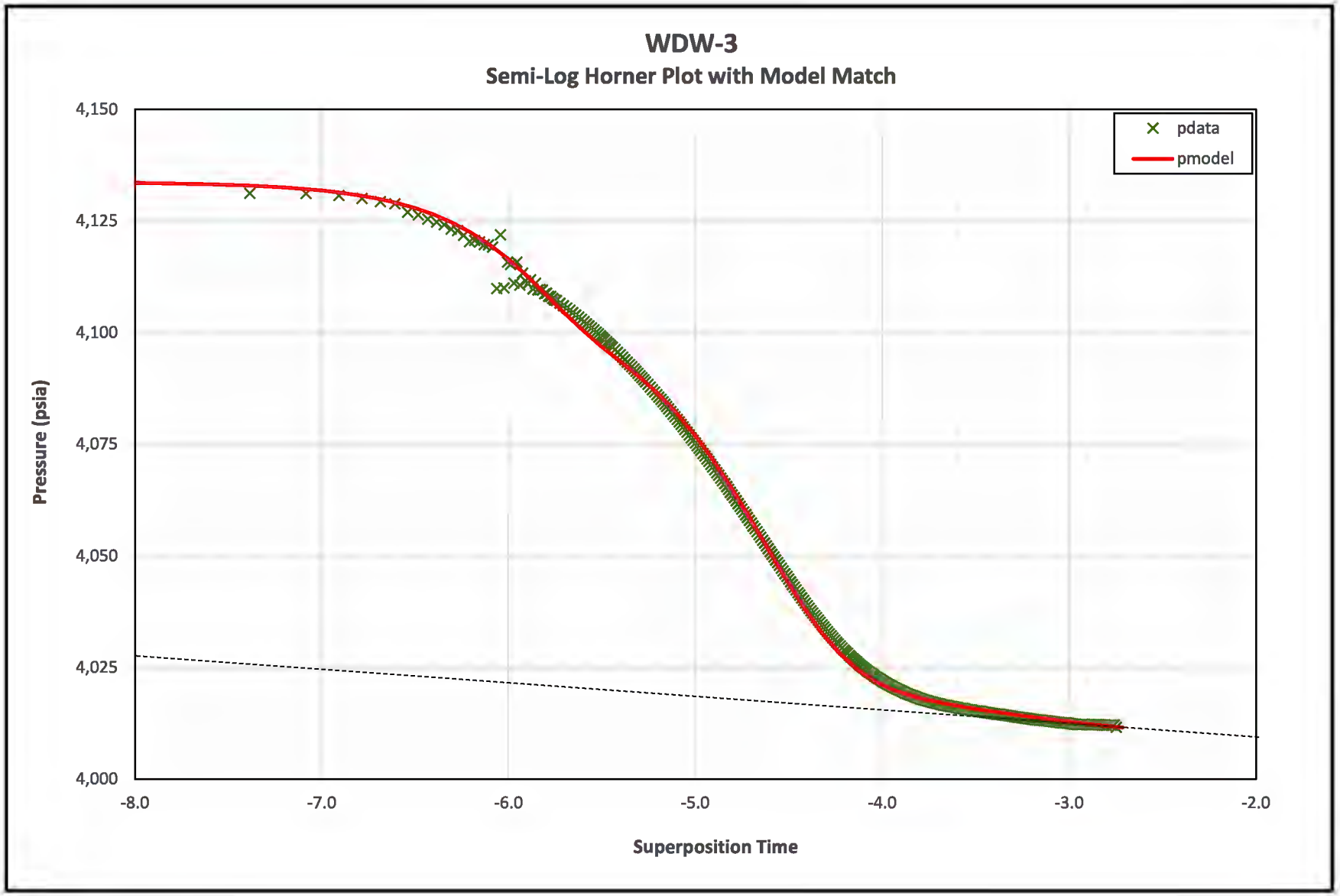
Petrotek



HOLLYFRONTIER

Figure 9
Delta-p/Derivative Plot with Model Match
2022 Well Testing

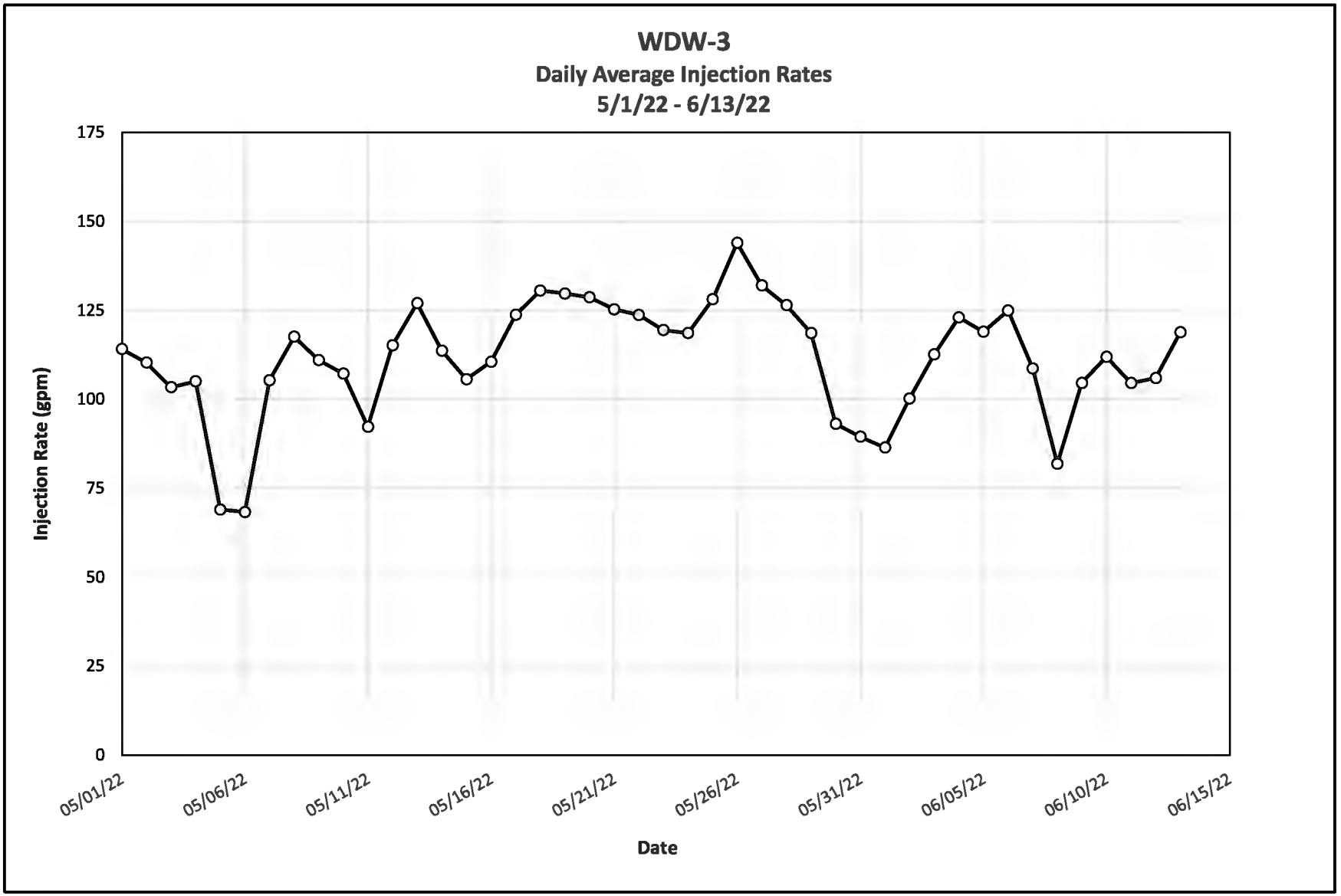
Petrotek



HOLLYFRONTIER

Figure 10
Semi-Log Horner Plot with Model Match
2022 Well Testing

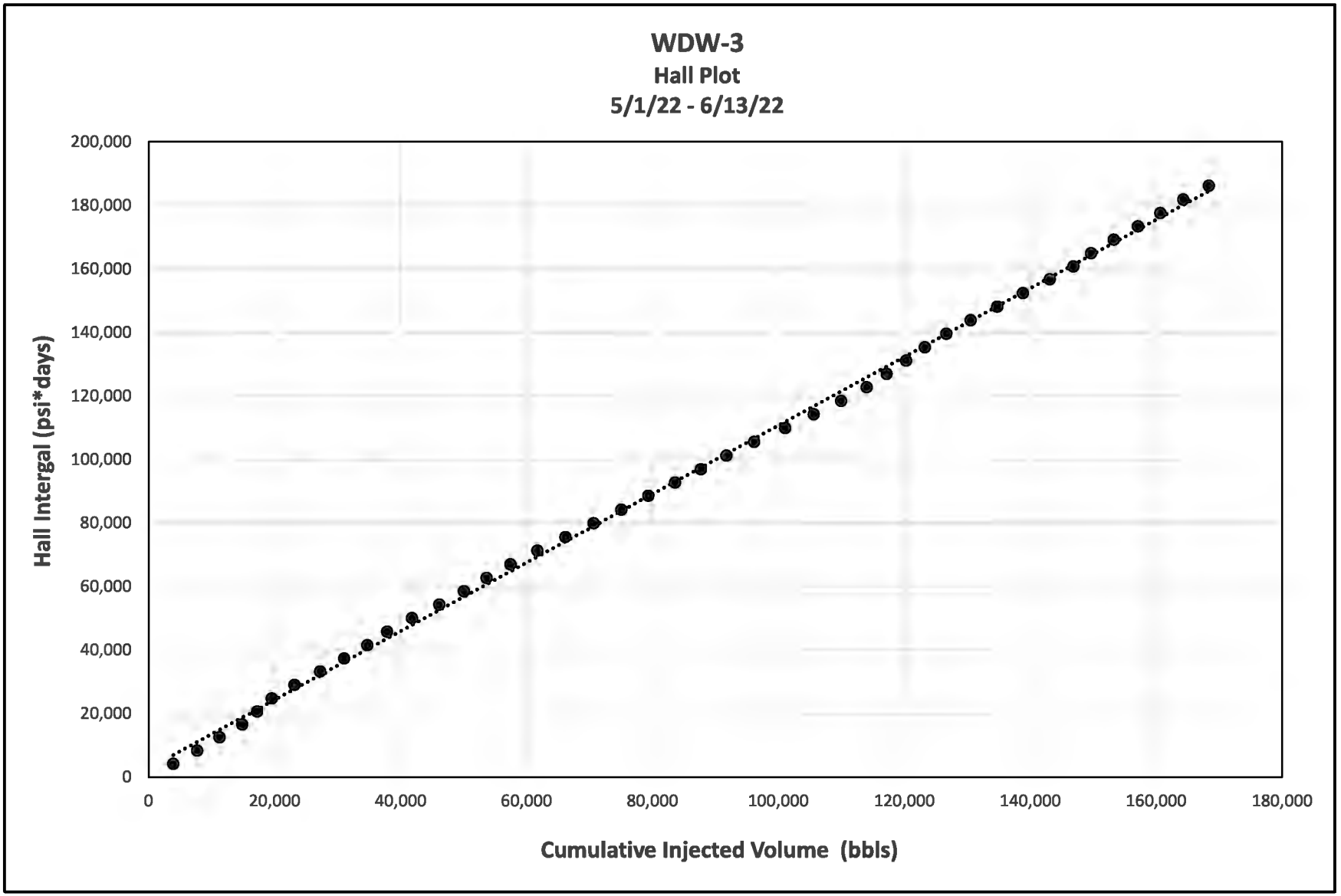
Petrotek



HOLLYFRONTIER

Figure 11
Daily Average Injection Rates
2022 Well Testing

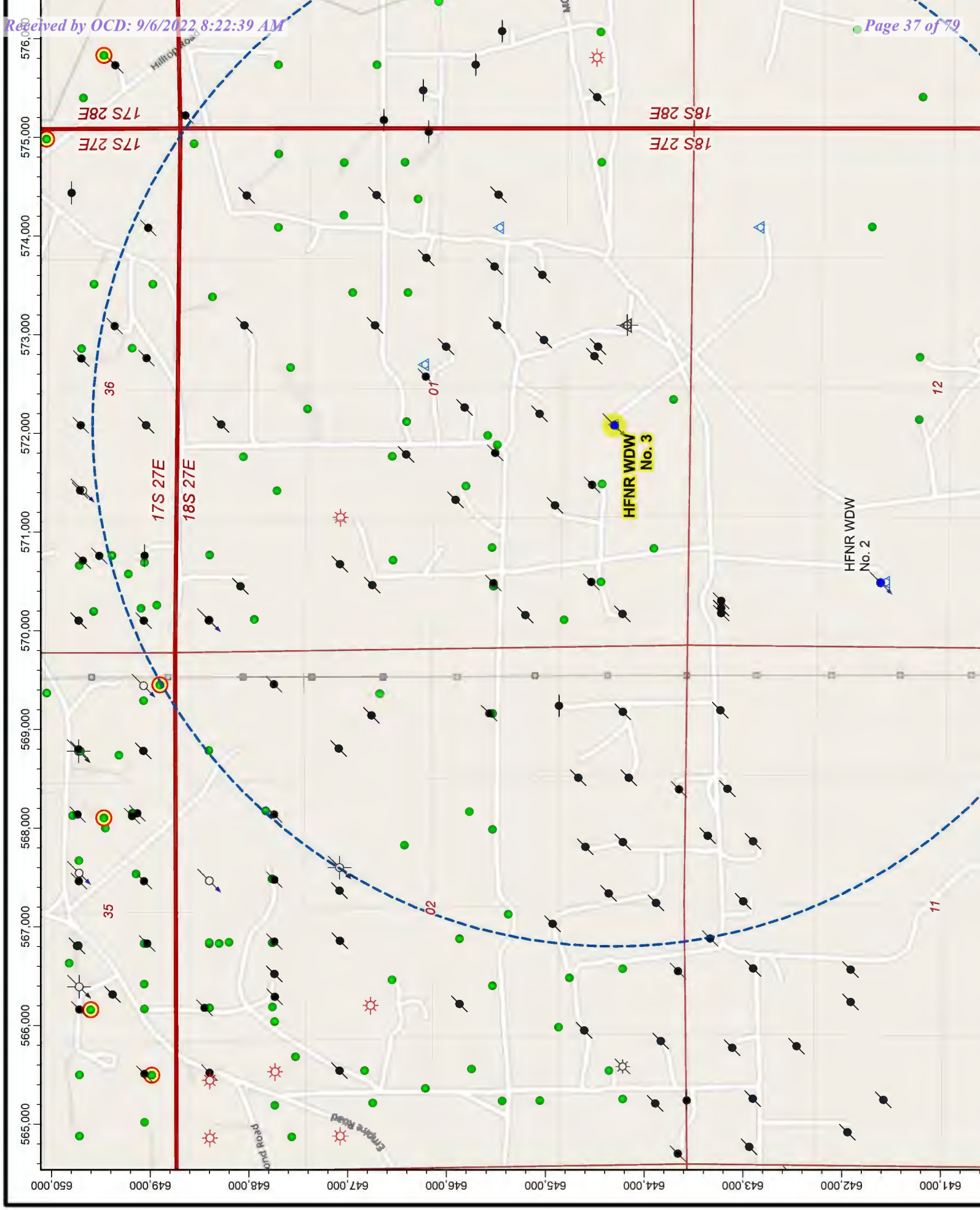
Petrotek



HOLLYFRONTIER

Figure 12
Hall Plot
2022 Well Testing

Petrotek


17S 28E
17S 27E
18S 28E
18S 27E
17S 27E
18S 27E
HFNR WDW No. 3
HFNR WDW No. 2
36
01
12
35
02
11
Hilltop Road
Empire Road
Loco Hills Road
576,000
575,000
574,000
573,000
572,000
571,000
570,000
569,000
568,000
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ATTACHMENTS

Attachment 1
OCD Test Notification

Petrotek

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

State of New Mexico
Energy, Minerals and Natural Resources

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

Form C-103
Revised July 18, 2013

WELL API NO. 30-015-26575	
5. Indicate Type of Lease STATE ☐ FEE ☐	
6. State Oil & Gas Lease No. B-2071-28	
SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	7. Lease Name or Unit Agreement Name GAINES WDW-3
1. Type of Well: Oil Well ☐ Gas Well ☒ Other: UIC INJECTION WELL	8. Well Number: WDW-3
2. Name of Operator HF SINCLAIR NAVAJO REFINERY	9. OGRID Number: 15694
3. Address of Operator P.O. BOX 159, ARTESIA, NM 88211-0159	10. 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.

June 26th: Sunday: Day 1, Start constant rate injection into WDW-3, Mewbourne as well as the other three (3) offset wells for at least 30 hours prior to shut-in of WDW-3 for Fall Off 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 to ensure steady flow. Samples of the injectate will be collected approximately every 10 hours and analyzed for pH and specific gravity.

June 27th: Monday: Day 2, Continue constant injection rate into all four wells.

June 28th: Tuesday: Day 3 While injection continues, will run dual downhole memory gauges to test depth making flowing gradient stops every 1,000 feet. Collect pressure data at test depth for at least 1 hour while injecting at a constant rate. Shut in WDW-3 and collect Fall Off Data for a minimum of 30 hours. WDW-1, WDW-2 and WDW-4 will continue a constant injection rate until the Downhole Memory Gauges are retrieved.

June 29th: Wednesday: Day 4: WDW-3 is shut in and fall off data is being collected with the Downhole Memory Gauges.

June 30th: Thursday: Day 5: After the minimum of 30 hours of data collection, the gauges will be removed from the well making 5-minute gradient stops every 1,000 feet. Note the top of fill will be tagged either with the gauges prior to pulling them from the well, or a second run with sinker bars will be made after the tools are removed (TBD). Conduct MIT for a minimum of 30 minutes prior to rigging down. Rig down wireline and return well to service.

Spud Date: Rig Release Date:

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

SIGNATURE Lewis R Dade TITLE: ENV. SPEC DATE: 05/17/2022

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

For State Use Only

APPROVED BY: TITLE DATE

Conditions of Approval (if any):

Attachment 2
Annulus Pressure Gauge Certification

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

CERTIFIED CALIBRATION

CUSTOMER PETROTEK ORDER NO. _____

ITEM Digital Gauge RANGE 0-5000PSIG ITEM NO. 5284

TRUE VALUE	INDICATED VALUE	
PSIG	INCREASING READINGS	DECREASING READINGS
0.00	0	0
500.00	499.4	499.5
1000.00	998.9	999.1
1500.00	1498.5	1498.8
2000.00	1998.2	1998.4
2500.00	2497.7	2498.0
3000.00	2997.4	2997.6
3500.00	3497.0	3497.2
4000.00	3996.7	3996.5
4500.00	4496.5	4495.8
5000.00	4994.9	4994.9

Tested On: Deadweight Tester S/N# 1GA4474

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

Tested By: Brian McLain Date 22 November 2021

Remarks:

Crystal/AMETEK XP2i		SN 901241
Accuracy is +/-	.25	% of Full Scale or Better
Test Conditions	65 °F; 617	mmHg Atm. Pressure

Attachment 3
Downhole Pressure Gauge Certifications

Petrotek

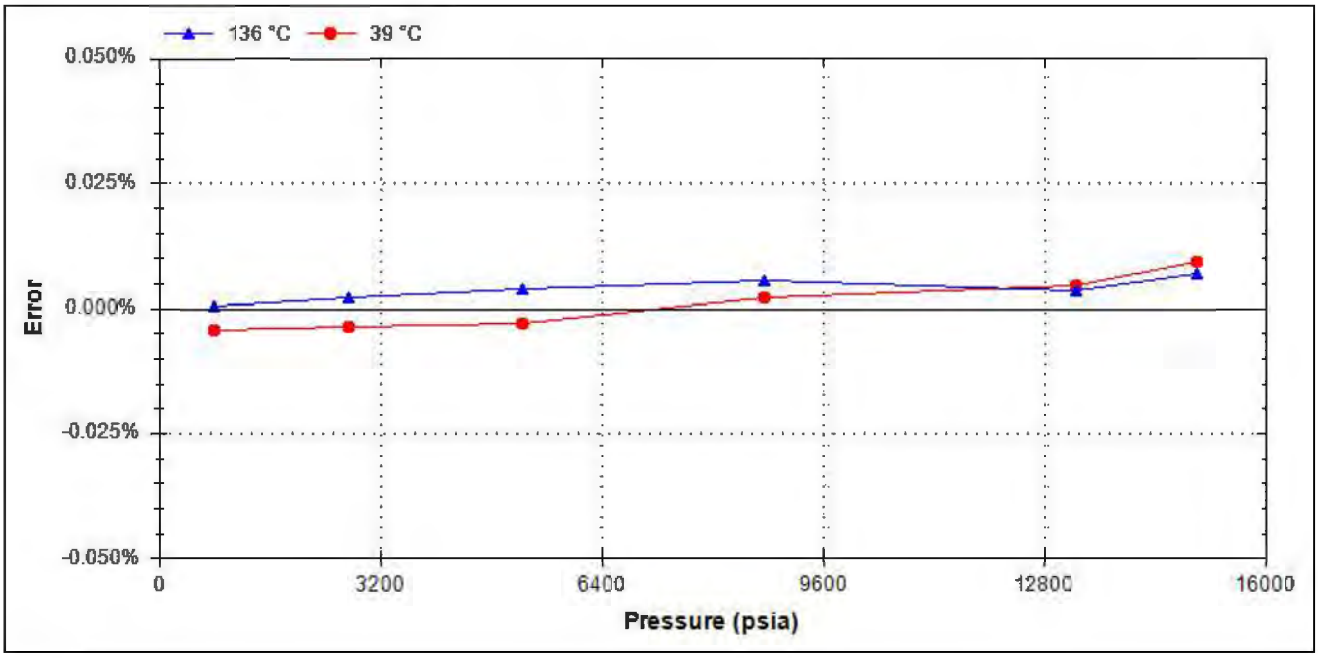
DataCan

"The Next Generation of Down Hole Tools"

Calibration Date:	28-May-21	**Calibration System:**	CALIBRATION03
Max Pressure Error:	0.010% F.S.	**Batch Number:**	20210104.143132
Max Temperature Error:	0.119 °C		
Part Number:	101696		
Serial Number:	224798		

1.25 OD Quartz DXB 2 Assembly			
Max Pressure		Max Temperature	
psi	kPa	°F	°C
16,000	110,316	351	177

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



Working Standards

Sun Electronic Systems Environmental Chamber, Model: EC127, Serial: EC0020

DHI Instruments Pressure Controller, Model: PPCH-200M (30,000psi Reference), Serial: 1529

Traceability Statement

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

Approved By:
DataCan Services Corp.

Calibrated By:
Angelo Pulido

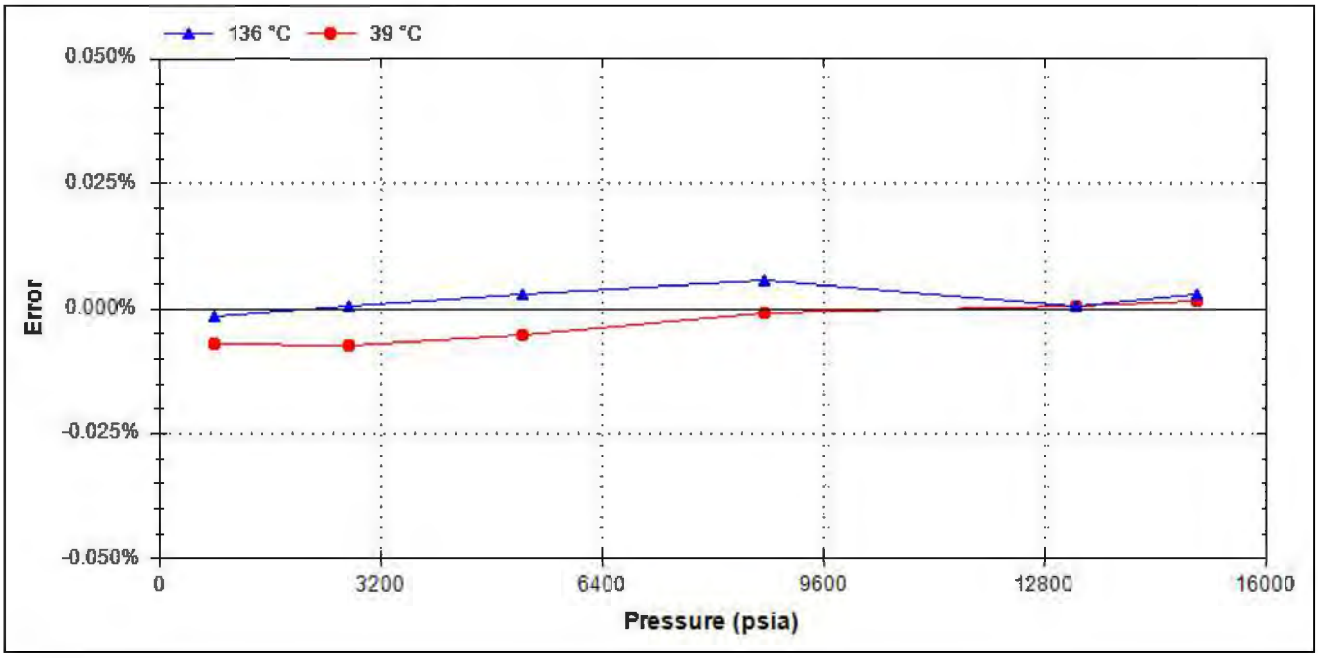
DataCan

"The Next Generation of Down Hole Tools"

Calibration Date:	28-May-21	**Calibration System:**	CALIBRATION03
Max Pressure Error:	0.010% F.S.	**Batch Number:**	20210104.143132
Max Temperature Error:	0.110 °C		
Part Number:	101696		
Serial Number:	224831		

1.25 OD Quartz DXB 2 Assembly			
Max Pressure		Max Temperature	
psi	kPa	°F	°C
16,000	110,316	351	177

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



Working Standards

Sun Electronic Systems Environmental Chamber, Model: EC127, Serial: EC0020

DHI Instruments Pressure Controller, Model: PPCH-200M (30,000psi Reference), Serial: 1529

Traceability Statement

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

Approved By:
DataCan Services Corp.

Calibrated By:
Angelo Pulido

Attachment 4
FESCO Injection Falloff Test Report

Petrotek

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

FLOWING GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	06/14/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Location:	Eddy County, NM
Field:	Davonia	Status:	Injecting
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2.5" EUE	Gauge Type:	Electronic
	Elevation: 15 ft above GL	Gauge SN:	SP-224831
	Tubing: 4.5" Set at 7568 ft (EOT)	Gauge Range:	10000 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 psig	BHT °F	Gauge Pressure psig	Delta Pressure psi	Pressure Gradient psi / ft	Comments
0	0	0	1020	102.81	1018.56	0.00	0.0000	
1000	1000	1000		102.46	1424.55	405.99	0.4060	
2000	2000	1000		102.06	1831.35	406.80	0.4068	
3000	3000	1000		101.74	2244.41	413.06	0.4131	
4000	4000	1000		101.55	2652.81	408.40	0.4084	
5000	5000	1000		101.53	3067.44	414.63	0.4146	
6000	6000	1000		101.71	3480.82	413.38	0.4134	
7000	7000	1000		102.10	3894.81	413.99	0.4140	
7572	7572	572	1020	102.37	4132.80	237.99	0.4161	

BHT at Test Depth:	102.37 °F	Oil Level:	Injecting	Previous BHP:	U/A
Extrapolated BHP at Datum:	4369.14 psig	Water Level:	Injecting	BHP Change:	U/A
BHP Gradient at Datum :	0.4161 psi/ft	Csg Press:	760 psig		

Remarks: RIH with electronic gauges making injecting gradient stops to 7572 ft. Injected water into well for 1 hr. SI well for 44.1 hr BHP Falloff Test. POOH making static gradient stops. RDMO.

Certified: FESCO, Ltd. - Midland, TX

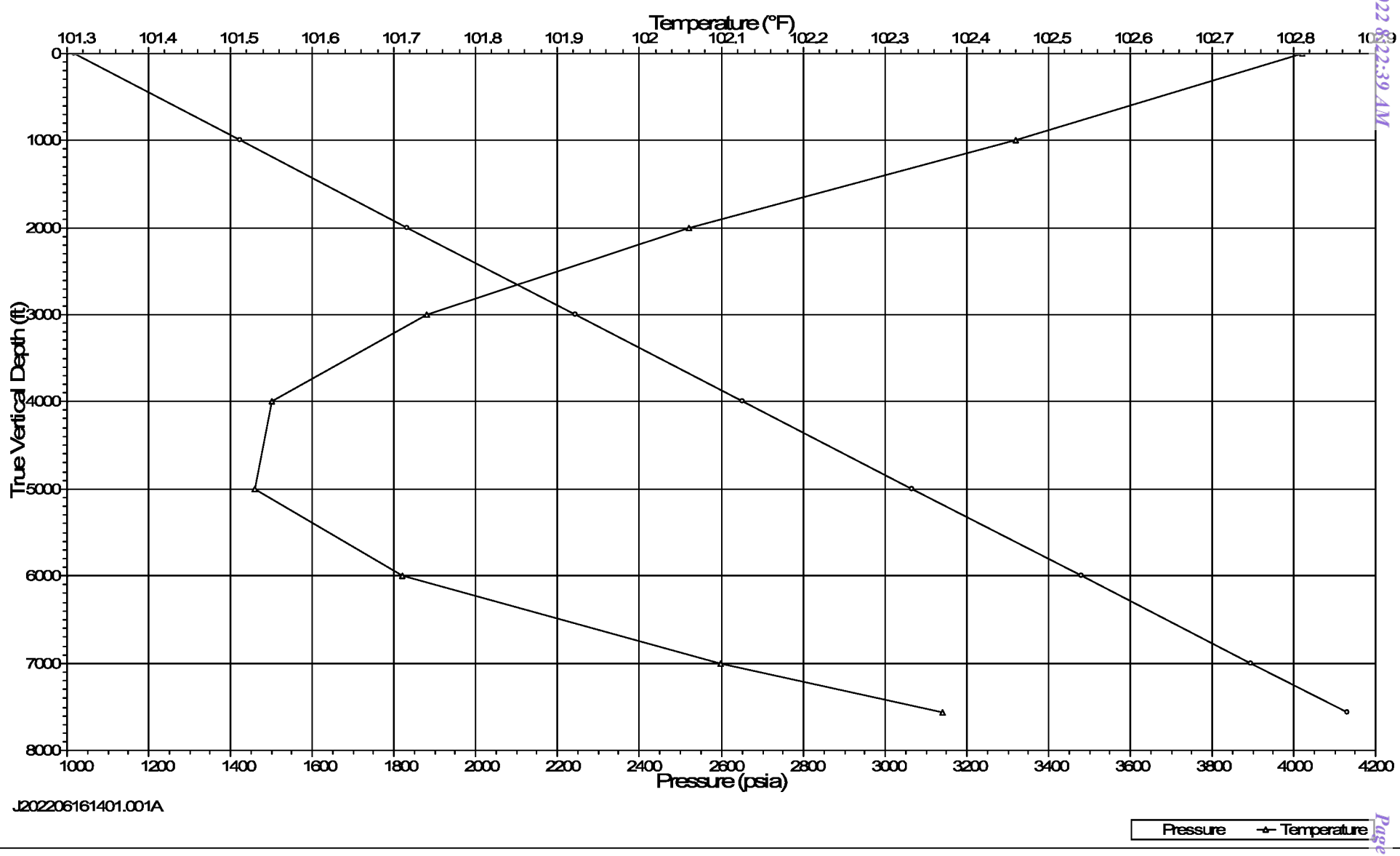
By: Michael Carnes
District Manager - (432) 332-3211

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 06/14/2022

Gauge Type: Electronic
Gauge Range: 10000 psi
Gauge SN: SP-224831

Flowing Gradient Plot



J202206161401.001A

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

STATIC GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Location:	Eddy County, NM
Field:	Davonia	Status:	SI for 44.1 hrs
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2.5" EUE	Gauge Type:	Electronic
	Elevation: 15 ft above GL	Gauge SN:	SP-224831
	Tubing: 4.5" Set at 7568 ft (EOT)	Gauge Range:	10000 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	740	77.14	740.41	0.00	0.0000	Water level at surface.
1000	1000	1000		83.74	1172.07	431.66	0.4317	
2000	2000	1000		87.43	1603.43	431.36	0.4314	
3000	3000	1000		91.23	2035.01	431.58	0.4316	
4000	4000	1000		94.61	2467.09	432.08	0.4321	
5000	5000	1000		98.66	2899.44	432.35	0.4323	
6000	6000	1000		103.40	3331.69	432.25	0.4323	
7000	7000	1000		108.00	3763.79	432.10	0.4321	
7572	7572	572	740	111.18	4011.62	247.83	0.4333	POOH after 44.1-hr Falloff Test.

BHT at Test Depth:	111.18 °F	Oil Level:	None	Previous BHP:	U/A
Extrapolated BHP at Datum:	4257.73 psia	Water Level:	Surface	BHP Change:	U/A
BHP Gradient at Datum :	0.4333 psi/ft	Csg Press:	760 psig		

Remarks: RIH with electronic gauges making injecting gradient stops to 7572 ft. Injected water into well for 1 hr. SI well for 44.1 hr BHP Falloff Test. POOH making static gradient stops. RDMO.

Certified: FESCO, Ltd. - Midland, TX

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

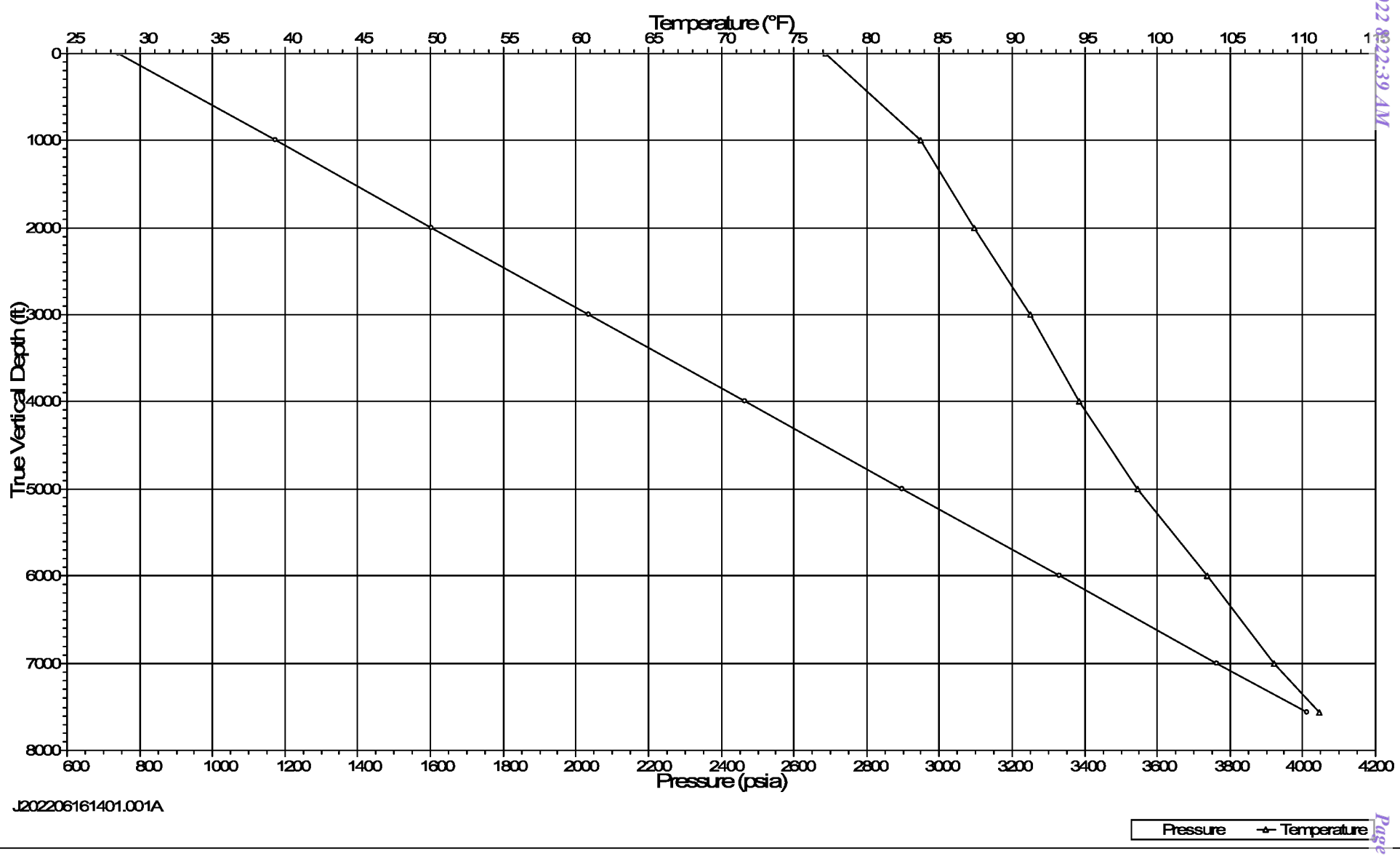
Job No.: J202206161401.001A

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 06/16/2022

Gauge Type: Electronic
Gauge Range: 10000 psi
Gauge SN: SP-224831

Static Gradient Plot

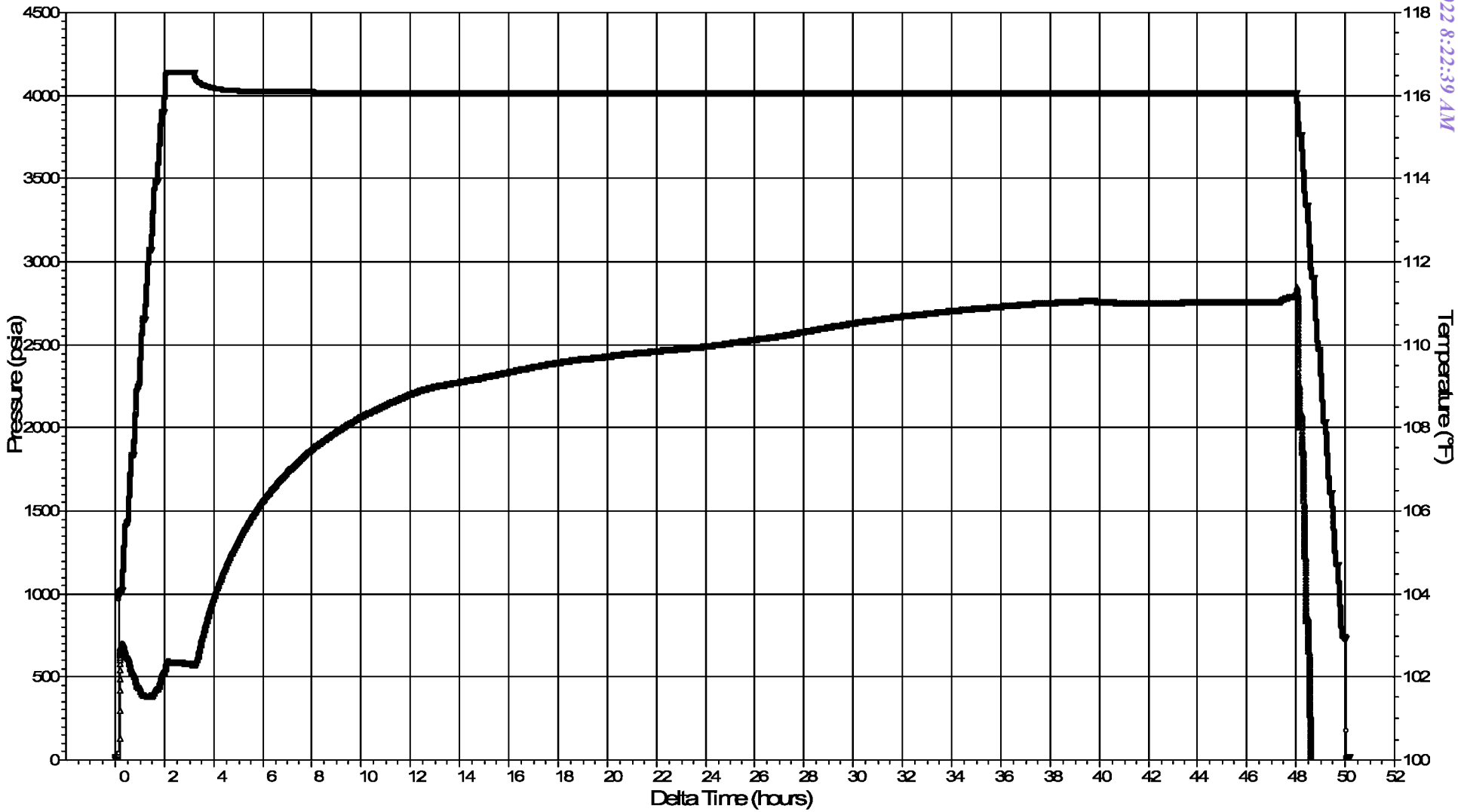


Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 06/14 - 06/16/2022

Gauge Type: Electronic
Gauge Range: 10000 psi
Gauge SN: SP-224831

Cartesian Plot



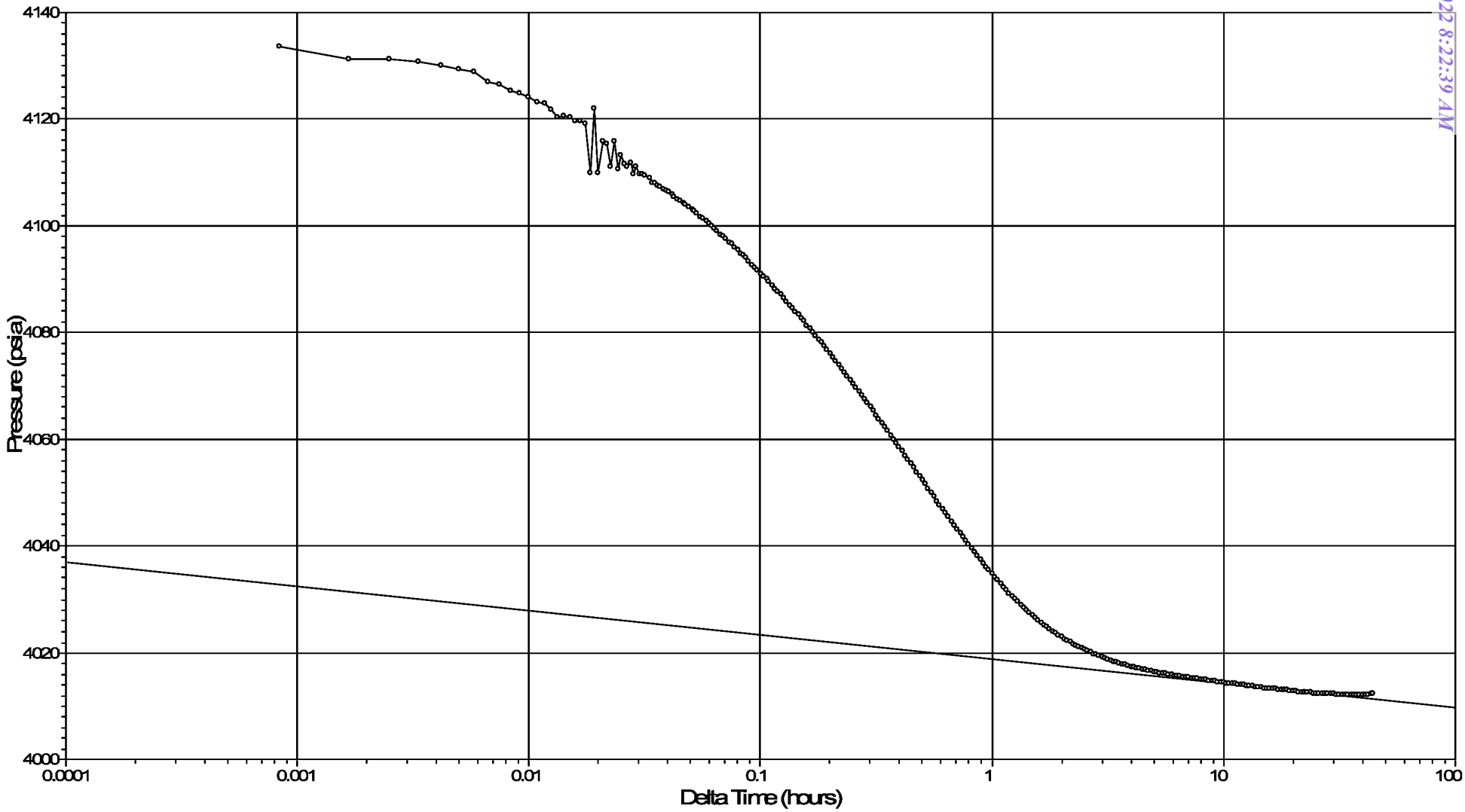
J20220616140l.001A

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 06/14 - 06/16/2022

Gauge Type: Electronic
Gauge Range: 10000 psi
Gauge SN: SP-224831

Semilog Plot (Falloff Test)



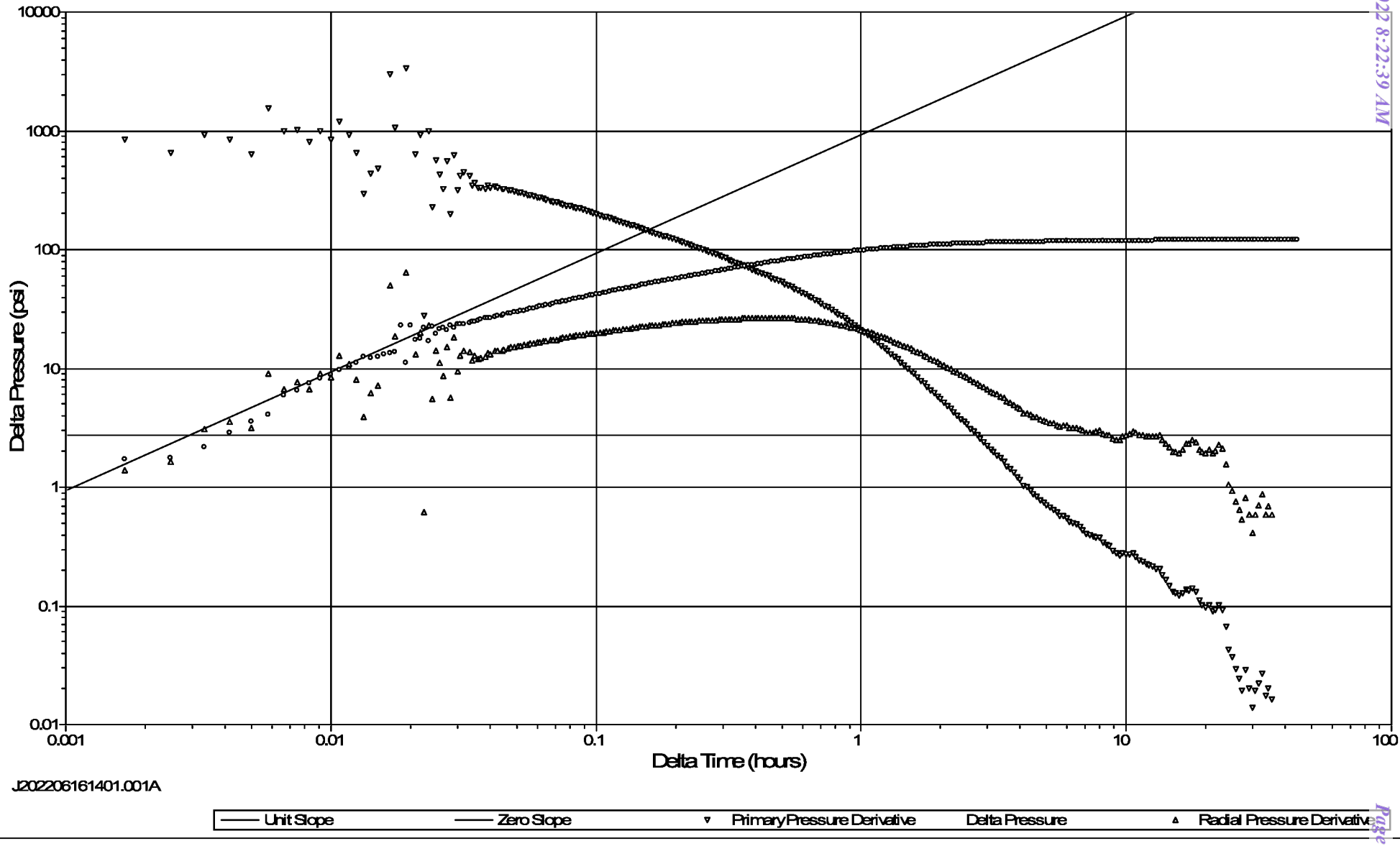
J20220616l401.001A

Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 3
Field: Davonia
Test Date: 06/14 - 06/16/2022

Gauge Type: Electronic
Gauge Range: 10000 psi
Gauge SN: SP-224831

Log Plot (Falloff Test)



FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	08:10:44	-3.22778		18.63		80.97	Powered up gauge.
06/14/22	08:12:00	-3.20667		18.31		80.75	
06/14/22	08:14:00	-3.17333		18.57		81.12	
06/14/22	08:16:00	-3.14000		18.61		81.26	
06/14/22	08:18:00	-3.10667		18.70		81.23	
06/14/22	08:19:00	-3.09000		21.48		80.92	
06/14/22	08:20:00	-3.07333		969.63		90.98	
06/14/22	08:20:06	-3.07167		983.99		92.67	Pressured up lubricator.
06/14/22	08:21:00	-3.05667		1008.16		96.40	
06/14/22	08:22:00	-3.04000		1013.49		96.19	
06/14/22	08:23:00	-3.02333		1011.98		95.13	
06/14/22	08:24:00	-3.00667		1004.12		100.51	
06/14/22	08:25:00	-2.99000		1019.75		102.73	
06/14/22	08:26:00	-2.97333		1019.96		102.79	
06/14/22	08:27:00	-2.95667		1022.42		102.81	
06/14/22	08:28:00	-2.94000		1018.33		102.81	
06/14/22	08:28:48	-2.92667		1018.84		102.81	Casing Pressure = 760 psig.
06/14/22	08:28:51	-2.92583	1020	1018.56		102.81	RIH making injecting gradient stops.
06/14/22	08:29:00	-2.92333		1018.26		102.81	
06/14/22	08:30:00	-2.90667		1066.46		102.74	
06/14/22	08:31:00	-2.89000		1126.42		102.78	
06/14/22	08:32:00	-2.87333		1180.19		102.76	
06/14/22	08:33:00	-2.85667		1228.26		102.73	
06/14/22	08:34:00	-2.84000		1269.21		102.68	
06/14/22	08:35:00	-2.82333		1318.63		102.61	
06/14/22	08:36:00	-2.80667		1357.62		102.55	
06/14/22	08:37:00	-2.79000		1393.94		102.51	
06/14/22	08:38:00	-2.77333		1426.01		102.47	Arrived at 1000 ft stop.
06/14/22	08:39:00	-2.75667		1430.32		102.47	
06/14/22	08:40:00	-2.74000		1420.96		102.46	
06/14/22	08:41:00	-2.72333		1424.35		102.46	
06/14/22	08:42:00	-2.70667		1424.11		102.46	
06/14/22	08:43:00	-2.69000		1425.29		102.46	
06/14/22	08:43:03	-2.68917		1424.55		102.46	Left 1000 ft stop.
06/14/22	08:44:00	-2.67333		1463.33		102.43	
06/14/22	08:45:00	-2.65667		1508.42		102.38	
06/14/22	08:46:00	-2.64000		1552.11		102.34	
06/14/22	08:47:00	-2.62333		1601.55		102.29	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	08:48:00	-2.60667		1643.04		102.25	
06/14/22	08:49:00	-2.59000		1690.56		102.21	
06/14/22	08:50:00	-2.57333		1735.59		102.17	
06/14/22	08:51:00	-2.55667		1781.04		102.13	
06/14/22	08:52:00	-2.54000		1827.63		102.09	
06/14/22	08:52:21	-2.53417		1834.29		102.08	Arrived at 2000 ft stop.
06/14/22	08:53:00	-2.52333		1833.20		102.07	
06/14/22	08:54:00	-2.50667		1836.15		102.07	
06/14/22	08:55:00	-2.49000		1832.32		102.07	
06/14/22	08:56:00	-2.47333		1832.77		102.07	
06/14/22	08:57:00	-2.45667		1834.87		102.06	
06/14/22	08:57:24	-2.45000		1831.35		102.06	Left 2000 ft stop.
06/14/22	08:58:00	-2.44000		1863.32		102.05	
06/14/22	08:59:00	-2.42333		1920.42		102.00	
06/14/22	09:00:00	-2.40667		1971.20		101.96	
06/14/22	09:01:00	-2.39000		2022.71		101.93	
06/14/22	09:02:00	-2.37333		2073.93		101.89	
06/14/22	09:03:00	-2.35667		2126.55		101.86	
06/14/22	09:04:00	-2.34000		2176.95		101.82	
06/14/22	09:05:00	-2.32333		2225.37		101.78	
06/14/22	09:05:27	-2.31583		2244.38		101.77	Arrived at 3000 ft stop.
06/14/22	09:06:00	-2.30667		2245.28		101.76	
06/14/22	09:07:00	-2.29000		2246.30		101.76	
06/14/22	09:08:00	-2.27333		2243.66		101.75	
06/14/22	09:09:00	-2.25667		2245.41		101.75	
06/14/22	09:10:00	-2.24000		2243.53		101.75	
06/14/22	09:10:33	-2.23083		2244.41		101.74	Left 3000 ft stop.
06/14/22	09:11:00	-2.22333		2260.74		101.74	
06/14/22	09:12:00	-2.20667		2307.55		101.71	
06/14/22	09:13:00	-2.19000		2353.02		101.68	
06/14/22	09:14:00	-2.17333		2399.49		101.66	
06/14/22	09:15:00	-2.15667		2444.64		101.63	
06/14/22	09:16:00	-2.14000		2491.26		101.61	
06/14/22	09:17:00	-2.12333		2539.28		101.60	
06/14/22	09:18:00	-2.10667		2581.80		101.58	
06/14/22	09:19:00	-2.09000		2633.81		101.57	
06/14/22	09:19:45	-2.07750		2657.27		101.56	Arrived at 4000 ft stop.
06/14/22	09:20:00	-2.07333		2657.52		101.56	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	09:21:00	-2.05667		2654.03		101.56	
06/14/22	09:22:00	-2.04000		2655.50		101.56	
06/14/22	09:23:00	-2.02333		2654.42		101.56	
06/14/22	09:24:00	-2.00667		2661.82		101.55	
06/14/22	09:24:36	-1.99667		2652.81		101.55	Left 4000 ft stop.
06/14/22	09:25:00	-1.99000		2665.86		101.55	
06/14/22	09:26:00	-1.97333		2708.84		101.54	
06/14/22	09:27:00	-1.95667		2747.75		101.53	
06/14/22	09:28:00	-1.94000		2787.10		101.53	
06/14/22	09:29:00	-1.92333		2828.20		101.53	
06/14/22	09:30:00	-1.90667		2869.61		101.52	
06/14/22	09:31:00	-1.89000		2909.25		101.52	
06/14/22	09:32:00	-1.87333		2951.16		101.53	
06/14/22	09:33:00	-1.85667		2991.89		101.53	
06/14/22	09:34:00	-1.84000		3036.04		101.53	
06/14/22	09:35:00	-1.82333		3064.50		101.54	
06/14/22	09:35:03	-1.82250		3067.47		101.54	Arrived at 5000 ft stop.
06/14/22	09:36:00	-1.80667		3068.46		101.54	
06/14/22	09:37:00	-1.79000		3068.11		101.54	
06/14/22	09:38:00	-1.77333		3067.32		101.53	
06/14/22	09:39:00	-1.75667		3066.65		101.53	
06/14/22	09:40:00	-1.74000		3067.44		101.53	Left 5000 ft stop.
06/14/22	09:41:00	-1.72333		3102.36		101.54	
06/14/22	09:42:00	-1.70667		3150.53		101.55	
06/14/22	09:43:00	-1.69000		3195.90		101.56	
06/14/22	09:44:00	-1.67333		3241.14		101.58	
06/14/22	09:45:00	-1.65667		3286.48		101.60	
06/14/22	09:46:00	-1.64000		3333.75		101.62	
06/14/22	09:47:00	-1.62333		3377.98		101.65	
06/14/22	09:48:00	-1.60667		3426.06		101.68	
06/14/22	09:49:00	-1.59000		3470.43		101.71	
06/14/22	09:49:24	-1.58333		3481.43		101.72	Arrived at 6000 ft stop.
06/14/22	09:50:00	-1.57333		3480.11		101.72	
06/14/22	09:51:00	-1.55667		3482.01		101.72	
06/14/22	09:52:00	-1.54000		3482.15		101.72	
06/14/22	09:53:00	-1.52333		3480.54		101.72	
06/14/22	09:54:00	-1.50667		3480.99		101.71	
06/14/22	09:54:33	-1.49750		3480.82		101.71	Left 6000 ft stop.

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	09:55:00	-1.49000		3492.05		101.72	
06/14/22	09:56:00	-1.47333		3530.46		101.74	
06/14/22	09:57:00	-1.45667		3566.64		101.77	
06/14/22	09:58:00	-1.44000		3602.26		101.80	
06/14/22	09:59:00	-1.42333		3641.20		101.83	
06/14/22	10:00:00	-1.40667		3680.00		101.87	
06/14/22	10:01:00	-1.39000		3714.75		101.91	
06/14/22	10:02:00	-1.37333		3754.00		101.95	
06/14/22	10:03:00	-1.35667		3790.41		101.99	
06/14/22	10:04:00	-1.34000		3831.34		102.03	
06/14/22	10:05:00	-1.32333		3873.83		102.07	
06/14/22	10:05:42	-1.31167		3895.36		102.10	Arrived at 7000 ft stop.
06/14/22	10:06:00	-1.30667		3894.62		102.11	
06/14/22	10:07:00	-1.29000		3894.62		102.11	
06/14/22	10:08:00	-1.27333		3894.65		102.10	
06/14/22	10:09:00	-1.25667		3894.73		102.10	
06/14/22	10:10:00	-1.24000		3894.96		102.10	
06/14/22	10:10:42	-1.22833		3894.81		102.10	Left 7000 ft stop.
06/14/22	10:11:00	-1.22333		3904.16		102.10	
06/14/22	10:12:00	-1.20667		3942.91		102.14	
06/14/22	10:13:00	-1.19000		3984.72		102.18	
06/14/22	10:14:00	-1.17333		4038.18		102.24	
06/14/22	10:15:00	-1.15667		4088.85		102.30	
06/14/22	10:16:00	-1.14000		4128.08		102.36	
06/14/22	10:16:15	-1.13583	1020	4133.16		102.36	Softset gauge at 7572 ft
06/14/22	10:16:18	-1.13500		4133.17		102.36	POOH with slickline
06/14/22	10:17:00	-1.12333		4133.10		102.37	
06/14/22	10:18:00	-1.10667		4133.13		102.37	
06/14/22	10:19:00	-1.09000		4133.00		102.37	
06/14/22	10:20:00	-1.07333		4132.98		102.37	
06/14/22	10:21:00	-1.05667		4133.10		102.37	
06/14/22	10:22:00	-1.04000	1020	4132.80		102.37	7572 ft stop.
06/14/22	10:23:00	-1.02333		4133.07		102.36	
06/14/22	10:24:00	-1.00667		4133.22		102.36	
06/14/22	10:25:00	-0.99000		4132.91		102.36	
06/14/22	10:26:00	-0.97333		4133.05		102.36	
06/14/22	10:27:00	-0.95667		4133.01		102.36	
06/14/22	10:28:00	-0.94000		4132.97		102.36	

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: 06/14 - 06/16/2022
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: SP-224831
Gauge Range: 10000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	10:29:00	-0.92333		4132.87		102.36	
06/14/22	10:30:00	-0.90667		4133.23		102.36	
06/14/22	10:31:00	-0.89000		4132.90		102.36	
06/14/22	10:32:00	-0.87333		4133.08		102.36	
06/14/22	10:33:00	-0.85667		4132.92		102.36	
06/14/22	10:34:00	-0.84000		4132.97		102.36	
06/14/22	10:35:00	-0.82333		4133.01		102.36	
06/14/22	10:36:00	-0.80667		4133.00		102.36	
06/14/22	10:37:00	-0.79000		4133.18		102.35	
06/14/22	10:38:00	-0.77333		4132.96		102.35	
06/14/22	10:39:00	-0.75667		4133.01		102.35	
06/14/22	10:40:00	-0.74000		4133.04		102.35	
06/14/22	10:41:00	-0.72333		4132.60		102.35	
06/14/22	10:42:00	-0.70667		4133.17		102.35	
06/14/22	10:43:00	-0.69000		4133.08		102.35	
06/14/22	10:44:00	-0.67333		4132.94		102.35	
06/14/22	10:45:00	-0.65667		4133.01		102.35	
06/14/22	10:46:00	-0.64000		4132.88		102.34	
06/14/22	10:47:00	-0.62333		4132.90		102.34	
06/14/22	10:48:00	-0.60667		4132.90		102.34	
06/14/22	10:49:00	-0.59000		4132.98		102.34	
06/14/22	10:50:00	-0.57333		4132.92		102.34	
06/14/22	10:51:00	-0.55667		4132.97		102.34	
06/14/22	10:52:00	-0.54000		4132.96		102.34	
06/14/22	10:53:00	-0.52333		4132.95		102.34	
06/14/22	10:54:00	-0.50667		4132.86		102.33	
06/14/22	10:55:00	-0.49000		4132.86		102.33	
06/14/22	10:56:00	-0.47333		4132.95		102.33	
06/14/22	10:57:00	-0.45667		4132.96		102.33	
06/14/22	10:58:00	-0.44000		4132.85		102.33	
06/14/22	10:59:00	-0.42333		4132.92		102.33	
06/14/22	11:00:00	-0.40667		4132.97		102.33	
06/14/22	11:01:00	-0.39000		4132.96		102.32	
06/14/22	11:02:00	-0.37333		4133.10		102.32	
06/14/22	11:03:00	-0.35667		4133.02		102.32	
06/14/22	11:04:00	-0.34000		4133.05		102.32	
06/14/22	11:05:00	-0.32333		4132.83		102.32	
06/14/22	11:06:00	-0.30667		4133.01		102.32	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	11:07:00	-0.29000		4133.13		102.31	
06/14/22	11:08:00	-0.27333		4133.04		102.31	
06/14/22	11:09:00	-0.25667		4132.96		102.31	
06/14/22	11:10:00	-0.24000		4133.15		102.31	
06/14/22	11:11:00	-0.22333		4132.92		102.31	
06/14/22	11:12:00	-0.20667		4132.91		102.31	
06/14/22	11:13:00	-0.19000		4133.07		102.31	
06/14/22	11:14:00	-0.17333		4132.90		102.30	
06/14/22	11:15:00	-0.15667		4133.10		102.30	
06/14/22	11:16:00	-0.14000		4132.96		102.30	
06/14/22	11:17:00	-0.12333		4133.02		102.30	
06/14/22	11:18:00	-0.10667		4133.13		102.30	
06/14/22	11:19:00	-0.09000		4133.08		102.30	
06/14/22	11:20:00	-0.07333		4133.33		102.30	
06/14/22	11:21:00	-0.05667		4133.00		102.29	
06/14/22	11:22:00	-0.04000		4133.10		102.29	
06/14/22	11:23:00	-0.02333		4132.95		102.29	
06/14/22	11:24:00	-0.00667		4132.99		102.29	
06/14/22	11:24:18	-0.00167		4133.17		102.29	Casing Pressure = 760 psig.
06/14/22	11:24:21	-0.00083		4132.94		102.29	Water Injection Rate = Unavailable.
06/14/22	11:24:24	0.00000		4132.91	0.00	102.29	Shut in well for 44.1 hr BHP Falloff Test.
06/14/22	11:24:27	0.00083		4133.70	0.79	102.29	
06/14/22	11:24:30	0.00167		4131.19	-1.72	102.29	
06/14/22	11:24:33	0.00250		4131.15	-1.76	102.29	
06/14/22	11:24:36	0.00333		4130.73	-2.18	102.29	
06/14/22	11:24:39	0.00417		4130.02	-2.89	102.29	
06/14/22	11:24:42	0.00500		4129.35	-3.56	102.29	
06/14/22	11:24:45	0.00583		4128.85	-4.06	102.29	
06/14/22	11:24:48	0.00667		4126.98	-5.93	102.29	
06/14/22	11:24:51	0.00750		4126.38	-6.53	102.29	
06/14/22	11:24:54	0.00833		4125.43	-7.48	102.29	
06/14/22	11:24:57	0.00917		4124.76	-8.15	102.29	
06/14/22	11:25:00	0.01000		4124.17	-8.74	102.29	
06/14/22	11:25:03	0.01083		4123.19	-9.72	102.29	
06/14/22	11:25:06	0.01167		4122.84	-10.07	102.29	
06/14/22	11:25:09	0.01250		4121.80	-11.11	102.29	
06/14/22	11:25:12	0.01333		4120.36	-12.55	102.29	
06/14/22	11:25:15	0.01417		4120.65	-12.26	102.29	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	11:25:18	0.01500		4120.28	-12.63	102.29	
06/14/22	11:25:21	0.01583		4119.70	-13.21	102.30	
06/14/22	11:25:24	0.01667		4119.63	-13.28	102.30	
06/14/22	11:25:27	0.01750		4119.16	-13.75	102.30	
06/14/22	11:25:30	0.01833		4109.86	-23.05	102.30	
06/14/22	11:25:33	0.01917		4121.92	-10.99	102.30	
06/14/22	11:25:36	0.02000		4110.03	-22.88	102.30	
06/14/22	11:25:39	0.02083		4115.77	-17.14	102.31	
06/14/22	11:25:42	0.02167		4115.26	-17.65	102.31	
06/14/22	11:25:45	0.02250		4111.06	-21.85	102.31	
06/14/22	11:25:48	0.02333		4115.80	-17.11	102.31	
06/14/22	11:25:51	0.02417		4110.64	-22.27	102.31	
06/14/22	11:25:54	0.02500		4113.31	-19.60	102.32	
06/14/22	11:25:57	0.02583		4111.63	-21.28	102.32	
06/14/22	11:26:00	0.02667		4111.01	-21.90	102.32	
06/14/22	11:26:03	0.02750		4111.85	-21.06	102.32	
06/14/22	11:26:06	0.02833		4109.77	-23.14	102.32	
06/14/22	11:26:09	0.02917		4111.07	-21.84	102.33	
06/14/22	11:26:12	0.03000		4109.57	-23.34	102.33	
06/14/22	11:26:15	0.03083		4109.62	-23.29	102.33	
06/14/22	11:26:18	0.03167		4109.51	-23.40	102.33	
06/14/22	11:26:24	0.03333		4108.87	-24.04	102.33	
06/14/22	11:26:27	0.03417		4108.12	-24.79	102.33	
06/14/22	11:26:30	0.03500		4108.09	-24.82	102.33	
06/14/22	11:26:33	0.03583		4107.64	-25.27	102.34	
06/14/22	11:26:36	0.03667		4107.30	-25.61	102.34	
06/14/22	11:26:42	0.03833		4106.76	-26.15	102.34	
06/14/22	11:26:45	0.03917		4106.60	-26.31	102.34	
06/14/22	11:26:48	0.04000		4106.25	-26.66	102.34	
06/14/22	11:26:54	0.04167		4105.82	-27.09	102.34	
06/14/22	11:26:57	0.04250		4105.50	-27.41	102.34	
06/14/22	11:27:03	0.04417		4104.98	-27.93	102.35	
06/14/22	11:27:06	0.04500		4104.73	-28.18	102.35	
06/14/22	11:27:12	0.04667		4104.20	-28.71	102.35	
06/14/22	11:27:15	0.04750		4103.97	-28.94	102.35	
06/14/22	11:27:21	0.04917		4103.45	-29.46	102.35	
06/14/22	11:27:27	0.05083		4102.95	-29.96	102.35	
06/14/22	11:27:30	0.05167		4102.71	-30.20	102.35	

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: 06/14 - 06/16/2022
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: SP-224831
Gauge Range: 10000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	11:27:36	0.05333		4102.22	-30.69	102.35	
06/14/22	11:27:42	0.05500		4101.74	-31.17	102.36	
06/14/22	11:27:48	0.05667		4101.27	-31.64	102.36	
06/14/22	11:27:54	0.05833		4100.81	-32.10	102.36	
06/14/22	11:28:00	0.06000		4100.35	-32.56	102.36	
06/14/22	11:28:06	0.06167		4099.91	-33.00	102.36	
06/14/22	11:28:12	0.06333		4099.46	-33.45	102.36	
06/14/22	11:28:18	0.06500		4099.03	-33.88	102.36	
06/14/22	11:28:27	0.06750		4098.40	-34.51	102.36	
06/14/22	11:28:33	0.06917		4097.97	-34.94	102.36	
06/14/22	11:28:39	0.07083		4097.56	-35.35	102.36	
06/14/22	11:28:48	0.07333		4096.96	-35.95	102.37	
06/14/22	11:28:54	0.07500		4096.57	-36.34	102.37	
06/14/22	11:29:03	0.07750		4095.98	-36.93	102.37	
06/14/22	11:29:12	0.08000		4095.41	-37.50	102.38	
06/14/22	11:29:21	0.08250		4094.85	-38.06	102.38	
06/14/22	11:29:27	0.08417		4094.48	-38.43	102.38	
06/14/22	11:29:36	0.08667		4093.94	-38.97	102.38	
06/14/22	11:29:45	0.08917		4093.40	-39.51	102.39	
06/14/22	11:29:57	0.09250		4092.70	-40.21	102.39	
06/14/22	11:30:06	0.09500		4092.18	-40.73	102.40	
06/14/22	11:30:15	0.09750		4091.68	-41.23	102.41	
06/14/22	11:30:27	0.10083		4091.01	-41.90	102.42	
06/14/22	11:30:36	0.10333		4090.53	-42.38	102.42	
06/14/22	11:30:48	0.10667		4089.90	-43.01	102.43	
06/14/22	11:30:57	0.10917		4089.43	-43.48	102.44	
06/14/22	11:31:09	0.11250		4088.83	-44.08	102.44	
06/14/22	11:31:21	0.11583		4088.23	-44.68	102.45	
06/14/22	11:31:33	0.11917		4087.64	-45.27	102.45	
06/14/22	11:31:45	0.12250		4087.07	-45.84	102.46	
06/14/22	11:32:00	0.12667		4086.37	-46.54	102.47	
06/14/22	11:32:12	0.13000		4085.81	-47.10	102.47	
06/14/22	11:32:27	0.13417		4085.13	-47.78	102.48	
06/14/22	11:32:39	0.13750		4084.60	-48.31	102.49	
06/14/22	11:32:54	0.14167		4083.95	-48.96	102.50	
06/14/22	11:33:09	0.14583		4083.32	-49.59	102.51	
06/14/22	11:33:24	0.15000		4082.69	-50.22	102.52	
06/14/22	11:33:39	0.15417		4082.09	-50.82	102.53	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	11:33:57	0.15917		4081.37	-51.54	102.54	
06/14/22	11:34:12	0.16333		4080.78	-52.13	102.55	
06/14/22	11:34:30	0.16833		4080.09	-52.82	102.56	
06/14/22	11:34:48	0.17333		4079.41	-53.50	102.58	
06/14/22	11:35:06	0.17833		4078.75	-54.16	102.59	
06/14/22	11:35:24	0.18333		4078.10	-54.81	102.61	
06/14/22	11:35:45	0.18917		4077.37	-55.54	102.62	
06/14/22	11:36:03	0.19417		4076.75	-56.16	102.64	
06/14/22	11:36:24	0.20000		4076.05	-56.86	102.65	
06/14/22	11:36:45	0.20583		4075.36	-57.55	102.67	
06/14/22	11:37:06	0.21167		4074.69	-58.22	102.68	
06/14/22	11:37:30	0.21833		4073.93	-58.98	102.69	
06/14/22	11:37:51	0.22417		4073.27	-59.64	102.71	
06/14/22	11:38:15	0.23083		4072.55	-60.36	102.73	
06/14/22	11:38:39	0.23750		4071.84	-61.07	102.75	
06/14/22	11:39:03	0.24417		4071.15	-61.76	102.77	
06/14/22	11:39:30	0.25167		4070.40	-62.51	102.79	
06/14/22	11:39:57	0.25917		4069.66	-63.25	102.81	
06/14/22	11:40:24	0.26667		4068.94	-63.97	102.83	
06/14/22	11:40:51	0.27417		4068.23	-64.68	102.85	
06/14/22	11:41:21	0.28250		4067.46	-65.45	102.87	
06/14/22	11:41:51	0.29083		4066.72	-66.19	102.89	
06/14/22	11:42:21	0.29917		4065.99	-66.92	102.90	
06/14/22	11:42:51	0.30750		4065.29	-67.62	102.92	
06/14/22	11:43:24	0.31667		4064.50	-68.41	102.94	
06/14/22	11:43:57	0.32583		4063.76	-69.15	102.97	
06/14/22	11:44:30	0.33500		4063.05	-69.86	102.99	
06/14/22	11:45:06	0.34500		4062.27	-70.64	103.01	
06/14/22	11:45:42	0.35500		4061.51	-71.40	103.03	
06/14/22	11:46:21	0.36583		4060.73	-72.18	103.06	
06/14/22	11:47:00	0.37667		4059.96	-72.95	103.08	
06/14/22	11:47:39	0.38750		4059.20	-73.71	103.11	
06/14/22	11:48:18	0.39833		4058.47	-74.44	103.13	
06/14/22	11:49:00	0.41000		4057.70	-75.21	103.16	
06/14/22	11:49:45	0.42250		4056.89	-76.02	103.19	
06/14/22	11:50:27	0.43417		4056.17	-76.74	103.21	
06/14/22	11:51:15	0.44750		4055.35	-77.56	103.24	
06/14/22	11:52:00	0.46000		4054.62	-78.29	103.26	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	11:52:48	0.47333		4053.84	-79.07	103.30	
06/14/22	11:53:39	0.48750		4053.05	-79.86	103.33	
06/14/22	11:54:30	0.50167		4052.29	-80.62	103.36	
06/14/22	11:55:21	0.51583		4051.53	-81.38	103.39	
06/14/22	11:56:18	0.53167		4050.72	-82.19	103.43	
06/14/22	11:57:12	0.54667		4049.98	-82.93	103.45	
06/14/22	11:58:09	0.56250		4049.21	-83.70	103.49	
06/14/22	11:59:09	0.57917		4048.43	-84.48	103.52	
06/14/22	12:00:09	0.59583		4047.68	-85.23	103.56	
06/14/22	12:01:12	0.61333		4046.91	-86.00	103.59	
06/14/22	12:02:18	0.63167		4046.13	-86.78	103.63	
06/14/22	12:03:24	0.65000		4045.38	-87.53	103.66	
06/14/22	12:04:33	0.66917		4044.62	-88.29	103.70	
06/14/22	12:05:42	0.68833		4043.89	-89.02	103.73	
06/14/22	12:06:54	0.70833		4043.15	-89.76	103.77	
06/14/22	12:08:09	0.72917		4042.41	-90.50	103.81	
06/14/22	12:09:24	0.75000		4041.69	-91.22	103.84	
06/14/22	12:10:45	0.77250		4040.95	-91.96	103.88	
06/14/22	12:12:06	0.79500		4040.23	-92.68	103.92	
06/14/22	12:13:30	0.81833		4039.52	-93.39	103.96	
06/14/22	12:14:54	0.84167		4038.83	-94.08	104.00	
06/14/22	12:16:24	0.86667		4038.14	-94.77	104.04	
06/14/22	12:17:54	0.89167		4037.45	-95.46	104.09	
06/14/22	12:19:27	0.91750		4036.78	-96.13	104.12	
06/14/22	12:21:03	0.94417		4036.12	-96.79	104.17	
06/14/22	12:22:42	0.97167		4035.46	-97.45	104.21	
06/14/22	12:24:27	1.00083		4034.79	-98.12	104.27	
06/14/22	12:26:12	1.03000		4034.15	-98.76	104.31	
06/14/22	12:28:00	1.06000		4033.54	-99.37	104.35	
06/14/22	12:29:51	1.09083		4032.92	-99.99	104.40	
06/14/22	12:31:45	1.12250		4032.32	-100.59	104.45	
06/14/22	12:33:42	1.15500		4031.74	-101.17	104.50	
06/14/22	12:35:45	1.18917		4031.15	-101.76	104.55	
06/14/22	12:37:48	1.22333		4030.60	-102.31	104.60	
06/14/22	12:39:57	1.25917		4030.04	-102.87	104.65	
06/14/22	12:42:09	1.29583		4029.50	-103.41	104.70	
06/14/22	12:44:27	1.33417		4028.97	-103.94	104.75	
06/14/22	12:46:45	1.37250		4028.46	-104.45	104.80	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	12:49:12	1.41333		4027.95	-104.96	104.85	
06/14/22	12:51:39	1.45417		4027.46	-105.45	104.91	
06/14/22	12:54:12	1.49667		4026.99	-105.92	104.96	
06/14/22	12:56:48	1.54000		4026.53	-106.38	105.01	
06/14/22	12:59:30	1.58500		4026.08	-106.83	105.07	
06/14/22	13:02:18	1.63167		4025.64	-107.27	105.12	
06/14/22	13:05:09	1.67917		4025.22	-107.69	105.18	
06/14/22	13:08:06	1.72833		4024.80	-108.11	105.23	
06/14/22	13:11:06	1.77833		4024.41	-108.50	105.30	
06/14/22	13:14:15	1.83083		4024.01	-108.90	105.35	
06/14/22	13:17:27	1.88417		4023.64	-109.27	105.41	
06/14/22	13:20:45	1.93917		4023.28	-109.63	105.47	
06/14/22	13:24:09	1.99583		4022.93	-109.98	105.53	
06/14/22	13:27:39	2.05417		4022.59	-110.32	105.59	
06/14/22	13:31:15	2.11417		4022.26	-110.65	105.65	
06/14/22	13:34:57	2.17583		4021.95	-110.96	105.71	
06/14/22	13:38:45	2.23917		4021.64	-111.27	105.78	
06/14/22	13:42:39	2.30417		4021.35	-111.56	105.83	
06/14/22	13:46:42	2.37167		4021.06	-111.85	105.89	
06/14/22	13:50:51	2.44083		4020.78	-112.13	105.96	
06/14/22	13:55:09	2.51250		4020.53	-112.38	106.02	
06/14/22	13:59:33	2.58583		4020.26	-112.65	106.08	
06/14/22	14:04:03	2.66083		4020.02	-112.89	106.14	
06/14/22	14:08:45	2.73917		4019.78	-113.13	106.22	
06/14/22	14:13:33	2.81917		4019.55	-113.36	106.28	
06/14/22	14:18:27	2.90083		4019.32	-113.59	106.34	
06/14/22	14:23:33	2.98583		4019.10	-113.81	106.41	
06/14/22	14:28:48	3.07333		4018.90	-114.01	106.47	
06/14/22	14:34:09	3.16250		4018.71	-114.20	106.53	
06/14/22	14:39:42	3.25500		4018.52	-114.39	106.60	
06/14/22	14:45:24	3.35000		4018.34	-114.57	106.67	
06/14/22	14:51:15	3.44750		4018.15	-114.76	106.73	
06/14/22	14:57:18	3.54833		4017.98	-114.93	106.80	
06/14/22	15:03:33	3.65250		4017.83	-115.08	106.86	
06/14/22	15:09:57	3.75917		4017.66	-115.25	106.94	
06/14/22	15:16:30	3.86833		4017.51	-115.40	107.00	
06/14/22	15:23:18	3.98167		4017.36	-115.55	107.07	
06/14/22	15:30:15	4.09750		4017.21	-115.70	107.13	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	15:37:27	4.21750		4017.10	-115.81	107.20	
06/14/22	15:44:51	4.34083		4016.97	-115.94	107.26	
06/14/22	15:52:27	4.46750		4016.84	-116.07	107.33	
06/14/22	16:00:15	4.59750		4016.74	-116.17	107.40	
06/14/22	16:08:18	4.73167		4016.61	-116.30	107.46	
06/14/22	16:16:36	4.87000		4016.52	-116.39	107.53	
06/14/22	16:25:09	5.01250		4016.41	-116.50	107.59	
06/14/22	16:33:54	5.15833		4016.30	-116.61	107.66	
06/14/22	16:42:57	5.30917		4016.21	-116.70	107.72	
06/14/22	16:52:15	5.46417		4016.11	-116.80	107.79	
06/14/22	17:01:51	5.62417		4016.01	-116.90	107.86	
06/14/22	17:11:42	5.78833		4015.93	-116.98	107.92	
06/14/22	17:21:48	5.95667		4015.83	-117.08	107.98	
06/14/22	17:32:15	6.13083		4015.74	-117.17	108.05	
06/14/22	17:43:00	6.31000		4015.65	-117.26	108.11	
06/14/22	17:54:03	6.49417		4015.57	-117.34	108.17	
06/14/22	18:05:27	6.68417		4015.49	-117.42	108.24	
06/14/22	18:17:09	6.87917		4015.39	-117.52	108.30	
06/14/22	18:29:12	7.08000		4015.30	-117.61	108.36	
06/14/22	18:41:36	7.28667		4015.23	-117.68	108.42	
06/14/22	18:54:21	7.49917		4015.14	-117.77	108.48	
06/14/22	19:07:30	7.71833		4015.06	-117.85	108.54	
06/14/22	19:21:00	7.94333		4014.99	-117.92	108.60	
06/14/22	19:34:57	8.17583		4014.91	-118.00	108.66	
06/14/22	19:49:15	8.41417		4014.84	-118.07	108.72	
06/14/22	20:04:00	8.66000		4014.77	-118.14	108.78	
06/14/22	20:19:12	8.91333		4014.68	-118.23	108.84	
06/14/22	20:34:48	9.17333		4014.59	-118.32	108.89	
06/14/22	20:50:51	9.44083		4014.51	-118.40	108.94	
06/14/22	21:07:24	9.71667		4014.46	-118.45	108.97	
06/14/22	21:24:27	10.00083		4014.40	-118.51	109.01	
06/14/22	21:41:57	10.29250		4014.33	-118.58	109.05	
06/14/22	22:00:00	10.59333		4014.27	-118.64	109.08	
06/14/22	22:18:33	10.90250		4014.19	-118.72	109.12	
06/14/22	22:37:39	11.22083		4014.11	-118.80	109.15	
06/14/22	22:57:18	11.54833		4014.03	-118.88	109.19	
06/14/22	23:17:33	11.88583		4013.96	-118.95	109.23	
06/14/22	23:38:21	12.23250		4013.88	-119.03	109.27	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/14/22	23:59:48	12.59000		4013.80	-119.11	109.32	
06/15/22	00:21:51	12.95750		4013.73	-119.18	109.36	
06/15/22	00:44:33	13.33583		4013.67	-119.24	109.41	
06/15/22	01:07:54	13.72500		4013.59	-119.32	109.46	
06/15/22	01:31:57	14.12583		4013.53	-119.38	109.50	
06/15/22	01:56:42	14.53833		4013.45	-119.46	109.54	
06/15/22	02:22:09	14.96250		4013.37	-119.54	109.58	
06/15/22	02:48:24	15.40000		4013.30	-119.61	109.62	
06/15/22	03:15:21	15.84917		4013.23	-119.68	109.66	
06/15/22	03:43:09	16.31250		4013.19	-119.72	109.69	
06/15/22	04:11:42	16.78833		4013.16	-119.75	109.72	
06/15/22	04:41:06	17.27833		4013.11	-119.80	109.76	
06/15/22	05:11:24	17.78333		4013.06	-119.85	109.79	
06/15/22	05:42:33	18.30250		4012.99	-119.92	109.82	
06/15/22	06:14:36	18.83667		4012.93	-119.98	109.85	
06/15/22	06:47:36	19.38667		4012.86	-120.05	109.88	
06/15/22	07:21:36	19.95333		4012.79	-120.12	109.91	
06/15/22	07:56:33	20.53583		4012.74	-120.17	109.94	
06/15/22	08:32:30	21.13500		4012.66	-120.25	109.98	
06/15/22	09:09:33	21.75250		4012.61	-120.30	110.03	
06/15/22	09:47:39	22.38750		4012.60	-120.31	110.09	
06/15/22	10:26:54	23.04167		4012.55	-120.36	110.14	
06/15/22	11:07:15	23.71417		4012.49	-120.42	110.19	
06/15/22	11:48:48	24.40667		4012.41	-120.50	110.27	
06/15/22	12:31:33	25.11917		4012.36	-120.55	110.35	
06/15/22	13:15:33	25.85250		4012.29	-120.62	110.43	
06/15/22	14:00:51	26.60750		4012.24	-120.67	110.50	
06/15/22	14:47:30	27.38500		4012.21	-120.70	110.57	
06/15/22	15:35:27	28.18417		4012.25	-120.66	110.64	
06/15/22	16:24:51	29.00750		4012.26	-120.65	110.69	
06/15/22	17:15:39	29.85417		4012.23	-120.68	110.75	
06/15/22	18:07:57	30.72583		4012.19	-120.72	110.80	
06/15/22	19:01:48	31.62333		4012.16	-120.75	110.86	
06/15/22	19:57:12	32.54667		4012.15	-120.76	110.90	
06/15/22	20:54:12	33.49667		4012.14	-120.77	110.95	
06/15/22	21:52:54	34.47500		4012.19	-120.72	110.99	
06/15/22	22:53:18	35.48167		4012.19	-120.72	111.03	
06/15/22	23:55:27	36.51750		4012.12	-120.79	111.05	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/16/22	00:59:27	37.58417		4012.07	-120.84	111.01	
06/16/22	02:05:18	38.68167		4012.03	-120.88	111.00	
06/16/22	03:13:03	39.81083		4012.07	-120.84	111.01	
06/16/22	04:22:48	40.97333		4012.10	-120.81	111.02	
06/16/22	05:34:36	42.17000		4012.12	-120.79	111.03	
06/16/22	06:48:30	43.40167		4012.20	-120.71	111.02	
06/16/22	07:28:33	44.06917		4012.27	-120.64	111.03	Casing Pressure = 760 psig.
06/16/22	07:28:36	44.07000		4012.27	-120.64	111.03	Ended BHP Falloff Test.
06/16/22	07:28:39	44.07083		4012.26		111.03	Pressured up lubricator.
06/16/22	07:28:42	44.07167		4012.20		111.03	RIH with slickline to retrieve gauge.
06/16/22	07:29:00	44.07667		4011.52		111.05	
06/16/22	07:30:00	44.09333		4011.57		111.06	
06/16/22	07:35:00	44.17667		4011.59		111.09	
06/16/22	07:40:00	44.26000		4011.60		111.11	
06/16/22	07:45:00	44.34333		4011.61		111.13	
06/16/22	07:50:00	44.42667		4011.61		111.14	
06/16/22	07:55:00	44.51000		4011.62		111.15	
06/16/22	08:00:00	44.59333		4011.62		111.16	
06/16/22	08:05:00	44.67667		4011.61		111.17	
06/16/22	08:10:00	44.76000		4011.62		111.18	
06/16/22	08:11:00	44.77667		4011.61		111.18	
06/16/22	08:12:00	44.79333		4011.62		111.18	
06/16/22	08:13:00	44.81000		4011.62		111.18	
06/16/22	08:13:09	44.81250		4011.62		111.18	POOH making static gradient stops.
06/16/22	08:14:00	44.82667		3980.65		111.37	
06/16/22	08:15:00	44.84333		3943.95		110.99	
06/16/22	08:16:00	44.86000		3901.99		110.73	
06/16/22	08:17:00	44.87667		3862.26		110.15	
06/16/22	08:18:00	44.89333		3819.62		108.89	
06/16/22	08:19:00	44.91000		3778.93		108.11	
06/16/22	08:19:24	44.91667		3764.03		108.05	Arrived at 7000 ft stop.
06/16/22	08:20:00	44.92667		3763.82		108.01	
06/16/22	08:21:00	44.94333		3763.79		108.01	
06/16/22	08:22:00	44.96000		3763.79		108.01	
06/16/22	08:23:00	44.97667		3763.78		108.00	
06/16/22	08:24:00	44.99333		3763.78		108.00	
06/16/22	08:24:24	45.00000		3763.79		108.00	Left 7000 ft stop.
06/16/22	08:25:00	45.01000		3743.70		108.02	

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: 06/14 - 06/16/2022
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: SP-224831
Gauge Range: 10000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/16/22	08:26:00	45.02667		3707.33		107.69	
06/16/22	08:27:00	45.04333		3667.62		107.42	
06/16/22	08:28:00	45.06000		3628.06		107.19	
06/16/22	08:29:00	45.07667		3588.19		106.86	
06/16/22	08:30:00	45.09333		3548.98		106.31	
06/16/22	08:31:00	45.11000		3508.68		105.73	
06/16/22	08:32:00	45.12667		3467.69		105.34	
06/16/22	08:33:00	45.14333		3423.72		104.99	
06/16/22	08:34:00	45.16000		3379.13		103.93	
06/16/22	08:35:00	45.17667		3334.04		103.36	
06/16/22	08:35:06	45.17833		3331.59		103.37	Arrived at 6000 ft stop.
06/16/22	08:36:00	45.19333		3331.66		103.39	
06/16/22	08:37:00	45.21000		3331.68		103.40	
06/16/22	08:38:00	45.22667		3331.67		103.40	
06/16/22	08:39:00	45.24333		3331.66		103.40	
06/16/22	08:40:00	45.26000		3331.66		103.40	
06/16/22	08:40:06	45.26167		3331.69		103.40	Left 6000 ft stop.
06/16/22	08:41:00	45.27667		3294.39		103.13	
06/16/22	08:42:00	45.29333		3250.01		102.85	
06/16/22	08:43:00	45.31000		3206.05		102.22	
06/16/22	08:44:00	45.32667		3161.76		101.81	
06/16/22	08:45:00	45.34333		3117.15		101.32	
06/16/22	08:46:00	45.36000		3072.62		100.86	
06/16/22	08:47:00	45.37667		3028.21		100.30	
06/16/22	08:48:00	45.39333		2983.48		99.76	
06/16/22	08:49:00	45.41000		2938.85		99.24	
06/16/22	08:49:57	45.42583		2899.88		98.75	Arrived at 5000 ft stop.
06/16/22	08:50:00	45.42667		2899.83		98.73	
06/16/22	08:51:00	45.44333		2899.46		98.67	
06/16/22	08:52:00	45.46000		2899.46		98.67	
06/16/22	08:53:00	45.47667		2899.45		98.66	
06/16/22	08:54:00	45.49333		2899.45		98.66	
06/16/22	08:54:57	45.50917		2899.44		98.66	Left 5000 ft stop.
06/16/22	08:55:00	45.51000		2899.20		98.66	
06/16/22	08:56:00	45.52667		2857.89		98.29	
06/16/22	08:57:00	45.54333		2815.17		97.85	
06/16/22	08:58:00	45.56000		2772.74		97.46	
06/16/22	08:59:00	45.57667		2730.35		97.11	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/16/22	09:00:00	45.59333		2687.78		96.79	
06/16/22	09:01:00	45.61000		2645.19		96.36	
06/16/22	09:02:00	45.62667		2602.27		95.93	
06/16/22	09:03:00	45.64333		2559.31		95.65	
06/16/22	09:04:00	45.66000		2516.52		95.14	
06/16/22	09:05:00	45.67667		2473.49		94.75	
06/16/22	09:05:15	45.68083		2467.34		94.66	Arrived at 4000 ft stop.
06/16/22	09:06:00	45.69333		2467.11		94.62	
06/16/22	09:07:00	45.71000		2467.09		94.62	
06/16/22	09:08:00	45.72667		2467.10		94.62	
06/16/22	09:09:00	45.74333		2467.10		94.61	
06/16/22	09:10:00	45.76000		2467.10		94.61	
06/16/22	09:10:12	45.76333		2467.09		94.61	Left 4000 ft stop.
06/16/22	09:11:00	45.77667		2433.95		94.40	
06/16/22	09:12:00	45.79333		2383.73		93.94	
06/16/22	09:13:00	45.81000		2331.02		93.67	
06/16/22	09:14:00	45.82667		2279.34		93.23	
06/16/22	09:15:00	45.84333		2226.82		92.83	
06/16/22	09:16:00	45.86000		2177.38		92.46	
06/16/22	09:17:00	45.87667		2126.88		92.09	
06/16/22	09:18:00	45.89333		2075.47		91.77	
06/16/22	09:18:51	45.90750		2035.67		91.35	Arrived at 3000 ft stop.
06/16/22	09:19:00	45.91000		2035.25		91.29	
06/16/22	09:20:00	45.92667		2035.01		91.25	
06/16/22	09:21:00	45.94333		2035.02		91.24	
06/16/22	09:22:00	45.96000		2035.02		91.24	
06/16/22	09:23:00	45.97667		2035.01		91.24	
06/16/22	09:23:51	45.99083		2035.01		91.23	Left 3000 ft stop.
06/16/22	09:24:00	45.99333		2030.94		91.24	
06/16/22	09:25:00	46.01000		1991.94		91.00	
06/16/22	09:26:00	46.02667		1950.55		90.74	
06/16/22	09:27:00	46.04333		1907.33		90.42	
06/16/22	09:28:00	46.06000		1864.08		90.13	
06/16/22	09:29:00	46.07667		1820.00		89.21	
06/16/22	09:30:00	46.09333		1775.85		88.86	
06/16/22	09:31:00	46.11000		1732.25		88.33	
06/16/22	09:32:00	46.12667		1687.96		87.95	
06/16/22	09:33:00	46.14333		1644.02		87.76	

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: 06/14 - 06/16/2022
Gauge Depth: 7572 ft
Gauge Type: Electronic
Gauge SN: SP-224831
Gauge Range: 10000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/16/22	09:34:00	46.16000		1604.33		87.53	Arrived at 2000 ft stop.
06/16/22	09:35:00	46.17667		1603.44		87.44	
06/16/22	09:36:00	46.19333		1603.43		87.44	
06/16/22	09:37:00	46.21000		1603.44		87.44	
06/16/22	09:38:00	46.22667		1603.43		87.43	
06/16/22	09:39:00	46.24333		1603.42		87.43	
06/16/22	09:39:03	46.24417		1603.43		87.43	Left 2000 ft stop.
06/16/22	09:40:00	46.26000		1565.04		87.48	
06/16/22	09:41:00	46.27667		1521.57		87.07	
06/16/22	09:42:00	46.29333		1477.74		86.70	
06/16/22	09:43:00	46.31000		1434.07		86.16	
06/16/22	09:44:00	46.32667		1390.38		85.90	
06/16/22	09:45:00	46.34333		1346.96		85.76	
06/16/22	09:46:00	46.36000		1302.67		85.26	
06/16/22	09:47:00	46.37667		1258.23		84.93	
06/16/22	09:48:00	46.39333		1215.17		84.68	
06/16/22	09:49:00	46.41000		1172.77		83.82	
06/16/22	09:49:03	46.41083		1172.38		83.80	Arrived at 1000 ft stop.
06/16/22	09:50:00	46.42667		1172.03		83.75	
06/16/22	09:51:00	46.44333		1172.05		83.75	
06/16/22	09:52:00	46.46000		1172.06		83.74	
06/16/22	09:53:00	46.47667		1172.06		83.74	
06/16/22	09:54:00	46.49333		1172.06		83.74	
06/16/22	09:54:09	46.49583		1172.07		83.74	Left 1000 ft stop.
06/16/22	09:55:00	46.51000		1134.79		83.86	
06/16/22	09:56:00	46.52667		1089.80		83.47	
06/16/22	09:57:00	46.54333		1044.18		84.27	
06/16/22	09:58:00	46.56000		998.08		83.97	
06/16/22	09:59:00	46.57667		955.31		81.27	
06/16/22	10:00:00	46.59333		904.40		79.09	
06/16/22	10:01:00	46.61000		855.52		81.62	
06/16/22	10:02:00	46.62667		821.66		82.79	
06/16/22	10:03:00	46.64333		782.63		83.35	
06/16/22	10:04:00	46.66000		749.23		80.31	
06/16/22	10:04:48	46.67333		740.82		77.62	Gauge at surface.
06/16/22	10:05:00	46.67667		740.64		77.53	
06/16/22	10:06:00	46.69333		740.50		77.35	
06/16/22	10:07:00	46.71000		740.43		77.20	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	06/14 - 06/16/2022
Well:	Navajo Refining Waste Disposal Well No. 3	Gauge Depth:	7572 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-224831
Perfs:	7660 - 8450; 8540 - 8620 ft (MD)	Gauge Range:	10000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
06/16/22	10:08:00	46.72667		740.41		77.17	
06/16/22	10:09:00	46.74333		740.42		77.14	
06/16/22	10:09:09	46.74583	740	740.41		77.14	Surface stop.
06/16/22	10:10:00	46.76000		726.39		81.48	
06/16/22	10:11:00	46.77667		732.82		82.98	
06/16/22	10:12:00	46.79333		732.81		83.21	
06/16/22	10:13:00	46.81000		732.10		83.47	
06/16/22	10:13:21	46.81583		729.96		83.54	Pressured down lubricator.
06/16/22	10:14:00	46.82667		-1.57		83.53	
06/16/22	10:15:00	46.84333		-2.30		83.68	
06/16/22	10:16:00	46.86000		-2.38		83.97	
06/16/22	10:17:00	46.87667		2.23		84.48	
06/16/22	10:17:36	46.88667		15.16		85.42	Test completed.
06/16/22	10:18:00	46.89333		15.84		81.86	
06/16/22	10:19:00	46.91000		9.35		79.32	
06/16/22	10:20:00	46.92667		11.36		80.50	
06/16/22	10:21:00	46.94333		12.34		80.29	
06/16/22	10:22:00	46.96000		13.25		80.05	Powered down gauge.

Remarks: RIH with electronic gauges making injecting gradient stops to 7572 ft. Injected water into well for 1 hr. SI well for 44.1 hr BHP Falloff Test. POOH making static gradient stops. RDMO.

Certified: FESCO, Ltd. - Midland, TX

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

Job No.: J202206161401.001A

Attachment 5
Falloff Test Summary

DW No. 3
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)	0.325	ft

Fluid Properties

Viscosity (μ)	0.56	cp
Fluid Compressibility (c_f)	2.70E-06	psi^{-1}
Formation Volume Factor (B)	1.00	bbl/stb

Model Parameters

Wellbore Storage	Changing hegeman
Well Model	Vertical limited entry
Reservoir Model	Homogenous
Boundary Model	Infinite

Analysis Results

Well & Wellbore

Initial Wellbore Storage	1.89E-01	bbl/psi
Final Wellbore Storage	7.03E-01	bbl/psi
D_t [changing storage]	1.45E-01	hr
Skin	20.6	

Reservoir & Boundary

Permeability (k)	463	md
Transmissibility	144,601	md-ft/cp
Radius of Investigation (r_i)	5,356	ft
Perforation Length	76.9	ft
k_z/k_r	3.47E-04	

Attachment 6
AOR Well List

Petrotek

Operator Name	Well Name	API	Type	Status	Surface Location	Latitude	Longitude	Spud Date	Plug Date
APACHE CORPORATION	EMPIRE ABO UNIT #152	30-015-21825	Oil	Plugged (site released)	O-02-18S-27E	32.770023	-104.249054	-	12/27/2011
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #152B	30-015-22569	Oil	Plugged (site released)	B-11-18S-27E	32.767605	-104.249008	-	10/2/2008
APACHE CORPORATION	EMPIRE ABO UNIT #141A	30-015-22051	Oil	Plugged (site released)	K-02-18S-27E	32.772911	-104.249748	-	12/21/2011
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #154	30-015-22669	Oil	Plugged (site released)	O-02-18S-27E	32.771343	-104.248741	-	6/30/2009
APACHE CORPORATION	EMPIRE ABO UNIT #143A	30-015-22896	Oil	Active	K-02-18S-27E	32.774147	-104.249428	4/16/1979	-
APACHE CORPORATION	EMPIRE ABO UNIT #015B	30-015-00741	Oil	Active	G-02-18S-27E	32.777023	-104.247147	4/29/1959	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #153B	30-015-22838	Oil	Plugged (site released)	B-11-18S-27E	32.768589	-104.246841	-	12/22/2008
APACHE CORPORATION	EMPIRE ABO UNIT #155	30-015-22885	Oil	Plugged (site released)	O-02-18S-27E	32.771999	-104.247208	3/30/1979	1/3/2012
APACHE CORPORATION	EMPIRE ABO UNIT #015	30-015-00716	Oil	Active	J-02-18S-27E	32.774582	-104.246620	2/11/1959	-
BP AMERICA PRODUCTION COMPANY	RIVERWOLF UNIT #004	30-015-00720	Oil	Plugged (site released)	B-02-18S-27E	32.780655	-104.246132	-	12/4/2008
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #015C	30-015-00868	Oil	Plugged (site released)	B-11-18S-27E	32.767326	-104.247032	-	7/16/2004
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #015A	30-015-00731	Oil	Plugged (site released)	O-02-18S-27E	32.770954	-104.247047	-	2/12/2009
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #153	30-015-22013	Oil	Plugged (site released)	O-02-18S-27E	32.769386	-104.245316	-	10/30/2008
MCQUADRANGLE, LC	SOUTH RED LAKE GRAYBURG UNIT #040	30-015-00740	Injection	Plugged (site released)	G-02-18S-27E	32.778835	-104.247879	-	7/10/2002
REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #038	30-015-00737	Oil	Active	B-02-18S-27E	32.780888	-104.246010	4/6/1948	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #151B	30-015-22568	Oil	Plugged (site released)	B-11-18S-27E	32.768040	-104.245300	-	8/16/2006
APACHE CORPORATION	SCBP STATE #001	30-015-32946	Oil	Active	J-02-18S-27E	32.775215	-104.246040	3/14/2005	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #156	30-015-22808	Oil	Plugged (site released)	O-02-18S-27E	32.770786	-104.244927	-	10/7/2009
APACHE CORPORATION	EMPIRE ABO UNIT #151	30-015-21544	Oil	Plugged (site released)	O-02-18S-27E	32.772190	-104.244927	-	1/6/2012
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #039	30-015-00742	Oil	Plugged (site released)	H-02-18S-27E	32.778843	-104.243958	2/20/1948	11/1/1990
REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #036	30-015-00721	Oil	Active	A-02-18S-27E	32.782471	-104.244019	10/21/1941	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00726	Oil	Plugged (site released)	L-02-18S-27E	32.774670	-104.242800	9/2/1943	8/25/1980
MACK ENERGY CORP	STATE H #001	30-015-00745	Oil	Plugged (site released)	H-02-18S-27E	32.777939	-104.242867	-	3/7/2008
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #016A	30-015-00722	Oil	Plugged (site released)	P-02-18S-27E	32.770950	-104.242752	-	2/23/2009
APACHE CORPORATION	EMPIRE ABO UNIT #161	30-015-22914	Oil	Temporary Abandonment	I-02-18S-27E	32.772736	-104.242554	6/21/1979	-
APACHE CORPORATION	EMPIRE ABO UNIT #016	30-015-00717	Oil	Active	I-02-18S-27E	32.774578	-104.242806	3/30/1959	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #016C	30-015-00869	Oil	Plugged (site released)	A-11-18S-27E	32.768227	-104.242706	-	1/24/2007
APACHE CORPORATION	EMPIRE ABO UNIT #016B	30-015-00724	Oil	Plugged (not released)	A-02-18S-27E	32.780659	-104.241837	8/1/1959	2/3/2021
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	30-015-00662	Oil	Plugged (site released)	M-36-17S-27E	32.784279	-104.239739	11/17/1941	12/27/1943
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00701	Oil	Plugged (site released)	D-01-18S-27E	32.782467	-104.239723	-	-
REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #037	30-015-00715	Injection	Active	D-01-18S-27E	32.782467	-104.239723	2/28/1948	-
APACHE CORPORATION	AAO FEDERAL #022	30-015-42335	Oil	Active	D-01-18S-27E	32.781200	-104.239700	7/27/2014	-
APACHE CORPORATION	AAO FEDERAL #030	30-015-42360	Oil	Active	M-01-18S-27E	32.772587	-104.239716	7/20/2014	-
APACHE CORPORATION	EMPIRE ABO UNIT #171	30-015-22815	Oil	Plugged (site released)	M-01-18S-27E	32.770962	-104.239525	5/22/1979	10/24/2019
RHONDA OPERATING CO	FEDERAL EA #001	30-015-00871	Oil	Plugged (site released)	D-12-18S-27E	32.768211	-104.239510	-	4/12/1994
Spur Energy Partners LLC	BIG BOY STATE #002	30-015-40428	Oil	Active	M-36-17S-27E	32.783917	-104.239227	4/27/2013	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	30-015-20535	Oil	Plugged (site released)	D-12-18S-27E	32.768208	-104.239098	11/12/1971	8/4/1980
LLJ VENTURES, LLC DBA MARKER OIL & GAS	STATE #007	30-015-21623	Oil	Active	M-36-17S-27E	32.784359	-104.239327	9/16/1975	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #003	30-015-23115	Oil	Plugged (site released)	D-12-18S-27E	32.768211	-104.239342	12/28/1979	2/7/1983
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00695	Oil	Plugged (site released)	L-01-18S-27E	32.773655	-104.239571	-	-
APACHE CORPORATION	AAO FEDERAL #009	30-015-34387	Oil	Active	L-01-18S-27E	32.774551	-104.238609	11/7/2005	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #017	30-015-00704	Oil	Plugged (site released)	E-01-18S-27E	32.777920	-104.238571	3/23/1959	2/26/1987
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #017A	30-015-00703	Oil	Plugged (site released)	L-01-18S-27E	32.774548	-104.238510	-	3/19/2009
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #017	30-015-00712	Oil	Plugged (site released)	D-01-18S-27E	32.781582	-104.238609	9/23/1959	2/26/1987
NAVAJO REFINING COMPANY, L.L.C.	WDW #002	30-015-20894	SWD	Active	E-12-18S-27E	32.763664	-104.238487	5/5/1999	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #017B	30-015-00705	Oil	Plugged (site released)	M-01-18S-27E	32.771828	-104.238472	-	7/21/2004
APACHE CORPORATION	AAO FEDERAL #011	30-015-34555	Oil	Active	M-01-18S-27E	32.771553	-104.238464	2/15/2006	-
LLJ VENTURES, LLC DBA MARKER OIL & GAS	STATE #006	30-015-10184	Oil	Active	M-36-17S-27E	32.784260	-104.237816	3/3/1963	-
APACHE CORPORATION	AAO FEDERAL #005	30-015-32959	Oil	Plugged (site released)	E-01-18S-27E	32.778816	-104.237885	11/4/2003	6/14/2017
APACHE CORPORATION	AAO FEDERAL #020	30-015-42036	Oil	Active	E-01-18S-27E	32.777336	-104.237747	4/10/2014	-
Spur Energy Partners LLC	BIG BOY STATE #004	30-015-40429	Oil	Active	M-36-17S-27E	32.784710	-104.238190	8/28/2014	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #008	30-015-25649	Oil	Plugged (site released)	L-12-18S-27E	32.759155	-104.237473	9/15/1986	1/14/1987
APACHE CORPORATION	AAO FEDERAL #025	30-015-42361	Oil	Active	L-01-18S-27E	32.774590	-104.237335	6/23/2014	-
APACHE CORPORATION	AAO FEDERAL #029	30-015-42339	Oil	Active	M-01-18S-27E	32.770084	-104.237366	6/16/2014	-
APACHE CORPORATION	AAO FEDERAL #001	30-015-32307	Oil	Active	D-01-18S-27E	32.782444	-104.237572	11/20/2002	-
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #003	30-015-25545	Oil	Active	M-12-18S-27E	32.757340	-104.237495	5/19/1986	-
APACHE CORPORATION	EMPIRE ABO UNIT #017	30-015-00676	Oil	Temporary Abandonment	M-36-17S-27E	32.784256	-104.237587	2/5/1960	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #181	30-015-21554	Oil	Plugged (site released)	K-01-18S-27E	32.772835	-104.235947	-	4/17/2003
APACHE CORPORATION	EMPIRE ABO UNIT #189	30-015-22096	Oil	Plugged (not released)	K-01-18S-27E	32.775589	-104.235764	6/23/1977	4/27/2021
APACHE CORPORATION	AAO FEDERAL #021	30-015-42334	Oil	Active	C-01-18S-27E	32.780567	-104.235458	5/27/2014	-
EASTLAND OIL CO	COMSTOCK FEDERAL #010	30-015-26017	Oil	Plugged (site released)	N-12-18S-27E	32.757313	-104.235344	-	1/23/2003
APACHE CORPORATION	AAO FEDERAL #026	30-015-42338	Oil	Active	K-01-18S-27E	32.775307	-104.235306	6/10/2014	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #018D	30-015-00713	Oil	Plugged (site released)	N-01-18S-27E	32.771801	-104.235268	-	9/27/2003
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #002	30-015-25201	Oil	Active	K-12-18S-27E	32.759121	-104.234932	3/16/1985	-
APACHE CORPORATION	EMPIRE ABO UNIT #018A	30-015-00706	Oil	Plugged (site released)	F-01-18S-27E	32.776966	-104.234261	4/24/1959	9/20/2019
APACHE CORPORATION	EMPIRE ABO UNIT #018B	30-015-00707	Oil	Plugged (site released)	K-01-18S-27E	32.774498	-104.234215	4/23/1959	6/7/2017
APACHE CORPORATION	AAO FEDERAL #012	30-015-34998	Oil	Active	N-01-18S-27E	32.771515	-104.235245	8/13/2006	-
APACHE CORPORATION	AAO FEDERAL #006	30-015-34071	Oil	Active	F-01-18S-27E	32.777355	-104.234322	7/6/2005	-
APACHE CORPORATION	AAO FEDERAL #013	30-015-00710	Oil	Active	C-01-18S-27E	32.781502	-104.234337	7/14/1959	-
APACHE CORPORATION	AAO FEDERAL #027	30-015-42359	Oil	Active	K-01-18S-27E	32.774441	-104.233948	7/3/2014	-
APACHE CORPORATION	AAO FEDERAL #010	30-015-34576	Oil	Active	K-01-18S-27E	32.774712	-104.233635	6/2/2006	-
APACHE CORPORATION	AAO FEDERAL #002	30-015-32308	Oil	Plugged (site released)	C-01-18S-27E	32.782124	-104.233269	8/20/2002	2/8/2018
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #018	30-015-01218	Oil	Plugged (site released)	N-36-17S-27E	32.784214	-104.233292	-	9/9/2009
NAVAJO REFINING COMPANY, L.L.C.	WDW #003	30-015-26575	SWD	Active	N-01-18S-27E	32.771214	-104.233284	12/22/1990	-
APACHE CORPORATION	AAO FEDERAL #019	30-015-42051	Oil	Active	F-01-18S-27E	32.776955	-104.233185	4/2/2014	-
APACHE CORPORATION	AAO FEDERAL #016	30-015-42026	Oil	Active	C-01-18S-27E	32.779713	-104.232758	3/20/2014	-
APACHE CORPORATION	EMPIRE ABO UNIT #182	30-015-21792	Oil	Plugged (site released)	K-01-18S-27E	32.773254	-104.232925	5/6/1976	4/14/2021
APACHE CORPORATION	EMPIRE ABO UNIT #184	30-015-22559	Oil	Plugged (site released)	K-01-18S-27E	32.775333	-104.232719	-	7/18/2013
BILL L MILLER	CHUKKA FEDERAL #001	30-015-25270	Oil	Active	F-12-18S-27E	32.762692	-104.233131	4/23/1985	-
APACHE CORPORATION	AAO FEDERAL #028	30-015-42358	Oil	Active	N-01-18S-27E	32.769535	-104.232452	7/12/2014	-
APACHE CORPORATION	AAO FEDERAL #015	30-015-42025	Oil	Active	B-01-18S-27E	32.780182	-104.231392	3/15/2014	-
APACHE CORPORATION	EMPIRE ABO UNIT #191	30-015-21552	Oil	Plugged (site released)	G-01-18S-27E	32.776417	-104.231697	-	7/23/2013
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #007	30-015-00874	Oil	Active	J-12-18S-27E	32.760883	-104.231232	7/28/1948	-
ROJO GRANDE LLC	RAMAPO #007	30-015-31592	Oil	Plugged (site released)	N-36-17S-27E	32.784191	-104.231079	2/14/2001	12/21/2001
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #005	30-015-20388	Oil	Plugged (site released)	N-01-18S-27E	32.771736	-104.231033	-	-
APACHE CORPORATION	AAO FEDERAL SWD #001	30-015-42549	SWD	Active	G-01-18S-27E	32.776497	-104.231300	10/24/2014	-
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #009	30-015-25738	Oil	Active	G-12-18S-27E	32.762665	-104.231079	4/25/1987	-
Spur Energy Partners LLC	BIG BOY STATE #006	30-015-39324	Oil	Active	O-36-17S-27E	32.784599	-104.230751	12/18/2011	-
APACHE CORPORATION	EMPIRE ABO UNIT #193	30-015-22657	Oil	Plugged (not released)	J-01-18S-27E	32.775856	-104.230721	9/29/1978	4/29/2021
APACHE CORPORATION	EMPIRE ABO UNIT #194	30-015-22658	Oil	Plugged (not released)	I-01-18S-27E	32.773192	-104.230492	10/18/1978	4/19/2021
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #019	30-015-20394	Oil	Plugged (site released)	O-01-18S-27E	32.771633	-104.230713	3/15/1971	12/30/1991
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #019	30-015-01251	Oil	Plugged (site released)	O-36-17S-27E	32.785088	-104.230011	-	9/9/2009
ARCO PERMIAN	EMPIRE ABO UNIT #191	30-015-00698	SWD	Plugged (site released)	O-01-18S-27E	32.770817	-104.230003	10/7/1959	12/8/1989
APACHE CORPORATION	EMPIRE ABO UNIT #019B	30-015-00708	Oil	Plugged (site released)	B-01-18S-27E	32.781460	-104.230003	-	5/22/2013
APACHE CORPORATION	EMPIRE ABO UNIT #019C	30-015-00709	Oil	Plugged (site released)	G-01-18S-27E	32.777828	-104.230003	-	2/18/2013
Spur Energy Partners LLC	BIG BOY STATE #008	30-015-39326	Oil	Active	O-36-17S-27E	32.784016	-104.228638	5/6/2013	-
APACHE CORPORATION	AAO FEDERAL #007	30-015-33473	Oil	Active	G-01-18S-27E	32.778450	-104.228928	10/22/2004	-
APACHE CORPORATION	AAO FEDERAL #003	30-015-32309	Oil	Active	B-01-18S-27E	32.782356	-104.229057	3/13/2003	-
APACHE CORPORATION	EMPIRE ABO UNIT #192	30-015-22560	Oil	Plugged (not released)	J-01-18S-27E	32.774510	-104.228070	5/30/1978	4/22/2021
APACHE CORPORATION	AAO FEDERAL #018	30-015-42035	Oil	Active	G-01-18S-27E	32.776913	-104.228928	8/9/2014	-
APACHE CORPORATION	EMPIRE ABO UNIT #191A	30-015-21873	Oil	Plugged (site released)	J-01-18S-27E	32.773178	-104.228348	8/27/1976	5/19/2017
APACHE CORPORATION	EMPIRE ABO UNIT #019Q	30-015-00696	Oil	Plugged (site released)	J-01-18S-27E	32.774448	-104.230003	-	7/12/2013
APACHE CORPORATION	EMPIRE ABO UNIT #202	30-015-21783	Oil	Plugged (site released)	H-01-18S-27E	32.776405	-104.227783	4/17/1976	6/9/2017
APACHE CORPORATION	AAO FEDERAL #004	30-015-32310	Oil	Active	01-18S-27E	32.780518	-104.226776	7/14/2003	-
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020	30-015-00677	Oil	Plugged (site released)	P-36-17S-27E	32.784145	-104.226784	-	9/9/2009
HARLOW ENTERPRISES LLC	COMSTOCK FEDERAL #006	30-015-25099	Oil	Active	H-12-18S-27E	32.763992	-104.226784	8/18/1985	-
APACHE CORPORATION	AAO FEDERAL #017	30-015-42027	Oil	Active	H-01-18S-27E	32.778698	-104.226372	3/27/2014	-
APACHE CORPORATION	EMPIRE ABO UNIT #203	30-015-22656	Oil	Active	H-01-18S-27E	32.776630	-104.225838	9/13/1978	-
APACHE CORPORATION	EMPIRE ABO UNIT #020D	30-015-01215	Oil	Plugged (site released)	A-01-18S-27E	32.781395	-104.225723	11/7/1959	5/19/2017
APACHE CORPORATION	EMPIRE ABO UNIT #020C	30-015-00711	Oil	Plugged (site released)	H-01-18S-27E	32.777786	-104.225708	-	7/8/2013
BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020K	30-015-00697	Oil	Plugged (site released)	I-01-18S-27E	32.774395	-104.225708	-	1/5/2003
APACHE CORPORATION	AAO FEDERAL #023	30-015-42336	Oil	Active	H-01-18S-27E	32.776989	-104.224632	8/4/2014	-
APACHE CORPORATION	AAO FEDERAL #014	30-015-42024	Oil	Active	A-01-18S-27E	32.782864	-104.224014	3/7/2014	-
APACHE CORPORATION	AAO FEDERAL #024	30-015-42337	Oil	Active	A-01-18S-27E	32.780510	-104.224350	6/3/2014	-
APACHE CORPORATION	EMPIRE ABO UNIT #020B	30-015-00699	Oil	Active	P-01-18S-27E	32.771523	-104.224632	11/16/1961	-
APACHE CORPORATION	AAO FEDERAL #008	30-015-33784	Oil	Active	01-18S-27E	32.778683	-104.224632	2/28/2005	-
APACHE CORPORATION	EMPIRE ABO UNIT #213	30-015-23116	Oil	Temporary Abandonment	E-06-18S-28E	32.777576	-104.223236	3/10/1980	-
APACHE CORPORATION	EMPIRE ABO UNIT #201	30-015-21553	Oil	Temporary Abandonment	H-01-18S-27E	32.776333	-104.223625	6/28/1975	-
LLJ VENTURES, LLC DBA MARKER OIL & GAS	LAUREL STATE #003	30-015-31319	Oil	Active	E-07-18S-28E	32.762577	-104.222496	10/2/2000	-
APACHE CORPORATION	EMPIRE ABO UNIT #212	30-015-22637	Oil	Temporary Abandonment	E-06-18S-28E	32.776493	-104.222260	12/4/1978	-

Operator Name	Well Name	API	Type	Status	Surface Location	Latitude	Longitude	Spud Date	Plug Date
MARBOB ENERGY CORP	LP STATE #003	30-015-31087	Oil	Plugged (site released)	M-06-18S-28E	32.771648	-104.222488	6/19/2000	3/17/2008
APACHE CORPORATION	EMPIRE ABO UNIT #021D	30-015-02622	Oil	Temporary Abandonment	L-06-18S-28E	32.775032	-104.221413	12/27/1959	-
APACHE CORPORATION	EMPIRE ABO UNIT #021C	30-015-02619	Oil	Active	E-06-18S-28E	32.777771	-104.221413	10/8/1959	-
APACHE CORPORATION	EMPIRE ABO UNIT #021B	30-015-02613	Oil	Active	D-06-18S-28E	32.780518	-104.221413	12/8/1959	-
RUTH OIL CO, LLC	STATE M-AI #002	30-015-02627	Oil	Active	M-06-18S-28E	32.771542	-104.220337	10/4/1960	-
LU VENTURES, LLC DBA MARKER OIL & GAS	LAUREL STATE #002	30-015-25675	Oil	Active	E-07-18S-28E	32.764397	-104.220268	10/28/1988	-
APACHE CORPORATION	EMPIRE ABO UNIT #211A	30-015-23548	Oil	Temporary Abandonment	L-06-18S-28E	32.774296	-104.220306	2/11/1981	-
APACHE CORPORATION	EMPIRE ABO UNIT #211	30-015-21395	Oil	Active	E-06-18S-28E	32.776043	-104.219330	12/12/1974	-
APACHE CORPORATION	EMPIRE ABO UNIT #022C	30-015-02610	Oil	Active	N-06-18S-28E	32.771565	-104.217865	7/20/1960	-
LU VENTURES, LLC DBA MARKER OIL & GAS	LAUREL STATE #001	30-015-25997	Oil	Active	C-07-18S-28E	32.766354	-104.217850	12/15/1986	-
APACHE CORPORATION	EMPIRE ABO UNIT #223	30-015-22527	Oil	Plugged (not released)	F-06-18S-28E	32.776077	-104.217278	4/22/1978	7/23/2021
APACHE CORPORATION	EMPIRE ABO UNIT #022F	30-015-02623	Oil	Active	K-06-18S-28E	32.775124	-104.216805	1/28/1960	-
Redwood Operating LLC	FEDERAL T SWD #001	30-015-26404	SWD	Active	A-12-18S-27E	32.767151	-104.226784	6/28/1990	-
Redwood Operating LLC	CHALK BLUFF FEDERAL SWD #001	30-015-27163	SWD	Active	I-01-18S-27E	32.774406	-104.226784	5/10/1981	-
Redwood Operating LLC	STATE H #002	30-015-35814	Oil	Active	H-02-18S-27E	32.777710	-104.242149	10/31/2007	-
MEWBOURNE OIL CO	CHALK BLUFF FEDERAL COM #002	30-015-26741	Gas	Active	F-01-18S-27E	32.778801	-104.236336	5/13/1991	-
MEWBOURNE OIL CO	CHALK BLUFF 6 STATE #001	30-015-26943	Gas	Active	M-06-18S-28E	32.771652	-104.221184	2/17/1992	-
MEWBOURNE OIL CO	CHALK BLUFF 36 STATE #001	30-015-27286	Oil	Active	M-36-17S-27E	32.785164	-104.237587	2/2/1993	-

Attachment 7
Digital Data

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 139503

COMMENTS

Operator: NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	OGRID: 15694
	Action Number: 139503
	Action Type: [C-103] NOI General Sundry (C-103X)

COMMENTS

Created By	Comment	Comment Date
cchavez	WDW-3 Fall-Off Test 2022	10/19/2022

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 139503

CONDITIONS

Operator:	OGRID:
NAVAJO REFINING COMPANY, L.L.C. P.O. Box 159 Artesia, NM 88211	15694
	Action Number: 139503
	Action Type: [C-103] NOI General Sundry (C-103X)

CONDITIONS

Created By	Condition	Condition Date
cchavez	Conditions of Approval are as follows: 1) Similar conditions as for WDW-1 FOT 2022 with elevated skin (~21) value/effect and less injection interval permeability.	10/19/2022