

**UICI-8-4**

**EPA FALL OFF  
TEST REPORT  
(WDW-4)**

**2023**



Technical  
Report

MECHANICAL INTEGRITY AND  
RESERVOIR TESTING

CLASS I NON-HAZARDOUS DEEPWELL  
WELL NO. 4  
(OCD UIC Permit: UICI-008-4)  
(API Number: 30-015-44677)

HollyFrontier Navajo Refining Company  
Artesia, New Mexico

Section 23, Township 17S, Range 27E  
1217 FSL, 2443 FWL

October 2023

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2023 MECHANICAL INTEGRITY AND RESERVOIR TESTING  
CLASS I NON-HAZARDOUS DEEPWELL  
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HollyFrontier Navajo Refining Company  
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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 WDW-4 at the HollyFrontier Navajo Refining Company (HFNR) facility in 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 April 27, 2023, 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. field activities were supervised by Jeremiah Demuth (Petrotek).

The field activities consisted of an annulus pressure test (APT) and an injection falloff test on WDW-4. 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.

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## 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-008-4
- b. **Well classification** - Class I Non-hazardous
- c. **Well name and number** - WDW-4
- d. **API Number** - 30-015-44677
- e. **Legal Location** - Section 23, Township 17S, Range 27E, 1217 FSL, 2443 FWL

## 3. CURRENT WELLBORE SCHEMATIC

A wellbore schematic displaying the well configuration during testing is provided as Figure 1. A current 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 2018 during the completion of the well was submitted with the original permit and can be found online on the OCD website as part of the OCD well files for this well.

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

A copy of the neutron density log, encompassing the completed interval between 10,307 and 10,680 feet BGL, 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 330 feet with an average porosity of 25 percent. Consistent with the most recent test analysis previously submitted, these values were used for the analysis performed on data collected this year and presented in this report.

**6. PVT DATA OF THE FORMATION AND INJECTION FLUID**

Formation fluid samples of connate brine from the injection interval were not collected from the WDW-4 during drilling and completion. Therefore, the average total dissolved solids (TDS) of the formation fluid is estimated to be 25,000 mg/l per the previously submitted and approved UIC permit application based on data acquired from offset wells, and consistent with the initial falloff test analysis from 2018.

The formation viscosity, fluid compressibility, and total compressibility were estimated using this average brine salinity along with the bottom hole temperature and pressure recorded in the well at the depth of the injection zone in conjunction with industry standard correlations. These correlations are presented in 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 2.5%, based on the average 25,000 mg/l TDS brine concentration discussed above. A bottom hole temperature of 159 °F has been used as representative of the formation for these correlations. This value was derived from the original temperature log, run in 2018 when the well was completed. This log is can be found online on the OCD site as part of the WDW-4 well files.

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 formation pressure has been estimated at a depth of 10,307 feet BGL using the average formation fluid specific gravity based on the TDS value discussed above. Using this method, a value of 4,574.5 psi has been estimated as the pressure at the depth the gauges were set at for testing (10,307 feet BGL). At this pressure and a temperature of 159 °F, the following equations have been used to derive viscosity:

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

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

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

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

Where,

$\mu_{w1}$  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

$\mu_w$  is the viscosity of the brine at bottom hole conditions

Using these equations, a value of 0.47 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, which is consistent with the primary composition of the effective injection interval (see discussion in Section 11).

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

Where,

$$a = 0.8535$$

$$b = 1.075$$

$$c = 2.303 \text{ E}06$$

$$\Phi = 0.25$$

Based on this equation, a value of 3.50E-6 psi<sup>-1</sup> is derived for formation compressibility.

Fluid compressibility was estimated using figures L-30 and L-31 on page 338 with a bottom hole temperature of 159 °F, a bottom hole pressure of 4,574.5 psi, and a dissolved solids weight of 2.5%. Using Figure L-31 to first estimate freshwater compressibility, a value of 2.86E-06 psi<sup>-1</sup> 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<sup>-1</sup> 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 6.20E-06 psi<sup>-1</sup>.

The specific gravity of the test fluid, based on the static gradient survey performed at the end of the test, was 1.003 (gradient of 0.434 psi/ft) with a measured temperature during injection of 103.2 °F. Using Equations L-84 through L-87, the viscosity of the injected fluid at bottom hole conditions at the wellbore during injection is 0.76 cp. The compressibility of the injected fluid (based on Figures L-30 and 31) is 2.78E-06 psi<sup>-1</sup>.

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

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

The following table summarizes recent data acquired with HFNR well monitoring equipment for the month prior to and the month that testing was conducted.

**TABLE 1  
AUGUST AND SEPTEMBER INJECTION DATA**

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
8/1/2023	240.28	171.57	188.11
8/2/2023	309.86	306.37	285.11
8/3/2023	293.11	282.92	297.12
8/4/2023	302.87	294.71	344.11
8/5/2023	308.99	300.49	338.65
8/6/2023	312.12	307.19	259.29
8/7/2023	322.54	319.44	196.82
8/8/2023	311.29	302.89	179.86
8/9/2023	315.18	307.10	178.14
8/10/2023	307.77	295.06	197.19
8/11/2023	281.95	258.71	165.76
8/12/2023	291.79	274.17	163.97
8/13/2023	314.15	304.09	268.06
8/14/2023	298.75	278.15	288.76
8/15/2023	285.87	261.27	251.86
8/16/2023	305.99	291.47	183.03
8/17/2023	313.00	303.07	116.53
8/18/2023	308.16	294.96	138.94
8/19/2023	314.36	300.38	217.98
8/20/2023	310.26	294.28	257.06
8/21/2023	302.23	286.58	231.74
8/22/2023	302.45	286.33	260.06
8/23/2023	305.55	288.32	292.96
8/24/2023	310.69	294.52	278.50
8/25/2023	320.46	302.66	360.52
8/26/2023	316.24	295.97	391.60
8/27/2023	309.05	289.58	380.34
8/28/2023	305.31	286.04	327.42
8/29/2023	311.78	295.91	256.02
8/30/2023	343.81	332.52	253.67
8/31/2023	349.04	339.95	265.38
9/1/2023	354.27	347.38	277.09
9/2/2023	309.66	293.37	163.93
9/3/2023	326.62	319.31	157.87
9/4/2023	314.26	304.39	120.55

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Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
9/5/2023	307.71	297.11	121.00
9/6/2023	303.62	289.51	108.53
9/7/2023	273.04	249.25	88.38
9/8/2023	262.63	208.69	86.54
9/9/2023	317.67	321.22	130.55
9/10/2023	316.74	320.90	145.12
9/11/2023	309.40	310.06	149.70
9/12/2023	306.41	307.10	105.27
9/13/2023	313.35	318.24	102.64
9/14/2023	300.63	299.55	95.04
9/15/2023	300.77	298.08	101.25
9/16/2023	371.11	389.08	112.32
9/17/2023	373.65	391.20	117.57
9/18/2023	337.92	343.57	128.43
9/19/2023	294.99	285.43	148.79
9/20/2023	300.48	292.43	147.42
9/21/2023	298.04	288.82	127.79
9/22/2023	299.01	287.52	151.32
9/23/2023	308.97	297.54	177.86
9/24/2023	318.09	312.76	168.48
9/25/2023	307.96	297.88	152.24

## 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 and HFNR data, is 598,049,117 gallons (14,239,265 bbls).

## 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 3/10/2022. The most recent calibration certificates are

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provided in Attachment 3. The bottom gauge (Serial Number - 224831) was utilized for analysis and hung at a test depth of 10,327 feet KB. The data for both gauges run during testing yielded consistent data and indicate that representative data was collected.

## 10. ONE-MILE AREA OF REVIEW (AOR)

A standard one-mile Area of Review (AOR) was evaluated for WDW-4 as part of the annual testing and reporting requirements. This evaluation was performed by Federal Abstract Company. The wells located within this one-mile AOR are listed in Attachment 6. This table includes a listing of the operator, well name, API number, well type, well status, location, and date of abandonment or completion. A figure displaying the wells located in the AOR and the wells in the surrounding sections has been provided as Figure 13.

Based on the data review, no new wells have been drilled within the AOR in the last year. Two wells, listed in Table 2, have been newly plugged and abandoned within the AOR in the last year. Neither well penetrates the WDW-4 confining interval.

**TABLE 2**  
**WELLS P&A'd WITHIN AOR DURING THE PAST YEAR**

Operator	Well Name	API	Well Type	TVD (ft)	Lat Long	P&A Date
Spur Energy Partners LLC	ARCO B FEDERAL COM #001	30-015-21047	Gas	9,740	32.80350 -104.25590	1/18/2023
Redwood Operating LLC	MATTHEWS 25 FEDERAL #001	30-015-40804	Oil	4,705	32.80650 -104.23980	5/2/2023

- 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, the abbreviation SWD indicates Salt Water Disposal, P&A indicates Plugged and Abandoned, TA indicates Temporarily Abandoned, and AL indicates Abandoned Location. The "new" well status represents permitted wells that have not been drilled or completed.
- c. **Provide details on any offset producers and injectors completed in the same injection interval** - Based on public data, there is one well that has been completed in the same formation as WDW-4 within the one-mile AOR. This well is the Alamo Permian Resources, LLC Berry Federal #029, which was plugged and abandoned in 2013. No active offset producers or injectors exist in the injection interval within the AOR based on public data.

## 11. GEOLOGY

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

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

The WDW-4 well is located in Eddy County, New Mexico on the Northwest Shelf of the Permian Basin. The injection interval is undifferentiated Silurian-Devonian age strata composed of shallow water carbonates, dolostone and limestones. The confining zone is comprised of the upper Devonian Woodford Formation and the overlying undifferentiated Mississippian strata.

Based on the WDW-4 drilling report, the top of the Silurian-Devonian injection zone is at a depth of approximately 10,220 feet KB. A structure map of the top of the Silurian-Devonian is provided in Figure 3. The gross thickness of the Silurian-Devonian is approximately 665 feet thick. The top of the injection zone is over 1,000 feet below the base of the injection zone in which the three other Class I wells (WDW-1, WDW-2, and WDW-3) operated by HFNR are completed. These three wells are completed in the lower portion of the Permian age Wolfcamp Formation and the underlying Pennsylvanian age Cisco and Canyon Formations. The geologic interpretations have been confirmed but not revised as part of this report.

## 12. OFFSET WELLS

There is one well that was completed in the same formation as WDW-4 within the AOR. As noted in 10.c, this well is the Alamo Permian Resources, LLC Berry Federal #029. This well was plugged and abandoned in 2013.

- a. **Identify the distance between the test well and any offset wells completed in the same injection interval** – The Berry Federal #029 well was located approximately 2,000 feet to the north of WDW-4.
- b. **Report the status of the offset wells during both the injection and shut-in portions of the test** - The offset Berry Federal #029 well was plugged and abandoned in 2013.
- c. **Describe the impact, if any, of the offset wells during both the injection and shut-in portions of the test** - There was no impact on the character of the falloff test or the development of a useful test from wells identified in the AOR. A 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 September 26 - 28, 2023.
- b. **Time of the injection period** - Continuous injection occurred for approximately 48 hours before the falloff test began. This injection period exceeded the duration of the falloff. Figure 6 presents the test history.
- 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 4,698.5 psia (at 10,307 feet BGL) and the injection rate was 287.7 gpm (9,862.4 bwpd) with a measured bottom hole temperature of 109.8 °F.
- e. **Total shut-in time** - The well was shut-in for approximately 30 hours for testing.
- f. **Final static pressure and temperature at the end of the falloff portion of the test** - At the conclusion of the test, the final bottom hole pressure was 4,678.1 psia and the final bottom hole temperature was 121.1 °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 15-20 of Section IX, Report Components, of the OCD falloff test guidelines.

The equations, parameters and calculations utilized to derive these values are detailed further in the following discussion. Table 3 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 whose gauges were utilized for testing generated an injection falloff test summary report based on this collected data. This report is provided in Attachment 4.

- a. **Radius of test investigation** - The radius of investigation for this test was determined to be 10,790 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 0.10 hours after shut-in. This value was derived from the log-log plot.
- c. **Slope(s) determined from the semi-log plot** - The slope for the likely middle-

- time radial period, as determined from the semi-log plot, was 1.01915 psi/cycle.
- d. **Transmissibility ( $kh/\mu$ )** - The transmissibility was determined to be 1,573,489 md-ft/cp.
  - e. **Permeability ( $k$ )** - The permeability was determined to be 2,241 md.
  - f. **Skin Factor ( $s$ )** - The skin factor was determined to be 9.0 units.
  - g. **Pressure drop due to skin ( $\Delta P_{skin}$ )** - The pressure drop due to skin was determined to be 8.0 psi
  - h. **Flow efficiency** - The flow efficiency was determined to be 0.61.
  - i. **Flow capacity ( $kh$ )** - The flow capacity (permeability-thickness) was determined to be 739,540 md-ft.
  - j.  **$P_{1hr}$**  - The extrapolated 1-hr pressure was determined to be 4,683.2 psi.

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**TABLE 3**  
**FALLOFF TEST ANALYSIS INPUT VALUES**

Parameter	Value	Unit
Formation Thickness, h	330	feet
Porosity, $\Phi$	25	percent
Viscosity, $\mu$	0.47	centipoise
Formation Compressibility, $c_f$	3.50E-06	1/psi
Total Compressibility, $c_t$	6.20E-06	1/psi
Formation Volume Factor, B	1.00	bbl/stb
Wellbore Radius, $r_w$	0.3532	feet
Final Well Flowing Pressure, $p_{wf}$	4,698.5	psia
Final Injection Rate, $q_{final}$	9,862.4 287.7	bwpd (gpm)
Horner Straight Line Slope, m	1.01915	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 8/1/2020 (4,573,230 barrels) by the final injection rate (142.4 gpm). This resulted in a value of 22,475.7 hours. This value of 22,475.7 hours of injection at 142.4 gpm was used in conjunction with the injection data collected from 8/1/2020 through 9/26/23. The total waste volume injected up to the time of shut-in utilized for calculations was 598,049,117 gallons (14,239,265 bbls).

To determine the mobility-thickness (transmissibility), the following equation was utilized. The resulting transmissibility was 1,573,489 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

$\mu$  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

$$\frac{kh}{\mu} = \text{Transmissibility} = 162.6 \frac{9,862.4 * 1.0}{1.01915} = 1,573,489 \frac{\text{md} - \text{ft}}{\text{cp}}$$

The transmissibility derived from the slope of the semi-log straight line was then used to determine the permeability thickness. The resulting permeability-thickness was 739,540 md-ft.

$$kh = \left(\frac{kh}{\mu}\right) \mu = 1,573,489 \left(\frac{md - ft}{cp}\right) 0.47 cp = 739,540 md - ft$$

This permeability-thickness was then used to determine the permeability of the reservoir. The resulting permeability was 2,241 md.

$$k = \frac{kh}{h} = \frac{739,540 md - ft}{330 ft} = 2,241 md$$

In order to determine if the appropriate 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 radius was estimated to be 555 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  
 $\Phi$  is the porosity, as a fraction  
 0.13368 is a conversion constant

$$r_{waste} = \sqrt{\frac{0.13368 * (598,049,117)}{\pi * 330 * 0.25}} = 555 feet$$

Based on this radius, the time for a pressure transient to travel through this fluid can be calculated. The resulting time was approximately 0.10 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  
 $\Phi$  is the porosity, as a fraction  
 $\mu_{waste}$  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  $psi^{-1}$

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k is the permeability, in md  
948 is a conversion constant

$$t_{waste} = 948 \frac{0.25 * 0.47 * 6.2E - 06 * (555)^2}{2,241} = 0.10 \text{ hours}$$

Based on this result, and the time it took for the transition to radial flow to begin (~0.10 hours), it is likely that the pressure transient was dominated by reservoir fluid properties during the subsequent middle-time radial flow period, 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 a skin of 9.0 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

$\Phi$  is the porosity, as a fraction

$\mu$  is the viscosity, in cp

$r_w$  is radius of the wellbore in feet

1.151 and 3.23 are constants

$$s = 1.151 \left( \frac{4,698.5 - 4,683.2}{1.01915} - \log \left( \frac{2,241}{0.25 * 0.47 * 6.2E - 06 * 0.3532^2} \right) + 3.23 \right) = 9.0$$

The pressure contribution of the skin term to wellbore pressure can be calculated using the following equation. The result of this calculation was 8.0 psi of pressure due to skin.

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

Where,

$\Delta P_{skin}$  is the change in pressure due to skin, in psi

m is slope of the radial line, in psi/cycle

s is skin, in units

0.869 is a conversion constant

$$\Delta P_{skin} = 0.869 * 1.01915 * 9.0 = 8.0 \text{ psi}$$

The flow efficiency (FE) can be determined using the following equation, provided within the OCD Guidelines (Section IX, 15, h). The result of this calculation was 0.61.

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

Where,

$P_{wf}$  is the shut-in well pressure, in psi

$\Delta P_{skin}$  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

$$FE = \frac{4,698.5 - 8.0 - 4,678.1}{4,698.5 - 4,678.1} = 0.61$$

The test radius of investigation ( $r_{inv}$ ) can be determined using the following equation. The result of this calculation was 10,790 feet.

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

Where,

k is permeability, in md

t is time, in hours

$\Phi$  is porosity, as a fraction

$\mu$  is viscosity, in cp

$c_t$  is total compressibility, in  $\text{psi}^{-1}$

0.029 is a constant

$$r_{inv} = 0.029 \sqrt{\frac{2,241 * 30}{0.25 * 0.47 * 6.2E - 06}} = 10,790 \text{ feet}$$

Based on examination of the log-log diagnostic plot provided as Figure 7, is it evident that early-time data is dominated by wellbore storage. It is likely that the test was transitioning into radial flow approximately 0.1 hours after well shut-in. Middle-time data suitable for semi-log analysis lasts from approximately 0.10 to 0.25 hours after shut-in. 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 8 presents the semi-log plot of the falloff with a line consistent with the likely radial flow period denoted in Figure 7. Subsequent to the

end of the radial-flow period, a late-time period develops. It is possible that heterogeneity or boundary effects cause the late-time non-radial behavior. A simulation analysis was conducted to generate a best-fit model of the data. This analysis implies that one system configuration that can account for the pressure behavior is the possible presence of two intersecting limited-flow heterogeneities, both located at a distance of approximately 983 feet from the injector. This is not a unique analysis and it may be possible to have offset pressure interference generate some of this behavior. The simulation analysis generally supports the more simplistic graphical analysis that relies upon the semi-log slope to derive a permeability-thickness during the middle-time period of the data more likely to be dominated by radial flow.

The character of the fall-off data and the derivative are similar to the patterns evident in previous testing of this well and are consistent with a large permeability-thickness and a small skin factor.

The following figures are provided illustrating the test analysis and results:

- Figure 4 - Cartesian Plot of Pressure, Temperature and Rate vs. Time
- Figure 5 - Full Rate History Plot
- Figure 6 - Cartesian Plot of Pressure Falloff with Model Match
- Figure 7 - Log-log Derivative Plot with Model Match
- Figure 8 - Semi-log Horner Plot with Model Match
- Figure 9 - Daily Injection Rate History for Month Prior to Test Plot
- Figure 10 - Hall Plot

As specified by OCD requirements, a Hall Plot (Figure 10) generated from the data presented in Table 1 over the month leading up to the falloff test this year is included. 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 these BHP values 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. Attachment 5 presents a summary of the falloff test.

Table 4 summarizes historical well test analysis results, including the results from the test this year.

**TABLE 4  
HISTORICAL AMBIENT RESERVOIR TESTING**

Year	Fill Depth (feet)	Permeability (md)	Mobility-thickness (md-ft/cp)	Skin (units)	P* (psia)
2023	10,578	2,241	1,573,489	9.0	4,678.5
2022	10,662	3,018	2,118,788	38.5	4,613.5
2021	10,310	4,134	2,902,490	6.6	4,600.9
2020	10,448	2,474	1,569,774	-1.9	4,579.0
2018	N/A	6,642	3,845,360	-3.5	4,520.4

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

## 16. INTERNAL MECHANICAL INTEGRITY

On September 26, the annulus was pressured to 566.5 psi to begin the mechanical 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 5.4 psi. Since a change of 10% (56.7 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 5  
ANNULUS PRESSURE TEST MEASUREMENTS**

Time, Minutes	0	5	10	15	20	25	30
Pressure, Psi	566.5	564.0	563.0	562.3	561.8	561.4	561.1

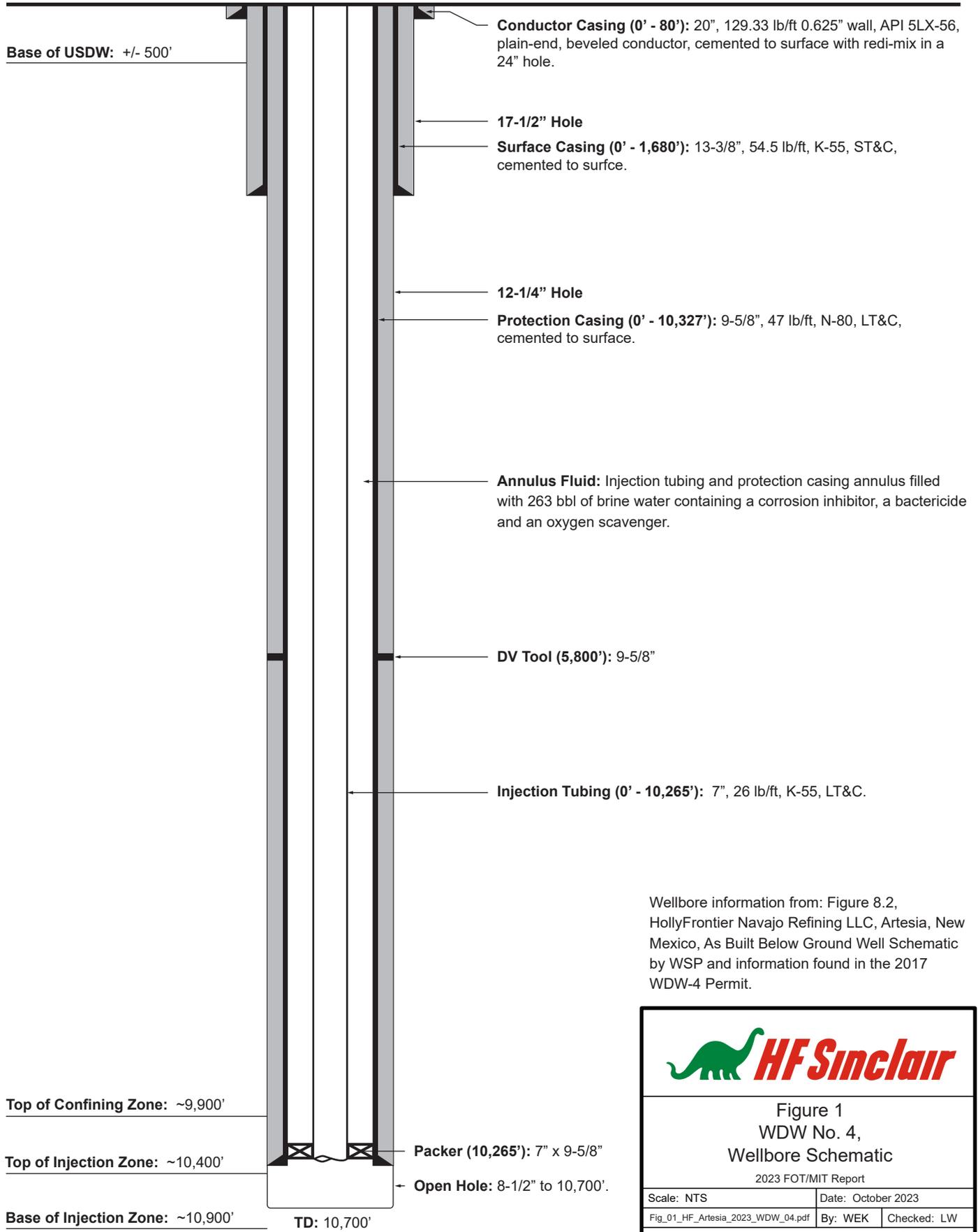
# FIGURES

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***Petrotek***

OCD UIC Permit: UICI-008-4  
Well API Number: 30-015-44677  
Eddy County, New Mexico  
Sec. 23, T17S-R27E  
Lat. 32.815970° / Long. -104.250174° (NAD 83)

All depths referenced to Kelly Bushing (KB)  
elevation 20' above ground level.  
Ground Level Elevation: +3,563'



Wellbore information from: Figure 8.2, HollyFrontier Navajo Refining LLC, Artesia, New Mexico, As Built Below Ground Well Schematic by WSP and information found in the 2017 WDW-4 Permit.



**Figure 1**  
**WDW No. 4,**  
**Wellbore Schematic**  
2023 FOT/MIT Report

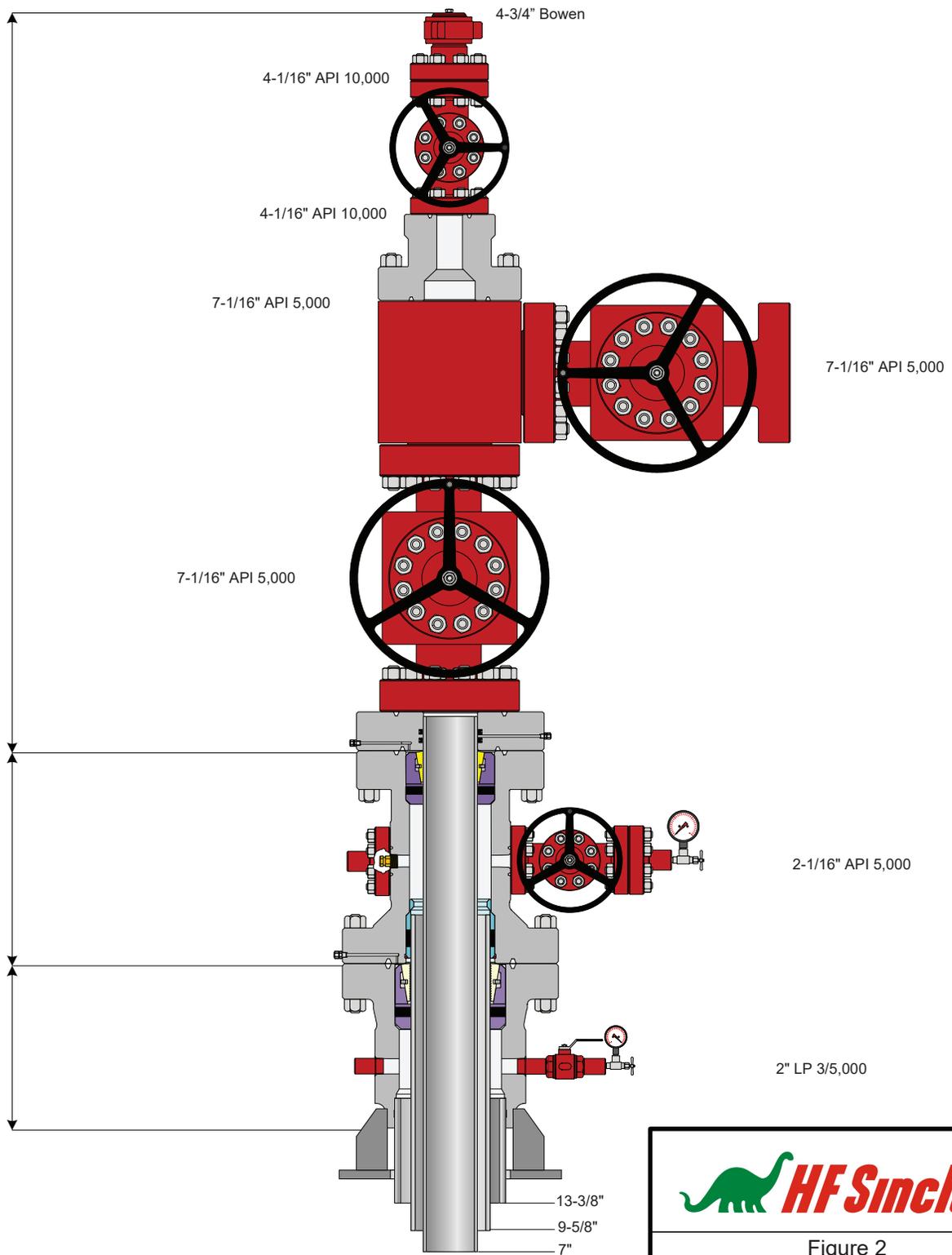
Scale: NTS	Date: October 2023
Fig_01_HF_Artesia_2023_WDW_04.pdf	By: WEK   Checked: LW



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

NOT TO SCALE

OCD UIC Permit: UICI-008-4  
Well API Number: 30-015-44677  
Eddy County, New Mexico  
Sec. 31, T17S-R27E  
Lat. 32.81581° / Long. -104.25003° (NAD 83)



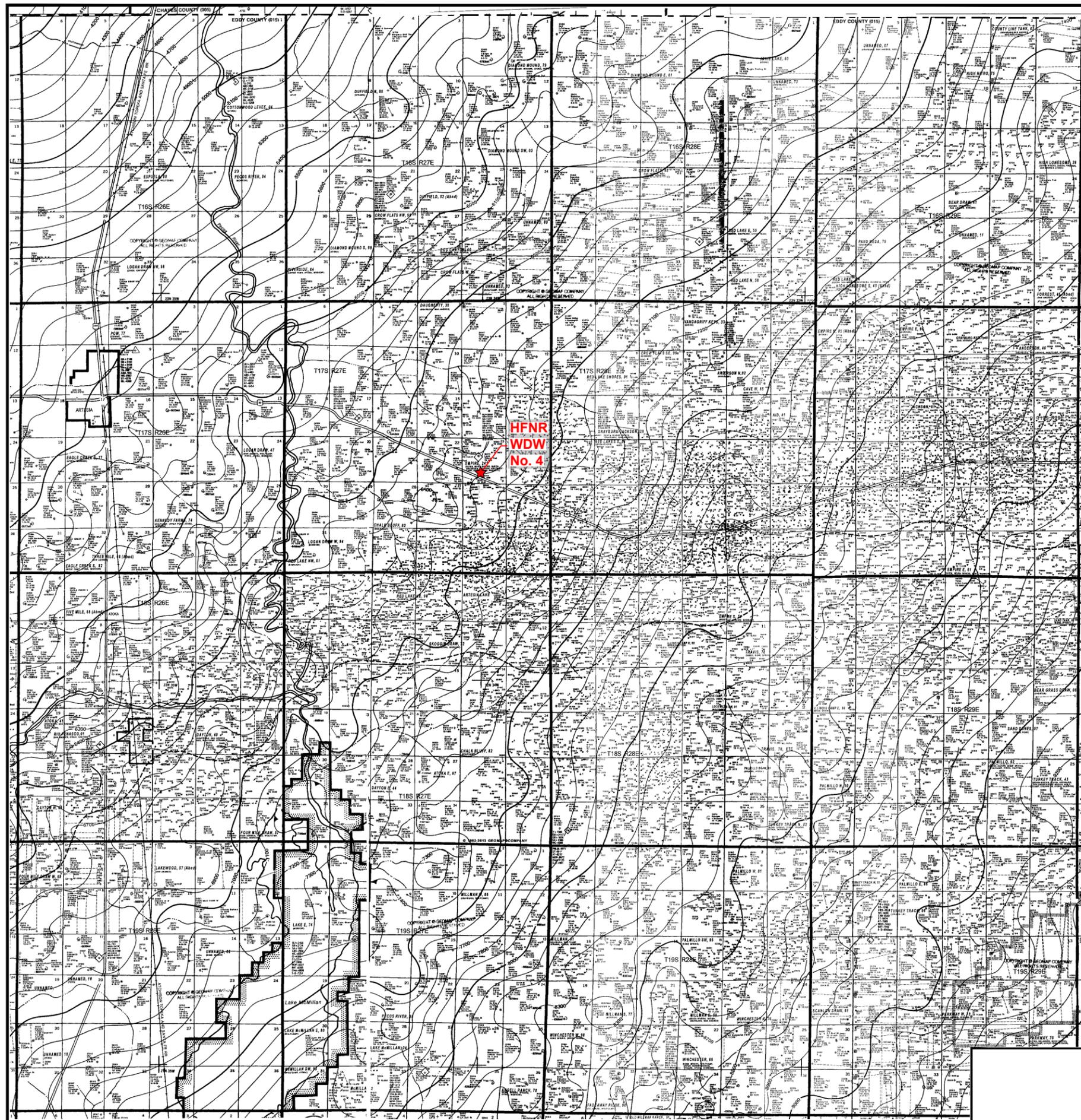
Wellhead information from:  
Figure 8.3, Navajo Refining - HollyFrontier  
by Weatherford.  
NOT TO SCALE

**HF Sinclair**

Figure 2  
WDW No. 4,  
Wellhead Schematic  
2023 FOT/MIT Report

Scale: NTS	Date: October 2023
Fig_02_HF_Artesia_2023_WDW_04.pdf	By: WEK   Checked: LW

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



Adapted from HollyFrontier Navajo Refining LLC, Artesia, New Mexico, Published Structure Map, Top of Siluro-Devonian by WSP Parsons Brinckerhoff, Figure 8.



Figure 3  
Silurian-Devonian Formation  
Structure Map  
2023 FOT/MIT Report

Contour Interval = 100'	Date: October 2023
Fig_03_HF_Artesia_2023_FOT	By: WEK Checked: LW

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

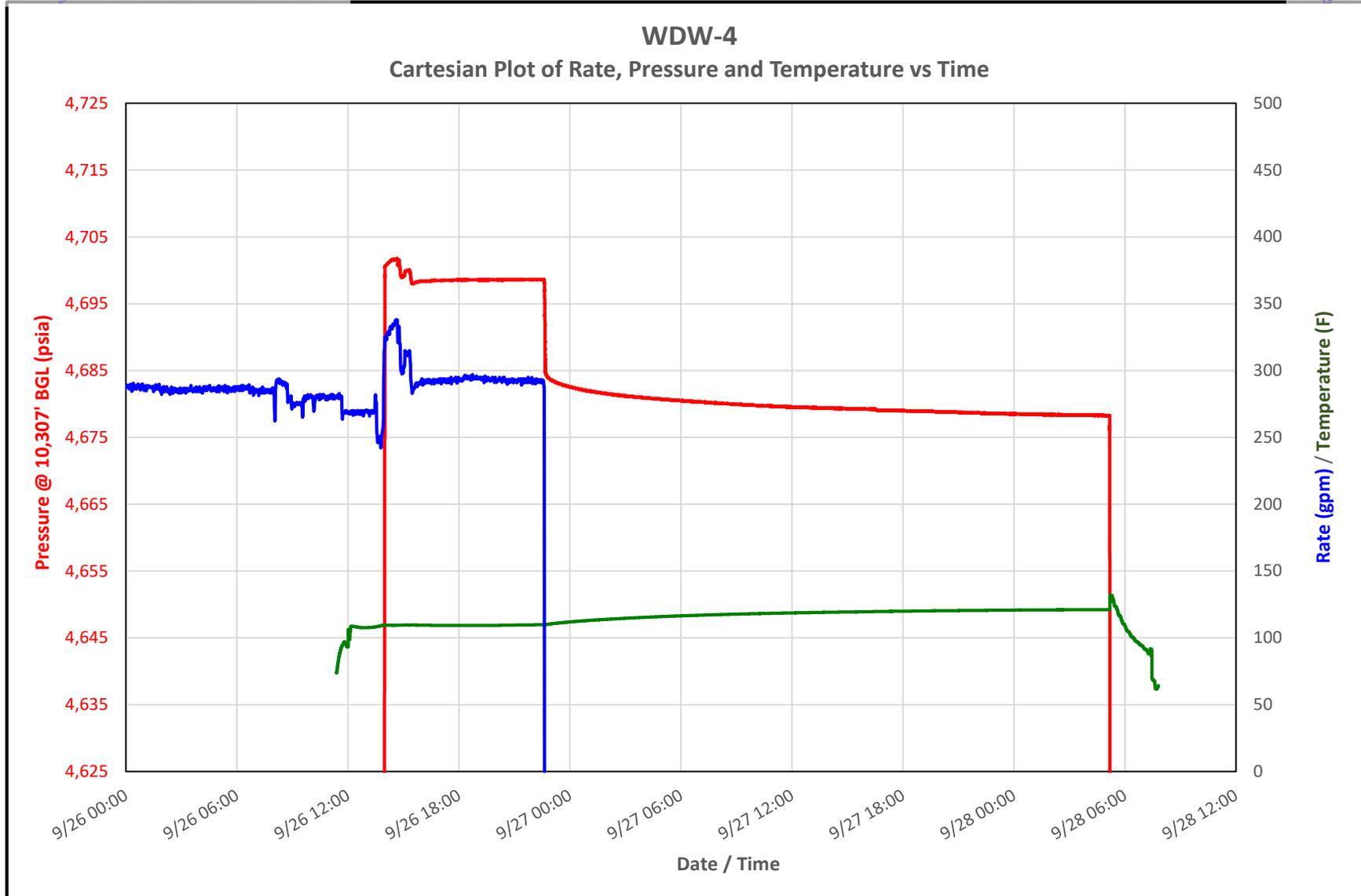


Figure 4

Cartesian Plot of Rate, Pressure and Temperature vs Time  
2023 Well Testing



### WDW-4 Full Rate History

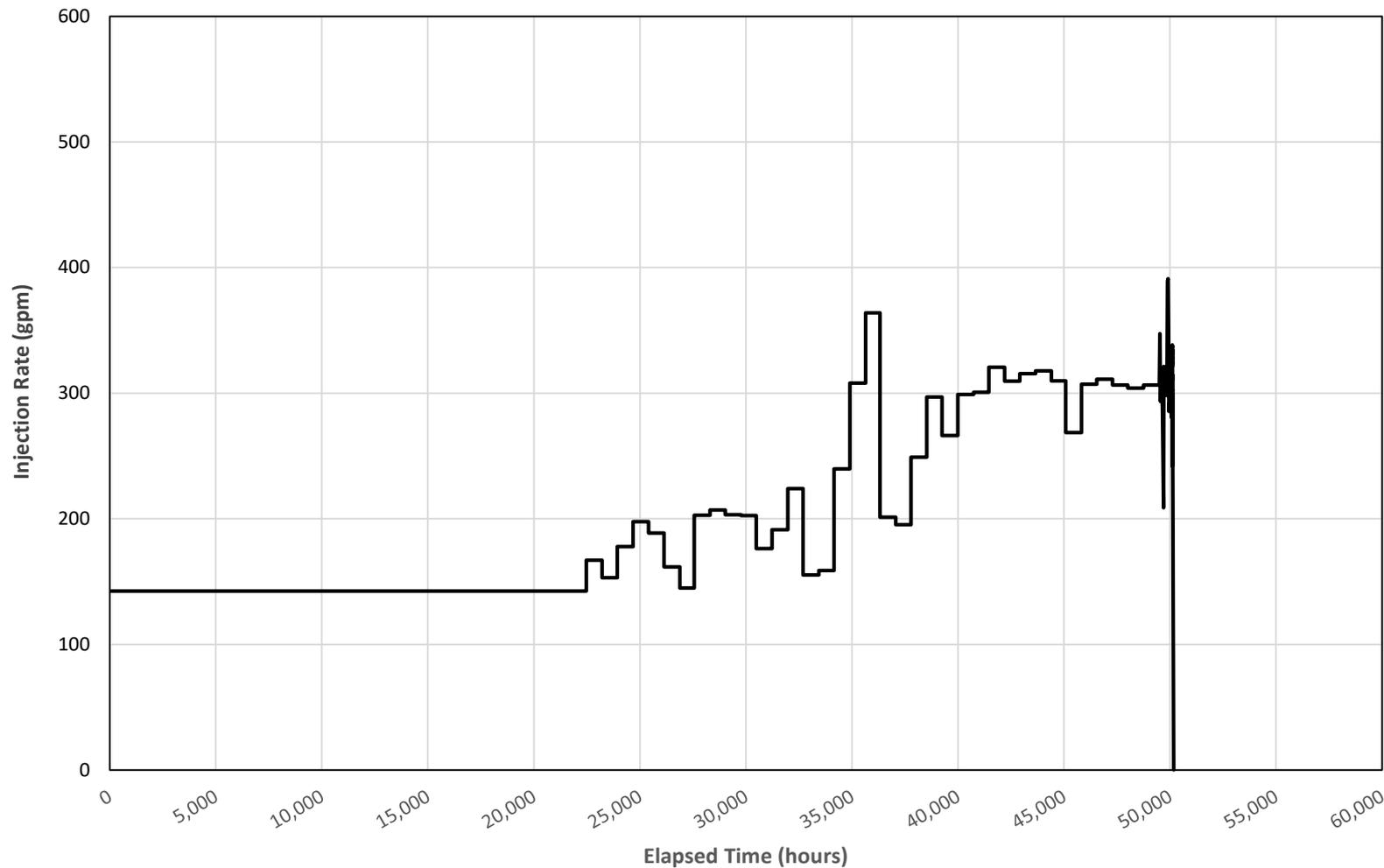


Figure 5  
Full Rate History  
2023 Well Testing



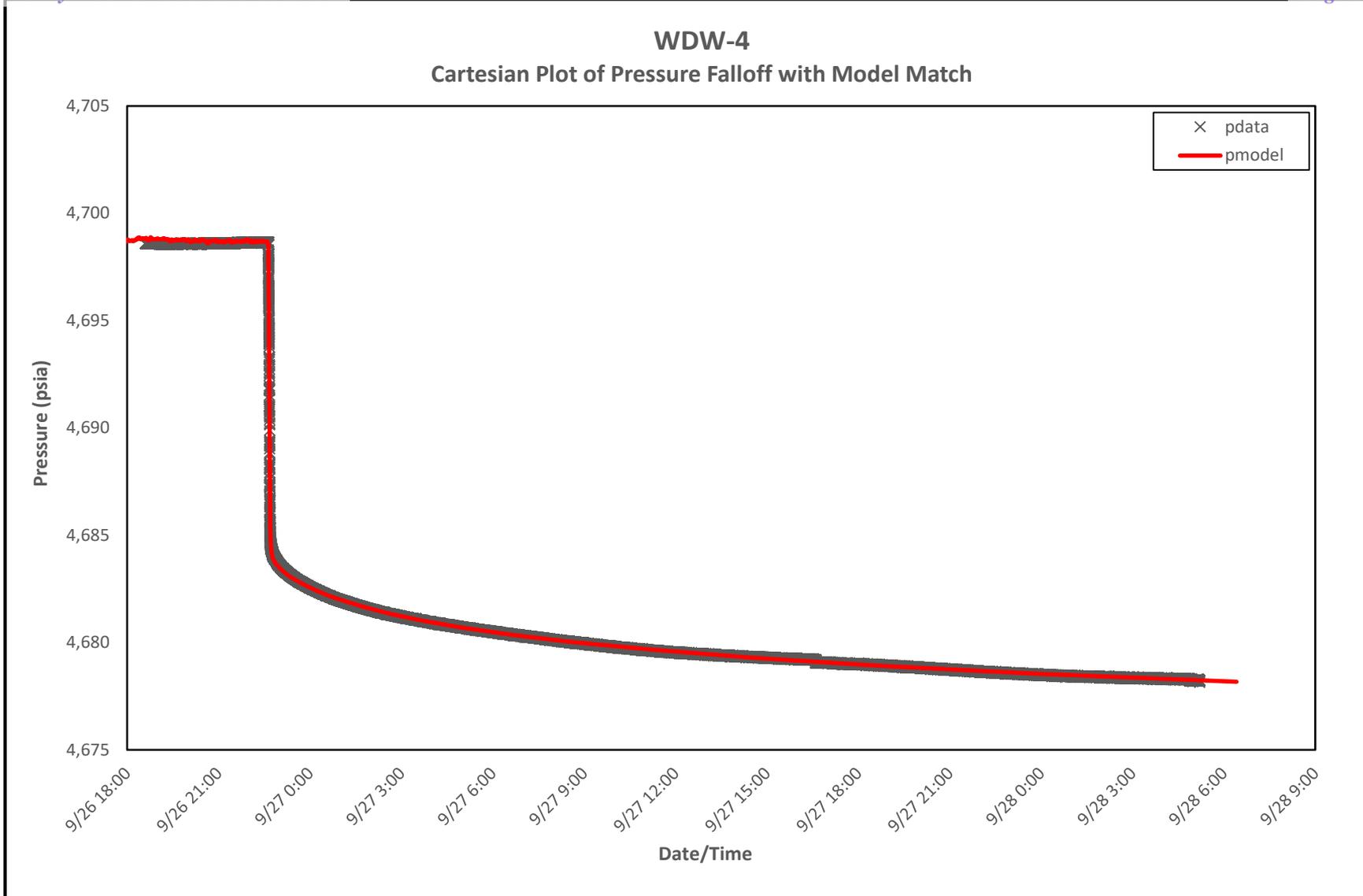
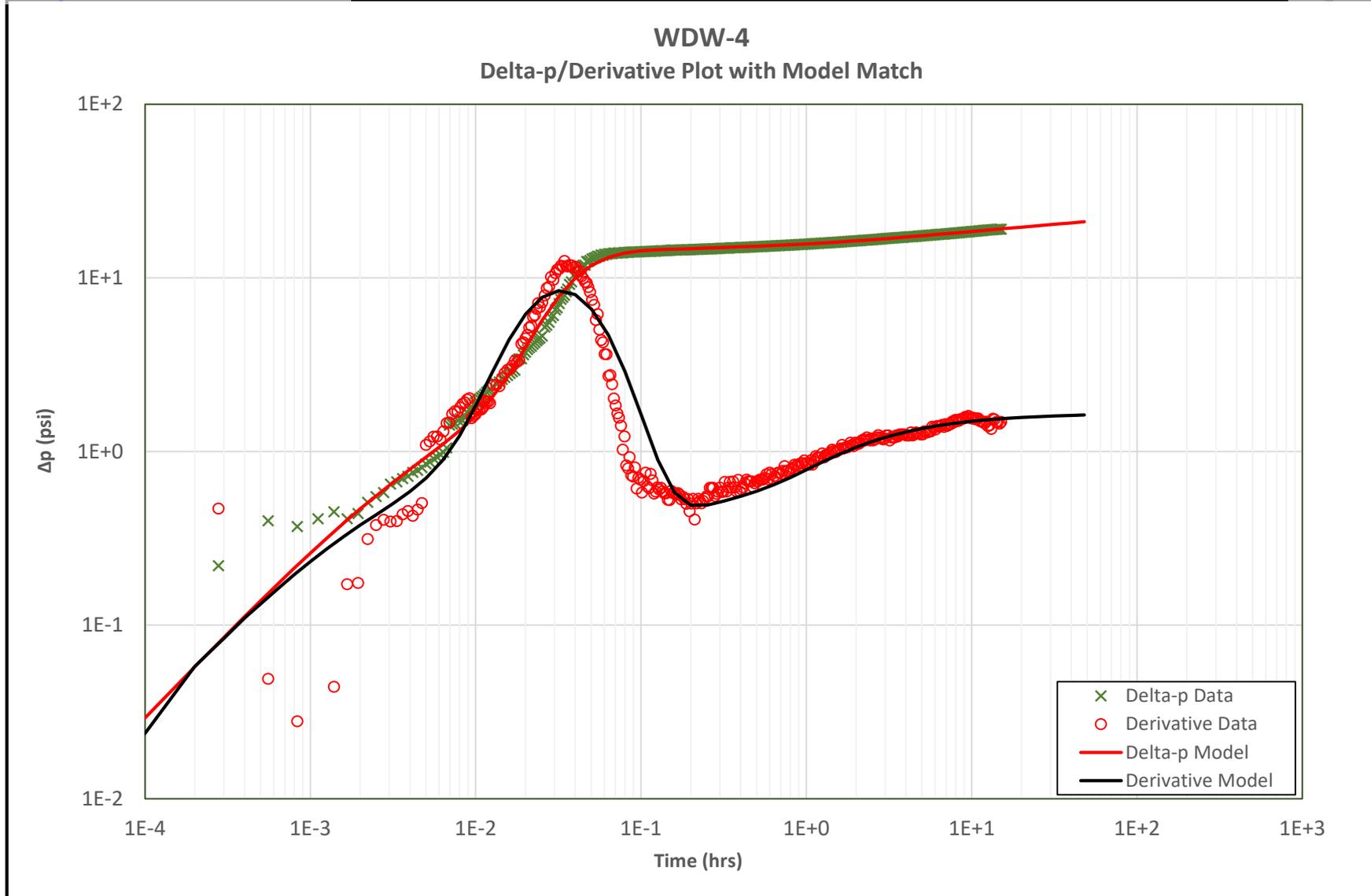


Figure 6

Cartesian Plot of Pressure Falloff with Model Match  
2023 Well Testing





**Figure 7**  
Delta-p/Derivative Plot with Model Match  
2023 Well Testing



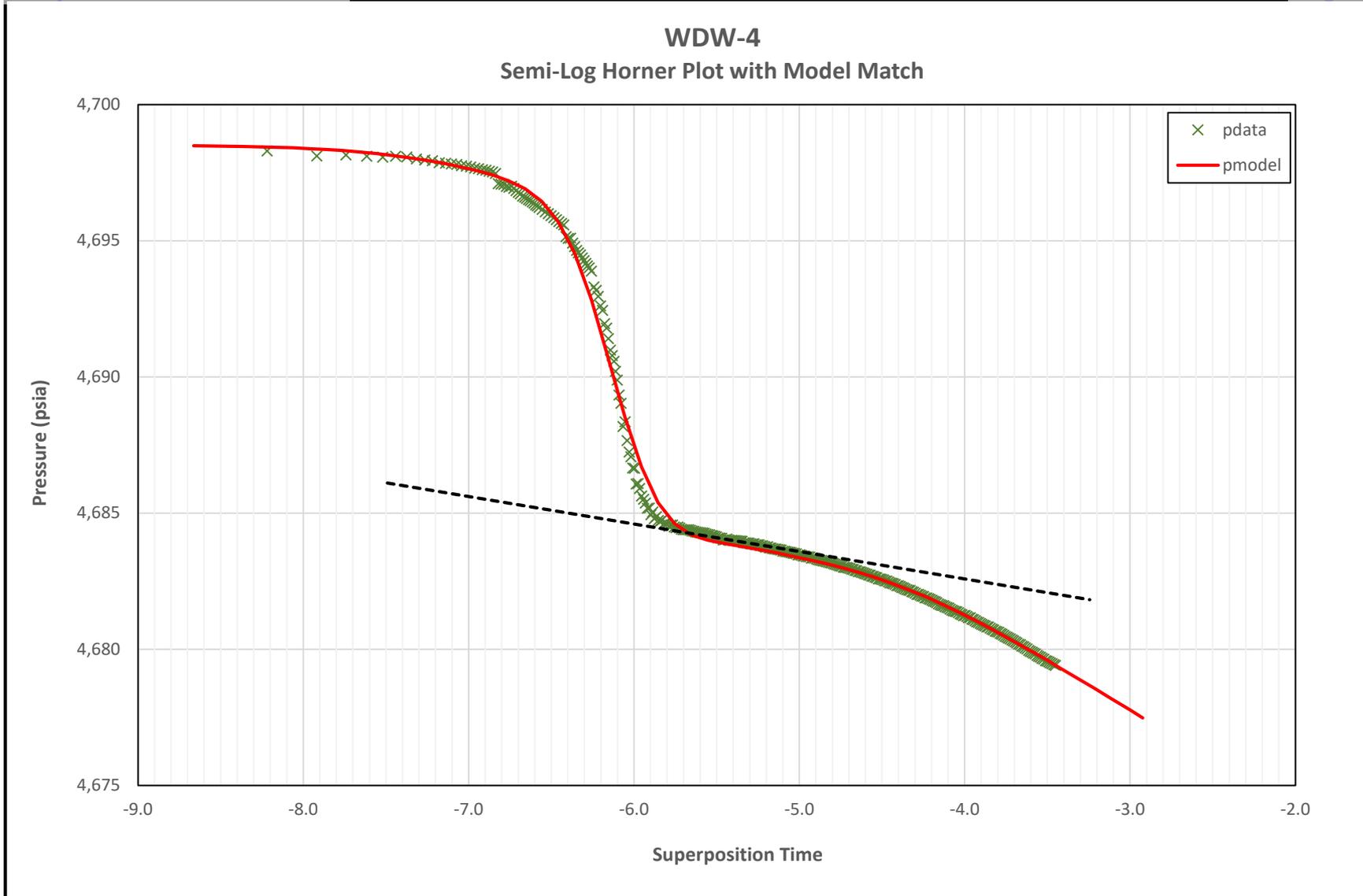


Figure 8

Semi-Log Horner Plot with Model Match  
2023 Well Testing



### WDW-4 Daily Average Injection Rates 8/1/23 - 9/25/23

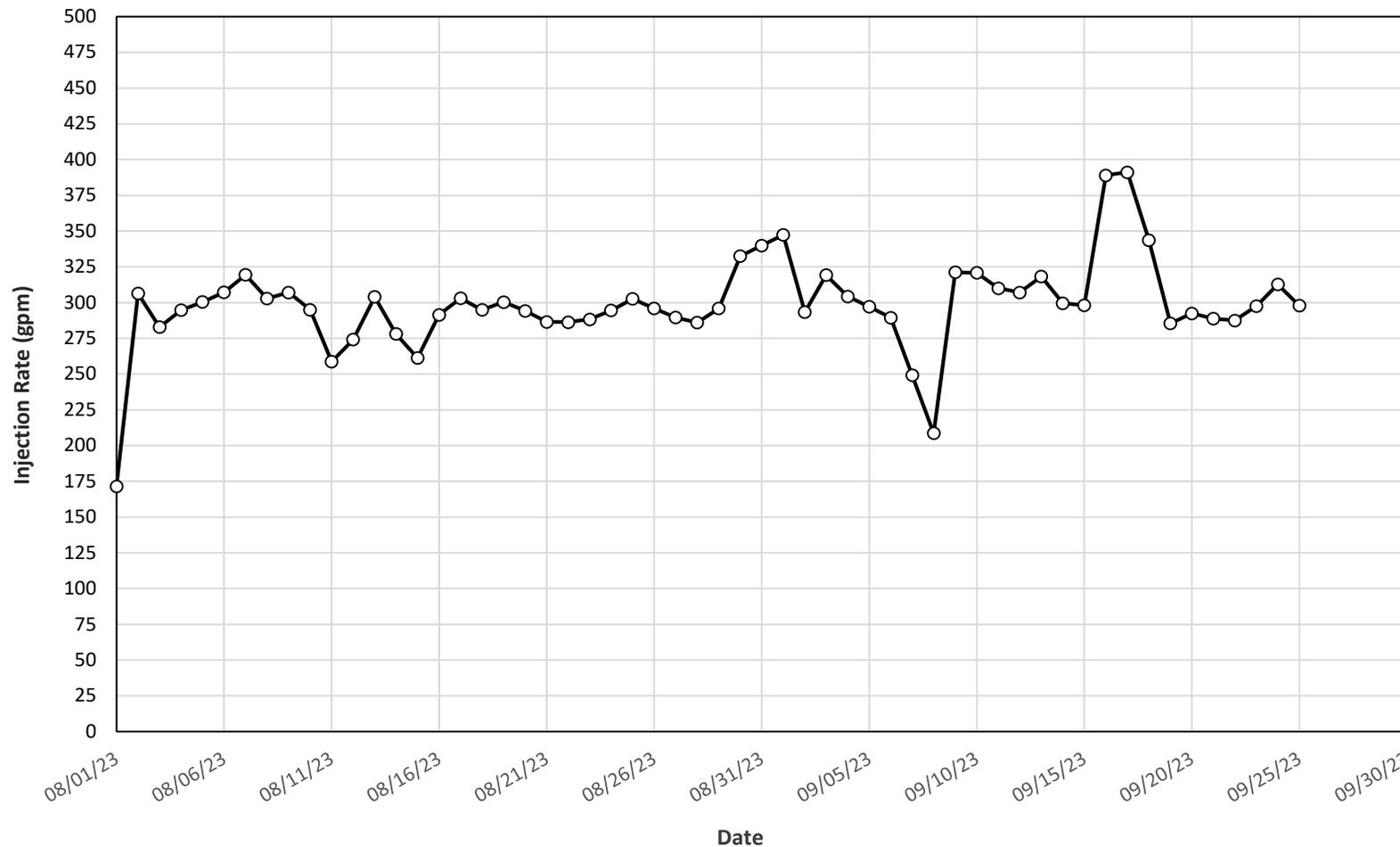
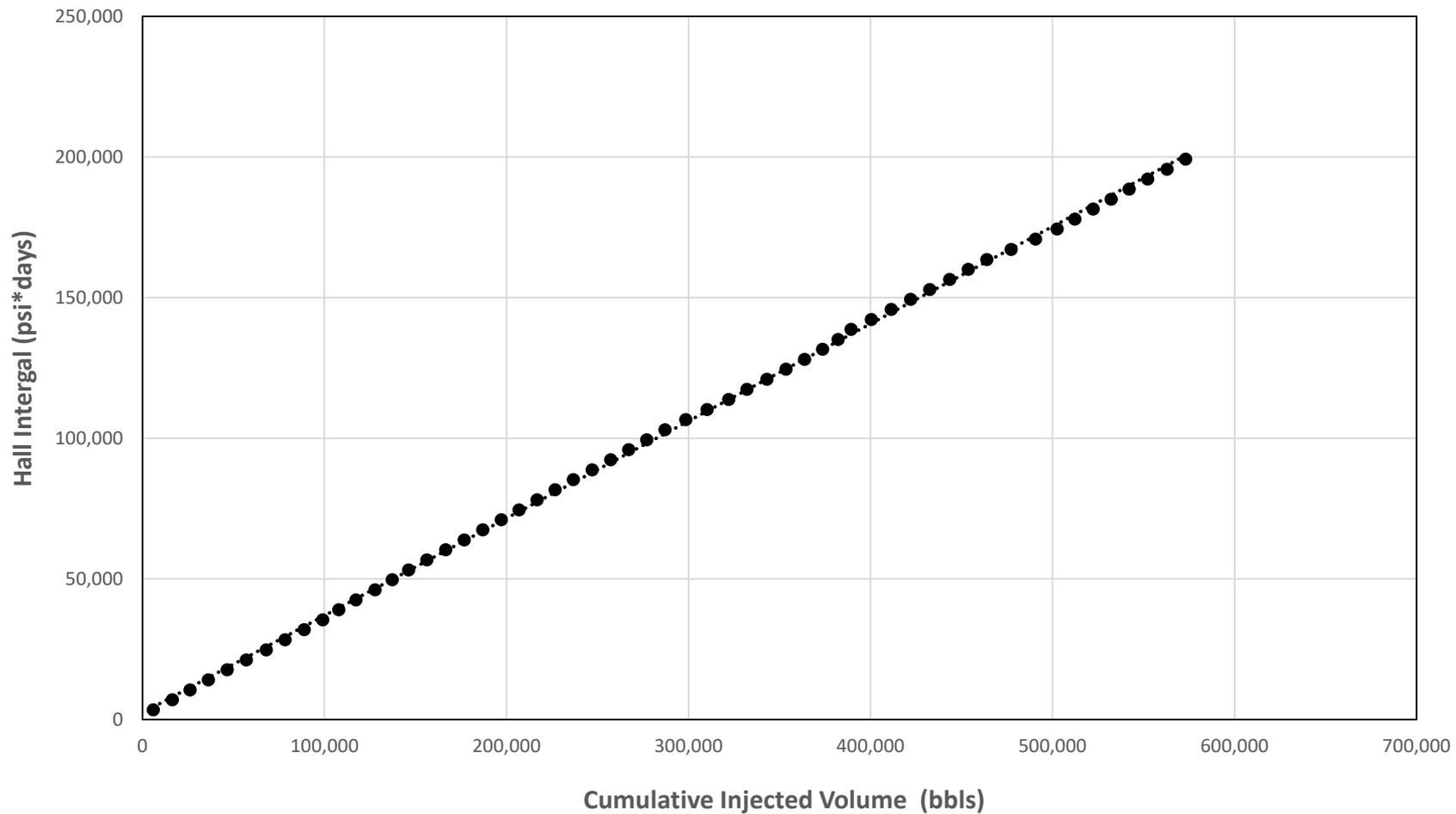


Figure 9  
Daily Average Injection Rates  
2023 Well Testing

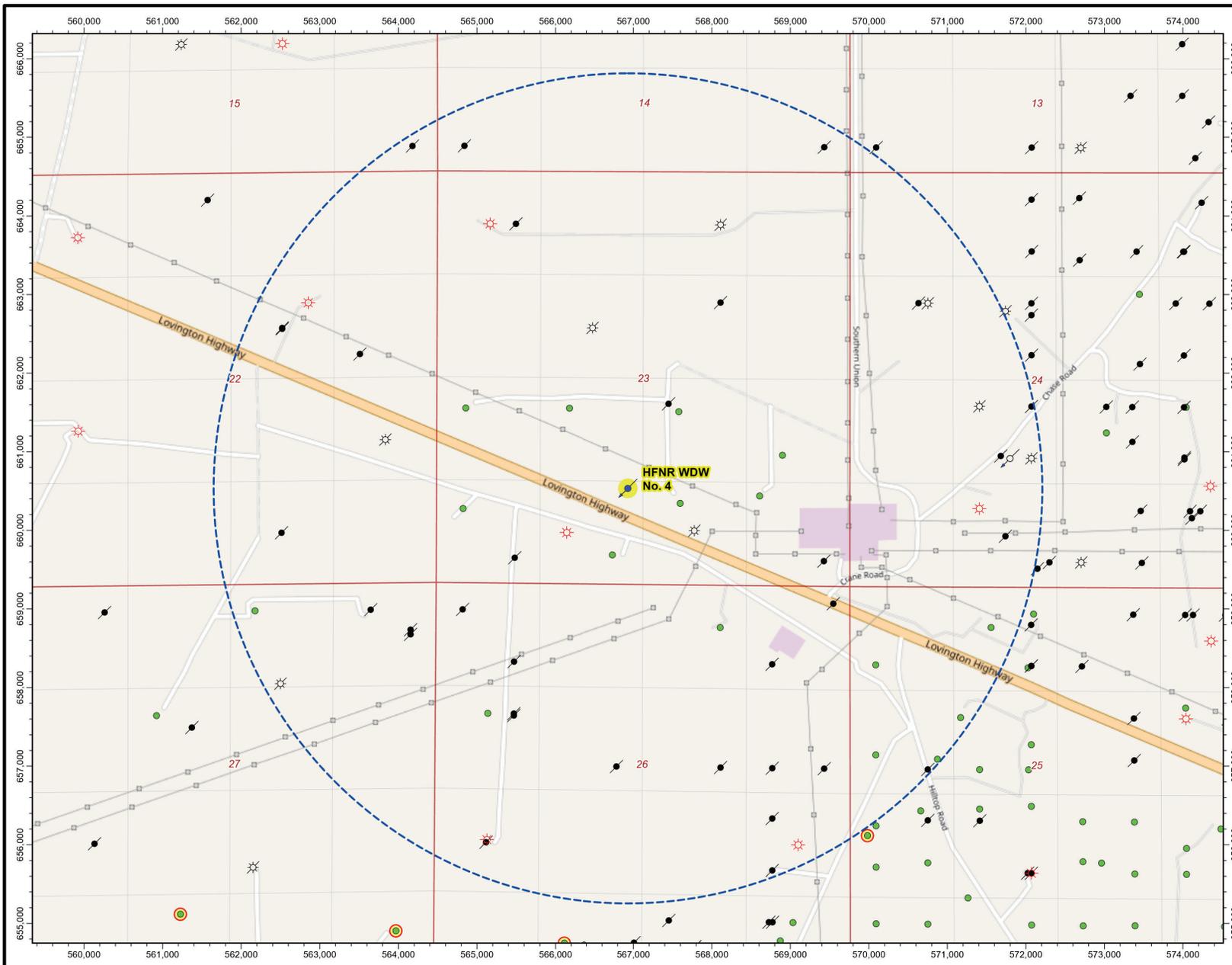


**WDW-4**  
**Hall Plot**  
**8/1/23 - 9/25/23**



**Figure 10**  
Hall Plot  
2023 Well Testing

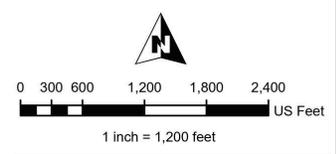




- HollyFrontier Navajo Refining Wells**
- HFNR WDW No. 3
- Area of Review**
- One-Mile Radius
- Well Locations**
- Active Injection Well
  - Active Oil Well
  - New Oil Well
  - Plugged Oil Well
  - Active Gas Well
  - Plugged Gas Well

Note:  
One-Mile radius extends from HFNR WDW No. 4.

Oil & Gas well data from the EMNRD, OCD GIS Public FTP Site, accessed and downloaded 05/10/2022.



**Figure 11**  
**WDW No. 4, One-Mile AOR Map**

2022 FOT/MIT Report

Scale: 1:14,400	Date: July 2022
Fig_11_HF_Artisia_2021_WDW_04	By: WEK   Checked: LW

**Petrotek** 5835 South Zang Street, Suite 200  
Littleton, Colorado 80127 USA  
303.950.8414  
www.petrotek.com

XY Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 (US Feet)

© OpenStreetMap (and) contributors, CC-BY-SA

# ATTACHMENTS

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***Petrotek***

# Attachment 1 OCD Test Notification

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***Petrotek***

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

State of New Mexico
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

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

WELL API NO. 30-015-44677
5. Indicate Type of Lease STATE [ ] FEE [ ]
6. State Oil & Gas Lease No. NM0255527A
7. Lease Name or Unit Agreement Name WDW-4
8. Well Number: WDW-4
9. OGRID Number: 15694
10. Pool name or Wildcat Silurian - Devonian
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3,565' GL

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.)
1. Type of Well: Oil Well [ ] Gas Well [ ] Other: INJECTION WELL
2. Name of Operator HF SINCLAIR NAVAJO REFINERY LLC
3. Address of Operator P.O. Box 159, Artesia, NM 88210
4. Well Location Unit Letter\_K 1319 feet from the SOUTH line and 2,493 feet from the WEST line
Section 23 Township 17S Range 27E NMPM County: EDDY

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

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

July 16, 2023; Day 1: Begin constant-rate injection (+/- 10%) into WDW-4 as well as the three (3) offset wells for at least 30 hours prior to shut-in of WDW-4 for falloff testing. Target rate for WDW-4 is approximately 160 gpm. Wellhead pressure will not exceed 1,400 psig. Plant personnel will record rate, volume and pressure during the constant-rate injection period to ensure steady flow for analysis. Samples of the injectate will be collected approximately every 10 hours and analyzed for pH and specific gravity.

July 17, 2023; Day 2: Continue constant-rate injection into all four (4) wells.

July 18, 2023; Day 3: While injection continues, run dual downhole memory gauges to test depth making flowing gradient stopes every 1,000 feet. Collect pressure data at test depth for at least 1 hour while injecting at constant rate. Shut in WDW-4 and collect falloff data for a minimum of 30 hours. WDW-1, WDW-2 and WDW-3 will continue injection at constant rate until downhole memory gauges are pulled from WDW-3.

July 19, 2023; Day 4: WDW-4 will remain shut-in while collecting falloff pressure data using downhole memory gauges.

July 20, 2023; Day 5: After a minimum of 30 hours of falloff data collection, remove gauges from the well making 5-minute gradient stops every 1,000 feet. Note the top of fill will be tagged either with gauges prior to pulling from the well, or on a second run with sinker bars after gauges are removed (TBD). Conduct MIT for a minimum of 30 minutes recording data electronically. 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 \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

Type or print name \_\_\_\_\_ E-mail address: \_\_\_\_\_ PHONE: \_\_\_\_\_

For State Use Only

APPROVED BY: \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

Conditions of Approval (if any):

# Attachment 2 Annulus Pressure Gauge Certification

---

***Petrotek***



7200 E. Dry Creek Rd, STE C-102, Centennial, CO 80112

Ph. 303-804-0667 Cal.Lab@Apex-Instruments.com

# Calibration Certificate

**Certificate Number: 233945**

**Customer:**

Petrotek  
Littleton, CO

**Manufacturer:** Crystal Engineering  
**Model Number:** XP2i 5000 psi  
**Serial Number:** 901241  
**Description:** Digital Test Gauge  
**Procedure:** CI-001  
**Calibrated To:** Manufacturer's Specifications  
**Technician:** Ben Campbell

**Calibration Date:** 8/18/2023  
**Due Date:** 8/18/2024  
**As Found:** Out of Tolerance  
**As Left:** In Tolerance  
**Temperature:** 71.8 F  
**Humidity:** 43.5 %  
**Issue Date:** 8/18/2023

**Tolerance Specs:**

0 - 20%: +/- (0.02% of FS)  
 20% - 100%: +/- (0.1% of Rdg)

**Technician Notes:**

As Left Userspan: 1.00102

Approved Signatory: \_\_\_\_\_

Apex Instruments certifies that the instrument listed above meets the specifications of the manufacturer at the completion of its calibration. The calibrations within the certificate are traceable through NIST or another National Metrology Institute to the International System of Units (SI).

Methods used are in accordance with the procedure listed above. This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

Unless otherwise contractually specified, a binary decision rule, utilizing simple acceptance, and simple rejection criteria will be used for the determination of compliance. When compliance statements are present, they are reported without factoring in the effects of uncertainty and the limits are defined by the manufacturer's stated accuracy.

This certificate does not guarantee the continued performance of the instrument listed above. Any modifications or services performed hereafter may void this certificate.

This certificate applies only to the item listed above and is not to be reproduced other than in full, except with prior written approval from Apex Instruments Inc.



**Standards Used**

Description	Model Number	Serial Number	Calibration Date	Due Date	ID
Electronic Deadweight Tester	RPM4-E-DWT A100M/A10M	1709	8/31/2022	8/31/2023	APX00024
Temp / RH Datalogger	UX100-011	21284718	9/26/2022	9/26/2023	APX09582

**Compass Import**

**Gauge Pressure**

**As Found**

**Fail**

Test Description	Nominal	Test Results	Tolerance (+/-)	UUT Error	Status
0	0.00 psi	0.00 psi	1.00 psi	0.00 psi	Pass
<b>1000</b>	<b>1000.02 psi</b>	<b>998.62 psi</b>	<b>1.00 psi</b>	<b>-1.40 psi</b>	<b>Fail</b>
<b>2000</b>	<b>1999.86 psi</b>	<b>1997.38 psi</b>	<b>2.00 psi</b>	<b>-2.48 psi</b>	<b>Fail</b>
<b>3000</b>	<b>3000.07 psi</b>	<b>2996.67 psi</b>	<b>3.00 psi</b>	<b>-3.40 psi</b>	<b>Fail</b>
<b>4000</b>	<b>4000.07 psi</b>	<b>3995.96 psi</b>	<b>4.00 psi</b>	<b>-4.11 psi</b>	<b>Fail</b>
5000	4999.90 psi	4995.49 psi	5.00 psi	-4.41 psi	Pass
4000	4000.08 psi	3996.14 psi	4.00 psi	-3.94 psi	Pass
<b>3000</b>	<b>2999.97 psi</b>	<b>2996.86 psi</b>	<b>3.00 psi</b>	<b>-3.11 psi</b>	<b>Fail</b>
<b>2000</b>	<b>1999.96 psi</b>	<b>1997.79 psi</b>	<b>2.00 psi</b>	<b>-2.17 psi</b>	<b>Fail</b>
<b>1000</b>	<b>999.96 psi</b>	<b>998.83 psi</b>	<b>1.00 psi</b>	<b>-1.13 psi</b>	<b>Fail</b>
0	0.12 psi	0.20 psi	1.00 psi	0.08 psi	Pass

**Compass Import**

**Gauge Pressure**

**As Left**

**Pass**

Test Description	Nominal	Test Results	Tolerance (+/-)	UUT Error	Status
0	0.00 psi	0.00 psi	1.00 psi	0.00 psi	Pass
1000	1000.10 psi	999.68 psi	1.00 psi	-0.42 psi	Pass
2000	2000.07 psi	1999.61 psi	2.00 psi	-0.46 psi	Pass
3000	3000.02 psi	2999.69 psi	3.00 psi	-0.33 psi	Pass
4000	3999.80 psi	3999.80 psi	4.00 psi	0.00 psi	Pass
5000	5000.04 psi	5000.81 psi	5.00 psi	0.77 psi	Pass
4000	3999.92 psi	4000.13 psi	4.00 psi	0.21 psi	Pass
3000	3000.08 psi	3000.16 psi	3.00 psi	0.08 psi	Pass
2000	1999.97 psi	1999.96 psi	2.00 psi	-0.01 psi	Pass
1000	1000.01 psi	1000.02 psi	1.00 psi	0.01 psi	Pass
0	-0.03 psi	0.21 psi	1.00 psi	0.24 psi	Pass

– End of measurement results –



# Attachment 3 Downhole Pressure Gauge Certification

---

***Petrotek***

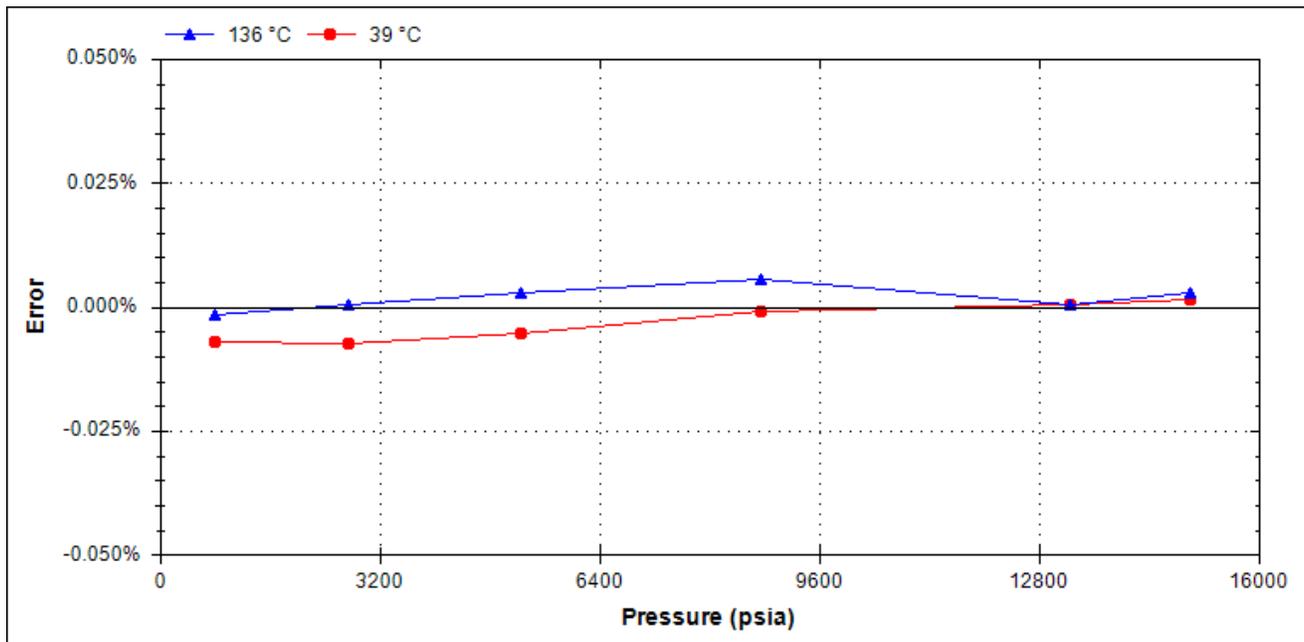


"The Next Generation of Down Hole Tools"

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

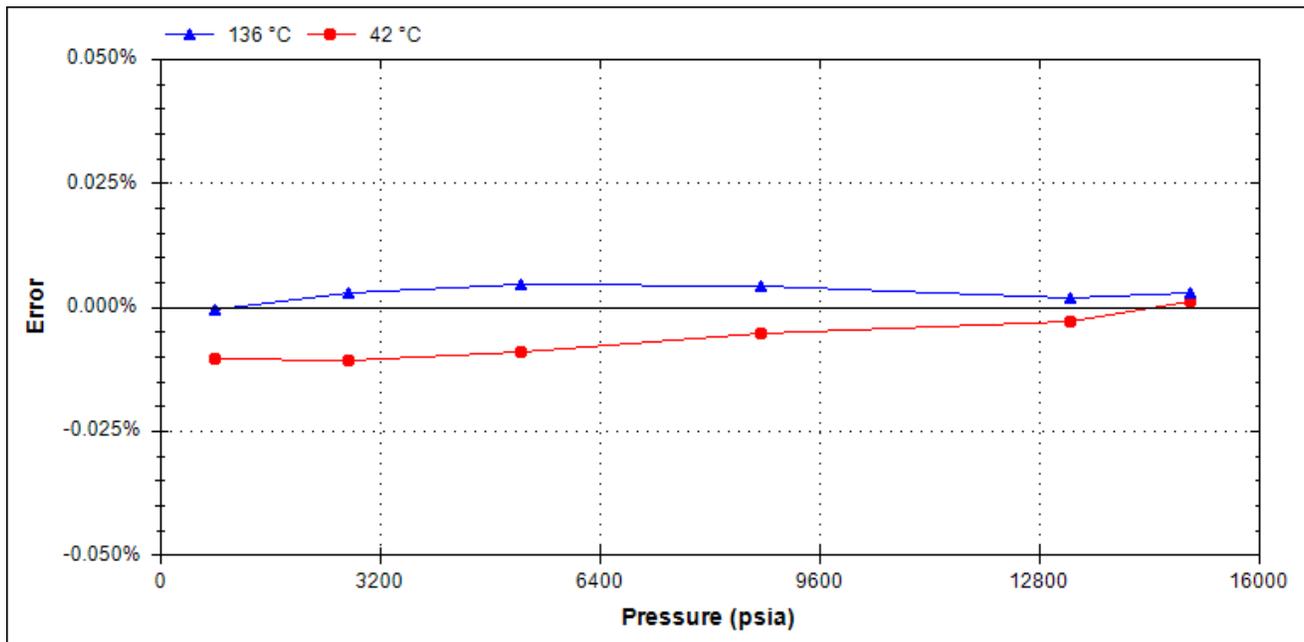


"The Next Generation of Down Hole Tools"

**Calibration Date:** 10-Mar-22  
**Max Pressure Error:** 0.011% F.S.  
**Max Temperature Error:** 0.210 °C  
**Part Number:** 101696  
**Serial Number:** 242665

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

**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

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***Petrotek***

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>FLOWING GRADIENT SURVEY</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Formation: Unavailable	Test Date: 09/26/2023 Location: Eddy County, NM Status: Flowing
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Well Data: Wellhead Connection: 4-1/16" BX-155 Flange Elevation: 20 ft above GL Tubing: 3" Set at 10265 ft (Packer) Casing: 9.625" Set at 10327 ft (EOC) Perfs: 10327 - 10700 ft (MD) Datum: 10514 ft (MD)	Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Depth			Pressure					Comments
MD ft	TVD ft	Delta Depth ft	WHP psia	BHT °F	Gauge Pressure psia	Delta Pressure psi	Pressure Gradient psi / ft	
0	0	0	300	108.83	299.63	0.00	0.0000	
1000	1000	1000		108.53	722.50	422.87	0.4229	
2000	2000	1000		108.21	1146.22	423.72	0.4237	
3000	3000	1000		107.89	1570.18	423.96	0.4240	
4000	4000	1000		107.70	1995.40	425.22	0.4252	
5000	5000	1000		107.61	2420.51	425.11	0.4251	
6000	6000	1000		107.66	2851.11	430.60	0.4306	
7000	7000	1000		107.83	3275.85	424.74	0.4247	
8000	8000	1000		108.15	3706.15	430.30	0.4303	
9000	9000	1000		108.72	4131.02	424.87	0.4249	
10000	10000	1000		109.42	4566.73	435.71	0.4357	
10307	10307	307	300	109.53	4700.81	134.08	0.4367	

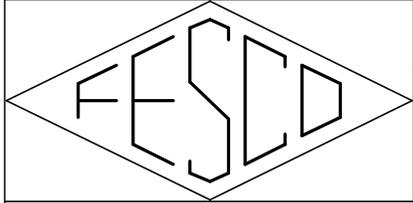
BHT at Test Depth: 109.53 °F Extrapolated BHP at Datum: 4788.04 psia BHP Gradient at Datum : 0.4214 psi/ft	Oil Level: Injecting Water Level: Injecting Csg Press: N/A	Previous BHP: U/A BHP Change: U/A
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Remarks: MIRU slickline. RIH and cleared 10307 ft with weight bar. POOH. RIH with electronic gauge making injecting gradient stops to 10307 ft.

Certified: FESCO, Ltd. - Midland, TX

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

Job No.: J202310021401.001A Page 1

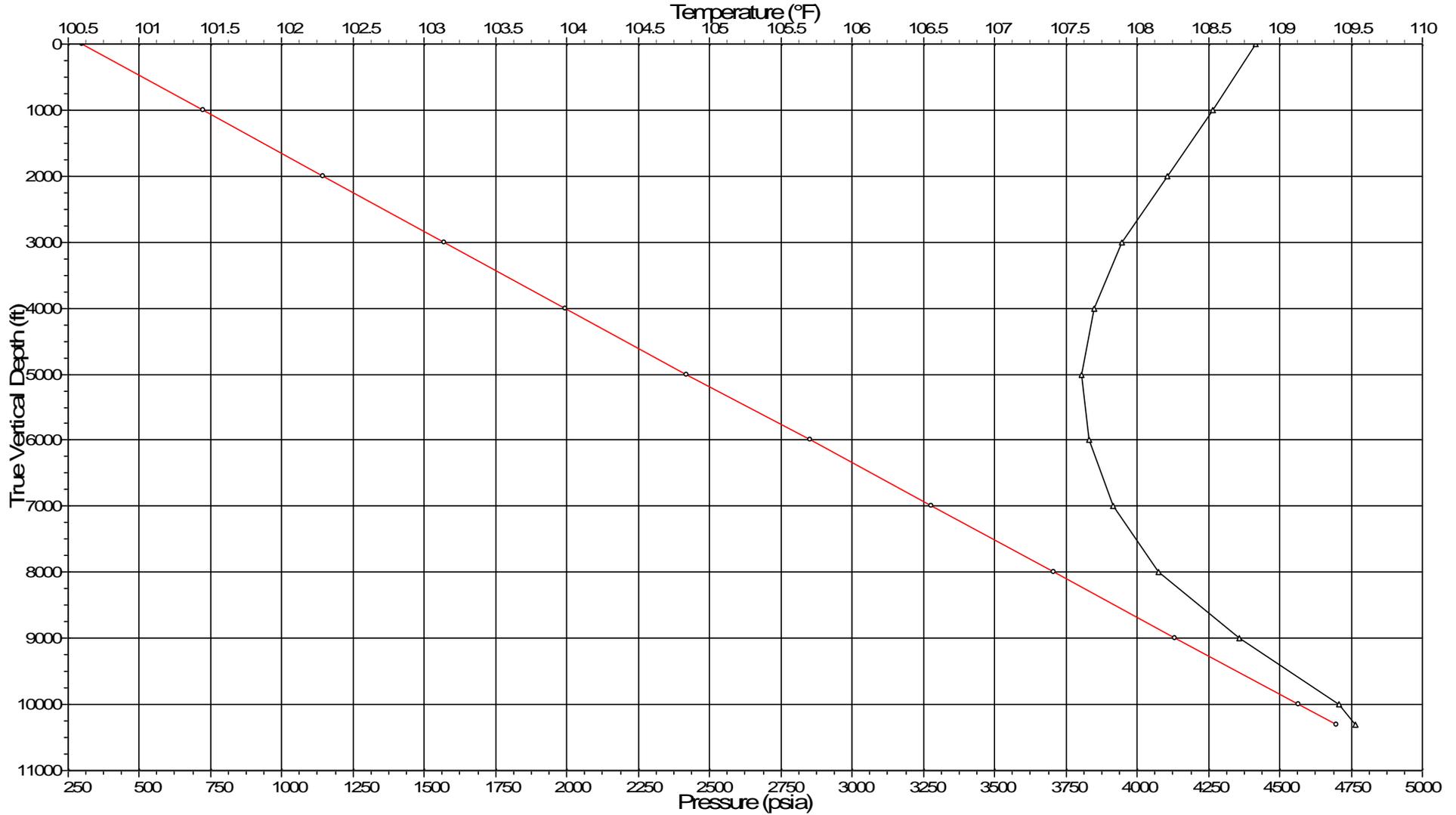


### Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 4  
Field: Davonia  
Test Date: 09/26/2023

Gauge Type: Electronic  
Gauge Range: 15000 psi  
Gauge SN: DC-224831

### Flowing Gradient Plot



J202310021401.001A

Pressure    -Δ- Temperature

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>STATIC GRADIENT SURVEY</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Formation: Unavailable	Test Date: 09/28/2023 Location: Eddy County, NM Status: SI for 30.2 hrs
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Well Data: Wellhead Connection: 4-1/16" BX-155 Flange Elevation: 20 ft above GL Tubing: 3" Set at 10265 ft (Packer) Casing: 9.625" Set at 10327 ft (EOC) Perfs: 10327 - 10700 ft (MD) Datum: 10514 ft (MD)	Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Depth			Pressure					Comments
MD ft	TVD ft	Delta Depth ft	WHP psia	BHT °F	Gauge Pressure psia	Delta Pressure psi	Pressure Gradient psi / ft	
0	0	0	200	68.20	197.34	0.00	0.0000	Water level at surface
1000	1000	1000		88.58	638.84	441.50	0.4415	
2000	2000	1000		91.37	1072.19	433.35	0.4334	
3000	3000	1000		94.41	1505.36	433.17	0.4332	
4000	4000	1000		97.11	1939.28	433.92	0.4339	
5000	5000	1000		100.66	2373.16	433.88	0.4339	
6000	6000	1000		104.98	2807.48	434.32	0.4343	
7000	7000	1000		110.32	3241.62	434.14	0.4341	
8000	8000	1000		116.71	3676.18	434.56	0.4346	
9000	9000	1000		123.55	4110.23	434.05	0.4340	
10000	10000	1000		131.24	4544.54	434.31	0.4343	
10307	10307	307		121.12	4678.25	133.71	0.4355	Water gradient

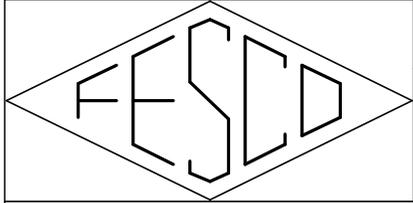
BHT at Test Depth: 111.59 °F Extrapolated BHP at Datum: 4768.40 psia BHP Gradient at Datum : 0.4355 psi/ft	Oil Level: None Water Level: Surface Csg Press: N/A	Previous BHP: U/A BHP Change: U/A
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Remarks: MIRU slickline. RIH and latch gauge after 30.2-hr BHP Falloff Test. POOH making static gradient stops to surface. RDMO.

Certified: FESCO, Ltd. - Midland, TX

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

Job No.: J202310021401.001A Page 1

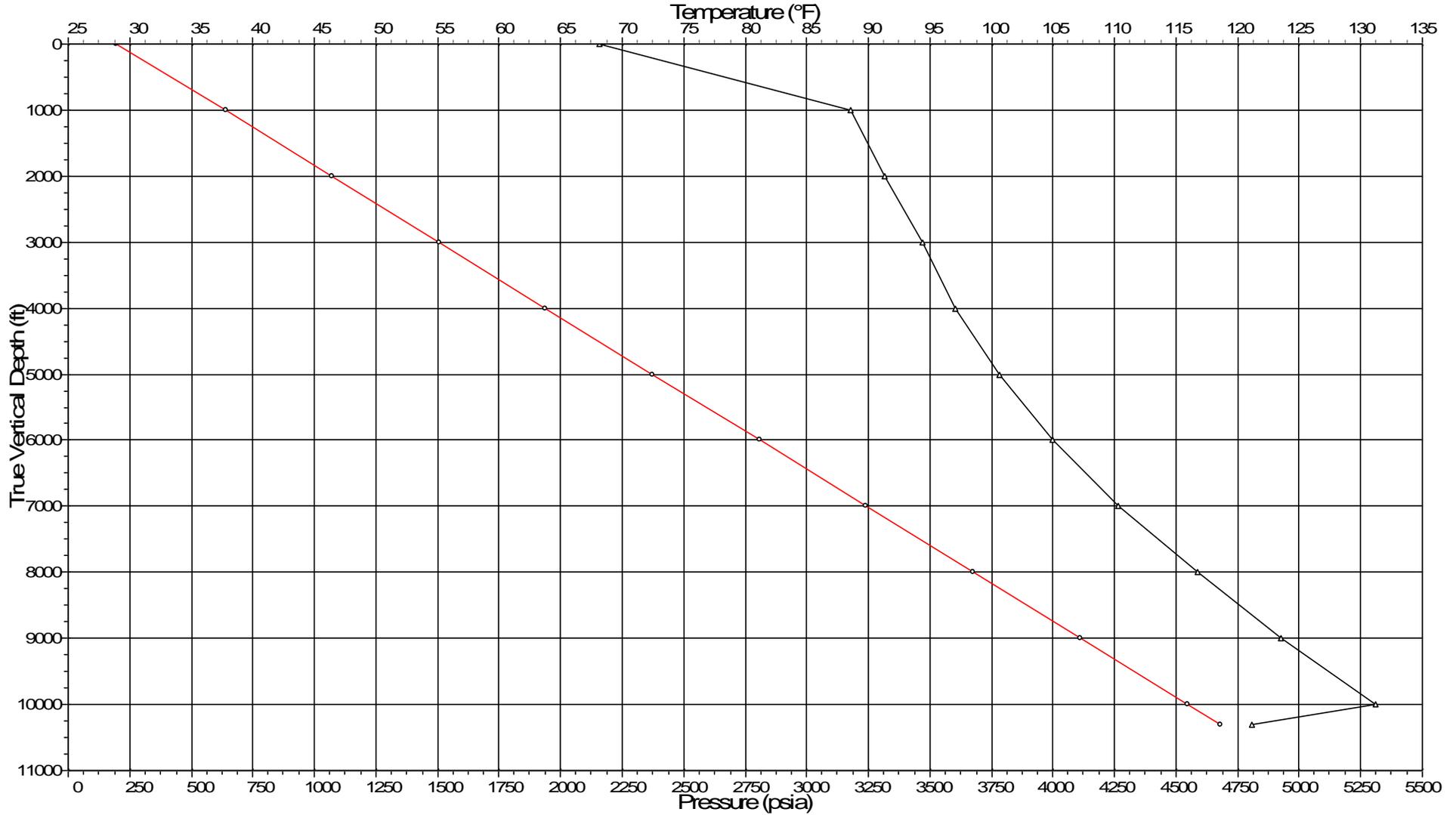


### Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 4  
Field: Davonia  
Test Date: 09/28/2023

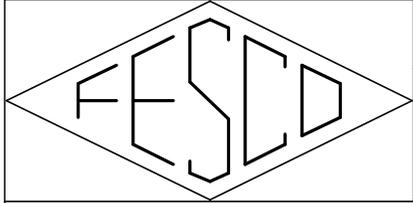
Gauge Type: Electronic  
Gauge Range: 15000 psi  
Gauge SN: DC-224831

### Static Gradient Plot



J202310021401.001A

Pressure    -Δ- Temperature

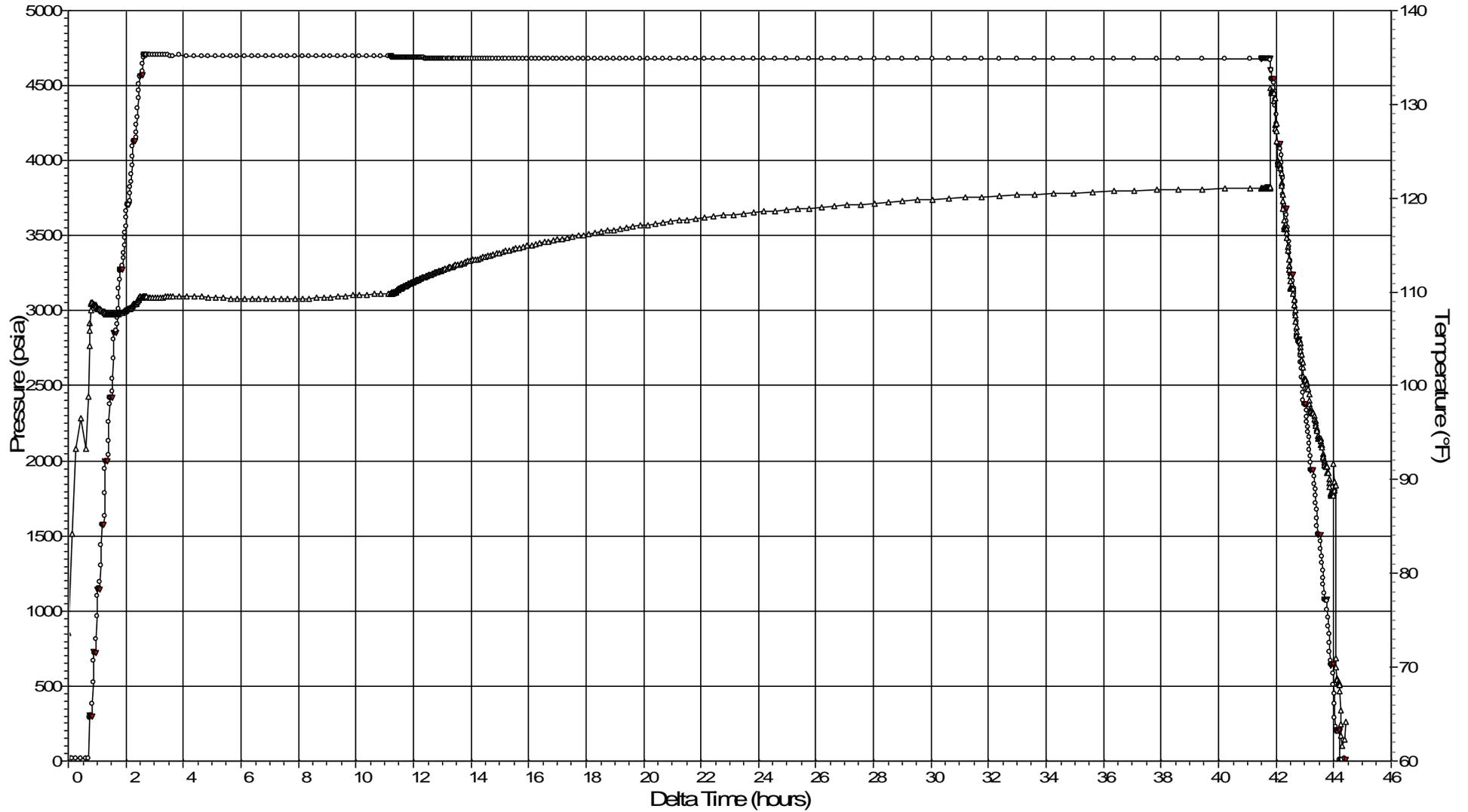


### Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 4  
Field: Davonia  
Test Date: 09/26 - 09/28/2023

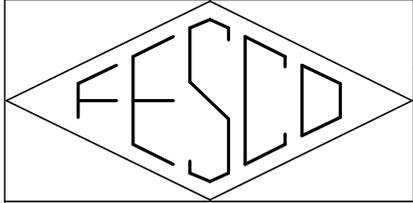
Gauge Type: Electronic  
Gauge Range: 15000 psi  
Gauge SN: DC-224831

### Cartesian Plot



J202310021401.001A

Pressure    -△- Temperature

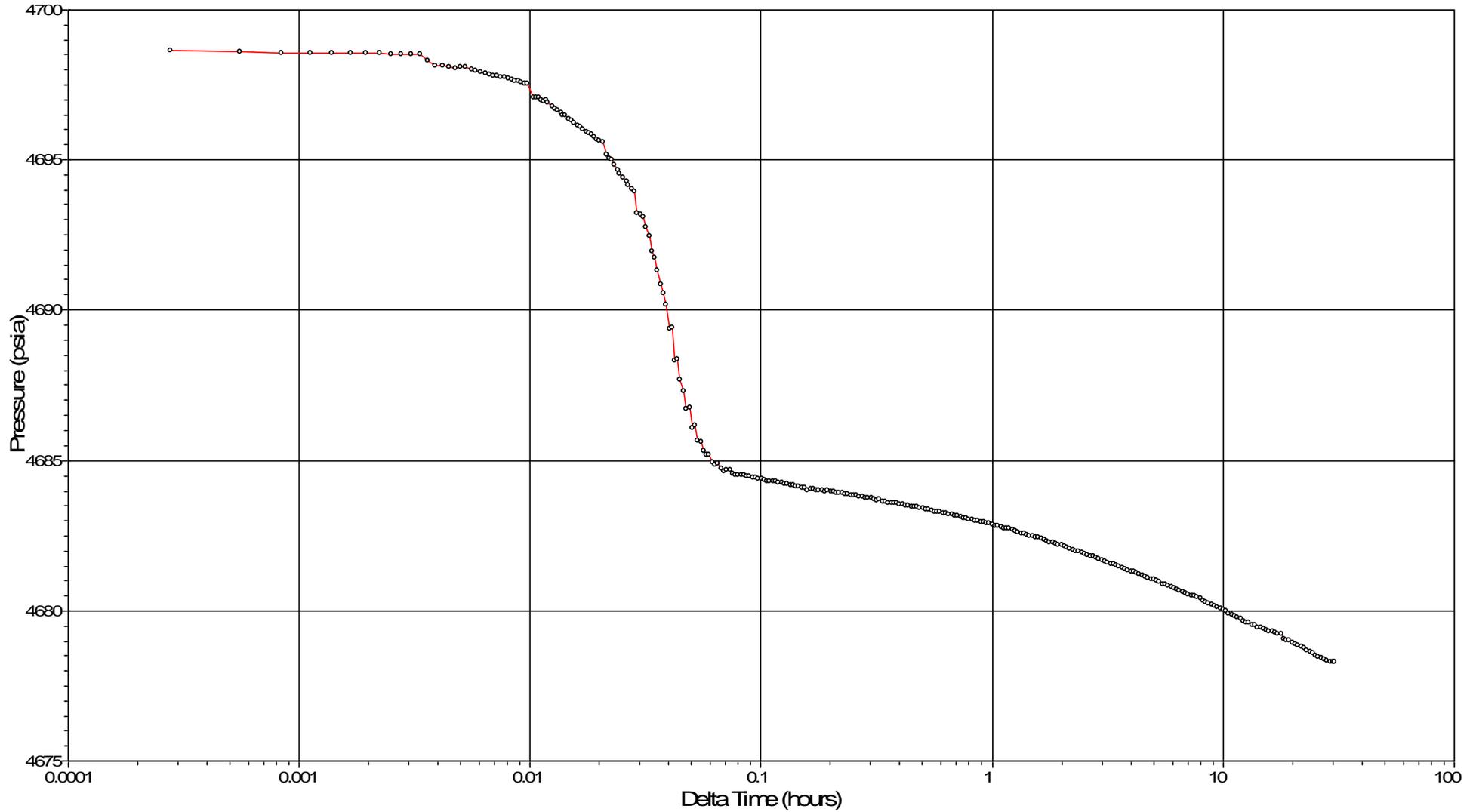


### Petrotek Corporation

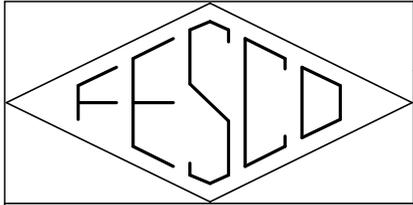
Well: Navajo Refining Waste Disposal Well No. 4  
Field: Davonia  
Test Date: 09/26 - 09/28/2023

Gauge Type: Electronic  
Gauge Range: 15000 psi  
Gauge SN: DC-224831

### Semilog Plot (Falloff Test)



J202310021401.001A

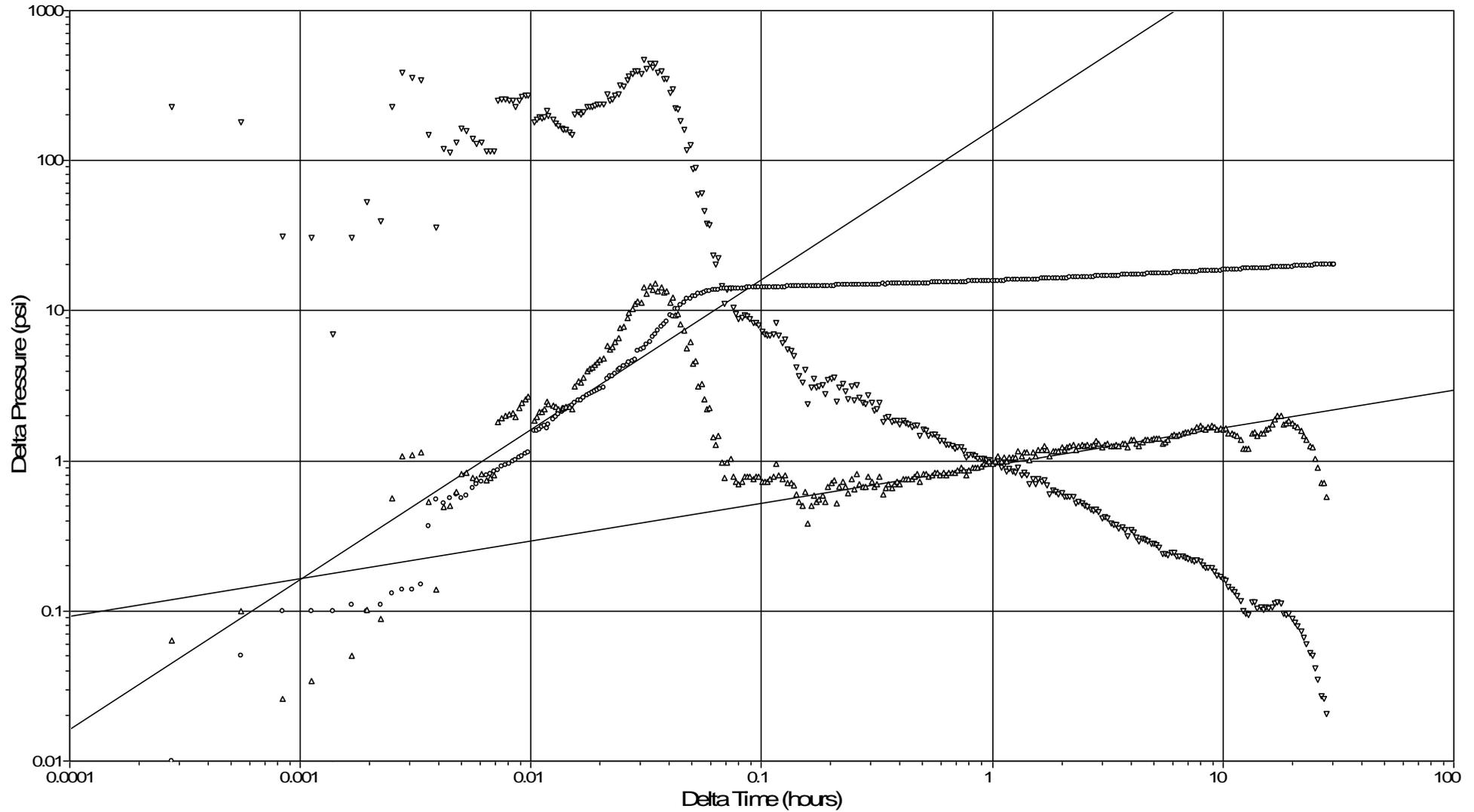


### Petrotek Corporation

Well: Navajo Refining Waste Disposal Well No. 4  
Field: Davonia  
Test Date: 09/26 - 09/28/2023

Gauge Type: Electronic  
Gauge Range: 15000 psi  
Gauge SN: DC-224831

### Log Plot (Falloff Test)



J202310021401.001A

— Unit Slope      — Quarter Slope      ▽ Primary Pressure Derivative      Delta Pressure      △ Radial Pressure Derivative

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation          Well: Navajo Refining Waste Disposal Well No. 4          Field: Davonia          Location: Eddy County, NM          Perfs: 10327 - 10700 ft (MD)          Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023          Gauge Depth: 10307 ft          Gauge Type: Electronic          Gauge SN: DC-224831          Gauge Range: 15000 psi          Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	11:23:00	-11.23194		17.08		73.65	Powered up gauge.
09/26/23	11:30:00	-11.11528		15.46		84.17	
09/26/23	11:40:00	-10.94861		17.13		93.36	
09/26/23	11:50:00	-10.78194		17.92		96.59	
09/26/23	12:00:00	-10.61528		16.43		93.35	
09/26/23	12:06:00	-10.51528		16.38		98.79	
09/26/23	12:06:42	-10.50361		306.07		104.28	Pressured up lubricator.
09/26/23	12:07:00	-10.49861		289.61		106.64	
09/26/23	12:08:00	-10.48194		295.83		105.85	
09/26/23	12:09:00	-10.46528		292.82		108.00	
09/26/23	12:10:00	-10.44861		300.14		108.78	
09/26/23	12:11:00	-10.43194		300.39		108.81	
09/26/23	12:12:00	-10.41528		300.09		108.82	
09/26/23	12:13:00	-10.39861		299.54		108.83	
09/26/23	12:13:10	-10.39583	300	299.63		108.83	RIH making injecting gradient stops.
09/26/23	12:14:00	-10.38194		381.25		108.80	
09/26/23	12:15:00	-10.36528		520.76		108.71	
09/26/23	12:16:00	-10.34861		670.68		108.62	
09/26/23	12:16:25	-10.34167		723.47		108.57	Arrived at 1000 ft stop.
09/26/23	12:17:00	-10.33194		722.66		108.56	
09/26/23	12:18:00	-10.31528		723.17		108.55	
09/26/23	12:19:00	-10.29861		722.85		108.54	
09/26/23	12:20:00	-10.28194		722.74		108.54	
09/26/23	12:21:00	-10.26528		722.61		108.53	
09/26/23	12:21:04	-10.26417		722.50		108.53	Left 1000 ft stop.
09/26/23	12:22:00	-10.24861		813.85		108.49	
09/26/23	12:23:00	-10.23194		965.26		108.39	
09/26/23	12:24:00	-10.21528		1103.03		108.28	
09/26/23	12:24:23	-10.20889		1146.35		108.24	Arrived at 2000 ft stop.
09/26/23	12:25:00	-10.19861		1147.10		108.21	
09/26/23	12:26:00	-10.18194		1146.53		108.20	
09/26/23	12:27:00	-10.16528		1146.82		108.21	
09/26/23	12:28:00	-10.14861		1146.31		108.21	
09/26/23	12:29:00	-10.13194		1146.38		108.21	
09/26/23	12:29:11	-10.12889		1146.22		108.21	Left 2000 ft stop.
09/26/23	12:30:00	-10.11528		1190.19		108.20	
09/26/23	12:31:00	-10.09861		1303.93		108.12	
09/26/23	12:32:00	-10.08194		1441.75		108.02	

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	12:32:51	-10.06778		1570.52		107.93	Arrived at 3000 ft stop.
09/26/23	12:33:00	-10.06528		1570.38		107.92	
09/26/23	12:34:00	-10.04861		1570.42		107.90	
09/26/23	12:35:00	-10.03194		1570.32		107.90	
09/26/23	12:36:00	-10.01528		1570.32		107.90	
09/26/23	12:37:00	-9.99861		1570.62		107.90	
09/26/23	12:37:24	-9.99194		1570.18		107.89	Left 3000 ft stop.
09/26/23	12:38:00	-9.98194		1631.59		107.88	
09/26/23	12:39:00	-9.96528		1787.52		107.81	
09/26/23	12:40:00	-9.94861		1943.55		107.75	
09/26/23	12:40:32	-9.93972		1995.77		107.72	Arrived at 4000 ft stop.
09/26/23	12:41:00	-9.93194		1994.90		107.71	
09/26/23	12:42:00	-9.91528		1994.78		107.71	
09/26/23	12:43:00	-9.89861		1995.04		107.70	
09/26/23	12:44:00	-9.88194		1995.34		107.70	
09/26/23	12:45:00	-9.86528		1995.29		107.70	
09/26/23	12:45:25	-9.85833		1995.40		107.70	Left 4000 ft stop.
09/26/23	12:46:00	-9.84861		2038.13		107.70	
09/26/23	12:47:00	-9.83194		2132.54		107.67	
09/26/23	12:48:00	-9.81528		2258.89		107.64	
09/26/23	12:49:00	-9.79861		2374.30		107.62	
09/26/23	12:49:26	-9.79139		2420.67		107.62	Arrived at 5000 ft stop.
09/26/23	12:50:00	-9.78194		2420.54		107.61	
09/26/23	12:51:00	-9.76528		2420.50		107.61	
09/26/23	12:52:00	-9.74861		2420.54		107.61	
09/26/23	12:53:00	-9.73194		2420.81		107.61	
09/26/23	12:54:00	-9.71528		2420.42		107.61	
09/26/23	12:54:27	-9.70778		2420.51		107.61	Left 5000 ft stop.
09/26/23	12:55:00	-9.69861		2465.93		107.61	
09/26/23	12:56:00	-9.68194		2550.58		107.62	
09/26/23	12:57:00	-9.66528		2683.58		107.63	
09/26/23	12:58:00	-9.64861		2807.28		107.65	
09/26/23	12:58:32	-9.63972		2851.31		107.66	Arrived at 6000 ft stop.
09/26/23	12:59:00	-9.63194		2851.12		107.67	
09/26/23	13:00:00	-9.61528		2851.14		107.66	
09/26/23	13:01:00	-9.59861		2851.51		107.66	
09/26/23	13:02:00	-9.58194		2851.16		107.66	
09/26/23	13:03:00	-9.56528		2851.18		107.66	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation          Well: Navajo Refining Waste Disposal Well No. 4          Field: Davonia          Location: Eddy County, NM          Perfs: 10327 - 10700 ft (MD)          Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023          Gauge Depth: 10307 ft          Gauge Type: Electronic          Gauge SN: DC-224831          Gauge Range: 15000 psi          Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	13:03:36	-9.55528		2851.11		107.66	Left 6000 ft stop.
09/26/23	13:04:00	-9.54861		2870.10		107.66	
09/26/23	13:05:00	-9.53194		2913.30		107.67	
09/26/23	13:06:00	-9.51528		2955.73		107.69	
09/26/23	13:07:00	-9.49861		3008.18		107.70	
09/26/23	13:08:00	-9.48194		3090.20		107.73	
09/26/23	13:09:00	-9.46528		3144.86		107.76	
09/26/23	13:10:00	-9.44861		3206.53		107.79	
09/26/23	13:11:00	-9.43194		3267.08		107.82	
09/26/23	13:11:11	-9.42889		3275.50		107.83	Arrived at 7000 ft stop.
09/26/23	13:12:00	-9.41528		3275.60		107.83	
09/26/23	13:13:00	-9.39861		3275.80		107.83	
09/26/23	13:14:00	-9.38194		3275.84		107.83	
09/26/23	13:15:00	-9.36528		3275.94		107.83	
09/26/23	13:16:00	-9.34861		3275.76		107.83	
09/26/23	13:16:21	-9.34278		3275.85		107.83	Left 7000 ft stop.
09/26/23	13:17:00	-9.33194		3298.01		107.83	
09/26/23	13:18:00	-9.31528		3350.25		107.86	
09/26/23	13:19:00	-9.29861		3387.75		107.89	
09/26/23	13:20:00	-9.28194		3433.14		107.92	
09/26/23	13:21:00	-9.26528		3488.57		107.96	
09/26/23	13:22:00	-9.24861		3520.73		107.99	
09/26/23	13:23:00	-9.23194		3565.37		108.02	
09/26/23	13:24:00	-9.21528		3619.41		108.07	
09/26/23	13:25:00	-9.19861		3667.16		108.11	
09/26/23	13:25:57	-9.18278		3703.82		108.15	Arrived at 8000 ft stop.
09/26/23	13:26:00	-9.18194		3703.91		108.15	
09/26/23	13:27:00	-9.16528		3704.81		108.16	
09/26/23	13:28:00	-9.14861		3705.40		108.15	
09/26/23	13:29:00	-9.13194		3705.87		108.15	
09/26/23	13:29:58	-9.11583		3706.15		108.15	Left 8000 ft stop.
09/26/23	13:30:00	-9.11528		3705.39		108.15	
09/26/23	13:31:00	-9.09861		3733.67		108.16	
09/26/23	13:32:00	-9.08194		3779.12		108.21	
09/26/23	13:33:00	-9.06528		3820.11		108.26	
09/26/23	13:34:00	-9.04861		3859.09		108.31	
09/26/23	13:35:00	-9.03194		3909.63		108.37	
09/26/23	13:36:00	-9.01528		3969.99		108.45	

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	13:37:00	-8.99861		4027.13		108.53	
09/26/23	13:38:00	-8.98194		4095.90		108.63	
09/26/23	13:38:29	-8.97389		4131.07		108.68	Arrived at 9000 ft stop.
09/26/23	13:39:00	-8.96528		4130.78		108.71	
09/26/23	13:40:00	-8.94861		4130.86		108.72	
09/26/23	13:41:00	-8.93194		4130.91		108.72	
09/26/23	13:42:00	-8.91528		4130.98		108.72	
09/26/23	13:43:00	-8.89861		4131.04		108.72	
09/26/23	13:43:11	-8.89556		4131.02		108.72	Left 9000 ft stop.
09/26/23	13:44:00	-8.88194		4153.84		108.74	
09/26/23	13:45:00	-8.86528		4192.01		108.79	
09/26/23	13:46:00	-8.84861		4239.70		108.87	
09/26/23	13:47:00	-8.83194		4290.56		108.96	
09/26/23	13:48:00	-8.81528		4350.78		109.07	
09/26/23	13:49:00	-8.79861		4418.06		109.18	
09/26/23	13:50:00	-8.78194		4467.20		109.28	
09/26/23	13:51:00	-8.76528		4511.70		109.36	
09/26/23	13:52:00	-8.74861		4556.33		109.46	
09/26/23	13:52:08	-8.74639		4562.40		109.47	Arrived at 10000 ft stop.
09/26/23	13:53:00	-8.73194		4562.33		109.48	
09/26/23	13:54:00	-8.71528		4562.81		109.48	
09/26/23	13:55:00	-8.69861		4564.55		109.47	
09/26/23	13:56:00	-8.68194		4565.23		109.45	
09/26/23	13:57:00	-8.66528		4566.52		109.43	
09/26/23	13:57:22	-8.65917		4566.73		109.42	Left 10000 ft stop.
09/26/23	13:58:00	-8.64861		4597.92		109.44	
09/26/23	13:59:00	-8.63194		4641.73		109.52	
09/26/23	14:00:00	-8.61528		4689.67		109.59	
09/26/23	14:00:18	-8.61028		4700.61		109.61	Softset gauge at 10307 ft.
09/26/23	14:00:19	-8.61000		4700.48		109.61	POOH. RDMO slickline.
09/26/23	14:01:00	-8.59861		4700.61		109.61	
09/26/23	14:02:00	-8.58194		4700.68		109.58	
09/26/23	14:03:00	-8.56528		4700.73		109.56	
09/26/23	14:04:00	-8.54861		4700.78		109.55	
09/26/23	14:04:49	-8.53500	300	4700.81		109.53	10307 ft stop.
09/26/23	14:05:00	-8.53194		4700.82		109.53	
09/26/23	14:10:00	-8.44861		4701.06		109.46	
09/26/23	14:15:00	-8.36528		4701.30		109.43	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation          Well: Navajo Refining Waste Disposal Well No. 4          Field: Davonia          Location: Eddy County, NM          Perfs: 10327 - 10700 ft (MD)          Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023          Gauge Depth: 10307 ft          Gauge Type: Electronic          Gauge SN: DC-224831          Gauge Range: 15000 psi          Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	14:20:00	-8.28194		4701.49		109.42	
09/26/23	14:25:00	-8.19861		4701.63		109.38	
09/26/23	14:30:00	-8.11528		4701.59		109.39	
09/26/23	14:35:00	-8.03194		4701.66		109.41	
09/26/23	14:40:00	-7.94861		4701.76		109.46	
09/26/23	14:45:00	-7.86528		4701.38		109.49	
09/26/23	14:50:00	-7.78194		4699.73		109.51	
09/26/23	14:55:00	-7.69861		4698.96		109.56	
09/26/23	15:00:00	-7.61528		4699.09		109.59	
09/26/23	15:15:00	-7.36528		4700.01		109.60	
09/26/23	15:31:00	-7.09861		4698.01		109.61	
09/26/23	15:46:00	-6.84861		4698.28		109.58	
09/26/23	16:01:00	-6.59861		4698.37		109.53	
09/26/23	16:16:00	-6.34861		4698.40		109.45	
09/26/23	16:31:00	-6.09861		4698.43		109.40	
09/26/23	16:46:00	-5.84861		4698.47		109.36	
09/26/23	17:01:00	-5.59861		4698.49		109.33	
09/26/23	17:16:00	-5.34861		4698.52		109.31	
09/26/23	17:31:00	-5.09861		4698.52		109.29	
09/26/23	17:46:00	-4.84861		4698.56		109.28	
09/26/23	18:01:00	-4.59861		4698.58		109.27	
09/26/23	18:16:00	-4.34861		4698.58		109.26	
09/26/23	18:31:00	-4.09861		4698.59		109.26	
09/26/23	18:46:00	-3.84861		4698.59		109.25	
09/26/23	19:01:00	-3.59861		4698.58		109.26	
09/26/23	19:16:00	-3.34861		4698.57		109.27	
09/26/23	19:31:00	-3.09861		4698.58		109.28	
09/26/23	19:46:00	-2.84861		4698.58		109.32	
09/26/23	20:01:00	-2.59861		4698.60		109.36	
09/26/23	20:16:00	-2.34861		4698.58		109.41	
09/26/23	20:31:00	-2.09861		4698.60		109.47	
09/26/23	20:46:00	-1.84861		4698.60		109.53	
09/26/23	21:01:00	-1.59861		4698.61		109.59	
09/26/23	21:16:00	-1.34861		4698.60		109.64	
09/26/23	21:31:00	-1.09861		4698.61		109.68	
09/26/23	21:46:00	-0.84861		4698.62		109.72	
09/26/23	22:01:00	-0.59861		4698.64		109.76	
09/26/23	22:16:00	-0.34861		4698.62		109.80	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation                  Well: Navajo Refining Waste Disposal Well No. 4                  Field: Davonia                  Location: Eddy County, NM                  Perfs: 10327 - 10700 ft (MD)                  Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023                  Gauge Depth: 10307 ft                  Gauge Type: Electronic                  Gauge SN: DC-224831                  Gauge Range: 15000 psi                  Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	22:31:00	-0.09861		4698.66		109.83	
09/26/23	22:36:54	-0.00028		4698.67		109.83	Water Injection Rate = Unavailable.
09/26/23	22:36:55	0.00000	300	4698.67	0.00	109.83	Shut in well for 44-hr falloff test.
09/26/23	22:36:56	0.00028		4698.66	-0.01	109.83	
09/26/23	22:36:57	0.00056		4698.62	-0.05	109.83	
09/26/23	22:36:58	0.00083		4698.57	-0.10	109.83	
09/26/23	22:36:59	0.00111		4698.57	-0.10	109.83	
09/26/23	22:37:00	0.00139		4698.57	-0.10	109.83	
09/26/23	22:37:01	0.00167		4698.56	-0.11	109.83	
09/26/23	22:37:02	0.00194		4698.57	-0.10	109.83	
09/26/23	22:37:03	0.00222		4698.56	-0.11	109.83	
09/26/23	22:37:04	0.00250		4698.54	-0.13	109.83	
09/26/23	22:37:05	0.00278		4698.53	-0.14	109.83	
09/26/23	22:37:06	0.00306		4698.53	-0.14	109.83	
09/26/23	22:37:07	0.00333		4698.52	-0.15	109.83	
09/26/23	22:37:08	0.00361		4698.30	-0.37	109.83	
09/26/23	22:37:09	0.00389		4698.12	-0.55	109.83	
09/26/23	22:37:10	0.00417		4698.15	-0.52	109.84	
09/26/23	22:37:11	0.00444		4698.11	-0.56	109.84	
09/26/23	22:37:12	0.00472		4698.07	-0.60	109.84	
09/26/23	22:37:13	0.00500		4698.11	-0.56	109.84	
09/26/23	22:37:14	0.00528		4698.08	-0.59	109.84	
09/26/23	22:37:15	0.00556		4698.01	-0.66	109.84	
09/26/23	22:37:16	0.00583		4697.97	-0.70	109.84	
09/26/23	22:37:17	0.00611		4697.94	-0.73	109.84	
09/26/23	22:37:18	0.00639		4697.87	-0.80	109.84	
09/26/23	22:37:19	0.00667		4697.85	-0.82	109.84	
09/26/23	22:37:20	0.00694		4697.82	-0.85	109.84	
09/26/23	22:37:21	0.00722		4697.80	-0.87	109.84	
09/26/23	22:37:22	0.00750		4697.76	-0.91	109.84	
09/26/23	22:37:23	0.00778		4697.74	-0.93	109.84	
09/26/23	22:37:24	0.00806		4697.71	-0.96	109.84	
09/26/23	22:37:25	0.00833		4697.67	-1.00	109.84	
09/26/23	22:37:26	0.00861		4697.65	-1.02	109.84	
09/26/23	22:37:27	0.00889		4697.61	-1.06	109.84	
09/26/23	22:37:28	0.00917		4697.59	-1.08	109.84	
09/26/23	22:37:29	0.00944		4697.56	-1.11	109.84	
09/26/23	22:37:30	0.00972		4697.53	-1.14	109.84	

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	22:37:32	0.01028		4697.10	-1.57	109.84	
09/26/23	22:37:33	0.01056		4697.08	-1.59	109.84	
09/26/23	22:37:34	0.01083		4697.07	-1.60	109.84	
09/26/23	22:37:35	0.01111		4697.00	-1.67	109.84	
09/26/23	22:37:36	0.01139		4696.97	-1.70	109.84	
09/26/23	22:37:37	0.01167		4697.01	-1.66	109.84	
09/26/23	22:37:38	0.01194		4696.92	-1.75	109.84	
09/26/23	22:37:40	0.01250		4696.78	-1.89	109.84	
09/26/23	22:37:41	0.01278		4696.72	-1.95	109.84	
09/26/23	22:37:42	0.01306		4696.64	-2.03	109.84	
09/26/23	22:37:44	0.01361		4696.56	-2.11	109.84	
09/26/23	22:37:45	0.01389		4696.51	-2.16	109.84	
09/26/23	22:37:46	0.01417		4696.47	-2.20	109.84	
09/26/23	22:37:48	0.01472		4696.38	-2.29	109.84	
09/26/23	22:37:49	0.01500		4696.32	-2.35	109.84	
09/26/23	22:37:51	0.01556		4696.23	-2.44	109.84	
09/26/23	22:37:53	0.01611		4696.15	-2.52	109.84	
09/26/23	22:37:54	0.01639		4696.12	-2.55	109.84	
09/26/23	22:37:56	0.01694		4696.02	-2.65	109.84	
09/26/23	22:37:58	0.01750		4695.96	-2.71	109.84	
09/26/23	22:38:00	0.01806		4695.88	-2.79	109.84	
09/26/23	22:38:01	0.01833		4695.85	-2.82	109.84	
09/26/23	22:38:03	0.01889		4695.78	-2.89	109.85	
09/26/23	22:38:05	0.01944		4695.70	-2.97	109.85	
09/26/23	22:38:07	0.02000		4695.64	-3.03	109.85	
09/26/23	22:38:09	0.02056		4695.58	-3.09	109.85	
09/26/23	22:38:12	0.02139		4695.16	-3.51	109.85	
09/26/23	22:38:14	0.02194		4695.03	-3.64	109.85	
09/26/23	22:38:16	0.02250		4695.01	-3.66	109.85	
09/26/23	22:38:18	0.02306		4694.85	-3.82	109.85	
09/26/23	22:38:21	0.02389		4694.65	-4.02	109.85	
09/26/23	22:38:23	0.02444		4694.56	-4.11	109.85	
09/26/23	22:38:26	0.02528		4694.42	-4.25	109.85	
09/26/23	22:38:29	0.02611		4694.27	-4.40	109.86	
09/26/23	22:38:31	0.02667		4694.17	-4.50	109.86	
09/26/23	22:38:34	0.02750		4694.05	-4.62	109.86	
09/26/23	22:38:37	0.02833		4693.93	-4.74	109.86	
09/26/23	22:38:40	0.02917		4693.23	-5.44	109.86	

 FESCO PETROLEUM ENGINEERS	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 FESCO PETROLEUM ENGINEERS
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	22:38:43	0.03000		4693.20	-5.47	109.86	
09/26/23	22:38:46	0.03083		4693.09	-5.58	109.86	
09/26/23	22:38:49	0.03167		4692.75	-5.92	109.87	
09/26/23	22:38:53	0.03278		4692.45	-6.22	109.87	
09/26/23	22:38:56	0.03361		4691.96	-6.71	109.87	
09/26/23	22:39:00	0.03472		4691.77	-6.90	109.87	
09/26/23	22:39:03	0.03556		4691.33	-7.34	109.87	
09/26/23	22:39:07	0.03667		4690.88	-7.79	109.88	
09/26/23	22:39:11	0.03778		4690.58	-8.09	109.88	
09/26/23	22:39:15	0.03889		4690.20	-8.47	109.88	
09/26/23	22:39:19	0.04000		4689.37	-9.30	109.88	
09/26/23	22:39:23	0.04111		4689.44	-9.23	109.89	
09/26/23	22:39:27	0.04222		4688.31	-10.36	109.89	
09/26/23	22:39:32	0.04361		4688.36	-10.31	109.89	
09/26/23	22:39:36	0.04472		4687.67	-11.00	109.89	
09/26/23	22:39:41	0.04611		4687.32	-11.35	109.90	
09/26/23	22:39:46	0.04750		4686.73	-11.94	109.90	
09/26/23	22:39:51	0.04889		4686.74	-11.93	109.90	
09/26/23	22:39:56	0.05028		4686.07	-12.60	109.90	
09/26/23	22:40:01	0.05167		4686.18	-12.49	109.91	
09/26/23	22:40:07	0.05333		4685.67	-13.00	109.91	
09/26/23	22:40:12	0.05472		4685.62	-13.05	109.91	
09/26/23	22:40:18	0.05639		4685.34	-13.33	109.92	
09/26/23	22:40:24	0.05806		4685.18	-13.49	109.92	
09/26/23	22:40:30	0.05972		4685.20	-13.47	109.92	
09/26/23	22:40:36	0.06139		4684.95	-13.72	109.92	
09/26/23	22:40:43	0.06333		4684.87	-13.80	109.93	
09/26/23	22:40:49	0.06500		4684.91	-13.76	109.93	
09/26/23	22:40:56	0.06694		4684.73	-13.94	109.93	
09/26/23	22:41:03	0.06889		4684.64	-14.03	109.93	
09/26/23	22:41:10	0.07083		4684.69	-13.98	109.94	
09/26/23	22:41:18	0.07306		4684.67	-14.00	109.94	
09/26/23	22:41:25	0.07500		4684.57	-14.10	109.94	
09/26/23	22:41:33	0.07722		4684.52	-14.15	109.94	
09/26/23	22:41:41	0.07944		4684.50	-14.17	109.95	
09/26/23	22:41:50	0.08194		4684.50	-14.17	109.95	
09/26/23	22:41:58	0.08417		4684.52	-14.15	109.95	
09/26/23	22:42:07	0.08667		4684.49	-14.18	109.95	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation                  Well: Navajo Refining Waste Disposal Well No. 4                  Field: Davonia                  Location: Eddy County, NM                  Perfs: 10327 - 10700 ft (MD)                  Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023                  Gauge Depth: 10307 ft                  Gauge Type: Electronic                  Gauge SN: DC-224831                  Gauge Range: 15000 psi                  Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	22:42:16	0.08917		4684.47	-14.20	109.95	
09/26/23	22:42:26	0.09194		4684.45	-14.22	109.95	
09/26/23	22:42:35	0.09444		4684.43	-14.24	109.96	
09/26/23	22:42:45	0.09722		4684.41	-14.26	109.96	
09/26/23	22:42:56	0.10028		4684.37	-14.30	109.96	
09/26/23	22:43:06	0.10306		4684.35	-14.32	109.96	
09/26/23	22:43:17	0.10611		4684.32	-14.35	109.96	
09/26/23	22:43:28	0.10917		4684.31	-14.36	109.96	
09/26/23	22:43:39	0.11222		4684.30	-14.37	109.96	
09/26/23	22:43:51	0.11556		4684.30	-14.37	109.97	
09/26/23	22:44:03	0.11889		4684.27	-14.40	109.97	
09/26/23	22:44:16	0.12250		4684.25	-14.42	109.97	
09/26/23	22:44:29	0.12611		4684.24	-14.43	109.97	
09/26/23	22:44:42	0.12972		4684.21	-14.46	109.98	
09/26/23	22:44:56	0.13361		4684.19	-14.48	109.99	
09/26/23	22:45:10	0.13750		4684.17	-14.50	110.00	
09/26/23	22:45:24	0.14139		4684.15	-14.52	110.01	
09/26/23	22:45:39	0.14556		4684.12	-14.55	110.02	
09/26/23	22:45:54	0.14972		4684.10	-14.57	110.03	
09/26/23	22:46:10	0.15417		4684.08	-14.59	110.05	
09/26/23	22:46:26	0.15861		4684.02	-14.65	110.08	
09/26/23	22:46:43	0.16333		4684.04	-14.63	110.10	
09/26/23	22:47:00	0.16806		4684.04	-14.63	110.11	
09/26/23	22:47:18	0.17306		4684.01	-14.66	110.13	
09/26/23	22:47:36	0.17806		4684.01	-14.66	110.14	
09/26/23	22:47:54	0.18306		4683.99	-14.68	110.16	
09/26/23	22:48:14	0.18861		4683.98	-14.69	110.18	
09/26/23	22:48:33	0.19389		4683.99	-14.68	110.19	
09/26/23	22:48:54	0.19972		4683.98	-14.69	110.19	
09/26/23	22:49:15	0.20556		4683.97	-14.70	110.20	
09/26/23	22:49:36	0.21139		4683.91	-14.76	110.21	
09/26/23	22:49:59	0.21778		4683.93	-14.74	110.23	
09/26/23	22:50:21	0.22389		4683.91	-14.76	110.24	
09/26/23	22:50:45	0.23056		4683.88	-14.79	110.25	
09/26/23	22:51:09	0.23722		4683.87	-14.80	110.26	
09/26/23	22:51:34	0.24417		4683.86	-14.81	110.27	
09/26/23	22:52:00	0.25139		4683.83	-14.84	110.29	
09/26/23	22:52:26	0.25861		4683.84	-14.83	110.30	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation                  Well: Navajo Refining Waste Disposal Well No. 4                  Field: Davonia                  Location: Eddy County, NM                  Perfs: 10327 - 10700 ft (MD)                  Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023                  Gauge Depth: 10307 ft                  Gauge Type: Electronic                  Gauge SN: DC-224831                  Gauge Range: 15000 psi                  Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	22:52:53	0.26611		4683.80	-14.87	110.31	
09/26/23	22:53:21	0.27389		4683.78	-14.89	110.32	
09/26/23	22:53:50	0.28194		4683.76	-14.91	110.33	
09/26/23	22:54:20	0.29028		4683.77	-14.90	110.35	
09/26/23	22:54:50	0.29861		4683.74	-14.93	110.36	
09/26/23	22:55:22	0.30750		4683.70	-14.97	110.38	
09/26/23	22:55:54	0.31639		4683.69	-14.98	110.40	
09/26/23	22:56:27	0.32556		4683.70	-14.97	110.41	
09/26/23	22:57:01	0.33500		4683.64	-15.03	110.42	
09/26/23	22:57:37	0.34500		4683.65	-15.02	110.44	
09/26/23	22:58:13	0.35500		4683.60	-15.07	110.46	
09/26/23	22:58:50	0.36528		4683.60	-15.07	110.48	
09/26/23	22:59:29	0.37611		4683.59	-15.08	110.50	
09/26/23	23:00:08	0.38694		4683.57	-15.10	110.51	
09/26/23	23:00:49	0.39833		4683.54	-15.13	110.53	
09/26/23	23:01:31	0.41000		4683.53	-15.14	110.56	
09/26/23	23:02:14	0.42194		4683.51	-15.16	110.57	
09/26/23	23:02:58	0.43417		4683.49	-15.18	110.59	
09/26/23	23:03:44	0.44694		4683.47	-15.20	110.62	
09/26/23	23:04:31	0.46000		4683.47	-15.20	110.65	
09/26/23	23:05:19	0.47333		4683.46	-15.21	110.67	
09/26/23	23:06:09	0.48722		4683.40	-15.27	110.69	
09/26/23	23:07:00	0.50139		4683.41	-15.26	110.71	
09/26/23	23:07:52	0.51583		4683.39	-15.28	110.73	
09/26/23	23:08:47	0.53111		4683.36	-15.31	110.76	
09/26/23	23:09:42	0.54639		4683.34	-15.33	110.78	
09/26/23	23:10:40	0.56250		4683.31	-15.36	110.80	
09/26/23	23:11:39	0.57889		4683.29	-15.38	110.83	
09/26/23	23:12:40	0.59583		4683.27	-15.40	110.85	
09/26/23	23:13:43	0.61333		4683.25	-15.42	110.88	
09/26/23	23:14:47	0.63111		4683.24	-15.43	110.91	
09/26/23	23:15:53	0.64944		4683.22	-15.45	110.93	
09/26/23	23:17:02	0.66861		4683.19	-15.48	110.95	
09/26/23	23:18:12	0.68806		4683.17	-15.50	111.00	
09/26/23	23:19:24	0.70806		4683.15	-15.52	111.03	
09/26/23	23:20:39	0.72889		4683.13	-15.54	111.05	
09/26/23	23:21:55	0.75000		4683.10	-15.57	111.08	
09/26/23	23:23:14	0.77194		4683.06	-15.61	111.11	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation          Well: Navajo Refining Waste Disposal Well No. 4          Field: Davonia          Location: Eddy County, NM          Perfs: 10327 - 10700 ft (MD)          Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023          Gauge Depth: 10307 ft          Gauge Type: Electronic          Gauge SN: DC-224831          Gauge Range: 15000 psi          Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/26/23	23:24:35	0.79444		4683.04	-15.63	111.14	
09/26/23	23:25:59	0.81778		4683.03	-15.64	111.18	
09/26/23	23:27:25	0.84167		4683.00	-15.67	111.21	
09/26/23	23:28:53	0.86611		4683.00	-15.67	111.24	
09/26/23	23:30:24	0.89139		4682.97	-15.70	111.28	
09/26/23	23:31:58	0.91750		4682.94	-15.73	111.32	
09/26/23	23:33:34	0.94417		4682.92	-15.75	111.35	
09/26/23	23:35:13	0.97167		4682.89	-15.78	111.39	
09/26/23	23:36:56	1.00028		4682.86	-15.81	111.44	
09/26/23	23:38:41	1.02944		4682.84	-15.83	111.48	
09/26/23	23:40:29	1.05944		4682.82	-15.85	111.52	
09/26/23	23:42:20	1.09028		4682.78	-15.89	111.55	
09/26/23	23:44:15	1.12222		4682.76	-15.91	111.59	
09/26/23	23:46:13	1.15500		4682.73	-15.94	111.64	
09/26/23	23:48:14	1.18861		4682.73	-15.94	111.68	
09/26/23	23:50:19	1.22333		4682.69	-15.98	111.72	
09/26/23	23:52:28	1.25917		4682.65	-16.02	111.76	
09/26/23	23:54:40	1.29583		4682.63	-16.04	111.79	
09/26/23	23:56:56	1.33361		4682.59	-16.08	111.85	
09/26/23	23:59:16	1.37250		4682.57	-16.10	111.89	
09/27/23	00:01:41	1.41278		4682.54	-16.13	111.94	
09/27/23	00:04:09	1.45389		4682.49	-16.18	112.00	
09/27/23	00:06:42	1.49639		4682.48	-16.19	112.05	
09/27/23	00:09:19	1.54000		4682.44	-16.23	112.11	
09/27/23	00:12:01	1.58500		4682.43	-16.24	112.16	
09/27/23	00:14:48	1.63139		4682.41	-16.26	112.21	
09/27/23	00:17:39	1.67889		4682.37	-16.30	112.25	
09/27/23	00:20:36	1.72806		4682.33	-16.34	112.30	
09/27/23	00:23:37	1.77833		4682.27	-16.40	112.36	
09/27/23	00:26:44	1.83028		4682.26	-16.41	112.42	
09/27/23	00:29:57	1.88389		4682.22	-16.45	112.48	
09/27/23	00:33:15	1.93889		4682.19	-16.48	112.54	
09/27/23	00:36:38	1.99528		4682.18	-16.49	112.60	
09/27/23	00:40:08	2.05361		4682.13	-16.54	112.66	
09/27/23	00:43:44	2.11361		4682.11	-16.56	112.72	
09/27/23	00:47:26	2.17528		4682.06	-16.61	112.78	
09/27/23	00:51:15	2.23889		4682.04	-16.63	112.86	
09/27/23	00:55:10	2.30417		4681.98	-16.69	112.93	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation          Well: Navajo Refining Waste Disposal Well No. 4          Field: Davonia          Location: Eddy County, NM          Perfs: 10327 - 10700 ft (MD)          Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023          Gauge Depth: 10307 ft          Gauge Type: Electronic          Gauge SN: DC-224831          Gauge Range: 15000 psi          Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/27/23	00:59:12	2.37139		4681.96	-16.71	112.99	
09/27/23	01:03:22	2.44083		4681.94	-16.73	113.05	
09/27/23	01:07:38	2.51194		4681.90	-16.77	113.13	
09/27/23	01:12:02	2.58528		4681.86	-16.81	113.20	
09/27/23	01:16:34	2.66083		4681.83	-16.84	113.27	
09/27/23	01:21:14	2.73861		4681.80	-16.87	113.33	
09/27/23	01:26:02	2.81861		4681.76	-16.91	113.41	
09/27/23	01:30:58	2.90083		4681.73	-16.94	113.47	
09/27/23	01:36:03	2.98556		4681.67	-17.00	113.53	
09/27/23	01:41:17	3.07278		4681.64	-17.03	113.62	
09/27/23	01:46:40	3.16250		4681.61	-17.06	113.71	
09/27/23	01:52:12	3.25472		4681.57	-17.10	113.79	
09/27/23	01:57:54	3.34972		4681.54	-17.13	113.85	
09/27/23	02:03:46	3.44750		4681.51	-17.16	113.94	
09/27/23	02:09:49	3.54833		4681.46	-17.21	114.00	
09/27/23	02:16:02	3.65194		4681.44	-17.23	114.10	
09/27/23	02:22:26	3.75861		4681.40	-17.27	114.20	
09/27/23	02:29:01	3.86833		4681.34	-17.33	114.26	
09/27/23	02:35:47	3.98111		4681.32	-17.35	114.36	
09/27/23	02:42:46	4.09750		4681.29	-17.38	114.44	
09/27/23	02:49:57	4.21722		4681.24	-17.43	114.54	
09/27/23	02:57:20	4.34028		4681.20	-17.47	114.63	
09/27/23	03:04:56	4.46694		4681.18	-17.49	114.73	
09/27/23	03:12:46	4.59750		4681.15	-17.52	114.83	
09/27/23	03:20:49	4.73167		4681.11	-17.56	114.91	
09/27/23	03:29:06	4.86972		4681.07	-17.60	115.01	
09/27/23	03:37:38	5.01194		4681.03	-17.64	115.09	
09/27/23	03:46:25	5.15833		4680.99	-17.68	115.20	
09/27/23	03:55:27	5.30889		4680.96	-17.71	115.31	
09/27/23	04:04:45	5.46389		4680.89	-17.78	115.40	
09/27/23	04:14:20	5.62361		4680.86	-17.81	115.50	
09/27/23	04:24:11	5.78778		4680.83	-17.84	115.60	
09/27/23	04:34:19	5.95667		4680.81	-17.86	115.69	
09/27/23	04:44:46	6.13083		4680.76	-17.91	115.78	
09/27/23	04:55:30	6.30972		4680.72	-17.95	115.91	
09/27/23	05:06:33	6.49389		4680.68	-17.99	116.01	
09/27/23	05:17:56	6.68361		4680.64	-18.03	116.10	
09/27/23	05:29:38	6.87861		4680.59	-18.08	116.22	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation                  Well: Navajo Refining Waste Disposal Well No. 4                  Field: Davonia                  Location: Eddy County, NM                  Perfs: 10327 - 10700 ft (MD)                  Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023                  Gauge Depth: 10307 ft                  Gauge Type: Electronic                  Gauge SN: DC-224831                  Gauge Range: 15000 psi                  Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/27/23	05:41:42	7.07972		4680.55	-18.12	116.33	
09/27/23	05:54:06	7.28639		4680.52	-18.15	116.42	
09/27/23	06:06:52	7.49917		4680.48	-18.19	116.52	
09/27/23	06:20:00	7.71806		4680.44	-18.23	116.63	
09/27/23	06:33:31	7.94333		4680.40	-18.27	116.75	
09/27/23	06:47:26	8.17528		4680.35	-18.32	116.85	
09/27/23	07:01:46	8.41417		4680.29	-18.38	116.94	
09/27/23	07:16:30	8.65972		4680.26	-18.41	117.06	
09/27/23	07:31:41	8.91278		4680.21	-18.46	117.17	
09/27/23	07:47:17	9.17278		4680.16	-18.51	117.28	
09/27/23	08:03:22	9.44083		4680.10	-18.57	117.39	
09/27/23	08:19:54	9.71639		4680.06	-18.61	117.49	
09/27/23	08:36:56	10.00028		4680.02	-18.65	117.60	
09/27/23	08:54:27	10.29222		4679.98	-18.69	117.71	
09/27/23	09:12:29	10.59278		4679.91	-18.76	117.83	
09/27/23	09:31:02	10.90194		4679.86	-18.81	117.93	
09/27/23	09:50:08	11.22028		4679.83	-18.84	118.03	
09/27/23	10:09:48	11.54806		4679.78	-18.89	118.14	
09/27/23	10:30:02	11.88528		4679.73	-18.94	118.23	
09/27/23	10:50:51	12.23222		4679.67	-19.00	118.35	
09/27/23	11:12:17	12.58944		4679.63	-19.04	118.46	
09/27/23	11:34:20	12.95694		4679.59	-19.08	118.55	
09/27/23	11:57:02	13.33528		4679.54	-19.13	118.66	
09/27/23	12:20:24	13.72472		4679.51	-19.16	118.75	
09/27/23	12:44:27	14.12556		4679.46	-19.21	118.87	
09/27/23	13:09:12	14.53806		4679.43	-19.24	118.95	
09/27/23	13:34:40	14.96250		4679.38	-19.29	119.07	
09/27/23	14:00:53	15.39944		4679.36	-19.31	119.17	
09/27/23	14:27:52	15.84917		4679.32	-19.35	119.25	
09/27/23	14:55:38	16.31194		4679.30	-19.37	119.35	
09/27/23	15:24:12	16.78806		4679.29	-19.38	119.46	
09/27/23	15:53:37	17.27833		4679.25	-19.42	119.56	
09/27/23	16:23:54	17.78306		4679.21	-19.46	119.66	
09/27/23	16:55:03	18.30222		4679.06	-19.61	119.77	
09/27/23	17:27:07	18.83667		4679.02	-19.65	119.85	
09/27/23	18:00:07	19.38667		4679.00	-19.67	119.94	
09/27/23	18:34:05	19.95278		4678.95	-19.72	120.05	
09/27/23	19:09:02	20.53528		4678.90	-19.77	120.14	

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/27/23	19:45:01	21.13500		4678.85	-19.82	120.23	
09/27/23	20:22:03	21.75222		4678.80	-19.87	120.32	
09/27/23	21:00:09	22.38722		4678.75	-19.92	120.40	
09/27/23	21:39:23	23.04111		4678.69	-19.98	120.49	
09/27/23	22:19:45	23.71389		4678.62	-20.05	120.57	
09/27/23	23:01:18	24.40639		4678.58	-20.09	120.66	
09/27/23	23:44:03	25.11889		4678.51	-20.16	120.73	
09/28/23	00:28:04	25.85250		4678.46	-20.21	120.82	
09/28/23	01:13:22	26.60750		4678.41	-20.26	120.87	
09/28/23	01:59:59	27.38444		4678.39	-20.28	120.95	
09/28/23	02:47:57	28.18389		4678.36	-20.31	120.98	
09/28/23	03:37:20	29.00694		4678.32	-20.35	121.02	
09/28/23	04:28:09	29.85389		4678.30	-20.37	121.06	
09/28/23	04:51:00	30.23472		4678.31	-20.36	121.06	
09/28/23	04:51:13	30.23833		4678.32	-20.35	121.05	Ended falloff test.
09/28/23	04:51:15	30.23889		4678.27		121.05	RIH with slickline to
09/28/23	04:51:16	30.23917		4678.28		121.05	retrieve gauge off stop.
09/28/23	04:52:00	30.25139		4678.23		121.07	
09/28/23	04:53:00	30.26806		4678.22		121.08	
09/28/23	04:54:00	30.28472		4678.25		121.09	
09/28/23	04:55:00	30.30139		4678.29		121.07	
09/28/23	04:56:00	30.31806		4678.22		121.07	
09/28/23	04:57:00	30.33472		4678.23		121.07	
09/28/23	04:58:00	30.35139		4678.21		121.10	
09/28/23	04:59:00	30.36806		4678.23		121.10	
09/28/23	05:00:00	30.38472		4678.23		121.11	
09/28/23	05:01:00	30.40139		4678.26		121.12	
09/28/23	05:02:00	30.41806		4678.23		121.11	
09/28/23	05:03:00	30.43472		4678.22		121.12	
09/28/23	05:04:00	30.45139		4678.24		121.12	
09/28/23	05:05:00	30.46806		4678.23		121.12	
09/28/23	05:06:00	30.48472		4678.25		121.13	
09/28/23	05:07:00	30.50139		4678.27		121.13	
09/28/23	05:08:00	30.51806		4678.25		121.13	
09/28/23	05:09:00	30.53472		4678.27		121.11	
09/28/23	05:10:00	30.55139		4678.22		121.11	
09/28/23	05:10:50	30.56528		4678.25		121.12	POOH making static gradient stops.
09/28/23	05:10:53	30.56611		4676.10		121.12	BHT increased POOH.

 FESCO PETROLEUM ENGINEERS	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 FESCO PETROLEUM ENGINEERS
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/28/23	05:11:00	30.56806		4669.67		121.19	
09/28/23	05:11:52	30.58250		4605.23		131.80	BHT resumed decreasing while POOH.
09/28/23	05:12:00	30.58472		4600.77		131.45	
09/28/23	05:12:44	30.59694		4544.34		131.34	Arrived at 10000 ft stop.
09/28/23	05:13:00	30.60139		4544.33		131.25	
09/28/23	05:14:00	30.61806		4544.44		131.25	
09/28/23	05:15:00	30.63472		4544.51		131.24	
09/28/23	05:16:00	30.65139		4544.58		131.21	
09/28/23	05:17:00	30.66806		4544.54		131.21	
09/28/23	05:18:00	30.68472		4544.54		131.24	
09/28/23	05:18:23	30.69111		4544.54		131.24	Left 10000 ft stop.
09/28/23	05:19:00	30.70139		4520.18		130.38	
09/28/23	05:20:00	30.71806		4460.00		130.61	
09/28/23	05:21:00	30.73472		4410.10		127.88	
09/28/23	05:22:00	30.75139		4361.70		127.47	
09/28/23	05:23:00	30.76806		4304.03		127.98	
09/28/23	05:24:00	30.78472		4247.25		127.13	
09/28/23	05:25:00	30.80139		4184.07		126.03	
09/28/23	05:26:00	30.81806		4115.55		123.97	
09/28/23	05:26:03	30.81889		4112.23		123.88	Arrived at 9000 ft stop.
09/28/23	05:27:00	30.83472		4110.40		123.61	
09/28/23	05:28:00	30.85139		4110.30		123.58	
09/28/23	05:29:00	30.86806		4110.27		123.57	
09/28/23	05:30:00	30.88472		4110.25		123.56	
09/28/23	05:31:00	30.90139		4110.23		123.55	
09/28/23	05:31:21	30.90722		4110.23		123.55	Left 9000 ft stop.
09/28/23	05:32:00	30.91806		4078.64		123.26	
09/28/23	05:33:00	30.93472		4035.68		122.69	
09/28/23	05:34:00	30.95139		3981.93		121.61	
09/28/23	05:35:00	30.96806		3927.73		121.37	
09/28/23	05:36:00	30.98472		3882.61		120.38	
09/28/23	05:37:00	31.00139		3832.57		119.72	
09/28/23	05:38:00	31.01806		3771.12		118.86	
09/28/23	05:39:00	31.03472		3704.16		117.67	
09/28/23	05:39:24	31.04139		3677.82		117.00	Arrived at 8000 ft stop.
09/28/23	05:40:00	31.05139		3676.45		116.77	
09/28/23	05:41:00	31.06806		3676.25		116.75	
09/28/23	05:42:00	31.08472		3676.22		116.73	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation                  Well: Navajo Refining Waste Disposal Well No. 4                  Field: Davonia                  Location: Eddy County, NM                  Perfs: 10327 - 10700 ft (MD)                  Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023                  Gauge Depth: 10307 ft                  Gauge Type: Electronic                  Gauge SN: DC-224831                  Gauge Range: 15000 psi                  Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/28/23	05:43:00	31.10139		3676.19		116.72	
09/28/23	05:44:00	31.11806		3676.18		116.71	
09/28/23	05:44:15	31.12222		3676.18		116.71	Left 8000 ft stop.
09/28/23	05:45:00	31.13472		3641.82		116.37	
09/28/23	05:46:00	31.15139		3595.74		115.81	
09/28/23	05:47:00	31.16806		3550.95		114.77	
09/28/23	05:48:00	31.18472		3504.60		114.35	
09/28/23	05:49:00	31.20139		3463.17		113.46	
09/28/23	05:50:00	31.21806		3425.18		112.80	
09/28/23	05:51:00	31.23472		3383.37		112.35	
09/28/23	05:52:00	31.25139		3334.33		111.75	
09/28/23	05:53:00	31.26806		3285.71		111.14	
09/28/23	05:53:41	31.27944		3242.12		110.54	Arrived at 7000 ft stop.
09/28/23	05:54:00	31.28472		3241.89		110.37	
09/28/23	05:55:00	31.30139		3241.63		110.34	
09/28/23	05:56:00	31.31806		3241.62		110.34	
09/28/23	05:57:00	31.33472		3241.62		110.33	
09/28/23	05:58:00	31.35139		3241.62		110.32	
09/28/23	05:58:09	31.35389		3241.62		110.32	Left 7000 ft stop.
09/28/23	05:59:00	31.36806		3197.73		109.85	
09/28/23	06:00:00	31.38472		3148.62		109.19	
09/28/23	06:01:00	31.40139		3111.34		108.54	
09/28/23	06:02:00	31.41806		3066.43		108.06	
09/28/23	06:03:00	31.43472		3023.20		107.45	
09/28/23	06:04:00	31.45139		2972.82		106.83	
09/28/23	06:05:00	31.46806		2923.43		106.29	
09/28/23	06:06:00	31.48472		2868.92		105.71	
09/28/23	06:07:00	31.50139		2827.78		105.29	
09/28/23	06:07:24	31.50806		2807.84		105.08	Arrived at 6000 ft stop.
09/28/23	06:08:00	31.51806		2807.51		105.00	
09/28/23	06:09:00	31.53472		2807.46		104.99	
09/28/23	06:10:00	31.55139		2807.47		104.99	
09/28/23	06:11:00	31.56806		2807.48		104.98	
09/28/23	06:11:26	31.57528		2807.48		104.98	Left 6000 ft stop.
09/28/23	06:12:00	31.58472		2784.97		104.87	
09/28/23	06:13:00	31.60139		2742.41		104.50	
09/28/23	06:14:00	31.61806		2701.38		104.11	
09/28/23	06:15:00	31.63472		2654.43		103.69	

	<p><b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332</p>	
<p><b>RESERVOIR PRESSURE FALLOFF TEST</b></p>		

<p>Company: Petrotek Corporation          Well: Navajo Refining Waste Disposal Well No. 4          Field: Davonia          Location: Eddy County, NM          Perfs: 10327 - 10700 ft (MD)          Formation: Unavailable</p>	<p>Test Date: 09/26 - 09/28/2023          Gauge Depth: 10307 ft          Gauge Type: Electronic          Gauge SN: DC-224831          Gauge Range: 15000 psi          Gauge OD: 1.2500"</p>
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/28/23	06:16:00	31.65139		2613.87		103.36	
09/28/23	06:17:00	31.66806		2556.05		102.81	
09/28/23	06:18:00	31.68472		2498.23		102.46	
09/28/23	06:19:00	31.70139		2453.16		102.00	
09/28/23	06:20:00	31.71806		2399.58		101.03	
09/28/23	06:20:26	31.72528		2373.49		100.77	Arrived at 5000 ft stop.
09/28/23	06:21:00	31.73472		2373.15		100.69	
09/28/23	06:22:00	31.75139		2373.17		100.68	
09/28/23	06:23:00	31.76806		2373.17		100.68	
09/28/23	06:24:00	31.78472		2373.17		100.67	
09/28/23	06:25:00	31.80139		2373.17		100.66	
09/28/23	06:25:05	31.80278		2373.16		100.66	Left 5000 ft stop.
09/28/23	06:26:00	31.81806		2338.05		100.39	
09/28/23	06:27:00	31.83472		2295.38		100.14	
09/28/23	06:28:00	31.85139		2257.70		99.86	
09/28/23	06:29:00	31.86806		2222.23		99.62	
09/28/23	06:30:00	31.88472		2191.18		99.63	
09/28/23	06:31:00	31.90139		2159.54		99.14	
09/28/23	06:32:00	31.91806		2119.13		98.43	
09/28/23	06:33:00	31.93472		2076.44		97.97	
09/28/23	06:34:00	31.95139		2032.41		97.69	
09/28/23	06:35:00	31.96806		1986.18		97.35	
09/28/23	06:35:59	31.98444		1939.51		97.21	Arrived at 4000 ft stop.
09/28/23	06:36:00	31.98472		1939.56		97.21	
09/28/23	06:37:00	32.00139		1939.31		97.13	
09/28/23	06:38:00	32.01806		1939.28		97.12	
09/28/23	06:39:00	32.03472		1939.29		97.12	
09/28/23	06:40:00	32.05139		1939.28		97.11	
09/28/23	06:41:00	32.06806		1939.29		97.11	
09/28/23	06:41:09	32.07056		1939.28		97.11	Left 4000 ft stop.
09/28/23	06:42:00	32.08472		1895.84		96.83	
09/28/23	06:43:00	32.10139		1846.56		96.46	
09/28/23	06:44:00	32.11806		1806.82		96.28	
09/28/23	06:45:00	32.13472		1765.43		96.01	
09/28/23	06:46:00	32.15139		1720.61		95.68	
09/28/23	06:47:00	32.16806		1671.61		95.36	
09/28/23	06:48:00	32.18472		1618.30		95.42	
09/28/23	06:49:00	32.20139		1566.10		95.23	

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/28/23	06:50:00	32.21806		1510.74		94.64	
09/28/23	06:50:05	32.21944		1506.12		94.59	Arrived at 3000 ft stop.
09/28/23	06:51:00	32.23472		1505.36		94.44	
09/28/23	06:52:00	32.25139		1505.36		94.43	
09/28/23	06:53:00	32.26806		1505.36		94.42	
09/28/23	06:54:00	32.28472		1505.36		94.41	
09/28/23	06:55:00	32.30139		1505.36		94.41	
09/28/23	06:55:10	32.30417		1505.36		94.41	Left 3000 ft stop.
09/28/23	06:56:00	32.31806		1464.84		94.07	
09/28/23	06:57:00	32.33472		1412.11		93.70	
09/28/23	06:58:00	32.35139		1366.08		93.64	
09/28/23	06:59:00	32.36806		1319.60		93.37	
09/28/23	07:00:00	32.38472		1272.58		92.77	
09/28/23	07:01:00	32.40139		1222.09		92.54	
09/28/23	07:02:00	32.41806		1172.20		92.37	
09/28/23	07:03:00	32.43472		1117.97		92.03	
09/28/23	07:03:48	32.44806		1073.52		91.76	Arrived at 2000 ft stop.
09/28/23	07:04:00	32.45139		1072.96		91.54	
09/28/23	07:05:00	32.46806		1072.27		91.41	
09/28/23	07:06:00	32.48472		1072.22		91.40	
09/28/23	07:07:00	32.50139		1072.20		91.39	
09/28/23	07:08:00	32.51806		1072.20		91.38	
09/28/23	07:08:57	32.53389		1072.19		91.37	Left 2000 ft stop.
09/28/23	07:09:00	32.53472		1070.14		91.37	
09/28/23	07:10:00	32.55139		1010.54		90.72	
09/28/23	07:11:00	32.56806		951.88		90.79	
09/28/23	07:12:00	32.58472		900.17		90.68	
09/28/23	07:13:00	32.60139		845.13		90.08	
09/28/23	07:14:00	32.61806		790.25		89.58	
09/28/23	07:15:00	32.63472		731.69		89.23	
09/28/23	07:16:00	32.65139		671.18		88.31	
09/28/23	07:16:29	32.65944		638.33		88.45	Arrived at 1000 ft stop.
09/28/23	07:17:00	32.66806		638.82		88.56	
09/28/23	07:18:00	32.68472		638.85		88.57	
09/28/23	07:19:00	32.70139		638.84		88.58	
09/28/23	07:20:00	32.71806		638.84		88.58	
09/28/23	07:21:00	32.73472		638.84		88.58	
09/28/23	07:21:13	32.73833		638.84		88.58	Left 1000 ft stop.

 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>	<b>FESCO, Ltd.</b> 1000 Fesco Ave. - Alice, Texas 78332	 <b>FESCO</b> <small>PETROLEUM ENGINEERS</small>
<b>RESERVOIR PRESSURE FALLOFF TEST</b>		

Company: Petrotek Corporation Well: Navajo Refining Waste Disposal Well No. 4 Field: Davonia Location: Eddy County, NM Perfs: 10327 - 10700 ft (MD) Formation: Unavailable	Test Date: 09/26 - 09/28/2023 Gauge Depth: 10307 ft Gauge Type: Electronic Gauge SN: DC-224831 Gauge Range: 15000 psi Gauge OD: 1.2500"
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Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
09/28/23	07:22:00	32.75139		585.54		88.33	
09/28/23	07:23:00	32.76806		509.33		91.70	
09/28/23	07:24:00	32.78472		445.49		89.06	
09/28/23	07:25:00	32.80139		378.36		88.89	
09/28/23	07:26:00	32.81806		289.38		89.75	
09/28/23	07:27:00	32.83472		229.55		89.31	
09/28/23	07:28:00	32.85139		204.51		70.90	
09/28/23	07:28:11	32.85444		199.15		69.96	Gauge at surface.
09/28/23	07:29:00	32.86806		196.46		68.82	
09/28/23	07:30:00	32.88472		196.88		68.74	
09/28/23	07:31:00	32.90139		197.09		68.62	
09/28/23	07:32:00	32.91806		197.24		68.45	
09/28/23	07:33:00	32.93472		197.21		68.32	
09/28/23	07:33:55	32.95000	200	197.34		68.20	Closed crown valve.
09/28/23	07:34:00	32.95139		204.50		68.19	
09/28/23	07:34:04	32.95250		202.84		68.18	Pressured down lubricator.
09/28/23	07:35:00	32.96806		3.73		68.07	
09/28/23	07:36:00	32.98472		6.89		67.47	
09/28/23	07:37:00	33.00139		8.10		65.42	
09/28/23	07:38:00	33.01806		9.44		63.91	
09/28/23	07:38:52	33.03250		11.59		62.76	Test completed.
09/28/23	07:40:00	33.05139		11.82		61.66	
09/28/23	07:45:00	33.13472		12.88		62.24	
09/28/23	07:48:50	33.19861		12.23		64.26	Powered down gauge.

**Remarks:** MIRU slickline. RIH and cleared 10307 ft with weight bar. POOH. RIH with electronic gauge making injecting gradient stops to 10307 ft. Flow well for 8.6 hrs. SI well for 30.2-hr BHP Falloff Test. POOH making static gradient stops. RDMO.

Job No.: J202310021401.001A	Certified: FESCO, Ltd. - Midland, TX  By: <u>Michael Carnes</u> District Manager - (432) 332-3211
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# Attachment 5 Falloff Test Summary

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***Petrotek***

## DW No. 4 2023 Falloff Test Summary

### Reservoir Properties

Net Pay (h)	330 ft
Porosity ( $\Phi$ )	25.0 %
Formation Compressibility ( $c_f$ )	3.50E-06 psi <sup>-1</sup>
Total Compressibility ( $c_t$ )	6.20E-06 psi <sup>-1</sup>
Wellbore Radius ( $r_w$ )	0.353 ft

### Fluid Properties

Viscosity ( $\mu$ )	0.47 cp
Fluid Compressibility ( $c_f$ )	2.70E-06 psi <sup>-1</sup>
Formation Volume Factor (B)	1.00 bbl/stb

### Model Parameters

Wellbore Storage	Changing hegeman
Well Model	Vertical
Reservoir Model	Homogenous
Boundary Model	Intersecting faults

### Analysis Results

#### Well & Wellbore

Initial Wellbore Storage	1.40E+00 bbl/psi
Final Wellbore Storage	1.27E-01 bbl/psi
$D_t$ [changing storage]	1.07E-01 hr
Skin	9.1

#### Reservoir & Boundary

Permeability (k)	2,248 md
Transmissibility	1,573,489 md-ft/cp
Radius of Investigation ( $r_i$ )	10,790 ft
Fault Distance	983 ft
Fault Angle	102.1 deg

# Attachment 6 AOR Well List

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***Petrotek***

Operator	Well Name	API	Well Type	PLSS Location	Latitude	Longitude	Well Status	Spud Date	Plug Date
Silverback Operating II, LLC	OXY CHARLEMAGNE FEDERAL #001	30-015-30181	Oil	E-26-17S-27E	32.80790	-104.25590	Active	6/23/1998	-
Silverback Operating II, LLC	OXY ROSENAUVIER FEDERAL #001	30-015-30908	Gas	D-23-17S-27E	32.82510	-104.25580	Active	2/5/2000	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #003	30-015-41340	Oil	K-23-17S-27E	32.81860	-104.25250	Active	7/22/2013	-
Silverback Operating II, LLC	OXY VIKING FEDERAL #001	30-015-29281	Gas	N-23-17S-27E	32.81430	-104.25260	Active	12/28/1996	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #007	30-015-41425	Oil	N-23-17S-27E	32.81350	-104.25070	Active	12/27/2013	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #004	30-015-41341	Oil	J-23-17S-27E	32.81850	-104.24790	Active	7/30/2013	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #008	30-015-41468	Oil	J-23-17S-27E	32.81530	-104.24790	Active	1/4/2014	-
Contango Resources, LLC	TRIGG FEDERAL #001	30-015-30956	Oil	B-26-17S-27E	32.81090	-104.24620	Active	5/1/2000	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #009	30-015-41261	Oil	P-23-17S-27E	32.81550	-104.24460	Active	2/9/2014	-
Silverback Operating II, LLC	OXY HARVESTER FEDERAL #001	30-015-30882	Gas	I-26-17S-27E	32.80330	-104.24300	Active	3/7/2000	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #005	30-015-41260	Oil	I-23-17S-27E	32.81700	-104.24360	Active	12/9/2013	-
RILEY PERMIAN OPERATING COMPANY, LLC	MATTHEWS 25 FEDERAL #003	30-015-41698	Oil	D-25-17S-27E	32.80960	-104.23980	Active	1/18/2017	-
RILEY PERMIAN OPERATING COMPANY, LLC	MATTHEWS 25 FEDERAL #002	30-015-41721	Oil	E-25-17S-27E	32.80630	-104.23720	Active	4/19/2014	-
Spur Energy Partners LLC	DOGWOOD FEDERAL #003	30-015-39763	Oil	F-25-17S-27E	32.80780	-104.23620	Active	4/6/2012	-
Silverback Operating II, LLC	OXY CHOPSTICKS FEDERAL #002	30-015-31743	Gas	N-24-17S-27E	32.81510	-104.23550	Active	6/4/2001	-
Spur Energy Partners LLC	REDBUD FEDERAL #001	30-015-32694	Oil	C-25-17S-27E	32.81090	-104.23500	Active	4/1/2003	-
ROVER OPERATING, LLC	BERRY A #033	30-015-25154	Injection	K-24-17S-27E	32.81680	-104.23420	Active	4/2/1985	-
RILEY PERMIAN OPERATING COMPANY, LLC	BIG EAGLE 27 FEDERAL #001H	30-015-47052	Oil	L-26-17S-27E	32.80450	-104.25620	Active	2/11/2022	-
RILEY PERMIAN OPERATING COMPANY, LLC	EAGLE 27 B FEDERAL #003	30-015-29937	Oil	B-27-17S-27E	32.81150	-104.26550	Active	1/22/1998	-
Murchison Oil and Gas, LLC	MARALO FEDERAL #002	30-015-30532	Gas	G-22-17S-27E	32.82230	-104.26330	Active	12/19/1998	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #002	30-015-41339	Oil	L-23-17S-27E	32.81860	-104.25680	Active	11/6/2013	-
Silverback Operating II, LLC	YESO VIKING FEDERAL #006	30-015-41342	Oil	M-23-17S-27E	32.81510	-104.25690	Active	11/28/2013	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #010	30-015-41870	Oil	L-23-17S-27E	32.81730	-104.25500	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #019	30-015-41854	Oil	L-23-17S-27E	32.81950	-104.25500	New	-	-
Redwood Operating LLC	EAGLE 26 I FEDERAL #011	30-015-43689	Oil	L-26-17S-27E	32.80340	-104.25440	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #028	30-015-41883	Oil	N-23-17S-27E	32.81350	-104.25260	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #020	30-015-41877	Oil	K-23-17S-27E	32.81700	-104.25250	New	-	-
Redwood Operating LLC	EAGLE 26 K FEDERAL #010	30-015-43694	Oil	K-26-17S-27E	32.80320	-104.25080	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #029	30-015-41852	Oil	N-23-17S-27E	32.81360	-104.25110	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #011	30-015-41871	Oil	K-23-17S-27E	32.81640	-104.25060	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #021	30-015-41878	Oil	K-23-17S-27E	32.81850	-104.25070	New	-	-
HF Sinclair Navajo Refining LLC	WDW 4 #004	30-015-44677	SWD	K-23-17S-27E	32.81610	-104.24990	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #030	30-015-41884	Oil	O-23-17S-27E	32.81250	-104.24840	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #023	30-015-41880	Oil	J-23-17S-27E	32.81850	-104.24630	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #022	30-015-41879	Oil	J-23-17S-27E	32.81700	-104.24780	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #012	30-015-41872	Oil	J-23-17S-27E	32.81710	-104.24620	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #031	30-015-41885	Oil	O-23-17S-27E	32.81510	-104.24710	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #016	30-015-41874	Oil	O-23-17S-27E	32.81520	-104.24750	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #017	30-015-41875	Oil	P-23-17S-27E	32.81570	-104.24380	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #025	30-015-41882	Oil	I-23-17S-27E	32.81700	-104.24310	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	OXY VIKING FEDERAL #002	30-015-33980	Gas	I-23-17S-27E	32.81740	-104.24300	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #013	30-015-41873	Oil	I-23-17S-27E	32.81920	-104.24230	New	-	-
Redwood Operating LLC	EAGLE 26 I FEDERAL #012	30-015-43908	Oil	I-26-17S-27E	32.80420	-104.24190	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #024	30-015-41881	Oil	I-23-17S-27E	32.81900	-104.24370	New	-	-
Redwood Operating LLC	MATTHEWS 25 FEDERAL #004	30-015-41699	Oil	D-25-17S-27E	32.81130	-104.23760	New	-	-
COG OPERATING LLC	REDBUD FEDERAL #003	30-015-39759	Oil	C-25-17S-27E	32.81060	-104.23590	New	-	-
RILEY PERMIAN OPERATING COMPANY, LLC	EAGLE 26 FEDERAL COM #004H	30-015-49271	Oil	A-27-17S-27E	32.81160	-104.26020	New	-	-
RILEY PERMIAN OPERATING COMPANY, LLC	EAGLE 26 FEDERAL COM #003H	30-015-49270	Oil	A-27-17S-27E	32.80920	-104.26030	New	-	-
RILEY PERMIAN OPERATING COMPANY, LLC	EAGLE 26 FEDERAL COM #001H	30-015-47053	Oil	H-27-17S-27E	32.80570	-104.25990	New	-	-
RILEY PERMIAN OPERATING COMPANY, LLC	EAGLE 27 FEDERAL COM #002H	30-015-49265	Oil	E-26-17S-27E	32.80800	-104.25440	New	-	-
RILEY PERMIAN OPERATING COMPANY, LLC	EAGLE 27 FEDERAL COM #003H	30-015-49266	Oil	D-26-17S-27E	32.81150	-104.25810	New	-	-
Redwood Operating LLC	EAGLE 26 H FEDERAL #009	30-015-43688	Oil	H-26-17S-27E	32.80510	-104.25810	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #018	30-015-41876	Oil	L-23-17S-27E	32.81820	-104.25680	New	-	-
OXY USA WTP LIMITED PARTNERSHIP	YESO VIKING FEDERAL #026	30-015-41853	Oil	M-23-17S-27E	32.81320	-104.25730	New	-	-
Spur Energy Partners LLC	ARCO B FEDERAL COM #001	30-015-21047	Gas	L-26-17S-27E	32.80350	-104.25590	Plugged (site released)	12/31/1973	1/18/2023
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00589	Oil	L-26-17S-27E	32.80340	-104.25600	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	30-015-00686	Oil	E-26-17S-27E	32.80790	-104.25480	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00583	Oil	E-26-17S-27E	32.80790	-104.25480	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00582	Oil	D-26-17S-27E	32.80970	-104.25480	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00471	Oil	D-23-17S-27E	32.82510	-104.25470	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #006	30-015-00474	Oil	M-23-17S-27E	32.81340	-104.25480	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00584	Oil	F-26-17S-27E	32.80610	-104.25050	Plugged (site released)	-	-
ALAMO PERMIAN RESOURCES, LLC	BERRY FEDERAL #029	30-015-00472	Gas	F-23-17S-27E	32.82140	-104.25150	Plugged (site released)	1/22/1962	1/30/2013
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #005	30-015-00473	Oil	J-23-17S-27E	32.81880	-104.24830	Plugged (site released)	-	-
HANSON ENERGY	BERRY FEDERAL #034	30-015-31113	Oil	G-23-17S-27E	32.82230	-104.24620	Plugged (site released)	5/9/2000	1/18/2008
SDX RESOURCES INC	WODEN FEDERAL #001	30-015-30386	Gas	B-23-17S-27E	32.82500	-104.24620	Plugged (site released)	7/15/1999	8/6/1999
ALAMO PERMIAN RESOURCES, LLC	BERRY FEDERAL #030	30-015-21510	Gas	O-23-17S-27E	32.81430	-104.24730	Plugged (site released)	-	11/30/2012
LIME ROCK RESOURCES A, L.P.	TRIGG FEDERAL #002	30-015-31193	Oil	G-26-17S-27E	32.80600	-104.24620	Plugged (site released)	8/28/2000	10/5/2010
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #014	30-015-00585	Oil	H-26-17S-27E	32.80600	-104.24410	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #006	30-015-00580	Oil	A-26-17S-27E	32.80970	-104.24410	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00587	Oil	I-26-17S-27E	32.80430	-104.24410	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #010	30-015-00588	Oil	I-26-17S-27E	32.80240	-104.24410	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #007	30-015-00475	Oil	P-23-17S-27E	32.81330	-104.24190	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #015	30-015-00586	Oil	H-26-17S-27E	32.80600	-104.24190	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00579	Oil	A-26-17S-27E	32.81180	-104.24150	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00453	Oil	P-14-17S-27E	32.82770	-104.24190	Plugged (site released)	-	-
Redwood Operating LLC	MATTHEWS 25 FEDERAL #001	30-015-40804	Oil	E-25-17S-27E	32.80650	-104.23980	Plugged (site released)	11/8/2012	5/2/2023
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00440	Oil	M-13-17S-27E	32.82770	-104.23970	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #036	30-015-31179	Oil	D-24-17S-27E	32.82230	-104.23800	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #003	30-015-00519	Oil	E-25-17S-27E	32.80600	-104.23760	Plugged (site released)	-	-
ALAMO PERMIAN RESOURCES, LLC	BERRY FEDERAL #027	30-015-00483	Gas	E-24-17S-27E	32.82230	-104.23760	Plugged (site released)	-	12/13/2011
ALAMO PERMIAN RESOURCES, LLC	BERRY A #022	30-015-00497	Gas	K-24-17S-27E	32.81870	-104.23550	Plugged (site released)	-	6/9/2012
OXY USA WTP LIMITED PARTNERSHIP	OXY CHOPSTICKS STATE COM #001	30-015-30446	Gas	F-24-17S-27E	32.82200	-104.23440	Plugged (site released)	6/15/1999	4/2/2004
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #019	30-015-00499	Oil	K-24-17S-27E	32.81690	-104.23460	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-01532	Oil	N-24-17S-27E	32.81410	-104.23440	Plugged (site released)	-	-
ALAMO PERMIAN RESOURCES, LLC	BERRY A #011	30-015-00498	Gas	K-24-17S-27E	32.81680	-104.23330	Plugged (site released)	-	11/29/2021
SDX RESOURCES INC	BERRY A #021	30-015-01239	Oil	K-24-17S-27E	32.81870	-104.23330	Plugged (site released)	-	3/24/2000
CONCHO EXPLORATION	HONDO FEDERAL GAS COM #003	30-015-32614	Gas	B-27-17S-27E	32.80900	-104.26450	Plugged (site released)	5/22/2003	6/13/2003
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	30-015-21443	Oil	O-22-17S-27E	32.81430	-104.26440	Plugged (site released)	-	-
SDX RESOURCES INC	BERRY A #031Y	30-015-21668	Oil	G-22-17S-27E	32.82140	-104.26440	Plugged (site released)	-	6/20/2000
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #031	30-015-21569	Oil	E-22-17S-27E	32.82140	-104.26440	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00470	Oil	H-22-17S-27E	32.82050	-104.26120	Plugged (site released)	-	-
Redwood Operating LLC	EAGLE 27 FEDERAL #001	30-015-29936	Oil	A-27-17S-27E	32.81160	-104.26070	Plugged (site released)	10/15/1998	12/23/2021
COG OPERATING LLC	RJ UNIT #105	30-015-29803	Oil	A-27-17S-27E	32.81090	-104.25910	Plugged (site released)	12/11/1997	10/16/2014
Murchison Oil and Gas, LLC	MARALO FEDERAL #004	30-015-30795	Gas	I-22-17S-27E	32.81750	-104.26010	Plugged (site released)	12/10/1999	2/27/2007
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-01237	Oil	A-27-17S-27E	32.81070	-104.25910	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00458	Oil	P-15-17S-27E	32.82780	-104.25900	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00581	Oil	D-26-17S-27E	32.81160	-104.25690	Plugged (site released)	-	-
PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	30-015-00454	Oil	M-14-17S-27E	32.82780	-104.25680	Plugged (site released)	-	-

# Attachment 7 Digital Data

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***Petrotek***

**District I**  
 1625 N. French Dr., Hobbs, NM 88240  
 Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**  
 811 S. First St., Artesia, NM 88210  
 Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**  
 1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 279799

**COMMENTS**

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 279799
	Action Type: [C-103] Sub. General Sundry (C-103Z)

**COMMENTS**

Created By	Comment	Comment Date
cchavez	WDW-4 Fall Off Test (FOT) 2023 Final Report	11/3/2023

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

CONDITIONS

Action 279799

**CONDITIONS**

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 279799
	Action Type: [C-103] Sub. General Sundry (C-103Z)

**CONDITIONS**

Created By	Condition	Condition Date
cchavez	None	11/3/2023