Petrotek

Technical Report

MECHANICAL INTEGRITY AND RESERVOIR TESTING

CLASS I NON-HAZARDOUS DEEPWELL
MEWBOURNE WELL NO. 1
(OCD UIC Permit: UICI-008-1)
(API Number: 30-015-27592)

HollyFrontier Navajo Refining Company
Artesia, New Mexico

Section 31, Township 17S, Range 28E
660 FSL, 2310 FEL

December 2020

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

2020 MECHANICAL INTEGRITY AND RESERVOIR TESTING
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EXECUTIVE SUMMARY

This report summarizes the successful mechanical integrity testing (MIT) and falloff testing activities performed on the Mewbourne WDW-1 at the HollyFrontier Navajo Refining Company (HFNR) facility at Artesia, New Mexico. The work was performed as a condition of the applicable UIC permit issued by the New Mexico Oil Conservation Division (OCD). Under contract, Petrotek Corporation (Petrotek) developed the MIT procedures, provided field supervision, provided pressure transient test analysis, and prepared the final report documenting the fieldwork on the Class I non-hazardous injection well.

The test procedures were submitted to the OCD headquarters and OCD District II on July 15, 2020, before field activities commenced. Attachment 1 presents these test notification and procedures. Approvals were received from regulatory agency staff prior to commencement of activities. No OCD personnel were present to witness testing. MIT activities were supervised by Nolan Beasley (Petrotek), Holt Tilton (HFNR), and Lewis Dade (HFNR).

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

1. FACILITY INFORMATION

a. **Name** - HollyFrontier Navajo Refining Company
b. **Location** - Highway 82 East, Artesia, New Mexico, 88211
c. **Operator's Oil And Gas Remittance Identifier (GRD) Number** - 15694

2. WELL INFORMATION

a. **OCD UIC Permit number authorizing injection** - OCD UIC Permit: UICI-008-1
b. **Well classification** - Class I Non-hazardous
c. **Well name and number** - Mewbourne WDW-1
d. **API Number** - 30-015-27592
e. **Legal Location** - 660 FSL, 2210 FEL, Section 31, Township 17S, Range 28E

3. CURRENT WELLBORE SCHEMATIC

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

4. COPY OF AN ELECTRIC LOG ENCOMPASSING THE COMPLETED INTERVAL

A copy of the dual induction log run in 1993 during the initial completion of the well was submitted with the original permit and can be found online on the OCD website as part of the OCD well files for this well.

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

A copy of the neutron density log, encompassing the completed interval between 7,924 and 8,476 feet Below Ground Level (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 175 feet with an average porosity of 10 percent. These values are consistent with historical test analyses. Petrotek utilized these values for the analysis performed for and presented in this report.

6. PVT DATA OF THE FORMATION AND INJECTION FLUID

Fluid samples of connate brine from the injection interval were collected from WDW-1 (33,000 mg/L) and WDW-2 (20,000 mg/L) during recompletion as Class I UIC wells. These wells are completed in the same injection formation. The average density and total dissolved solids (TDS) of the fluids recovered from the two wells were 1.03 g/cc and 26,500 mg/l, respectively. The results of formation fluid analysis were provided in documents previously submitted to and approved by OCD. Available analyte values for WDWs 1, 2 and 3 are provided in Table 1.

TABLE 1
HFNR FORMATION FLUID SAMPLE ANALYSIS RESULTS

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

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

The formation viscosity, fluid compressibility, and total compressibility were estimated using 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 will be listed subsequently in this report as a reference for all correlations presented for the PVT data.

The percent solids for the fluid was approximated as 2.65%, based on the average 26,500 mg/l TDS brine concentration provided in Table 1. A bottom hole temperature of 126.4 °F has been used as representative of the formation for these correlations. This value was derived from the original temperature log, run in 1998 when the well was recompleted. This log is can be found online on the OCD site as part of the WDW-1 well files.

Fluid viscosity was estimated using multiple equations developed by McCain that first are used to estimate fluid viscosity at atmospheric conditions (equations L-84, 85, and 86), which is then converted to viscosity at bottom hole conditions (equation L-87) by using a correction factor. These equations can be found on page 336. As a primary input for the correlation, pressure is required,. The formation pressure has been estimated at a depth of 7,924 feet using the average formation fluid specific gravity based on the TDS values provided in Table 1. Using this method, a value of 3,522.0 psi has been estimated as the pressure at the depth the gauges were set at for testing (7,924 feet BGL). At this pressure and a temperature of 126.4 °F, the following equations have been used to derive viscosity:

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

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

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

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

Where,

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

Using these equations, a value of 0.63 centipoise is calculated for the formation fluid viscosity.

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

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

Where,

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

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

Fluid compressibility was estimated using figures L-30 and L-31 on page 338 with a bottom hole temperature of 126.4 °F, a bottom hole pressure of 3,522 psi, and a dissolved solids weight of 2.65%. Using Figure L-31 to first estimate freshwater compressibility, a value of 2.86E-06 psi^{-1} is derived. Using Figure L-30, the coefficient of isothermal compressibility (ratio of brine compressibility over freshwater compressibility) was determined to be approximately 0.95. This results in a value of 2.70E-06 psi^{-1} for the formation fluid compressibility (c_w).

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

The specific gravity of the test fluid, based on the static gradient survey performed at the end of the test, was 1.006 (gradient of 0.436 psi/ft) with a measured temperature during injection of 99.6 °F. Using Equations L-84 through L-87, the viscosity of the injected fluid at bottom hole conditions at the wellbore during injection is 0.75 cp. The compressibility of the injected fluid is (based on Figures L-30 and 31) is 2.88 E-06 psi^{-1}.

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

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

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

TABLE 2
MAY AND JUNE INJECTION DATA

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
7/1/2020	1050.153	122.76	524.082
7/2/2020	1074.114	124.73	545.375
7/3/2020	1145.702	134.78	649.518
7/4/2020	1229.070	145.33	731.422
7/5/2020	1135.404	133.12	659.596
7/6/2020	1108.868	131.18	549.744
7/7/2020	1071.013	126.15	434.102
7/8/2020	1060.850	124.83	392.097
7/9/2020	1093.352	129.28	378.831
7/10/2020	1029.336	123.67	421.133
7/11/2020	937.582	113.17	396.343
7/12/2020	961.142	115.90	397.851
7/13/2020	960.216	115.22	428.505
7/14/2020	951.535	114.54	451.660
7/15/2020	916.042	110.97	513.357
7/16/2020	852.678	102.97	443.060
7/17/2020	868.809	104.31	423.488
7/18/2020	984.221	118.84	640.734
7/19/2020	955.191	114.53	574.214
7/20/2020	937.175	112.49	411.487
7/21/2020	1002.617	120.22	434.023
7/22/2020	1074.616	129.28	480.440
7/23/2020	1003.839	121.41	379.285
7/24/2020	1045.654	126.88	406.498
7/25/2020	1094.266	133.01	453.669
7/26/2020	1011.798	122.32	376.470
7/27/2020	1008.956	119.81	328.965
7/28/2020	1056.642	126.62	357.975
7/29/2020	1052.813	126.64	366.479
7/30/2020	1063.954	127.65	366.940
7/31/2020	1052.229	129.98	367.776
8/1/2020	1038.198	127.37	370.130
8/2/2020	1059.764	130.33	336.077
8/3/2020	1141.716	140.42	423.875
8/4/2020	1199.007	148.46	359.092

Date	Injection Pressure (psi)	Injection Rate (gpm)	Annulus Pressure (psi)
8/5/2020	1209.003	149.97	396.862
8/6/2020	1106.452	137.48	293.388
8/7/2020	1029.892	127.27	221.323
8/8/2020	989.471	122.80	167.513
8/9/2020	973.268	120.53	161.814
8/10/2020	962.410	119.51	153.453
8/11/2020	1030.486	127.88	182.162
8/12/2020	1031.381	128.59	284.158
8/13/2020	982.314	122.73	275.832
8/14/2020	1092.444	136.35	426.152
8/15/2020	995.074	123.99	260.388
8/16/2020	1076.727	134.81	103.958
8/17/2020	1263.523	159.13	166.928
8/18/2020	1124.147	140.43	131.929

8. CUMULATIVE INJECTION INTO THE FORMATION FROM TEST WELL

The cumulative volume of waste injected into this well since operations began, based on OCD and HFNR records, is 44,075,064 barrels (1,851,152,697 gallons).

9. PRESSURE GAUGES

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

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

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

The bottom gauge (Serial Number - 242560) was utilized for analysis. The bottom gauge was hung at a test depth of 7,924 feet BGL.

10. ONE-MILE AREA OF REVIEW (AOR)

A standard one-mile Area of Review (AOR) was evaluated for WDW-1 as part of the annual testing and reporting requirements. This evaluation was performed by Federal Abstract Company. The wells located within this one-mile AOR are listed in Attachment 3. This table contains the operator, well name, API number, well type, well status, location, and date of abandonment or completion. A figure displaying the wells located in the AOR and the wells in the surrounding sections has been provided as Figure 17.

Based on the data review, there are no wells that have been newly plugged and abandoned within the AOR in the past year. There have also been no wells drilled within the AOR in the last year.

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

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

c. **Provide details on any offset producers and injectors completed in the same injection interval -** HFNR operates three other Class I Injection wells, two of which are completed in the same interval, WDW-2 and WDW-3. Neither well is located within the one-mile WDW-1 AOR. Based on public data, there is one additional well, not operated by HFNR that is located within the AOR and injects into the same interval. This well is the Walter Solt State #001 (ID - 48) operated by Walter Solt, LLC. No offset producers exist in the injection interval within the AOR based on public data.

11. GEOLOGY

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

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

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

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

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

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

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

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

12. OFFSET WELLS

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

WDW-2 is approximately 10,900 feet to the southwest of WDW-1, while WDW-3 is approximately 7,800 feet to the southwest of WDW-1. These wells were injected into at a constant rate during the duration of testing this year, are at a significant distance from the test well in a high permeability system, and are not considered to have had a significant impact on the testing performed on WDW-1.

There is one additional well, not operated by HFNR, that is within the AOR and injects into the same interval. As noted in 10.c, this well is the Walter Solt State #001 (ID - 48) operated by Walter Solt, LLC.

a. **Identify the distance between the test well and any offset wells completed in the same injection interval** – The Walter Solt State #001 is approximately 4,600 feet to the southeast. Distance to the other HFNR injectors is discussed in the preceding paragraph.

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

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

13. CHRONOLOGICAL LISTING OF THE DAILY TESTING ACTIVITIES

a. **Date of the test** - Testing was performed from August 18 through 20, 2020.

b. **Time of the injection period** - Constant-rate injection occurred for approximately 84 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 4,380.2 psia (at 7,924 feet BGL) and the injection rate was 113.6 gpm (3,895 bwpd) with a measured bottom hole temperature of 99.6 °F.

e. **Total shut-in time** - The well was shut-in for approximately 42 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 4,160.5 psia and the final bottom hole temperature was 100.8 °F. Following the conclusion of the test, the gauges were pulled out of the hole, and sinker bars were run in on slickline to find the top of fill. Due to unknown circumstances, the slickline parted and the sinker bars were left in the well. Top of fill was not determined during testing this year. Positive wellhead pressure was present throughout the test.

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

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

15. PRESSURE FALLOFF ANALYSIS

This section addresses requirements 15-20 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 4 contains input values used to perform the specified calculations.

The raw digital data collected during the test is provided in Attachment 4. The contracted service company whose gauges were utilized for testing generated an injection falloff test report based on this collected data. This report is provided in Attachment 5.

a. **Radius of test investigation** - The radius of investigation for this test was determined to be approximately 7,708 feet.

b. **Time to beginning of the infinite acting portion of the test** - The time at which the test began to display attributes of radial flow was approximately 9.0 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 middle-time radial period, as determined from the semi-log plot, was -1.97356 psi/cycle.

d. **Transmissibility (kh/μ)** - The transmissibility was determined to be 320,873 md-ft/cp.

e. **Permeability (k)** - The permeability was determined to be 1,155 md.

f. **Skin Factor (s)** - The skin factor was determined to be 117.9 units.

g. **Pressure drop due to skin (ΔP_{skin})** - The pressure drop due to skin was determined to be 202.2 psi

h. **Flow efficiency** - The flow efficiency was determined to be 0.08.

i. **Flow capacity (kh)** - The flow capacity (permeability-thickness) was determined to be 202,150 md-ft.

j. **P_{1hr}** - The extrapolated pressure at 1-hr was determined to be 4,164.5 psi.

TABLE 4
FALLOFF TEST ANALYSIS INPUT VALUES

Parameter	Value	Unit
Formation Thickness, h	175	feet
Porosity, Φ	10	percent
Viscosity, μ	0.63	centipoise
Formation Compressibility, c_f	8.20E-06	1/psi
Total Compressibility, c_t	10.90E-06	1/psi
Formation Volume Factor, B	1.00	bbl/stb
Wellbore Radius, r_w	0.3646	feet
Final Well Flowing Pressure, p_{wf}	4,380.2	psia
Final Injection Rate, q_{final}	3,895 113.6	bwpd (gpm)
Horner Straight Line Slope, m	1.97356	psi/cycle

The average historical injection period used to account for total volume in the analysis was calculated by dividing the cumulative historical injection through the end of July (43,996,033 barrels) by the final injection rate (113.6 gpm). This resulted in a value of 271,102.3 hours. This value of 271,102.3 hours of injection at 113.6 gpm was used in conjunction with the injection data collected from the beginning of August through the end of testing. Figure 7 presents flow rates used in analysis. The total waste volume injected up to the time of shut-in utilized for calculations was 1,851,152,697 gallons (44,075,064 bbls).

To determine the mobility-thickness (transmissibility), the following equation was utilized. The resulting transmissibility was 320,873 md-ft/cp.

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

Where,

k is the permeability, in md
h is the formation thickness, in feet
μ is the viscosity of the formation fluid, in cp
q is the final flow rate, in bpd
B is the formation volume factor in RB/STB
m is the slope of the line assigned to the radial flow period on the semi-log plot, in psi/cycle
and 162.6 is a units conversion constant

$$\frac{kh}{\mu} = Transmissibility = 162.6\frac{3{,}894.6 * 1.0}{1.97356} = 320{,}873\frac{md-ft}{cp}$$

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 202,150 md-ft.

$$kh = \left(\frac{kh}{\mu}\right)\mu = 320{,}873\left(\frac{md-ft}{cp}\right)0.63\ cp = 202{,}150\ md-ft$$

This permeability thickness was then used to determine the permeability of the reservoir. The resulting permeability was 1,155 md.

$$k = \frac{kh}{h} = \frac{202{,}150\ md-ft}{175\ ft} = 1{,}155\ md$$

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 2,122 feet.

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

Where,

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

$$r_{waste} = \sqrt{\frac{0.13368 * (1{,}851{,}152{,}697)}{\pi * 175 * 0.10}} = 2{,}122\ feet$$

Based on this radius, the time for a pressure transient to travel through this fluid can be calculated. The resulting time was approximately 2.54 hours.

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

Where,

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

$$t_{waste} = 948\frac{0.10 * 0.63 * 10.90E-06 * (2{,}122)^2}{1{,}155} = 2.54\ hours$$

Based on this result, and the time it took for radial flow to be reached (9.0 hours), it is likely that the pressure transient was dominated by reservoir fluid properties during the middle-time radial flow period, indicating that the appropriate viscosity was used for analysis.

The near wellbore damage, referred to as skin, can be calculated based on the results of the straight line, semi-log analysis as well. This is done by utilizing the following equation. The result of this calculation was a skin of 117.9 units.

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

Where,

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

$$s = 1.151\left(\frac{4{,}380.2 - 4{,}164.5}{1.97356} - log\left(\frac{1{,}155}{0.10 * 0.63 * 10.90E-06 * 0.3646^2}\right) + 3.23\right)$$

$$= 117.9$$

The pressure contribution of the skin term to wellbore pressure can be calculated using the following equation. The result of this calculation was 202.2 psi of pressure due to skin.

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

Where,

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

$$\Delta P_{skin} = 0.869 * 1.97356 * 117.9 = 202.2\ psi$$

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 0.08.

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

Where,

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

$$FE = \frac{4{,}380.2 - 202.2 - 4{,}160.5}{4{,}380.2 - 4{,}160.5} = 0.08$$

The test radius of investigation (r_{inv}) can be determined using the following equation. The result of this calculation was 7,708 feet.

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

Where,

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

$$r_{inv} = 0.029\sqrt{\frac{1{,}155 * 42}{0.1 * 0.63 * 10.90E-06}} = 7{,}708\ feet$$

Figure 8 is a cartesian plot of the test showing the pressure falloff as the highlighted time period to the right side of the plot. The data is sufficient for analysis, but it is noted that some minor oscillations are present in the pressure data. Early time data is dominated by changing wellbore storage. Based on examination of the log-log diagnostic plot provided as Figure 9, it is likely that the test reached the onset of radial flow approximately 9 hours after shut-in. It is likely that the initial middle-time data suitable for semi-log analysis lasts until approximately 10 hours after shut-in, and the extrapolated horizontal green line superimposed over the derivative on this plot shows probable radial flow. The test has been analyzed based on the reasonable assumption that a period of radial flow exists in the data. Subsequent to the end of this period, a late-time period appears to develop. Figure 10 shows the semi-log plot of the falloff with a line consistent with the likely radial flow period denoted on the log-log plot. Figure 11 shows a magnification of this same pseudo-straight line during the period used to obtain the slope used in the simple Horner method analysis and equations presented in the preceding text. Figures 12 through 14 present a simulation analysis generated using a simulator to account for wellbore storage during early time and a homogenous isotropic radial flow system through the end of the test. The late-time tail at the end of the test is not accounted for in this analysis. The average pseudo-rate discussed earlier in this report was used in the simulation to account for injection from start-up until August 1 and actual rate data points were used from August 1 until test shut-in. The simulation analysis generally supports the more simplistic graphical analysis that relies upon the semi-log slope.

There are late time effects evident in the log-log plots (Figures 9 and 13), where the multi-psi pulse and the increase in the derivative is evident. It is possible that

multi-layer effects, cross-flow and effects from heterogeneity or offset injection may be starting to influence the test. 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 with a positive skin factor.

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

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

As specified by OCD requirements, a Hall Plot (Figure 16) generated from the data presented in Table 2 over the month leading up to the falloff test this year is 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 (August of 2020). The slope of the data is fairly linear, and this linearity is consistent with no significant changes in well condition taking place during this time period. Based on this observed linear trend, there are no current concerns noted with regard to well or reservoir performance. Attachment 6 presents a summary of the falloff test.

Table 5 summarizes historical well test analysis results, including the results from the test this year.

TABLE 5
HISTORICAL AMBIENT RESERVOIR TESTING

Year	Fill Depth (feet)	Permeability (md)	Mobility-thickness (md-ft/cp)	Skin (units)	P* (psia)
2020	NA	1,155	320,873	117.9	4,153.3
2019	8,512	1,129	346,733	129.0	4,290.9
2018	8,470	1,025	314,769	87.0	4,361.6
2017	9,001	412	126,471	57.0	4,359.6
2016	8,890	520	159,662	67.0	4,433.2
2015	8,995	423	130,002	44.0	4,542.8
2014	8,990	546	167,698	44.0	4,404.7
2012	9,018	661	202,929	36.0	4,008.0
2011	9,001	685	210,441	69.0	3,846.2
2010	9,001	521	159,979	93.0	3,716.9
2009	9,001	883	271,155	77.0	3,591.6
2008	NA	1,592	488,655	262.0	3,527.4
Permit	NA	250	40,094	NA	NA

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

16. INTERNAL MECHANICAL INTEGRITY

On September 15, the annulus was pressured to 581.0 psi. The annulus pressure test was conducted under dynamic conditions. As such, tubing injection pressure as well as injection rate readings have been reported in addition to the annulus pressure. Flow conditions were stabilized prior to testing to allow for well equilibrium prior to testing. A calibrated digital pressure gauge (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 6.2 psi. Since a change of 10% (58.1 psi) of the starting test pressure is allowable, this test is within acceptable specifications.

Attachment 7 presents a copy of the gauge certification. Attachment 4 contains the digital data collected during the APT. Pressures were observed as follows during testing.

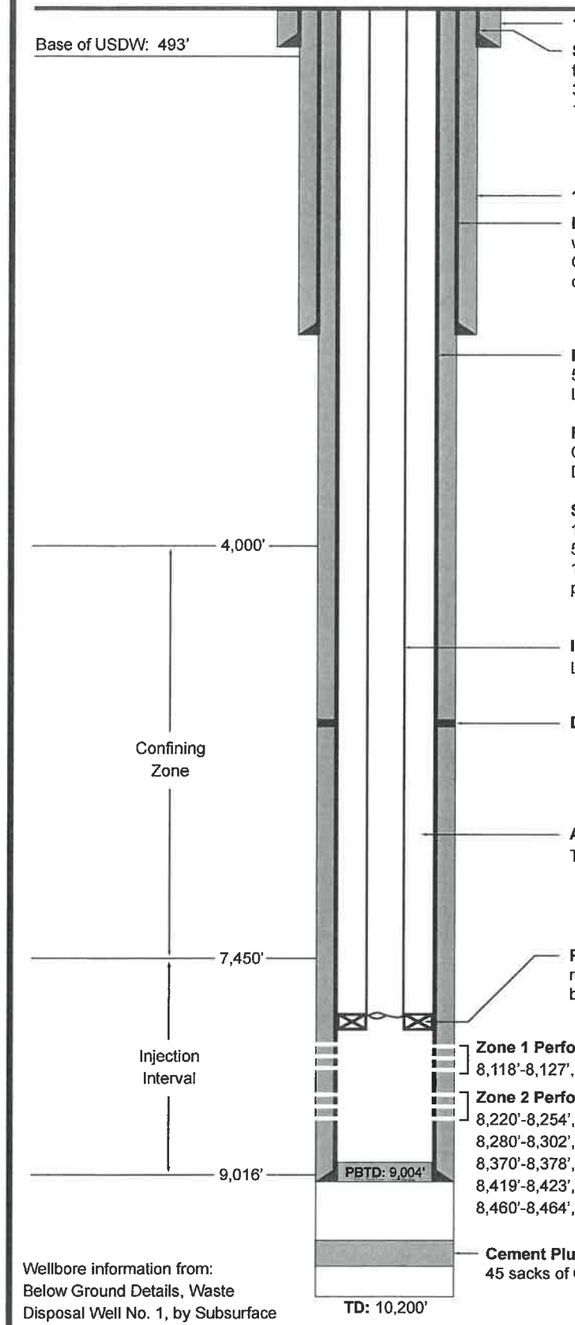
TABLE 6
ANNULUS PRESSURE TEST MEASUREMENTS

Time, Minutes	0	5	10	15	20	25	30
Annulus Pressure, Psi	581.0	579.2	578.0	577.1	576.2	575.6	574.8
Tubing Pressure, psi	1,125.0	1,124.7	1,124.0	1,124.2	1,124.0	1,125.0	1,125.0
Injection Rate, gpm	161.2	169.3	146.5	160.3	155.8	159.5	162.5

FIGURES

OCD UIC Permit: UICI-008-1
Well API Number: 30-015-27592
Sec. 31, T17S, R28E - Eddy County, New Mexico
SHL: Lat. 32.78517°, Long. -104.21376°

All depths are referenced to the Kelly bushing elevation 12.5' above ground level. Ground level elevation is 3,678' above mean sea level.



17-1/2" Hole

Surface Casing (0' - 390'): 13-3/8", 48 lb/ft, J-55, ST&C cemented to surface with 150 sacks of Class C with 3% calcium chloride, 375 sacks of Class C Litewate with 3% calcium chloride and 1/2 lb/sk flocele. Circulated 86 sacks to surface.

12-1/4" Hole

Intermediate Casing (0' - 2,555'): 9-5/8", 36 lb/ft, J-55, ST&C cemented with 800 sacks of Class C Lite with 1/2 lb/sk flocele and 2 lb/sk Gilsonite and 12% salt. Followed by 200 sacks of Class C with 2% calcium chloride. Circulated 133 sacks to surface.

Protection Casing (0' - 9,094'): 7", 26 lb/ft, P-110, LT&C (Surface - 5,845'). 7", 29 lb/ft, P-110, LT&C (5,845' - 7,031'). 7", 29 lb/ft, N-80, LT&C (7,031' - 9,094').

First Stage: 600 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, and 1 lb/sk salt mixed at 13.0 ppg. Opened DV tool at 5,498' and circulated 142 sacks to surface.

Second Stage: Lead Slurry: 220 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, 0.1% HR-7, and 1 lb/sk mixed at 13.0 ppg. Circulated 75 sacks to surface. Topped out with 20 sacks of premium plus 3% calcium chloride.

Injection Tubing (0' - 7,879'): 4-1/2", 11.6 lb/ft, N-80, SMLS, R3, LT&C

DV Tool (5,498')

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

Packer (7,879'): 7" x 3-1/2" EVI Oil Tools (Arrow), Model X-1 retrievable packer. Minimum I.D. = 3.0". Wireline re-entry guide at bottom. To release, turn 1/4-turn to the right and pick up.

Zone 1 Perforations: 7,924'-7,942', 7,974'-8,030', 8,050'-8,056', 8,066-8,080', 8,118'-8,127', 8,132'-8,140', 8,160'-8,164', 8,170'-8,188'.

Zone 2 Perforations: 8,220'-8,254', 8,260'-8,270', 8,280'-8,302', 8,360'-8,366', 8,370'-8,378', 8,400'-8,410', 8,419'-8,423', 8,430'-8,446', 8,460'-8,464', 8,470'-8,476'.

Cement Plug (9,624' - 9,734'): 45 sacks of Class H

Wellbore information from: Below Ground Details, Waste Disposal Well No. 1, by Subsurface Technology, Figure 1, 2001.

NOT TO SCALE

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Figure 1
Wellbore Diagram,
WDW No. 1
2020 FOT/MIT Report

Scale: NTS	Date: August 2020	
2020_HF_Artesia_WDW1_Fig_01.pdf	By: WEK	Checked: NB

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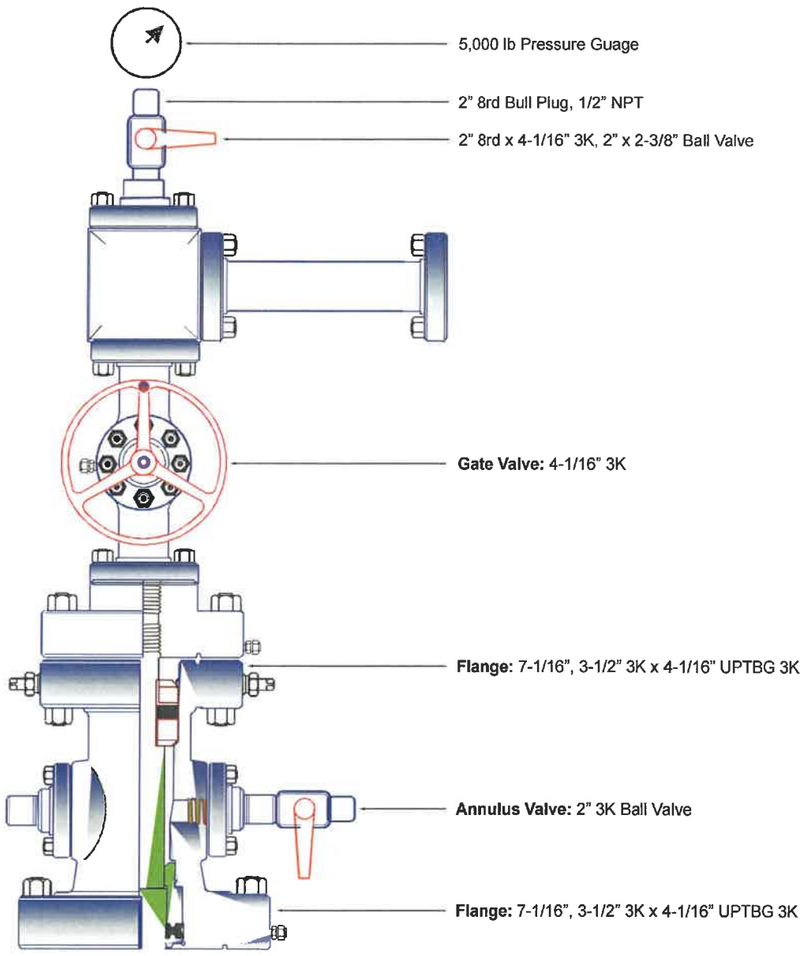
OCD UIC Permit: UICI-008-1
Well API Number: 30-015-27592
Sec. 31, T17S, R28E - Eddy County, New Mexico
SHL: Lat. 32.78517°, Long. -104.21376°



Well Head information partially from: Figure 5, Mewbourne Well No. 1 Wellhead Schematic by Superior Wellhead.

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Figure 2
Wellhead Diagram,
WDW No. 1
2020 FOT/MIT Report

Scale: NTS	Date: September 2020	
2020_HF_Artesia_WDW1_Fig_02.pdf	By: WEK	Checked: NB

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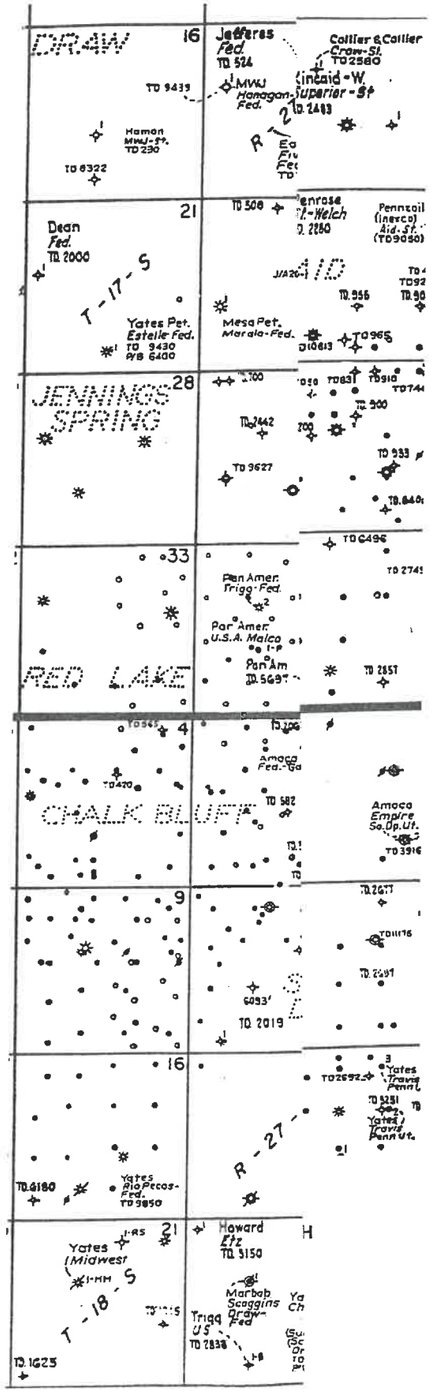

Adapted from Navajo Refining Co., Attachment VIII-12, Structure - Top of Wolfcamp Formation, Envirocorp, 1998.

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Figure 3
Wolfcamp Formation Structure Map

2020 FOT/MIT Report

Contour Interval = 100'	Date: June 2020	
2020_HF_Artesia_FOT_MIT_Fig_03.pdf	By: WEK	Checked: RW

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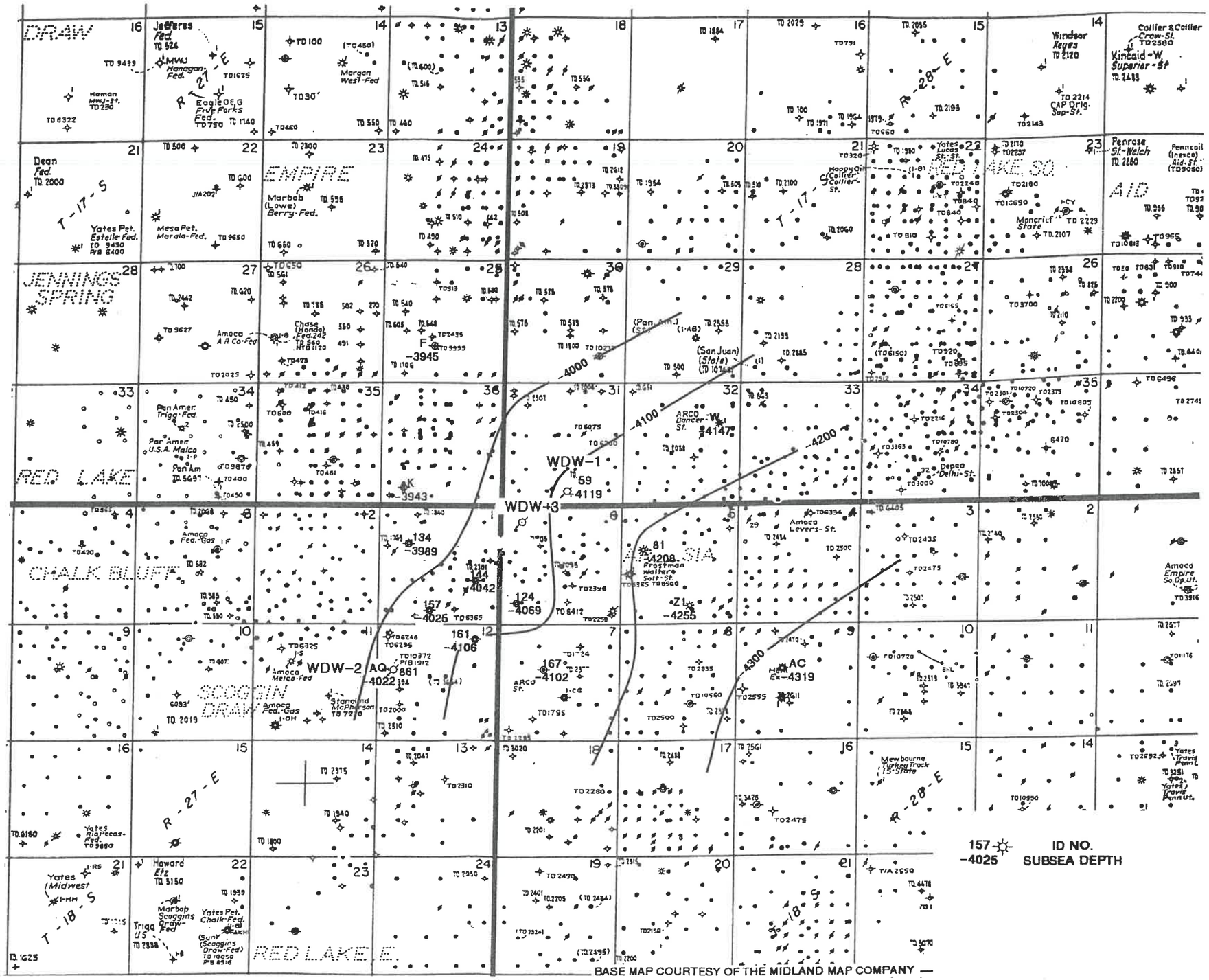

Adapted from Navajo Refining Co., Attachment VIII-13,
Structure - Top of Cisco Formation, Envirocorp, 1998.

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Figure 4
Cisco Formation Structure Map

2020 FOT/MIT Report

Contour Interval = 100'	Date: June 2020	
2020_HF_Artesia_FOT_MIT_Fig_04.pdf	By: WEK	Checked: RW

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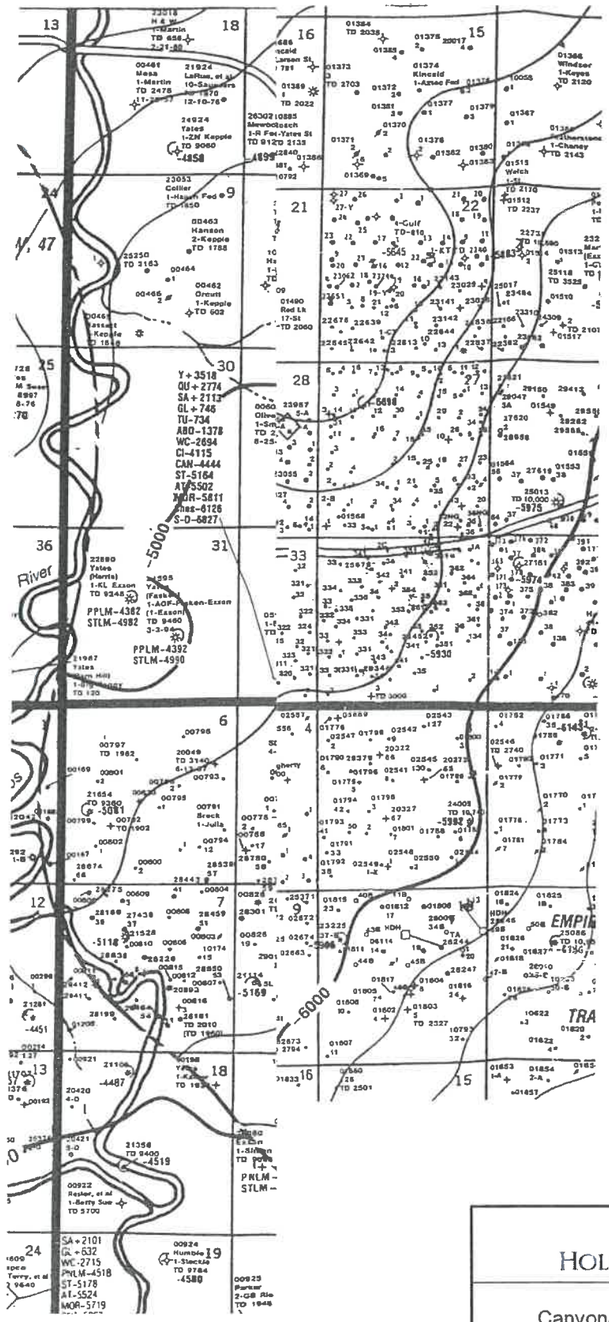

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Figure 5
Canyon/Strawn Formation
Structure Map
2020 FOT/MIT Report

Contour Interval = 100'	Date: June 2020	
2020_HF_Artesia_FOT_MIT_Fig_05.pdf	By: WEK	Checked: RW

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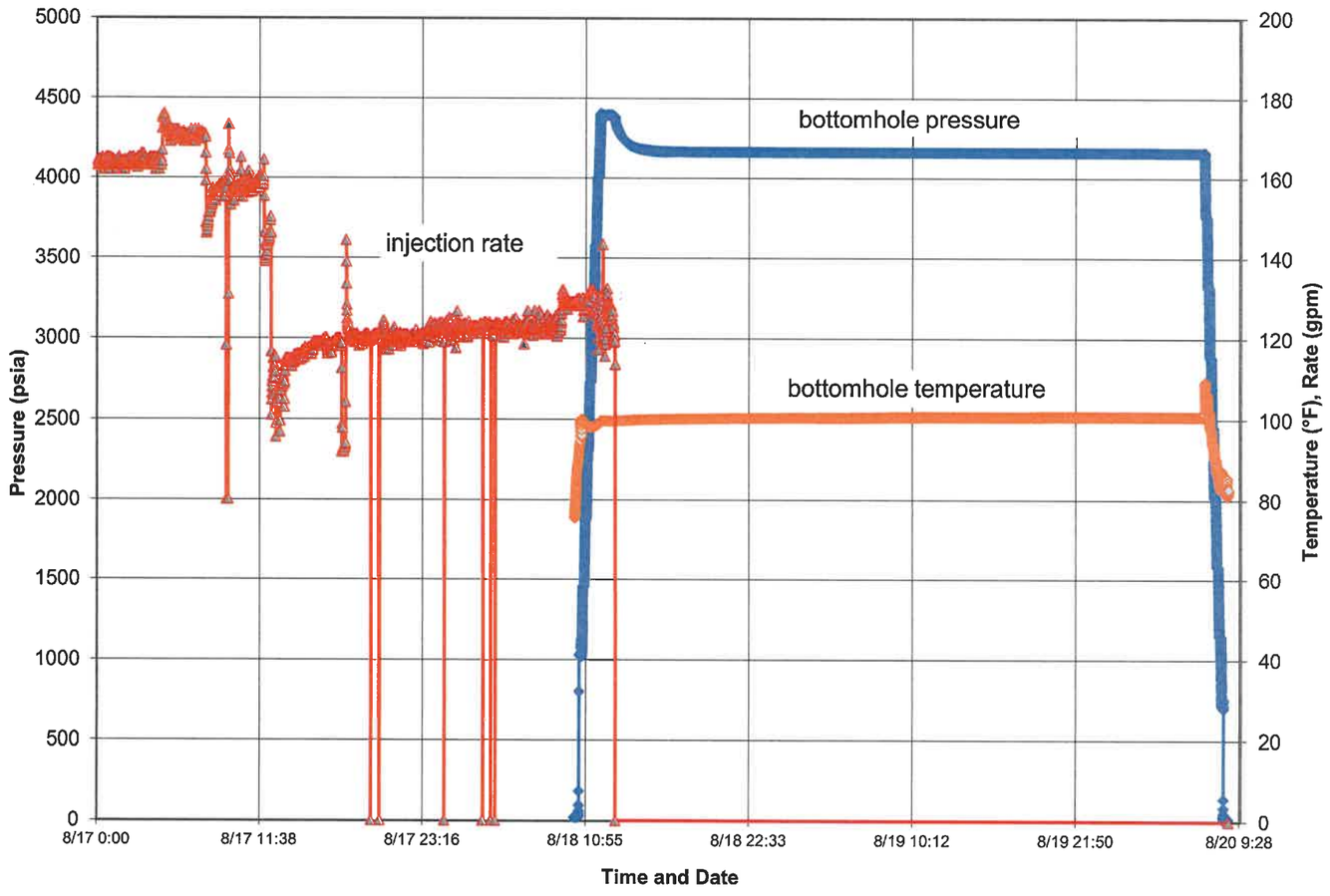
Adapted from Navajo Refining Co., Attachment VIII-11,
Structure Map of the Strawn Formation, Envirocorp, 1999.

HollyFrontier Navajo Refining Company

Figure 6 - Cartesian Plot of Pressure, Temperature and Rate vs. Time, August 18-20, 2020



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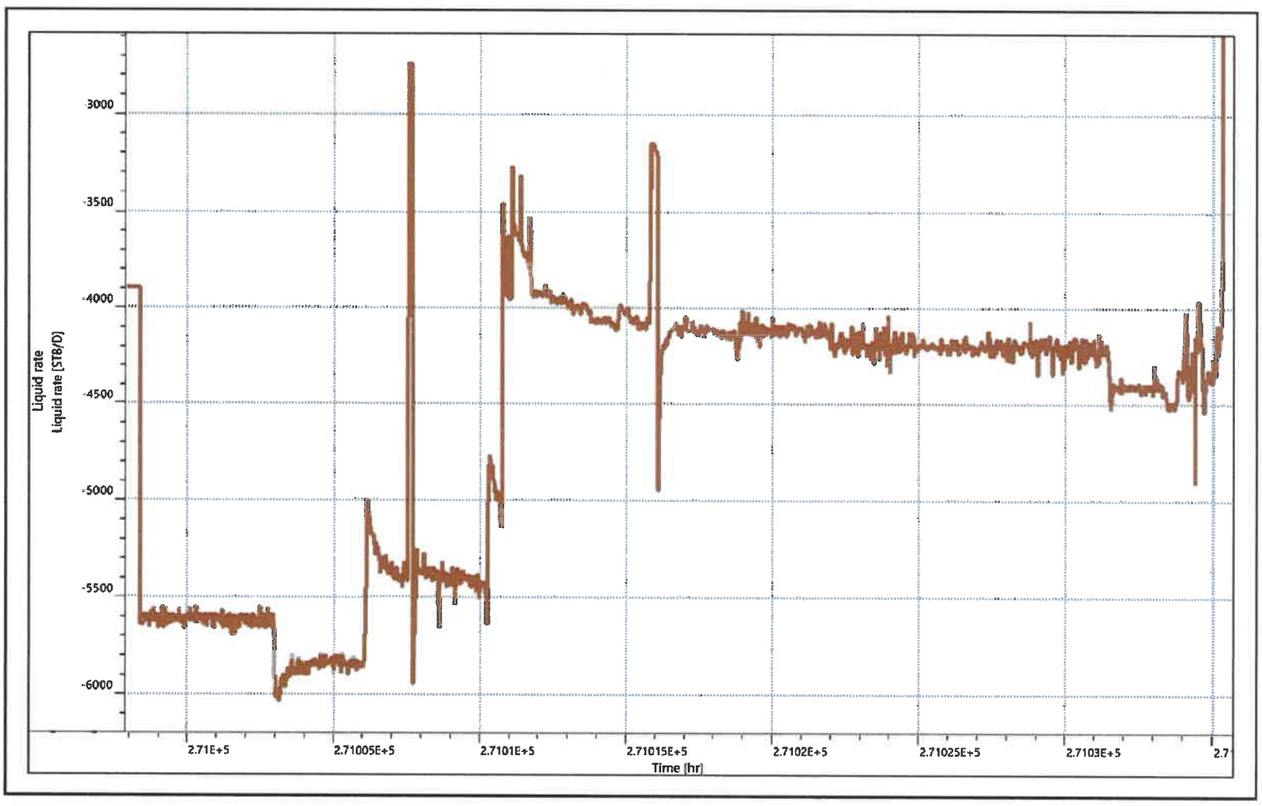
HollyFrontier Navajo Refining Company
Figure 7 - Rate History, WDW-1, August 18-20, 2020



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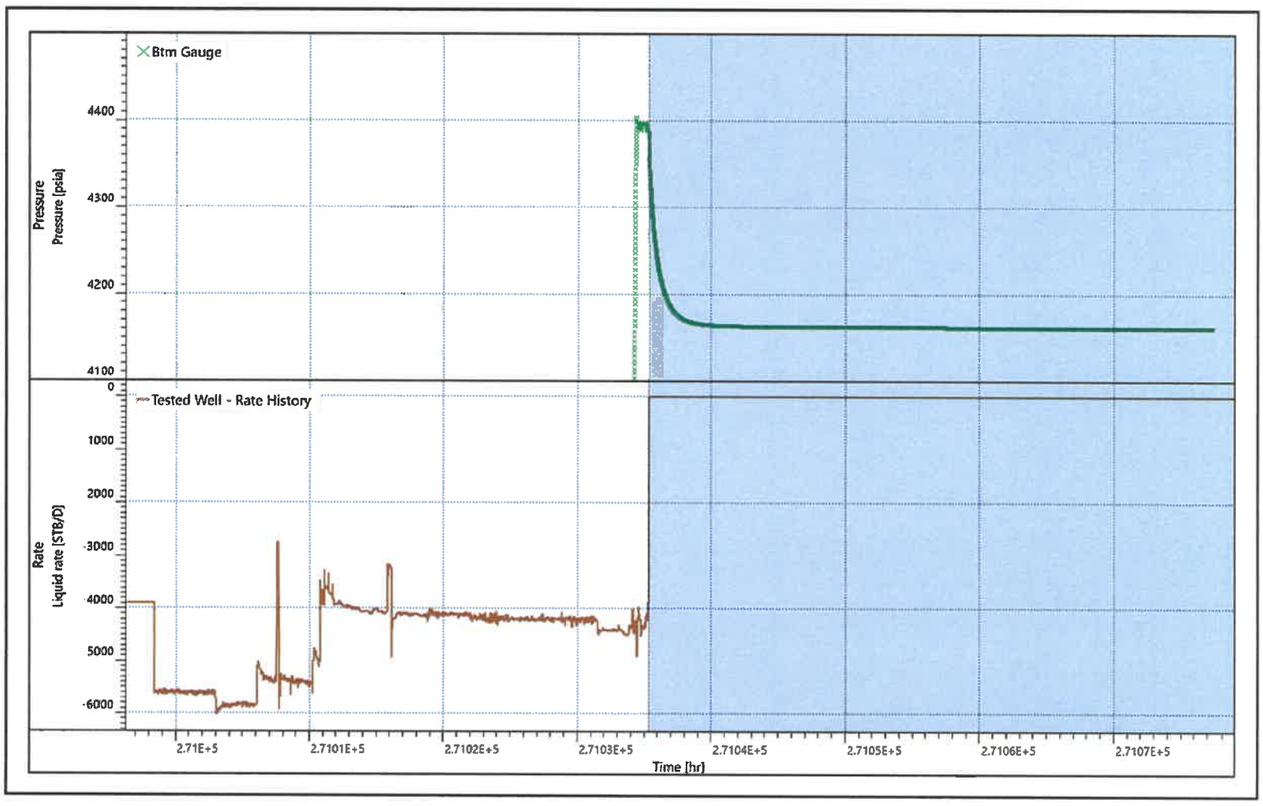
HollyFrontier Navajo Refining Company
Figure 8 - Cartesian Plot of Pressure Falloff, WDW-1, August 18-20, 2020



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HollyFrontier Navajo Refining Company
Figure 9 - Log-log Derivative Plot, WDW-1, August 18-20, 2020

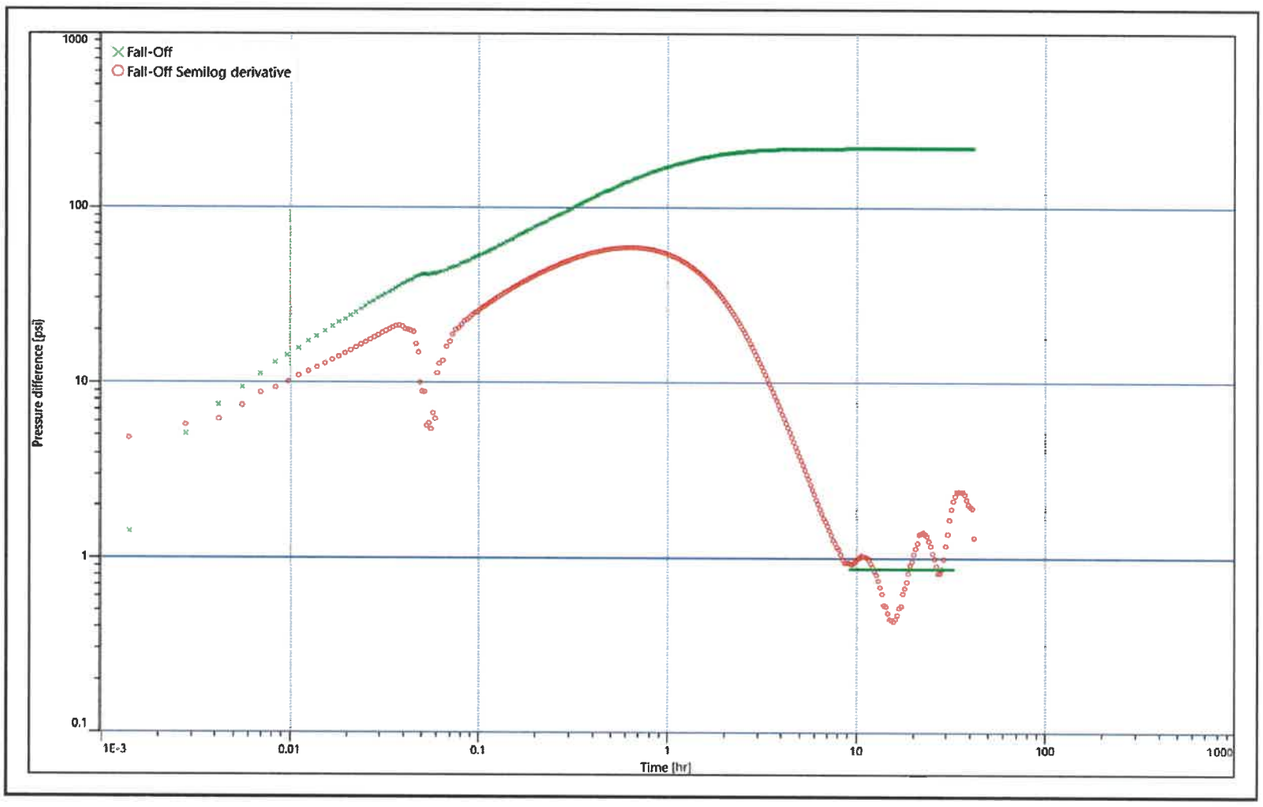

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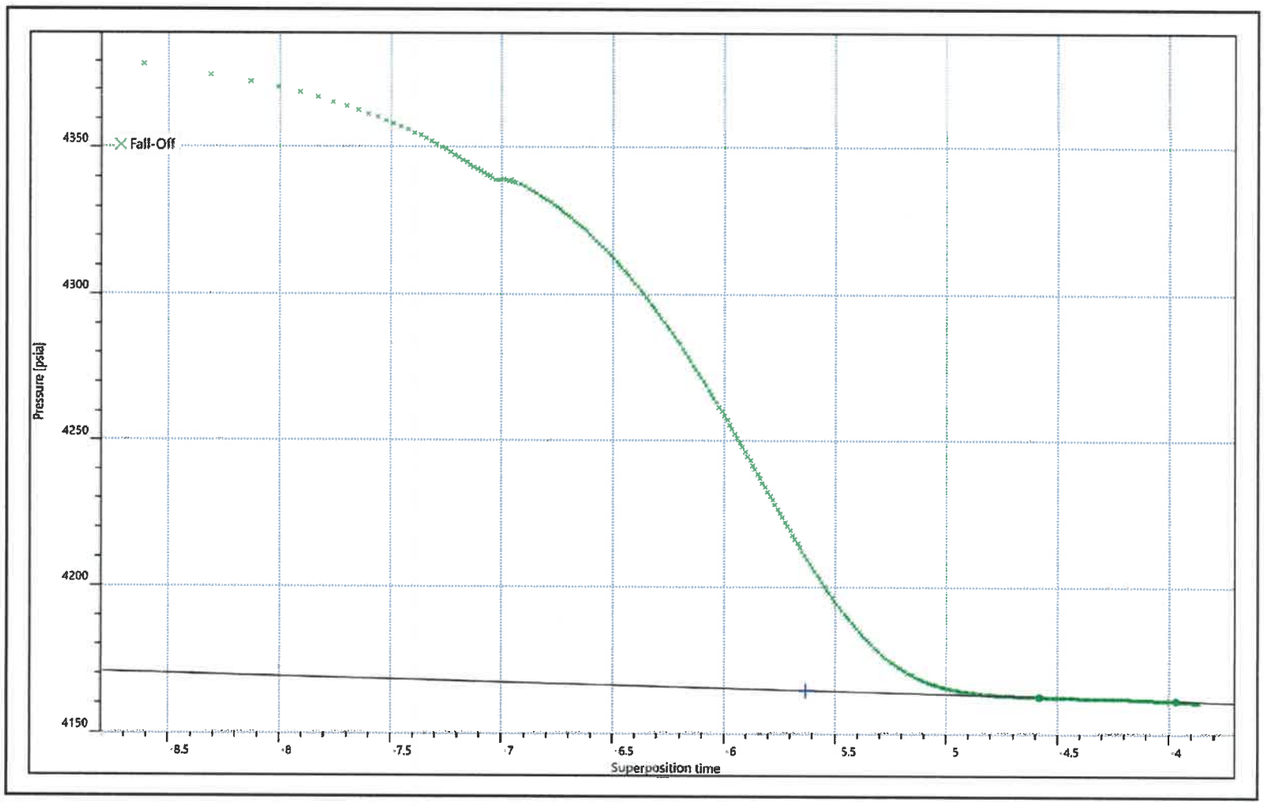
Figure 10 - Semi-log Horner Plot, WDW-1, August 18-20, 2020



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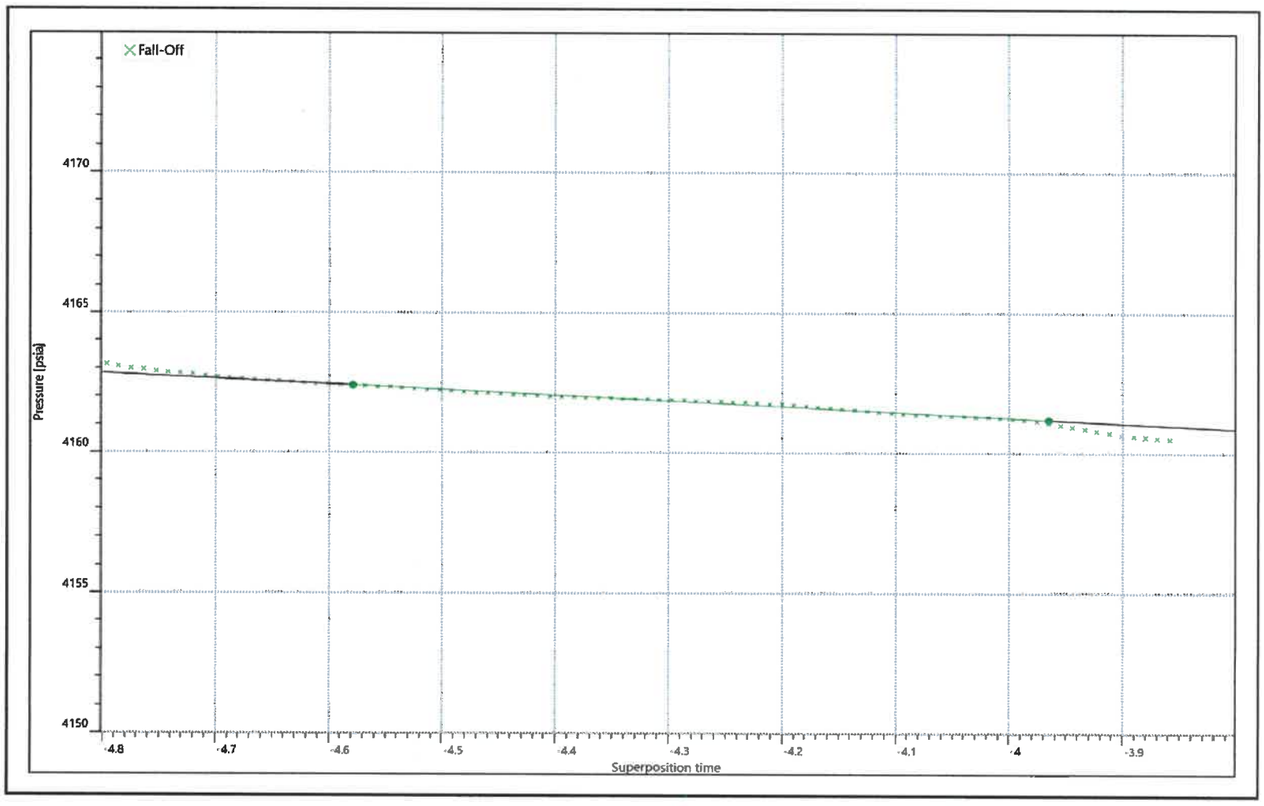
HollyFrontier Navajo Refining Company
Figure 11 - Semi-log Horner Plot, Radial Zoom, WDW-1, August 18-20, 2020



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HollyFrontier Navajo Refining Company
Figure 12 - Cartesian Plot of Pressure Falloff with Model Match, WDW-1, August 18-20, 2020

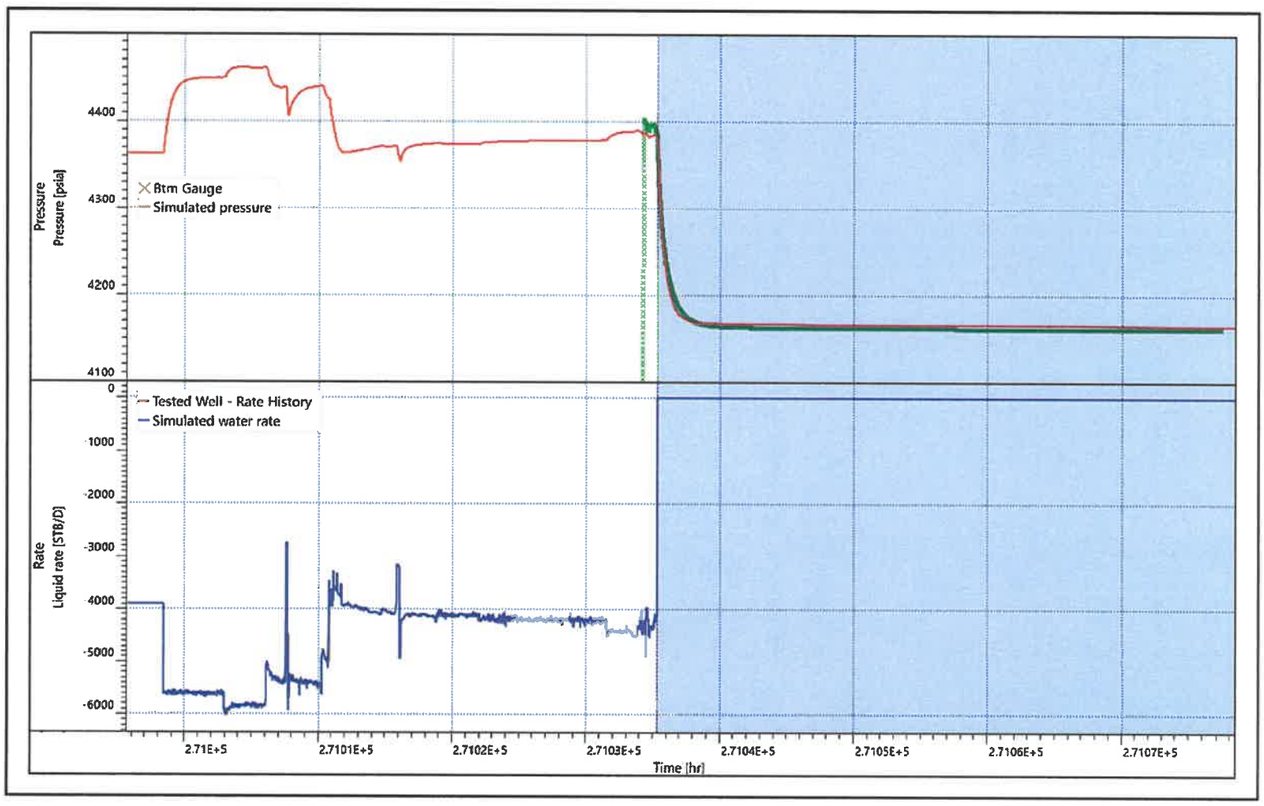

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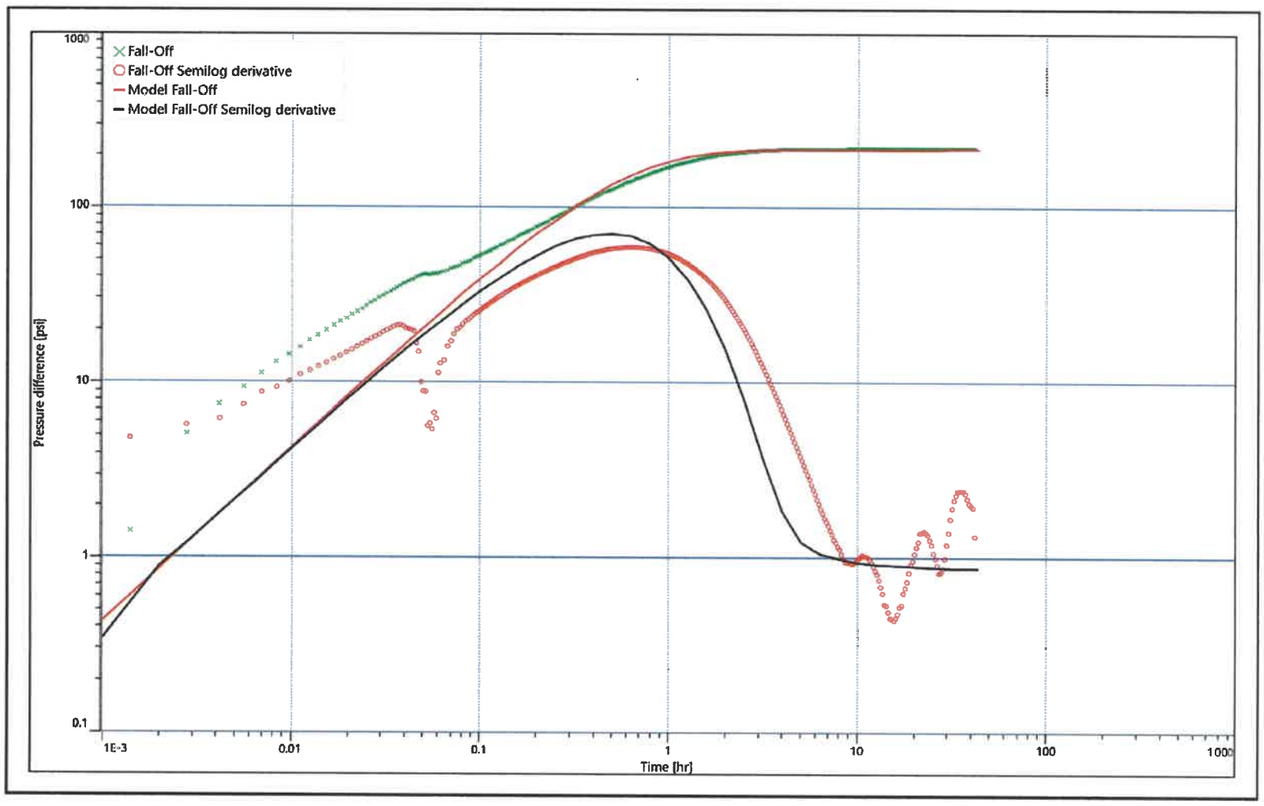
Figure 13 - Log-log Derivative Plot with Model Match, WDW-1, August 18-20, 2020



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HollyFrontier Navajo Refining Company
Figure 14 - Semi-log Horner Plot with Model Match, WDW-1, August 18-20, 2020

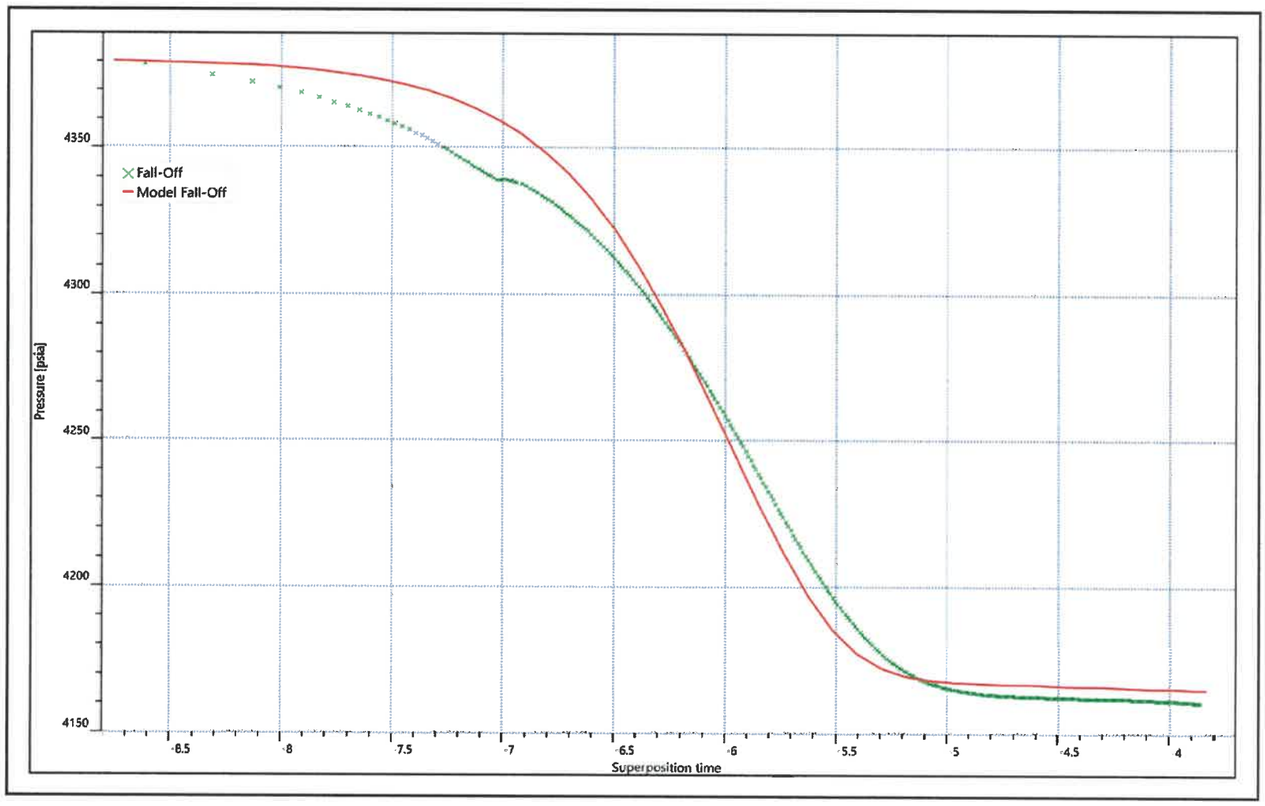

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Figure 15 - Daily Injection Rate History for Month Prior to Test, WDW-1

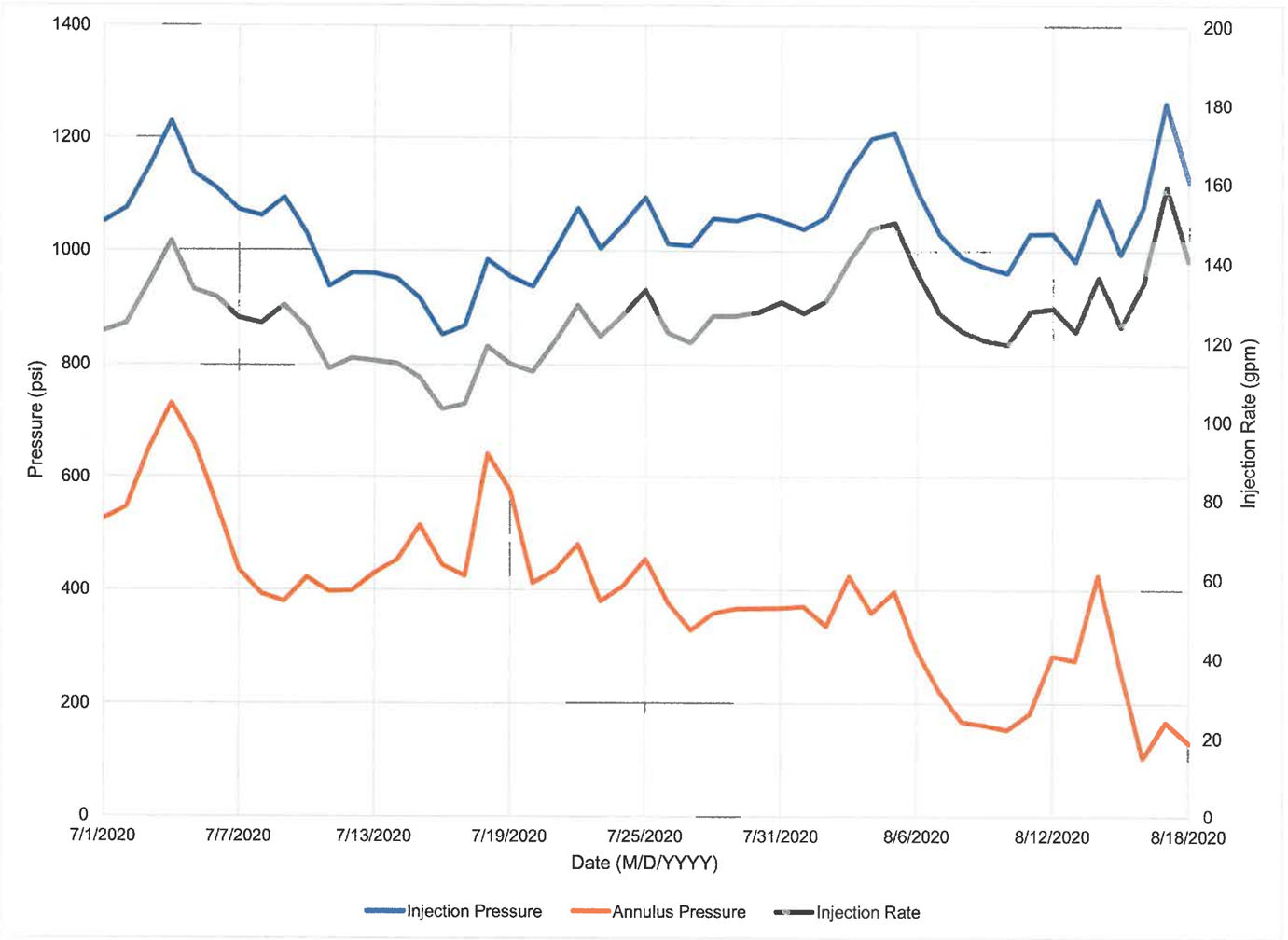

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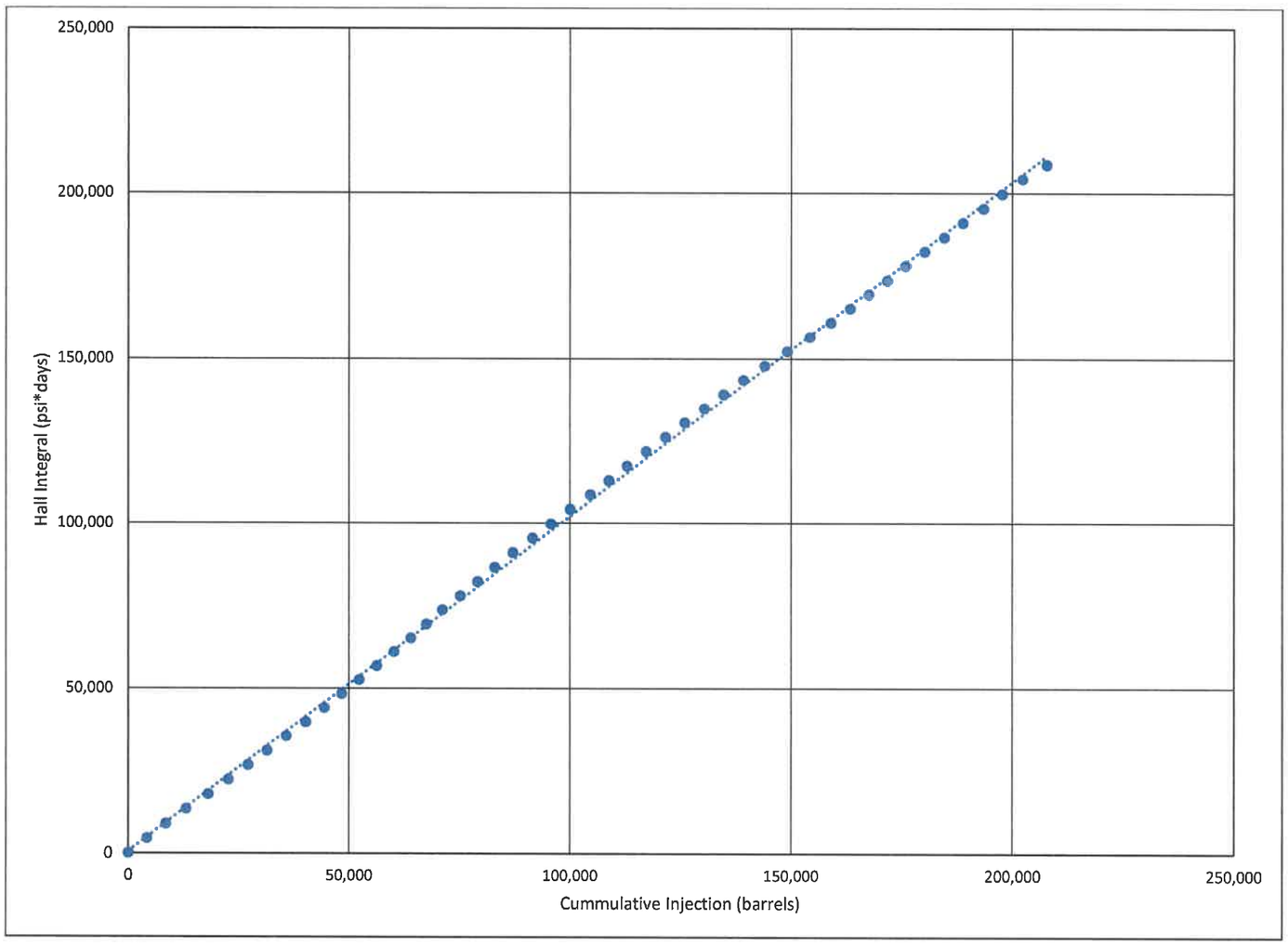
Figure 16 - Hall Plot, WDW-1



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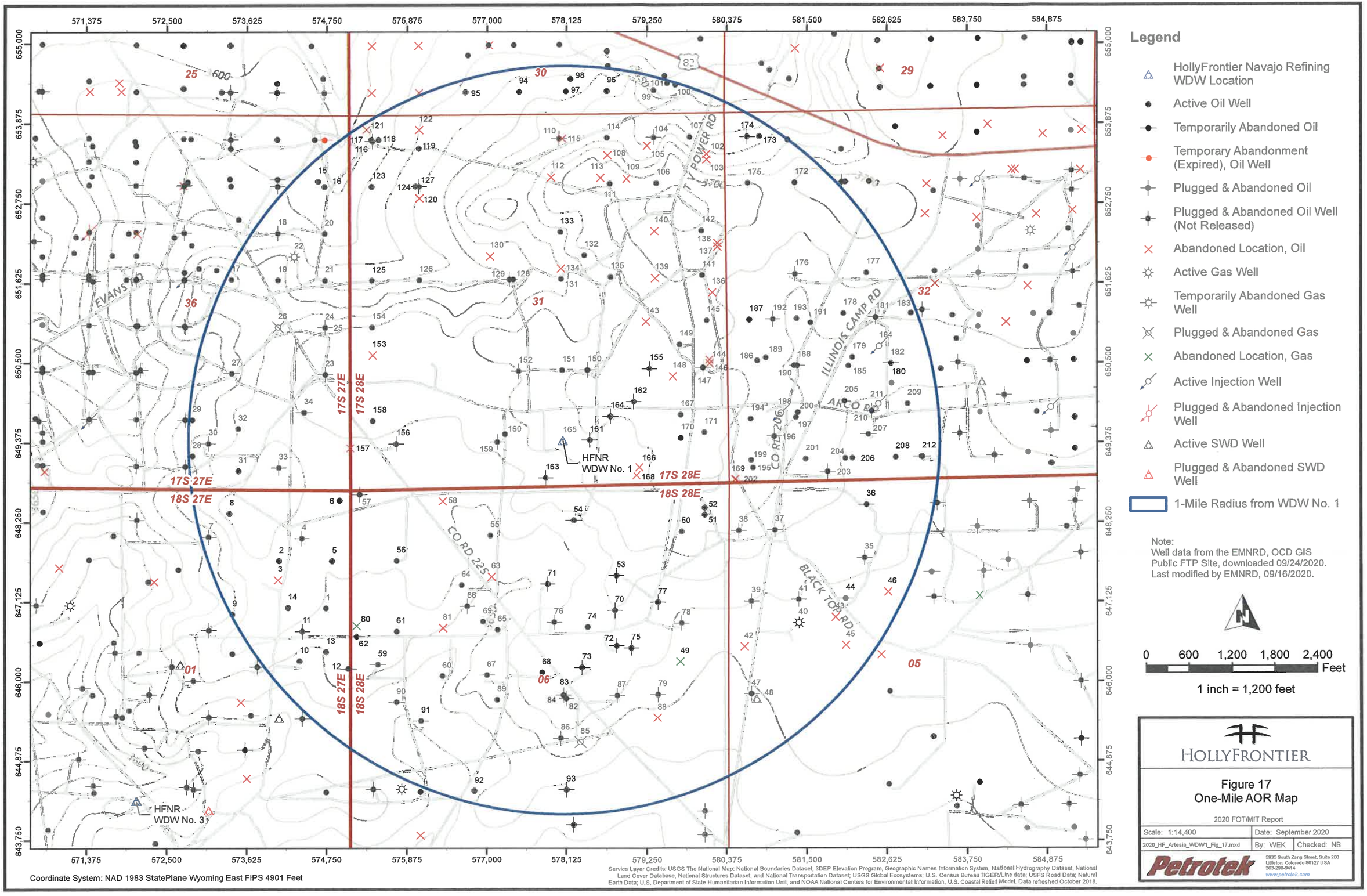

HOLLYFRONTIER

Figure 17
One-Mile AOR Map

2020 FOT/MIT Report

Scale: 1:14,400	Date: September 2020
2020_HF_Artesia_WDW1_Fig_17.mxd	By: WEK Checked: NB

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ATTACHMENTS

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Attachment 1
OCD Test Notification

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

State of New Mexico
Energy, Minerals and Natural Resources

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

Form C-103
Revised July 18, 2013

WELL API NO: 30-015-27592

5. Indicate Type of Lease STATE ☒ FEE ☐

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

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Mewbourne WDW-1

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

8. Well Number: WDW-1 MEWBOURNE

2. Name of Operator: HOLLYFRONTIER NAVAJO REFINING LLC

9. OGRID Number: 15694

3. Address of Operator: PO BOX 159, ARTESIA, NM 88211
501 E MAIN ST. ARTESIA, NM 88210

10. Pool name or Wildcat: Navajo Permo-PENN 96918

4. Well Location
Unit Letter: O : 660 feet from the SOUTH line and 2210 feet from the EAST line
Section: 31 Township: 17S Range: 28E NMPM County: EDDY

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*
3,678' GL

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER: FALL OFF TEST	☒			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 25, 2020: Day 1: Start constant injection rate into WDW-1 Mewbourne as well as the three (3) offset wells for at least 30 hours prior to shut-in of WDW-1 for Fall Off Testing. Wellhead pressure will not exceed 1400 psig. Plant personnel will record rate, volume and pressure during the constant rate injection period to ensure steady flow for analysis. Samples of the injection fluid will be collected every 10 hours and analyzed for pH and specific gravity.
JULY 26, 2020: Day 2: Continue constant injection rate into all 4 wells.
JULY 27, 2020: Day 3: While injection continues, run dual downhole memory gauges to test depth making flowing gradient stops every 1,000 feet. Collect pressure data at test depth for minimum of 1 hour while injecting at a constant rate. Shut WDW-1 in and start data collection for a minimum of 30 hours. WDW-2, WDW-3 and WDW-4 will continue injection.
JULY 28, 2020: Day 4: WDW-1 will remain shut-in while collecting pressure data.
JULY 29, 2020: Day 5: After a minimum of 30 hours of data collection, gauges from the well will be pulled making stops every 1,000 feet. After tools reach surface, a second run with sinker bars will tag bottom. Will conduct MIT for minimum of 30 minutes with calibrated pressure gauge.
Note: Will notify Artesia District of schedule for Witnessing.

Spud Date: Rig Release Date:

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

SIGNATURE Lewis R Dade TITLE: Environmental Specialist DATE: 07/15/2020
Type or print name: Lewis R. Dade E-mail address: Lewis.Dade@hollyfrontier.com PHONE:575-746-5281

For State Use Only

APPROVED BY: Paul J. Kautz TITLE Environmental Engineer DATE 9/8/2020
Conditions of Approval (if any):
Follow Fall-Off Test Plan.
Achieve adequate steady-state injection rate and conditions to stress injection zone.

Attachment 2
Downhole Pressure Gauge Certification

Petrotek

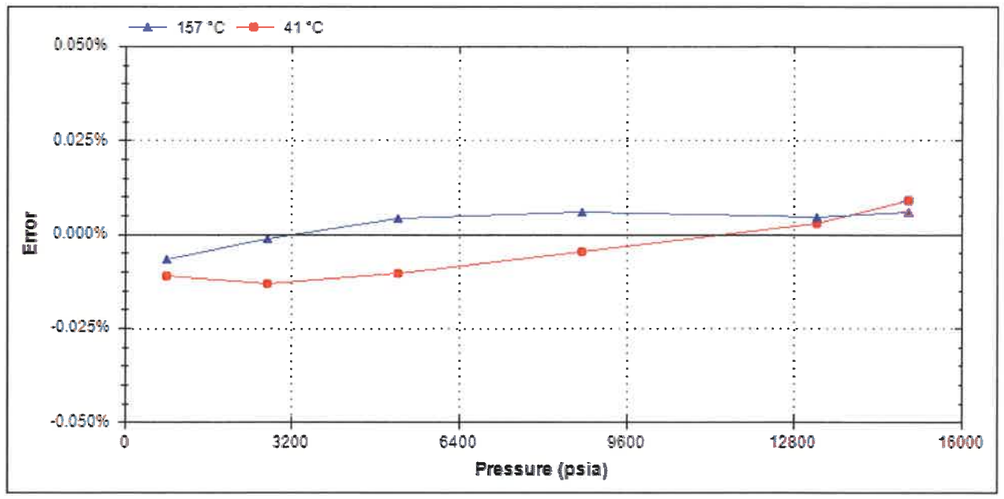
DataCan

"The Next Generation of Down Hole Tools"

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

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: EC0063
DHI Instruments Pressure Controller, Model: PPCH-200M (30,000psi Reference), Serial: 1894

Traceability Statement

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

Approved By:
DataCan Services Corp.

Calibrated By:
Angelo Pulido

DataCan

Quartz Transducer

SO 53177 Shipping Date Feb 7, 2019

Cal Certificate

Certificate Date Feb 7, 2019

Serial Number 242117

Max P 16000 Pressure Error 0.013 % FS

Max T 177 Temperature Error 0.194 °C

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

Tool Info

- ☒ Serial Number
- ☒ Max P
- ☒ Max T

Calibration Date Feb 7, 2019

Part Marking

- ☒ Serial Number
- ☒ Max P
- ☒ Max T

Utilities - Diagnostics - Start Sampling

Pressure 12.251 psia

Temperature 21.304 degC

Current Draw mA

☒ Checked By Renato Herrera Feb 7, 2019

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

DataCan

Quartz Transducer

Gauge Parts

Arrived	Left
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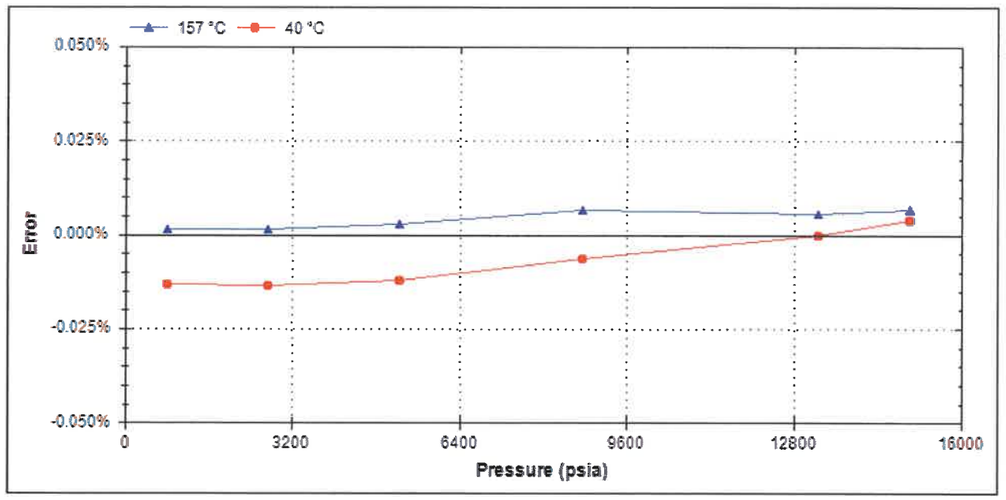
"The Next Generation of Down Hole Tools"

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

Max Pressure		Max Temperature	
psi	kPa	°F	°C
16,000	110,316	351	177

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



Working Standards

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

Traceability Statement

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

Approved By:
DataCan Services Corp.

Calibrated By:
Angelo Pulido

DataCan

Quartz Transducer

SO 54250 Shipping Date May 15, 2019

Cal Certificate

Certificate Date May 15, 2019

Serial Number 242560

Max P 16000 Pressure Error 0.014 % FS

Max T 177 Temperature Error 0.104 °C

- [ ] Flash Drive Loaded
- [x] Calibration files
- [x] USB cable functions

Tool Info

- [x] Serial Number
- [x] Max P
- [x] Max T

Calibration Date May 15, 2019

Part Marking

- [x] Serial Number
- [x] Max P
- [x] Max T

Utilities - Diagnostics - Start Sampling

Pressure 19.231 psia

Temperature 20.468 degC

Current Draw mA

- [x] Checked By Renato Herrera May 15, 2019

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DataCan

Quartz Transducer

Gauge Parts

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Attachment 3
AOR Well List

Petrotek

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
1	APACHE CORPORATION	AAO FEDERAL #008	30-015-33784	Oil	Active	01	18S	27E	0	32.7786827	-104.2246323	10/28/2010
2	APACHE CORPORATION	AAO FEDERAL #004	30-015-32310	Oil	Active	01	18S	27E	0	32.7805176	-104.2267761	10/28/2010
3	APACHE CORPORATION	EMPIRE ABO UNIT #412	30-015-39898	Oil	AL	01	18S	27E	A	32.7797813	-104.2268295	1/30/2012
4	APACHE CORPORATION	EMPIRE ABO UNIT #020D	30-015-01215	Oil	P&A	01	18S	27E	A	32.781395	-104.2257233	5/19/2017
5	APACHE CORPORATION	AAO FEDERAL #024	30-015-42337	Oil	Active	01	18S	27E	A	32.7805099	-104.22435	4/24/2014
6	APACHE CORPORATION	AAO FEDERAL #014	30-015-42024	Oil	Active	01	18S	27E	A	32.7828636	-104.2240143	1/27/2014
7	APACHE CORPORATION	EMPIRE ABO UNIT #019B	30-015-00708	Oil	P&A	01	18S	27E	B	32.7814598	-104.2300034	5/22/2013
8	APACHE CORPORATION	AAO FEDERAL #003	30-015-32309	Oil	Active	01	18S	27E	B	32.7823563	-104.2290573	10/28/2010
9	APACHE CORPORATION	AAO FEDERAL #007	30-015-33473	Oil	Active	01	18S	27E	G	32.77845	-104.2289276	10/28/2010
10	APACHE CORPORATION	EMPIRE ABO UNIT #203	30-015-22656	Oil	Active	01	18S	27E	H	32.7766304	-104.2258377	1/11/2011
11	APACHE CORPORATION	EMPIRE ABO UNIT #020C	30-015-00711	Oil	P&A	01	18S	27E	H	32.7777863	-104.225708	7/8/2013
12	APACHE CORPORATION	EMPIRE ABO UNIT #201	30-015-21553	Oil	TA	01	18S	27E	H	32.7763329	-104.2236252	1/11/2011
13	APACHE CORPORATION	AAO FEDERAL #023	30-015-42336	Oil	Active	01	18S	27E	H	32.776989	-104.2246323	4/24/2014
14	APACHE CORPORATION	AAO FEDERAL #017	30-015-42027	Oil	Active	01	18S	27E	H	32.778698	-104.2263718	1/27/2014
15	APACHE CORPORATION	RED LAKE 36 A STATE #002	30-015-33994	Oil	Active	36	17S	27E	A	32.7952271	-104.2249832	12/1/2010
16	LLJ VENTURES, LLC DBA MARKER OIL & GAS	DELHI #007	30-015-00646	Oil	Active	36	17S	27E	B	32.7950172	-104.2246933	7/13/2017
17	REMNANT OIL OPERATING, LLC	SOUTH RED LAKE II UNIT #057	30-015-36116	Oil	Active	36	17S	27E	G	32.7914352	-104.2289658	6/30/2016
18	ASPEN OIL INC	GATES STATE #002	30-015-00647	Oil	P&A	36	17S	27E	H	32.7932205	-104.2268295	10/31/2004
19	LLJ VENTURES, LLC DBA MARKER OIL & GAS	GATES STATE #003	30-015-31036	Oil	Active	36	17S	27E	H	32.7914047	-104.2268219	7/13/2017
20	LLJ VENTURES, LLC DBA MARKER OIL & GAS	GATES STATE #001	30-015-00689	Oil	Active	36	17S	27E	H	32.7932014	-104.2246857	7/13/2017
21	LLJ VENTURES, LLC DBA MARKER OIL & GAS	HOMAN #001	30-015-00669	Oil	Active	36	17S	27E	H	32.7913895	-104.2246704	7/13/2017
22	Grizzly Operating, LLC	NO BLUFF 36 STATE COM #002	30-015-31123	Gas	Active	36	17S	27E	H	32.792305	-104.2260742	10/26/2015
23	ARCO OIL & GAS CO	EMPIRE ABO UNIT G #020	30-015-00685	Oil	P&A	36	17S	27E	I	32.7877541	-104.2246552	9/7/1989
24	KERSEY & COMPANY	RAMAPO #001	30-015-00688	Oil	P&A	36	17S	27E	I	32.7895699	-104.2246628	6/18/1996
25	KERSEY & COMPANY	RAMAPO #003	30-015-00670	Oil	P&A	36	17S	27E	I	32.7895737	-104.2246628	6/17/1996
26	KERSEY & COMPANY	RAMAPO #002	30-015-00687	Gas	P&A	36	17S	27E	I	32.7895889	-104.2268143	6/14/1996
27	APACHE CORPORATION	EMPIRE ABO UNIT #019A	30-015-05934	Oil	TA	36	17S	27E	J	32.7877998	-104.2289505	1/11/2011
28	Spur Energy Partners LLC	BIG BOY STATE #006	30-015-39324	Oil	Active	36	17S	27E	O	32.7845993	-104.230751	12/18/2011
29	Spur Energy Partners LLC	BIG BOY STATE #007	30-015-39325	Oil	Active	36	17S	27E	O	32.7860031	-104.2307587	1/6/2012
30	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #019	30-015-01251	Oil	P&A	36	17S	27E	O	32.7850876	-104.230011	9/9/2009
31	Spur Energy Partners LLC	BIG BOY STATE #008	30-015-39326	Oil	Active	36	17S	27E	O	32.7840157	-104.2286377	5/6/2013
32	Spur Energy Partners LLC	BIG BOY STATE #005	30-015-39323	Oil	Active	36	17S	27E	O	32.7856522	-104.2286453	4/21/2012
33	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #020	30-015-00677	Oil	P&A	36	17S	27E	P	32.7841454	-104.2267838	9/9/2009
34	APACHE CORPORATION	EMPIRE ABO UNIT #417	30-015-39401	Oil	TA	36	17S	27E	P	32.7862778	-104.2256241	9/13/2011
35	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #261A	30-015-22697	Oil	P&A	05	18S	28E	C	32.7806129	-104.1999969	6/15/2009
36	APACHE CORPORATION	EMPIRE ABO UNIT #026E	30-015-02606	Oil	TA	05	18S	28E	C	32.7826767	-104.1999054	1/11/2011
37	APACHE CORPORATION	EMPIRE ABO UNIT #025C	30-015-02607	Oil	P&A	05	18S	28E	D	32.7817001	-104.2040787	6/25/2013
38	APACHE CORPORATION	EMPIRE ABO UNIT #251	30-015-22750	Oil	P&A	05	18S	28E	D	32.7816734	-104.2057343	6/19/2013
39	CONOCOPHILLIPS COMPANY	STATE E AI #001	30-015-02608	Oil	P&A	05	18S	28E	E	32.7789345	-104.2051544	1/13/2006
40	CONOCOPHILLIPS COMPANY	ILLINOIS CAMP A COM #001	30-015-24485	Gas	Active	05	18S	28E	E	32.7780914	-104.2030106	1/1/2003
41	MARBOB ENERGY CORP	LP STATE #001	30-015-31086	Oil	P&A	05	18S	28E	E	32.7789955	-104.2030029	3/11/2008
42	COG OPERATING LLC	LP STATE #002E	30-015-31109	Oil	AL	05	18S	28E	E	32.77716837	-104.2054973	3/17/2011
43	APACHE CORPORATION	LIBBY STATE #001	30-015-41766	Oil	AL	05	18S	28E	F	32.7783089	-104.2013321	10/30/2013
44	APACHE CORPORATION	EMPIRE ABO UNIT #026D	30-015-02602	Oil	TA	05	18S	28E	F	32.7790298	-104.2008591	1/11/2011
45	APACHE CORPORATION	LIBBY STATE #003	30-015-41768	Oil	AL	05	18S	28E	F	32.7772179	-104.2008591	10/30/2013
46	APACHE CORPORATION	LIBBY STATE #002	30-015-41767	Oil	AL	05	18S	28E	F	32.7792816	-104.1989212	10/30/2013
47	MACK ENERGY CORP	STATE AG #001	30-015-10244	Oil	P&A	05	18S	28E	L	32.7753372	-104.205162	3/26/2001
48	WALTER SOLT, LLC	WALTER SOLT STATE #001	30-015-25522	SWD	Active	05	18S	28E	L	32.7751465	-104.2049332	10/12/2011
49	PHILLIPS PETROLEUM CO	CHALK BLUFF 6 ST #002	30-015-27636	Gas	AL	06	18S	28E	0	32.77658	-104.20843	8/20/1993
50	APACHE CORPORATION	EMPIRE ABO UNIT #024B	30-015-02615	Oil	Active	06	18S	28E	A	32.7816353	-104.208374	1/11/2011

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
51	Grizzly Operating, LLC	NW STATE #015	30-015-30785	Oil	Active	06	18S	28E	A	32.7822838	-104.2072983	10/26/2015
52	Grizzly Operating, LLC	NORTHWEST ARTESIA UNIT #016	30-015-20019	Oil	Active	06	18S	28E	A	32.7825584	-104.2072983	10/26/2015
53	APACHE CORPORATION	EMPIRE ABO UNIT #231	30-015-21542	Oil	P&A	06	18S	28E	B	32.7799377	-104.2113647	6/13/2013
54	APACHE CORPORATION	EMPIRE ABO UNIT #023C	30-015-02625	Oil	TA	06	18S	28E	B	32.7820778	-104.2132797	1/11/2011
55	APACHE CORPORATION	EMPIRE ABO UNIT #022E	30-015-02621	Oil	Active	06	18S	28E	C	32.7814941	-104.2171097	1/11/2011
56	APACHE CORPORATION	EMPIRE ABO UNIT #021B	30-015-02613	Oil	Active	06	18S	28E	D	32.7805176	-104.2214127	1/11/2011
57	APACHE CORPORATION	EMPIRE ABO UNIT #411	30-015-39021	Oil	P&A	06	18S	28E	D	32.7831039	-104.2230835	3/18/2015
58	APACHE CORPORATION	EMPIRE ABO UNIT #410	30-015-39008	Oil	AL	06	18S	28E	D	32.7828331	-104.2193222	5/4/2011
59	APACHE CORPORATION	EMPIRE ABO UNIT #212	30-015-22637	Oil	TA	06	18S	28E	E	32.7764931	-104.2222595	1/11/2011
60	APACHE CORPORATION	EMPIRE ABO UNIT #211	30-015-21395	Oil	Active	06	18S	28E	E	32.7760429	-104.2193298	1/11/2011
61	APACHE CORPORATION	EMPIRE ABO UNIT #021C	30-015-02619	Oil	Active	06	18S	28E	E	32.777771	-104.2214127	1/11/2011
62	APACHE CORPORATION	EMPIRE ABO UNIT #213	30-015-23116	Oil	TA	06	18S	28E	E	32.7775764	-104.2232361	1/11/2011
63	READS & STEVENS INC	NORTHERN #001	30-015-21548	Oil	AL	06	18S	28E	F	32.77989548	-104.2170647	10/3/1973
64	APACHE CORPORATION	EMPIRE ABO UNIT #222	30-015-22012	Oil	Active	06	18S	28E	F	32.7795753	-104.2184448	1/11/2011
65	APACHE CORPORATION	EMPIRE ABO UNIT #022D	30-015-02620	Oil	Active	06	18S	28E	F	32.7778435	-104.2167816	1/11/2011
66	SAIKIN-OLIVER	SHUFFLEBERGER #001	30-015-02626	Oil	P&A	06	18S	28E	F	32.7787552	-104.2181854	12/31/1942
67	APACHE CORPORATION	EMPIRE ABO UNIT #223	30-015-22527	Oil	TA	06	18S	28E	F	32.7760773	-104.2172775	1/11/2011
68	APACHE CORPORATION	EMPIRE ABO UNIT #221	30-015-21746	Oil	Active	06	18S	28E	F	32.7761726	-104.2147293	1/11/2011
69	ROVER OPERATING, LLC	STATE FX #001	30-015-10107	Oil	Active	06	18S	28E	F	32.7781525	-104.2174606	10/19/2016
70	APACHE CORPORATION	EMPIRE ABO UNIT #235	30-015-22913	Oil	P&A	06	18S	28E	G	32.7785873	-104.2114334	4/21/2010
71	APACHE CORPORATION	EMPIRE ABO UNIT #231A	30-015-21626	Oil	P&A	06	18S	28E	G	32.7796097	-104.2144623	7/1/2013
72	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #232	30-015-21737	Oil	P&A	06	18S	28E	G	32.7772064	-104.2113571	10/9/2009
73	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #233	30-015-22490	Oil	P&A	06	18S	28E	G	32.7763672	-104.2129059	10/9/2009
74	APACHE CORPORATION	EMPIRE ABO UNIT #023B	30-015-02614	Oil	Active	06	18S	28E	G	32.777935	-104.2126694	1/11/2011
75	BP AMERICA PRODUCTION COMPANY	SLIDER 6 STATE #001	30-015-34028	Oil	P&A	06	18S	28E	G	32.7771301	-104.2106781	12/23/2008
76	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #234	30-015-22593	Oil	P&A	06	18S	28E	G	32.7781334	-104.2141724	11/25/2008
77	APACHE CORPORATION	EMPIRE ABO UNIT #024C	30-015-02616	Oil	P&A	06	18S	28E	H	32.7788963	-104.2094498	6/7/2013
78	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #241	30-015-23547	Oil	P&A	06	18S	28E	H	32.7780876	-104.208374	12/23/2008
79	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #024K	30-015-02617	Oil	P&A	06	18S	28E	I	32.7753105	-104.2094574	12/12/2002
80	ATLANTIC RICHFIELD	EMPIRE ABO UNIT J #212	30-015-22635	Gas	AL	06	18S	28E	J	32.7779886	-104.2232312	11/20/1978
81	ATLANTIC RICHFIELD	EMPIRE ABO UNIT J #213	30-015-22636	Oil	AL	06	18S	28E	J	32.77791352	-104.2193084	11/2/1978
82	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #023D	30-015-02628	Oil	P&A	06	18S	28E	J	32.7751617	-104.213623	12/5/2008
83	MARNEY COCKBURN	CAPITAL STATE #001	30-015-00264	Oil	P&A	06	18S	28E	J	32.7752991	-104.2137527	NA
84	COCKBURN BARNEY	CAPITAL STATE #001	30-015-02611	Oil	P&A	06	18S	28E	J	32.7752991	-104.2137527	8/20/1949
85	MILLER BROS OIL CO.	CAPITAL STATE #001	30-015-02618	Gas	P&A	06	18S	28E	J	32.7734795	-104.2129974	12/1/1954
86	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #231B	30-015-22491	Oil	P&A	06	18S	28E	J	32.7736244	-104.2138824	8/24/2009
87	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #232A	30-015-22528	Oil	P&A	06	18S	28E	J	32.77528	-104.2113419	10/9/2009
88	GENERAL AMERICAN OIL CO	GAO EMPIRE STATE #001	30-015-24372	Oil	AL	06	18S	28E	J	32.77440327	-104.2094887	7/7/1983
89	APACHE CORPORATION	EMPIRE ABO UNIT #022F	30-015-02623	Oil	Active	06	18S	28E	K	32.7751236	-104.2168045	1/11/2011
90	APACHE CORPORATION	EMPIRE ABO UNIT #021D	30-015-02622	Oil	TA	06	18S	28E	L	32.775032	-104.2214127	1/11/2011
91	APACHE CORPORATION	EMPIRE ABO UNIT #211A	30-015-23548	Oil	TA	06	18S	28E	L	32.7742958	-104.2203064	1/11/2011
92	APACHE CORPORATION	EMPIRE ABO UNIT #022C	30-015-02610	Oil	Active	06	18S	28E	N	32.7715645	-104.217865	1/11/2011
93	PAN AMERICAN PETROLEUM CO	STATE OF NEW MEXICO CD #001	30-015-02624	Oil	P&A	06	18S	28E	O	32.7716103	-104.2136307	8/20/1961
94	Grizzly Operating, LLC	STALEY STATE #017	30-015-40026	Oil	Active	30	17S	28E	N	32.798687	-104.2157898	10/26/2015
95	Grizzly Operating, LLC	STALEY STATE #012	30-015-37673	Oil	Active	30	17S	28E	N	32.7986717	-104.2182693	10/26/2015
96	Grizzly Operating, LLC	STALEY STATE #020	30-015-40983	Oil	Active	30	17S	28E	O	32.7987099	-104.2118073	10/26/2015
97	Grizzly Operating, LLC	STALEY STATE #009	30-015-36564	Oil	Active	30	17S	28E	O	32.7986984	-104.2136307	10/26/2015
98	Grizzly Operating, LLC	STALEY STATE #029	30-015-42726	Oil	Active	30	17S	28E	O	32.79917838	-104.2134281	10/26/2015
99	CFM OIL, LLC	BLAKE STATE #001	30-015-01616	Oil	Active	30	17S	28E	P	32.7987213	-104.2096558	5/11/2011
100	Grizzly Operating, LLC	ANTHONEY STATE #003	30-015-39638	Oil	Active	30	17S	28E	P	32.798954	-104.2086411	10/26/2015

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
101	Grizzly Operating, LLC	ANTHONEY #002	30-015-38234	Oil	Active	30	17S	28E	P	32.7989998	-104.2090378	10/26/2015
102	APACHE CORPORATION	RANGER STATE #001	30-015-42597	Oil	AL	31	17S	28E	A	32.7962608	-104.2072296	8/20/2014
103	APACHE CORPORATION	RANGER STATE #004	30-015-42600	Oil	AL	31	17S	28E	A	32.7960548	-104.2072296	8/21/2014
104	ARCHY M SPIER	MRY #001	30-015-01638	Oil	P&A	31	17S	28E	A	32.7969055	-104.2096481	8/16/1965
105	APACHE CORPORATION	RANGER STATE #002	30-015-42598	Oil	AL	31	17S	28E	A	32.7965889	-104.2099686	8/20/2014
106	Grizzly Operating, LLC	NW STATE #028	30-015-30893	Oil	Active	31	17S	28E	A	32.7951393	-104.2095184	10/26/2015
107	Grizzly Operating, LLC	NW STATE #012	30-015-30784	Oil	Active	31	17S	28E	A	32.796917	-104.2079926	10/26/2015
108	APACHE CORPORATION	T REX STATE #002	30-015-41771	Oil	AL	31	17S	28E	B	32.7962227	-104.2117844	10/30/2013
109	APACHE CORPORATION	RANGER STATE #003	30-015-42599	Oil	AL	31	17S	28E	B	32.7953186	-104.2109146	8/20/2014
110	APACHE CORPORATION	T REX STATE #001	30-015-41770	Oil	AL	31	17S	28E	B	32.7968826	-104.2138138	10/30/2013
111	FINNEY OIL COMPANY	POWCO STATE #002	30-015-25621	Oil	Active	31	17S	28E	B	32.7951088	-104.2116699	10/31/2003
112	APACHE CORPORATION	T REX STATE #003	30-015-41772	Oil	AL	31	17S	28E	B	32.7953796	-104.2143173	10/30/2013
113	APACHE CORPORATION	T REX STATE #004	30-015-41774	Oil	AL	31	17S	28E	B	32.7953529	-104.2120972	10/30/2013
114	FINNEY OIL COMPANY	POWCO STATE #001	30-015-21594	Oil	Active	31	17S	28E	B	32.7968941	-104.2117996	10/31/2003
115	BEDINGFIELD JE	DELHI ST #001	30-015-01636	Oil	P&A	31	17S	28E	C	32.7968826	-104.2139435	NA
116	LLJ VENTURES, LLC DBA MARKER OIL & GAS	ASTON & FAIR A #001	30-015-01633	Oil	Active	31	17S	28E	D	32.7968292	-104.2225571	7/13/2017
117	ASTON & FAIR	STATE 31 #001	30-015-01634	Oil	P&A	31	17S	28E	D	32.7967758	-104.2225037	NA
118	Grizzly Operating, LLC	ENRON STATE #020	30-015-42372	Oil	Active	31	17S	28E	D	32.796833	-104.222229	10/26/2015
119	Grizzly Operating, LLC	ENRON STATE #004	30-015-32162	Oil	Active	31	17S	28E	D	32.7964859	-104.2204056	10/26/2015
120	COG OPERATING LLC	BIG GIRL 31 STATE #007	30-015-40260	Oil	AL	31	17S	28E	D	32.7945747	-104.2203903	7/9/2012
121	COG OPERATING LLC	BIG GIRL 31 STATE #001	30-015-40257	Oil	AL	31	17S	28E	D	32.7972298	-104.2227936	5/11/2012
122	COG OPERATING LLC	BIG GIRL 31 STATE #002	30-015-40258	Oil	AL	31	17S	28E	D	32.7972145	-104.2204056	7/9/2012
123	Grizzly Operating, LLC	ENRON STATE #015	30-015-36978	Oil	Active	31	17S	28E	D	32.7950172	-104.2225418	10/26/2015
124	Grizzly Operating, LLC	ENRON STATE #016	30-015-38512	Oil	Active	31	17S	28E	D	32.7950287	-104.2205582	10/26/2015
125	ROVER OPERATING, LLC	HUDSON SAIKIN STATE #001	30-015-02666	Oil	Active	31	17S	28E	E	32.7913857	-104.2225266	10/19/2016
126	ROVER OPERATING, LLC	HUDSON SAIKIN STATE #002	30-015-24887	Oil	Active	31	17S	28E	E	32.7914009	-104.2203751	10/19/2016
127	BEDINGFIELD JE	BEDINGFIELD ST #001	30-015-01645	Oil	P&A	31	17S	28E	F	32.7950287	-104.2203979	4/25/1951
128	GEORGE A CHASE JR DBA G AND C SERVICE	ASTON & FAIR #001Y	30-015-01635	Oil	Active	31	17S	28E	F	32.7914238	-104.2160797	4/1/2009
129	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #022	30-015-01643	Oil	P&A	31	17S	28E	F	32.7914238	-104.2162399	7/10/2009
130	SOUTHWESTERN ENERGY PRODUCTION COM	BIG BLUFF 31 STATE COM #001	30-015-31679	Oil	AL	31	17S	28E	F	32.79232594	-104.2171301	4/8/2002
131	GEORGE A CHASE JR DBA G AND C SERVICE	MALCO STATE #001	30-015-01637	Oil	Active	31	17S	28E	G	32.7914391	-104.2138596	4/1/2009
132	GEORGE A CHASE JR DBA G AND C SERVICE	MALCO STATE #003	30-015-37428	Oil	Active	31	17S	28E	G	32.7923508	-104.2127991	12/16/2009
133	GEORGE A CHASE JR DBA G AND C SERVICE	MALCO STATE #002	30-015-36343	Oil	Active	31	17S	28E	G	32.793251	-104.2138901	4/1/2009
134	COG OPERATING LLC	BIG GIRL 31 STATE #005	30-015-40259	Oil	AL	31	17S	28E	G	32.791851	-104.2138672	5/11/2012
135	KERSEY & COMPANY	BOLING #001	30-015-01652	Oil	Active	31	17S	28E	G	32.7915115	-104.2116318	NA
136	APACHE CORPORATION	RANGER STATE #009	30-015-42676	Oil	AL	31	17S	28E	H	32.79090349	-104.2069719	9/25/2014
137	APACHE CORPORATION	RANGER STATE #008	30-015-42675	Oil	AL	31	17S	28E	H	32.79267791	-104.2067214	9/25/2014
138	APACHE CORPORATION	RANGER STATE #005	30-015-42601	Oil	AL	31	17S	28E	H	32.7928162	-104.2067184	8/21/2014
139	APACHE CORPORATION	RANGER STATE #007	30-015-42674	Oil	AL	31	17S	28E	H	32.79146469	-104.2095802	9/25/2014
140	APACHE CORPORATION	RANGER STATE #006	30-015-42673	Oil	AL	31	17S	28E	H	32.79327863	-104.2096083	9/25/2014
141	Grizzly Operating, LLC	NORTHWEST ARTESIA UNIT #004	30-015-10537	Oil	Active	31	17S	28E	H	32.7915688	-104.2074203	10/26/2015
142	Grizzly Operating, LLC	NW STATE #011	30-015-30783	Oil	Active	31	17S	28E	H	32.793293	-104.2074432	10/26/2015
143	APACHE CORPORATION	RANGER STATE #010	30-015-42677	Oil	AL	31	17S	28E	I	32.78977205	-104.2100118	9/25/2014
144	APACHE CORPORATION	RANGER STATE #012	30-015-42679	Oil	AL	31	17S	28E	I	32.78830646	-104.2070951	9/25/2014
145	Grizzly Operating, LLC	NW STATE #009	30-015-30849	Oil	Active	31	17S	28E	I	32.7898178	-104.207199	10/26/2015
146	APACHE CORPORATION	RANGER STATE #013	30-015-42680	Oil	AL	31	17S	28E	I	32.78816904	-104.207093	9/25/2014
147	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #024A	30-015-01644	Oil	P&A	31	17S	28E	I	32.788002	-104.2073669	6/15/2009
148	APACHE CORPORATION	RANGER STATE #011	30-015-42678	Oil	AL	31	17S	28E	I	32.78766135	-104.2087691	9/25/2014
149	Grizzly Operating, LLC	NORTHWEST ARTESIA UNIT #010	30-015-10833	Oil	Active	31	17S	28E	I	32.7888908	-104.2084503	10/26/2015
150	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #023A	30-015-01650	Oil	P&A	31	17S	28E	J	32.7879181	-104.2126617	9/17/2003

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
151	ROVER OPERATING, LLC	STATE FW #001	30-015-01642	Oil	Active	31	17S	28E	J	32.787899	-104.2138062	10/19/2016
152	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #022B	30-015-01651	Oil	P&A	31	17S	28E	K	32.7878685	-104.2158127	2/10/2010
153	COG OPERATING LLC	BIG GIRL 31 STATE #009H	30-015-40409	Oil	AL	31	17S	28E	L	32.7885017	-104.2225113	6/21/2012
154	ROVER OPERATING, LLC	RAMPO #002	30-015-01640	Oil	Active	31	17S	28E	L	32.7895737	-104.2225189	10/19/2016
155	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #021A	30-015-01648	Oil	P&A	31	17S	28E	L	32.7879639	-104.2098312	8/24/2002
156	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #021	30-015-01647	Oil	P&A	31	17S	28E	M	32.7850571	-104.2214203	7/23/2005
157	COG OPERATING LLC	BIG GIRL 31 STATE #011H	30-015-40410	Oil	AL	31	17S	28E	M	32.7848969	-104.2235336	6/21/2012
158	ROVER OPERATING, LLC	RAMPO #001	30-015-01639	Oil	Active	31	17S	28E	M	32.7859459	-104.222496	10/19/2016
159	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #022A	30-015-01646	Oil	P&A	31	17S	28E	N	32.7851295	-104.2167892	8/20/2009
160	ROVER OPERATING, LLC	STATE FV #001	30-015-10118	Oil	Active	31	17S	28E	N	32.7854271	-104.2164459	10/19/2016
161	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #023	30-015-01649	Oil	P&A	31	17S	28E	O	32.7851982	-104.2125549	1/14/2010
162	APACHE CORPORATION	EMPIRE ABO UNIT #419	30-015-39011	Oil	P&A	31	17S	28E	O	32.7866859	-104.2105637	2/13/2018
163	APACHE CORPORATION	EMPIRE ABO UNIT #408	30-015-39020	Oil	P&A	31	17S	28E	O	32.7837334	-104.2145538	1/18/2017
164	ROBERT OTIS A	PARKER ST #001	30-015-01653	Oil	P&A	31	17S	28E	O	32.7861176	-104.2116318	1/22/1942
165	NAVAJO REFINING COMPANY, L.L.C.	WDW #001	30-015-27592	SWD	Active	31	17S	28E	O	32.7851753	-104.213768	10/1/1999
166	APACHE CORPORATION	RANGER STATE #015	30-015-42682	Oil	AL	31	17S	28E	P	32.78413186	-104.2103167	9/25/2014
167	Grizzly Operating, LLC	NORTHWEST ARTESIA UNIT #011	30-015-20042	Oil	Active	31	17S	28E	P	32.786171	-104.2084122	10/26/2015
168	APACHE CORPORATION	EMPIRE ABO UNIT #401	30-015-39004	Oil	AL	31	17S	28E	P	32.7838287	-104.2104568	5/4/2011
169	APACHE CORPORATION	RANGER STATE #016	30-015-42806	Oil	AL	31	17S	28E	P	32.783659	-104.205909	11/20/2014
170	APACHE CORPORATION	EMPIRE ABO UNIT #024	30-015-01641	Oil	Active	31	17S	28E	P	32.7852631	-104.2083969	1/11/2011
171	Grizzly Operating, LLC	NW STATE #010	30-015-30760	Oil	Active	31	17S	28E	P	32.7854843	-104.2073212	10/26/2015
172	Grizzly Operating, LLC	ENRON STATE #002	30-015-31920	Oil	Active	32	17S	28E	D	32.7951546	-104.2031784	10/26/2015
173	Grizzly Operating, LLC	ENRON STATE #012	30-015-35050	Oil	Active	32	17S	28E	D	32.7969475	-104.2048035	10/26/2015
174	BEDINGFIELD JE	ASTON ST #001	30-015-01654	Oil	P&A	32	17S	28E	D	32.7969398	-104.2053528	7/12/1953
175	Grizzly Operating, LLC	ENRON STATE #018	30-015-40339	Oil	Active	32	17S	28E	D	32.7951279	-104.2053223	10/26/2015
176	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #025B	30-015-01671	Oil	P&A	32	17S	28E	E	32.7916069	-104.2031631	7/21/2008
177	APACHE CORPORATION	AA STATE #001	30-015-01657	Oil	Active	32	17S	28E	F	32.7916527	-104.1998978	10/28/2010
178	APACHE CORPORATION	AB STATE 647 #003	30-015-41501	Oil	Active	32	17S	28E	K	32.790081	-104.2009506	6/27/2013
179	APACHE CORPORATION	AB STATE 647 #001	30-015-39927	Oil	Active	32	17S	28E	K	32.7883835	-104.2005463	2/18/2013
180	APACHE CORPORATION	AB STATE 647 #008	30-015-41492	Oil	Active	32	17S	28E	K	32.7873802	-104.1987305	6/27/2013
181	SDX RESOURCES INC	NORTHWEST ARTESIA UNIT #008	30-015-10818	Oil	P&A	32	17S	28E	K	32.7899399	-104.1994705	11/6/2006
182	APACHE CORPORATION	EMPIRE ABO UNIT #026B	30-015-01661	Oil	TA	32	17S	28E	K	32.7881393	-104.1987686	1/11/2011
183	APACHE CORPORATION	AB STATE 647 #002	30-015-41500	Oil	Active	32	17S	28E	K	32.7900925	-104.1978607	6/27/2013
184	Grizzly Operating, LLC	NW STATE #005	30-015-30781	SWD	Active	32	17S	28E	K	32.7888145	-104.1993179	10/26/2015
185	Grizzly Operating, LLC	NW STATE #030	30-015-36989	Oil	Active	32	17S	28E	K	32.7880516	-104.2007217	10/26/2015
186	APACHE CORPORATION	AB STATE 647 #006	30-015-41503	Oil	Active	32	17S	28E	L	32.7882614	-104.204895	6/27/2013
187	APACHE CORPORATION	AB STATE 647 #005	30-015-41502	Oil	Active	32	17S	28E	L	32.7898483	-104.205246	6/27/2013
188	APACHE CORPORATION	EMPIRE ABO UNIT #025A	30-015-01662	Oil	P&A	32	17S	28E	L	32.7880707	-104.203064	5/16/2013
189	Grizzly Operating, LLC	NW STATE #029	30-015-36554	Oil	Active	32	17S	28E	L	32.7883759	-104.2045059	10/26/2015
190	APACHE CORPORATION	AB STATE 647 #007	30-015-41491	Oil	Active	32	17S	28E	L	32.7880669	-104.2032013	6/27/2013
191	APACHE CORPORATION	AB STATE 647 #004	30-015-41505	Oil	Active	32	17S	28E	L	32.7897301	-104.2024612	6/27/2013
192	LIME ROCK RESOURCES A, L.P.	NORTHWEST ARTESIA UNIT #009	30-015-10795	Oil	P&A	32	17S	28E	L	32.7898674	-104.2041702	5/28/2008
193	Grizzly Operating, LLC	NW STATE #006	30-015-30777	Oil	Active	32	17S	28E	L	32.7898827	-104.2030945	10/26/2015
194	APACHE CORPORATION	AB STATE 647 #012	30-015-41496	Oil	Active	32	17S	28E	M	32.7859993	-104.2051849	6/27/2013
195	APACHE CORPORATION	AB STATE 647 #013	30-015-41497	Oil	Active	32	17S	28E	M	32.7841034	-104.2050858	6/27/2013
196	BP AMERICA PRODUCTION COMPANY	EMPIRE ABO UNIT #025	30-015-01660	Oil	P&A	32	17S	28E	M	32.7853317	-104.2041016	6/30/2009
197	APACHE CORPORATION	AB STATE 647 #011	30-015-41495	Oil	Active	32	17S	28E	M	32.7860603	-104.2031326	6/27/2013
198	Grizzly Operating, LLC	NORTHWEST ARTESIA UNIT #012	30-015-20043	SWD	Active	32	17S	28E	M	32.7862434	-104.2037888	10/26/2015
199	Grizzly Operating, LLC	NW STATE #032	30-015-37058	Oil	Active	32	17S	28E	M	32.7844048	-104.205162	10/26/2015
200	Grizzly Operating, LLC	NW STATE #007	30-015-30685	Oil	Active	32	17S	28E	M	32.7862549	-104.2030411	10/26/2015

ID	Operator	Well Name	API	Well Type	Well Status	Section	Township	Range	Quarter	Lat	Long	Date Comp or Plug
201	APACHE CORPORATION	AB STATE 647 #014	30-015-41498	Oil	Active	32	17S	28E	M	32.7844467	-104.2026825	6/27/2013
202	APACHE CORPORATION	EMPIRE ABO UNIT #409	30-015-39007	Oil	AL	32	17S	28E	M	32.78368	-104.2058945	5/4/2011
203	APACHE CORPORATION	EMPIRE ABO UNIT #261	30-015-21539	Oil	P&A	32	17S	28E	N	32.7839661	-104.2016678	5/31/2017
204	APACHE CORPORATION	AB STATE 647 #015	30-015-41504	Oil	Active	32	17S	28E	N	32.7844734	-104.2008667	6/27/2013
205	APACHE CORPORATION	AB STATE 647 #010	30-015-41494	Oil	Active	32	17S	28E	N	32.7867012	-104.2008972	6/27/2013
206	Grizzly Operating, LLC	NW STATE #031	30-015-37057	Oil	Active	32	17S	28E	N	32.784481	-104.2005386	10/26/2015
207	APACHE CORPORATION	EMPIRE ABO UNIT #026A	30-015-01659	Oil	TA	32	17S	28E	N	32.7854004	-104.1998062	1/11/2011
208	APACHE CORPORATION	AB STATE 647 #016	30-015-41511	Oil	Active	32	17S	28E	N	32.7845116	-104.1985397	7/2/2013
209	APACHE CORPORATION	AB STATE 647 #009	30-015-41493	Oil	Active	32	17S	28E	N	32.7865829	-104.1980133	6/27/2013
210	SDX RESOURCES INC	NORTHWEST ARTESIA UNIT #013	30-015-10834	Oil	P&A	32	17S	28E	N	32.7863083	-104.1996536	11/1/2006
211	Grizzly Operating, LLC	NW STATE #008	30-015-30815	SWD	Active	32	17S	28E	N	32.7865868	-104.1993484	10/26/2015
212	APACHE CORPORATION	EMPIRE ABO UNIT #272	30-015-22009	Oil	TA	32	17S	28E	O	32.7845306	-104.1973724	1/11/2011

Attachment 4
Digital Data

Petrotek

Attachment 5
FESCO Injection Falloff Test Report

Petrotek

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

FLOWING GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	8/18/2020
Well:	Navajo Refining Waste Disposal Well No. 1	Location:	Eddy County, NM
Field:	Davonia	Status:	Injecting
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2" EUE	Gauge Type:	Electronic
	Elevation: 13 ft above GL	Gauge SN:	SP-242117
	Tubing: 4" Set at 7879 ft (Packer)	Gauge Range:	15000 psi
	Casing: 7" Set at 9004 ft (PBTD)	Gauge OD:	1.2500"
	Perfs: 7924 - 8188; 8220 - 8476 ft (MD		
	Datum: 8200 ft (MD)		

Depth			Pressure					
MD ft	TVD ft	Delta Depth ft	WHP psia	BHT °F	Gauge Pressure psia	Delta Pressure psi	Pressure Gradient psi / ft	Comments
0	0	0	1035	98.72	1032.03	0.00	0.0000	
1000	1000	1000		100.92	1453.27	421.24	0.4212	
2000	2000	1000		100.26	1875.58	422.31	0.4223	
3000	3000	1000		99.78	2304.93	429.35	0.4293	
4000	4000	1000		99.54	2731.93	427.00	0.4270	
5000	5000	1000		99.56	3156.99	425.06	0.4251	
6000	6000	1000		99.83	3578.95	421.96	0.4220	
7000	7000	1000		100.41	4004.51	425.56	0.4256	
7924	7924	924	1035	101.06	4400.29	395.78	0.4283	

BHT at Test Depth:	102.10 °F	Oil Level:	Injecting	Previous BHP:	U/A
Extrapolated BHP at Datum:	4518.00 psia	Water Level:	Injecting	BHP Change:	U/A
BHP Gradient at Datum :	0.4283 psi/ft	Csg Press:	110 psig		

Remarks: MIRU slickline. RIH with electronic gauges making injecting gradient stops to 7924 ft. Continued injection for 1 hr. SI well for 42 hr BHP Falloff Test.

Certified: FESCO, Ltd. - Ozona, Texas

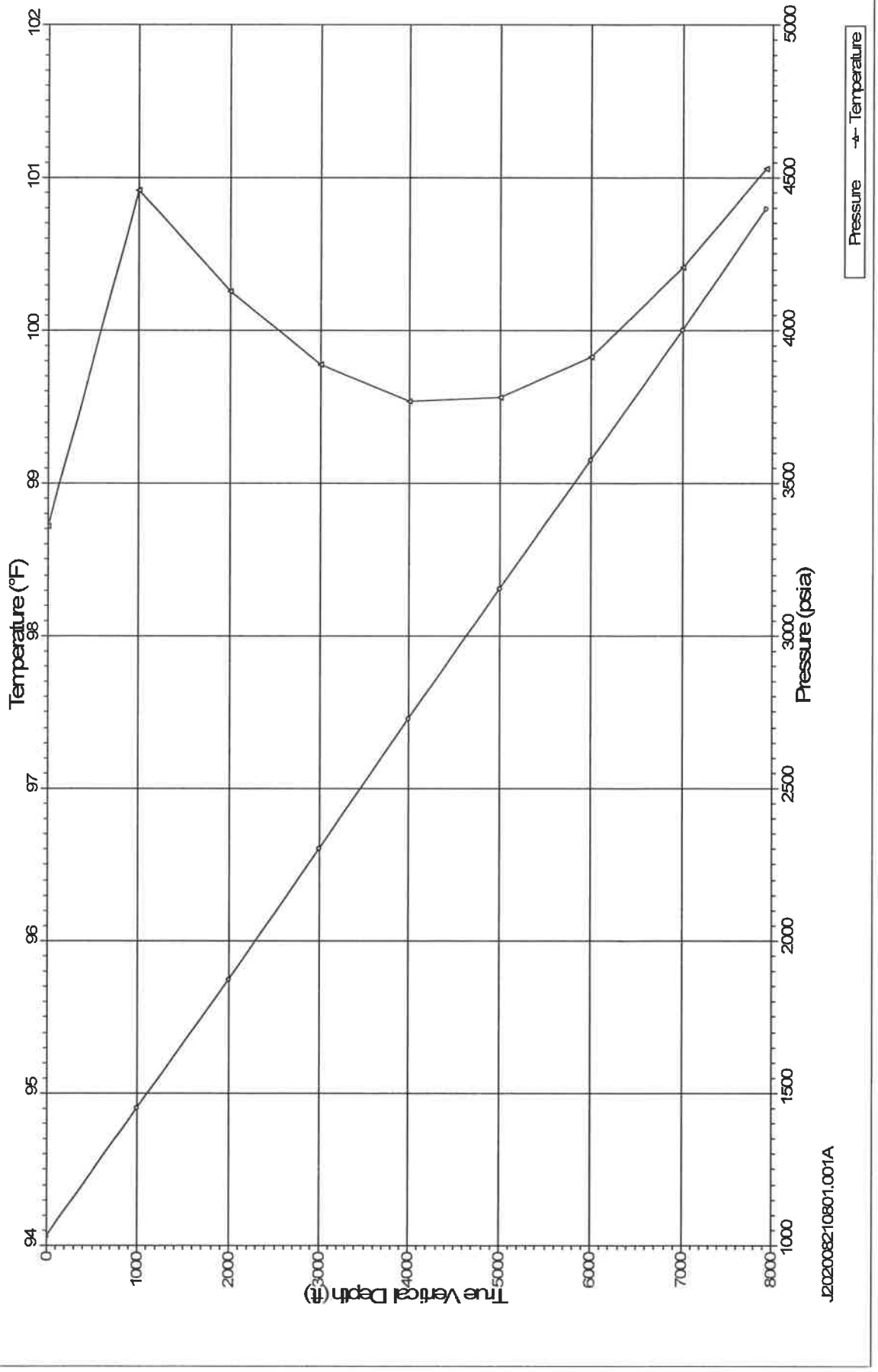
By: Tom Anderson
District Manager - (325) 392-3773

Job No.: J202008210801.001A

Petrotek Corporation

Flowing Gradient Plot

Well: Navajo Refining Waste Disposal Well No. 1 Gauge Type: Electronic
Field: Davonia Gauge Range: 15000 psi
Test Date: 08/18/2020 Gauge SN: SP-242117



FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

STATIC GRADIENT SURVEY

Company:	Petrotek Corporation	Test Date:	8/20/2020
Well:	Navajo Refining Waste Disposal Well No. 1	Location:	Eddy County, NM
Field:	Davonia	Status:	Shut in for 42 hrs
Formation:	Unavailable		

Well Data:	Wellhead Connection: 2" EUE	Gauge Type:	Electronic
	Elevation: 13 ft above GL	Gauge SN:	SP-242117
	Tubing: 4" Set at 7879 ft (Packer)	Gauge Range:	15000 psi
	Casing: 7" Set at 9004 ft (PBTD)	Gauge OD:	1.2500"
	Perfs: 7924 - 8188; 8220 - 8476 ft (MD		
	Datum: 8200 ft (MD)		

Depth			Pressure					
MD ft	TVD ft	Delta Depth ft	WHP psia	BHT °F	Gauge Pressure psia	Delta Pressure psi	Pressure Gradient psi / ft	Comments
0	0	0	710	85.39	710.79	0.00	0.0000	
1000	1000	1000		85.00	1145.02	434.23	0.4342	
2000	2000	1000		88.34	1580.17	435.15	0.4352	
3000	3000	1000		91.82	2015.22	435.05	0.4350	
4000	4000	1000		95.22	2451.01	435.79	0.4358	
5000	5000	1000		99.12	2886.56	435.55	0.4355	
6000	6000	1000		103.55	3321.70	435.14	0.4351	
7000	7000	1000		107.51	3757.71	436.01	0.4360	
7924	7924	924	710	102.37	4160.68	402.97	0.4361	

BHT at Test Depth:	102.10	°F	Oil Level: None	Previous BHP:	U/A
Extrapolated BHP at Datum:	4281.00	psia	Water Level: Surface	BHP Change:	U/A
BHP Gradient at Datum :	0.4361	psi/ft	Csg Press: 205 psig		

Remarks: POOH after 42 hr BHP Falloff Test making static gradient stops to surface. RIH to tag btm with wt bar. Slickline parted at 5815 ft. POOH. RDMO.

Certified: FESCO, Ltd. - Ozona, Texas

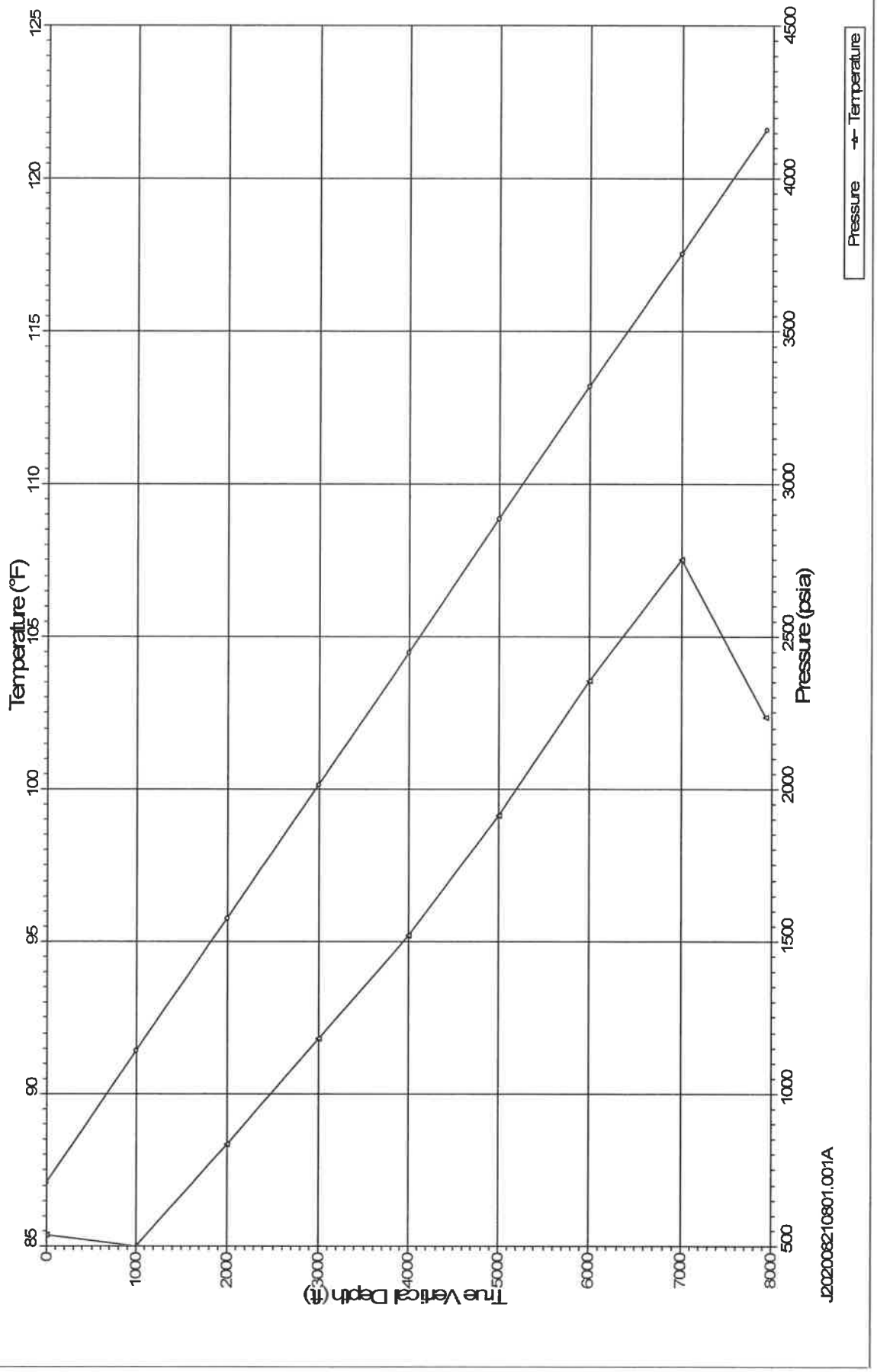
By: Tom Anderson
District Manager - (325) 392-3773

Job No.: J202008210801.001A

Static Gradient Plot

Petrotek Corporation

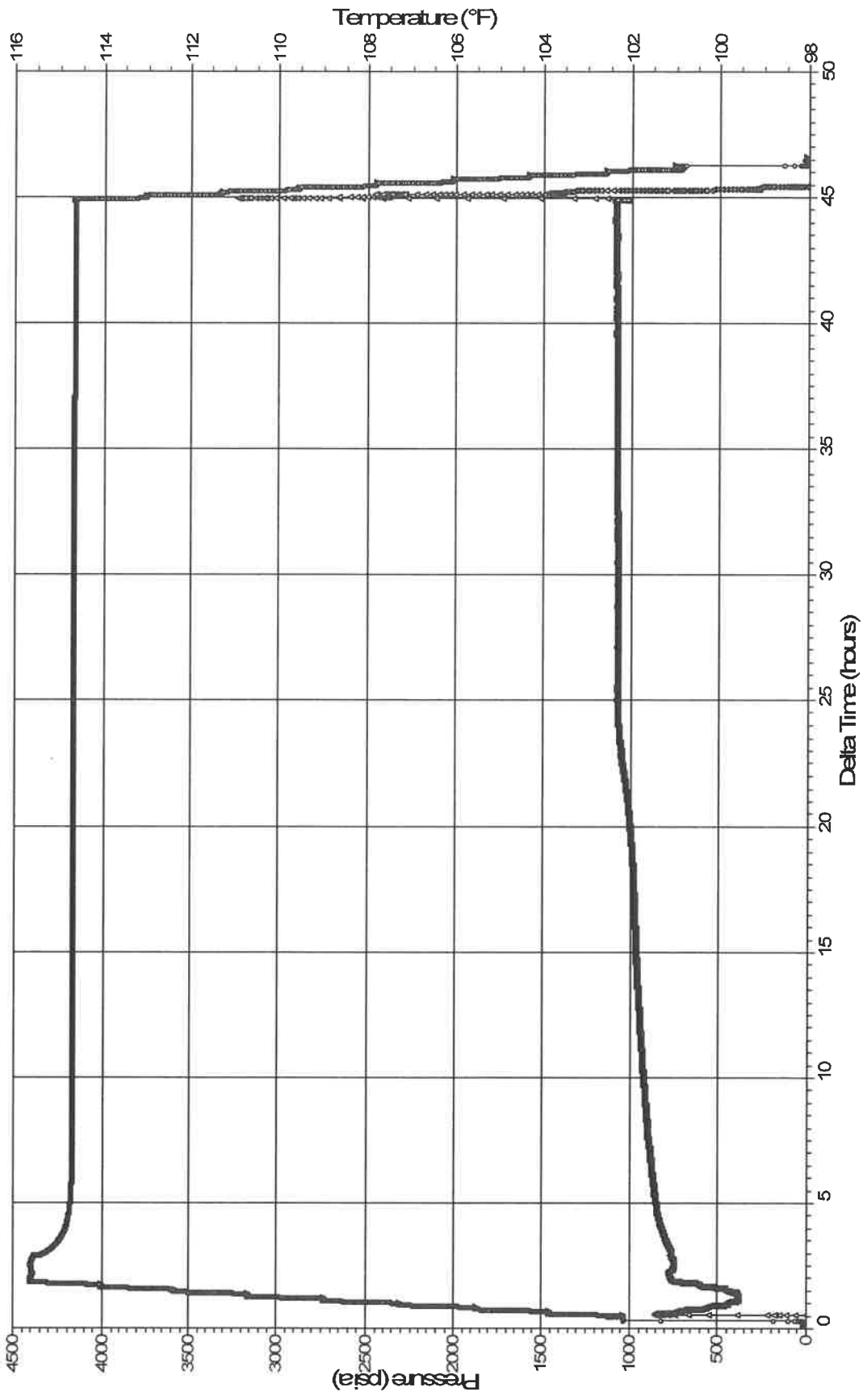
Well: Navajo Refining Waste Disposal Well No. 1 Gauge Type: Electronic
Field: Davonia Gauge Range: 15000 psi
Test Date: 08/20/2020 Gauge SN: SP-242117



Petrotek Corporation

Cartesian Plot

Well: Navajo Refining Waste Disposal Well No. 1 Gauge Type: Electronic
Field: Davonia Gauge Range: 15000 psi
Test Date: 08/18 - 08/20/2020 Gauge SN: SP-242117



FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	10:05:01	-2.89417		12.32		75.73	Powered up gauge.
08/18/20	10:10:00	-2.81111		11.11		81.69	
08/18/20	10:15:00	-2.72778		12.33		86.84	
08/18/20	10:20:00	-2.64444		12.55		89.33	
08/18/20	10:21:00	-2.62778		13.65		89.74	
08/18/20	10:22:00	-2.61111		15.55		90.13	
08/18/20	10:23:00	-2.59444		19.31		93.37	
08/18/20	10:24:00	-2.57778		30.98		94.79	
08/18/20	10:24:45	-2.56528		1031.30		94.23	Pressured up lubricator.
08/18/20	10:25:00	-2.56111		1031.16		94.36	
08/18/20	10:26:00	-2.54444		1030.95		94.68	
08/18/20	10:27:00	-2.52778		1030.69		95.00	
08/18/20	10:28:00	-2.51111		1030.58		95.28	
08/18/20	10:29:00	-2.49444		1030.50		95.50	
08/18/20	10:30:00	-2.47778		1029.26		95.96	
08/18/20	10:31:00	-2.46111		1032.27		96.77	
08/18/20	10:32:00	-2.44444		1032.09		96.76	
08/18/20	10:33:00	-2.42778		1032.22		96.95	
08/18/20	10:34:00	-2.41111		1085.16		97.24	
08/18/20	10:35:00	-2.39444		1031.49		97.24	
08/18/20	10:36:00	-2.37778		1030.52		98.45	
08/18/20	10:36:15	-2.37361		1032.18		98.74	Casing Pressure = 110 psig
08/18/20	10:36:20	-2.37222	1035	1032.03		98.72	RIH making injecting gradient stops.
08/18/20	10:37:00	-2.36111		1061.09		101.30	
08/18/20	10:38:00	-2.34444		1137.45		101.42	
08/18/20	10:39:00	-2.32778		1224.33		101.39	
08/18/20	10:40:00	-2.31111		1304.85		101.26	
08/18/20	10:41:00	-2.29444		1392.98		101.09	
08/18/20	10:41:40	-2.28333		1453.61		100.97	Arrived at 1000 ft stop.
08/18/20	10:42:00	-2.27778		1453.67		100.93	
08/18/20	10:43:00	-2.26111		1453.75		100.92	
08/18/20	10:44:00	-2.24444		1453.73		100.92	
08/18/20	10:45:00	-2.22778		1453.48		100.92	
08/18/20	10:46:00	-2.21111		1453.42		100.92	
08/18/20	10:46:40	-2.20000		1453.27		100.92	Left 1000 ft stop.
08/18/20	10:47:00	-2.19444		1470.97		100.91	
08/18/20	10:48:00	-2.17778		1555.97		100.79	
08/18/20	10:49:00	-2.16111		1643.20		100.65	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	10:50:00	-2.14444		1734.45		100.50	
08/18/20	10:51:00	-2.12778		1826.38		100.37	
08/18/20	10:51:35	-2.11806		1874.74		100.30	Arrived at 2000 ft stop.
08/18/20	10:52:00	-2.11111		1874.59		100.27	
08/18/20	10:53:00	-2.09444		1874.69		100.26	
08/18/20	10:54:00	-2.07778		1874.73		100.25	
08/18/20	10:55:00	-2.06111		1874.90		100.25	
08/18/20	10:56:00	-2.04444		1875.35		100.26	
08/18/20	10:56:25	-2.03750		1875.58		100.26	Left 2000 ft stop.
08/18/20	10:57:00	-2.02778		1912.73		100.24	
08/18/20	10:58:00	-2.01111		1995.42		100.13	
08/18/20	10:59:00	-1.99444		2079.02		100.04	
08/18/20	11:00:00	-1.97778		2160.19		99.94	
08/18/20	11:01:00	-1.96111		2252.27		99.84	
08/18/20	11:01:35	-1.95139		2301.03		99.79	Arrived at 3000 ft stop.
08/18/20	11:02:00	-1.94444		2301.31		99.77	
08/18/20	11:03:00	-1.92778		2302.31		99.76	
08/18/20	11:04:00	-1.91111		2303.40		99.76	
08/18/20	11:05:00	-1.89444		2304.24		99.77	
08/18/20	11:06:00	-1.87778		2304.59		99.77	
08/18/20	11:06:40	-1.86667		2304.93		99.78	Left 3000 ft stop.
08/18/20	11:07:00	-1.86111		2327.66		99.77	
08/18/20	11:08:00	-1.84444		2418.49		99.71	
08/18/20	11:09:00	-1.82778		2504.67		99.64	
08/18/20	11:10:00	-1.81111		2589.54		99.59	
08/18/20	11:11:00	-1.79444		2678.86		99.55	
08/18/20	11:11:45	-1.78194		2730.16		99.53	Arrived at 4000 ft stop.
08/18/20	11:12:00	-1.77778		2730.21		99.52	
08/18/20	11:13:00	-1.76111		2730.50		99.52	
08/18/20	11:14:00	-1.74444		2730.81		99.53	
08/18/20	11:15:00	-1.72778		2731.22		99.53	
08/18/20	11:16:00	-1.71111		2731.59		99.53	
08/18/20	11:16:50	-1.69722		2731.93		99.54	Left 4000 ft stop.
08/18/20	11:17:00	-1.69444		2733.54		99.54	
08/18/20	11:18:00	-1.67778		2807.01		99.53	
08/18/20	11:19:00	-1.66111		2889.94		99.52	
08/18/20	11:20:00	-1.64444		2973.76		99.51	
08/18/20	11:21:00	-1.62778		3059.59		99.52	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	11:22:00	-1.61111		3138.26		99.54	
08/18/20	11:22:20	-1.60556		3158.08		99.54	Arrived at 5000 ft stop.
08/18/20	11:23:00	-1.59444		3158.30		99.55	
08/18/20	11:24:00	-1.57778		3157.97		99.55	
08/18/20	11:25:00	-1.56111		3157.49		99.56	
08/18/20	11:26:00	-1.54444		3157.14		99.56	
08/18/20	11:27:00	-1.52778		3157.49		99.56	
08/18/20	11:27:40	-1.51667		3156.99		99.56	Left 5000 ft stop.
08/18/20	11:28:00	-1.51111		3155.02		99.56	
08/18/20	11:29:00	-1.49444		3204.23		99.57	
08/18/20	11:30:00	-1.47778		3276.15		99.60	
08/18/20	11:31:00	-1.46111		3355.39		99.64	
08/18/20	11:32:00	-1.44444		3441.00		99.69	
08/18/20	11:33:00	-1.42778		3528.38		99.75	
08/18/20	11:33:40	-1.41667		3579.79		99.80	Arrived at 6000 ft stop.
08/18/20	11:34:00	-1.41111		3579.73		99.82	
08/18/20	11:35:00	-1.39444		3579.57		99.83	
08/18/20	11:36:00	-1.37778		3579.38		99.83	
08/18/20	11:37:00	-1.36111		3579.24		99.83	
08/18/20	11:38:00	-1.34444		3579.15		99.83	
08/18/20	11:38:40	-1.33333		3578.95		99.83	Left 6000 ft stop.
08/18/20	11:39:00	-1.32778		3602.65		99.83	
08/18/20	11:40:00	-1.31111		3667.67		99.90	
08/18/20	11:41:00	-1.29444		3733.18		99.97	
08/18/20	11:42:00	-1.27778		3815.95		100.07	
08/18/20	11:43:00	-1.26111		3897.37		100.20	
08/18/20	11:44:00	-1.24444		3973.41		100.33	
08/18/20	11:44:25	-1.23750		4002.78		100.37	Arrived at 7000 ft stop.
08/18/20	11:45:00	-1.22778		4002.99		100.40	
08/18/20	11:46:00	-1.21111		3998.73		100.41	
08/18/20	11:47:00	-1.19444		3999.67		100.42	
08/18/20	11:48:00	-1.17778		4001.48		100.43	
08/18/20	11:49:00	-1.16111		4002.87		100.42	
08/18/20	11:50:00	-1.14444		4003.92		100.42	
08/18/20	11:50:45	-1.13194		4004.51		100.41	Left 7000 ft stop.
08/18/20	11:51:00	-1.12778		4024.46		100.42	
08/18/20	11:52:00	-1.11111		4094.51		100.51	
08/18/20	11:53:00	-1.09444		4157.32		100.61	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	08/18 - 08/20/2020
Well:	Navajo Refining Waste Disposal Well No. 1	Gauge Depth:	7924 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-242117
Perfs:	7924 - 8188; 8220 - 8476 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	11:54:00	-1.07778		4234.64		100.72	
08/18/20	11:55:00	-1.06111		4305.29		100.86	
08/18/20	11:56:00	-1.04444		4374.13		100.98	
08/18/20	11:56:35	-1.03472	1035	4403.57		101.03	Gauge at TD=7924 ft (MD).
08/18/20	11:57:00	-1.02778		4403.21		101.04	
08/18/20	11:58:00	-1.01111		4402.42		101.05	
08/18/20	11:59:00	-0.99444		4401.70		101.05	
08/18/20	12:00:00	-0.97778		4401.12		101.06	
08/18/20	12:01:00	-0.96111		4400.60		101.06	
08/18/20	12:01:40	-0.95000	1035	4400.29		101.06	7924 ft stop.
08/18/20	12:02:00	-0.94444		4400.14		101.06	
08/18/20	12:03:00	-0.92778		4399.76		101.06	
08/18/20	12:04:00	-0.91111		4399.38		101.07	
08/18/20	12:05:00	-0.89444		4399.04		101.07	
08/18/20	12:06:00	-0.87778		4396.26		101.07	
08/18/20	12:07:00	-0.86111		4395.73		101.08	
08/18/20	12:08:00	-0.84444		4395.77		101.09	
08/18/20	12:09:00	-0.82778		4395.88		101.09	
08/18/20	12:10:00	-0.81111		4394.18		101.09	
08/18/20	12:11:00	-0.79444		4392.60		101.09	
08/18/20	12:12:00	-0.77778		4391.55		101.10	
08/18/20	12:13:00	-0.76111		4390.82		101.11	
08/18/20	12:14:00	-0.74444		4390.25		101.11	
08/18/20	12:15:00	-0.72778		4389.72		101.12	
08/18/20	12:16:00	-0.71111		4389.26		101.12	
08/18/20	12:17:00	-0.69444		4389.05		101.12	
08/18/20	12:18:00	-0.67778		4388.88		101.12	
08/18/20	12:19:00	-0.66111		4389.52		101.12	
08/18/20	12:20:00	-0.64444		4390.94		101.12	
08/18/20	12:21:00	-0.62778		4392.62		101.11	
08/18/20	12:22:00	-0.61111		4394.09		101.10	
08/18/20	12:23:00	-0.59444		4395.39		101.08	
08/18/20	12:24:00	-0.57778		4396.36		101.06	
08/18/20	12:25:00	-0.56111		4396.60		101.05	
08/18/20	12:26:00	-0.54444		4396.61		101.04	
08/18/20	12:27:00	-0.52778		4396.63		101.03	
08/18/20	12:28:00	-0.51111		4396.69		101.02	
08/18/20	12:29:00	-0.49444		4396.70		101.02	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	12:30:00	-0.47778		4396.72		101.01	
08/18/20	12:31:00	-0.46111		4396.77		101.01	
08/18/20	12:32:00	-0.44444		4396.73		101.00	
08/18/20	12:33:00	-0.42778		4396.81		101.00	
08/18/20	12:34:00	-0.41111		4396.93		101.00	
08/18/20	12:35:00	-0.39444		4397.05		100.99	
08/18/20	12:36:00	-0.37778		4397.19		100.99	
08/18/20	12:37:00	-0.36111		4397.32		100.99	
08/18/20	12:38:00	-0.34444		4397.45		100.99	
08/18/20	12:39:00	-0.32778		4397.60		100.98	
08/18/20	12:40:00	-0.31111		4397.73		100.98	
08/18/20	12:41:00	-0.29444		4397.86		100.98	
08/18/20	12:42:00	-0.27778		4397.64		100.98	
08/18/20	12:43:00	-0.26111		4396.10		100.98	
08/18/20	12:44:00	-0.24444		4396.25		100.98	
08/18/20	12:45:00	-0.22778		4396.60		100.98	
08/18/20	12:46:00	-0.21111		4394.57		100.98	
08/18/20	12:47:00	-0.19444		4392.19		100.99	
08/18/20	12:48:00	-0.17778		4390.87		101.00	
08/18/20	12:49:00	-0.16111		4390.01		101.01	
08/18/20	12:50:00	-0.14444		4389.38		101.02	
08/18/20	12:51:00	-0.12778		4388.83		101.03	
08/18/20	12:52:00	-0.11111		4388.37		101.04	
08/18/20	12:53:00	-0.09444		4388.05		101.04	
08/18/20	12:54:00	-0.07778		4387.60		101.05	
08/18/20	12:55:00	-0.06111		4387.23		101.05	
08/18/20	12:56:00	-0.04444		4386.97		101.05	
08/18/20	12:57:00	-0.02778		4385.67		101.06	
08/18/20	12:58:00	-0.01111		4382.54		101.06	Final Injection Rate = Unavailable.
08/18/20	12:58:40	0.00000	1035	4380.71	0.00	101.06	Shut in well for 42 hr buildup test.
08/18/20	12:58:45	0.00139		4379.22	-1.49	101.06	
08/18/20	12:58:50	0.00278		4375.62	-5.09	101.07	
08/18/20	12:58:55	0.00417		4373.15	-7.56	101.07	
08/18/20	12:59:00	0.00556		4371.33	-9.38	101.07	
08/18/20	12:59:05	0.00694		4369.48	-11.23	101.07	
08/18/20	12:59:10	0.00833		4367.79	-12.92	101.07	
08/18/20	12:59:15	0.00972		4366.32	-14.39	101.07	
08/18/20	12:59:20	0.01111		4364.88	-15.83	101.06	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	12:59:25	0.01250		4363.52	-17.19	101.06	
08/18/20	12:59:30	0.01389		4362.24	-18.47	101.06	
08/18/20	12:59:35	0.01528		4361.00	-19.71	101.06	
08/18/20	12:59:40	0.01667		4359.84	-20.87	101.06	
08/18/20	12:59:45	0.01806		4358.71	-22.00	101.06	
08/18/20	12:59:50	0.01944		4357.61	-23.10	101.06	
08/18/20	12:59:55	0.02083		4356.55	-24.16	101.06	
08/18/20	13:00:00	0.02222		4355.52	-25.19	101.06	
08/18/20	13:00:05	0.02361		4354.51	-26.20	101.06	
08/18/20	13:00:10	0.02500		4353.53	-27.18	101.05	
08/18/20	13:00:15	0.02639		4352.56	-28.15	101.05	
08/18/20	13:00:20	0.02778		4351.63	-29.08	101.05	
08/18/20	13:00:25	0.02917		4350.70	-30.01	101.05	
08/18/20	13:00:30	0.03056		4349.79	-30.92	101.05	
08/18/20	13:00:35	0.03194		4348.90	-31.81	101.05	
08/18/20	13:00:40	0.03333		4348.02	-32.69	101.05	
08/18/20	13:00:45	0.03472		4347.15	-33.56	101.05	
08/18/20	13:00:50	0.03611		4346.30	-34.41	101.05	
08/18/20	13:00:55	0.03750		4345.47	-35.24	101.04	
08/18/20	13:01:00	0.03889		4344.65	-36.06	101.04	
08/18/20	13:01:05	0.04028		4343.87	-36.84	101.04	
08/18/20	13:01:10	0.04167		4343.13	-37.58	101.04	
08/18/20	13:01:15	0.04306		4342.49	-38.22	101.04	
08/18/20	13:01:25	0.04583		4341.27	-39.44	101.04	
08/18/20	13:01:30	0.04722		4340.70	-40.01	101.04	
08/18/20	13:01:35	0.04861		4340.09	-40.62	101.04	
08/18/20	13:01:45	0.05139		4339.60	-41.11	101.04	
08/18/20	13:01:50	0.05278		4339.36	-41.35	101.04	
08/18/20	13:01:55	0.05417		4339.87	-40.84	101.04	
08/18/20	13:02:05	0.05694		4339.15	-41.56	101.04	
08/18/20	13:02:15	0.05972		4338.92	-41.79	101.04	
08/18/20	13:02:20	0.06111		4338.45	-42.26	101.04	
08/18/20	13:02:30	0.06389		4337.97	-42.74	101.04	
08/18/20	13:02:40	0.06667		4337.33	-43.38	101.04	
08/18/20	13:02:50	0.06944		4336.45	-44.26	101.04	
08/18/20	13:02:55	0.07083		4336.20	-44.51	101.04	
08/18/20	13:03:05	0.07361		4335.32	-45.39	101.04	
08/18/20	13:03:20	0.07778		4334.18	-46.53	101.04	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	13:03:30	0.08056		4333.43	-47.28	101.04	
08/18/20	13:03:40	0.08333		4332.68	-48.03	101.04	
08/18/20	13:03:50	0.08611		4331.86	-48.85	101.04	
08/18/20	13:04:05	0.09028		4330.69	-50.02	101.04	
08/18/20	13:04:15	0.09306		4329.93	-50.78	101.04	
08/18/20	13:04:30	0.09722		4328.78	-51.93	101.04	
08/18/20	13:04:45	0.10139		4327.64	-53.07	101.05	
08/18/20	13:04:55	0.10417		4326.89	-53.82	101.05	
08/18/20	13:05:10	0.10833		4325.76	-54.95	101.05	
08/18/20	13:05:25	0.11250		4324.64	-56.07	101.05	
08/18/20	13:05:40	0.11667		4323.53	-57.18	101.05	
08/18/20	13:06:00	0.12222		4322.07	-58.64	101.05	
08/18/20	13:06:15	0.12639		4320.98	-59.73	101.05	
08/18/20	13:06:35	0.13194		4319.56	-61.15	101.05	
08/18/20	13:06:50	0.13611		4318.51	-62.20	101.05	
08/18/20	13:07:10	0.14167		4317.12	-63.59	101.05	
08/18/20	13:07:30	0.14722		4315.74	-64.97	101.05	
08/18/20	13:07:50	0.15278		4314.38	-66.33	101.05	
08/18/20	13:08:15	0.15972		4312.70	-68.01	101.06	
08/18/20	13:08:35	0.16528		4311.38	-69.33	101.06	
08/18/20	13:09:00	0.17222		4309.75	-70.96	101.06	
08/18/20	13:09:25	0.17917		4308.15	-72.56	101.06	
08/18/20	13:09:50	0.18611		4306.57	-74.14	101.06	
08/18/20	13:10:15	0.19306		4305.02	-75.69	101.06	
08/18/20	13:10:40	0.20000		4303.48	-77.23	101.07	
08/18/20	13:11:10	0.20833		4301.68	-79.03	101.07	
08/18/20	13:11:40	0.21667		4299.90	-80.81	101.07	
08/18/20	13:12:10	0.22500		4298.16	-82.55	101.07	
08/18/20	13:12:40	0.23333		4296.45	-84.26	101.08	
08/18/20	13:13:15	0.24306		4294.48	-86.23	101.08	
08/18/20	13:13:45	0.25139		4292.83	-87.88	101.08	
08/18/20	13:14:20	0.26111		4290.94	-89.77	101.08	
08/18/20	13:15:00	0.27222		4288.82	-91.89	101.08	
08/18/20	13:15:35	0.28194		4287.00	-93.71	101.09	
08/18/20	13:16:15	0.29306		4284.97	-95.74	101.09	
08/18/20	13:17:00	0.30556		4282.73	-97.98	101.09	
08/18/20	13:17:40	0.31667		4280.80	-99.91	101.10	
08/18/20	13:18:25	0.32917		4278.65	-102.06	101.10	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	08/18 - 08/20/2020
Well:	Navajo Refining Waste Disposal Well No. 1	Gauge Depth:	7924 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-242117
Perfs:	7924 - 8188; 8220 - 8476 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	13:19:10	0.34167		4276.57	-104.14	101.11	
08/18/20	13:20:00	0.35556		4274.30	-106.41	101.11	
08/18/20	13:20:50	0.36944		4272.09	-108.62	101.11	
08/18/20	13:21:40	0.38333		4269.93	-110.78	101.12	
08/18/20	13:22:35	0.39861		4267.63	-113.08	101.12	
08/18/20	13:23:30	0.41389		4265.38	-115.33	101.13	
08/18/20	13:24:30	0.43056		4262.99	-117.72	101.13	
08/18/20	13:25:30	0.44722		4260.67	-120.04	101.13	
08/18/20	13:26:35	0.46528		4258.23	-122.48	101.14	
08/18/20	13:27:40	0.48333		4255.87	-124.84	101.14	
08/18/20	13:28:45	0.50139		4253.56	-127.15	101.15	
08/18/20	13:29:55	0.52083		4251.18	-129.53	101.16	
08/18/20	13:31:10	0.54167		4248.69	-132.02	101.16	
08/18/20	13:32:25	0.56250		4246.28	-134.43	101.17	
08/18/20	13:33:45	0.58472		4243.82	-136.89	101.18	
08/18/20	13:35:10	0.60833		4241.28	-139.43	101.18	
08/18/20	13:36:35	0.63194		4238.85	-141.86	101.19	
08/18/20	13:38:05	0.65694		4236.35	-144.36	101.19	
08/18/20	13:39:35	0.68194		4233.96	-146.75	101.19	
08/18/20	13:41:10	0.70833		4231.53	-149.18	101.20	
08/18/20	13:42:50	0.73611		4229.08	-151.63	101.21	
08/18/20	13:44:35	0.76528		4226.61	-154.10	101.21	
08/18/20	13:46:20	0.79444		4224.25	-156.46	101.22	
08/18/20	13:48:15	0.82639		4221.77	-158.94	101.22	
08/18/20	13:50:10	0.85833		4219.41	-161.30	101.23	
08/18/20	13:52:10	0.89167		4217.06	-163.65	101.23	
08/18/20	13:54:15	0.92639		4214.73	-165.98	101.24	
08/18/20	13:56:25	0.96250		4212.43	-168.28	101.25	
08/18/20	13:58:45	1.00139		4210.07	-170.64	101.26	
08/18/20	14:01:05	1.04028		4207.85	-172.86	101.26	
08/18/20	14:03:30	1.08056		4205.66	-175.05	101.27	
08/18/20	14:06:00	1.12222		4203.53	-177.18	101.28	
08/18/20	14:08:40	1.16667		4201.38	-179.33	101.29	
08/18/20	14:11:25	1.21250		4199.29	-181.42	101.30	
08/18/20	14:14:15	1.25972		4197.27	-183.44	101.31	
08/18/20	14:17:10	1.30833		4195.33	-185.38	101.32	
08/18/20	14:20:15	1.35972		4193.40	-187.31	101.33	
08/18/20	14:23:30	1.41389		4191.51	-189.20	101.34	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	14:26:45	1.46806		4189.74	-190.97	101.34	
08/18/20	14:30:15	1.52639		4187.98	-192.73	101.35	
08/18/20	14:33:50	1.58611		4186.31	-194.40	101.36	
08/18/20	14:37:30	1.64722		4184.72	-195.99	101.37	
08/18/20	14:41:25	1.71250		4183.16	-197.55	101.37	
08/18/20	14:45:25	1.77917		4181.69	-199.02	101.38	
08/18/20	14:49:35	1.84861		4180.30	-200.41	101.39	
08/18/20	14:53:55	1.92083		4178.97	-201.74	101.39	
08/18/20	14:58:25	1.99583		4177.71	-203.00	101.39	
08/18/20	15:03:05	2.07361		4176.51	-204.20	101.40	
08/18/20	15:08:00	2.15556		4175.37	-205.34	101.41	
08/18/20	15:13:00	2.23889		4174.33	-206.38	101.41	
08/18/20	15:18:15	2.32639		4173.33	-207.38	101.42	
08/18/20	15:23:45	2.41806		4172.40	-208.31	101.42	
08/18/20	15:29:25	2.51250		4171.53	-209.18	101.44	
08/18/20	15:35:20	2.61111		4170.73	-209.98	101.44	
08/18/20	15:41:25	2.71250		4169.99	-210.72	101.45	
08/18/20	15:47:50	2.81944		4169.30	-211.41	101.46	
08/18/20	15:54:25	2.92917		4168.67	-212.04	101.47	
08/18/20	16:01:20	3.04444		4168.08	-212.63	101.48	
08/18/20	16:08:25	3.16250		4167.55	-213.16	101.48	
08/18/20	16:15:50	3.28611		4167.06	-213.65	101.49	
08/18/20	16:23:35	3.41528		4166.62	-214.09	101.50	
08/18/20	16:31:35	3.54861		4166.21	-214.50	101.50	
08/18/20	16:39:55	3.68750		4165.84	-214.87	101.51	
08/18/20	16:48:35	3.83194		4165.50	-215.21	101.52	
08/18/20	16:57:35	3.98194		4165.20	-215.51	101.53	
08/18/20	17:06:55	4.13750		4164.92	-215.79	101.54	
08/18/20	17:16:40	4.30000		4164.67	-216.04	101.55	
08/18/20	17:26:45	4.46806		4164.44	-216.27	101.56	
08/18/20	17:37:15	4.64306		4164.24	-216.47	101.57	
08/18/20	17:48:05	4.82361		4164.05	-216.66	101.58	
08/18/20	17:59:25	5.01250		4163.89	-216.82	101.59	
08/18/20	18:11:10	5.20833		4163.73	-216.98	101.60	
08/18/20	18:23:25	5.41250		4163.60	-217.11	101.61	
08/18/20	18:36:05	5.62361		4163.47	-217.24	101.63	
08/18/20	18:49:20	5.84444		4163.36	-217.35	101.63	
08/18/20	19:03:00	6.07222		4163.26	-217.45	101.64	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/18/20	19:17:15	6.30972		4163.17	-217.54	101.65	
08/18/20	19:32:05	6.55694		4163.09	-217.62	101.66	
08/18/20	19:47:30	6.81389		4163.01	-217.70	101.68	
08/18/20	20:03:30	7.08056		4162.94	-217.77	101.70	
08/18/20	20:20:05	7.35694		4162.88	-217.83	101.71	
08/18/20	20:37:20	7.64444		4162.82	-217.89	101.72	
08/18/20	20:55:20	7.94444		4162.77	-217.94	101.73	
08/18/20	21:14:00	8.25556		4162.72	-217.99	101.74	
08/18/20	21:33:20	8.57778		4162.68	-218.03	101.75	
08/18/20	21:53:30	8.91389		4162.64	-218.07	101.77	
08/18/20	22:14:25	9.26250		4162.59	-218.12	101.78	
08/18/20	22:36:10	9.62500		4162.55	-218.16	101.79	
08/18/20	22:58:45	10.00139		4162.51	-218.20	101.80	
08/18/20	23:22:10	10.39167		4162.47	-218.24	101.81	
08/18/20	23:46:35	10.79861		4162.42	-218.29	101.83	
08/19/20	00:11:55	11.22083		4162.37	-218.34	101.84	
08/19/20	00:38:15	11.65972		4162.33	-218.38	101.86	
08/19/20	01:05:40	12.11667		4162.28	-218.43	101.87	
08/19/20	01:34:05	12.59028		4162.25	-218.46	101.88	
08/19/20	02:03:40	13.08333		4162.21	-218.50	101.89	
08/19/20	02:34:20	13.59444		4162.18	-218.53	101.89	
08/19/20	03:06:15	14.12639		4162.16	-218.55	101.91	
08/19/20	03:39:25	14.67917		4162.14	-218.57	101.92	
08/19/20	04:13:50	15.25278		4162.13	-218.58	101.94	
08/19/20	04:49:40	15.85000		4162.11	-218.60	101.95	
08/19/20	05:26:50	16.46944		4162.10	-218.61	101.98	
08/19/20	06:05:30	17.11389		4162.08	-218.63	102.01	
08/19/20	06:45:40	17.78333		4162.06	-218.65	102.04	
08/19/20	07:27:25	18.47917		4162.02	-218.69	102.09	
08/19/20	08:10:50	19.20278		4161.99	-218.72	102.15	
08/19/20	08:55:55	19.95417		4161.95	-218.76	102.22	
08/19/20	09:42:45	20.73472		4161.90	-218.81	102.27	
08/19/20	10:31:25	21.54583		4161.85	-218.86	102.29	
08/19/20	11:22:00	22.38889		4161.79	-218.92	102.30	
08/19/20	12:14:30	23.26389		4161.72	-218.99	102.28	
08/19/20	13:09:10	24.17500		4161.65	-219.06	102.30	
08/19/20	14:05:50	25.11944		4161.60	-219.11	102.30	
08/19/20	15:04:50	26.10278		4161.56	-219.15	102.28	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	08/18 - 08/20/2020
Well:	Navajo Refining Waste Disposal Well No. 1	Gauge Depth:	7924 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-242117
Perfs:	7924 - 8188; 8220 - 8476 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/19/20	16:06:05	27.12361		4161.53	-219.18	102.30	
08/19/20	17:09:45	28.18472		4161.52	-219.19	102.30	
08/19/20	18:15:55	29.28750		4161.48	-219.23	102.31	
08/19/20	19:24:40	30.43333		4161.44	-219.27	102.32	
08/19/20	20:36:05	31.62361		4161.38	-219.33	102.31	
08/19/20	21:50:20	32.86111		4161.28	-219.43	102.31	
08/19/20	23:07:30	34.14722		4161.16	-219.55	102.32	
08/20/20	00:27:40	35.48333		4161.05	-219.66	102.33	
08/20/20	01:50:55	36.87083		4160.93	-219.78	102.33	
08/20/20	03:17:30	38.31389		4160.84	-219.87	102.33	
08/20/20	04:47:25	39.81250		4160.78	-219.93	102.36	
08/20/20	06:20:50	41.36944		4160.72	-219.99	102.37	
08/20/20	06:59:30	42.01389	710	4160.68	-220.03	102.37	Ended BHP Falloff Test.
08/20/20	06:59:35	42.01528		4162.26		102.37	
08/20/20	06:59:40	42.01667		4165.21		102.36	
08/20/20	06:59:45	42.01806		4165.04		102.29	
08/20/20	06:59:50	42.01944		4164.87		102.22	
08/20/20	06:59:55	42.02083		4164.72		102.17	
08/20/20	07:00:00	42.02222		4164.60		102.14	
08/20/20	07:00:05	42.02361		4164.54		102.11	POOH making static gradient stops.
08/20/20	07:01:00	42.03889		4112.98		105.78	
08/20/20	07:02:00	42.05556		4020.03		110.87	
08/20/20	07:03:00	42.07222		3891.90		110.08	
08/20/20	07:04:00	42.08889		3778.34		108.13	
08/20/20	07:04:30	42.09722		3757.79		107.67	Arrived at 7000 ft stop.
08/20/20	07:05:00	42.10556		3757.47		107.56	
08/20/20	07:06:00	42.12222		3757.51		107.53	
08/20/20	07:07:00	42.13889		3757.52		107.52	
08/20/20	07:08:00	42.15556		3757.52		107.52	
08/20/20	07:09:00	42.17222		3757.51		107.51	
08/20/20	07:10:00	42.18889		3757.51		107.51	
08/20/20	07:10:05	42.19028		3757.71		107.51	Left 7000 ft stop.
08/20/20	07:11:00	42.20556		3636.91		107.61	
08/20/20	07:12:00	42.22222		3512.32		106.27	
08/20/20	07:13:00	42.23889		3378.61		104.42	
08/20/20	07:13:45	42.25139		3324.94		103.75	Arrived at 6000 ft stop.
08/20/20	07:14:00	42.25556		3322.35		103.65	
08/20/20	07:15:00	42.27222		3321.82		103.59	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/20/20	07:16:00	42.28889		3321.74		103.58	
08/20/20	07:17:00	42.30556		3321.73		103.56	
08/20/20	07:18:00	42.32222		3321.72		103.56	
08/20/20	07:19:00	42.33889		3321.70		103.55	
08/20/20	07:19:05	42.34028		3321.70		103.55	Left 6000 ft stop.
08/20/20	07:20:00	42.35556		3258.66		103.14	
08/20/20	07:21:00	42.37222		3151.80		101.96	
08/20/20	07:22:00	42.38889		3053.71		100.97	
08/20/20	07:23:00	42.40556		2948.41		100.06	
08/20/20	07:23:40	42.41667		2890.35		99.41	Arrived at 5000 ft stop.
08/20/20	07:24:00	42.42222		2887.35		99.22	
08/20/20	07:25:00	42.43889		2886.75		99.14	
08/20/20	07:26:00	42.45556		2886.64		99.14	
08/20/20	07:27:00	42.47222		2886.59		99.13	
08/20/20	07:28:00	42.48889		2886.57		99.12	
08/20/20	07:29:00	42.50556		2886.56		99.12	
08/20/20	07:29:05	42.50694		2886.56		99.12	Left 5000 ft stop.
08/20/20	07:30:00	42.52222		2800.03		98.49	
08/20/20	07:31:00	42.53889		2691.79		97.57	
08/20/20	07:32:00	42.55556		2571.75		96.50	
08/20/20	07:33:00	42.57222		2463.93		95.62	
08/20/20	07:33:15	42.57639		2452.09		95.41	Arrived at 4000 ft stop.
08/20/20	07:34:00	42.58889		2450.90		95.25	
08/20/20	07:35:00	42.60556		2450.98		95.24	
08/20/20	07:36:00	42.62222		2451.00		95.24	
08/20/20	07:37:00	42.63889		2451.01		95.23	
08/20/20	07:38:00	42.65556		2451.01		95.23	
08/20/20	07:38:50	42.66944		2451.01		95.22	Left 4000 ft stop.
08/20/20	07:39:00	42.67222		2434.39		95.21	
08/20/20	07:40:00	42.68889		2318.11		94.33	
08/20/20	07:41:00	42.70556		2190.42		93.34	
08/20/20	07:42:00	42.72222		2079.95		92.38	
08/20/20	07:43:00	42.73889		2020.57		91.96	
08/20/20	07:43:10	42.74167		2015.83		91.90	Arrived at 3000 ft stop.
08/20/20	07:44:00	42.75556		2015.41		91.84	
08/20/20	07:45:00	42.77222		2015.37		91.83	
08/20/20	07:46:00	42.78889		2015.35		91.83	
08/20/20	07:47:00	42.80556		2015.33		91.83	

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company:	Petrotek Corporation	Test Date:	08/18 - 08/20/2020
Well:	Navajo Refining Waste Disposal Well No. 1	Gauge Depth:	7924 ft
Field:	Davonia	Gauge Type:	Electronic
Location:	Eddy County, NM	Gauge SN:	SP-242117
Perfs:	7924 - 8188; 8220 - 8476 ft (MD)	Gauge Range:	15000 psi
Formation:	Unavailable	Gauge OD:	1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/20/20	07:48:00	42.82222		2015.32		91.82	
08/20/20	07:48:35	42.83194		2015.22		91.82	Left 3000 ft stop.
08/20/20	07:49:00	42.83889		1981.55		91.76	
08/20/20	07:50:00	42.85556		1894.53		91.28	
08/20/20	07:51:00	42.87222		1813.55		90.72	
08/20/20	07:52:00	42.88889		1707.40		89.46	
08/20/20	07:53:00	42.90556		1591.97		88.51	
08/20/20	07:53:25	42.91250		1580.56		88.42	Arrived at 2000 ft stop.
08/20/20	07:54:00	42.92222		1580.30		88.36	
08/20/20	07:55:00	42.93889		1580.30		88.35	
08/20/20	07:56:00	42.95556		1580.30		88.35	
08/20/20	07:57:00	42.97222		1580.29		88.35	
08/20/20	07:58:00	42.98889		1580.28		88.34	
08/20/20	07:58:30	42.99722		1580.17		88.34	Left 2000 ft stop.
08/20/20	07:59:00	43.00556		1535.98		88.33	
08/20/20	08:00:00	43.02222		1443.75		87.75	
08/20/20	08:01:00	43.03889		1333.19		86.98	
08/20/20	08:02:00	43.05556		1240.54		86.22	
08/20/20	08:03:00	43.07222		1175.38		85.51	
08/20/20	08:03:40	43.08333		1144.89		85.04	Arrived at 1000 ft stop.
08/20/20	08:04:00	43.08889		1145.15		85.03	
08/20/20	08:05:00	43.10556		1145.07		85.02	
08/20/20	08:06:00	43.12222		1145.04		85.01	
08/20/20	08:07:00	43.13889		1145.03		85.01	
08/20/20	08:08:00	43.15556		1145.03		85.00	
08/20/20	08:08:50	43.16944		1145.02		85.00	Left 1000 ft stop.
08/20/20	08:09:00	43.17222		1137.15		85.01	
08/20/20	08:10:00	43.18889		1059.74		84.68	
08/20/20	08:11:00	43.20556		992.56		84.24	
08/20/20	08:12:00	43.22222		872.61		85.17	
08/20/20	08:13:00	43.23889		752.19		88.16	
08/20/20	08:13:40	43.25000		716.16		88.67	Gauge at surface.
08/20/20	08:14:00	43.25556		716.98		87.64	
08/20/20	08:15:00	43.27222		711.61		86.03	
08/20/20	08:16:00	43.28889		711.24		85.66	
08/20/20	08:17:00	43.30556		711.14		85.55	
08/20/20	08:18:00	43.32222		711.18		85.45	
08/20/20	08:18:30	43.33056	710	710.79		85.39	Surface stop.

FESCO, Ltd.

1000 Fesco Ave. - Alice, Texas 78332

RESERVOIR PRESSURE FALLOFF TEST

Company: Petrotek Corporation
Well: Navajo Refining Waste Disposal Well No. 1
Field: Davonia
Location: Eddy County, NM
Perfs: 7924 - 8188; 8220 - 8476 ft (MD)
Formation: Unavailable

Test Date: 08/18 - 08/20/2020
Gauge Depth: 7924 ft
Gauge Type: Electronic
Gauge SN: SP-242117
Gauge Range: 15000 psi
Gauge OD: 1.2500"

Test Date mm/dd/yy	Real Time hh:mm:ss	Delta Time hours	WHP psia	BHP psia	Delta BHP psi	Temp. °F	Comments
08/20/20	08:19:00	43.33889		703.22		83.88	
08/20/20	08:20:00	43.35556		702.97		84.87	
08/20/20	08:20:15	43.35972		702.62		84.89	Shut in crown valve.
08/20/20	08:21:00	43.37222		754.14		85.01	
08/20/20	08:21:35	43.38194		754.19		85.07	Pressured down lubricator.
08/20/20	08:22:00	43.38889		37.82		85.17	
08/20/20	08:22:50	43.40278		10.88		85.41	Test complete.
08/20/20	08:25:00	43.43889		10.81		85.57	
08/20/20	08:30:00	43.52222		10.80		86.41	
08/20/20	08:35:00	43.60556		11.22		87.23	
08/20/20	08:40:00	43.68889		12.31		82.83	
08/20/20	08:41:00	43.70556		12.33		82.47	Powered down gauge.

Remarks: MIRU slickline. RIH with electronic gauges making injecting gradient stops to 7924 ft. Continued injection for 1 hr. SI well for 42 hr BHP Falloff Test. POOH making static gradient stops to surface. RIH to tag btm. Wire parted at 5815 ft. POOH. RDMO.

Certified: FESCO, Ltd. - Ozona, Texas

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

Job No.: J202008210801.001A

Attachment 6
Falloff Test Summary

Petrotek

Attachment 6 - Falloff Test Summary

Input Values

Thickness =	175	feet
Porosity =	10	percent
Viscosity =	0.63	cP
cf =	8.2000E-06	1/psi
ct =	10.900E-06	1psi
Bw =	1.00	bbl/stb
rw=	0.3646	feet
Pwf =	4,380.20	psia
qfinal =	3,894.9	bwpd
	113.6	gpm

Horner Analysis Outputs

Tranmissibility =	202,150	md-ft
Mobility =	320,873	md-ft/cp
Permeability =	1,155.0	md
Skin =	117.9	
DeltaP Skin =	202.2	psi
Start Time of Line =	9.0181	hr
End Time of Line =	33.1528	hr
P1hour, line =	4,164.45	psia
P1hr, raw =	4,209.76	psia
P end of radial =	4,161.17	psia
P* =	4,153.34	psia

Model Analysis Outputs

Model Type: IARF

Tranmissibility =	207,126	md-ft
Mobility =	328,771	md-ft/cp
Permeability =	1,184	md
Total Skin =	108.2	
Modeled Pi =	4,157.39	psia
Wellbore Storage	0.4132	bbl/psi

Petrotek

Attachment 7
Annulus Pressure Gauge Certification

Petrotek

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

CERTIFIED CALIBRATION

CUSTOMER Petrotek ORDER NO. _____

ITEM Digital Gauge RANGE 0-3000PSIG ITEM NO. 5035-1

TRUE VALUE	INDICATED VALUE	
PSIG	INCREASING READINGS	DECREASING READINGS
0.00	0	0
300.00	299.4	299.4
600.00	599.3	599.3
900.00	899.1	899.4
1200.00	1198.9	1199.3
1500.00	1498.8	1499.0
1800.00	1798.6	1798.8
2100.00	2098.2	2098.4
2400.00	2397.8	2398.0
2700.00	2697.7	2697.7
3000.00	2997.6	2997.6

Tested On: Deadweight Tester S/N# 1GA4474

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

Tested By: BMZ Date 17 January 2020

Remarks:

Fluke	700G29	SN 2643157
Accuracy is +/-	.25	% of Full Scale or Better
Test Conditions	70 °F; 612	mmHg Atm. Pressure

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

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

CONDITIONS

Action 13257

CONDITIONS OF APPROVAL

Operator:	OGRID:	Action Number:	Action Type:
NAVAJO REFINING COMPANY, L.L.C P.O. Box 159 Artesia, NM88211	15694	13257	C-103Z

OCD Reviewer	Condition
ksimmons	None