



STATE LPG STORAGE NO. 3
LEA COUNTY, NEW MEXICO
MARATHON PETROLEUM COMPANY, LLC

MECHANICAL INTEGRITY
TEST REPORT

API NO. 30-025-35956; SERIAL NO. 303729
PROJECT NO. 192025AS

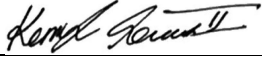
DECEMBER 07 - DECEMBER 09

WSP USA
SUITE 200
16200 PARK ROW
HOUSTON, TX 77084

TEL.: +1 281 589-5900
FAX: +1 281 759-5164
WSP.COM

SIGNATURES

PREPARED BY



Kenyon Isaacs
MIT Engineer

REVIEWED BY



Nils Skaug
Sr. Vice President
Texas District Business Line Leader, Energy



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1 INTRODUCTION

Marathon Petroleum Company, LLC contracted WSP USA, Inc. (WSP) to conduct a Mechanical Integrity Test (MIT) on State LPG Storage No. 3, located at their Jal Station facility in Lea County, New Mexico. WSP prepared an MIT procedure, submitted it to Marathon Petroleum Company, LLC for approval, and conducted a nitrogen-brine interface test on State LPG Storage No. 3.

The following personnel participated in the MIT.

Table 1 Test Participants

Name	Company
Sam Flessner	Marathon Petroleum Company, LLC
Gabriel Holmes	WSP
Adrian Villarreal	WSP
Wireline Services	Sonic Surveys
Nitrogen Services	Cudd Pressure Control Inc.

The purpose of an MIT is to test the mechanical integrity of an underground storage cavern system for its suitability to store hydrocarbons. The test procedure consisted of the following basic steps: Pressuring the cavern system with brine to a given test pressure; injecting nitrogen into the well until the nitrogen-brine interface was below the cemented production casing shoe; recording the nitrogen and brine wellhead pressures, well temperature, and nitrogen-brine interface level throughout the test period.

This report presents a description of the daily activities, a summary of the MIT data, and a conclusion of the test results. Detailed information pertaining to the tested system and data obtained during the MIT are presented in Appendices A through H.

2 DAILY ACTIVITY

December 07, 2022

The wireline unit, nitrogen-pumping unit, and pressure recording equipment were rigged up to the wellhead. The Base Temperature and Density logs were completed. The make, model and serial number of the pressure recorder and flow turbine used in this test are given in Table 2.

Table 2 Test Equipment

Device	Make / Model	Serial Number
Pressure Recorder	CalScan / Hawk 9000	62684
Flow Turbine	Hoffer Flowmeter	143951

The nitrogen-brine interface and the pressure data were monitored and recorded during the nitrogen injection period. Nitrogen was injected into the annulus until the nitrogen-brine interface was slightly above the casing shoe. The injection was stopped, and the well was shut-in for a "pipe test". This test period is used to check for surface leaks or possible casing problems prior to completing the nitrogen injection. The interface was logged, and pressures were noted at the beginning and end of the test period. There was no evidence of leaks in the casing and wellhead. The pipe test results are summarized in Table 3.

Table 3 Pipe Test Summary

Parameter	Test Start	Test End	Change
Date	December 07, 2022	December 07, 2022	-
Time (hours)	12:35	13:35	1.0
Wellhead Tubing Pressure (psig)	200.2	198.2	-2.0
Wellhead Annulus Pressure (psig)	1,000.6	999.0	-1.6
Nitrogen-Brine Interface Depth (ft)	1,654.00	1,654.50	0.5

Nitrogen injection resumed and the interface was monitored as it moved down-hole past the casing shoe. Brine was bled off the tubing while nitrogen was injected.

The borehole volume versus depth is calculated from the metered volume of nitrogen injected, combined with the corresponding interface location, wellhead pressure, and nitrogen temperature. A correction factor is applied to the metered nitrogen volume, as needed. The results are shown in Table 4.

Table 4 Borehole Calculations

Interface Depth	N ₂ Volume	Annular Pressure	Incremental Volume	Unit Volume	Diameter
(ft)	(SCF)	(psig)	(bbls)	(bbls/ft)	(ft)
1,665.50	17,754	1,004.6	45.5	0.0	0.5
1,669.25	33,930	1,006.9	41.2	11.0	8.9
1,671.00	47,486	1,014.9	33.7	19.3	11.7
1,672.50	59,828	1,024.3	29.9	20.0	11.9
1,674.00	73,850	1,033.6	33.6	22.4	12.7
1,675.25	85,765	1,040.3	28.3	22.7	12.7
1,677.50	105,170	1,062.5	42.7	19.0	11.7
1,678.50	116,648	1,100.4	18.4	18.4	11.5
1,679.75	129,361	1,139.0	19.8	15.9	10.7
1,681.00	141,619	1,173.9	18.5	14.8	10.3
1,682.75	154,816	1,209.2	19.4	11.1	8.9
1,683.25	157,296	1,212.6	4.4	8.8	7.9
1,688.75	181,337	1212.3	51.3	9.3	8.2

A summary of the post-injection measurements is given in Table 5.

Table 5 Post Injection Summary

Parameter	Value
Casing Shoe Depth (ft)	1,665.5
Total Volume of Nitrogen Injected (SCF)*	174,166
Depth of Interface After Injection (ft)	1,688.75
Tubing Pressure After Injection (psig)	401.6
Annulus Pressure After Injection (psig)	1,212.4

*Uncorrected N₂ Volume

December 08, 2022

Monitored an increase in the tubing pressure indicating nitrogen migrated into the tubing. The test period began after the down-hole temperature and interface logs were run. The nitrogen and brine pressures were recorded. The well was shut-in for the test duration.

December 09, 2022

The down-hole temperature and interface logs were run again, ending the test period. A summary of the test period is given in Table 6.

Table 6 Test Summary

Parameter	Test Start	Test End	Change
Date (month/day/year)	December 08, 2022	December 09, 2022	-
Time (hours)	8:58	9:04	24.1
Wellhead Tubing Pressure (psig)	388.6	418.9	30.3
Wellhead Annulus Pressure (psig)	1,199.1	1,194.1	-5.0
Nitrogen-Brine Interface Depth (ft)	1,688.75	1,688.75	0.00
Average Temperature in N ₂ Column (°F)	74.2	73.7	-0.5
Average N ₂ Compressibility Factor	1.00	1.00	0.00
Volume of N ₂ (SCF)	183,295	182,633	-662
Pressure Gradient at Casing Shoe (psi/ft)	0.76	0.76	0.00

3 TEST RESULTS

The change of nitrogen volume (at downhole conditions) during the test period was calculated using well geometry, measured temperature, pressure, and interface location. The change of nitrogen volume was linearly extrapolated to determine an annual calculated leak rate (CLR). A minimum detectable leak rate (MDLR) was calculated as described in Appendix A.

The CLR and MDLR values are expressed in barrels of nitrogen per year at the average temperature and pressure in the nitrogen column. When the CLR is less than the MDLR, no leak has been detected by the test. If the CLR is greater than the MDLR, further investigation is required, as the CLR cannot be explained by the limitations of the test method and equipment. Summaries of the mass balance and MDLR are given in Tables 7 and 8, respectively.

Table 7 CLR Summary

CLR Parameter	Value
Average Pressure in N ₂ Column (psig)	1,234.1
Average Wellbore Temperature in N ₂ Column (°F)	73.9
Average N ₂ Compressibility Factor	1.00
Change of N ₂ (cubic ft/Test Period)	-8.02
Change of N ₂ Volume (bbls/Test Period)	-1.43
CLR (bbls/yr)	519

Table 8 MDLR Summary

MDLR Parameter	Value
Interface Tool Resolution (ft)	0.25
Test Duration (hours)	24.1
Unit Volume at Nitrogen-Brine Interface (bbls/ft)	9.3
MDLR (± bbls/yr)	849

4 CONCLUSIONS

A successful MIT has been completed. The evaluation of the test results includes a comparison of the CLR to the MDLR along with an assessment of the nitrogen temperature stabilization, well pressure trends and interface movements. The nitrogen migrating into the tubing was determined to not affect the mechanical integrity of the cavern. This occurrence is not unusual with drill pipe, it was present in the previous MIT, and it does not affect cavern operations. The test was considered successful because:

- Magnitude of the CLR was less than the MDLR
- Measured borehole temperature changes were small
- Measured wellhead pressures were stable
- The nitrogen-brine interface did not move

Based on these criteria and the guidelines set forth by the RRC, it is the opinion of WSP that the storage system demonstrated the mechanical integrity required for hydrocarbon storage at the time of the test

APPENDIX

A. TEST METHOD AND DOCUMENTS

MECHANICAL INTEGRITY TEST PROGRAM USING NITROGEN/BRINE INTERFACE METHOD

NITROGEN-BRINE INTERFACE METHOD

	MECHANICAL INTEGRITY TEST PROGRAM USING NITROGEN/BRINE INTERFACE METHOD	Project Number 192025AS
	Marathon Petroleum Company, LLC State LPG Storage No. 3 API NO. 30-025-35956 LEA COUNTY, NEW MEXICO	As of Date 10/18/2022
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1.0 INTRODUCTION

The purpose of the Mechanical Integrity Test (MIT) program is to test the mechanical integrity of the underground storage cavern to determine the suitability for storage of hydrocarbons. In summary, the test program consists of the following basic steps: injecting nitrogen into the well so that the nitrogen/brine interface is below the cemented production casing shoe; **releasing brine during nitrogen injection to avoid over-pressuring the cavern**; recording the nitrogen and brine wellhead pressures and nitrogen/brine interface level throughout a given test period

2.0 PREPARATION

2.1 Provide skillets, blind flanges and/or double valves to isolate the well during the test. Test flanges with 2" connections may be required for product and brine wellhead valves. Threads will be inspected to ensure that the pressure-monitoring and nitrogen injection equipment can be installed and operated safely.

2.2 Install pressure-monitoring equipment on well connections to allow continuous monitoring of nitrogen and brine wellhead pressures. Rig up restraint system to anchor pressure-monitoring equipment to the wellhead.

NOTE: Digital pressure recorders and a deadweight tester (digital or standard) utilized for the mechanical integrity test shall be calibrated in accordance with manufacturer specifications and traceable to National Bureau of Standard.

2.3 Provide a top connection on the wellhead (2" I.D. minimum) to permit installing a wireline lubricator for well logging.

2.4 Provide a connection (2" minimum) to permit injecting nitrogen into the product annulus.

2.5 Provide a connection (2" minimum) to permit releasing brine from well

2.6 Monitor brine wellhead pressures until it stabilizes at an acceptable test pressure. Pressure decline rates should be less than 10 psi/day before starting the test.

3.0 NITROGEN INJECTION

3.1 Rig up wireline logging unit and install a lubricator on wellhead. Run base density (Gamma-Gamma Ray) and temperature log. Temperature log should be completed from surface to approximately 100 feet below proposed interface depth. The base density log should be completed from 100 feet below the proposed interface location to 200 feet above the cemented casing shoe.

3.2 Rig up nitrogen pumping unit to inject into the product annulus and position the density tool at a depth of approximately 500'. Start injecting nitrogen at a slow rate. Control the nitrogen injection temperature as close as possible to the average wellbore temperature measured by the base temperature log. Monitor and record nitrogen and brine pressures and flow conditions during injection. **Make sure that the casing shoe pressure gradient of 0.77 psi/ft is not exceeded at any time.** The attached Well Data Sheet lists the appropriate wellhead test pressures. Monitor the differential nitrogen-brine pressure to ensure the brine string is not subjected to collapse pressure condition.

	MECHANICAL INTEGRITY TEST PROGRAM USING NITROGEN/BRINE INTERFACE METHOD	Project Number 192025AS
	Marathon Petroleum Company, LLC State LPG Storage No. 3 API NO. 30-025-35956 LEA COUNTY, NEW MEXICO	As of Date 10/18/2022
		Page 2 of 3

3.3 Find the nitrogen/brine interface with the density tool as it passes the 500' depth then track the interface movement down the well by moving the tool down in 250' to 500' increments. Continue tracking the interface until it reaches approximately 40'-50' above the casing shoe. Record nitrogen and brine wellhead pressures and flow conditions at each point.

3.4 Log the interface depth and determine the nitrogen volume injected. Monitor nitrogen and brine wellhead pressures and interface movement for a minimum of 60 minutes to check for casing and wellhead leaks. Check all wellhead fittings and flanges and testing equipment fittings with liquid soap or equivalent to insure there are no wellhead leaks.

3.5 If no apparent casing or wellhead leaks are indicated, lower density tool to the casing shoe, **bleed off brine pressure** and resume nitrogen injection. **Keep well open to the brine system to avoid over-pressuring the cavern during nitrogen injection.** Continue to meter nitrogen and monitor wellhead pressures.

3.6 Track the nitrogen interface as it passes the casing shoe to the planned interface depth. **Close the brine valve at the appropriate time to get the cavern to test pressure when the interface is placed at the desired depth. Pay close attention to brine and nitrogen pressures to avoid over-pressuring the cavern.** Record nitrogen and brine pressure and flow conditions at regular depth intervals. Stop nitrogen injection. Run a density log to verify the position of the nitrogen/brine interface relative to the production casing shoe. Determine total volume of nitrogen injected and estimate the borehole volume from casing shoe to interface.

See attached Well Data Sheet for planned interface depth and estimated volumes.

3.7 After nitrogen injection, shut the well in to allow the nitrogen temperature to stabilize at the well temperature. Remove the logging tool from the well and close the logging valve.

3.8 During the temperature stabilization period, record nitrogen and brine wellhead pressures. Check all wellhead fitting and flanges with liquid soap or equivalent to insure there are no nitrogen leaks.

3.9 Determine the duration of the test using the appropriate test data and calculations. The test period will be a minimum of 24 hours.

4.0 TEST INITIALIZATION

4.1 Rig up wireline logging unit and install lubricator on wellhead. Run initial density and temperature logs. Temperature log should be completed from surface to approximately 100 feet below interface depth. The base density log should be completed from 100 feet below the interface location to 200 feet above the cemented casing shoe.

4.2 Record nitrogen and brine wellhead pressures.

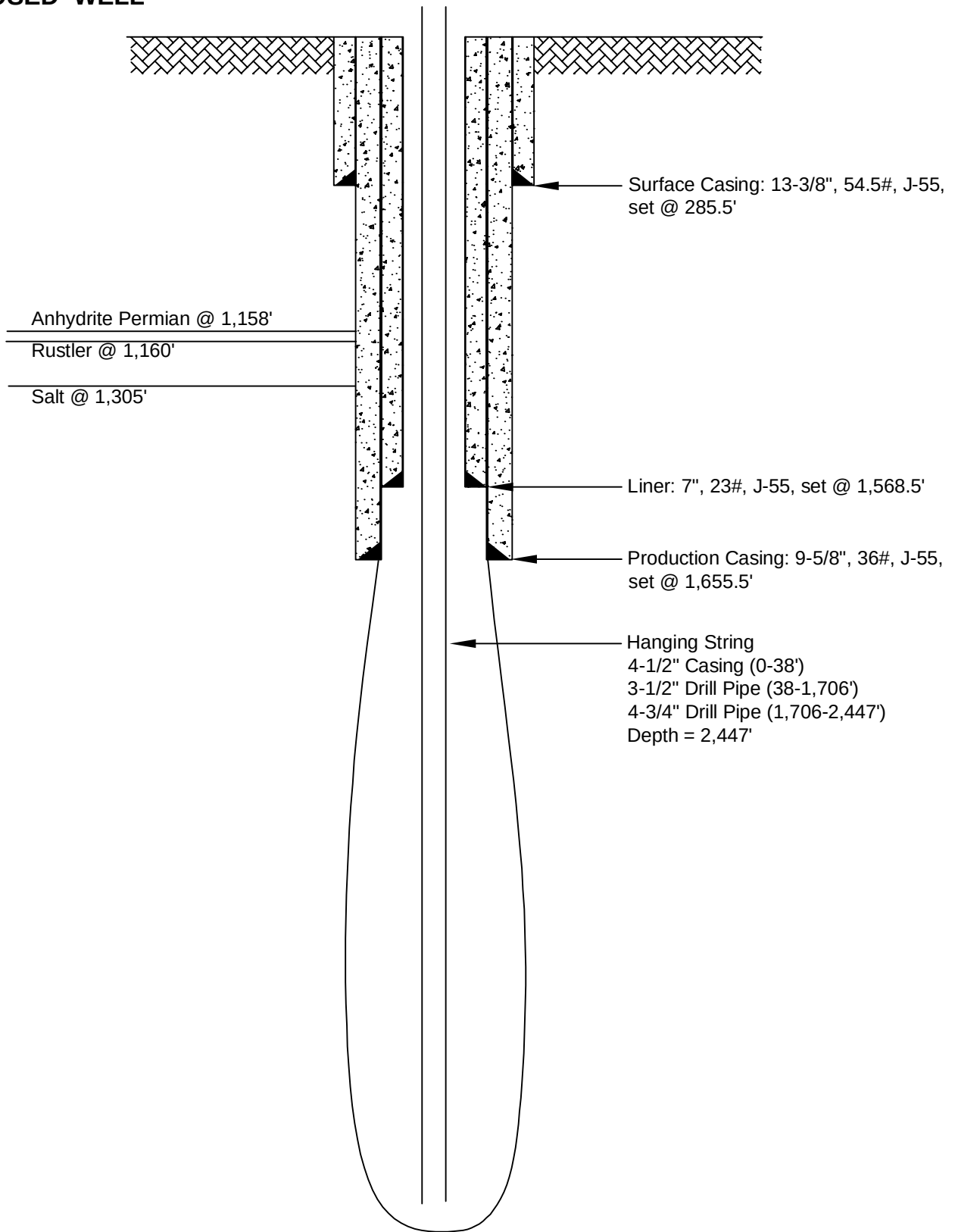
5.0 TEST FINALIZATION

5.1 After the planned test duration, run the final density and temperature logs. Temperature log should be completed from surface to approximately 100 feet below proposed interface depth. The base density log should be completed from 100 feet below the proposed interface location to 200 feet above the cemented casing shoe.

	MECHANICAL INTEGRITY TEST PROGRAM USING NITROGEN/BRINE INTERFACE METHOD		Project Number 192025AS
	Marathon Petroleum Company, LLC State LPG Storage No. 3 API NO. 30-025-35956 LEA COUNTY, NEW MEXICO		As of Date 10/18/2022
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5.2 Record nitrogen and brine wellhead pressures. 5.3 If results indicate the test period must be extended, repeat steps 5.1 and 5.2 as required. 5.4 After the test, bleed off the nitrogen pressure. After the piping is reconnected to the wellhead, bleed off the brine pressure to the pond. Do not allow the cavern pressure change to exceed 2.5 psi per minute. 6.0 REPORT ON TEST RESULTS 6.1 Prepare a written report presenting test programs, results and conclusions, along with a chronology of test activity, wireline logs, wellhead pressure records, and supporting calculations. 7.0 ATTACHMENTS - Well Data Sheet - Well Schematic - Sonar Cross-Section			
PREPARED BY G Holmes		DATE 10/18/2022	REVIEWED BY N. Skaug
			DATE 10/18/2022

Revision 1 – 10/18/2022

WELL DATA SHEET		18-October-2022	
1.0 <u>WELL DESCRIPTION</u>		Project No.	192025AS
1.1 Name/Permit Number		State LPG Storage No. 3	
1.2 Operator		Marathon Petroleum Company, LLC	
1.3 Location		Field	Jal Station Field
		County	Lea
		State	NM
		API No.	30-025-35956
1.4 Cemented Production Casing		Size O.D.	9 5/8 inches
		Size I.D.	8.921 inches
		Depth	1,665.5 feet
		Weight	36.00 lbs/ft
		Grade	J-55
1.5 Liner		Size O.D.	7 inches
		Size I.D.	6.37 inches
		Depth	1,568.5 feet
		Weight	23.00 lbs/ft
		Grade	J-55
1.6 Hanging Casing String		Size	3 1/2 inches
		Depth	2,430.0 feet
		Weight	lbs/ft
		Grade	
1.7 Total Depth		2,439.0	feet
2.0 <u>TEST PRESSURES</u>			
2.1 Casing Shoe Depth		1665.5	feet
2.2 Test Gradient		0.77	psi/ft
2.3 Brine Specific Gravity		1.2	
2.4 Nitrogen Temperature		77	deg F
2.5 Nitrogen Interface Depth		1690.0	feet
2.6 Casing Shoe Pressure		1282.4	psig
2.7 Surface Brine Pressure		404.7	psig
2.8 Surface Nitrogen Pressure		1211.6	psig
3.0 <u>VOLUME ESTIMATE</u>			
3.1 Total Volume to Casing Shoe		45.7	bbls
3.2 Volume from Casing Shoe to Interface		343.0	bbls
3.3 Total Displacement to Interface		388.7	bbls
3.4 Nitrogen Volume to Casing Shoe		21,308	SCF
3.5 Nitrogen Volume below Casing Shoe		164,172	SCF
3.6 Total Nitrogen Volume Required		185,480	SCF
4.0 <u>COMPRESSIBILITY RESPONSE</u>			
4.1 Cavern Volume		68,558	bbls
4.2 Cavern Compressibility		0.21	bbls/psi
4.3 Cavern Pressure Increase Caused By N ₂ Injection		1,871	psi
4.4 Cavern Pressure Prior to N ₂ Injection (Brine Only)		0	psig
4.5 Estimated Volume of Brine Needed to Prepressure Cavern		0	bbls

PROPOSED WELL

WSP USA Inc.
16200 Park Row, Ste. 200
Houston, TX 77084
TEL: (281) 589-5900

MARATHON
JAL, LEA COUNTY, NEW MEXICO

STATE LPG STORAGE WELL NO. 3 WELL SCHEMATIC

Job No. 192025AS

Drawn: WDD

Checked: AV

Approved: AP

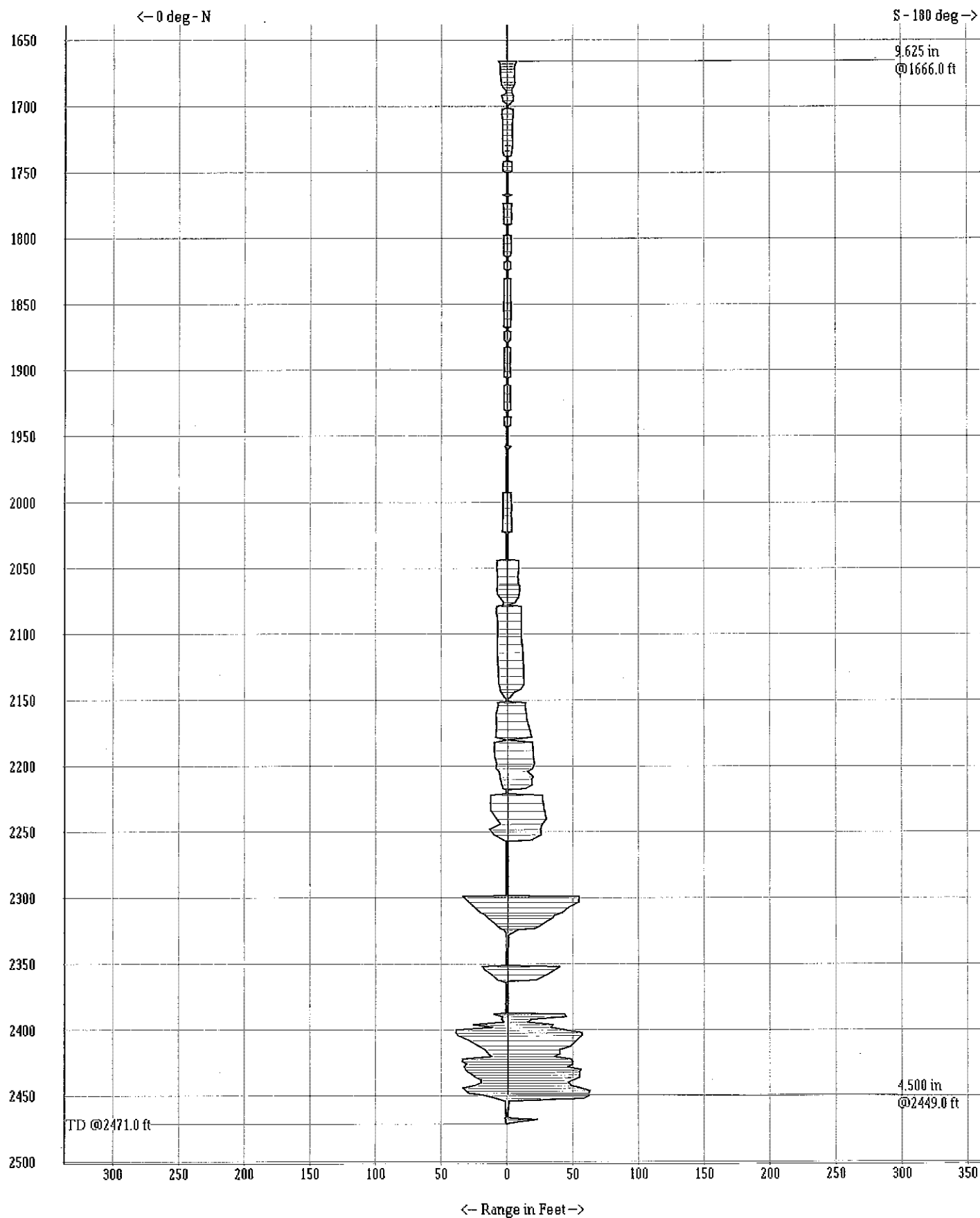
Date: 09/22/2022

Scale: NONE

Figure No. 1

WESTERN REFINING
JAL, NM

SONARWIRE, INC
Vertical Cross Section



	Nitrogen-Brine Interface MIT Method	Job Number	NA
		Date	07/13/2017
		Page 1 of 3	

The purpose of this mechanical integrity test was to determine if the cavern system (i.e. cemented casing and cavern) had mechanical integrity and is therefore suitable for hydrocarbon storage. The detailed nitrogen-brine interface test procedure for this well is described herein:

The procedure began with an initial injection of nitrogen into the well to check for wellhead and casing leaks. After the wellhead and casing were found to be free of leaks, nitrogen was again injected into the well until the predetermined test pressure and nitrogen interface depth was achieved. The nitrogen interface depth can be affected by well and cavern temperature changes, cavern leaching, and salt creep. In order to distinguish between these effects and a loss of nitrogen mass caused by leaks, the pressure and temperature changes (as they affect nitrogen volume) were considered.

The nitrogen and brine pressure and the interface depth were monitored during the test period. Evaluation of the test results involved calculating the volume of nitrogen (at standard conditions) to the nitrogen-brine interface at the start and end of the test. The difference between calculated volumes over the test period duration were then be linearly extrapolated to yield an annual calculated leak rate (CLR). The cavern system is determined to have integrity if the CLR is within the range (positive or negative) of the minimum detectable leak rate (MDLR).

MDLR

The MDLR is the smallest volume of gas loss that can theoretically be measured considering the accuracy of the interface log and the configuration of the well. The actual accuracy achievable in the field may be slightly less than the MDLR, but is of the same order of magnitude, and therefore the MDLR gives a good indication of the test sensitivity. The MDLR can be calculated using the following relationship:

$$\text{MDLR} = \frac{V * r * 365}{T}$$

Where:

- MDLR = Minimum Detectable Leak Rate (bbls/year)
- V = Unit Volume of Borehole (bbls/ft)
- r = Resolution of Interface Detection (ft)
- T = Duration of Test (days)

The resolution of the interface detection tool is determined from the logging tool and the depth scale used to record the interface log. The MDLR is a calculated theoretical value, which indicates the sensitivity and accuracy of the test. The actual accuracy in the field may be slightly less than the theoretical value because of variations in the actual borehole geometry, accuracy of test equipment, and changes in cavern pressure related to cavern stabilization.

	Nitrogen-Brine Interface MIT Method	Job Number	NA
		Date	07/13/2017
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Gas Volume Calculations

In addition to measured quantities, knowledge of the cemented well casing, tubular sizes (if present), and the uncased borehole volume between the casing shoe to the interface, will allow for the nitrogen volume to be estimated. The following equation, which relates a gas pressure, volume, and temperature, is used to calculate the volume of nitrogen (at standard temperature and pressure conditions) in the system at the start and at the end of the test:

$$V_{N_2} = N_{SCF} * \sum_{i=1,2,...N} \frac{(P_{WB})_i * 144 * (V_{WB})_i}{(Z_{AVE})_i * R * (T_{AVE})_i}$$

Where:

- V_{N_2} = volume of nitrogen measured in the system over a specific depth interval “i” (SCF_{N₂})
- $(P_{WB})_i$ = average calculated wellbore pressure over a specific depth interval “i” (psia)
- $(V_{WB})_i$ = volume of wellbore of a specific depth interval “i” (ft³); NOTE: measured nitrogen volumes or cavern sonar surveys
- $(Z_{AVE})_i$ = gas compressibility factor at a specific depth interval “i” (dimensionless)
- R = nitrogen specific gas constant $\left[55.16 \frac{\text{ft} \cdot \text{lb}_f}{\text{lb}_m \cdot ^\circ\text{R}}\right]$
- $(T_{AVE})_i$ = average wellbore temperature over a specific depth interval “i” (°R)
- N_{SCF} = gas conversion for mass to volume at standard pressure and temperature conditions (13.8 SCFN₂ = 1 lbmN₂)
- i = term number of the finite series
- N = total number of terms in the finite series (i.e. depth interval)

The following equation is used to determine pressure at depth interval “i”:

$$P_i = P_{i-1} \left[1 + \frac{L}{R * Z_i * T_i} \right]$$

$i = 1, 2, \dots, N$

Where:

- P_i = calculated pressure at a specific term, depth “i” (psia)
- P_1 = measured wellhead pressure (psia)
- L = depth Interval (ft)
- Z_i = gas Compressibility Factor at a specific depth interval “i” (dimensionless)
- R = specific Gas Constant $\left[55.16 \left(\frac{\text{ft} \cdot \text{lb}_f}{\text{lb}_m \cdot ^\circ\text{R}}\right)\right]$
- T_i = measure wellbore temperature at a specific depth interval “i” (°R)

The volume calculation is then performed over specific intervals throughout the nitrogen column, from the surface to the interface. The total nitrogen volume is determined by summing the specific volume for each regular interval

	Nitrogen-Brine Interface MIT Method	Job Number	NA
		Date	07/13/2017
		Page 3 of 3	

The results of the volume and mass calculations (both “pre-test” and “post-test”) are presented in the Appendices. The difference between the initial and final volume calculation determines the volume change at standard conditions.

It is important to note that the metered volume of nitrogen during injection may not be equal to the calculated volume of nitrogen during the test. The accuracy of the metered nitrogen is based on the accuracy of the turbine and temperature measurement made during nitrogen injection. The measured nitrogen volume used in the borehole calculations is corrected to the known volume in the production casing annulus, if needed. The calculated test volumes are based on downhole temperature logs, surface pressure recorders, calculated downhole pressures, and borehole dimensions determined by nitrogen strapping calculations or sonar volumes. All measurements are subject to the accuracy of the instrumentation being used and the well conditions at the time of the measurements.

At average wellbore conditions (at the conclusion of the test), the nitrogen volume change can be stated as:

$$\Delta V_{\text{TEST}} = \frac{Z_{\text{AVE}} * R * T_{\text{AVE}} * \Delta V_{\text{STP}}}{(P_{\text{WB}})_{\text{AVE}} * 144 * N_{\text{SCF}}}$$

Where:

ΔV_{TEST} = nitrogen volume changes over the test period based on wellbore conditions (ft³)

$(P_{\text{WB}})_{\text{AVE}}$ = average wellbore pressure over the test period (psia)

ΔV_{STP} = nitrogen volume change (SCF_{N2}), based on standard conditions

Z_{AVE} = average Gas Compressibility Factor over the test period

R = specific Gas Constant $\left[55.16 \left(\frac{\text{ft} \cdot \text{lb}_f}{\text{lb}_m \cdot ^\circ\text{R}} \right) \right]$

T_{AVE} = average wellbore temperature over the test period (°R)

N_{SCF} = gas Conversion (13.8 SCF_{N2} = 1 lb_{N2})

CLR

The equation below is used to calculate the annual CLR from the volume change in nitrogen for the specified test period:

$$V_{\text{CLR}} = \frac{\Delta V_{\text{TEST}} * 24 \left(\frac{\text{hour}}{\text{day}} \right) * 365 \left(\frac{\text{day}}{\text{year}} \right)}{T_L}$$

Where:

V_{CLR} = CLR (bbls/year)

ΔV_{TEST} = nitrogen volume change during the test period (bbls)

T_L = test Duration (hours)

A positive CLR indicates a calculated loss of nitrogen from the wellbore during the test period. A negative CLR indicates a calculated increase in nitrogen volume during the test period.

PREPARED BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE	REVISION	DATE
B. Lampe	05/01/2013			N. Skaug	05/01/2013	2017	07/13/2017

APPENDIX

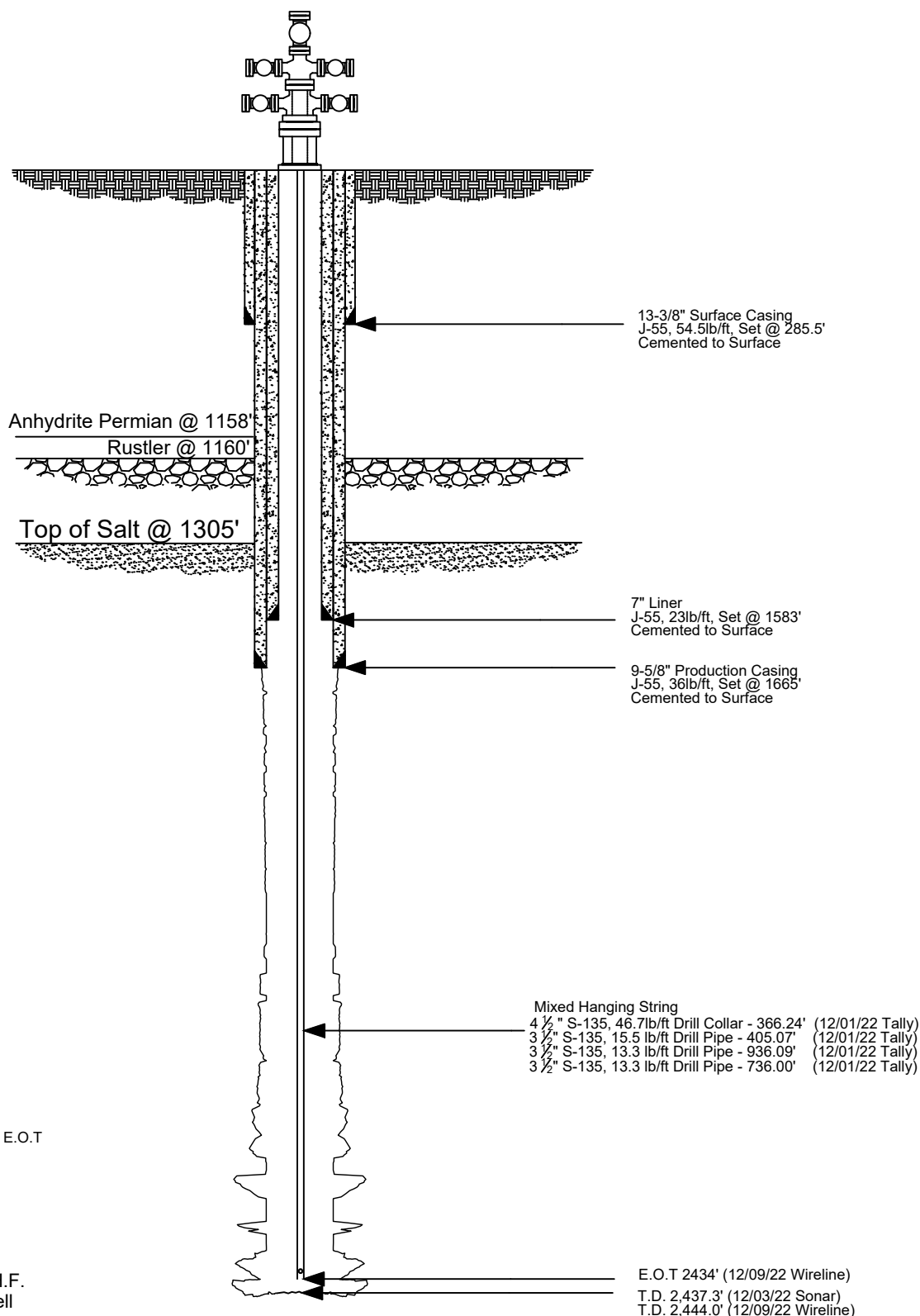
B. WELL TEST INFORMATION

WELL DATA SHEET

WELL SCHEMATIC

WELL DATA SHEET		08-December-2022	
1.0 <u>WELL DESCRIPTION</u>		Project No.	192025AS
1.1 Name/Permit Number		State LPG Storage No. 3	
1.2 Operator		Marathon Petroleum Company, LLC	
1.3 Location		Field	Jal Station Field
		County	Lea
		State	NM
		API No.	30-025-35956
1.4 Cemented Production Casing		Size O.D.	9 5/8 inches
		Size I.D.	8.921 inches
		Depth	1,665.0 feet
		Weight	36.00 lbs/ft
		Grade	J-55
1.5 Liner		Size O.D.	7 inches
		Size I.D.	6.37 inches
		Depth	1,583.0 feet
		Weight	23.00 lbs/ft
		Grade	J-55
1.6 Hanging Casing String		Size	3 1/2 inches
		Depth	2,434.0 feet
		Weight	lbs/ft
		Grade	
1.7 Total Depth		2,444.0	feet
2.0 <u>TEST PRESSURES</u>			
2.1 Casing Shoe Depth		1665.0	feet
2.2 Test Gradient		0.76	psi/ft
2.3 Brine Specific Gravity		1.2	
2.4 Nitrogen Temperature		74	deg F
2.5 Nitrogen Interface Depth		1688.75	feet
2.6 Casing Shoe Pressure		1269.6	psig
2.7 Surface Brine Pressure		388.6	psig
2.8 Surface Nitrogen Pressure		1199.1	psig
3.0 <u>VOLUME ESTIMATE</u>			
3.1 Total Volume to Casing Shoe		45.7	bbls
3.2 Volume from Casing Shoe to Interface		341.4	bbls
3.3 Total Displacement to Interface		387.2	bbls
3.4 Nitrogen Volume to Casing Shoe		21,207	SCF
3.5 Nitrogen Volume below Casing Shoe		162,723	SCF
3.6 Total Nitrogen Volume Required		183,931	SCF
4.0 <u>COMPRESSIBILITY RESPONSE</u>			
4.1 Cavern Volume		92,520	bbls
4.2 Cavern Compressibility		0.28	bbls/psi
4.3 Cavern Pressure Increase Caused By N ₂ Injection		1,381	psi
4.4 Cavern Pressure Prior to N ₂ Injection (Brine Only)		0	psig
4.5 Estimated Volume of Brine Needed to Prepressure Cavern		0	bbls

API NO. 30-025-35956
SERIAL NO. 303729



Notes:

1. All depths measured from B.H.F.
2. Reference Client and WSP well records



WSP USA Inc.
16200 Park Row Ste. 200
Houston TX 77084
TEL: (281) 589-5900

Marathon Petroleum Company, LLC
Lea County, New Mexico

State LPG Storage No. 3 WELLBORE SCHEMATIC

JOB. NO.
192025AS

DESIGN: KJ

DRAWN: KJ

CHECKED: NS

DATE:
01/12/2023

SCALE: NONE

DRAWING NO.
192025AS-003-REV1

APPENDIX

C. FIELD NOTES

OPERATOR: Marathon Petroleum Company, LLC					REPORT BY: Gabriel Holmes		
WELL NAME: State LPG Storage No. 3					TEST FLUID: Nitrogen		
FIELD: Jal Station Field					PROJECT NO.: 192025AS		
Date	Time	Interface	Wellhead Pressure (psig)		Injection		Comments
m/d/y	h:m:s	Depth (ft)	Annulus	Tubing	Rate (SCFM)	Total (SCF)	
12/7/22							Recorder SN: 62684; Turbine SN: 143951
	07:15:00						Arrive on-site, safety, permit
	07:30:00						R/U Wireline and Nitrogen Truck
	08:04:00						Start Temp Base Log
	09:12:00						Start Density Base Log
	11:49:42	0.00	92.7	98.4	93.9	4.7	Start Nitrogen Injection
	11:50:43	250.00	92.8	114.2	292.5	360.2	Interface
	12:03:42		823.9	175.6	0.0	9294.1	Stop Nitrogen Injection
	12:06:15	1043.00	821.9	175.4	0.0	9294.1	Interface
	12:08:18		821.9	176.3	14.4	9294.8	Resume Nitrogen Injection
	12:09:11	1250.00	842.6	178.7	811.2	9882.4	Interface
	12:12:19	1500.00	921.4	187.7	818.1	12452.3	Interface
	12:17:09		1002.6	202.1	0.0	16348.7	Stop Nitrogen Injection
	12:35:00	1654.00	1000.6	200.2	0.0	16348.7	Start Casing Test
	13:35:00	1654.50	999.0	198.2	0.0	16348.7	End Casing Test
	13:56:54		999.0	199.1	127.6	16359.8	Resume Nitrogen Injection
	13:57:48	1665.50	1004.6	2.0	820.5	17052.1	Interface (Casing Shoe)
	14:11:13	1669.25	1006.9	39.4	1206.8	32588.3	Interface
	14:21:57	1671.00	1014.9	87.1	1214.4	45608.4	Interface
	14:31:43	1672.50	1024.3	96.3	1220.6	57461.9	Interface
	14:42:47	1674.00	1033.6	103.1	1223.9	70929.7	Interface
	14:52:11	1675.25	1040.3	105.4	1210.8	82372.9	Interface
	15:13:05	1677.50	1062.5	246.3	1213.8	101011.0	Interface
	15:22:07	1678.50	1100.4	285.7	1223.2	112034.5	Interface
	15:32:05	1679.75	1139.0	325.8	1232.2	124245.1	Interface
	15:41:36	1681.00	1173.9	362.1	1233.6	136018.1	Interface
	15:51:53	1682.75	1209.2	398.7	1240.1	148693.2	Interface
	15:54:00		1215.6	405.3	0.0	151075.3	Stop Nitrogen Injection
	15:58:13	1683.25	1212.6	403.0	0.0	151075.3	Interface
	16:47:00		1145.7	332.1	827.4	151150.2	Resume Nitrogen Injection
	17:03:20	1688.50	1208.2	396.6	1236.3	171245.1	Interface
	17:06:00		1215.4	404.8	0.0	174166.2	Finish Nitrogen Injection
	17:25:00	1688.75	1212.4	401.6	0.0	174166.2	Post Injection Log
	20:20:00						R/D Wireline and Nitrogen Truck
12/8/22							
	07:30:00		1199.5	403.5			R/U Wireline
	07:55:00		1199.2	383.6			Start Temperature Log
	08:46:00		1199.1	388.2			Start Density Log
	08:58:00	1688.75	1199.1	388.6			Initialization
	09:23:00		1199.0	388.6			TD 2444' EOT 2434'
	13:45:00		1197.8	394.2			R/D Wireline
12/9/22							
	07:15:00		1194.5	434.4			R/U Wireline
	08:01:00		1194.1	427.1			Start Temperature Log
	08:52:00		1194.1	418.3			Start Density Log
	09:04:00	1688.75	1194.1	418.9			Finalization
	12:45:00						R/D Wireline, Move off well

APPENDIX

D. TEST DATA GRAPHS

INJECTION SURFACE PRESSURES

- GRAPH OF MEASURED WELLHEAD NITROGEN AND BRINE PRESSURES DURING INJECTION

INJECTION SUMMARY

- GRAPH OF NITROGEN INJECTION RATE AND TEMPERATURE DURING INJECTION

POST INJECTION SURFACE PRESSURES

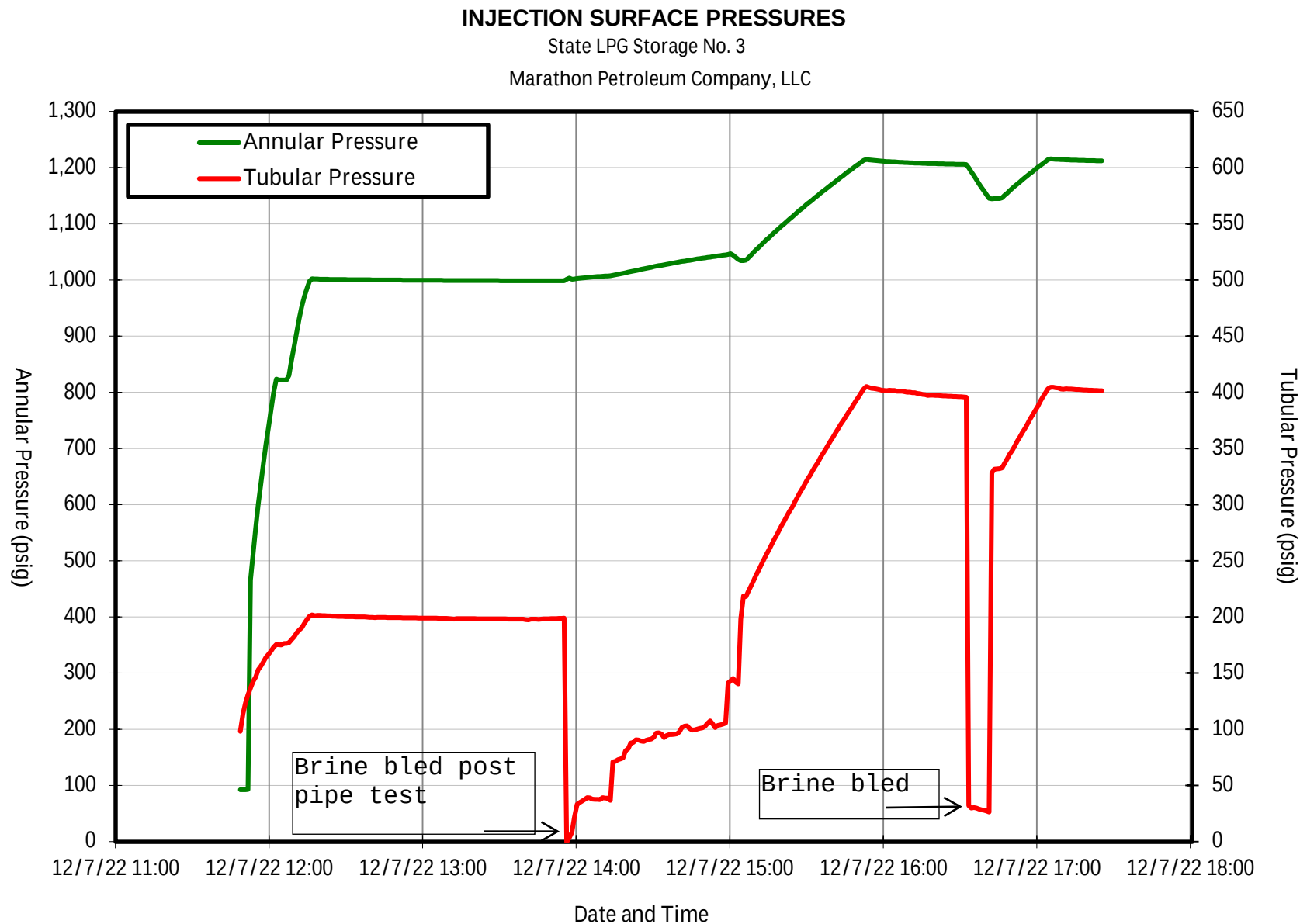
- GRAPH OF MEASURED WELLHEAD NITROGEN AND BRINE PRESSURES AFTER INJECTION

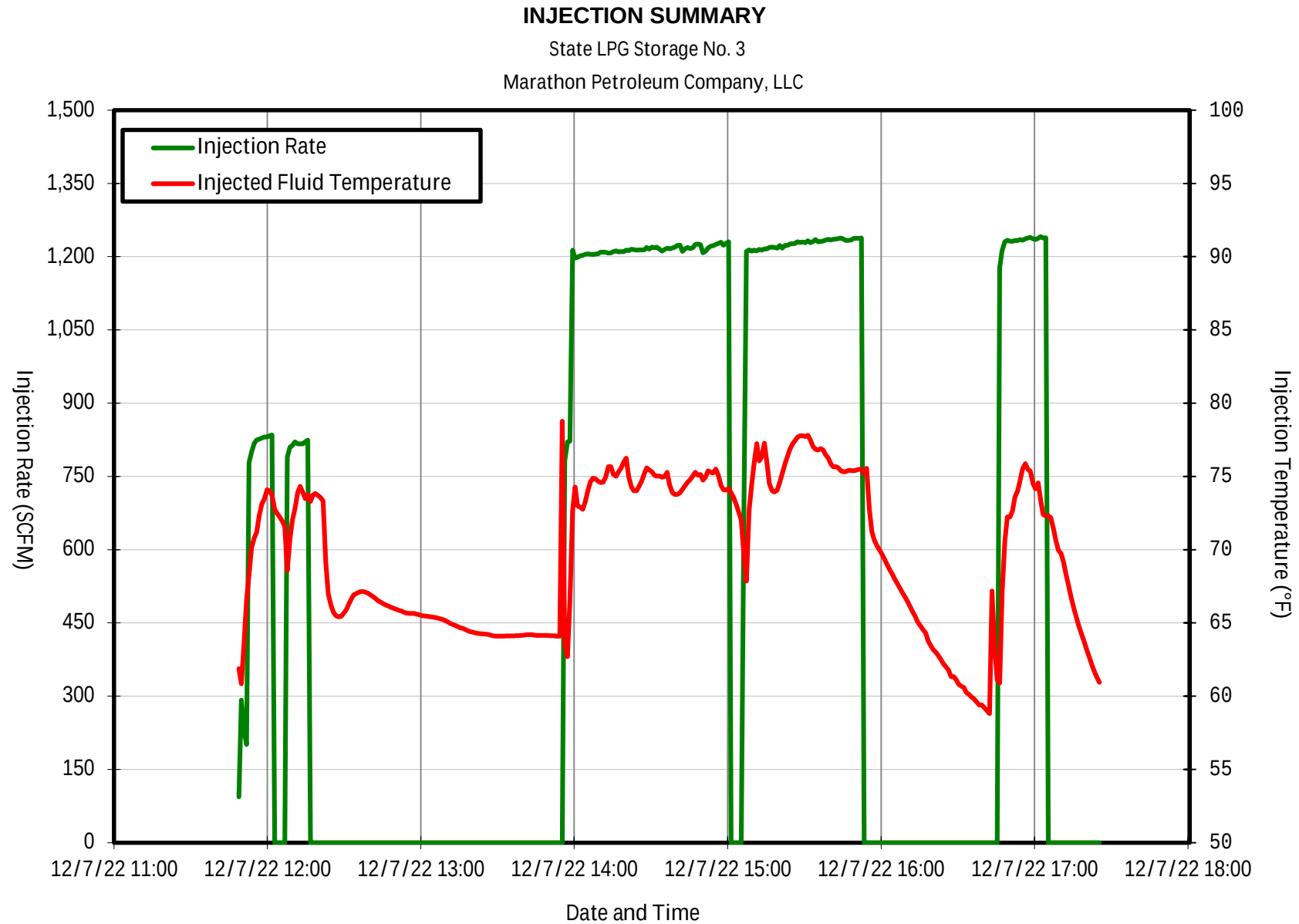
POST INJECTION DIFFERENTIAL PRESSURE AND TEMPERATURE

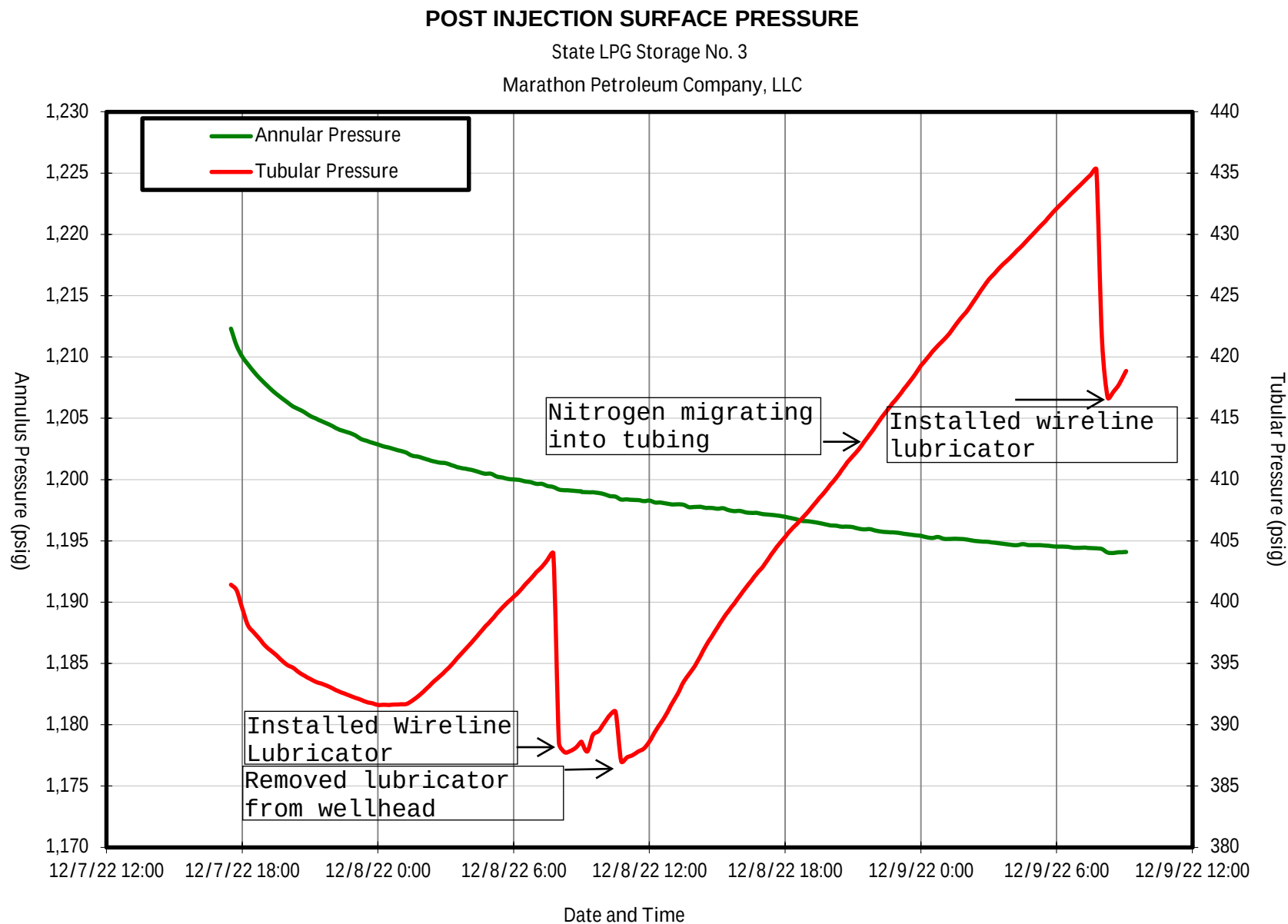
- GRAPH OF DIFFERENTIAL PRESSURE (NITROGEN MINUS BRINE) AT WELLHEAD AND AMBIENT SURFACE TEMPERATURE AFTER NITROGEN INJECTION

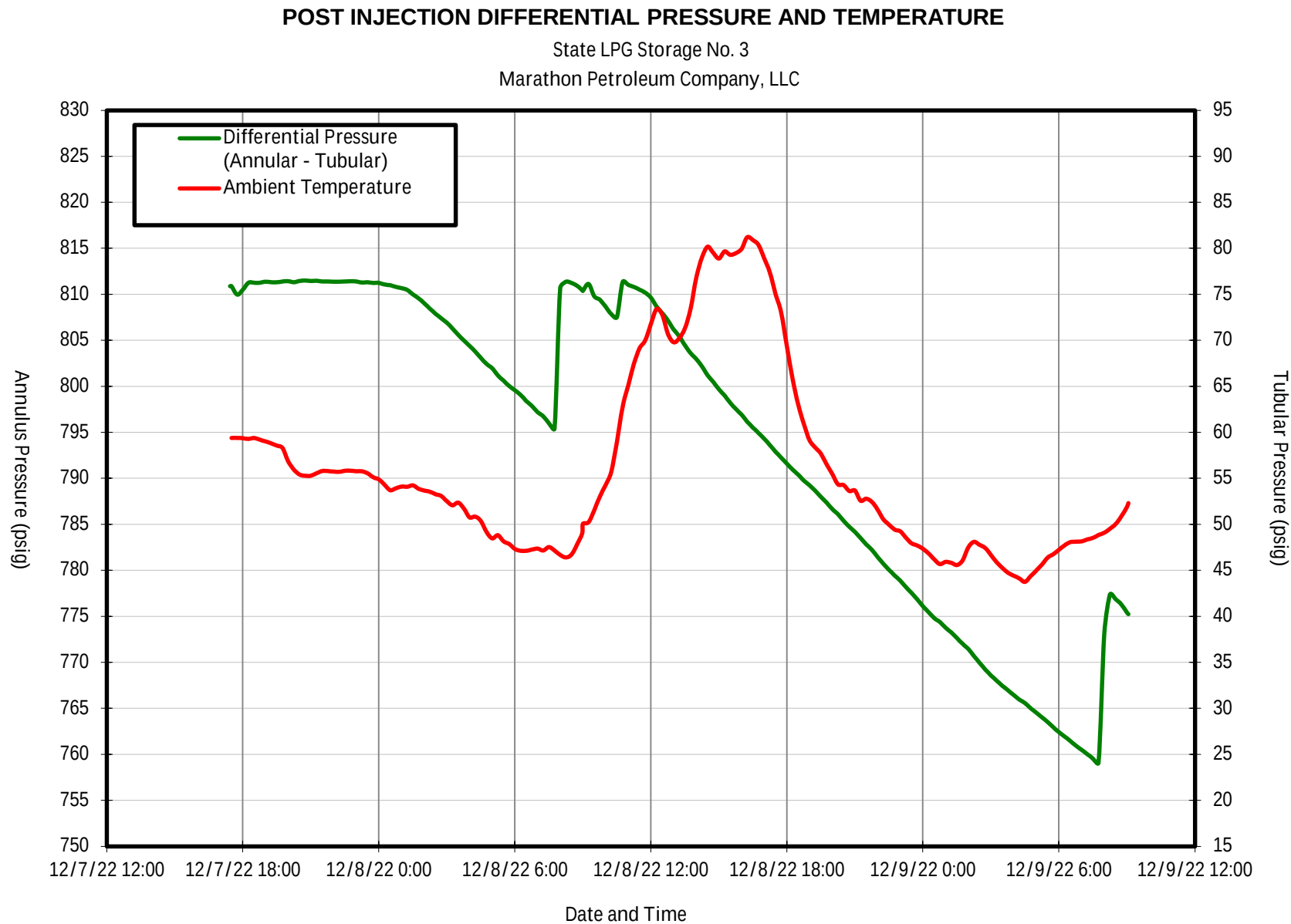
WELLBORE TEMPERATURE SUMMARY

- GRAPH OF WELLBORE TEMPERATURE PROFILES FOR BASE, INITIAL, AND FINAL TEMPERATURE LOGS





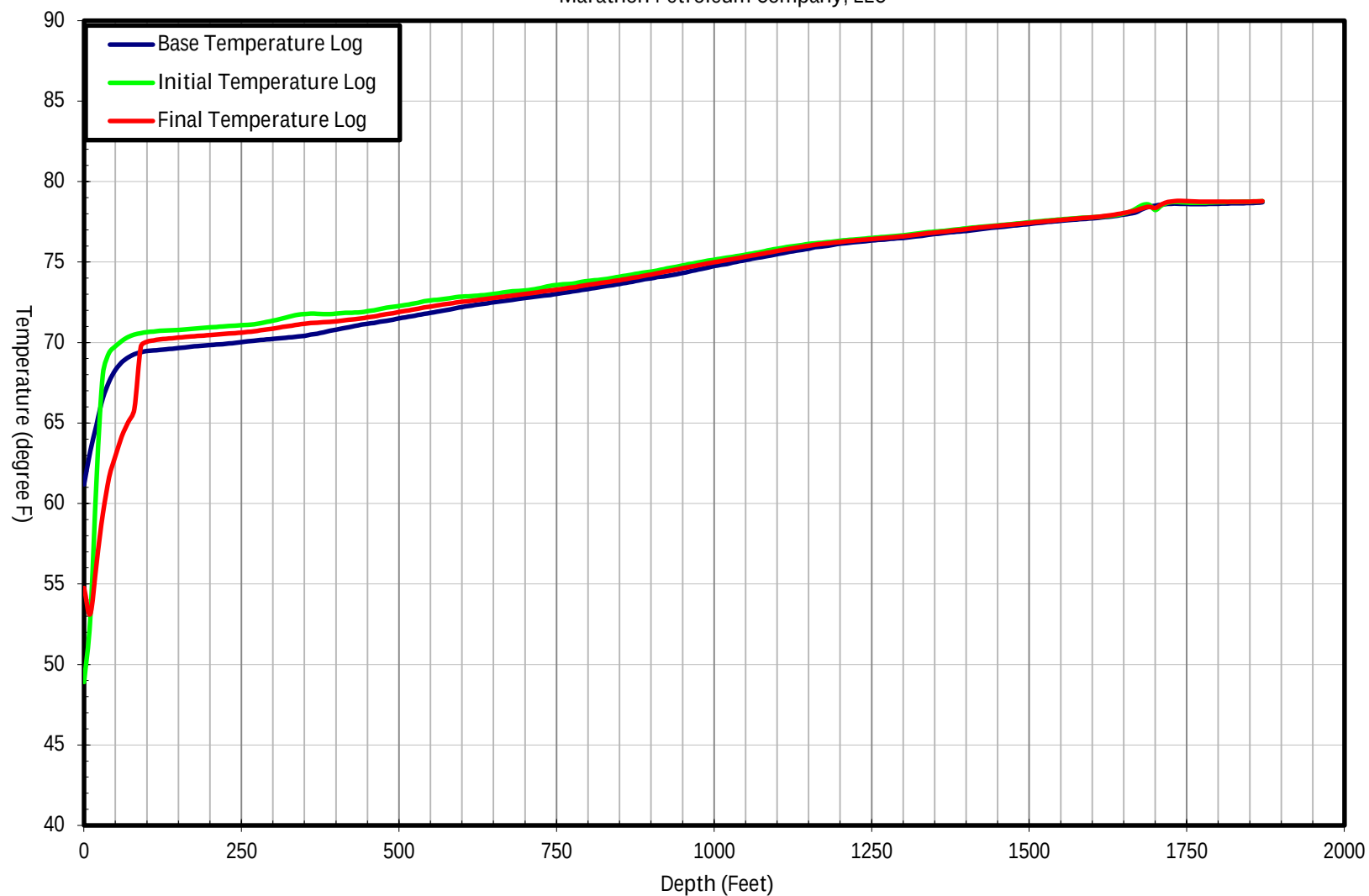




WELLBORE TEMPERATURE SUMMARY

State LPG Storage No. 3

Marathon Petroleum Company, LLC



APPENDIX

E. NITROGEN MASS BALANCE

INITIAL MASS BALANCE CALCULATIONS

FINAL MASS BALANCE CALCULATIONS

INITIAL MASS BALANCE CALCULATIONS								
Well Name: State LPG Storage No. 3			INITIAL		12/8/22 8:58 AM			
Operator: Marathon Petroleum Company, LLC			1199.1					
Project No.: 192025AS			psig					
Depth (ft)	Pressure (psia)	Temperature (°F)	Zave	Unit Volume (ft ³ /ft)	Mass (lb)	Cumulative Mass (lb)	Volume (SCF)	Cumulative Volume (SCF)
0.00	1213.8	48.9	1.0	0.15				
10.00	1214.2	52.8	1.0	0.15	9.6	9.6	130.2	130.2
20.00	1214.6	61.7	1.0	0.15	9.5	19.1	128.5	258.7
30.00	1215.0	68.0	1.0	0.15	9.3	28.4	126.4	385.1
40.00	1215.5	69.4	1.0	0.15	9.3	37.7	125.4	510.5
50.00	1215.9	69.8	1.0	0.15	9.2	46.9	125.2	635.7
60.00	1216.3	70.1	1.0	0.15	9.2	56.2	125.2	760.8
70.00	1216.7	70.3	1.0	0.15	9.2	65.4	125.1	886.0
80.00	1217.1	70.5	1.0	0.15	9.2	74.7	125.1	1011.1
90.00	1217.5	70.6	1.0	0.15	9.2	83.9	125.1	1136.2
100.00	1217.9	70.6	1.0	0.15	9.2	93.1	125.1	1261.4
110.00	1218.4	70.7	1.0	0.15	9.2	102.4	125.2	1386.5
120.00	1218.8	70.7	1.0	0.15	9.2	111.6	125.2	1511.7
130.00	1219.2	70.8	1.0	0.15	9.2	120.9	125.2	1637.0
140.00	1219.6	70.8	1.0	0.15	9.3	130.1	125.3	1762.3
150.00	1220.0	70.8	1.0	0.15	9.3	139.4	125.3	1887.6
160.00	1220.4	70.8	1.0	0.15	9.3	148.6	125.4	2012.9
170.00	1220.9	70.9	1.0	0.15	9.3	157.9	125.4	2138.3
180.00	1221.3	70.9	1.0	0.15	9.3	167.2	125.4	2263.7
190.00	1221.7	70.9	1.0	0.15	9.3	176.4	125.5	2389.2
200.00	1222.1	71.0	1.0	0.15	9.3	185.7	125.5	2514.7
210.00	1222.5	71.0	1.0	0.15	9.3	195.0	125.5	2640.2
220.00	1222.9	71.0	1.0	0.15	9.3	204.2	125.6	2765.8
230.00	1223.4	71.0	1.0	0.15	9.3	213.5	125.6	2891.3
240.00	1223.8	71.1	1.0	0.15	9.3	222.8	125.6	3017.0
250.00	1224.2	71.1	1.0	0.15	9.3	232.1	125.7	3142.6
260.00	1224.6	71.1	1.0	0.15	9.3	241.4	125.7	3268.3
270.00	1225.0	71.1	1.0	0.15	9.3	250.6	125.7	3394.0
280.00	1225.5	71.2	1.0	0.15	9.3	259.9	125.8	3519.8
290.00	1225.9	71.3	1.0	0.15	9.3	269.2	125.8	3645.6
300.00	1226.3	71.4	1.0	0.15	9.3	278.5	125.8	3771.4
310.00	1226.7	71.5	1.0	0.15	9.3	287.8	125.8	3897.2
320.00	1227.1	71.6	1.0	0.15	9.3	297.1	125.8	4023.0
330.00	1227.5	71.7	1.0	0.15	9.3	306.4	125.9	4148.9
340.00	1228.0	71.7	1.0	0.15	9.3	315.7	125.9	4274.8
350.00	1228.4	71.8	1.0	0.15	9.3	325.0	125.9	4400.7
360.00	1228.8	71.8	1.0	0.15	9.3	334.3	125.9	4526.6
370.00	1229.2	71.8	1.0	0.15	9.3	343.6	126.0	4652.6
380.00	1229.6	71.8	1.0	0.15	9.3	352.9	126.0	4778.6
390.00	1230.1	71.8	1.0	0.15	9.3	362.2	126.1	4904.7
400.00	1230.5	71.8	1.0	0.15	9.3	371.5	126.1	5030.8
410.00	1230.9	71.8	1.0	0.15	9.3	380.8	126.1	5156.9
420.00	1231.3	71.9	1.0	0.15	9.3	390.1	126.2	5283.1
430.00	1231.7	71.9	1.0	0.15	9.3	399.5	126.2	5409.3
440.00	1232.2	71.9	1.0	0.15	9.3	408.8	126.2	5535.5
450.00	1232.6	72.0	1.0	0.15	9.3	418.1	126.3	5661.8
460.00	1233.0	72.0	1.0	0.15	9.3	427.4	126.3	5788.1
470.00	1233.4	72.1	1.0	0.15	9.3	436.8	126.3	5914.4
480.00	1233.8	72.2	1.0	0.15	9.3	446.1	126.3	6040.8
490.00	1234.3	72.2	1.0	0.15	9.3	455.4	126.4	6167.1
500.00	1234.7	72.3	1.0	0.15	9.3	464.8	126.4	6293.5
510.00	1235.1	72.3	1.0	0.15	9.3	474.1	126.4	6420.0
520.00	1235.5	72.4	1.0	0.15	9.3	483.4	126.5	6546.4
530.00	1235.9	72.5	1.0	0.15	9.3	492.8	126.5	6672.9
540.00	1236.4	72.6	1.0	0.15	9.3	502.1	126.5	6799.4
550.00	1236.8	72.6	1.0	0.15	9.3	511.5	126.5	6925.9
560.00	1237.2	72.7	1.0	0.15	9.3	520.8	126.5	7052.5
570.00	1237.6	72.7	1.0	0.15	9.3	530.1	126.6	7179.0
580.00	1238.0	72.8	1.0	0.15	9.3	539.5	126.6	7305.6
590.00	1238.5	72.8	1.0	0.15	9.4	548.8	126.6	7432.3
600.00	1238.9	72.9	1.0	0.15	9.4	558.2	126.7	7558.9
610.00	1239.3	72.9	1.0	0.15	9.4	567.6	126.7	7685.6
620.00	1239.7	72.9	1.0	0.15	9.4	576.9	126.7	7812.4
630.00	1240.1	72.9	1.0	0.15	9.4	586.3	126.8	7939.1
640.00	1240.6	73.0	1.0	0.15	9.4	595.6	126.8	8065.9
650.00	1241.0	73.0	1.0	0.15	9.4	605.0	126.8	8192.8
660.00	1241.4	73.1	1.0	0.15	9.4	614.4	126.9	8319.6
670.00	1241.8	73.1	1.0	0.15	9.4	623.7	126.9	8446.5

INITIAL MASS BALANCE CALCULATIONS								
Well Name:		State LPG Storage No. 3		INITIAL	12/8/22 8:58 AM			
Operator:		Marathon Petroleum Company, LLC		1199.1				
Project No.:		192025AS		psig				
Depth (ft)	Pressure (psia)	Temperature (°F)	Zave	Unit Volume (ft³/ft)	Mass (lb)	Cumulative Mass (lb)	Volume (SCF)	Cumulative Volume (SCF)
680.00	1242.3	73.2	1.0	0.15	9.4	633.1	126.9	8573.4
690.00	1242.7	73.2	1.0	0.15	9.4	642.5	126.9	8700.4
700.00	1243.1	73.2	1.0	0.15	9.4	651.9	127.0	8827.4
710.00	1243.5	73.3	1.0	0.15	9.4	661.3	127.0	8954.4
720.00	1243.9	73.4	1.0	0.15	9.4	670.6	127.0	9081.4
730.00	1244.4	73.4	1.0	0.15	9.4	680.0	127.1	9208.5
740.00	1244.8	73.5	1.0	0.15	9.4	689.4	127.1	9335.6
750.00	1245.2	73.6	1.0	0.15	9.4	698.8	127.1	9462.7
760.00	1245.6	73.6	1.0	0.15	9.4	708.2	127.1	9589.8
770.00	1246.1	73.6	1.0	0.15	9.4	717.6	127.2	9717.0
780.00	1246.5	73.7	1.0	0.15	9.4	727.0	127.2	9844.2
790.00	1246.9	73.8	1.0	0.15	9.4	736.4	127.2	9971.4
800.00	1247.3	73.8	1.0	0.15	9.4	745.8	127.3	10098.7
810.00	1247.8	73.9	1.0	0.15	9.4	755.2	127.3	10226.0
820.00	1248.2	73.9	1.0	0.15	9.4	764.6	127.3	10353.3
830.00	1248.6	74.0	1.0	0.15	9.4	774.0	127.3	10480.6
840.00	1249.0	74.0	1.0	0.15	9.4	783.4	127.4	10608.0
850.00	1249.4	74.1	1.0	0.15	9.4	792.8	127.4	10735.4
860.00	1249.9	74.2	1.0	0.15	9.4	802.2	127.4	10862.8
870.00	1250.3	74.2	1.0	0.15	9.4	811.6	127.4	10990.3
880.00	1250.7	74.3	1.0	0.15	9.4	821.0	127.5	11117.7
890.00	1251.1	74.4	1.0	0.15	9.4	830.4	127.5	11245.2
900.00	1251.6	74.4	1.0	0.15	9.4	839.8	127.5	11372.7
910.00	1252.0	74.5	1.0	0.15	9.4	849.3	127.5	11500.3
920.00	1252.4	74.6	1.0	0.15	9.4	858.7	127.6	11627.8
930.00	1252.8	74.6	1.0	0.15	9.4	868.1	127.6	11755.4
940.00	1253.3	74.7	1.0	0.15	9.4	877.5	127.6	11883.0
950.00	1253.7	74.8	1.0	0.15	9.4	886.9	127.6	12010.7
960.00	1254.1	74.9	1.0	0.15	9.4	896.4	127.7	12138.3
970.00	1254.5	74.9	1.0	0.15	9.4	905.8	127.7	12266.0
980.00	1255.0	75.0	1.0	0.15	9.4	915.2	127.7	12393.7
990.00	1255.4	75.1	1.0	0.15	9.4	924.7	127.7	12521.4
1000.00	1255.8	75.2	1.0	0.15	9.4	934.1	127.7	12649.2
1010.00	1256.2	75.2	1.0	0.15	9.4	943.5	127.8	12776.9
1020.00	1256.7	75.3	1.0	0.15	9.4	953.0	127.8	12904.7
1030.00	1257.1	75.3	1.0	0.15	9.4	962.4	127.8	13032.6
1040.00	1257.5	75.4	1.0	0.15	9.4	971.9	127.8	13160.4
1050.00	1257.9	75.5	1.0	0.15	9.4	981.3	127.9	13288.3
1060.00	1258.4	75.5	1.0	0.15	9.4	990.7	127.9	13416.2
1070.00	1258.8	75.6	1.0	0.15	9.4	1000.2	127.9	13544.1
1080.00	1259.2	75.7	1.0	0.15	9.4	1009.6	127.9	13672.0
1090.00	1259.6	75.8	1.0	0.15	9.4	1019.1	128.0	13800.0
1100.00	1260.1	75.8	1.0	0.15	9.5	1028.5	128.0	13928.0
1110.00	1260.5	75.9	1.0	0.15	9.5	1038.0	128.0	14056.0
1120.00	1260.9	76.0	1.0	0.15	9.5	1047.4	128.0	14184.0
1130.00	1261.3	76.0	1.0	0.15	9.5	1056.9	128.1	14312.1
1140.00	1261.8	76.1	1.0	0.15	9.5	1066.4	128.1	14440.2
1150.00	1262.2	76.1	1.0	0.15	9.5	1075.8	128.1	14568.3
1160.00	1262.6	76.2	1.0	0.15	9.5	1085.3	128.1	14696.5
1170.00	1263.0	76.2	1.0	0.15	9.5	1094.8	128.2	14824.6
1180.00	1263.5	76.2	1.0	0.15	9.5	1104.2	128.2	14952.8
1190.00	1263.9	76.3	1.0	0.15	9.5	1113.7	128.2	15081.1
1200.00	1264.3	76.3	1.0	0.15	9.5	1123.2	128.3	15209.4
1210.00	1264.7	76.4	1.0	0.15	9.5	1132.6	128.3	15337.7
1220.00	1265.2	76.4	1.0	0.15	9.5	1142.1	128.3	15466.0
1230.00	1265.6	76.4	1.0	0.15	9.5	1151.6	128.4	15594.4
1240.00	1266.0	76.5	1.0	0.15	9.5	1161.1	128.4	15722.8
1250.00	1266.5	76.5	1.0	0.15	9.5	1170.6	128.4	15851.2
1260.00	1266.9	76.5	1.0	0.15	9.5	1180.0	128.5	15979.7
1270.00	1267.3	76.6	1.0	0.15	9.5	1189.5	128.5	16108.2
1280.00	1267.7	76.6	1.0	0.15	9.5	1199.0	128.5	16236.7
1290.00	1268.2	76.6	1.0	0.15	9.5	1208.5	128.6	16365.3
1300.00	1268.6	76.7	1.0	0.15	9.5	1218.0	128.6	16493.9
1310.00	1269.0	76.7	1.0	0.15	9.5	1227.5	128.6	16622.5
1320.00	1269.4	76.8	1.0	0.15	9.5	1237.0	128.7	16751.2
1330.00	1269.9	76.8	1.0	0.15	9.5	1246.5	128.7	16879.9
1340.00	1270.3	76.9	1.0	0.15	9.5	1256.0	128.7	17008.6
1350.00	1270.7	76.9	1.0	0.15	9.5	1265.5	128.8	17137.4
1360.00	1271.2	76.9	1.0	0.15	9.5	1275.1	128.8	17266.2

INITIAL MASS BALANCE CALCULATIONS								
Well Name: State LPG Storage No. 3			INITIAL		12/8/22 8:58 AM			
Operator: Marathon Petroleum Company, LLC			1199.1					
Project No.: 192025AS			psig					
Depth (ft)	Pressure (psia)	Temperature (°F)	Zave	Unit Volume (ft³/ft)	Mass (lb)	Cumulative Mass (lb)	Volume (SCF)	Cumulative Volume (SCF)
1370.00	1271.6	77.0	1.0	0.15	9.5	1284.6	128.8	17395.0
1380.00	1272.0	77.0	1.0	0.15	9.5	1294.1	128.9	17523.9
1390.00	1272.4	77.1	1.0	0.15	9.5	1303.6	128.9	17652.7
1400.00	1272.9	77.1	1.0	0.15	9.5	1313.1	128.9	17781.7
1410.00	1273.3	77.1	1.0	0.15	9.5	1322.6	128.9	17910.6
1420.00	1273.7	77.2	1.0	0.15	9.5	1332.2	129.0	18039.6
1430.00	1274.2	77.2	1.0	0.15	9.5	1341.7	129.0	18168.6
1440.00	1274.6	77.3	1.0	0.15	9.5	1351.2	129.0	18297.6
1450.00	1275.0	77.3	1.0	0.15	9.5	1360.8	129.1	18426.7
1460.00	1275.4	77.3	1.0	0.15	9.5	1370.3	129.1	18555.8
1470.00	1275.9	77.4	1.0	0.15	9.5	1379.8	129.1	18685.0
1480.00	1276.3	77.4	1.0	0.15	9.5	1389.4	129.2	18814.1
1490.00	1276.7	77.4	1.0	0.15	9.5	1398.9	129.2	18943.3
1500.00	1277.2	77.5	1.0	0.15	9.5	1408.4	129.2	19072.6
1510.00	1277.6	77.5	1.0	0.15	9.5	1418.0	129.3	19201.8
1520.00	1278.0	77.6	1.0	0.15	9.5	1427.5	129.3	19331.1
1530.00	1278.5	77.6	1.0	0.15	9.6	1437.1	129.3	19460.5
1540.00	1278.9	77.6	1.0	0.15	9.6	1446.6	129.4	19589.9
1550.00	1279.3	77.7	1.0	0.15	9.6	1456.2	129.4	19719.3
1560.00	1279.7	77.7	1.0	0.15	9.6	1465.8	129.4	19848.7
1570.00	1280.2	77.7	1.0	0.15	9.6	1475.3	129.5	19978.2
1580.00	1280.6	77.7	1.0	0.15	9.6	1484.9	129.5	20107.7
1590.00	1281.0	77.8	1.0	0.15	9.6	1494.5	129.5	20237.2
1600.00	1281.5	77.8	1.0	0.15	9.6	1504.0	129.6	20366.8
1610.00	1281.9	77.8	1.0	0.15	9.6	1513.6	129.6	20496.4
1620.00	1282.3	77.8	1.0	0.15	9.6	1523.2	129.6	20626.0
1630.00	1282.8	77.9	1.0	0.15	9.6	1532.7	129.7	20755.7
1640.00	1283.2	77.9	1.0	0.15	9.6	1542.3	129.7	20885.4
1650.00	1283.6	78.0	1.0	0.15	9.6	1551.9	129.7	21015.2
1660.00	1284.1	78.1	1.0	0.15	9.6	1561.5	129.8	21144.9
1665.50	1284.3	78.1	1.0	0.15	5.3	1566.8	71.4	21216.3
1669.25	1284.5	78.1	1.0	62.10	1447.3	3014.0	19598.5	40814.8
1671.00	1284.5	78.3	1.0	108.80	1183.1	4197.2	16021.5	56836.4
1672.50	1284.6	78.3	1.0	112.71	1050.4	5247.6	14223.8	71060.2
1674.00	1284.7	78.3	1.0	126.59	1179.8	6427.3	15975.8	87036.0
1675.25	1284.7	78.3	1.0	128.03	994.4	7421.8	13466.1	100502.1
1677.50	1284.8	78.3	1.0	107.23	1499.2	8920.9	20301.2	120803.3
1678.50	1284.9	78.3	1.0	103.67	644.2	9565.2	8723.6	129527.0
1679.75	1284.9	78.3	1.0	89.58	695.9	10261.0	9423.0	138949.9
1681.00	1285.0	78.6	1.0	83.61	649.4	10910.4	8794.0	147744.0
1682.75	1285.0	78.6	1.0	62.62	680.8	11591.2	9218.8	156962.7
1683.25	1285.1	78.6	1.0	49.48	153.7	11744.9	2081.2	159044.0
1688.75	1285.3	78.6	1.0	52.41	1790.9	13535.7	24251.0	183295.0
Averages:	Pressure 1251.3	Temperature 74.2	Zave 1.00	Unit Vol. 52.4			Total Volume (SCF)	183,295.0

FINAL MASS BALANCE CALCULATIONS								
Well Name: State LPG Storage No. 3			FINAL		12/9/22 9:04 AM			
Operator: Marathon Petroleum Company, LLC			1194.1					
Project No.: 192025AS			psig					
Depth (ft)	Pressure (psia)	Temperature (°F)	Zave	Unit Volume (ft³/ft)	Mass (lb)	Cumulative Mass (lb)	Volume (SCF)	Cumulative Volume (SCF)
0.00	1208.8	54.8	1.0	0.15				
10.00	1209.2	53.1	1.0	0.15	9.5	9.5	128.8	128.8
20.00	1209.6	56.4	1.0	0.15	9.5	19.0	128.6	257.5
30.00	1210.1	59.4	1.0	0.15	9.4	28.5	127.8	385.3
40.00	1210.5	61.6	1.0	0.15	9.4	37.8	127.1	512.4
50.00	1210.9	63.0	1.0	0.15	9.4	47.2	126.7	639.1
60.00	1211.3	64.2	1.0	0.15	9.3	56.5	126.4	765.4
70.00	1211.8	65.1	1.0	0.15	9.3	65.8	126.1	891.6
80.00	1212.2	65.9	1.0	0.15	9.3	75.1	125.9	1017.5
90.00	1212.6	69.7	1.0	0.15	9.3	84.4	125.4	1142.9
100.00	1213.0	70.1	1.0	0.15	9.2	93.6	124.8	1267.7
110.00	1213.4	70.1	1.0	0.15	9.2	102.8	124.8	1392.5
120.00	1213.8	70.2	1.0	0.15	9.2	112.1	124.9	1517.4
130.00	1214.3	70.2	1.0	0.15	9.2	121.3	124.9	1642.3
140.00	1214.7	70.3	1.0	0.15	9.2	130.5	124.9	1767.2
150.00	1215.1	70.3	1.0	0.15	9.2	139.7	124.9	1892.1
160.00	1215.5	70.4	1.0	0.15	9.2	149.0	125.0	2017.1
170.00	1215.9	70.4	1.0	0.15	9.2	158.2	125.0	2142.1
180.00	1216.3	70.4	1.0	0.15	9.2	167.4	125.0	2267.1
190.00	1216.7	70.4	1.0	0.15	9.2	176.7	125.1	2392.2
200.00	1217.2	70.5	1.0	0.15	9.2	185.9	125.1	2517.3
210.00	1217.6	70.5	1.0	0.15	9.2	195.1	125.1	2642.5
220.00	1218.0	70.5	1.0	0.15	9.2	204.4	125.2	2767.7
230.00	1218.4	70.6	1.0	0.15	9.2	213.6	125.2	2892.9
240.00	1218.8	70.6	1.0	0.15	9.2	222.9	125.2	3018.1
250.00	1219.2	70.6	1.0	0.15	9.3	232.1	125.3	3143.4
260.00	1219.7	70.7	1.0	0.15	9.3	241.4	125.3	3268.7
270.00	1220.1	70.7	1.0	0.15	9.3	250.6	125.3	3394.1
280.00	1220.5	70.8	1.0	0.15	9.3	259.9	125.4	3519.4
290.00	1220.9	70.8	1.0	0.15	9.3	269.2	125.4	3644.8
300.00	1221.3	70.9	1.0	0.15	9.3	278.4	125.4	3770.3
310.00	1221.7	70.9	1.0	0.15	9.3	287.7	125.5	3895.7
320.00	1222.2	71.0	1.0	0.15	9.3	297.0	125.5	4021.2
330.00	1222.6	71.1	1.0	0.15	9.3	306.2	125.5	4146.7
340.00	1223.0	71.1	1.0	0.15	9.3	315.5	125.5	4272.2
350.00	1223.4	71.2	1.0	0.15	9.3	324.8	125.6	4397.8
360.00	1223.8	71.2	1.0	0.15	9.3	334.0	125.6	4523.4
370.00	1224.3	71.2	1.0	0.15	9.3	343.3	125.6	4649.0
380.00	1224.7	71.3	1.0	0.15	9.3	352.6	125.7	4774.7
390.00	1225.1	71.3	1.0	0.15	9.3	361.9	125.7	4900.4
400.00	1225.5	71.3	1.0	0.15	9.3	371.2	125.7	5026.1
410.00	1225.9	71.4	1.0	0.15	9.3	380.4	125.8	5151.9
420.00	1226.3	71.4	1.0	0.15	9.3	389.7	125.8	5277.6
430.00	1226.8	71.5	1.0	0.15	9.3	399.0	125.8	5403.5
440.00	1227.2	71.5	1.0	0.15	9.3	408.3	125.9	5529.3
450.00	1227.6	71.6	1.0	0.15	9.3	417.6	125.9	5655.2
460.00	1228.0	71.6	1.0	0.15	9.3	426.9	125.9	5781.1
470.00	1228.4	71.7	1.0	0.15	9.3	436.2	125.9	5907.0
480.00	1228.9	71.8	1.0	0.15	9.3	445.5	126.0	6033.0
490.00	1229.3	71.8	1.0	0.15	9.3	454.8	126.0	6158.9
500.00	1229.7	71.9	1.0	0.15	9.3	464.1	126.0	6284.9
510.00	1230.1	72.0	1.0	0.15	9.3	473.4	126.0	6411.0
520.00	1230.5	72.0	1.0	0.15	9.3	482.7	126.0	6537.0
530.00	1230.9	72.1	1.0	0.15	9.3	492.0	126.1	6663.1
540.00	1231.4	72.2	1.0	0.15	9.3	501.4	126.1	6789.2
550.00	1231.8	72.2	1.0	0.15	9.3	510.7	126.1	6915.3
560.00	1232.2	72.3	1.0	0.15	9.3	520.0	126.1	7041.5
570.00	1232.6	72.4	1.0	0.15	9.3	529.3	126.2	7167.6
580.00	1233.0	72.4	1.0	0.15	9.3	538.6	126.2	7293.8
590.00	1233.5	72.5	1.0	0.15	9.3	547.9	126.2	7420.0
600.00	1233.9	72.5	1.0	0.15	9.3	557.3	126.3	7546.3
610.00	1234.3	72.6	1.0	0.15	9.3	566.6	126.3	7672.6
620.00	1234.7	72.6	1.0	0.15	9.3	575.9	126.3	7798.9
630.00	1235.1	72.7	1.0	0.15	9.3	585.3	126.3	7925.2
640.00	1235.6	72.7	1.0	0.15	9.3	594.6	126.4	8051.6
650.00	1236.0	72.8	1.0	0.15	9.3	603.9	126.4	8178.0
660.00	1236.4	72.8	1.0	0.15	9.3	613.3	126.4	8304.4
670.00	1236.8	72.9	1.0	0.15	9.3	622.6	126.5	8430.9

FINAL MASS BALANCE CALCULATIONS								
Well Name: State LPG Storage No. 3			FINAL		12/9/22 9:04 AM			
Operator: Marathon Petroleum Company, LLC			1194.1					
Project No.: 192025AS			psig					
Depth (ft)	Pressure (psia)	Temperature (°F)	Zave	Unit Volume (ft³/ft)	Mass (lb)	Cumulative Mass (lb)	Volume (SCF)	Cumulative Volume (SCF)
680.00	1237.2	72.9	1.0	0.15	9.3	631.9	126.5	8557.4
690.00	1237.7	73.0	1.0	0.15	9.3	641.3	126.5	8683.9
700.00	1238.1	73.0	1.0	0.15	9.3	650.6	126.5	8810.4
710.00	1238.5	73.1	1.0	0.15	9.3	660.0	126.6	8937.0
720.00	1238.9	73.1	1.0	0.15	9.3	669.3	126.6	9063.6
730.00	1239.3	73.2	1.0	0.15	9.4	678.7	126.6	9190.2
740.00	1239.8	73.2	1.0	0.15	9.4	688.0	126.7	9316.9
750.00	1240.2	73.3	1.0	0.15	9.4	697.4	126.7	9443.5
760.00	1240.6	73.3	1.0	0.15	9.4	706.7	126.7	9570.2
770.00	1241.0	73.4	1.0	0.15	9.4	716.1	126.7	9697.0
780.00	1241.5	73.4	1.0	0.15	9.4	725.5	126.8	9823.7
790.00	1241.9	73.5	1.0	0.15	9.4	734.8	126.8	9950.5
800.00	1242.3	73.6	1.0	0.15	9.4	744.2	126.8	10077.4
810.00	1242.7	73.6	1.0	0.15	9.4	753.5	126.8	10204.2
820.00	1243.1	73.7	1.0	0.15	9.4	762.9	126.9	10331.1
830.00	1243.6	73.8	1.0	0.15	9.4	772.3	126.9	10458.0
840.00	1244.0	73.8	1.0	0.15	9.4	781.7	126.9	10584.9
850.00	1244.4	73.9	1.0	0.15	9.4	791.0	126.9	10711.8
860.00	1244.8	73.9	1.0	0.15	9.4	800.4	127.0	10838.8
870.00	1245.3	74.0	1.0	0.15	9.4	809.8	127.0	10965.8
880.00	1245.7	74.1	1.0	0.15	9.4	819.2	127.0	11092.8
890.00	1246.1	74.2	1.0	0.15	9.4	828.6	127.0	11219.9
900.00	1246.5	74.2	1.0	0.15	9.4	837.9	127.1	11346.9
910.00	1246.9	74.3	1.0	0.15	9.4	847.3	127.1	11474.0
920.00	1247.4	74.4	1.0	0.15	9.4	856.7	127.1	11601.1
930.00	1247.8	74.5	1.0	0.15	9.4	866.1	127.1	11728.3
940.00	1248.2	74.5	1.0	0.15	9.4	875.5	127.2	11855.4
950.00	1248.6	74.6	1.0	0.15	9.4	884.9	127.2	11982.6
960.00	1249.1	74.7	1.0	0.15	9.4	894.3	127.2	12109.8
970.00	1249.5	74.8	1.0	0.15	9.4	903.7	127.2	12237.0
980.00	1249.9	74.8	1.0	0.15	9.4	913.1	127.2	12364.2
990.00	1250.3	74.9	1.0	0.15	9.4	922.5	127.3	12491.5
1000.00	1250.7	75.0	1.0	0.15	9.4	931.9	127.3	12618.8
1010.00	1251.2	75.1	1.0	0.15	9.4	941.3	127.3	12746.1
1020.00	1251.6	75.1	1.0	0.15	9.4	950.7	127.3	12873.4
1030.00	1252.0	75.2	1.0	0.15	9.4	960.1	127.4	13000.8
1040.00	1252.4	75.3	1.0	0.15	9.4	969.5	127.4	13128.2
1050.00	1252.9	75.3	1.0	0.15	9.4	978.9	127.4	13255.6
1060.00	1253.3	75.4	1.0	0.15	9.4	988.3	127.4	13383.0
1070.00	1253.7	75.5	1.0	0.15	9.4	997.7	127.5	13510.4
1080.00	1254.1	75.6	1.0	0.15	9.4	1007.1	127.5	13637.9
1090.00	1254.6	75.6	1.0	0.15	9.4	1016.5	127.5	13765.4
1100.00	1255.0	75.7	1.0	0.15	9.4	1025.9	127.5	13892.9
1110.00	1255.4	75.8	1.0	0.15	9.4	1035.4	127.5	14020.5
1120.00	1255.8	75.8	1.0	0.15	9.4	1044.8	127.6	14148.0
1130.00	1256.3	75.9	1.0	0.15	9.4	1054.2	127.6	14275.6
1140.00	1256.7	76.0	1.0	0.15	9.4	1063.6	127.6	14403.2
1150.00	1257.1	76.0	1.0	0.15	9.4	1073.1	127.6	14530.9
1160.00	1257.5	76.1	1.0	0.15	9.4	1082.5	127.7	14658.5
1170.00	1258.0	76.1	1.0	0.15	9.4	1091.9	127.7	14786.2
1180.00	1258.4	76.2	1.0	0.15	9.4	1101.3	127.7	14914.0
1190.00	1258.8	76.2	1.0	0.15	9.4	1110.8	127.8	15041.7
1200.00	1259.2	76.3	1.0	0.15	9.4	1120.2	127.8	15169.5

FINAL MASS BALANCE CALCULATIONS								
Well Name:		State LPG Storage No. 3			FINAL	12/9/22 9:04 AM		
Operator:		Marathon Petroleum Company, LLC			1194.1			
Project No.:		192025AS			psig			
Depth (ft)	Pressure (psia)	Temperature (°F)	Zave	Unit Volume (ft³/ft)	Mass (lb)	Cumulative Mass (lb)	Volume (SCF)	Cumulative Volume (SCF)
1210.00	1259.7	76.3	1.0	0.15	9.4	1129.7	127.8	15297.3
1220.00	1260.1	76.3	1.0	0.15	9.4	1139.1	127.8	15425.2
1230.00	1260.5	76.4	1.0	0.15	9.4	1148.5	127.9	15553.1
1240.00	1260.9	76.4	1.0	0.15	9.4	1158.0	127.9	15681.0
1250.00	1261.4	76.4	1.0	0.15	9.4	1167.4	127.9	15808.9
1260.00	1261.8	76.5	1.0	0.15	9.5	1176.9	128.0	15936.9
1270.00	1262.2	76.5	1.0	0.15	9.5	1186.3	128.0	16064.9
1280.00	1262.6	76.5	1.0	0.15	9.5	1195.8	128.1	16193.0
1290.00	1263.1	76.6	1.0	0.15	9.5	1205.3	128.1	16321.1
1300.00	1263.5	76.6	1.0	0.15	9.5	1214.7	128.1	16449.2
1310.00	1263.9	76.7	1.0	0.15	9.5	1224.2	128.1	16577.3
1320.00	1264.3	76.7	1.0	0.15	9.5	1233.6	128.2	16705.5
1330.00	1264.8	76.8	1.0	0.15	9.5	1243.1	128.2	16833.7
1340.00	1265.2	76.8	1.0	0.15	9.5	1252.6	128.2	16961.9
1350.00	1265.6	76.8	1.0	0.15	9.5	1262.1	128.3	17090.2
1360.00	1266.0	76.9	1.0	0.15	9.5	1271.5	128.3	17218.5
1370.00	1266.5	76.9	1.0	0.15	9.5	1281.0	128.3	17346.8
1380.00	1266.9	77.0	1.0	0.15	9.5	1290.5	128.4	17475.2
1390.00	1267.3	77.0	1.0	0.15	9.5	1300.0	128.4	17603.6
1400.00	1267.7	77.1	1.0	0.15	9.5	1309.5	128.4	17732.0
1410.00	1268.2	77.1	1.0	0.15	9.5	1318.9	128.4	17860.4
1420.00	1268.6	77.1	1.0	0.15	9.5	1328.4	128.5	17988.9
1430.00	1269.0	77.2	1.0	0.15	9.5	1337.9	128.5	18117.4
1440.00	1269.5	77.2	1.0	0.15	9.5	1347.4	128.5	18246.0
1450.00	1269.9	77.3	1.0	0.15	9.5	1356.9	128.6	18374.5
1460.00	1270.3	77.3	1.0	0.15	9.5	1366.4	128.6	18503.1
1470.00	1270.7	77.3	1.0	0.15	9.5	1375.9	128.6	18631.8
1480.00	1271.2	77.4	1.0	0.15	9.5	1385.4	128.7	18760.5
1490.00	1271.6	77.4	1.0	0.15	9.5	1394.9	128.7	18889.2
1500.00	1272.0	77.4	1.0	0.15	9.5	1404.4	128.7	19017.9
1510.00	1272.5	77.5	1.0	0.15	9.5	1413.9	128.8	19146.7
1520.00	1272.9	77.5	1.0	0.15	9.5	1423.4	128.8	19275.5
1530.00	1273.3	77.6	1.0	0.15	9.5	1432.9	128.8	19404.3
1540.00	1273.7	77.6	1.0	0.15	9.5	1442.5	128.9	19533.2
1550.00	1274.2	77.6	1.0	0.15	9.5	1452.0	128.9	19662.1
1560.00	1274.6	77.7	1.0	0.15	9.5	1461.5	128.9	19791.0
1570.00	1275.0	77.7	1.0	0.15	9.5	1471.0	129.0	19920.0
1580.00	1275.5	77.7	1.0	0.15	9.5	1480.6	129.0	20049.0
1590.00	1275.9	77.8	1.0	0.15	9.5	1490.1	129.0	20178.0
1600.00	1276.3	77.8	1.0	0.15	9.5	1499.6	129.1	20307.1
1610.00	1276.7	77.8	1.0	0.15	9.5	1509.1	129.1	20436.2
1620.00	1277.2	77.9	1.0	0.15	9.5	1518.7	129.1	20565.3
1630.00	1277.6	77.9	1.0	0.15	9.5	1528.2	129.2	20694.5
1640.00	1278.0	78.0	1.0	0.15	9.5	1537.8	129.2	20823.7
1650.00	1278.5	78.1	1.0	0.15	9.5	1547.3	129.2	20952.9
1660.00	1278.9	78.1	1.0	0.15	9.5	1556.8	129.2	21082.1
1665.50	1279.1	78.1	1.0	0.15	5.2	1562.1	71.1	21153.2
1669.25	1279.3	78.1	1.0	62.10	1441.6	3003.7	19521.5	40674.7
1671.00	1279.4	78.2	1.0	108.80	1178.6	4182.3	15960.4	56635.2
1672.50	1279.4	78.2	1.0	112.71	1046.5	5228.8	14171.3	70806.4
1674.00	1279.5	78.2	1.0	126.59	1175.4	6404.2	15916.7	86723.2
1675.25	1279.5	78.2	1.0	128.03	990.8	7395.0	13416.4	100139.6
1677.50	1279.6	78.2	1.0	107.23	1493.6	8888.6	20226.2	120365.8
1678.50	1279.7	78.2	1.0	103.67	641.8	9530.5	8691.4	129057.2
1679.75	1279.7	78.2	1.0	89.58	693.3	10223.7	9388.2	138445.4
1681.00	1279.8	78.4	1.0	83.61	647.1	10870.8	8762.2	147207.6
1682.75	1279.9	78.4	1.0	62.62	678.4	11549.2	9186.2	156393.8
1683.25	1279.9	78.4	1.0	49.48	153.1	11702.3	2073.9	158467.6
1688.75	1280.1	78.4	1.0	52.41	1784.5	13486.9	24165.2	182632.9
Averages:	Pressure 1246.3	Temperature 73.7	Zave 1.00				Total Volume (SCF)	182,632.9

APPENDIX

F. TEST DATA

MIT INJECTION DATA

POST INJECTION MIT DATA

WELLBORE TEMPERATURE DATA

MIT INJECTION DATA						
Well Name: State LPG Storage No. 3				Project No.: 192025AS		
Operator: Marathon Petroleum Company, LLC				WSP Rep. Gabriel Holmes		
Well Location: Lea / NM				Start Injection: 12/7/22 11:49		
Wireline Company: Sonic Surveys				End Injection: 12/7/22 17:25		
Nitrogen Supplier/Pumper: CUDD				Data Interval (min.): 1.0		
Date & Time	Annular Pressure	Tubular Pressure	Ambient Temperature	Injected Fluid Temperature	Injection Rate	Injection Volume
	psig	psig	°F	°F	SCFM	SCF
12/7/22 11:49	92.7	98.4	66.1	61.9	93.9	4.7
12/7/22 11:50	92.8	114.2	66.2	60.9	292.5	360.2
12/7/22 11:51	92.9	123.8	66.3	63.4	232.3	619.2
12/7/22 11:52	93.0	131.0	66.3	66.6	201.1	831.7
12/7/22 11:53	466.2	136.8	66.4	68.3	778.3	1140.5
12/7/22 11:54	514.8	142.9	66.5	70.1	799.6	1940.5
12/7/22 11:55	559.1	146.8	66.5	70.8	818.0	2756.4
12/7/22 11:56	600.1	153.1	66.5	71.2	825.0	3579.1
12/7/22 11:57	638.0	156.5	66.6	72.3	826.6	4404.3
12/7/22 11:58	673.5	160.1	66.6	73.1	828.9	5231.4
12/7/22 11:59	707.3	164.2	66.6	73.5	831.2	6061.3
12/7/22 12:00	739.2	167.0	66.6	74.1	831.1	6894.1
12/7/22 12:01	769.8	169.9	66.6	74.0	833.6	7727.7
12/7/22 12:02	799.4	173.2	66.6	73.7	835.2	8563.9
12/7/22 12:03	823.9	175.6	66.6	72.8	0.0	9294.1
12/7/22 12:04	822.0	175.3	66.5	72.5	0.0	9294.1
12/7/22 12:05	822.0	175.2	66.5	72.2	0.0	9294.1
12/7/22 12:06	821.9	176.5	66.5	72.0	0.0	9294.1
12/7/22 12:07	821.9	176.5	66.4	71.6	0.0	9294.1
12/7/22 12:08	830.6	177.3	66.4	68.6	789.7	9520.9
12/7/22 12:09	857.1	179.9	66.4	70.8	810.4	10327.7
12/7/22 12:10	882.4	182.5	66.4	72.0	813.7	11141.8
12/7/22 12:11	907.0	186.1	66.4	72.8	820.9	11961.2
12/7/22 12:12	931.1	188.4	66.4	73.9	816.7	12779.2
12/7/22 12:13	954.2	190.7	66.5	74.3	816.6	13597.4
12/7/22 12:14	970.9	194.5	66.5	73.9	816.7	14416.9
12/7/22 12:15	984.7	197.7	66.5	73.5	821.4	15237.4
12/7/22 12:16	998.3	200.9	66.6	73.8	824.4	16058.7
12/7/22 12:17	1002.4	201.9	66.6	73.3	0.0	16348.7
12/7/22 12:18	1002.1	201.0	66.6	73.7	0.0	16348.7
12/7/22 12:19	1001.8	201.6	66.6	73.8	0.0	16348.7
12/7/22 12:20	1001.7	201.4	66.6	73.7	0.0	16348.7
12/7/22 12:21	1001.5	201.3	66.6	73.6	0.0	16348.7
12/7/22 12:22	1001.5	201.2	66.6	73.3	0.0	16348.7
12/7/22 12:23	1001.4	201.0	66.6	69.1	0.0	16348.7
12/7/22 12:24	1001.3	201.0	66.6	67.0	0.0	16348.7
12/7/22 12:25	1001.2	200.9	66.6	66.2	0.0	16348.7
12/7/22 12:26	1001.1	200.8	66.6	65.7	0.0	16348.7
12/7/22 12:27	1001.1	200.7	66.6	65.5	0.0	16348.7
12/7/22 12:28	1001.0	200.6	66.6	65.4	0.0	16348.7
12/7/22 12:29	1000.9	200.6	66.6	65.5	0.0	16348.7
12/7/22 12:30	1000.9	200.5	66.6	65.7	0.0	16348.7
12/7/22 12:31	1000.8	200.5	66.5	65.9	0.0	16348.7
12/7/22 12:32	1000.8	200.4	66.5	66.3	0.0	16348.7
12/7/22 12:33	1000.7	200.3	66.5	66.6	0.0	16348.7
12/7/22 12:34	1000.6	200.3	66.4	66.9	0.0	16348.7
12/7/22 12:35	1000.6	200.2	66.4	67.0	0.0	16348.7
12/7/22 12:36	1000.6	200.2	66.4	67.1	0.0	16348.7
12/7/22 12:37	1000.5	200.1	66.4	67.1	0.0	16348.7
12/7/22 12:38	1000.5	200.1	66.3	67.2	0.0	16348.7
12/7/22 12:39	1000.4	200.0	66.3	67.1	0.0	16348.7
12/7/22 12:40	1000.4	199.7	66.3	67.0	0.0	16348.7
12/7/22 12:41	1000.4	199.7	66.3	66.9	0.0	16348.7
12/7/22 12:42	1000.3	199.5	66.3	66.8	0.0	16348.7
12/7/22 12:43	1000.3	199.8	66.3	66.7	0.0	16348.7
12/7/22 12:44	1000.2	199.7	66.3	66.5	0.0	16348.7
12/7/22 12:45	1000.2	199.7	66.2	66.4	0.0	16348.7
12/7/22 12:46	1000.2	199.7	66.2	66.3	0.0	16348.7
12/7/22 12:47	1000.1	199.6	66.2	66.2	0.0	16348.7
12/7/22 12:48	1000.1	199.6	66.2	66.2	0.0	16348.7
12/7/22 12:49	1000.1	199.5	66.2	66.1	0.0	16348.7

MIT INJECTION DATA						
Well Name: State LPG Storage No. 3				Project No.: 192025AS		
Operator: Marathon Petroleum Company, LLC				WSP Rep. Gabriel Holmes		
Well Location: Lea / NM				Start Injection: 12/7/22 11:49		
Wireline Company: Sonic Surveys				End Injection: 12/7/22 17:25		
Nitrogen Supplier/Pumper: CUDD				Data Interval (min.): 1.0		
Date & Time	Annular Pressure	Tubular Pressure	Ambient Temperature	Injected Fluid Temperature	Injection Rate	Injection Volume
	psig	psig	°F	°F	SCFM	SCF
12/7/22 12:50	1000.0	199.5	66.2	66.0	0.0	16348.7
12/7/22 12:51	1000.0	199.5	66.2	65.9	0.0	16348.7
12/7/22 12:52	1000.0	199.4	66.1	65.9	0.0	16348.7
12/7/22 12:53	999.9	199.4	66.1	65.8	0.0	16348.7
12/7/22 12:54	999.9	199.3	66.1	65.7	0.0	16348.7
12/7/22 12:55	999.9	199.3	66.1	65.7	0.0	16348.7
12/7/22 12:56	999.9	199.3	66.0	65.7	0.0	16348.7
12/7/22 12:57	999.8	199.2	66.0	65.7	0.0	16348.7
12/7/22 12:58	999.8	199.2	66.0	65.6	0.0	16348.7
12/7/22 12:59	999.8	199.2	65.9	65.6	0.0	16348.7
12/7/22 13:00	999.7	199.1	65.9	65.6	0.0	16348.7
12/7/22 13:01	999.7	199.1	65.9	65.5	0.0	16348.7
12/7/22 13:02	999.7	199.1	65.9	65.5	0.0	16348.7
12/7/22 13:03	999.7	199.1	65.9	65.5	0.0	16348.7
12/7/22 13:04	999.6	199.0	65.9	65.4	0.0	16348.7
12/7/22 13:05	999.6	199.0	65.9	65.4	0.0	16348.7
12/7/22 13:06	999.6	199.0	65.9	65.4	0.0	16348.7
12/7/22 13:07	999.6	198.9	65.9	65.3	0.0	16348.7
12/7/22 13:08	999.5	198.9	65.9	65.3	0.0	16348.7
12/7/22 13:09	999.5	198.9	65.9	65.2	0.0	16348.7
12/7/22 13:10	999.5	198.8	65.9	65.2	0.0	16348.7
12/7/22 13:11	999.5	198.6	65.9	65.1	0.0	16348.7
12/7/22 13:12	999.4	198.5	65.9	65.0	0.0	16348.7
12/7/22 13:13	999.4	198.2	65.9	64.9	0.0	16348.7
12/7/22 13:14	999.4	198.7	65.9	64.8	0.0	16348.7
12/7/22 13:15	999.4	198.7	65.9	64.8	0.0	16348.7
12/7/22 13:16	999.4	198.7	65.9	64.7	0.0	16348.7
12/7/22 13:17	999.3	198.6	65.9	64.6	0.0	16348.7
12/7/22 13:18	999.3	198.6	65.9	64.6	0.0	16348.7
12/7/22 13:19	999.3	198.6	65.9	64.5	0.0	16348.7
12/7/22 13:20	999.3	198.6	65.9	64.4	0.0	16348.7
12/7/22 13:21	999.3	198.5	65.9	64.4	0.0	16348.7
12/7/22 13:22	999.2	198.5	65.9	64.3	0.0	16348.7
12/7/22 13:23	999.2	198.5	65.9	64.3	0.0	16348.7
12/7/22 13:24	999.2	198.5	65.9	64.3	0.0	16348.7
12/7/22 13:25	999.2	198.4	66.0	64.3	0.0	16348.7
12/7/22 13:26	999.2	198.4	66.0	64.2	0.0	16348.7
12/7/22 13:27	999.1	198.4	66.0	64.2	0.0	16348.7
12/7/22 13:28	999.1	198.4	66.0	64.2	0.0	16348.7
12/7/22 13:29	999.1	198.3	66.1	64.1	0.0	16348.7
12/7/22 13:30	999.1	198.3	66.1	64.1	0.0	16348.7
12/7/22 13:31	999.1	198.4	66.1	64.1	0.0	16348.7
12/7/22 13:32	999.1	198.3	66.2	64.1	0.0	16348.7
12/7/22 13:33	999.0	198.3	66.2	64.1	0.0	16348.7
12/7/22 13:34	999.0	198.2	66.3	64.1	0.0	16348.7
12/7/22 13:35	999.0	198.2	66.4	64.1	0.0	16348.7
12/7/22 13:36	999.0	198.2	66.4	64.1	0.0	16348.7
12/7/22 13:37	999.0	198.2	66.4	64.1	0.0	16348.7
12/7/22 13:38	998.9	198.2	66.5	64.1	0.0	16348.7
12/7/22 13:39	998.9	198.1	66.5	64.1	0.0	16348.7
12/7/22 13:40	998.9	198.1	66.6	64.2	0.0	16348.7
12/7/22 13:41	998.9	197.8	66.6	64.2	0.0	16348.7
12/7/22 13:42	998.9	197.6	66.7	64.2	0.0	16348.7
12/7/22 13:43	998.9	198.1	66.7	64.2	0.0	16348.7
12/7/22 13:44	998.8	198.2	66.7	64.2	0.0	16348.7
12/7/22 13:45	998.8	198.1	66.8	64.2	0.0	16348.7
12/7/22 13:46	998.8	198.0	66.8	64.2	0.0	16348.7
12/7/22 13:47	998.8	198.2	66.8	64.2	0.0	16348.7
12/7/22 13:48	998.8	198.3	66.8	64.2	0.0	16348.7
12/7/22 13:49	998.8	198.4	66.8	64.2	0.0	16348.7
12/7/22 13:50	998.8	198.5	66.8	64.1	0.0	16348.7

MIT INJECTION DATA						
Well Name: State LPG Storage No. 3				Project No.: 192025AS		
Operator: Marathon Petroleum Company, LLC				WSP Rep. Gabriel Holmes		
Well Location: Lea / NM				Start Injection: 12/7/22 11:49		
Wireline Company: Sonic Surveys				End Injection: 12/7/22 17:25		
Nitrogen Supplier/Pumper: CUDD				Data Interval (min.): 1.0		
Date & Time	Annular Pressure	Tubular Pressure	Ambient Temperature	Injected Fluid Temperature	Injection Rate	Injection Volume
	psig	psig	°F	°F	SCFM	SCF
12/7/22 13:51	998.7	198.6	66.8	64.1	0.0	16348.7
12/7/22 13:52	998.7	198.6	66.8	64.1	0.0	16348.7
12/7/22 13:53	998.7	198.7	66.8	64.1	0.0	16348.7
12/7/22 13:54	998.7	198.8	66.8	64.1	0.0	16348.7
12/7/22 13:55	998.7	198.9	66.8	64.1	0.0	16348.7
12/7/22 13:56	998.6	199.0	66.8	78.8	0.0	16348.7
12/7/22 13:57	1001.7	-0.4	66.8	63.6	781.5	16524.4
12/7/22 13:58	1003.7	3.6	66.8	62.7	820.7	17339.8
12/7/22 13:59	1001.6	8.4	66.8	66.5	822.4	18161.0
12/7/22 14:00	1002.0	21.6	66.8	72.7	1213.5	19274.6
12/7/22 14:01	1002.6	33.2	66.8	74.3	1197.5	20480.3
12/7/22 14:02	1003.1	34.9	66.7	73.0	1198.8	21677.5
12/7/22 14:03	1003.6	36.2	66.7	72.9	1202.2	22879.6
12/7/22 14:04	1004.1	37.8	66.6	72.8	1203.2	24083.4
12/7/22 14:05	1004.5	39.3	66.5	73.3	1204.9	25289.7
12/7/22 14:06	1005.0	39.1	66.5	74.1	1205.9	26496.5
12/7/22 14:07	1005.4	37.9	66.4	74.6	1204.9	27702.9
12/7/22 14:08	1005.8	37.7	66.4	74.9	1204.8	28909.5
12/7/22 14:09	1006.2	37.8	66.3	74.8	1205.3	30114.6
12/7/22 14:10	1006.6	37.6	66.3	74.7	1206.1	31320.3
12/7/22 14:11	1006.9	39.3	66.3	74.6	1209.3	32527.9
12/7/22 14:12	1007.1	38.7	66.2	74.6	1209.5	33735.8
12/7/22 14:13	1007.4	38.8	66.2	75.0	1208.9	34943.9
12/7/22 14:14	1007.6	36.7	66.2	75.7	1207.3	36153.0
12/7/22 14:15	1008.4	71.0	66.2	75.7	1208.2	37363.2
12/7/22 14:16	1009.4	71.6	66.2	75.1	1210.7	38573.5
12/7/22 14:17	1010.3	73.0	66.2	75.0	1212.1	39784.7
12/7/22 14:18	1011.2	73.8	66.2	75.3	1209.9	40997.8
12/7/22 14:19	1012.2	74.6	66.2	75.6	1210.4	42211.9
12/7/22 14:20	1013.1	81.1	66.2	76.0	1210.4	43425.2
12/7/22 14:21	1014.1	82.8	66.3	76.2	1213.4	44638.2
12/7/22 14:22	1015.1	87.8	66.3	75.0	1212.7	45851.0
12/7/22 14:23	1016.0	88.3	66.3	74.3	1215.6	47065.9
12/7/22 14:24	1016.9	90.7	66.4	74.0	1214.9	48280.7
12/7/22 14:25	1017.9	90.5	66.4	74.0	1213.4	49495.5
12/7/22 14:26	1019.0	89.7	66.5	74.3	1213.9	50710.7
12/7/22 14:27	1019.9	89.3	66.6	74.7	1214.1	51925.6
12/7/22 14:28	1020.9	90.3	66.6	75.2	1213.9	53140.7
12/7/22 14:29	1021.9	91.0	66.7	75.6	1219.1	54356.6
12/7/22 14:30	1022.9	91.4	66.7	75.5	1215.5	55573.3
12/7/22 14:31	1023.9	93.1	66.8	75.3	1219.6	56791.3
12/7/22 14:32	1024.7	96.8	66.9	75.1	1218.6	58010.8
12/7/22 14:33	1025.6	97.0	66.9	75.0	1219.8	59230.9
12/7/22 14:34	1026.4	95.8	67.0	75.0	1215.5	60448.4
12/7/22 14:35	1027.2	92.9	67.0	75.0	1211.5	61660.9
12/7/22 14:36	1028.2	94.6	67.0	75.0	1215.1	62874.9
12/7/22 14:37	1029.0	95.4	67.1	75.3	1217.8	64093.1
12/7/22 14:38	1029.9	95.3	67.1	74.4	1216.0	65310.3
12/7/22 14:39	1030.8	95.6	67.2	73.9	1218.3	66529.4
12/7/22 14:40	1031.5	96.2	67.2	73.8	1219.5	67749.8
12/7/22 14:41	1032.4	97.9	67.2	73.8	1223.1	68971.9
12/7/22 14:42	1033.1	101.8	67.2	73.9	1223.7	70195.2
12/7/22 14:43	1033.8	102.8	67.2	74.1	1210.9	71416.2
12/7/22 14:44	1034.5	103.2	67.2	74.4	1216.2	72631.3
12/7/22 14:45	1035.2	100.7	67.2	74.6	1219.0	73849.3
12/7/22 14:46	1036.0	99.3	67.3	74.8	1216.9	75068.1
12/7/22 14:47	1036.8	99.6	67.3	75.0	1218.5	76289.4
12/7/22 14:48	1037.6	100.2	67.3	75.3	1225.1	77512.3
12/7/22 14:49	1038.3	100.9	67.4	75.1	1226.5	78737.2
12/7/22 14:50	1039.1	101.3	67.4	75.1	1224.6	79963.0
12/7/22 14:51	1039.6	102.7	67.5	74.8	1208.0	81161.7

MIT INJECTION DATA						
Well Name: State LPG Storage No. 3				Project No.: 192025AS		
Operator: Marathon Petroleum Company, LLC				WSP Rep. Gabriel Holmes		
Well Location: Lea / NM				Start Injection: 12/7/22 11:49		
Wireline Company: Sonic Surveys				End Injection: 12/7/22 17:25		
Nitrogen Supplier/Pumper: CUDD				Data Interval (min.): 1.0		
Date & Time	Annular Pressure	Tubular Pressure	Ambient Temperature	Injected Fluid Temperature	Injection Rate	Injection Volume
	psig	psig	°F	°F	SCFM	SCF
12/7/22 14:52	1040.3	105.4	67.5	74.9	1210.8	82372.9
12/7/22 14:53	1040.9	107.5	67.5	75.4	1218.2	83589.5
12/7/22 14:54	1041.5	105.0	67.6	75.3	1221.8	84809.5
12/7/22 14:55	1042.2	101.6	67.6	75.2	1222.7	86032.5
12/7/22 14:56	1042.9	103.5	67.6	75.5	1225.4	87257.5
12/7/22 14:57	1043.6	104.1	67.6	75.1	1227.3	88483.9
12/7/22 14:58	1044.3	104.8	67.6	74.4	1230.0	89713.1
12/7/22 14:59	1044.9	105.5	67.6	74.1	1223.7	90937.1
12/7/22 15:00	1045.7	141.5	67.6	74.1	1227.1	92164.9
12/7/22 15:01	1046.9	143.1	67.6	74.2	1231.0	93395.0
12/7/22 15:02	1044.2	145.3	67.6	73.9	0.0	93910.7
12/7/22 15:03	1040.3	141.9	67.5	73.6	0.0	93910.7
12/7/22 15:04	1036.8	140.5	67.5	73.1	0.0	93910.7
12/7/22 15:05	1034.7	198.1	67.4	72.6	0.0	93910.7
12/7/22 15:06	1034.8	218.9	67.4	72.0	0.0	93910.7
12/7/22 15:07	1035.5	218.3	67.3	69.6	684.1	94010.4
12/7/22 15:08	1040.1	223.2	67.2	67.9	1211.0	95065.5
12/7/22 15:09	1044.9	228.0	67.1	72.7	1214.0	96278.4
12/7/22 15:10	1049.6	232.7	67.0	74.4	1211.5	97491.3
12/7/22 15:11	1054.2	237.5	66.9	75.9	1213.6	98704.5
12/7/22 15:12	1058.6	242.2	66.7	77.3	1212.3	99918.3
12/7/22 15:13	1063.1	246.8	66.5	76.1	1215.1	101132.3
12/7/22 15:14	1067.4	251.3	66.4	76.4	1213.8	102347.6
12/7/22 15:15	1071.7	255.6	66.2	77.3	1216.1	103564.6
12/7/22 15:16	1075.9	260.0	66.1	76.0	1216.3	104781.4
12/7/22 15:17	1080.1	264.4	66.0	74.5	1219.3	105998.1
12/7/22 15:18	1084.3	268.9	65.8	74.0	1219.7	107215.6
12/7/22 15:19	1088.4	273.2	65.7	73.9	1219.0	108433.7
12/7/22 15:20	1092.5	277.4	65.6	74.1	1217.6	109652.9
12/7/22 15:21	1096.5	281.7	65.5	74.6	1223.3	110873.6
12/7/22 15:22	1100.5	285.9	65.4	75.2	1217.8	112095.4
12/7/22 15:23	1104.5	290.1	65.3	75.8	1223.1	113318.1
12/7/22 15:24	1108.5	294.2	65.2	76.4	1223.3	114541.1
12/7/22 15:25	1112.5	297.9	65.1	76.9	1226.2	115765.9
12/7/22 15:26	1116.4	302.4	65.0	77.2	1226.6	116991.7
12/7/22 15:27	1120.3	306.4	64.9	77.5	1227.5	118219.0
12/7/22 15:28	1124.2	310.4	64.8	77.7	1231.0	119447.3
12/7/22 15:29	1128.0	314.3	64.7	77.8	1229.2	120676.8
12/7/22 15:30	1131.8	318.3	64.6	77.8	1230.3	121906.8
12/7/22 15:31	1135.7	322.4	64.6	77.7	1228.9	123137.2
12/7/22 15:32	1139.4	326.2	64.5	77.8	1232.6	124368.3
12/7/22 15:33	1143.2	330.1	64.4	77.5	1228.9	125600.5
12/7/22 15:34	1146.9	333.8	64.3	77.0	1231.1	126832.0
12/7/22 15:35	1150.6	337.5	64.2	76.9	1235.5	128063.9
12/7/22 15:36	1154.2	341.6	64.1	76.8	1230.8	129296.0
12/7/22 15:37	1157.8	345.4	64.0	76.9	1231.4	130528.7
12/7/22 15:38	1161.5	349.2	63.9	76.8	1232.5	131761.8
12/7/22 15:39	1165.1	352.9	63.9	76.5	1234.2	132995.0
12/7/22 15:40	1168.7	356.6	63.8	76.2	1235.7	134228.8
12/7/22 15:41	1172.3	360.4	63.7	75.9	1234.5	135462.6
12/7/22 15:42	1175.8	364.1	63.6	75.7	1235.8	136697.3
12/7/22 15:43	1179.3	367.7	63.5	75.7	1236.3	137932.3
12/7/22 15:44	1182.9	371.5	63.5	75.6	1237.3	139167.7
12/7/22 15:45	1186.4	374.9	63.4	75.4	1238.4	140403.3
12/7/22 15:46	1189.8	378.5	63.4	75.3	1236.1	141640.2
12/7/22 15:47	1193.3	382.1	63.3	75.3	1233.5	142876.8
12/7/22 15:48	1196.6	385.7	63.2	75.4	1233.7	144113.8
12/7/22 15:49	1200.0	389.2	63.1	75.4	1234.2	145350.3
12/7/22 15:50	1203.5	392.7	63.0	75.4	1237.6	146587.3
12/7/22 15:51	1206.8	396.3	62.9	75.4	1237.8	147825.7
12/7/22 15:52	1210.2	399.7	62.8	75.5	1238.0	149065.1

MIT INJECTION DATA						
Well Name: State LPG Storage No. 3				Project No.: 192025AS		
Operator: Marathon Petroleum Company, LLC				WSP Rep. Gabriel Holmes		
Well Location: Lea / NM				Start Injection: 12/7/22 11:49		
Wireline Company: Sonic Surveys				End Injection: 12/7/22 17:25		
Nitrogen Supplier/Pumper: CUDD				Data Interval (min.): 1.0		
Date & Time	Annular Pressure	Tubular Pressure	Ambient Temperature	Injected Fluid Temperature	Injection Rate	Injection Volume
	psig	psig	°F	°F	SCFM	SCF
12/7/22 15:53	1213.4	403.2	62.7	75.5	1238.2	150302.6
12/7/22 15:54	1214.9	405.2	62.7	75.2	0.0	151075.3
12/7/22 15:55	1214.1	404.4	62.6	75.6	0.0	151075.3
12/7/22 15:56	1213.5	403.7	62.5	72.8	0.0	151075.3
12/7/22 15:57	1213.1	403.5	62.5	71.3	0.0	151075.3
12/7/22 15:58	1212.6	403.0	62.5	70.7	0.0	151075.3
12/7/22 15:59	1212.2	402.6	62.5	70.3	0.0	151075.3
12/7/22 16:00	1211.8	402.0	62.4	70.0	0.0	151075.3
12/7/22 16:01	1211.5	401.7	62.4	69.7	0.0	151075.3
12/7/22 16:02	1211.2	401.5	62.4	69.3	0.0	151075.3
12/7/22 16:03	1210.9	401.9	62.4	69.0	0.0	151075.3
12/7/22 16:04	1210.6	401.7	62.4	68.7	0.0	151075.3
12/7/22 16:05	1210.4	401.6	62.4	68.3	0.0	151075.3
12/7/22 16:06	1210.1	401.2	62.3	68.0	0.0	151075.3
12/7/22 16:07	1209.9	401.1	62.3	67.7	0.0	151075.3
12/7/22 16:08	1209.6	401.0	62.2	67.4	0.0	151075.3
12/7/22 16:09	1209.4	400.5	62.2	67.1	0.0	151075.3
12/7/22 16:10	1209.2	400.3	62.1	66.8	0.0	151075.3
12/7/22 16:11	1209.0	400.1	62.1	66.5	0.0	151075.3
12/7/22 16:12	1208.8	399.8	62.0	66.1	0.0	151075.3
12/7/22 16:13	1208.6	399.6	62.0	65.8	0.0	151075.3
12/7/22 16:14	1208.4	399.1	61.9	65.4	0.0	151075.3
12/7/22 16:15	1208.2	398.8	61.9	65.1	0.0	151075.3
12/7/22 16:16	1208.0	398.2	61.8	64.8	0.0	151075.3
12/7/22 16:17	1207.9	398.0	61.7	64.6	0.0	151075.3
12/7/22 16:18	1207.7	397.3	61.7	64.3	0.0	151075.3
12/7/22 16:19	1207.5	397.6	61.6	63.8	0.0	151075.3
12/7/22 16:20	1207.4	397.6	61.5	63.5	0.0	151075.3
12/7/22 16:21	1207.3	397.4	61.5	63.2	0.0	151075.3
12/7/22 16:22	1207.1	397.2	61.4	63.0	0.0	151075.3
12/7/22 16:23	1207.0	397.1	61.3	62.8	0.0	151075.3
12/7/22 16:24	1206.9	397.0	61.3	62.5	0.0	151075.3
12/7/22 16:25	1206.8	396.9	61.2	62.2	0.0	151075.3
12/7/22 16:26	1206.7	396.7	61.2	62.0	0.0	151075.3
12/7/22 16:27	1206.5	396.6	61.2	61.8	0.0	151075.3
12/7/22 16:28	1206.4	396.5	61.1	61.3	0.0	151075.3
12/7/22 16:29	1206.3	396.4	61.1	61.3	0.0	151075.3
12/7/22 16:30	1206.2	396.2	61.1	61.1	0.0	151075.3
12/7/22 16:31	1206.1	396.1	61.0	60.8	0.0	151075.3
12/7/22 16:32	1206.0	396.0	61.0	60.7	0.0	151075.3
12/7/22 16:33	1205.9	395.9	61.0	60.6	0.0	151075.3
12/7/22 16:34	1200.2	32.3	60.9	60.3	0.0	151075.3
12/7/22 16:35	1192.8	30.1	60.9	60.1	0.0	151075.3
12/7/22 16:36	1185.7	30.5	60.9	59.9	0.0	151075.3
12/7/22 16:37	1178.7	30.0	60.9	59.8	0.0	151075.3
12/7/22 16:38	1171.8	29.2	60.9	59.6	0.0	151075.3
12/7/22 16:39	1165.1	28.5	60.9	59.4	0.0	151075.3
12/7/22 16:40	1158.5	27.9	60.9	59.4	0.0	151075.3
12/7/22 16:41	1151.9	27.3	61.0	59.2	0.0	151075.3
12/7/22 16:42	1145.6	26.5	61.0	59.0	0.0	151075.3
12/7/22 16:43	1144.6	328.3	61.0	58.8	0.0	151075.3
12/7/22 16:44	1144.9	331.6	61.0	67.2	0.0	151098.3
12/7/22 16:45	1145.2	331.8	60.9	63.5	0.0	151098.3
12/7/22 16:46	1145.4	332.0	60.9	61.1	0.0	151098.3
12/7/22 16:47	1146.5	332.7	60.8	60.9	1178.0	151318.3
12/7/22 16:48	1151.0	336.8	60.8	67.1	1212.9	152536.6
12/7/22 16:49	1155.1	340.9	60.7	70.6	1231.0	153761.4
12/7/22 16:50	1159.2	345.2	60.6	72.2	1233.8	154990.5
12/7/22 16:51	1163.2	348.3	60.6	72.2	1232.0	156221.7
12/7/22 16:52	1167.1	352.3	60.5	72.7	1232.0	157455.0
12/7/22 16:53	1171.0	356.8	60.4	73.6	1233.4	158689.5

MIT INJECTION DATA						
Well Name: State LPG Storage No. 3				Project No.: 192025AS		
Operator: Marathon Petroleum Company, LLC				WSP Rep. Gabriel Holmes		
Well Location: Lea / NM				Start Injection: 12/7/22 11:49		
Wireline Company: Sonic Surveys				End Injection: 12/7/22 17:25		
Nitrogen Supplier/Pumper: CUDD				Data Interval (min.): 1.0		
Date & Time	Annular Pressure	Tubular Pressure	Ambient Temperature	Injected Fluid Temperature	Injection Rate	Injection Volume
	psig	psig	°F	°F	SCFM	SCF
12/7/22 16:54	1174.9	360.4	60.4	74.0	1233.3	159924.6
12/7/22 16:55	1178.7	364.4	60.3	74.8	1235.2	161160.0
12/7/22 16:56	1182.5	368.1	60.3	75.5	1234.1	162396.2
12/7/22 16:57	1186.2	372.2	60.3	75.9	1236.8	163633.5
12/7/22 16:58	1189.8	376.4	60.2	75.5	1238.6	164870.7
12/7/22 16:59	1193.6	380.2	60.2	75.4	1239.7	166108.7
12/7/22 17:00	1197.1	384.1	60.2	74.5	1236.6	167346.0
12/7/22 17:01	1200.6	387.5	60.2	74.2	1235.2	168582.4
12/7/22 17:02	1204.2	392.5	60.2	74.6	1237.6	169820.5
12/7/22 17:03	1207.7	396.2	60.2	73.4	1241.2	171059.4
12/7/22 17:04	1211.1	399.7	60.1	72.4	1238.3	172298.7
12/7/22 17:05	1214.6	403.3	60.1	72.3	1238.9	173539.1
12/7/22 17:06	1215.7	404.7	60.1	72.3	0.0	174166.2
12/7/22 17:07	1215.4	404.6	60.1	72.2	0.0	174166.2
12/7/22 17:08	1215.1	404.3	60.1	71.4	0.0	174166.2
12/7/22 17:09	1214.8	404.0	60.1	70.6	0.0	174166.2
12/7/22 17:10	1214.6	403.1	60.1	70.0	0.0	174166.2
12/7/22 17:11	1214.4	402.8	60.1	69.7	0.0	174166.2
12/7/22 17:12	1214.2	403.4	60.0	69.1	0.0	174166.2
12/7/22 17:13	1214.0	403.1	60.0	68.3	0.0	174166.2
12/7/22 17:14	1213.8	403.0	60.0	67.5	0.0	174166.2
12/7/22 17:15	1213.7	402.9	59.9	66.7	0.0	174166.2
12/7/22 17:16	1213.5	402.7	59.8	66.0	0.0	174166.2
12/7/22 17:17	1213.4	402.5	59.8	65.4	0.0	174166.2
12/7/22 17:18	1213.2	402.4	59.7	64.8	0.0	174166.2
12/7/22 17:19	1213.1	402.3	59.7	64.2	0.0	174166.2
12/7/22 17:20	1213.0	402.1	59.6	63.8	0.0	174166.2
12/7/22 17:21	1212.9	402.0	59.6	63.2	0.0	174166.2
12/7/22 17:22	1212.8	401.9	59.6	62.7	0.0	174166.2
12/7/22 17:23	1212.6	401.7	59.5	62.2	0.0	174166.2
12/7/22 17:24	1212.5	401.6	59.5	61.7	0.0	174166.2
12/7/22 17:25	1212.4	401.5	59.4	61.3	0.0	174166.2

POST INJECTION MIT DATA				
Well Name: State LPG Storage No. 3			Project No.: 192025AS	
Operator: Marathon Petroleum Company, LLC			WSP Rep.: Gabriel Holmes	
Well Location: Lea / NM			Data Start: 12/7/22 17:25	
Wireline Company: Sonic Surveys			Data End: 12/9/22 9:04	
			Data Interval (min.): 15	
Date & Time	Annular Pressure psig	Tubular Pressure psig	Differential Pressure (Annular - Tubular) psig	Ambient Temperature °F
12/7/22 17:25	1212.5	401.6	810.9	59.5
12/7/22 17:30	1212.3	401.4	810.9	59.4
12/7/22 17:45	1210.9	401.0	810.0	59.4
12/7/22 18:00	1210.0	399.5	810.5	59.3
12/7/22 18:15	1209.4	398.1	811.3	59.4
12/7/22 18:30	1208.8	397.6	811.3	59.2
12/7/22 18:45	1208.3	397.0	811.3	59.0
12/7/22 19:00	1207.8	396.5	811.4	58.8
12/7/22 19:15	1207.4	396.1	811.3	58.6
12/7/22 19:30	1207.0	395.7	811.3	58.3
12/7/22 19:45	1206.6	395.2	811.4	56.9
12/7/22 20:00	1206.3	394.9	811.4	56.0
12/7/22 20:15	1206.0	394.6	811.3	55.4
12/7/22 20:30	1205.7	394.3	811.5	55.3
12/7/22 20:45	1205.5	394.0	811.5	55.3
12/7/22 21:00	1205.2	393.7	811.4	55.6
12/7/22 21:15	1205.0	393.5	811.5	55.8
12/7/22 21:30	1204.8	393.4	811.4	55.8
12/7/22 21:45	1204.6	393.2	811.4	55.7
12/7/22 22:00	1204.4	393.0	811.4	55.7
12/7/22 22:15	1204.1	392.7	811.4	55.8
12/7/22 22:30	1204.0	392.6	811.4	55.8
12/7/22 22:45	1203.8	392.4	811.4	55.8
12/7/22 23:00	1203.6	392.2	811.4	55.8
12/7/22 23:15	1203.3	392.0	811.3	55.6
12/7/22 23:30	1203.2	391.9	811.3	55.1
12/7/22 23:45	1203.0	391.8	811.2	54.9
12/8/22 0:00	1202.9	391.6	811.3	54.3
12/8/22 0:15	1202.7	391.6	811.1	53.7
12/8/22 0:30	1202.6	391.6	811.0	53.9
12/8/22 0:45	1202.5	391.7	810.8	54.1
12/8/22 1:00	1202.3	391.7	810.7	54.1
12/8/22 1:15	1202.2	391.7	810.5	54.2
12/8/22 1:30	1202.0	392.0	810.0	53.9
12/8/22 1:45	1201.9	392.3	809.6	53.7
12/8/22 2:00	1201.8	392.7	809.0	53.5
12/8/22 2:15	1201.6	393.2	808.4	53.3
12/8/22 2:30	1201.5	393.6	807.9	53.1
12/8/22 2:45	1201.4	394.0	807.4	52.5
12/8/22 3:00	1201.3	394.4	806.9	52.1
12/8/22 3:15	1201.2	394.9	806.3	52.4
12/8/22 3:30	1201.0	395.4	805.6	51.7
12/8/22 3:45	1200.9	395.9	805.0	50.8
12/8/22 4:00	1200.8	396.4	804.4	50.8
12/8/22 4:15	1200.7	397.0	803.8	50.4
12/8/22 4:30	1200.6	397.5	803.1	49.2
12/8/22 4:45	1200.5	398.0	802.5	48.5
12/8/22 5:00	1200.5	398.5	802.0	48.8
12/8/22 5:15	1200.3	399.1	801.2	48.2
12/8/22 5:30	1200.2	399.6	800.6	47.9
12/8/22 5:45	1200.1	400.0	800.0	47.3
12/8/22 6:00	1200.0	400.4	799.6	47.1
12/8/22 6:15	1200.0	400.9	799.1	47.1
12/8/22 6:30	1199.9	401.4	798.4	47.3
12/8/22 6:45	1199.8	401.9	797.9	47.4
12/8/22 7:00	1199.7	402.4	797.2	47.2
12/8/22 7:15	1199.7	402.9	796.8	47.5
12/8/22 7:30	1199.5	403.5	796.0	47.2
12/8/22 7:45	1199.4	404.0	795.4	46.7
12/8/22 8:00	1199.2	388.5	810.7	46.4
12/8/22 8:15	1199.1	387.8	811.4	46.7
12/8/22 8:30	1199.1	387.9	811.2	47.8
12/8/22 8:45	1199.1	388.1	810.9	49.0

POST INJECTION MIT DATA				
Well Name: State LPG Storage No. 3			Project No.: 192025AS	
Operator: Marathon Petroleum Company, LLC			WSP Rep.: Gabriel Holmes	
Well Location: Lea / NM			Data Start: 12/7/22 17:25	
Wireline Company: Sonic Surveys			Data End: 12/9/22 9:04	
			Data Interval (min.): 15	
Date & Time	Annular Pressure psig	Tubular Pressure psig	Differential Pressure (Annular - Tubular) psig	Ambient Temperature °F
12/8/22 8:58	1199.1	388.6	810.5	50.1
12/8/22 9:00	1199.0	388.6	810.4	50.2
12/8/22 9:15	1199.0	387.8	811.1	51.5
12/8/22 9:30	1199.0	389.2	809.8	53.0
12/8/22 9:45	1198.9	389.5	809.4	54.3
12/8/22 10:00	1198.8	390.2	808.7	55.7
12/8/22 10:15	1198.7	390.8	807.9	59.0
12/8/22 10:30	1198.6	391.1	807.5	62.8
12/8/22 10:45	1198.4	387.0	811.4	65.1
12/8/22 11:00	1198.4	387.4	811.0	67.4
12/8/22 11:15	1198.3	387.5	810.8	69.1
12/8/22 11:30	1198.3	387.8	810.5	70.0
12/8/22 11:45	1198.3	388.1	810.2	71.8
12/8/22 12:00	1198.3	388.6	809.7	73.4
12/8/22 12:15	1198.1	389.5	808.7	72.8
12/8/22 12:30	1198.1	390.2	808.0	70.7
12/8/22 12:45	1198.1	390.9	807.2	69.8
12/8/22 13:00	1198.0	391.8	806.2	70.2
12/8/22 13:15	1198.0	392.5	805.4	71.3
12/8/22 13:30	1198.0	393.5	804.5	73.4
12/8/22 13:45	1197.8	394.1	803.6	76.8
12/8/22 14:00	1197.8	394.8	803.0	79.0
12/8/22 14:15	1197.8	395.6	802.2	80.2
12/8/22 14:30	1197.7	396.5	801.2	79.5
12/8/22 14:45	1197.7	397.2	800.5	78.9
12/8/22 15:00	1197.6	397.9	799.7	79.7
12/8/22 15:15	1197.7	398.7	799.0	79.3
12/8/22 15:30	1197.5	399.3	798.2	79.5
12/8/22 15:45	1197.4	399.9	797.5	80.0
12/8/22 16:00	1197.5	400.5	796.9	81.2
12/8/22 16:15	1197.3	401.2	796.2	80.9
12/8/22 16:30	1197.3	401.8	795.5	80.4
12/8/22 16:45	1197.3	402.4	794.9	78.9
12/8/22 17:00	1197.2	402.9	794.3	77.4
12/8/22 17:15	1197.1	403.5	793.6	75.0
12/8/22 17:30	1197.1	404.2	792.9	73.0
12/8/22 17:45	1197.1	404.8	792.2	69.4
12/8/22 18:00	1197.0	405.4	791.6	65.8
12/8/22 18:15	1196.9	405.9	791.0	63.0
12/8/22 18:30	1196.8	406.4	790.4	60.9
12/8/22 18:45	1196.6	406.9	789.8	59.1
12/8/22 19:00	1196.6	407.4	789.2	58.3
12/8/22 19:15	1196.6	407.9	788.6	57.7
12/8/22 19:30	1196.5	408.5	788.0	56.5
12/8/22 19:45	1196.4	409.0	787.4	55.5
12/8/22 20:00	1196.3	409.6	786.7	54.4
12/8/22 20:15	1196.3	410.1	786.1	54.3
12/8/22 20:30	1196.2	410.8	785.4	53.6
12/8/22 20:45	1196.2	411.4	784.7	53.7
12/8/22 21:00	1196.1	411.9	784.2	52.6
12/8/22 21:15	1196.0	412.5	783.5	52.8
12/8/22 21:30	1196.0	413.1	782.8	52.4
12/8/22 21:45	1196.0	413.7	782.2	51.6
12/8/22 22:00	1195.8	414.4	781.5	50.6
12/8/22 22:15	1195.8	415.0	780.7	50.0
12/8/22 22:30	1195.7	415.6	780.1	49.4
12/8/22 22:45	1195.7	416.2	779.5	49.3
12/8/22 23:00	1195.7	416.8	778.9	48.6
12/8/22 23:15	1195.6	417.4	778.2	47.9
12/8/22 23:30	1195.5	418.0	777.5	47.7
12/8/22 23:45	1195.5	418.6	776.9	47.3
12/9/22 0:00	1195.4	419.3	776.1	46.8
12/9/22 0:15	1195.3	419.8	775.5	46.2

POST INJECTION MIT DATA				
Well Name: State LPG Storage No. 3			Project No.: 192025AS	
Operator: Marathon Petroleum Company, LLC			WSP Rep.: Gabriel Holmes	
Well Location: Lea / NM			Data Start: 12/7/22 17:25	
Wireline Company: Sonic Surveys			Data End: 12/9/22 9:04	
			Data Interval (min.): 15	
Date & Time	Annular Pressure psig	Tubular Pressure psig	Differential Pressure (Annular - Tubular) psig	Ambient Temperature °F
12/9/22 0:30	1195.2	420.4	774.8	45.7
12/9/22 0:45	1195.3	420.9	774.4	45.9
12/9/22 1:00	1195.2	421.4	773.8	45.8
12/9/22 1:15	1195.2	421.9	773.3	45.6
12/9/22 1:30	1195.2	422.5	772.6	46.1
12/9/22 1:45	1195.2	423.2	772.0	47.5
12/9/22 2:00	1195.1	423.7	771.5	48.1
12/9/22 2:15	1195.0	424.3	770.7	47.8
12/9/22 2:30	1195.0	425.0	770.0	47.4
12/9/22 2:45	1194.9	425.7	769.2	46.7
12/9/22 3:00	1194.9	426.3	768.6	45.9
12/9/22 3:15	1194.9	426.8	768.0	45.3
12/9/22 3:30	1194.8	427.3	767.5	44.7
12/9/22 3:45	1194.7	427.8	767.0	44.4
12/9/22 4:00	1194.7	428.2	766.5	44.1
12/9/22 4:15	1194.7	428.7	766.0	43.7
12/9/22 4:30	1194.7	429.1	765.6	44.4
12/9/22 4:45	1194.7	429.6	765.0	45.0
12/9/22 5:00	1194.7	430.1	764.5	45.6
12/9/22 5:15	1194.7	430.6	764.0	46.4
12/9/22 5:30	1194.6	431.1	763.5	46.8
12/9/22 5:45	1194.6	431.6	762.9	47.2
12/9/22 6:00	1194.5	432.1	762.4	47.7
12/9/22 6:15	1194.5	432.6	761.9	48.1
12/9/22 6:30	1194.5	433.1	761.5	48.1
12/9/22 6:45	1194.4	433.5	760.9	48.2
12/9/22 7:00	1194.4	434.0	760.5	48.4
12/9/22 7:15	1194.5	434.4	760.0	48.5
12/9/22 7:30	1194.4	434.9	759.6	48.8
12/9/22 7:45	1194.4	435.3	759.1	49.1
12/9/22 8:00	1194.3	421.4	773.0	49.5
12/9/22 8:15	1194.1	416.7	777.4	50.0
12/9/22 8:30	1194.0	417.2	776.9	50.9
12/9/22 8:45	1194.1	417.8	776.3	51.9
12/9/22 9:00	1194.1	418.7	775.4	52.3
12/9/22 9:04	1194.1	418.9	775.2	52.3

WELLBORE TEMPERATURE DATA

Well Name: State LPG Storage No. 3				WSP Rep.: Gabriel Holmes	
Operator: Marathon Petroleum Company, LLC					
Project No.: 192025AS					
Base Temperature Log December 7, 2022		Initialize Temperature Log December 8, 2022		Finalize Temperature Log December 9, 2022	
Depth	Temperature	Depth	Temperature	Depth	Temperature
0	61.2	0	48.9	0	54.8
10	63.2	10	52.8	10	53.1
20	64.9	20	61.7	20	56.4
30	66.6	30	68.0	30	59.4
40	67.6	40	69.4	40	61.6
50	68.3	50	69.8	50	63.0
60	68.8	60	70.1	60	64.2
70	69.1	70	70.3	70	65.1
80	69.3	80	70.5	80	65.9
90	69.4	90	70.6	90	69.7
100	69.5	100	70.6	100	70.1
110	69.5	110	70.7	110	70.1
120	69.5	120	70.7	120	70.2
130	69.6	130	70.8	130	70.2
140	69.6	140	70.8	140	70.3
150	69.7	150	70.8	150	70.3
160	69.7	160	70.8	160	70.4
170	69.8	170	70.9	170	70.4
180	69.8	180	70.9	180	70.4
190	69.8	190	70.9	190	70.4
200	69.8	200	71.0	200	70.5
210	69.9	210	71.0	210	70.5
220	69.9	220	71.0	220	70.5
230	69.9	230	71.0	230	70.6
240	70.0	240	71.1	240	70.6
250	70.0	250	71.1	250	70.6
260	70.1	260	71.1	260	70.7
270	70.1	270	71.1	270	70.7
280	70.2	280	71.2	280	70.8
290	70.2	290	71.3	290	70.8
300	70.2	300	71.4	300	70.9
310	70.3	310	71.5	310	70.9
320	70.3	320	71.6	320	71.0
330	70.3	330	71.7	330	71.1
340	70.4	340	71.7	340	71.1
350	70.4	350	71.8	350	71.2
360	70.5	360	71.8	360	71.2
370	70.6	370	71.8	370	71.2
380	70.6	380	71.8	380	71.3
390	70.7	390	71.8	390	71.3
400	70.8	400	71.8	400	71.3
410	70.9	410	71.8	410	71.4
420	71.0	420	71.9	420	71.4
430	71.0	430	71.9	430	71.5
440	71.1	440	71.9	440	71.5
450	71.2	450	72.0	450	71.6
460	71.2	460	72.0	460	71.6
470	71.3	470	72.1	470	71.7
480	71.4	480	72.2	480	71.8
490	71.4	490	72.2	490	71.8
500	71.5	500	72.3	500	71.9
510	71.6	510	72.3	510	72.0
520	71.6	520	72.4	520	72.0
530	71.7	530	72.5	530	72.1
540	71.8	540	72.6	540	72.2
550	71.9	550	72.6	550	72.2
560	71.9	560	72.7	560	72.3
570	72.0	570	72.7	570	72.4
580	72.1	580	72.8	580	72.4
590	72.1	590	72.8	590	72.5
600	72.2	600	72.9	600	72.5
610	72.3	610	72.9	610	72.6
620	72.3	620	72.9	620	72.6
630	72.4	630	72.9	630	72.7

WELLBORE TEMPERATURE DATA

Well Name: State LPG Storage No. 3				WSP Rep.: Gabriel Holmes	
Operator: Marathon Petroleum Company, LLC					
Project No.: 192025AS					
Base Temperature Log December 7, 2022		Initialize Temperature Log December 8, 2022		Finalize Temperature Log December 9, 2022	
Depth	Temperature	Depth	Temperature	Depth	Temperature
640	72.4	640	73.0	640	72.7
650	72.5	650	73.0	650	72.8
660	72.6	660	73.1	660	72.8
670	72.6	670	73.1	670	72.9
680	72.7	680	73.2	680	72.9
690	72.7	690	73.2	690	73.0
700	72.8	700	73.2	700	73.0
710	72.8	710	73.3	710	73.1
720	72.9	720	73.4	720	73.1
730	72.9	730	73.4	730	73.2
740	73.0	740	73.5	740	73.2
750	73.0	750	73.6	750	73.3
760	73.1	760	73.6	760	73.3
770	73.1	770	73.6	770	73.4
780	73.2	780	73.7	780	73.4
790	73.3	790	73.8	790	73.5
800	73.3	800	73.8	800	73.6
810	73.4	810	73.9	810	73.6
820	73.5	820	73.9	820	73.7
830	73.5	830	74.0	830	73.8
840	73.6	840	74.0	840	73.8
850	73.6	850	74.1	850	73.9
860	73.7	860	74.2	860	73.9
870	73.8	870	74.2	870	74.0
880	73.9	880	74.3	880	74.1
890	73.9	890	74.4	890	74.2
900	74.0	900	74.4	900	74.2
910	74.1	910	74.5	910	74.3
920	74.1	920	74.6	920	74.4
930	74.2	930	74.6	930	74.5
940	74.3	940	74.7	940	74.5
950	74.3	950	74.8	950	74.6
960	74.4	960	74.9	960	74.7
970	74.5	970	74.9	970	74.8
980	74.6	980	75.0	980	74.8
990	74.7	990	75.1	990	74.9
1000	74.8	1000	75.2	1000	75.0
1010	74.8	1010	75.2	1010	75.1
1020	74.9	1020	75.3	1020	75.1
1030	75.0	1030	75.3	1030	75.2
1040	75.1	1040	75.4	1040	75.3
1050	75.1	1050	75.5	1050	75.3
1060	75.2	1060	75.5	1060	75.4
1070	75.3	1070	75.6	1070	75.5
1080	75.3	1080	75.7	1080	75.6
1090	75.4	1090	75.8	1090	75.6
1100	75.5	1100	75.8	1100	75.7
1110	75.6	1110	75.9	1110	75.8
1120	75.6	1120	76.0	1120	75.8
1130	75.7	1130	76.0	1130	75.9
1140	75.8	1140	76.1	1140	76.0
1150	75.8	1150	76.1	1150	76.0
1160	75.9	1160	76.2	1160	76.1
1170	76.0	1170	76.2	1170	76.1
1180	76.0	1180	76.2	1180	76.2
1190	76.1	1190	76.3	1190	76.2
1200	76.2	1200	76.3	1200	76.3
1210	76.2	1210	76.4	1210	76.3
1220	76.2	1220	76.4	1220	76.3
1230	76.3	1230	76.4	1230	76.4
1240	76.3	1240	76.5	1240	76.4
1250	76.3	1250	76.5	1250	76.4
1260	76.4	1260	76.5	1260	76.5
1270	76.4	1270	76.6	1270	76.5
1280	76.4	1280	76.6	1280	76.5

WELLBORE TEMPERATURE DATA

Well Name: State LPG Storage No. 3				WSP Rep.: Gabriel Holmes	
Operator: Marathon Petroleum Company, LLC					
Project No.: 192025AS					
Base Temperature Log December 7, 2022		Initialize Temperature Log December 8, 2022		Finalize Temperature Log December 9, 2022	
Depth	Temperature	Depth	Temperature	Depth	Temperature
1290	76.5	1290	76.6	1290	76.6
1300	76.5	1300	76.7	1300	76.6
1310	76.6	1310	76.7	1310	76.7
1320	76.6	1320	76.8	1320	76.7
1330	76.6	1330	76.8	1330	76.8
1340	76.7	1340	76.9	1340	76.8
1350	76.7	1350	76.9	1350	76.8
1360	76.8	1360	76.9	1360	76.9
1370	76.8	1370	77.0	1370	76.9
1380	76.9	1380	77.0	1380	77.0
1390	76.9	1390	77.1	1390	77.0
1400	76.9	1400	77.1	1400	77.1
1410	77.0	1410	77.1	1410	77.1
1420	77.0	1420	77.2	1420	77.1
1430	77.1	1430	77.2	1430	77.2
1440	77.1	1440	77.3	1440	77.2
1450	77.2	1450	77.3	1450	77.3
1460	77.2	1460	77.3	1460	77.3
1470	77.3	1470	77.4	1470	77.3
1480	77.3	1480	77.4	1480	77.4
1490	77.3	1490	77.4	1490	77.4
1500	77.4	1500	77.5	1500	77.4
1510	77.4	1510	77.5	1510	77.5
1520	77.5	1520	77.6	1520	77.5
1530	77.5	1530	77.6	1530	77.6
1540	77.5	1540	77.6	1540	77.6
1550	77.6	1550	77.7	1550	77.6
1560	77.6	1560	77.7	1560	77.7
1570	77.6	1570	77.7	1570	77.7
1580	77.7	1580	77.7	1580	77.7
1590	77.7	1590	77.8	1590	77.8
1600	77.7	1600	77.8	1600	77.8
1610	77.8	1610	77.8	1610	77.8
1620	77.8	1620	77.8	1620	77.9
1630	77.8	1630	77.9	1630	77.9
1640	77.9	1640	77.9	1640	78.0
1650	78.0	1650	78.0	1650	78.1
1660	78.0	1660	78.1	1660	78.1
1670	78.1	1670	78.3	1670	78.2
1680	78.3	1680	78.6	1680	78.4
1690	78.4	1690	78.6	1690	78.4
1700	78.5	1700	78.2	1700	78.4
1710	78.6	1710	78.5	1710	78.6
1720	78.6	1720	78.7	1720	78.7
1730	78.6	1730	78.7	1730	78.8
1740	78.6	1740	78.7	1740	78.8
1750	78.6	1750	78.7	1750	78.8
1760	78.6	1760	78.7	1760	78.8
1770	78.6	1770	78.7	1770	78.8
1780	78.6	1780	78.7	1780	78.8
1790	78.6	1790	78.7	1790	78.8
1800	78.6	1800	78.7	1800	78.8
1810	78.6	1810	78.7	1810	78.7
1820	78.6	1820	78.7	1820	78.8
1830	78.7	1830	78.7	1830	78.8
1840	78.7	1840	78.8	1840	78.8
1850	78.7	1850	78.8	1850	78.8
1860	78.7	1860	78.8	1860	78.8
1870	78.7	1870	78.8	1870	78.8

APPENDIX

G. TEST EQUIPMENT CALIBRATION AND CERTIFICATION

Cal-scan Services Ltd.
4188-93 Street
Edmonton, Alberta, Canada
T6E 5P5
Phone: (780) 944-1377 Fax: (780) 944 - 1406

Calibration Certificate

Model : Hawk 9000 **Range :** 3,500.00 psi
Serial Number : 62684 **Last Cal. Date :** 19-May-2022

Specifications

Calibration Pressure Range: 0.00 3,500.00 psi
Calibration Temperature Range: -20.00 80.00 ° C

Pressure: Accuracy ± 0.8400 psi (0.024 %FS)
Resolution ± 0.0105 psi (0.0003 %FS)

Temperature: Accuracy ± 0.040 ° C (0.04 %FS)
Resolution ± 0.001 ° C (0.001 %FS)

Calibration Summary

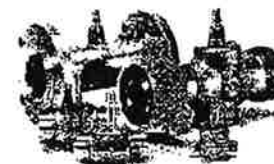
Pressure: Accuracy (maximum error) 0.52 psi
Temperature: Accuracy (maximum error) 0.11 ° C

Traceability Statement

All working standards are traceable to national or internationally recognized standards.
Calibrated with Cal-Scan DWG # 5

Calibrated by:


Ryan Kryzanowski



107 Kitty Hawk Lane • P.O. Box 2145 • Elizabeth City, North Carolina 27906-2145
1-800-628-4584 • (252) 331-1997 • FAX (252) 331-2886
www.hofferflow.com • Email: info@hofferflow.com

Flowmeter Calibration Report

Model: HO2X2-15-CB-1IS40X-NPT-X
Customer: CALSCAN USA
Account: 10401
Cust. PO: LNQ-020712-055
Job Number: 65295
Meter S/N: 143951
Coil: IS40-01-100G 10MV
Calculated gas k-factor is 539.823 pulses/ACF

Date: 3/2/2012 Stand 4
Fluid: WATER
Test range (gpm): 14.996 to 225.120
Linearity (%): +/- 0.47
K' Average (pulses/gal) 72.164

	Frequency Hz	Flowrate GPM	Roshko # Hz/cSt 70F	Strouhal # pul/gal 70F	Fluid Temp Deg. F	Kin. Visc. cSt
1	18.121	14.996	15.703	72.505	62.246	1.154
2	18.123	14.997	15.742	72.505	62.409	1.151
3	24.377	20.259	21.004	72.196	61.860	1.161
4	30.628	25.347	26.240	72.488	61.482	1.167
5	60.800	50.403	51.851	72.363	61.172	1.172
6	90.480	75.164	76.904	72.212	60.945	1.176
7	120.696	100.514	102.311	72.033	60.764	1.180
8	150.753	125.688	127.422	71.951	60.570	1.183
9	179.395	149.799	151.200	71.840	60.378	1.186
10	210.731	176.033	177.176	71.827	60.204	1.189
11	269.477	225.119	226.214	71.823	60.099	1.191
12	269.480	225.120	226.214	71.823	60.098	1.191

We certify that all test equipment used in calibrations are traceable to NIST,
and that our quality assurance system is certified to ISO 9001-2008.

Operator: MRR

Final Approval: 

APPENDIX

H. WIRELINE LOGS

TEMPERATURE LOGS

DENSITY LOGS



TEMPERATURE SURVEY
MECHANICAL INTEGRITY TEST

COMPANY: MARATHON PETROLEUM CO. LLC
WELL: STATE LPG STORAGE WELL #3
FIELD: JAL STATION
COUNTY: LEA NM

Location

Other Services
MIT
DENSITY

Permanent Datum: B.H.F. Elevation: 0' above Perm. Datum
Log meas. from: B.H.F.
Drill. meas. from: UNKNOWN

Depth Scale
1:620

Date 12-07-22

12-08-22

12-09-22

Run No. 1

2

3

Log Type BASE TEMP

START TEMP

FINISH TEMP

Max Temperature 78.8° F

78.8° F

78.8° F

First Reading 0'

0'

0'

Last Reading 1870'

1870'

1870'

Type Fluid in Hole BRINE

BRINE

BRINE

Oper. Rig Time MAST

MAST

MAST

Equip. No / Location 141

141

141

Recorded by HOOPER

HOOPER

HOOPER

Witnessed by MR. HOLMES

MR. HOLMES

MR. HOLMES

Csg. / Tbg. - Dimensions

Borehole - Dimensions

Size

from

to

Run.No.

Bit Size

from

to

9/8"

0'

1665'

7"

0'

1583'

3 1/2"

0'

2434'

Fold Here

In making interpretations of logs, Contractors employees will give the Customer the benefit of their best judgement, but since all interpretations are opinions, based on inferences from electrical or other measurements, Contractor cannot, and does not guarantee the accuracy or the correctness of any interpretation.

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REMARKS

FOUND 9 5/8" CASING @ 1668' ; CORRECTED TO 1665'
LOGS RAN IN CONJUNCTION WITH A MECHANICAL INTEGRITY TEST
TEMPERATURE SCALE: 1 DEGREE PER CHART DIVISION
4 1/16" X 3M

EQUIPMENT DATA

Run	Trip	Instrument	Serial No.	Series No.	Distance to Reference
1-3	3	ANTARES	012A	1466	0.0

Cable Head
Identifier : 1812CableHead
Length : 1.050 ft
Diameter : 1.4 inch
Weight : 1.0 kg

14.71 ft

Sinker Bar
Identifier : SinkerBar5ft 2in
Length : 5.000 ft
Diameter : 2.0 inch

GR BHT MCW

Identifier : 1466
Asset Number : 012
Length : 8.661 ft
Diameter : 1.8 inch
Weight : 15.0 kg
Measure Point : 0.509 ft : BHT
Measure Point : 1.460 ft : Gamma
Measure Point : 7.513 ft : MCW

MCW 7.51 ft

Gamma 1.46 ft

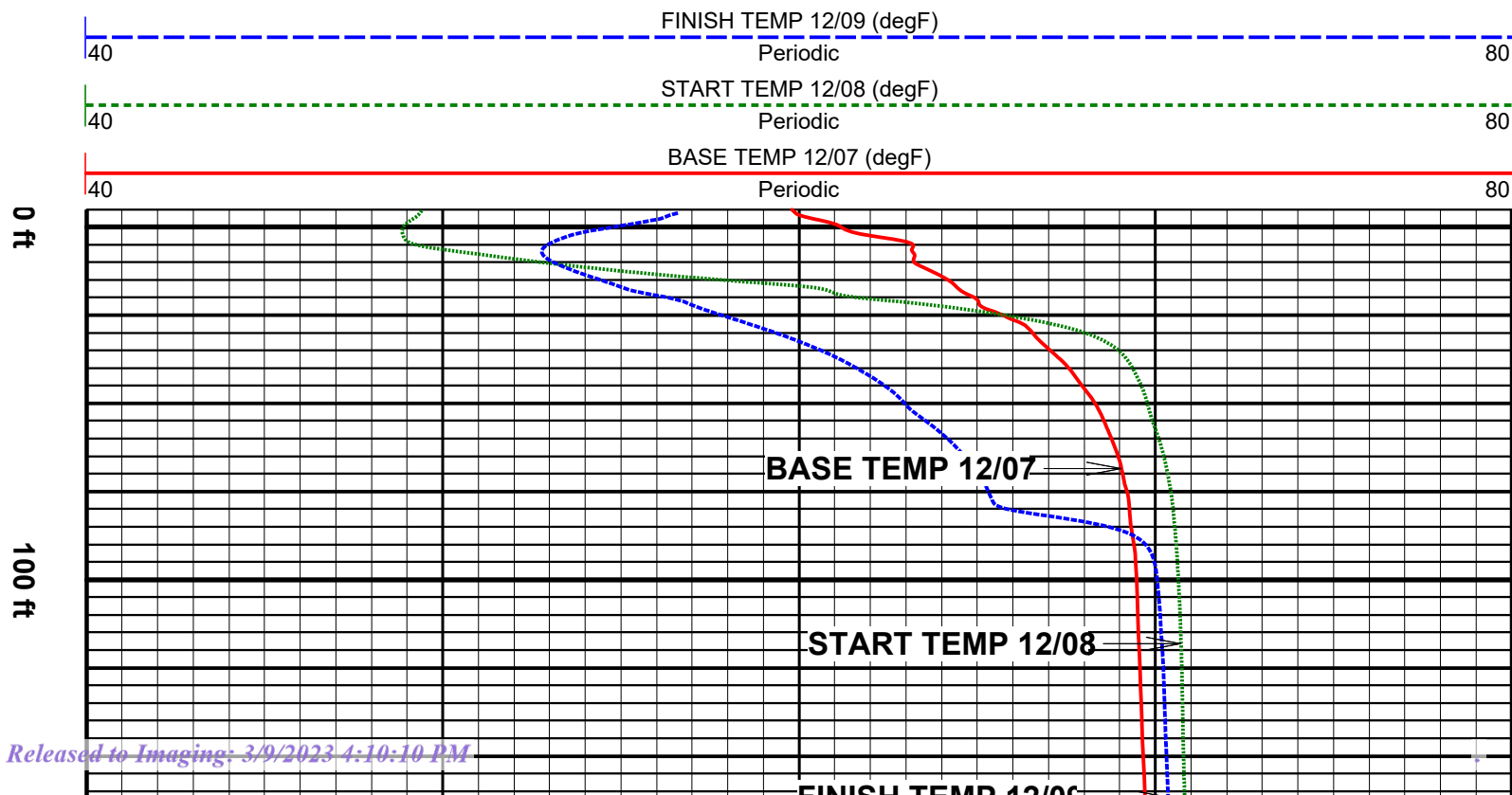
BHT 0.51 ft

0.00 ft

Total Length : 14.71 ft
Total Weight : 39.00 kg
Max Diameter : 2.0 inch

Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 620
Depth in : ft
Software : WinAPIPlot Ver. 7, 7, 5, 0

Date : 09.12.2022
Time : 07:01:01
Remarks : MIT
File Name :



200 ft

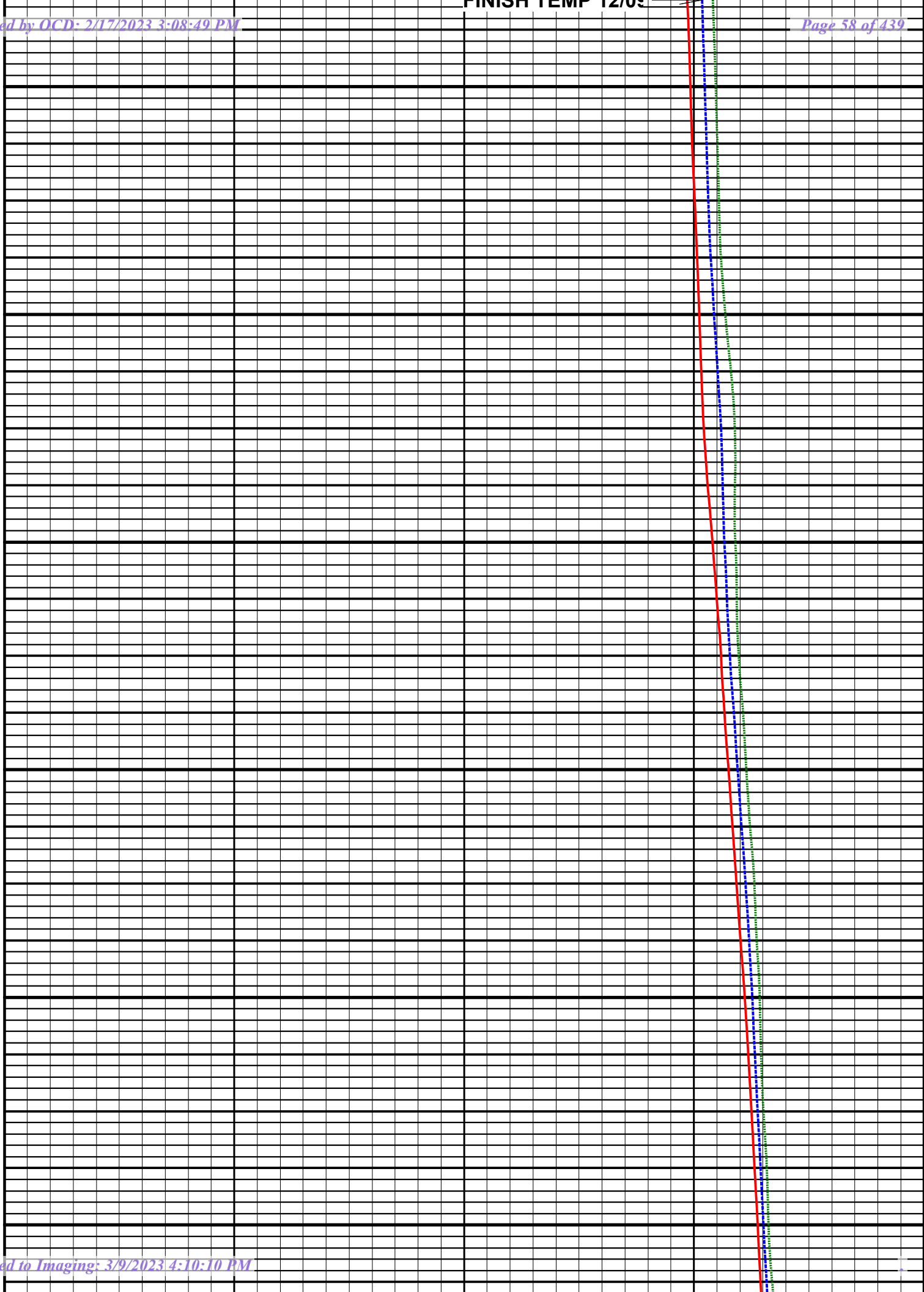
300 ft

400 ft

500 ft

600 ft

700 ft



800 ft

900 ft

1000 ft

1100 ft

1200 ft

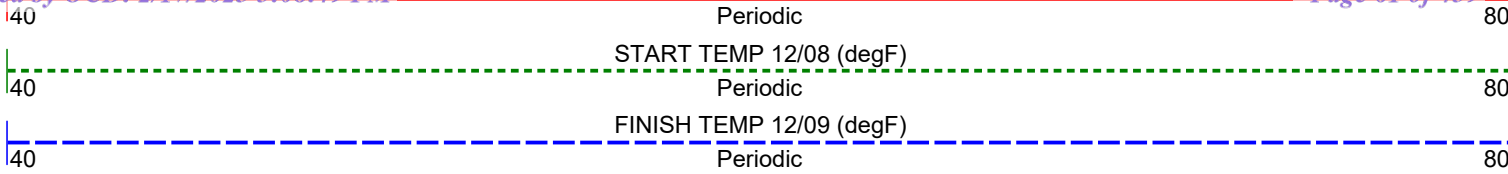
1400 ft

1500 ft

1600 ft

1700 ft

1800 ft



Curve Description

Name	Unit	Description
BASE TEMP 12/07	degF	Borehole Temperature
FINISH TEMP 12/09	degF	Borehole Temperature
START TEMP 12/08	degF	Borehole Temperature

CALIBRATION SUMMARY

GR BHT MCW

Calibration

TempS

1466

1466012

12.02.2013 09:30:00

Point 1

Point 2

TempS

1000 Ohm

1250 Ohm



API #: 30-025-35956

DATE : 12-07-22 THRU 12-09-22

COMPANY: MARATHON PETROLEUM CO. LLC

WELL: STATE LPG STORAGE WELL #3

FIELD: JAL STATION

COUNTY: LEA

STATE: NM

TEMPERATURE SURVEY MECHANICAL INTEGRITY TEST



INTERFACE SURVEY
DUAL STRING COLLAR LOCATOR
MECHANICAL INTEGRITY TEST

COMPANY: MARATHON PETROLEUM CO. LLC
WELL: STATE LPG STORAGE WELL #3
FIELD: JAL STATION
COUNTY: LEA NM

Location

Other Services
TEMPERATURE
DENSITY

Permanent Datum: B.H.F. Elevation: 0'
Log meas. from: B.H.F. 0' above Perm. Datum
Drill. meas. from: UNKNOWN 1:120

Depth Scale

Date 12-07-22 12-08-22 12-09-22

Run No. 1-4 5 6

Log Type BASE / PIPE / POST INJ TEST START TEST FINISH

Max Temperature 1870' / 1720' / 1870' 1870' 1870'

First Reading 1870' / 1720' / 1870' 1870' 1870'

Last Reading 1440' / 1590' / 1490' 1440' 1440'

Type Fluid in Hole BRINE BRINE BRINE

Oper. Rig Time MAST MAST MAST

Equip. No / Location 141 R-157 141 R-157 141 R-157

Recorded by HOOPER HOOPER HOOPER

Witnessed by MR. HOLMES MR. HOLMES MR. HOLMES

Csg. / Tbg. - Dimensions Borehole - Dimensions

Size Weight from to Run.No. Bit Size from to

9/8" CASING 0' 1665' 141 4 1/2" 141 4 1/2"

7" LINER 0' 1583' 141 4 1/2" 141 4 1/2"

3/2" TUBING 0' 2434' 141 4 1/2" 141 4 1/2"

Fold Here

In making interpretations of logs, Contractors employees will give the Customer the benefit of their best judgement, but since all interpretations are opinions, based on inferences from electrical or other measurements, Contractor cannot, and does not guarantee the accuracy or the correctness of any interpretation.

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REMARKS

FOUND 9 5/8" CASING @ 1658' : CORRECTED TO 1665'
LOGS RAN IN CONJUNCTION WITH A MECHANICAL INTEGRITY TEST
4 1/16" X 3M

EQUIPMENT DATA

Run	Trip	Instrument	Serial No.	Series No.	Distance to Reference
1-6	3	ANTARES	012A	1466	0.0

Cable Head

Identifier : 1812CableHead
Length : 1.050 ft
Diameter : 1.4 inch
Weight : 1.0 kg

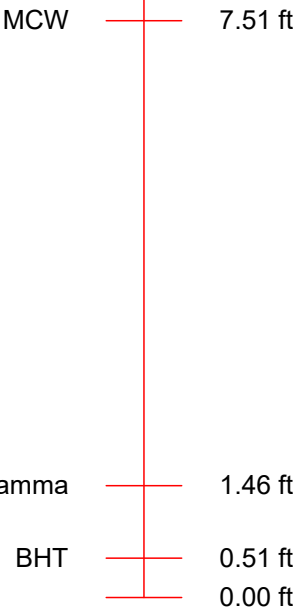
14.71 ft

Sinker Bar

Identifier : SinkerBar5ft_2in
Length : 5.000 ft
Weight : 23.0 kg

GR BHT MCW

Identifier : 1466
Asset Number : 012
Length : 8.661 ft
Diameter : 1.8 inch
Weight : 15.0 kg
Measure Point : 0.509 ft : BHT
Measure Point : 1.460 ft : Gamma
Measure Point : 7.513 ft : MCW

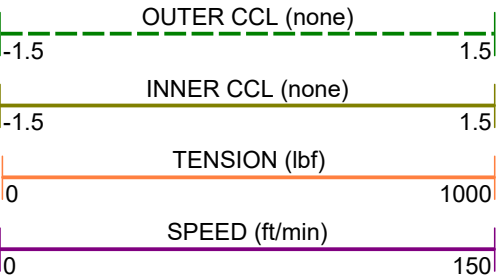


Total Length : 14.71 ft
Total Weight : 39.00 kg
Max Diameter : 2.0 inch

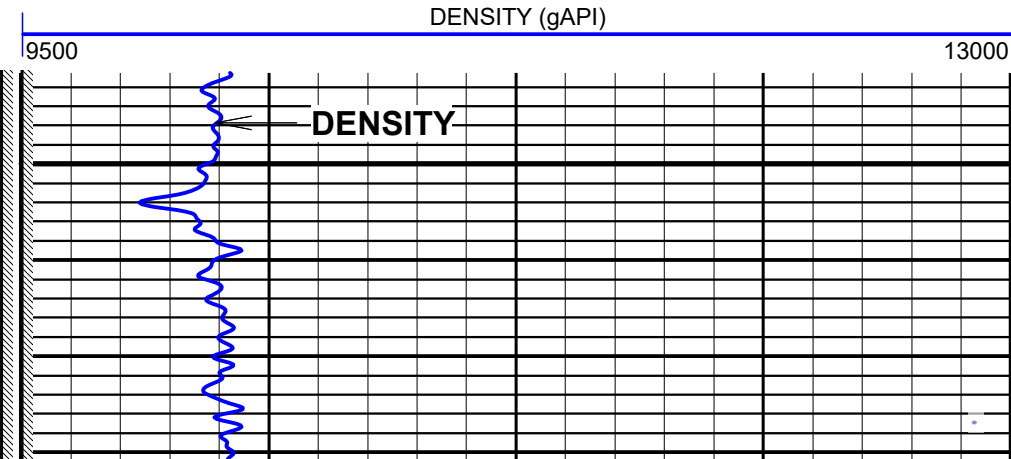
BASE DENSITY LOG 12-07-22

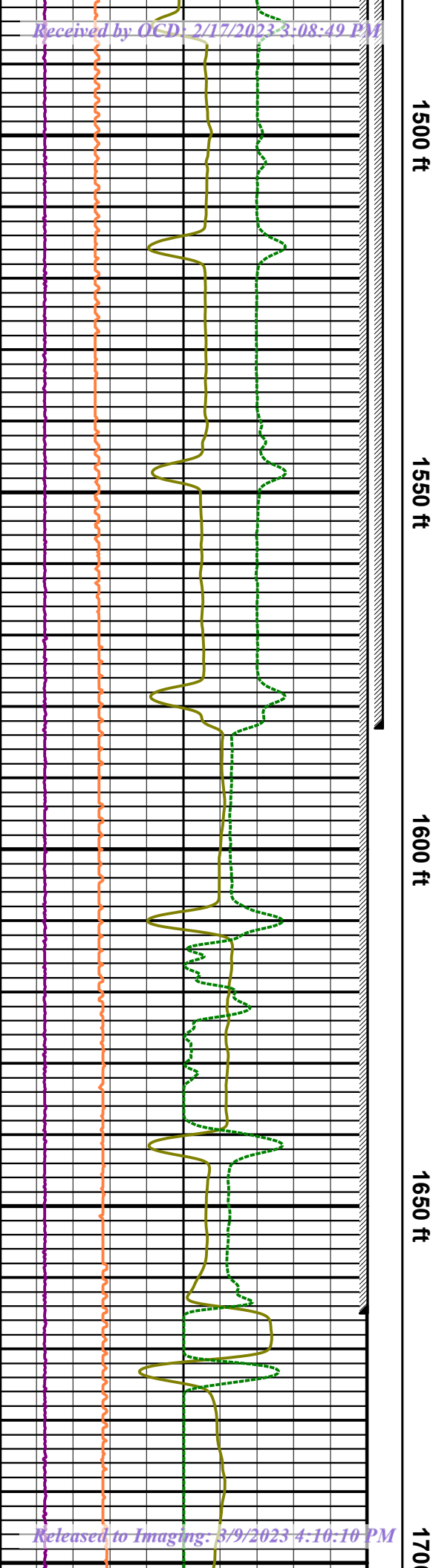
Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 240
Depth in : ft
Software : WinAPIPlot Ver. 7, 7, 5, 0

Date : 07.12.2022
Time : 09:12:00
Remarks : MIT
File Name :



1450 ft





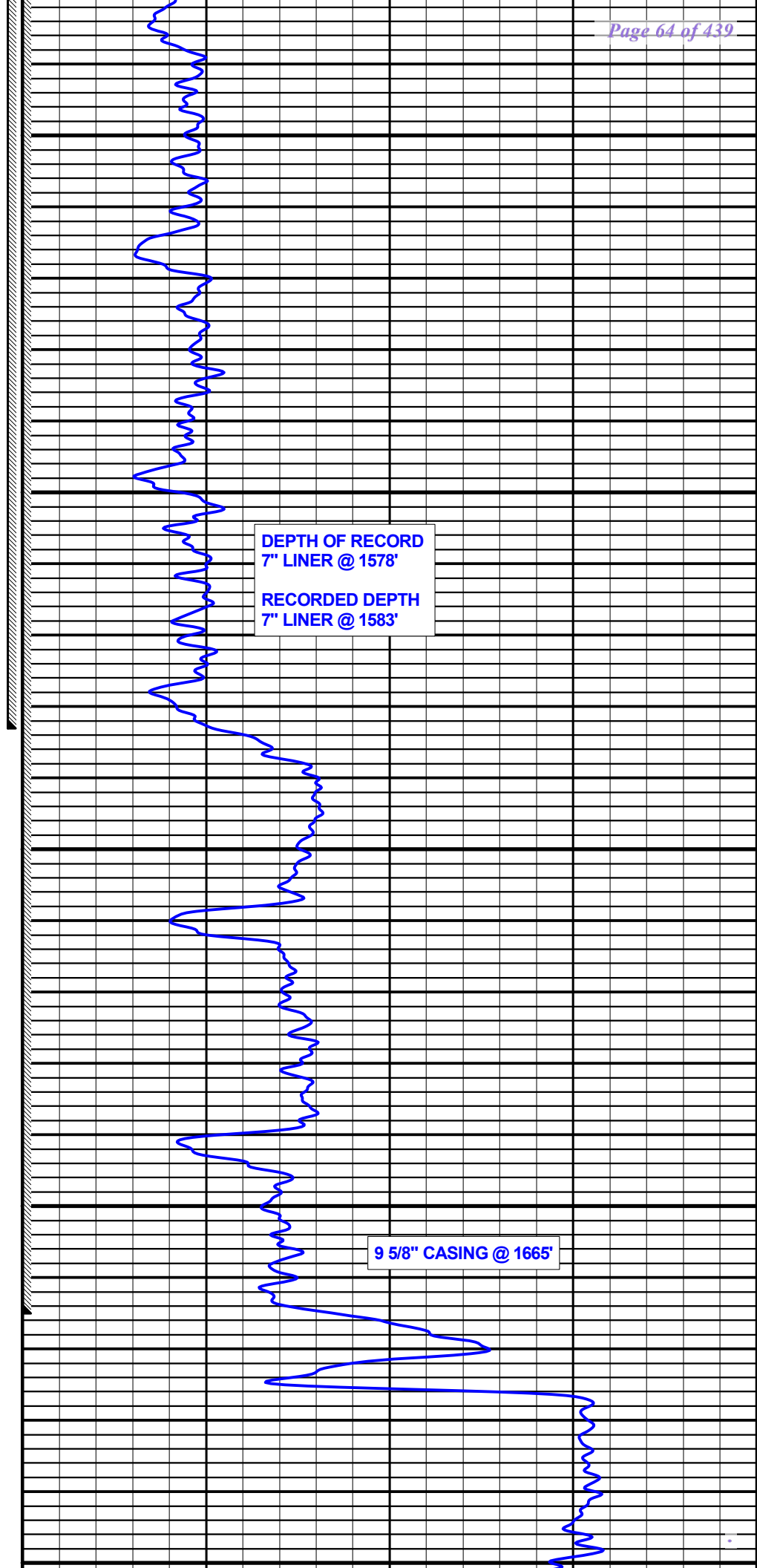
1500 ft

1550 ft

1600 ft

1650 ft

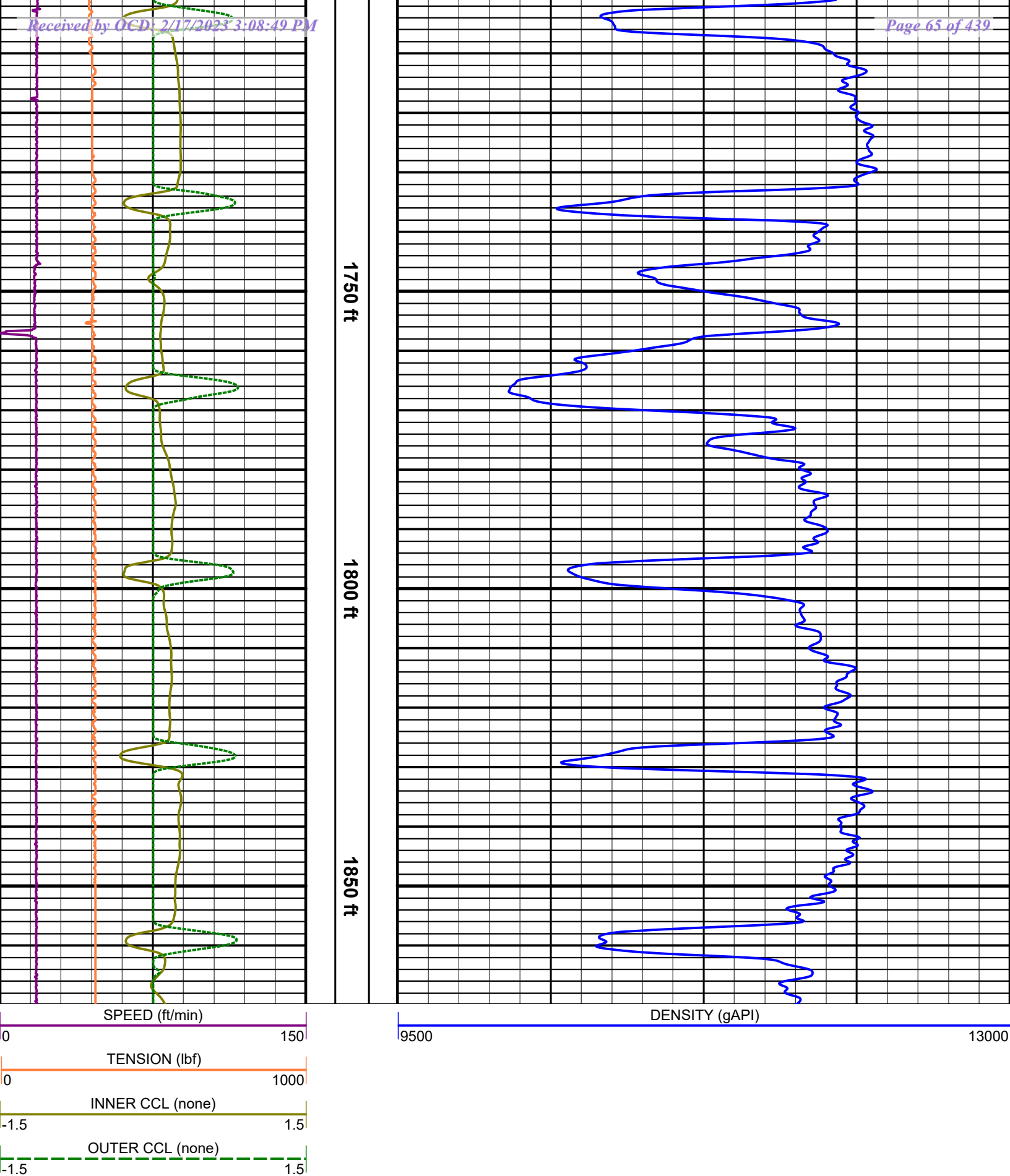
1700 ft



DEPTH OF RECORD
7" LINER @ 1578'

RECORDED DEPTH
7" LINER @ 1583'

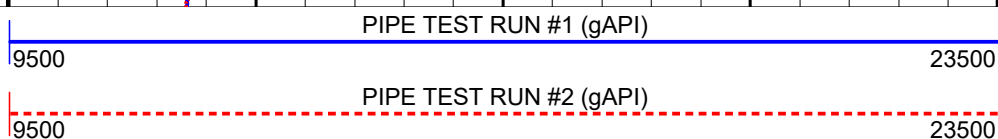
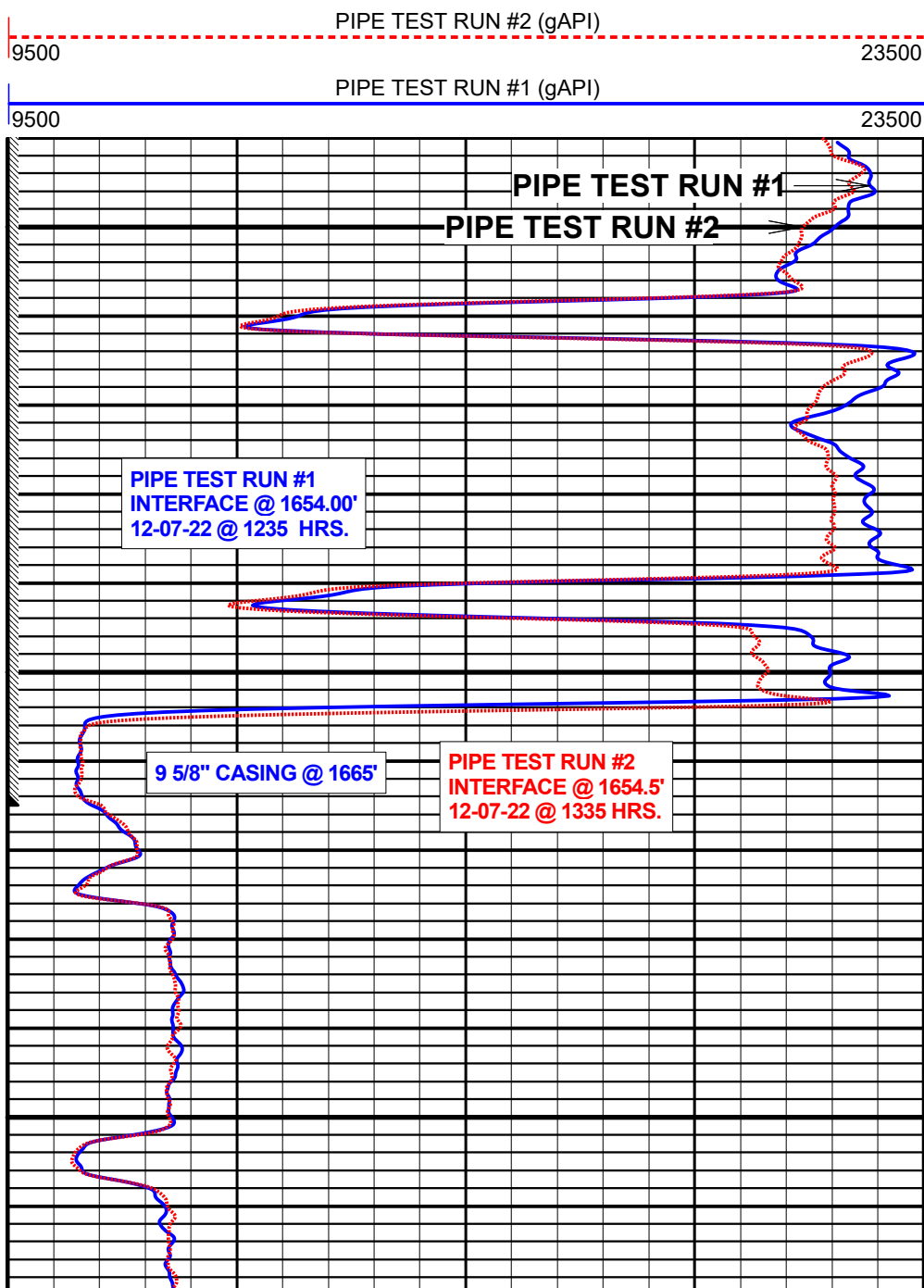
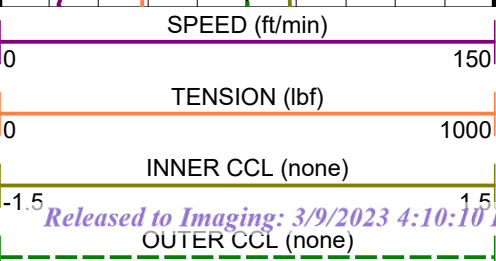
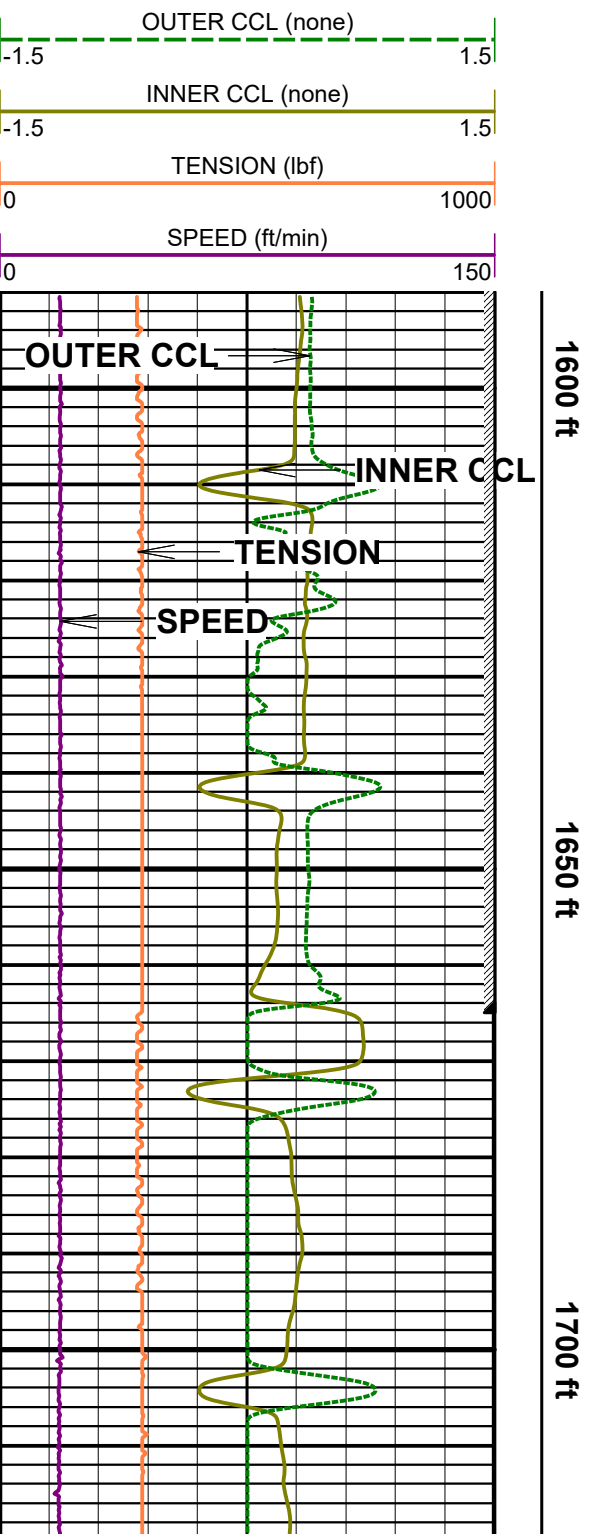
9 5/8" CASING @ 1665'



PIPE TEST RUNS 1 AND 2 OVERLAID

Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 240
Depth in : ft
Software : WinAPIPlot Ver. 7, 7, 5, 0

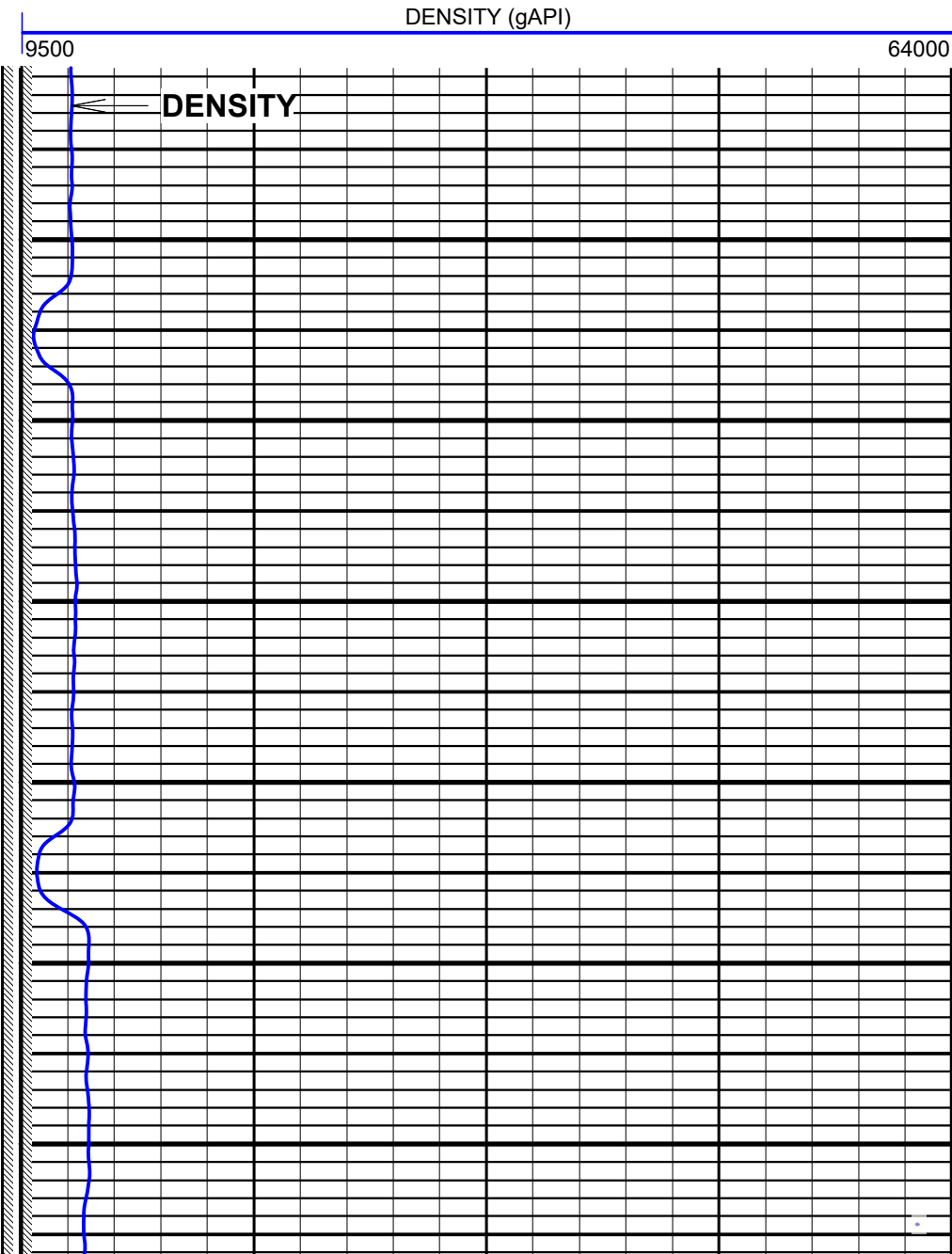
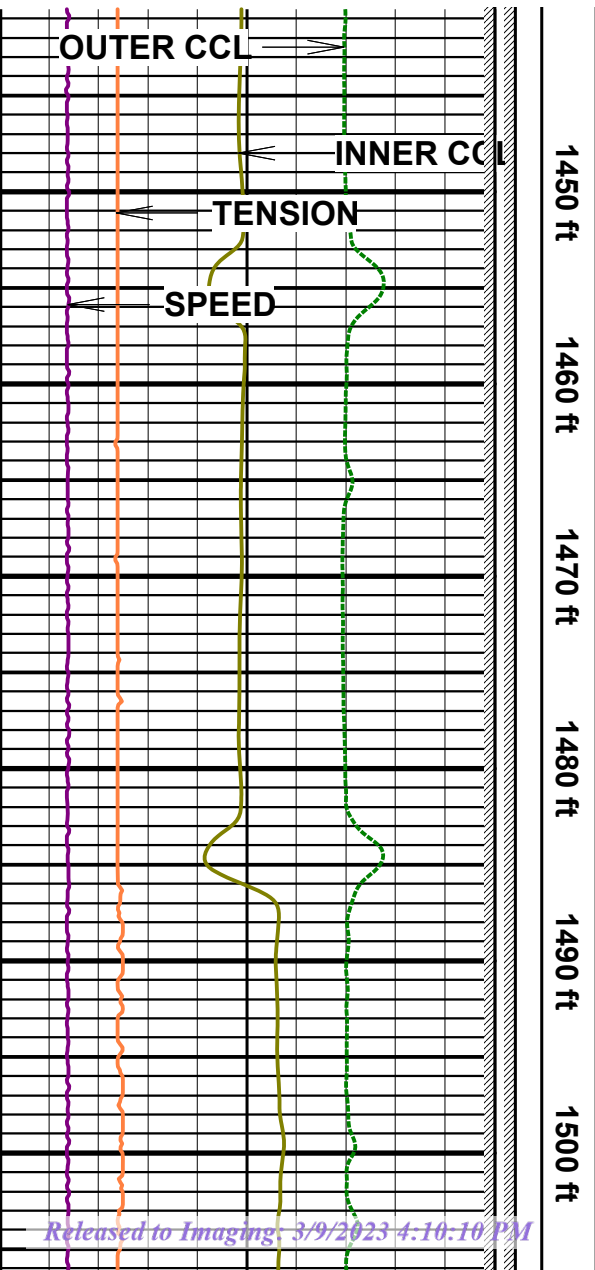
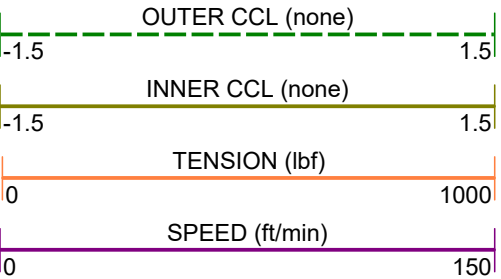
Date : 07.12.2022
Time : 12:30:51
Remarks : MIT
File Name :

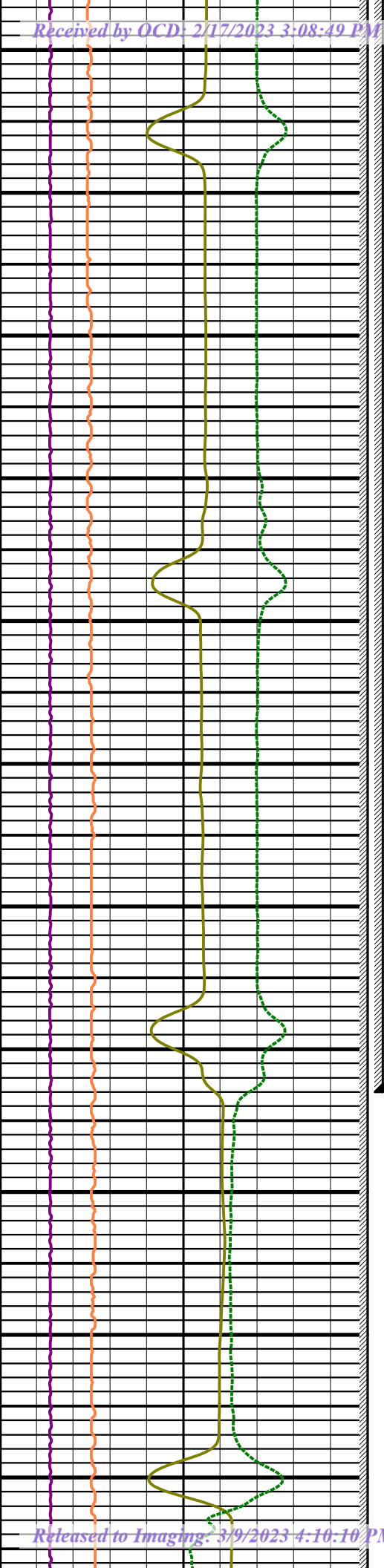


POST INJECTION LOG 12-07-22

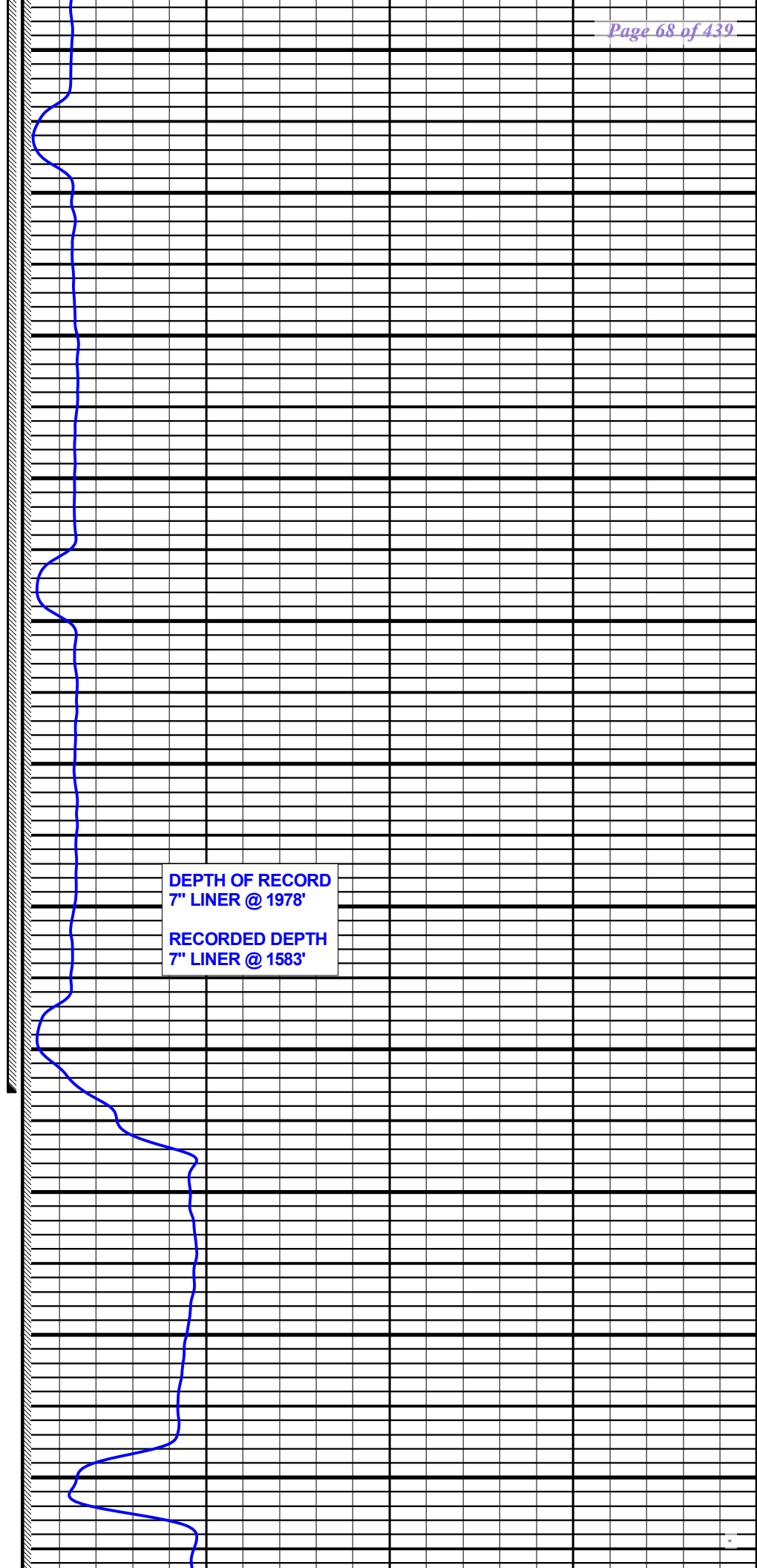
Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 120
Depth in : ft
Software : WinAPlot Ver. 7, 7, 5, 0

Date : 07.12.2022
Time : 16:14:22
Remarks : MIT
File Name :



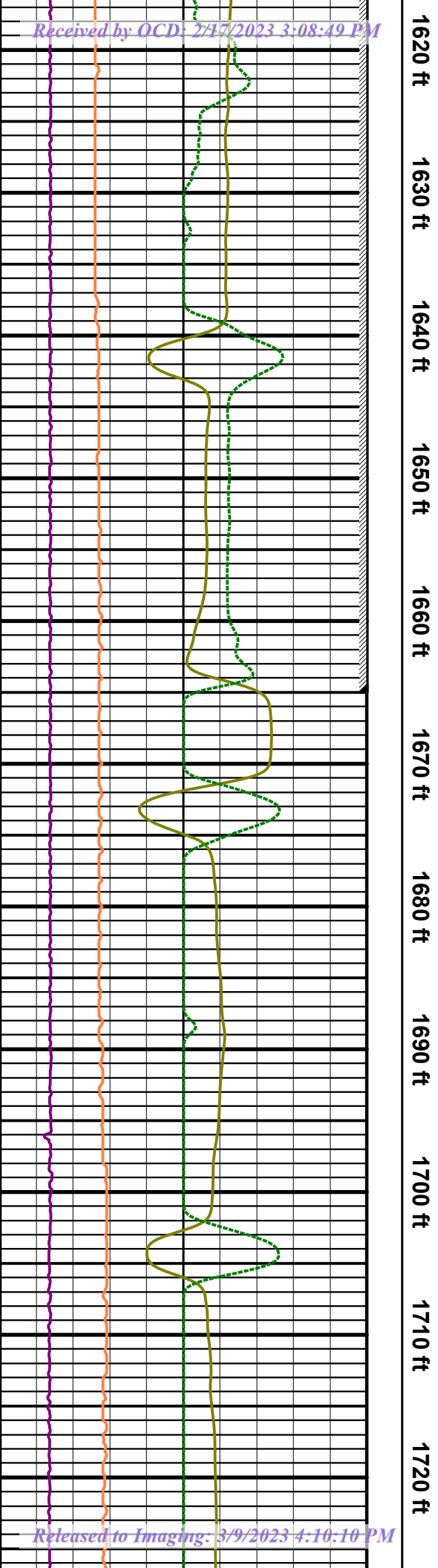


1510 ft 1520 ft 1530 ft 1540 ft 1550 ft 1560 ft 1570 ft 1580 ft 1590 ft 1600 ft 1610 ft

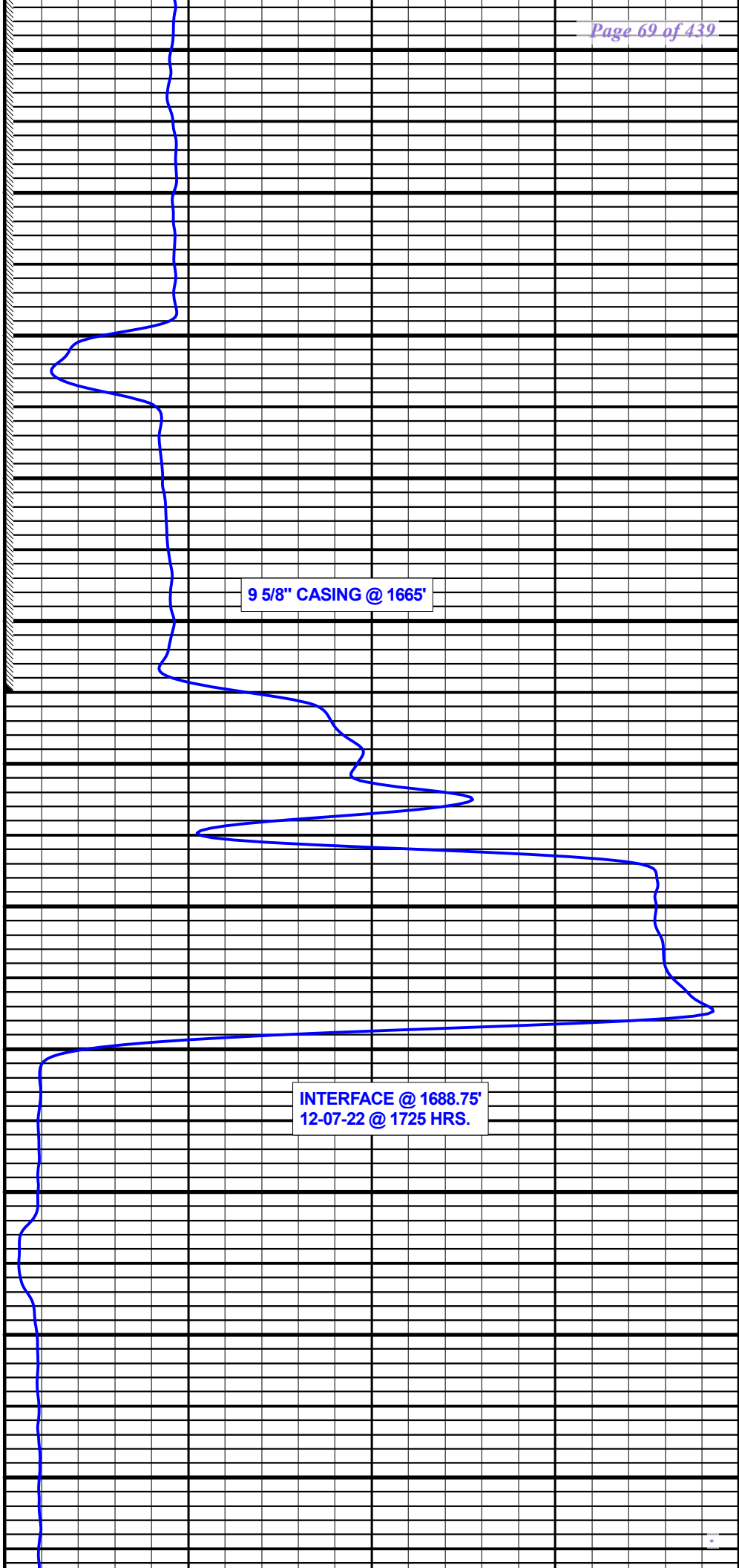


DEPTH OF RECORD
7" LINER @ 1978'

RECORDED DEPTH
7" LINER @ 1583'

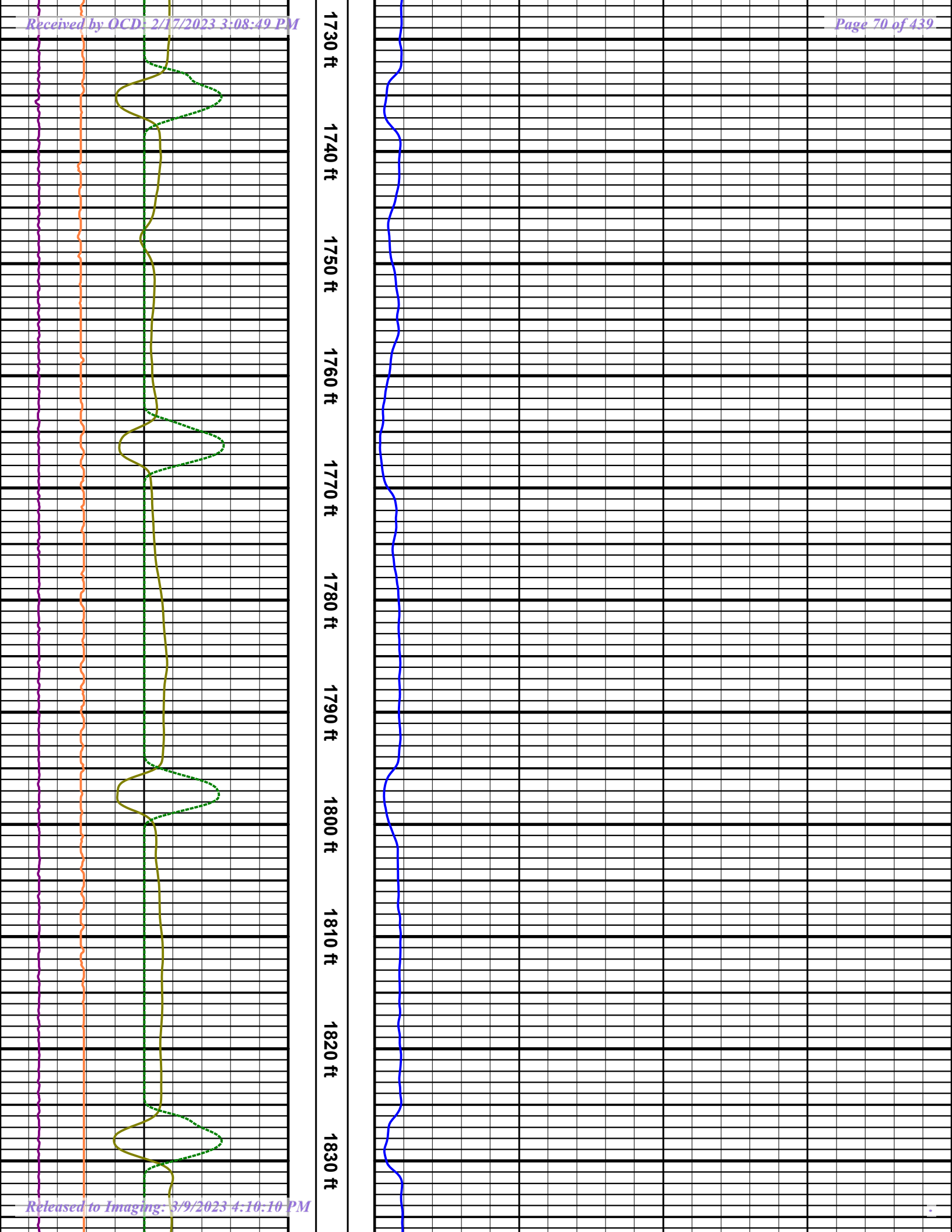


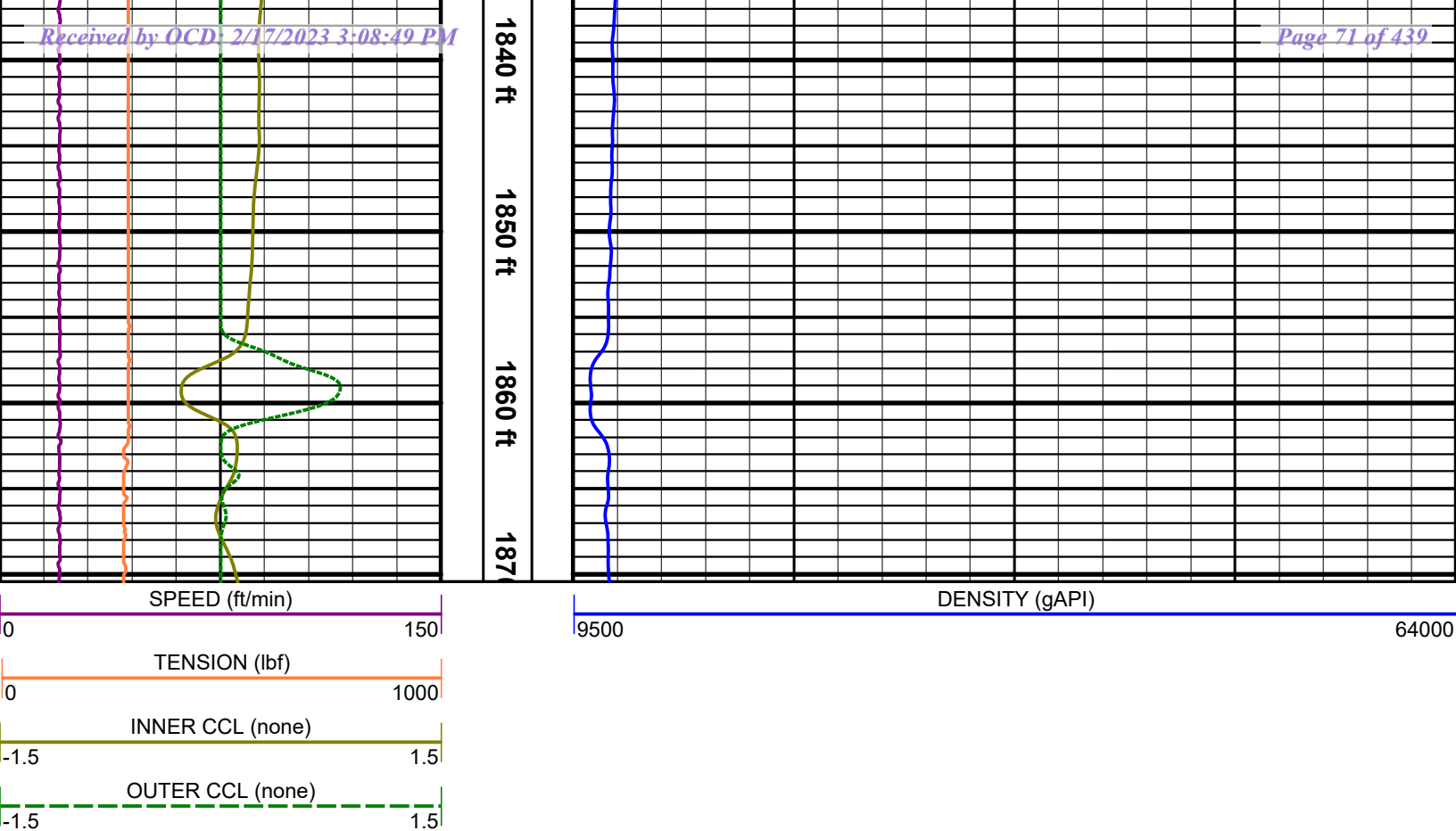
1620 ft 1630 ft 1640 ft 1650 ft 1660 ft 1670 ft 1680 ft 1690 ft 1700 ft 1710 ft 1720 ft



9 5/8" CASING @ 1665'

INTERFACE @ 1688.75'
12-07-22 @ 1725 HRS.



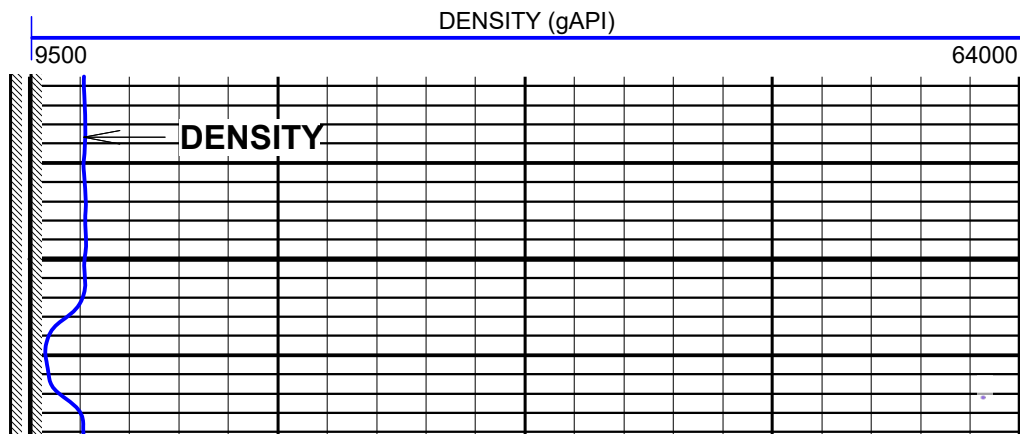
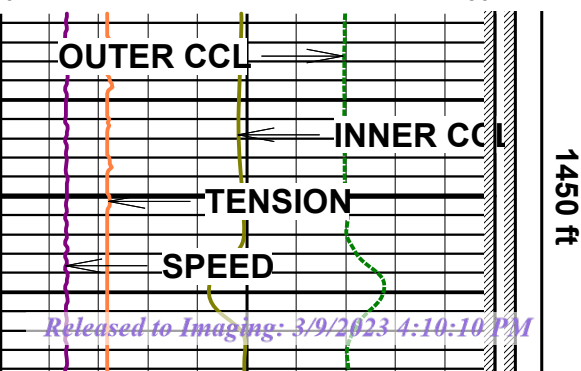
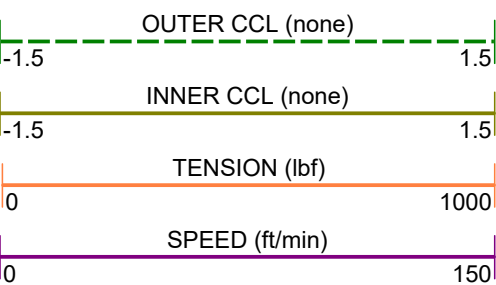


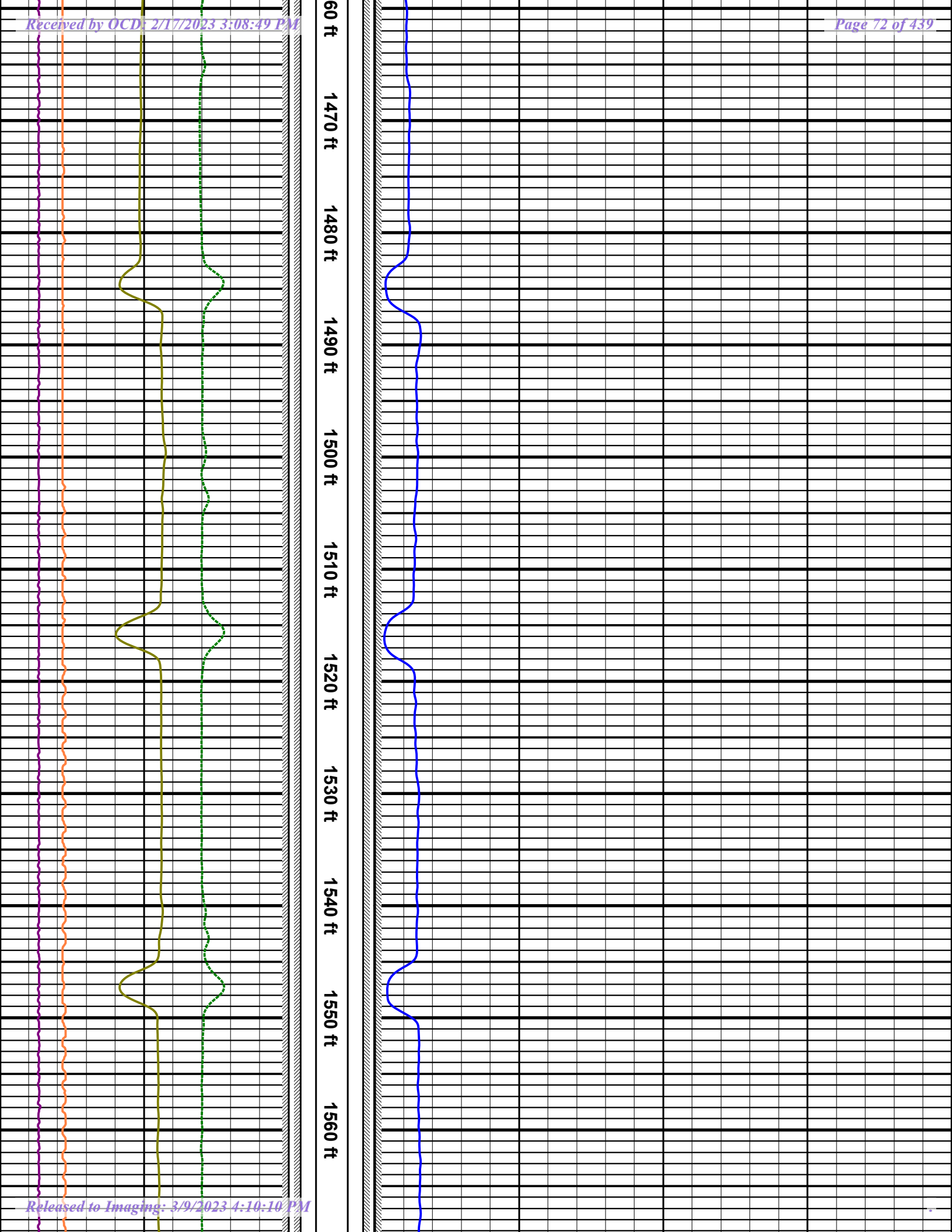
TEST START LOG 12-08-22

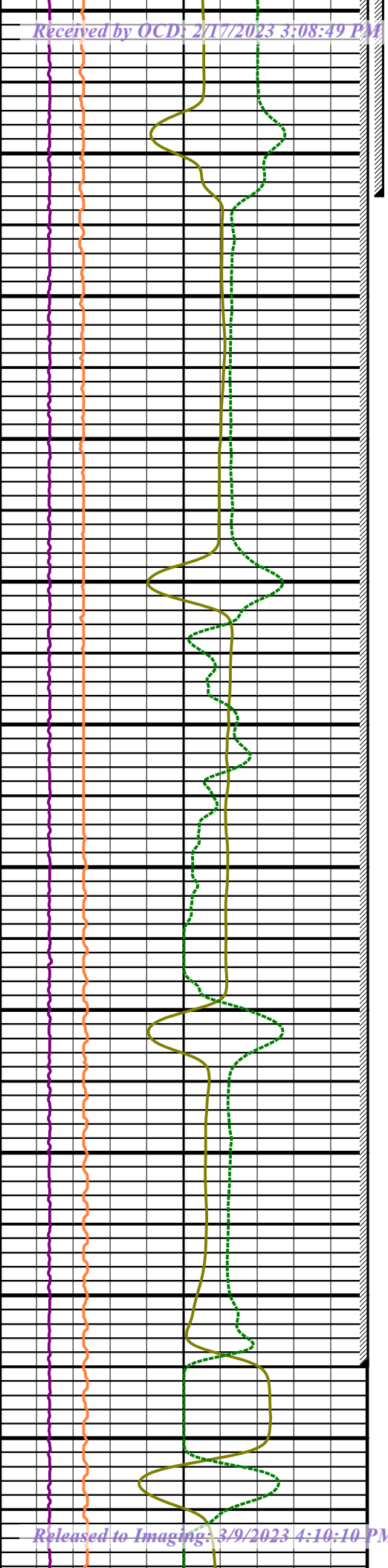
Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 120
Depth in : ft
Software : WinAPIPlot Ver. 7, 7, 5, 0

Date : 08.12.2022
Time : 07:46:09
Remarks : MIT

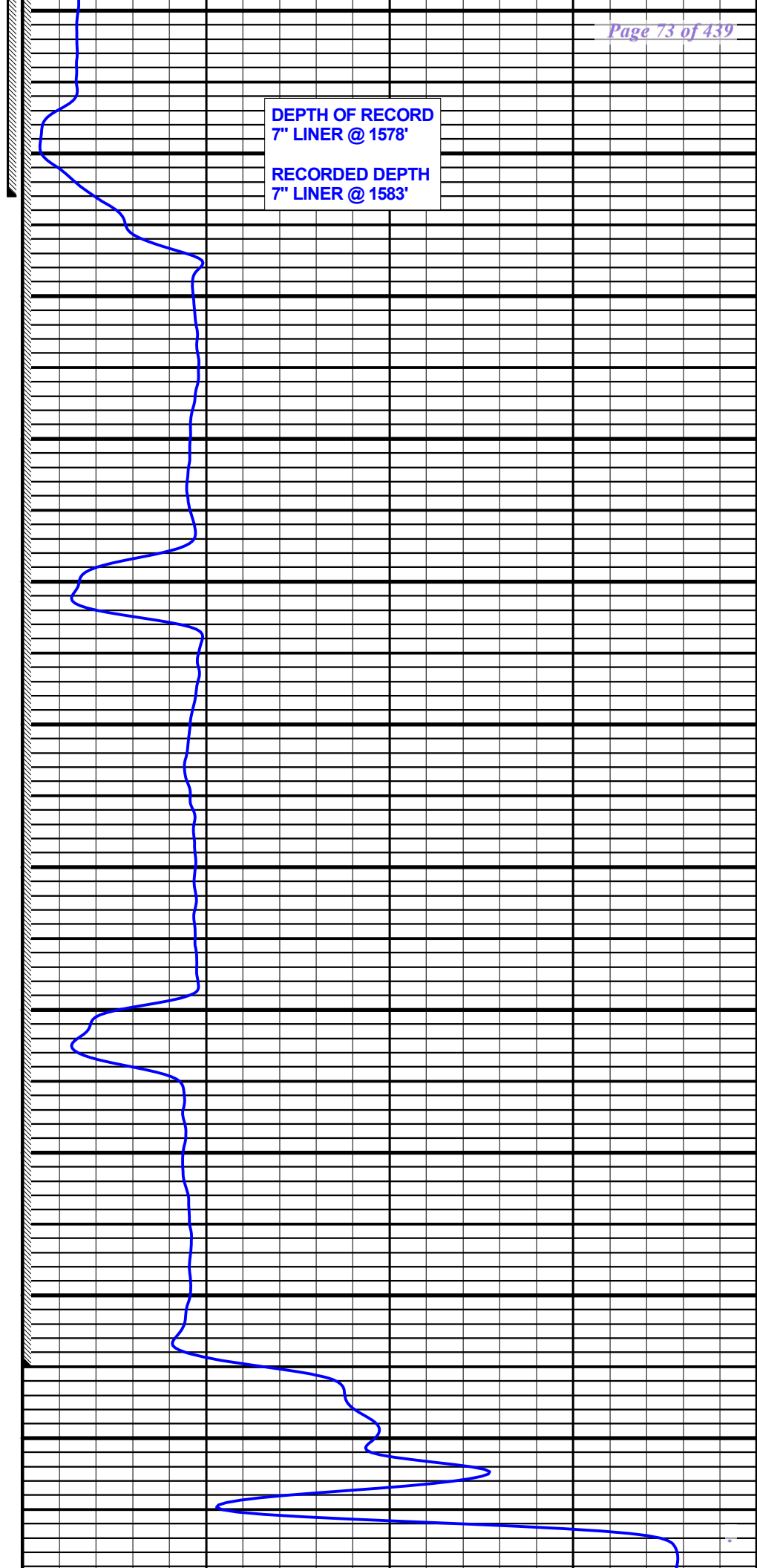
File Name :







1570 ft 1580 ft 1590 ft 1600 ft 1610 ft 1620 ft 1630 ft 1640 ft 1650 ft 1660 ft 1670 ft

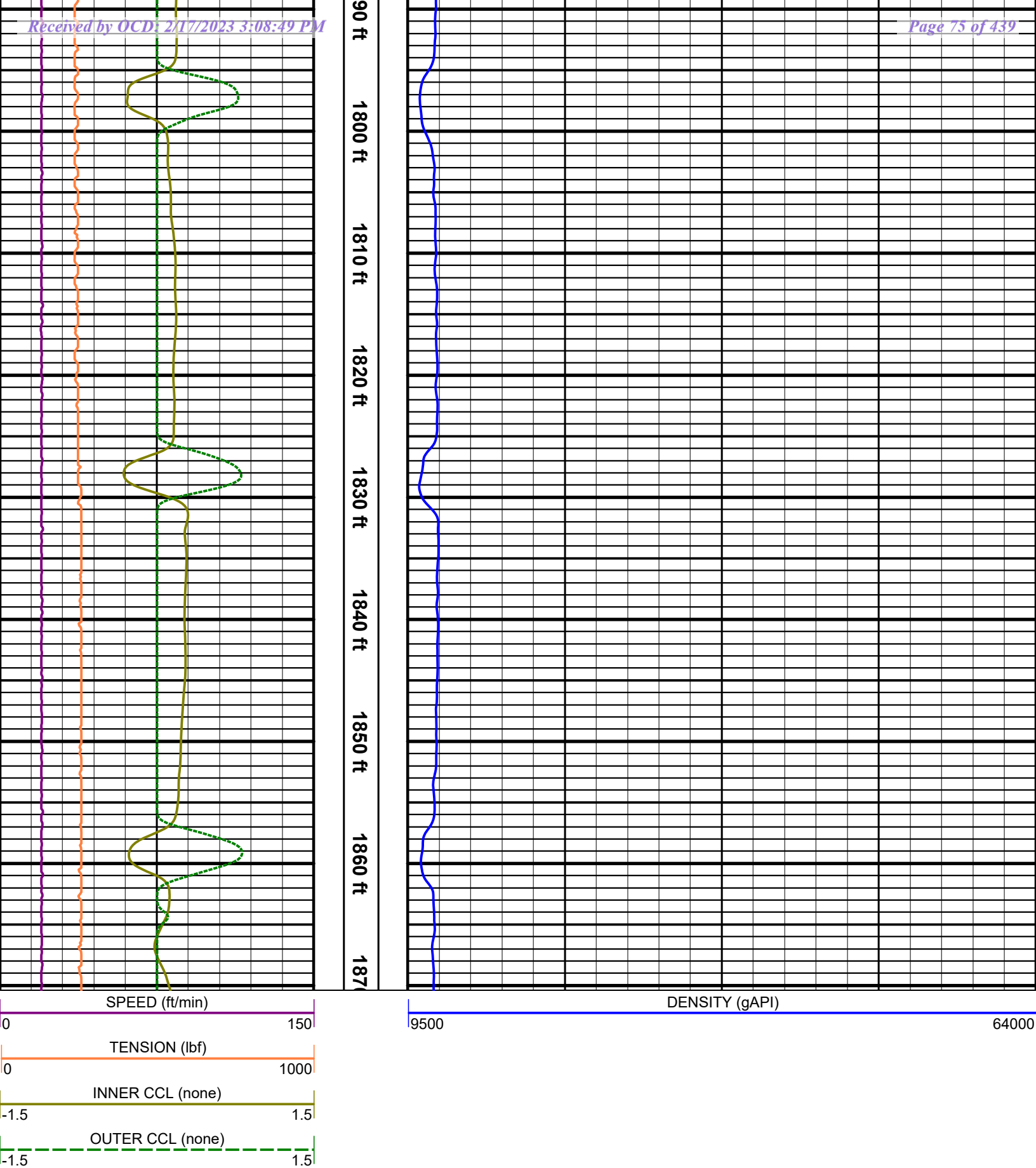


DEPTH OF RECORD
7" LINER @ 1578'

RECORDED DEPTH
7" LINER @ 1583'

80 ft 1690 ft 1700 ft 1710 ft 1720 ft 1730 ft 1740 ft 1750 ft 1760 ft 1770 ft 1780 ft

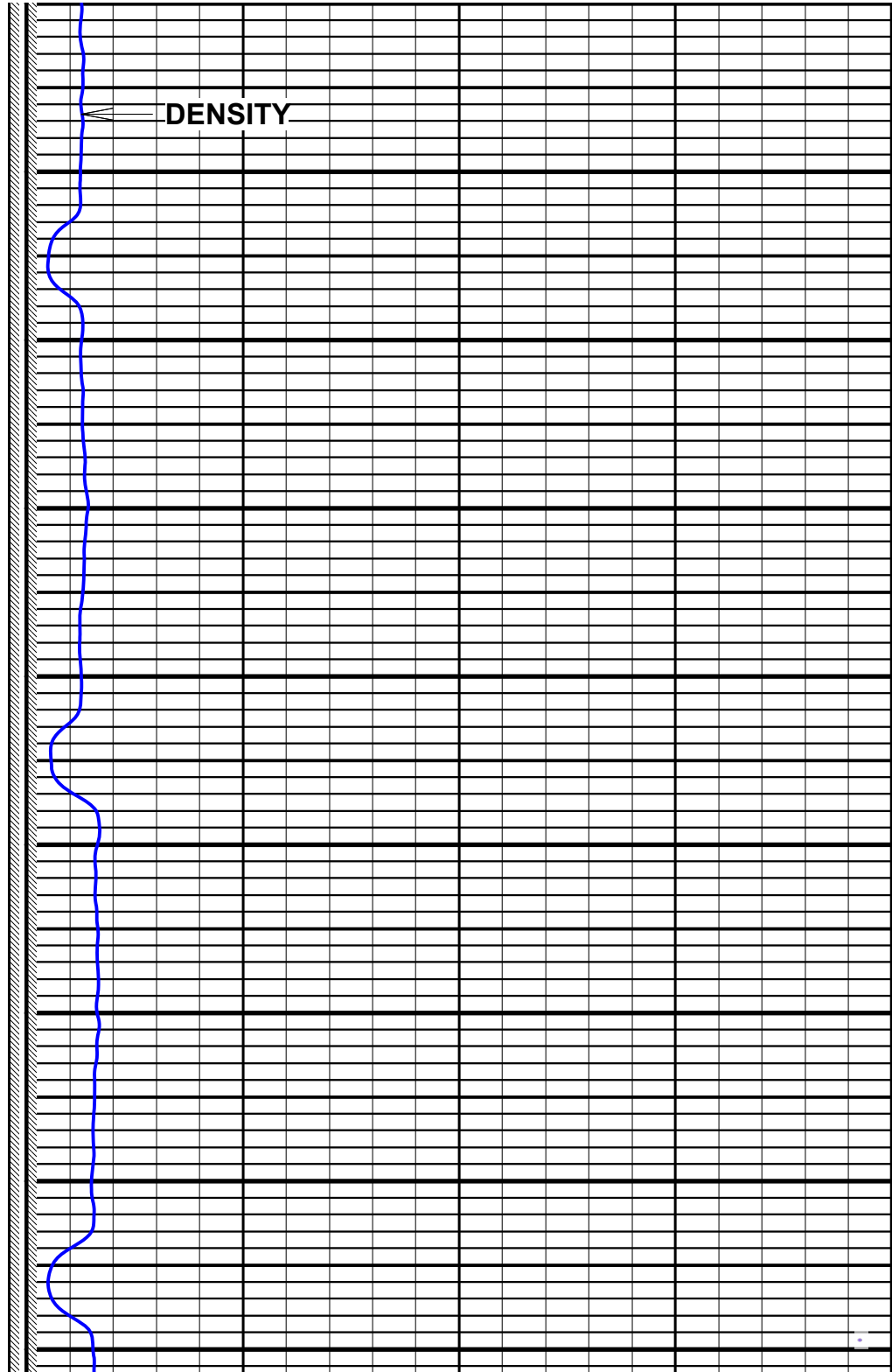
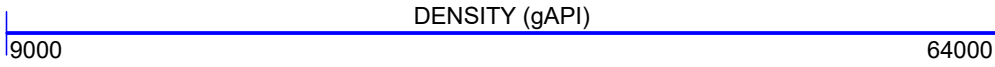
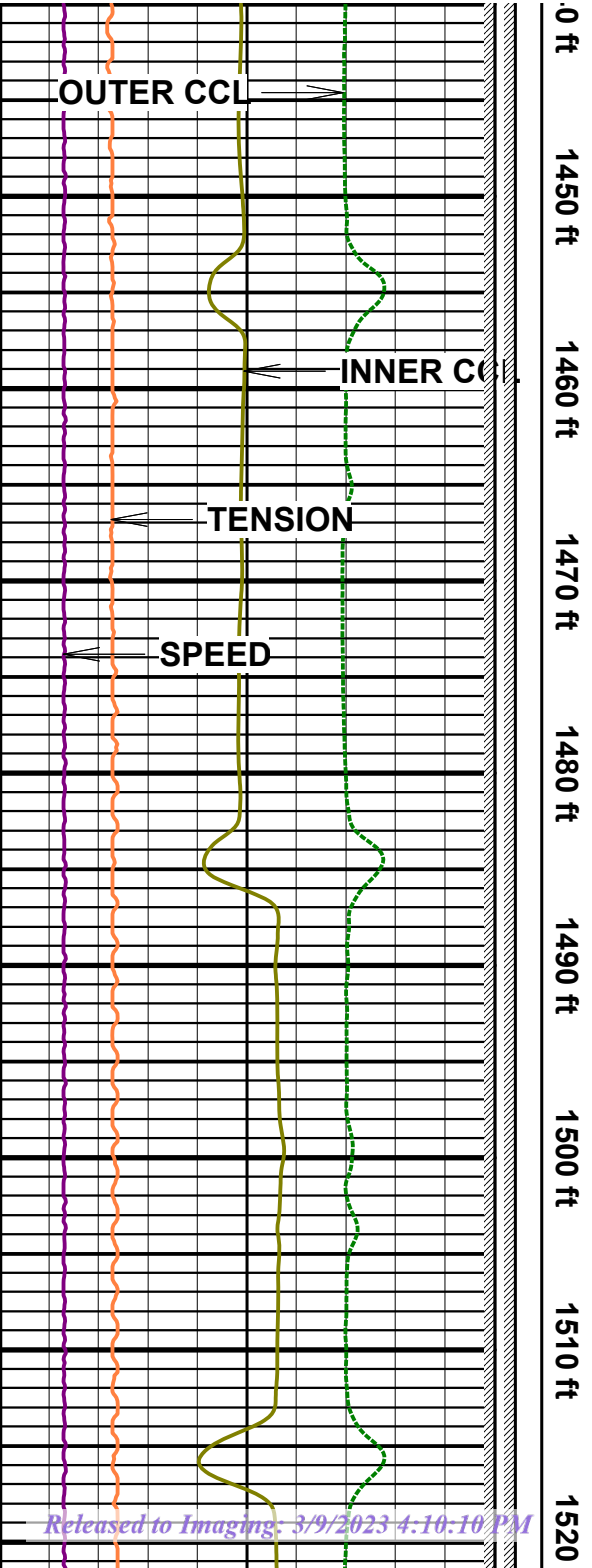
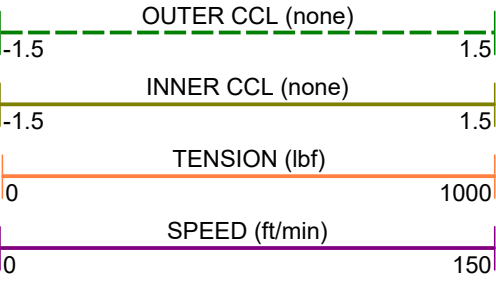
INTERFACE @ 1688.75'
12-08-22 @ 0858 HRS



TEST FINISH LOG 12-09-22

Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 120
Depth in : ft
Software : WinAPIPlot Ver. 7, 7, 5, 0

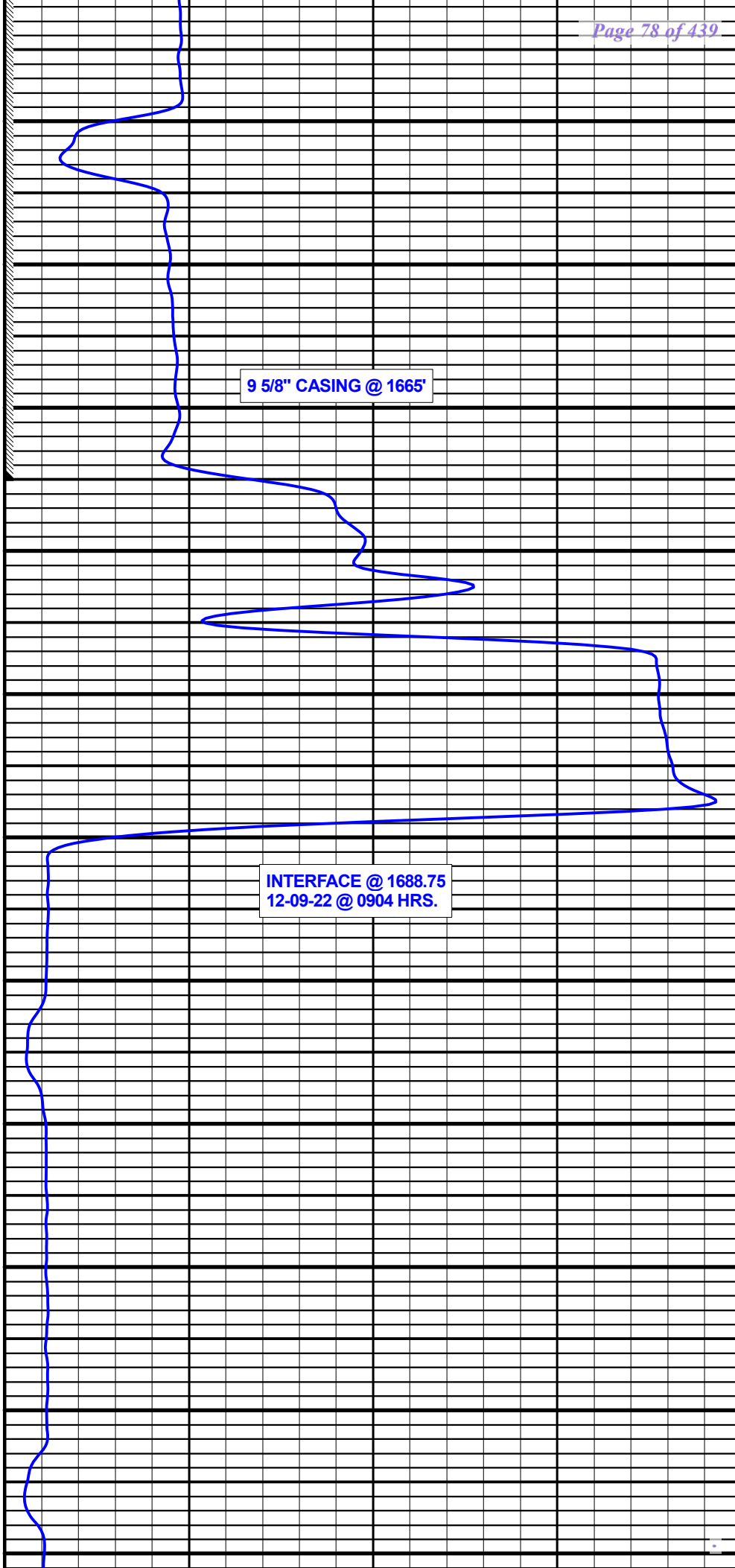
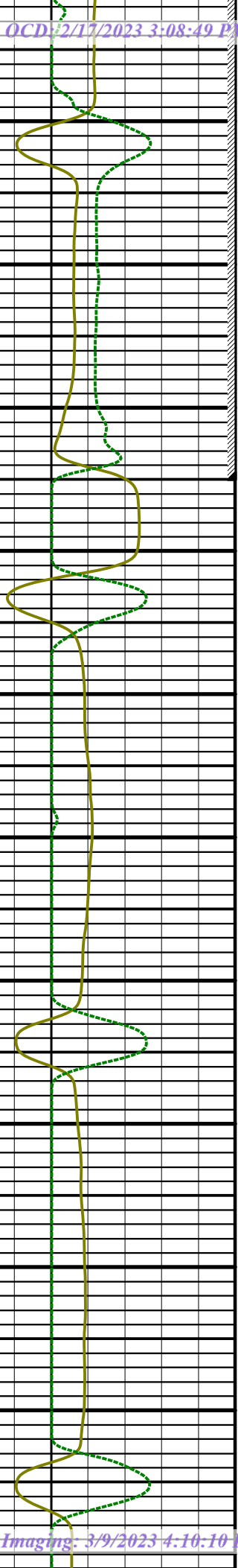
Date : 09.12.2022
Time : 07:52:03
Remarks : MIT
File Name :



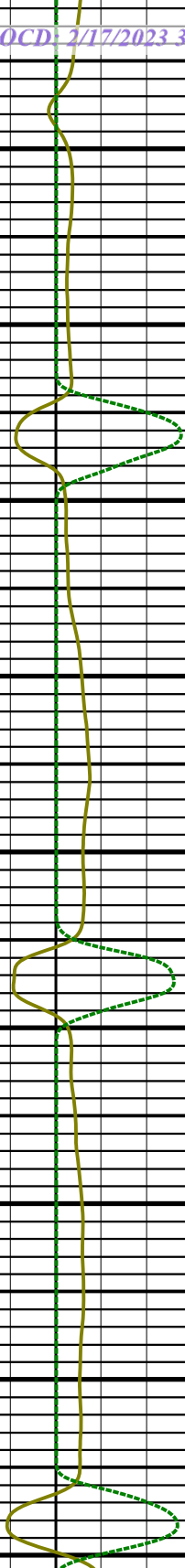
1530 ft 1540 ft 1550 ft 1560 ft 1570 ft 1580 ft 1590 ft 1600 ft 1610 ft 1620 ft 1630

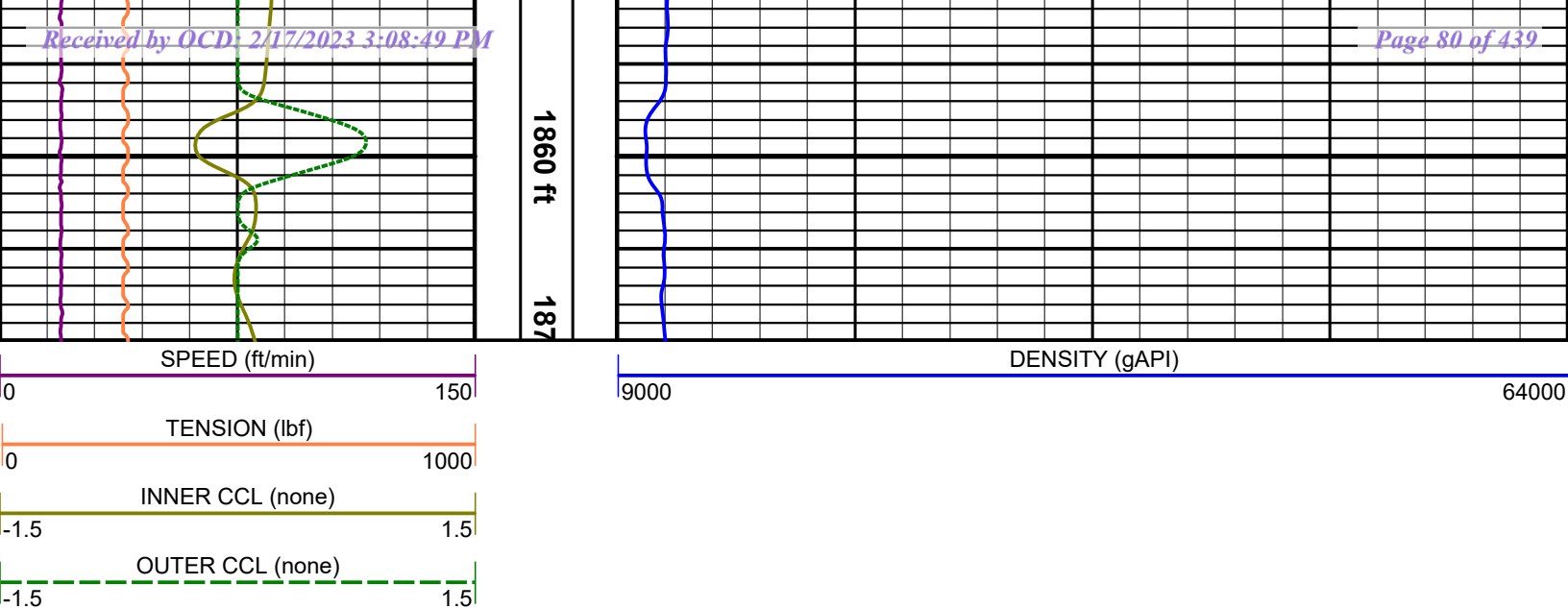
DEPTH OF RECORD
7" LINER @ 1578'
RECORDED DEPTH
7" LINER @ 1583'

1640 ft 1650 ft 1660 ft 1670 ft 1680 ft 1690 ft 1700 ft 1710 ft 1720 ft 1730 ft 1740



1750 ft 1760 ft 1770 ft 1780 ft 1790 ft 1800 ft 1810 ft 1820 ft 1830 ft 1840 ft 1850

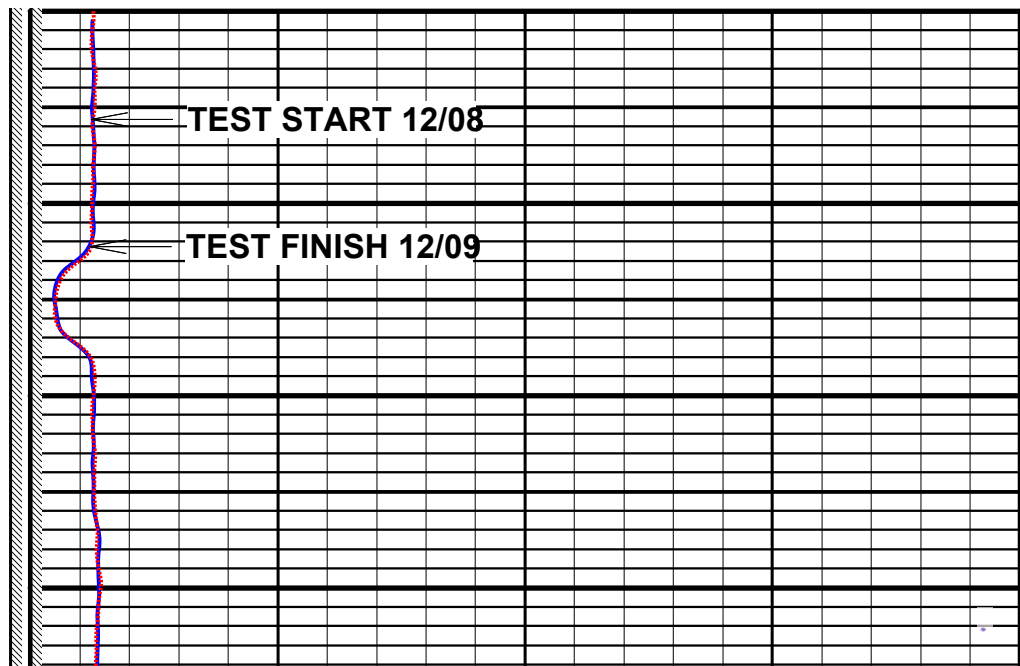
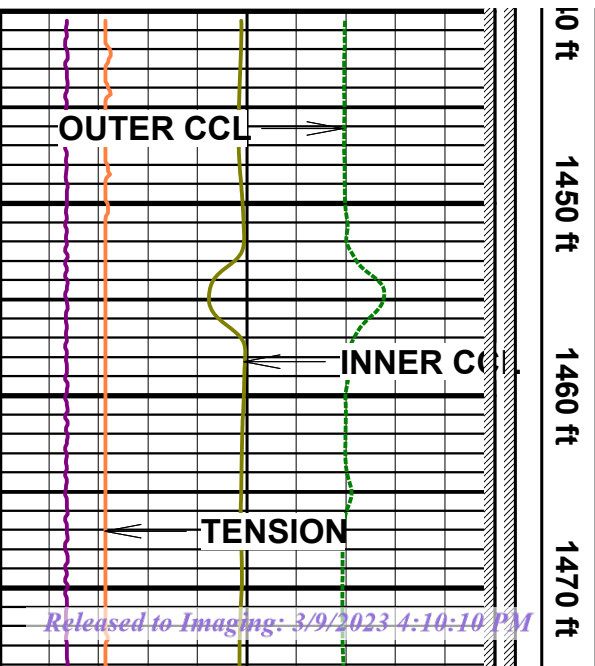
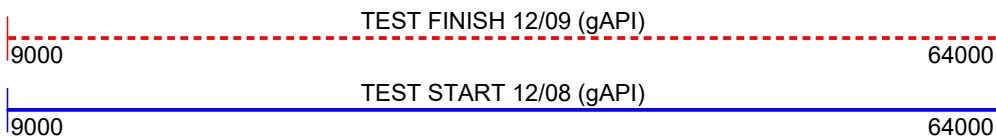
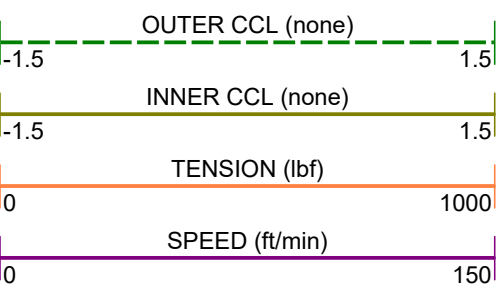


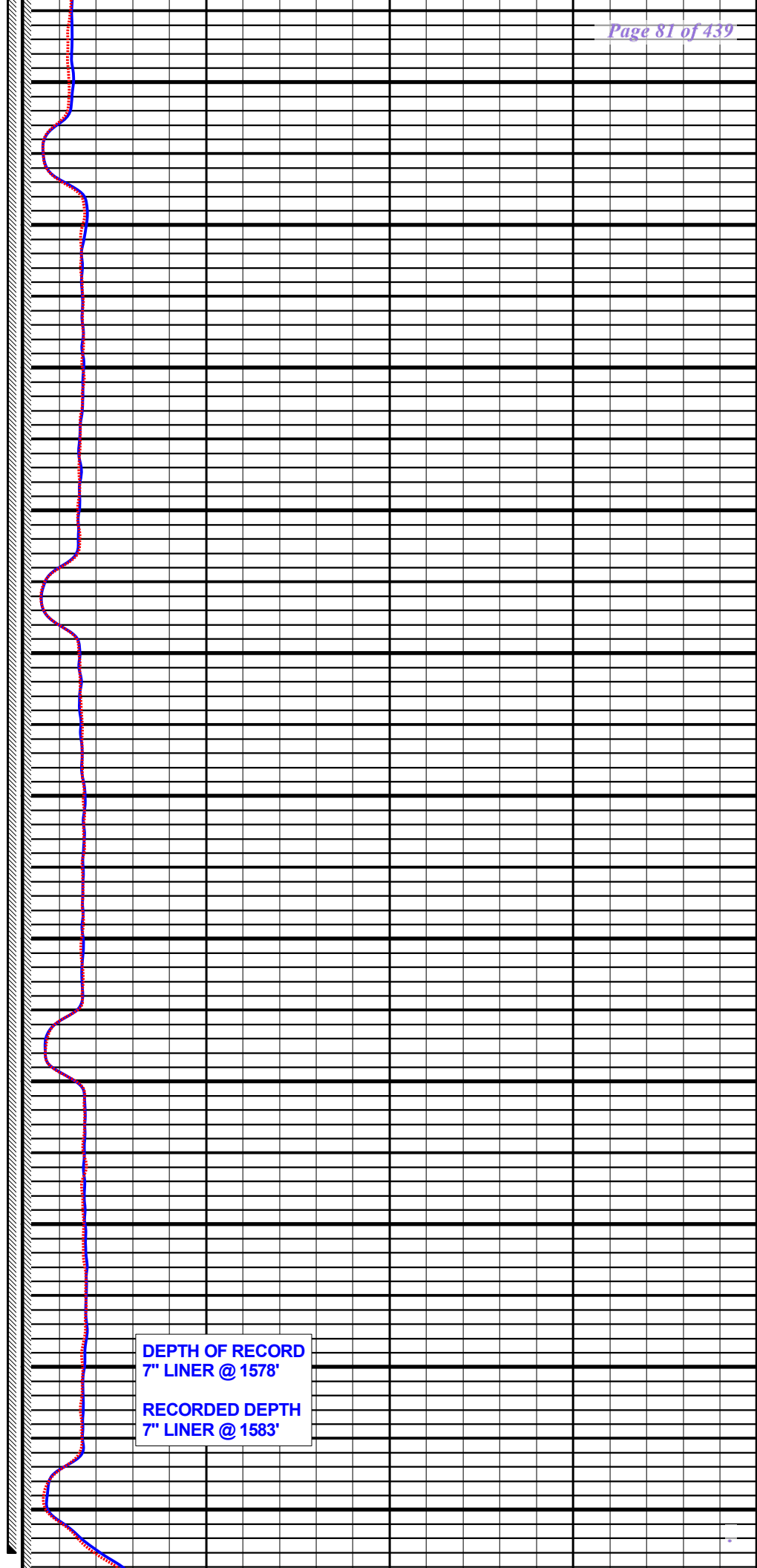
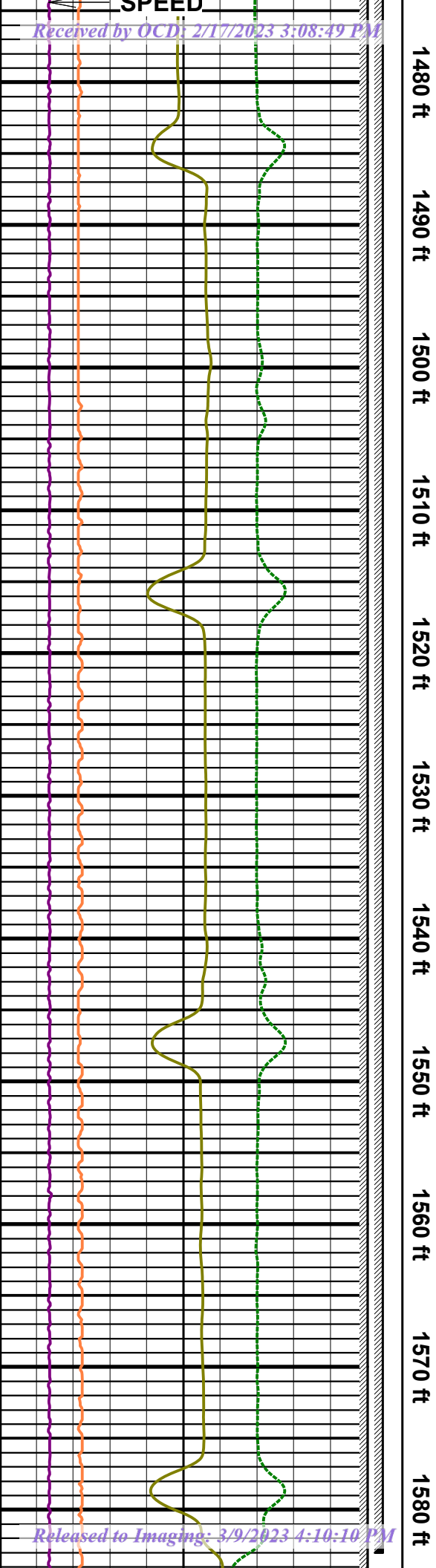


TEST START AND FINISH OVERLAID

Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 120
Depth in : ft
Software : WinAPIot Ver. 7, 7, 5, 0

Date : 07.12.2022
Time : 07:52:03
Remarks : MIT
File Name :

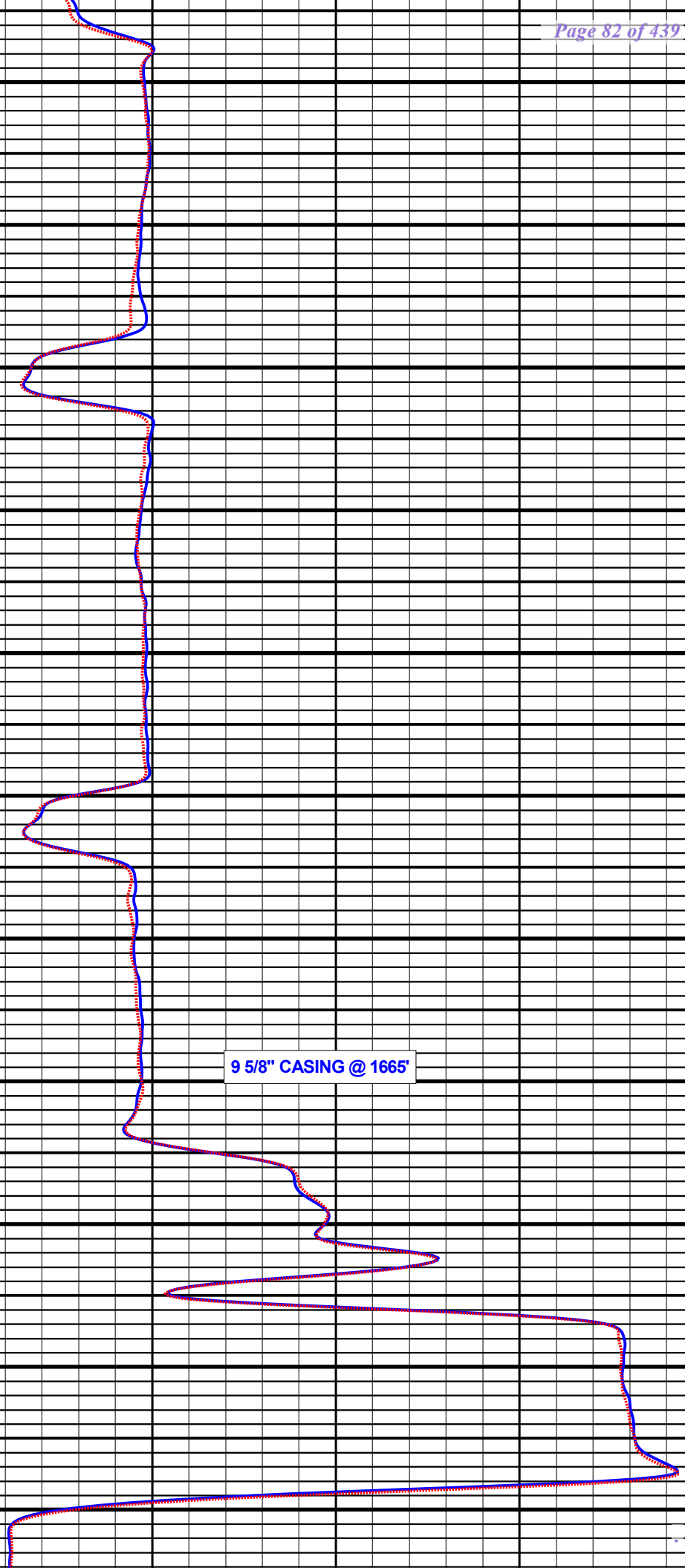
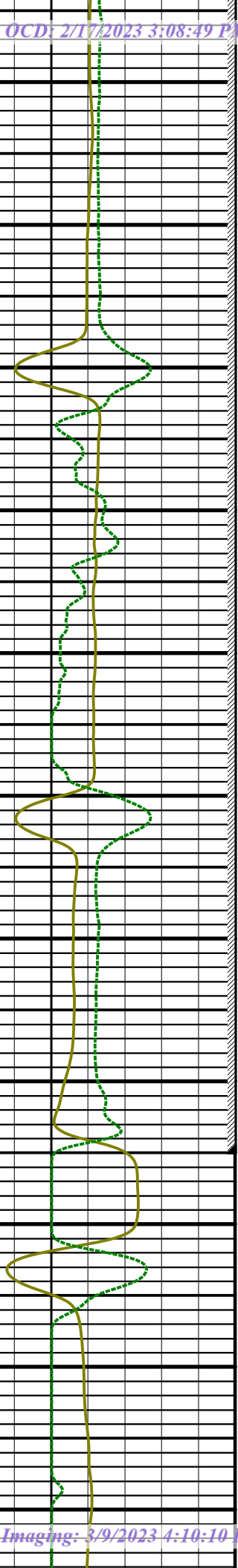




DEPTH OF RECORD
7" LINER @ 1578'

RECORDED DEPTH
7" LINER @ 1583'

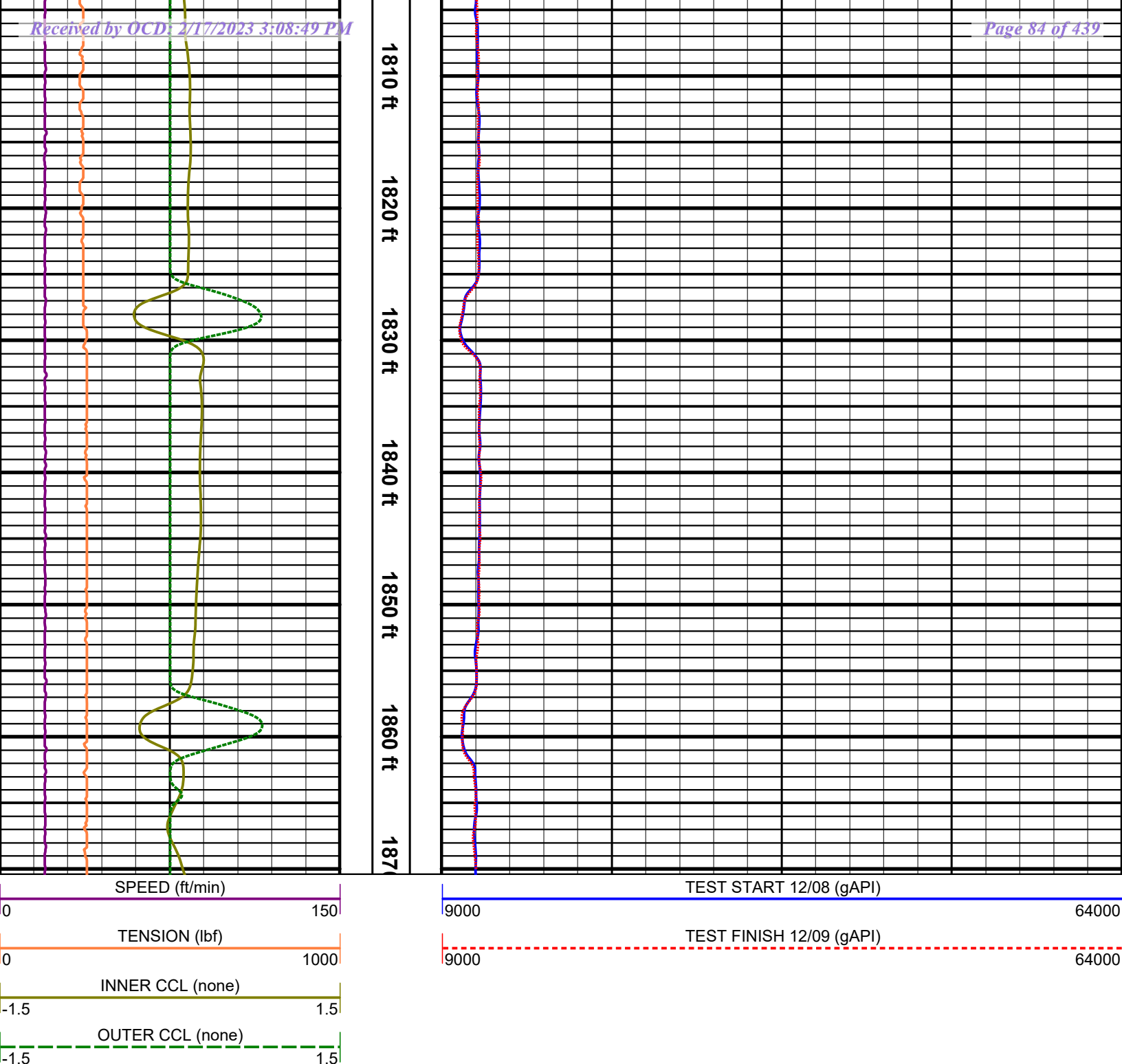
1590 ft 1600 ft 1610 ft 1620 ft 1630 ft 1640 ft 1650 ft 1660 ft 1670 ft 1680 ft 1690 ft



1700 ft 1710 ft 1720 ft 1730 ft 1740 ft 1750 ft 1760 ft 1770 ft 1780 ft 1790 ft 1800 ft

TEST START
INTERFACE @ 1688.75'
12-08-22 @ 0858 HRS.

TEST FINSH
INTERFACE @ 1688.75'
12-09-22 @ 0904 HRS.

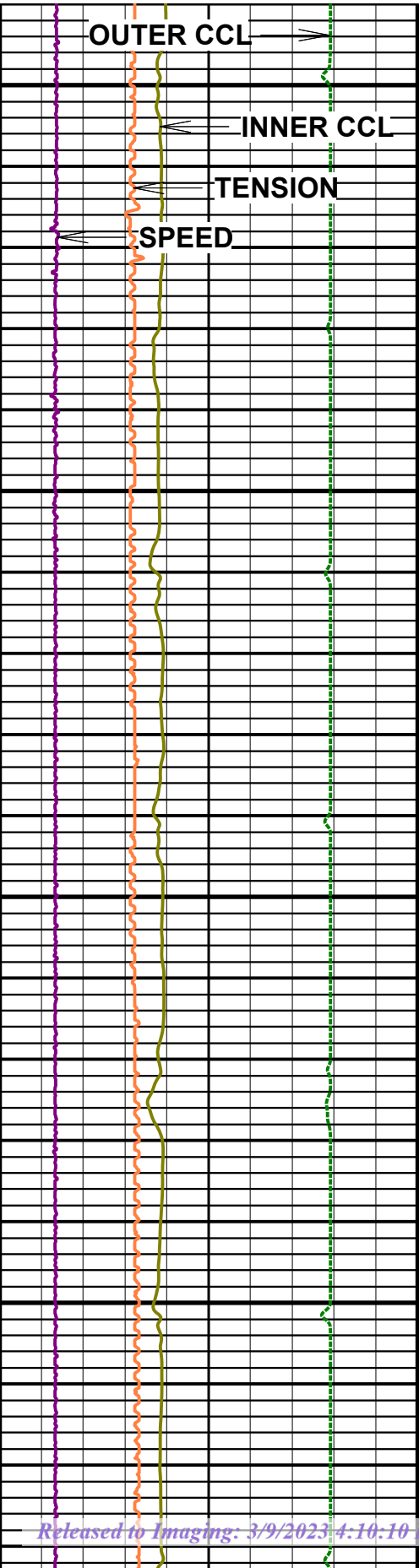
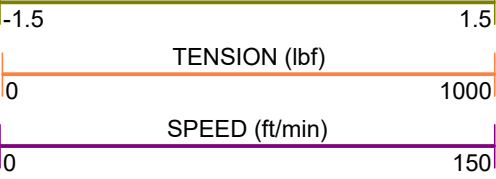


T.D. AND TUBING LOG 10-31-22

Company : MARATHON PETROLEUM
Well : SW3
Scale : 1 : 240
Depth in : ft
Software : WinAPIPlot Ver. 7, 7, 5, 0

Date : 08.12.2022
Time : 08:23:54
Remarks : MIT

File Name :

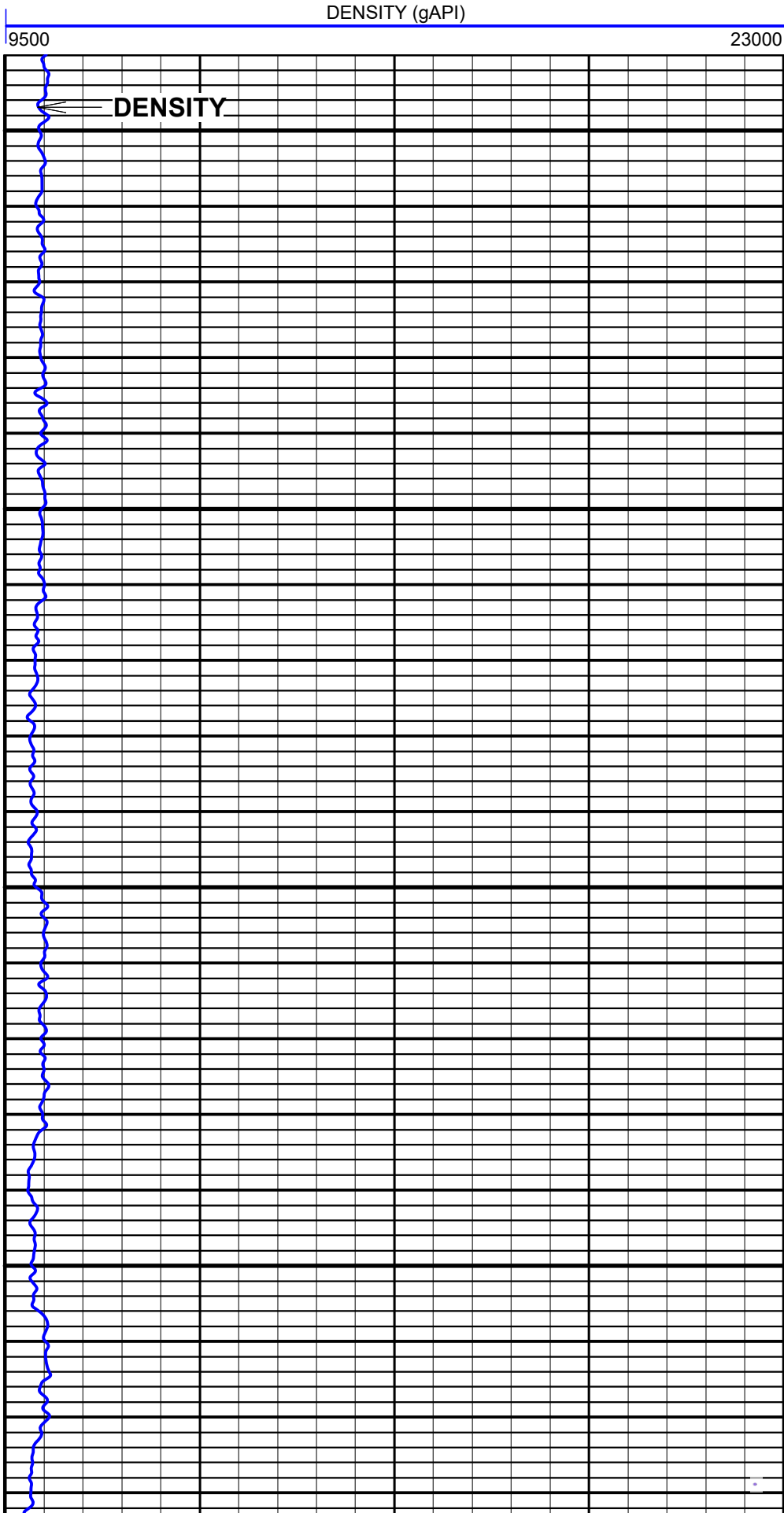


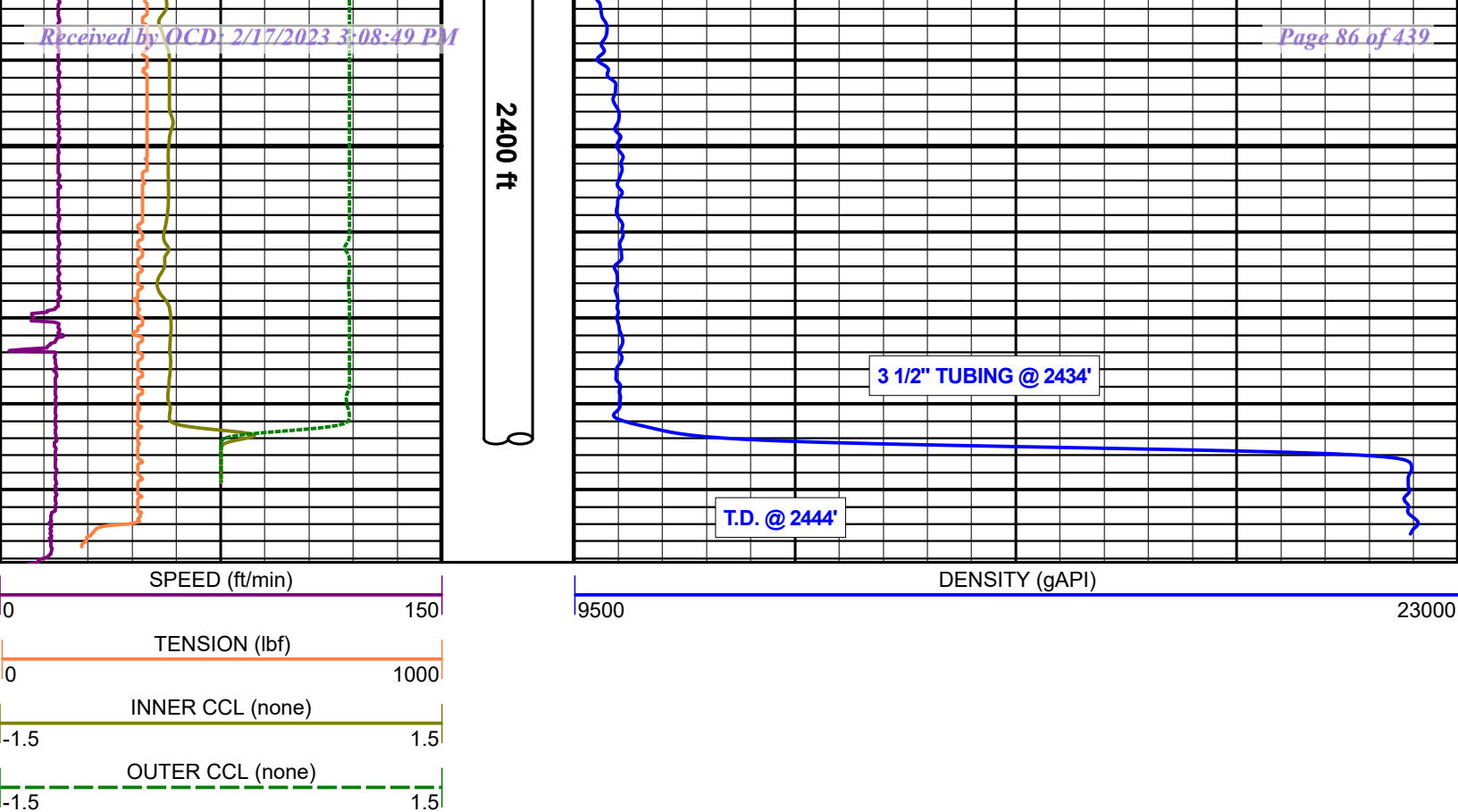
2200 ft

2250 ft

2300 ft

2350 ft





Curve Description

Name	Unit	Description
DENSITY	gAPI	Gamma Ray
INNER CCL	none	Inner Casing Indicator
OUTER CCL	none	Outer Casing Indicator
PIPE TEST RUN #1	gAPI	Gamma Ray
PIPE TEST RUN #2	gAPI	Gamma Ray
Speed	ft/min	Cable speed
Tension	lbf	Cable Tension as measured on surface
TEST FINISH 12/09	gAPI	Gamma Ray
TEST START 12/08	gAPI	Gamma Ray

CALIBRATION SUMMARY

Tension

Calibration

Tension

02.10.2019 15:17:00

Point 1

Tension

2015212

Point 2

Tension

0 N

22174 N

COMPANY: MARATHON PETROLEUM CO. LLC
WELL: STATE LPG STORAGE WELL #3
FIELD: JAL STATION
COUNTY: LEA

STATE: NM

**INTERFACE SURVEY
DUAL STRING COLLAR LOCATOR
MECHANICAL INTEGRITY TEST**



LPG STORAGE NO.3

JAL LEA COUNTY, NM

MARATHON PETROLEUM COMPANY. LLC

WORKOVER REPORT

API NO. 30-025-35956
PROJECT NO.: 192025AS

10 November – 6 December, 2022

WSP USA
SUITE 200
16200 PARK ROW
HOUSTON, TX 77084

TEL.: +1 281 589-5900
WSP.COM

SIGNATURES

PREPARED BY

Irada Mammadova
Workover Engineer

REVIEWED BY


Adrian A. Villarreal

Adrian Villarreal
Sr. Workover Engineer



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1 WORKOVER DATA

This report presents a summary of the well workover.

Table 1.1 Workover Data

Workover Data	
Client	MARATHON PETROLEUM LLC
Location	JAL, LEA COUNTY, NM
Well No.	LPG STORAGE NO.3
Start Date	November 10, 2022
Completion Date	December 06, 2022

The following personnel participated in the well workover.

Table 1.2 Workover Participants

Workover Participants	Company
Sam Flessner	MARATHON PETROLEUM COMPANY, LLC
Jim Tomlensen	MARATHON PETROLEUM COMPANY, LLC
Adrian Villarreal	WSP Project Manager
Ray Musselwhite	WSP Field Supervisor

1.3 Marathon JAL #3 (API 30-025-35956), WO #3 Executive Summary

JAL #3 Workover #3 commenced operations on November 10, 2022. Well type a Salt Cavern gas storage well. Workover objective was to pull pipe to perform casing integrity on production casing. Well consist of interbedded formation with several cavern compartments with lower compartment cavern as the main storage. The pipe in the cavern consisted of a combine string of 4-3/4" drill collar with 3-1/2" drill pipe crossed over at surface to 4-1/2" tubing with slip-on hanger. Pipe encounter slight difficulty in pulling out, drag seen with 70klbs overpull then continue to increase overpull to 140,000lbs and pipe broke free maintaining the same hook load. POOH. A total of 53 joints of 3-1/2" DP were laid out and 25 joints of 4-3/4" drill collars were laid out. Pick up 2-7/8" work-string and ran RBP plug as a barrier to remove the product spool. The RBP plug was retrieved. Make up casing scraper on 2-7/8" work-string and ran down to 7" casing shoe. Rigged up E-line unit to run Weatherford's Magnetic Flux corrosion "CIT" and Caliper log down to 7" casing shoe. Ran with RBP plug to reinstall redress product spool. Pressure test P-seals to 2,000psi for 15 mins.; good test.

The brine string was drilled down consisting of 6-1/8" bit, bit sub, and 27 joints of 4-3/4" 46.8# drill collar with IF connection, 22 joints of 3-1/2" 15.5# drill pipe (new used) IF connection, and 30 joints of 3-1/2" 13.3# drill pipe (rerun from cavern 3) with IF connection. The first drill collar has one 1in weep hole four feet above bottom pin connection. The brine string was drilled down to bottom tagging at 2,453ft. Rigged up E-Line unit to perform dummy run with 2" gauge / junk basket with weight bar and tools did not go beyond 2,270ft. Multiple attempts were made to get dummy assembly to pass thru obstruction. Team regrouped and decision was to POOH with brine string to confirm restriction inside the string. After pulling out brine string found that 7 joints of 4-3/4" drill collar were left in hole. The second new brine string consisting of 6-1/8" bit, bit sub, and 20 joints of 4-3/4" 46.8# drill collar with IF connection (new used), 22 joints of 3-1/2" 15.5# drill pipe (new used) IF connection, and 37 joints of 3-1/2" 13.3# drill pipe with IF connection. Had a quick turn around getting pipe to wash down with no drilling and tagged bottom at 2,459ft. Rigged up E-Line unit to perform dummy run with 2" gauge / junk basket with weight bar down to bit. Made up severing tool and shot bit; however, unsuccessful bit did not detach. Made second severing run and the bit detached on second run. The GoWell "ePDT" multi-string corrosion log was conducted down to 9-5/8" casing shoe. Operations shut down during Thanksgiving holiday and resumed on November 28th. Rigged up E-Line and ran gyro tool; tool would not go beyond 1,680ft. Ran dummy run with 2" gauge and junk basket with weight bar assembly went down to end of pipe. Attempted a second time with gyro tool with the same results. Reassemble gyro tool with weight bar at the end of the assembly and manage to get tool down to end of pipe. Sonar representative declined to run tool thru restriction. Team regrouped and decision was to POOH with brine string to confirm restriction. After pulling out found joint 53 was bent. A drift run was performed on remaining joints in well and the CCL indicated that 7 joints of 4-3/4" drill collar were left in hole. A third new brine string consisting of 6-1/8" bit, bit sub, and 12 joints of 4-3/4" 46.8# drill collar with IF connection (new used), 13 joints of 3-1/2" 15.5# drill pipe (new used) IF connection, and 54 joints of 3-1/2" 13.3# drill pipe with IF connection. The brine string went down with minimum drilling. After running in hole every 800ft, 2-1/8" drift runs were performed to ensure that the connections were not over tightened. The string tagged bottom at 2,458ft. The severing tool was ran and shot the bit off; access out the pipe was confirmed. Sonic Survey's slim thru-pipe sonar (2in O.D.) was ran and horizontal shots were taken 10ft off-bottom of cavern. The 1 joint was laid out to get a Sonar shot across the roof of the bottom cavern. Pipe was then ran back tagging bottom at 2,458ft and then picked up 10ft off-bottom landing 3-1/2" drill pipe with slip-on hanger in product spool with end of pipe at 2,443ft and placing the weep hole at 2,439ft. The 3-1/2" pipe was cold-cut and dress to install the new 11" x 7-1/16" adapter and 7-1/16" x 4-1/16" adapter spool and make up the 4-1/16" brine spool (tree); P-seal and void was pressure tested to 2,000psi for 15 minutes. Brine was pumped down well and left with 100 psi for pre-MIT testing. Secured well and release rig at 5 pm on December 5, 2022.

2 WELL WORKOVER CHRONOLOGY

The following is a chronology of the **Marathon Jal 3** well workover taken from the WSP Field Supervisor's daily reports and the Project Manager's notes. **PROJECT NO. 192025AS**

November 10, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Moved rig on location. Spotted and rigged up. Put out guywires. Removed brine spool. Installed annular. Connected lines and function tested annular. Rigged up work floor and handrails. Made up spear. Picked up and speared into 4" top joint of brine string. Pulled 70,000 psi. It began coming with lots of drag. Worked it up and down pulling up to 140,000 lbs. and was hung up 15' out. Worked pipe until it finally came loose. Laid out the top 4" joint. Picked up three 1/2" brine string and let back down to ensure it was free. Pipe weight was 55,000 lbs. per rig weight indicator. Rigged up tongs. Secured well. Offloaded and spotted reverse unit and tank.

November 11, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Connected pump lines and circulate well in direct flow. Shut down pump. Well flowing back. Tripped out of hole with 53 joints of 3 1/2" drillpipe. Continued tripping out of hole with twenty-five 4 1/2" drill collars. Bottom joint had been shot off and was very jagged. Tally pulled pipe, tally was 2433'. Moved pulled pipe off racks. Spotted work string on racks. Tally same. Rigged down 3 1/2" tongs. Rigged up tubing tongs. Secured well.

November 12, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Tripped in hole with RBP to 928' on 2 7/8" work string. Set packer, did push/pull test to ensure packer was set properly. Unlatched from RBP and tripped out of hole with latch tool. Rigged down tongs. Rigged down work floor. Nipple down Annular. Removed product spool. UWS did visual inspection on Bradenhead flange. Looked good. Installed drilling spool. Nipple up Annular. Rigged up work floor and tongs. Tripped in hole with latch tool. Latched onto and tripped out of hole with RBP. Tripped in hole with scraper to 1550'. Circulate well. Tripped out of hole with scraper. Secured well.

November 14, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Rigged up Nine Wireline unit. Ran casing inspection logs. Rigged down Nine Wireline. Picked up and tripped in hole with RBP setting it at 928'. Released on-off tool and tripped out of hole with work string. Rigged down tongs. Rigged down work floor. Nipple down Annular and drilling spool. Nipple up refurbished product spool. Energized and tested P-seals to 2000 psi for 15 minutes, good test. Nippled up Annular. Rigged up work floor. Rigged up tongs. Tripped in hole. Latched onto RBP. Tripped out of hole laying out work string and RBP. Secured well.

November 15, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Rigged down tubing tongs. Rigged up 4 1/2" tongs. Loaded and released 2 7/8" work string. Waited on pipe but it did not arrive. Secured well.

November 16, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Spotted and tallied twenty-seven 4 1/2" drill collars and 37 joints of 3 1/2" drillpipe. Tripped in hole with 6 1/8" drill bit, bit sub, and twenty-seven 4 1/2" spiral drill collars. Tripped in hole with 30 joints of 3 1/2" drillpipe. Tagged at 1756'. Rigged up stripper head and power swivel. Drilled from 1756' to 1776', then traveled easy. Tripped in hole to 1975' with no resistance. Secured well.

November 17, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Started Annular closing unit, belt broke that drove the pump. Called, Weatherford delivered another one and we changed it out. Pipe is being delivered at 14:00 today. Pipe arrived. Offloaded and tallied. Tripped in hole with 9 joints to 2255'. Drilled from 2255' to 2286'. It went easy from 2286' to 2317'. Drilled very hard from 2317' to 2330'. Hard drilling when we stopped for the day. Secured well.

November 18, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Begin drilling at 2330'. Drilled to 2353', it was very hard drilling. Removed stripper rubber. Secured well.

November 19, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Installed new stripper rubber. Begin drilling at 2353'. It was hard drilling for 10' then drilled easy to 2390'. Entered cavern and found total depth at 2453'. Picked up 10' off bottom. Rigged down power swivel. Rigged up Nine Wireline unit. Tripped in hole with 2" gauge and junk basket. We got down to 2280', tool was sticking and would not go down. Pulled out of hole with tool. Tripped in hole with 1 11/16" sinker bar and it would not go past 2280'. Pulled out of hole. Rigged down wireline unit. Rigged up tongs. Pulled out of hole with 40 joints of 3 1/2" drillpipe. Pipe was very tight and got tighter as we pulled out of hole. Tongs would no longer break it loose. Secured well.

November 20, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Pulled out of hole with remaining brine string; 12 joints of 3 1/2" drillpipe and was supposed to be 27jts of 4 1/2" drill collars but was only 21 jts, 6jts remained in the well. String was parted at a connection. Discussed what to do moving forward. Ordered 4 joints, drillpipe and new 6 1/8" drill bit & bit sub. Waited on these items to be delivered. UWS cut weep hole 4' from bit sub. Tripped in hole with bit, sub, and three 4 1/2" drill collars. Secured well.

November 21, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Continued tripping in hole with seventeen 4 1/2" drill collars and 59 joints of 3 1/2" drillpipe. Went to total depth of 2459' with no drilling. Picked up 10' off bottom. Rigged up Nine Wireline. Tripped in hole with 2 1/8" gauge and junk basket tagging drill bit at 2449'. Tripped out of hole and lay out tool. Tripped in hole with severing tool and shot bit off. Lowered tool to confirm bit had fallen but it did not. Pulled out of hole. Tripped in hole with severing tool again, shot bit off. Pulled out of hole. Pulled 1 joint of brine string and lay out, putting bottom of string just below cavern roof at 2417'. Tripped in hole with weight bar to confirm bit was gone, it was. Pulled out of hole and lay out tool. Secured well.

November 22, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Rigged up Nine Wireline unit. Tripped in hole with Go-Well tool. Run log, it was successful. Rigged down Nine Wireline. Secured well. Loaded and released power swivel, laydown machine, and stripper head.

November 28, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Rigged up Nine Wireline unit. Made up 1 3/4" Gyro tool and tripped in hole to 1638' but could not get down any deeper. Pulled out of hole, removed 7' weight bar. Tripped in hole but still could not get down past 1638'. Pulled out of hole and lay out tool. Circulated well in direct flow 30 minutes and then flow well back until it was flat. Tripped in hole with Gyro again but still could not get past the tight spot. Tripped in hole with 2" gauge/junk basket and 2" weight bar. It passed by the tight spot, worked it up and down through it 6 or 7 times but the drag stayed the same. Ran down to 2370' to confirm it was cleared. Pulled out of hole and lay out tool. Rigged down wireline unit. Secured well.

November 29, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Open well, it was flat. Rigged up Nine Wireline unit. Tripped in hole with Gyro tool with weight bar below it. We could see the tight spot at 1638' but

tool went down. Run gyro, it was successful. Pulled out of hole and lay out tool. Sonic would not run Sonar tool because we could still see the tight spot. Rigged down and released Nine Wireline and Sonic. Secured well. Waited on the path forward. Opened well. Rigged up tongs. Pulled out of hole with 53 joints of 3 1/2" drillpipe, 53rd joint was bent. Laid it out. Secure well.

November 30, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Rigged up Nine Wireline. 765' of pipe in well. Tripped in hole with 2.13 gauge 20' long. Gauge went down to 553', then no reading on the CCL tool indicating the bottom 7 drill collars were not there. Decision was made to pull out of hole and inspect bottom drill collar. Called for laydown machine, stripper head and power swivel to be brought back. Installed new gauge on tongs and replaced tong dies and backup dies. Lay out remaining 5 joints of 3 1/2" drillpipe. Spotted and rigged up laydown machine. Pulled out of hole and lay out thirteen 4 1/2" drill collars. Pin looking down on bottom appeared to be good.

December 1, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Made up 6 1/8" tri cone bit and bit sub on 4 3/4" drill collar. Tripped in hole to 769'. Offloaded 9 joints of 3 1/2" drillpipe. Rigged up Nine Wireline. Tripped in hole with 2.13 x 20' gauge to drill bit at 769'. Pulled out of hole and lay out tool. Rigged down wireline. Tripped in hole with 3 1/2" drillpipe to 1580'. Rigged up wireline, run gauge down to 1580'. Pulled out of hole and lay out tool. Rigged down wireline. Tripped in hole with drillpipe with no resistance or drag, tagging at 2270'. Rigged up power swivel. Rigged up stripper head. Secured well.

December 2, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Break circulation. Circulate at 3 1/2 bpm with 300 psi on pump. Begin drilling at 2270', rotating pipe at 100 RPM. Putting 3000 lbs. on bit. Drilled hard for 4'. Picked up pipe and it went down easily with small amounts of right rotation. Found total depth at 2447'. Left bit hanging at 2422'. Rigged down power swivel. Waited on Nine Wireline to arrive. Rigged up wireline unit. Tripped in hole with 2.13 gauge on 20' sinker bar. Tagged bit at 2417' per wireline measurement. Pulled out of hole and lay out tool. Made up severing tool. Tripped in hole with severing tool to drill bit at 2422'. Severed off bit. Lowered down to ensure bit had fallen, it had. Rigged down wireline. Secured well.

December 3, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Waited for Sonar hand to arrive. Picked up 1 joint of 3 1/2" drillpipe, tripped in hole and tagged total depth at 2453'. Picked up 10' off bottom. Rigged up wireline unit. Picked up Sonar tool. Tripped in hole, get on depth with casing shoe. Started survey at 1666' and get down to 1820' taking shots every 2'. Left tool in hole. Secured well.

December 4, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Begin Sonar at 1820' stopping at 2400'. Left tool in the well at 2400'. Secured well.

December 5, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. Opened well, it was flat. Begin Sonar at 2400' down to 2453'. Pulled out of hole with sonar tool. Lay out top sheeve. Pulled and laid out 1 joint of drillpipe, putting DP at 2422'. Rigged up wireline pulley. Tripped in hole with Sonar tool and do up shots. Pulled out of hole and lay out tool. Rigged down and released Nine Wireline. Released Sonic. Nipple down well control equipment. UWS installed slips in product spool with blowout preventer 10' off total depth. Cut top pipe. Installed freshwater spool. Test between P-seals and void to 2000 psi for 15 minutes. Good test. Secured well. Pumped well pressure up to 100 psi. Pumped remaining brine back to plant brine system. Rigged down pump and tank. Rigged down workover rig.

December 6, 2022

- Held safety meeting, JSA, orientation, and obtained safe work permit. UWS connected gauge and brine piping on Well #3. Finished surface piping on Well #4. Crew removed rig. Loaded and released Weatherford equipment. Loaded Washington head. Pima picked up pump and tank. Waited on truck for tongs. Loaded tongs. Signed permit out.

3 CASING TALLY

Table 3.1 4 3/4" and 3 1/2" Casing Tally

							
Company:	Marathon	Block Weight:	10,000				
Date:	Tuesday, December 6, 2022	Mud Weight(ppg):	8.4				
Well#	JAL #3	9-5/8" csg shoe	1656ft				
Rig#	Standard Energy Rig #53	Buoyancy Factor (BF)	0.872		BF using density steel 65.5ppg		
Company Man:	Ray Musselwhite	Make-up Torque	11,700 ft/lbs		for 4-3/4" Drill Collar (2.25in ID)		
WSP Engineer:	Adrian A. Villarreal	Make-up Torque	11,700 ft/lbs		for 3-1/2" Drill Pipe 15.5#		
Assy. Type	Drill Pipe / Drill Collar / 6-1/8" bit with bit sub	Tensile	221Klbs / 80%		& 3-1/2" DP 13.3# ReRun		
Seq. No	Joint Name	LENGTH	Accumulative	DEPTH (ft)	Capacity	ACCUM. WT. (LBS)	COMMENTS
Assy. Type # 1	TriCone Bit: 6-1/8 inch	0.40	0.40	2448.00			End of Pipe
	Bit Sub	2.60	3.00	2447.60	0.00	10,016	Bit Cut Off
				2445.00	0.01	10,122	
1	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.38	33.38	2414.62	0.16	11,362	1" Weep Hole 4ft above bottom Pin
2	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.06	63.44	2384.56	0.31	12,588	
3	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.04	93.48	2354.52	0.46	13,814	DC Min ID 2.25in
4	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.43	123.91	2324.09	0.61	15,055	
5	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.60	154.51	2293.49	0.76	16,304	Tagged Btm After Cutting-Off Bit at 2.45ft
6	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.48	184.99	2263.01	0.91	17,547	Place End of Pipe 10ft Off-Bottom
7	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.68	215.67	2232.33	1.06	18,799	
8	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.64	246.31	2201.69	1.21	20,049	
9	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	29.71	276.02	2171.98	1.35	21,261	
10	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.35	306.37	2141.63	1.50	22,499	
11	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.63	337.00	2111.00	1.65	23,749	
12	4-3/4" 46.8# Drill Collar, IF connection, 1D 2.25in	30.24	367.24	2080.76	1.80	24,983	
13	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.51	398.75	2049.25	1.95	26,268	New Used Pipe from joint 13 to 25
14	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.37	430.12	2017.88	2.11	27,548	
15	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.36	461.48	1986.52	2.26	28,828	
16	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.40	492.88	1955.12	2.42	30,109	
17	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.08	523.96	1924.04	2.57	31,377	
18	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.16	555.12	1892.88	2.72	32,648	
19	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.98	586.10	1861.90	2.87	33,912	
20	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.07	617.17	1830.83	3.02	35,179	
21	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.06	648.23	1799.77	3.18	36,447	
22	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.04	679.27	1768.73	3.33	37,713	
23	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.96	710.23	1737.77	3.48	38,976	
24	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.03	741.26	1706.74	3.63	40,242	
25	3-1/2" 15.5# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.05	772.31	1675.69	3.78	41,509	
26	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.08	803.39	1644.61	3.96	41,929	Rerun pipe after inspection from joints 26 to 79
27	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.53	834.92	1613.08	4.15	42,355	
28	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.37	866.29	1581.71	4.33	42,779	
29	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.62	897.91	1550.09	4.51	43,206	
30	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.72	928.63	1519.37	4.69	43,621	
31	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.10	959.73	1488.27	4.87	44,041	
32	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.55	991.28	1456.72	5.05	44,468	
33	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.88	1022.16	1425.84	5.23	44,885	
34	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.44	1053.60	1394.40	5.42	45,310	
35	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.45	1085.05	1362.95	5.60	45,735	
36	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.64	1116.69	1331.31	5.78	46,162	
37	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.64	1148.33	1299.67	5.97	46,590	
38	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.15	1179.48	1268.52	6.15	47,011	
39	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.84	1210.32	1237.68	6.32	47,427	
40	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.50	1240.82	1207.18	6.50	47,839	
41	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.33	1272.15	1175.85	6.68	48,263	
42	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.71	1303.86	1144.14	6.87	48,691	
43	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.36	1335.22	1112.78	7.05	49,115	
44	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.65	1366.87	1081.13	7.23	49,543	
45	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	30.87	1397.74	1050.26	7.41	49,960	
46	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	29.88	1427.62	1020.38	7.59	50,364	
47	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.17	1458.79	989.21	7.77	50,785	
48	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.02	1489.81	958.19	7.95	51,204	
49	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.22	1521.03	926.97	8.13	51,626	
50	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.23	1552.26	895.74	8.31	52,048	
51	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.23	1583.49	864.51	8.49	52,470	
52	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.10	1614.59	833.41	8.67	52,890	
53	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.04	1645.63	802.37	8.85	53,309	
54	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.07	1676.70	771.30	9.03	53,729	
55	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.70	1708.40	739.60	9.21	54,157	
56	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.06	1739.46	708.54	9.39	54,577	
57	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.18	1770.64	677.36	9.57	54,998	
58	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.78	1802.42	645.58	9.76	55,428	
59	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.13	1833.55	614.45	9.94	55,849	
60	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.23	1864.78	583.22	10.12	56,271	
61	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.16	1895.94	552.06	10.30	56,692	
62	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.00	1926.94	521.06	10.48	57,110	
63	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.20	1958.14	489.86	10.66	57,532	
64	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, 1D: 2.458in	31.02	1989.16	458.84	10.84	57,951	

65	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.26	2020.42	427.58	11.02	58,374	
66	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.02	2051.44	396.56	11.20	58,793	
67	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.05	2082.49	365.51	11.38	59,212	
68	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	30.96	2113.45	334.55	11.56	59,631	
69	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.22	2144.67	303.33	11.74	60,052	
70	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.73	2176.40	271.60	11.93	60,481	
71	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.20	2207.60	240.40	12.11	60,903	
72	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.17	2238.77	209.23	12.29	61,324	
73	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.25	2270.02	177.98	12.47	61,746	
74	3-1/2" 13.3# Drill Pipe IF Connection GR: S-135, I.D. 2.458in	31.70	2301.72	146.28	12.65	62,175	
75	3-1/2" 13.3# Drill Pipe IF connection GR: S-135, I.D. 2.563in	31.23	2332.95	115.05	12.84	62,597	D.P. 13.3# Min. ID: 2.563in
76	3-1/2" 13.3# Drill Pipe IF connection GR: S-135, I.D. 2.563in	30.95	2363.90	84.10	13.02	63,015	
77	3-1/2" 13.3# Drill Pipe IF connection GR: S-135, I.D. 2.563in	30.04	2393.94	54.06	13.19	63,421	
78	3-1/2" 13.3# Drill Pipe IF connection GR: S-135, I.D. 2.563in	31.23	2425.17	22.83	13.37	63,843	
79	3-1/2" 13.3# Drill Pipe IF connection GR: S-135, I.D. 2.563in	19.23	2444.40	3.60	13.48	64,102	
80		-3.00	2441.40	6.60	13.47	64,062	Less the Bit
81		2.00	2443.40	4.60	13.48	64,089	Correlation from RKB
82			2443.40	4.60	13.48	64,089	
83			2443.40	4.60	13.48	64,089	Depth from Ground Level
84			2443.40	4.60	13.48	64,089	
85			2443.40	4.60	13.48	64,089	Landed on Dec. 5, 2022
86			2443.40	4.60	13.48	64,089	API thread compound was applied to each connection
87			2443.40	4.60	13.48	64,089	
88			2443.40	4.60	13.48	64,089	
89			2443.40	4.60	13.48	64,089	
90			2443.40	4.60	13.48	64,089	
91			2443.40	4.60	13.48	64,089	
92			2443.40	4.60	13.48	64,089	
93			2443.40	4.60	13.48	64,089	
94			2443.40	4.60	13.48	64,089	
95			2443.40	4.60	13.48	64,089	
96			2443.40	4.60	13.48	64,089	
97			2443.40	4.60	13.48	64,089	
98			2443.40	4.60	13.48	64,089	
99			2443.40	4.60	13.48	64,089	
100			2443.40	4.60	13.48	64,089	
101			2443.40	4.60	13.48	64,089	
102			2443.40	4.60	13.48	64,089	
103			2443.40	4.60	13.48	64,089	
104			2443.40	4.60	13.48	64,089	
105			2443.40	4.60	13.48	64,089	
106			2443.40	4.60	13.48	64,089	
107			2443.40	4.60	13.48	64,089	
108			2443.40	4.60	13.48	64,089	
109			2443.40	4.60	13.48	64,089	
110			2443.40	4.60	13.48	64,089	
111			2443.40	4.60	13.48	64,089	
112			2443.40	4.60	13.48	64,089	
113			2443.40	4.60	13.48	64,089	
114			2443.40	4.60	13.48	64,089	
115			2443.40	4.60	13.48	64,089	
116			2443.40	4.60	13.48	64,089	
117			2443.40	4.60	13.48	64,089	
118			2443.40	4.60	13.48	64,089	
119			2443.40	4.60	13.48	64,089	
120			2443.40	4.60	13.48	64,089	
121			2443.40	4.60	13.48	64,089	
122			2443.40	4.60	13.48	64,089	
123			2443.40	4.60	13.48	64,089	
124			2443.40	4.60	13.48	64,089	
125			2443.40	4.60	13.48	64,089	
126			2443.40	4.60	13.48	64,089	
127			2443.40	4.60	13.48	64,089	
128			2443.40	4.60	13.48	64,089	
129			2443.40	4.60	13.48	64,089	
130			2443.40	4.60	13.48	64,089	
131			2443.40	4.60	13.48	64,089	
132			2443.40	4.60	13.48	64,089	
133			2443.40	4.60	13.48	64,089	
134			2443.40	4.60	13.48	64,089	
135			2443.40	4.60	13.48	64,089	
136			2443.40	4.60	13.48	64,089	
137			2443.40	4.60	13.48	64,089	
138			2443.40	4.60	13.48	64,089	
139			2443.40	4.60	13.48	64,089	
140			2443.40	4.60	13.48	64,089	
141			2443.40	4.60	13.48	64,089	
142			2443.40	4.60	13.48	64,089	
143			2443.40	4.60	13.48	64,089	
144			2443.40	4.60	13.48	64,089	
145			2443.40	4.60	13.48	64,089	
146			2443.40	4.60	13.48	64,089	
147			2443.40	4.60	13.48	64,089	
148			2443.40	4.60	13.48	64,089	
149			2443.40	4.60	13.48	64,089	
150			2443.40	4.60	13.48	64,089	
151			2443.40	4.60	13.48	64,089	

4 WELL SCHEMATIC

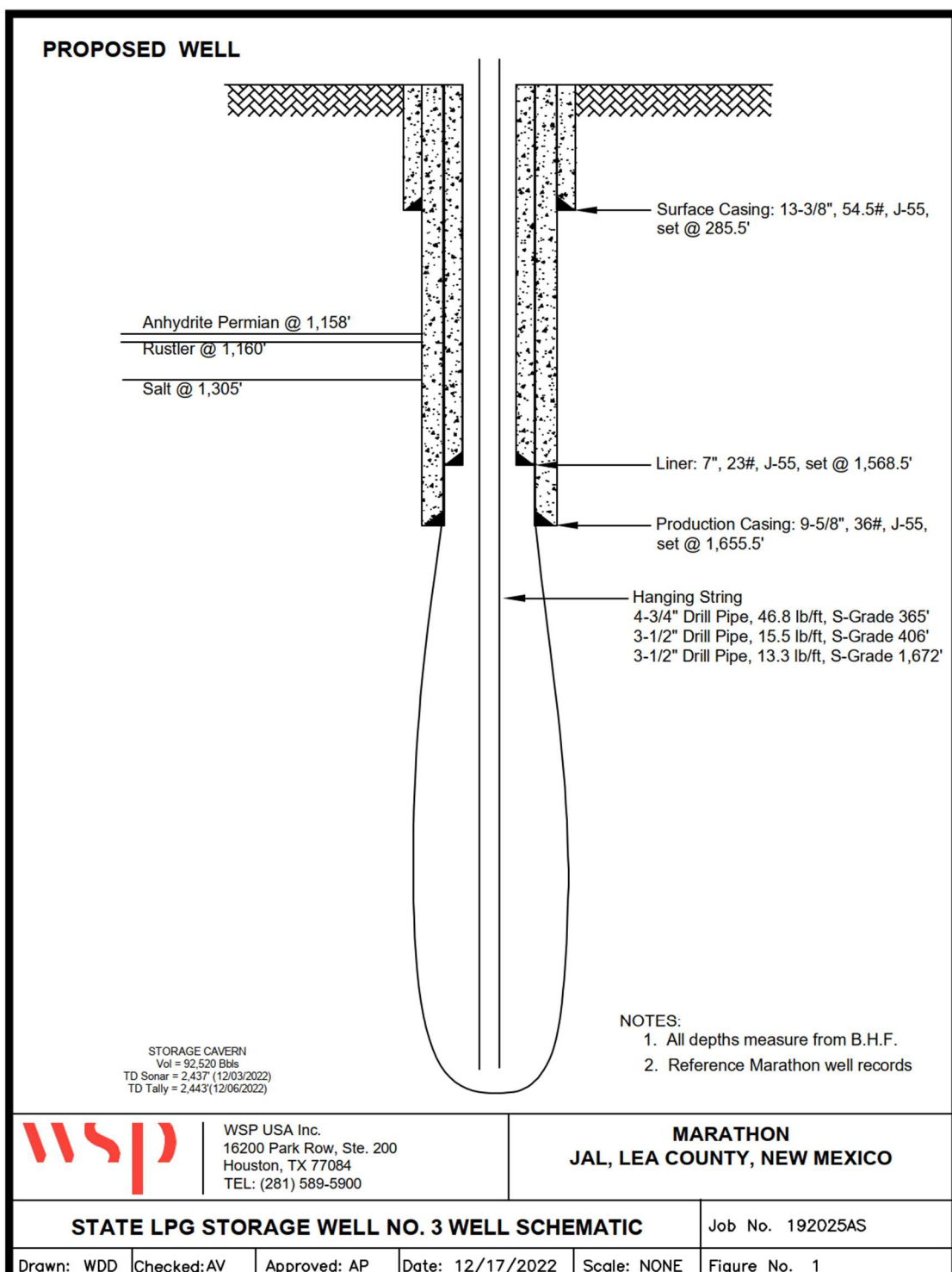


Figure 4-1 Wellbore Schematic

5 WELLHEAD

WSP contracted Universal Wellhead Services company to perform wellhead and gate valves refurbishment services. WSP also contracted Rina tech. to provide third party inspection services for wellhead equipment. Wellhead drawing along with wellhead inspection reports, are included in Appendix A.

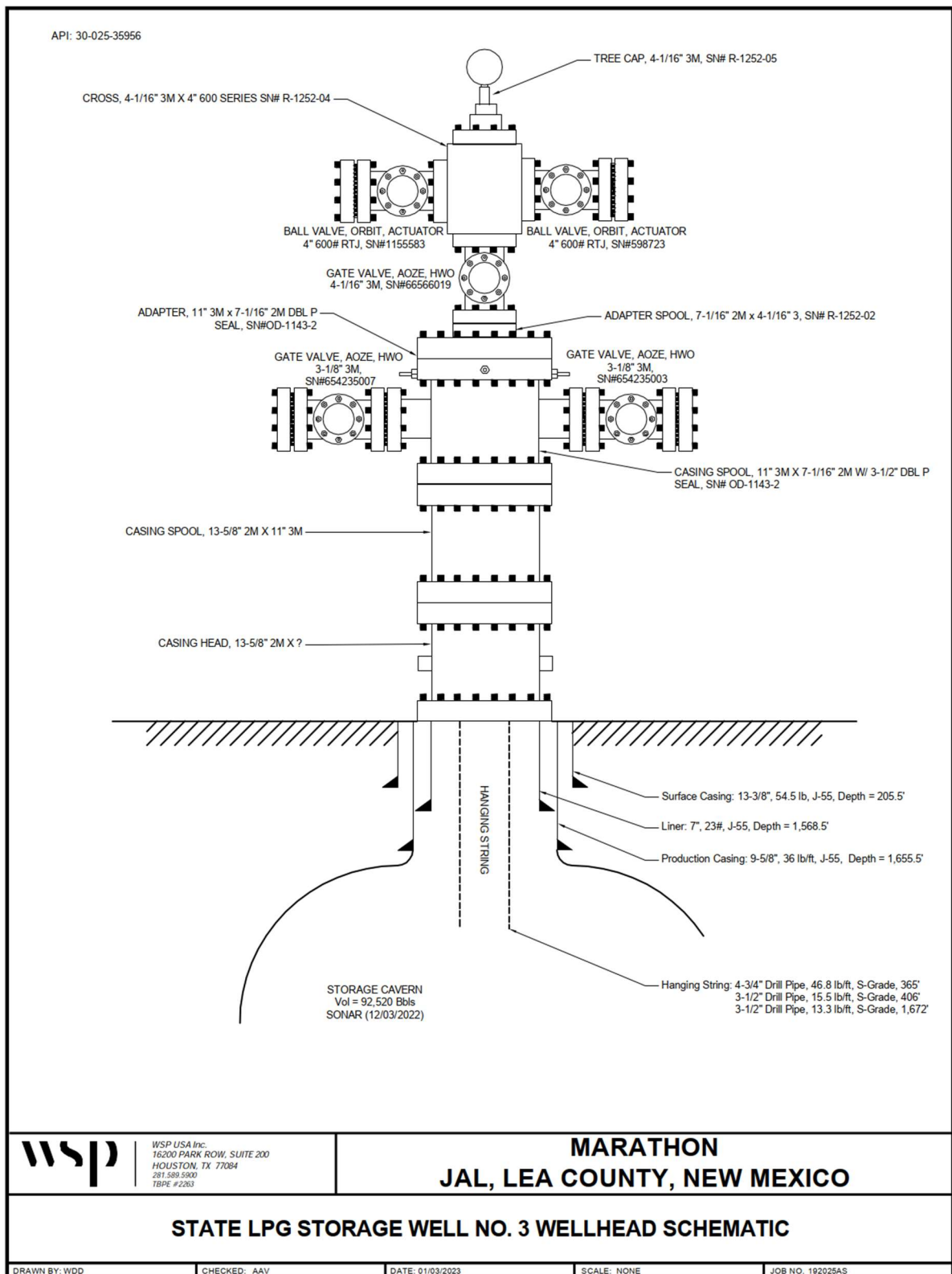


Figure 5-1 Wellhead Schematic

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6 LOGS

This section presents a synopsis of all the surveys and logs.

6.1 NINE ENERGY – MULTI-FINGER IMAGING CALIPER LOG (11/14/2022)

This survey derives casing diameter and wear from measuring fingers, plus inductive sensors through radial changes in the casing to longitudinal changes as the tool traverses downhole. Imaging caliper tools from 24 to 80 fingers with a vertical resolution of 0.14 to 0.28 inches depending on the casing size being logged. A 60-arm caliper was used in the attached log.

The Multi-Finger Caliper logged the 7" cemented casing from a depth of 1,568' to surface. The analysis of the results classified 42 joints, which all of them were defined as Class 1 (0% - 20% max penetration) The Nine Energy Casing Inspection Report located within the included log describes the results in detail.

The results of the Multi-Finger Imaging Caliper log indicate that at the time of this survey no existence of anomalies that could be a threat to the mechanical integrity of the wellbore.

6.2 NINE ENERGY – FLUXVIEW LOG (11/14/2022)

This survey uses a tool that generates an electromagnetic field that permeates the casing walls as it is pulled through the casing. Defects in the casing wall will cause a leakage in this electromagnetic field or "flux" that can be measured and quantified to determine percentage of metal loss in the body of the pipe.

The data was processed using Weatherford's Prospect build of Techlog 2018.2 to classify joints based on percent penetration of the worst-case defect. FluxView data was acquired from 1555.1ft to surface. The processing was performed using 7" 23# J55 casing characteristics. Burst pressure was calculated using Barlow method.

The analysis identified 41 joints in the logged interval. 38 joints were classified as Class 1 (less than 20% penetration), and 3 joints was classified as Class 2 (20%-40% penetration). The worst-case defect was found at 1140.472 ft, showing 34.6% external penetration and a calculated burst pressure of 3257 psi. Any anomalies found in the 7" cemented casing should be monitored for progression on future surveys.

The results of the Magnetic Flux indicate that at the time of this survey, none of the anomalies were a threat to the mechanical integrity of the wellbore.

6.3 NINE ENERGY- SECUREVIEW LOG (11/14/2022)

The FluxView tool employs a powerful rare earth magnet to create a magnetic flux field, which temporarily saturates the inner most casing string. Sensitive Hall Effect Sensors mounted on deployment pads measure these subtle magnetic flux differences, creating a full 360° map of the casing. Proprietary analysis software and processing algorithms take these raw magnetic flux variations and quantify any internal or external defects identified. This processing also allows for size and shape of any detected defect to be quantified allowing for updated burst pressure calculations.

FluxView data was acquired from 1555 ft to surface in addition to Nine Energy Service's 60 arm caliper which was logged from 1568 ft to surface. The data was processed using Weatherford's Prospect build of Techlog 2018.2 to classify joints based on percent penetration of the worst-case defect. The processing was performed using 7" 23# J55 casing characteristics. Burst pressure was calculated using Barlow method, without a safety factor.

The analysis identified 41 joints in the logged interval. 38 joints were classified as Class 1 (less than 20% penetration), and 3 joint was classified as Class 2 (20%-40% penetration). The worst-case defect was found at 1140.472 ft, showing 34.6% external penetration and a calculated burst pressure of 3257 psi.

6.4 GOWELL – EPDT LOG (11/22/2022)

The primary objective of an Enhanced Pipe-Thickness Detection Tool (ePDT) is to identify and accurately quantify any wall loss or damage (such as cross-sectional distortion or buckling) within the 3-1/2", 7" and 9-5/8" casings. ePDT tool was run from 1678 feet to surface. No localized defects of note were found in the 3-1/2" drill pipe, the 7" liner, or the 9-5/8" casing. The 7" and 9-5/8" collars were clearly visible throughout the logged interval, indicating any severe defects would be visible. The 3-1/2" collars are thicker than typical wells, likely due to it being drill pipe. Changing electromagnetic properties resulted in a single "B" grade on the 3-1/2" tubing.

6.5 SONIC SURVEYS – GYRO SURVEY (11/28/2022)

This survey uses a logging tool with a gyroscopic compass and inclination sensor to measure the well deviation and direction of the deviation every 25'. The log was run in the 3 1/2" casing from surface down to a depth of 2,400'. The maximum recorded inclination that occurred in the wellbore, within the 3 1/2" casing shoe, was 3.11° shown at 2,374'. The bottom hole closure distance near the bottom of the 3 1/2" casing was 8.84' at a depth of 2,400' located at 1.52' North and 8.71' East.

6.6 SONIC SURVEY – SONAR SURVEY (12/03/2022)

This survey uses an acoustic signal to measure the distance from the tool to the wall of the cavern at a measured depth. The tool is rotated 360° and can be tilted up to 90° to take measurements of the cavern floor and roof. From these measurements, the volume of the cavern is calculated. The survey was run in the cavern from 1,666' to 2,437', with tilted shots taken of the cavern roof and floor.

The table below is a summary of the survey depths and volumes relative to the brine casing depths. Please refer to the Wellbore Schematic for the sources of the depths shown below.

Table 6.1 Sonar Summary

Description	Depth (ft)	Total Volume (bbls)
Top Weep Hole	2,439	90,384
End of 3 1/2" Hanging String	2,443	91,792
Cavern Total	2,451	92,520

APPENDIX

A WORKOVER DOCUMENTS

A.1 WORKOVER PROGRAM

A.2 VENDORS LIST

A.3 RINA - WELLHEAD INSPECTION REPORT

A.4 UNIVERSAL WELLHEAD - WELLHEAD TORQUE REPORT

A.5 NOV TUBOSCOPE - PIPE INSPECTION REPORT

	WELL WORKOVER PROGRAM	Project No. 192025AS
	MARATHON PETROLEUM COMPANY, LLC STATE LPG STORAGE No. 3 API No. 30-025-35956 LEA COUNTY, NEW MEXICO	Date 9/30/2022
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INTRODUCTION

This well workover program presents the proposed steps for working over Marathon Jal State LPG Storage No. 3 (Well No. 3) in Lea County, NM. The actual conditions encountered during the work will determine the appropriate action taken. Any significant deviation from the proposed program will require prior approval by the WSP USA Inc. (WSP) Project Manager and Client.

The objectives of the workover are:

1. Prepare wellsite and mobilize rig, equipment, and personnel.
2. Pull the 3-1/2" hanging string from wellbore and layout for onsite inspection. While laying out pipe, Sonar readings will be taken.
3. Run a casing scraper inside the 7" 23# casing.
4. Inspect and repair wellhead spools, and valves. Replace all studs, nuts, ring gaskets, and flange protectors.
5. Run corrosion/ caliper logs and photon density log.
6. Reinstall used 3-1/2" hanging string (decision will be based on inspection). Weep hole to be included on first drill collar.
7. Pipe will be drilled down to TD. Once at bottom drill bit will be cut-off from hanging string.
8. Run GoWell's "ePDT" corrosion log thru the hanging string to 7" casing shoe.
9. Conduct mechanical integrity test (MIT) of the well and cavern (separate procedure will be provided).

WORKOVER PROGRAM

1. Prior to commencing any work, hold initial safety meeting and site orientation with all parties. Each day moving forward, hold safety meetings prior to commencement of work or any major change in work procedure. Conduct Job Safety Analysis (JSA) prior to any critical operations.

Note: JSA documentation must be kept to submit during post-operations reporting.

2. WSP to remove cavern pressure and handle excess brine to frac tank.
3. Mark and report wellhead height and valve original orientation. Measure and report the height from ground level to the wing valves. Check and report wellhead and casing annuli pressures. Bleed-off wellhead pressures, if any. Check surface casings, landing base, and all spools for corrosion. Pipe contractor will disconnect lines to wellhead and remove pipe around wellhead to allow rig to move in.

Note: Blind flange will be installed where needed to isolate lines.

4. Ensure Master valve is closed, lock-out tag-out (LOTO) if necessary. Move in and rig up workover rig. Rig up surface lines, tanks, and rig pump to break circulation.

Note: MATs are not required for site location; however, if the need is required Company Man should arrange ahead of time.

5. Check for Brine (tubing) or Product (TCA) pressure on the well. Circulate well down tubing to ensure no product is present below the hanger. If there is brine pressure on the well, relieve pressure by flowing and pumping brine to the rig tank. Ensure well remains full of brine at all times during the workover. If there is product pressure on the well, flare off product using portable flare system (gas buster) supplied by a third-party contractor.

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Notes:

- Make sure well stays filled with brine during the workover. If required, have extra tanks available filled with brine (9.6 ppg) from nearby pond.
- If required, call in a vacuum truck to haul off the excess brine to a brine pit.

6. Remove tree assembly down to 7-1/16" x 4-1/16", 3M adapter spool and 11" x 7-1/16", 3M DSA pack-off.

Note: Arrange to send valves, casing and tubing spool, and adapter to Universal Wellhead shop for refurbishing and coating.

7. Nipple up BOPE (Annular) on the 11" x 11", 3M product (tubing) spool and function test BOP.

Note: Function test BOP (Annular) after each installation.

8. Rig up casing handling tools and associated equipment to spear 4-1/2" casing joint from tubing spool. The string consists of 4-1/2" landing joint, 3-1/2" drill pipe, and 4-3/4" drill collars.

Notes:

- Once DSA has been removed, confirm tubing I.D. to spear pipe.
- The string consists of 741' of 4-3/4" 46.8# drill collars, 1,668' of 3-1/2" 13.3# drill pipe, and 38' of 4-1/2" casing, for a total of 2,447'. The weight of this mixed string weighs ~58,000 lbs in air.

9. Make up appropriately sized spear, and spear into hanging joint. Raise hanger joint and set in slips. Release and lay down spear.

10. Rig up E-Line unit to perform Sonar recording while pulling out the joints placing the end of pipe above each Cavern section based on log from 2007 Cavern report by **Sonarwire Inc.**

- Prior to running Sonar, rig up 2" sinker bar with gauge ring and run to end of hanging string at 2,447'. Pull out of hole (POOH).

Note: If required, have wireline brushes to remove debris.

- Rig up Sonar tool and keep rigged up. Plan to run in Sonar tool to take reading at the following depths from bottom to top: 2,360', 2,353', 2,300', 2,222', 2,184', 2,155', 2,045', 1,995', 1,920', 1,888', 1,844', 1,800', 1,782', 1,704' and 1,666'. Position pipe in slips at safety working height to make up E-Line.

i. Perform shots to Map the cavern.

ii. Take horizontal shot every 2'.

iii. Increase shot density in cavern interval where anomalous measurements are taken.

iv. Note any anomalies and notify the WSP Project Manager and the client. POOH.

- Rig down E-Line tools after taking last reading.

11. Pull and lay down approximately 1,668' of 3-1/2" drill pipe, and 741' of 4-3/4" drill collar. Tally the pulled hanging string. Set aside hanging string on pipe rack for inspection.

Notes:

- Steps 11 & 12 overlap due to running thru-pipe Sonar and pulling hanging string in tandem.
- Plan to have pipe inspection conducted on site. Call Tuboscope pipe inspection well in advance.
 - Acceptable criteria will be yellow band
 - Drill 1 weep hole in first joint 1' from end of tool joint

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12. Rig up clean-out BHA with used tri-cone bit with welded cones, and 7" 23# rotating casing scraper and run-on work string to depth at 1,549' MD ($\pm 20'$ above 7" csg shoe @ 1,569'). Circulate hole clean. Pull out of hole and lay down work string and scraper.
13. Make up and run-in hole with 7" Retrievable Bridge Plug (RBP) on work string and set plug at a minimum depth of 980' in the 7" 23# liner. Avoid collar depths of 938', 970', and 1,000' base on below BHF. Release overshot running tool from "RBP". Close Full Open Safety Valve (FOSV) on work string and close annular and pressure test above "RBP" to 500 psi for 15 minutes while holding observe casing annulus (CCA) for any pressure increase. Bleed off pressure and open annular and FOSV. POOH with work string and "RBP" running tool.
14. Nipple down BOPE. Remove 11" x 11" 3M product (tubing) spool. Send the spool and valves off to third party shop for refurbishing.
15. Nipple up BOPE on the 11" x 11" casing spool and function test BOP.
Note: Function test BOP (Annular) after each installation.
16. Run in with 7" RBP retrieving tool on work string and latch on to RBP, equalize pressure, release RBP and pull out of hole (POOH) and lay down.
17. Rig up E-Line unit with pack-off. The following casing inspection logs and formation log down to 5ft above 7" 23# casing shoe (csg shoe @ 1,569' MD).
 - Multi-finger Imaging Caliper
 - Magnetic-Flux Leakage Casing Inspection
 - Density log across the casing shoe to check for washouts
18. Rig down (R/D) E-Line unit.
19. Make up and run-in hole with 7" "RBP" on work string and set plug at a depth of 980' in the 7" 23# liner (Avoid casing collar depths at 938', 970', and 1,000'). Close Full Open Safety Valve (FOSV) on work string and close annular and P/T above "RBP" to 500 psi for 15 minutes while holding observe CCA's for any pressure increase. Bleed off pressure and open annular and FOSV. POOH work string and RBP running tool, stand same in derrick.
Note: Bottom RBP barrier will be installed to secure wellbore while installing casing spools, flanges, and valves.
20. Nipple down BOP. Have the wellhead contractor inspect the 11" x 11", 3M casing spool flange. Install repaired/new 11" x 11", 3M product (tubing) spool and 3" side-entry valves ANSI 900.
21. Energize and test casing P-seal to 1,500 psi for 15 minutes.
Notes:
 - Pressure test on P-Seal is based on 1.2x maximum calculated surface nitrogen pressure during MIT (1.2 x 1,207 psi ~1,500 psi). The 7" 23# casing collapse pressure is 3,270 psi.
 - Depending on the style of hanger the test pressure might change. Confirm with PM or Engineer.
22. Nipple up BOPE (Annular) on the 11" x 11", 3M product (tubing) spool and function test BOP.
Note: Function test BOP after each installation.
23. M/U and run in with 7" RBP retrieving tool on work string and latch on to packer, equalize pressure, release packer and pull out of hole (POOH) and lay down.
24. Tally hanging string. Ensure each coupling is doped with modified API thread compound.

	WELL WORKOVER PROGRAM	Project No. 192025AS
	MARATHON PETROLEUM COMPANY, LLC STATE LPG STORAGE No. 3 API No. 30-025-35956 LEA COUNTY, NEW MEXICO	Date 9/30/2022
		Page 4 of 5

Notes:

- It is critical that pipe tally is accurate listing number of drill collars and drill pipe prior to run in well.
- Send copy of pipe tally to WSP Workover Engineer prior to running pipe in well for review. Do not run pipe until after receiving approval from WSP Workover Engineer and Client.

25. Rig up casing handling tools, and power swivel to rerun/drill down the 3-1/2" hanging string.

Note: Well in advance confirm with pipe inspector of previous pulled hanging string consisting of 3-1/2" drill pipe with 4-3/4" drill collars a list of number reusable drill pipe / drill collar to make arrangement head to obtain replacements.

26. Run 3-1/2" hanging string and make up each connection to recommended torque. Run down to 9-5/8" casing shoe at 1,655' MD and break circulation before entering open hole (OH). At approximately 1,991' MD (335' MD in OH) it is expected to drill down the joints. See table below with additional section required to drill across. Circulate hole clean as required to remove drilled cuttings to prevent packing off.

NOTE: Well history shows that drilling will be required across the following intervals:

Interval Drilled	Top Depth	Bottom Depth
	1,991 ft	2,006 ft
	2,043 ft	2,054 ft
	2,054 ft	2,057 ft
	2,281 ft	2,293 ft
	2,300 ft	2,347 ft
E-Line run CCL confirmed bit depth @ 2,446 ft	2,347 ft	2,352 ft
Tagged Bottom @ 2,455 ft	2,352 ft	2,455 ft

- 3-1/2" IF Drill Pipe & Drill Collar recommended torque: 11,700 ft-lbs
- Plan to drill weep hole on first drill collar 1' from pint tool joint
- Ensure to have back-up 6-1/8" tri-cone bit
- Sufficient hydraulic fluid for the power swivel
- Sufficient tanks for returned brine fluid

27. Land hanging string with casing spear or landing joint in the 11" x 11", 3M product (tubing) spool. Rig down handling equipment and power swivel.
28. Nipple down BOPE. Install repaired 11" x 7-1/16", 3M DSA pack-off with 7-1/16" x 4-1/16" adapter spool with 2x 4", 600# side-entry valves one on each side and test P-seal to 3,000 psi for 15 minutes.
29. Install blinds and test flanges on brine and product side-entry outlet valves for MIT. Inspect overall condition of test flanges. Torque all wellhead connections to API 6A specifications.
30. Rig up E-Line unit with pack-off and RIH with CCL tool to confirm collar depth. POOH and RIH with severing tool to cut collar at bit to leave in OH to obtain open ended hanging string. POOH.
31. Rig up GoWell's thru-tubing "ePDT" corrosion log run down across 7" casing shoe depth at 1,569' MD. POOH. Rig down E-Line unit and demob same.

	WELL WORKOVER PROGRAM	Project No. 192025AS
	MARATHON PETROLEUM COMPANY, LLC STATE LPG STORAGE No. 3 API No. 30-025-35956 LEA COUNTY, NEW MEXICO	Date 9/30/2022
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32. Rig down workover rig. Load out rental tools and move rig. Restore location.
33. Use rig pump to pressure the well with brine to the specified MIT pressure. Verify pressure on product and tubing side with dead weight gauge or digital pressure recorder.
34. Perform nitrogen interface MIT per MIT procedure under separate cover.
35. Ensure all rentals have been returned and area is clean.

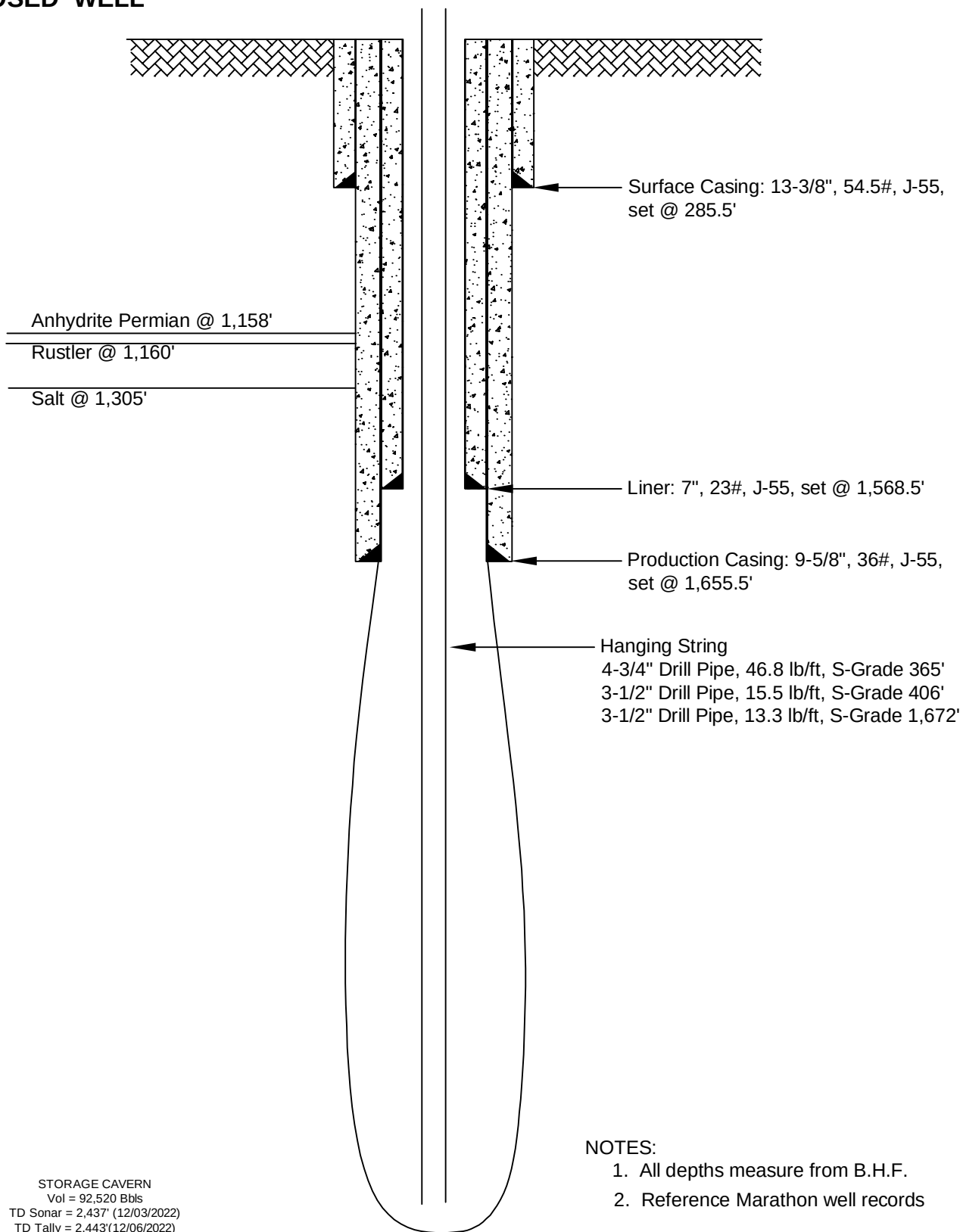
ATTACHMENTS

- Wellbore schematic with Sonar Cross-section
- Wellhead Schematic
- Correlation Sonar log from 2007 by SonarWire Inc.



Adrian A. Villarreal, WSP USA

PREPARED BY Adrian A. Villarreal 10/5/2022**APPROVED BY** J. Austin Powers 10/14/2022

PROPOSED WELL

WSP USA Inc.
 16200 Park Row, Ste. 200
 Houston, TX 77084
 TEL: (281) 589-5900

MARATHON
JAL, LEA COUNTY, NEW MEXICO

STATE LPG STORAGE WELL NO. 3 WELL SCHEMATIC

Job No. 192025AS

Drawn: WDD

Checked: AV

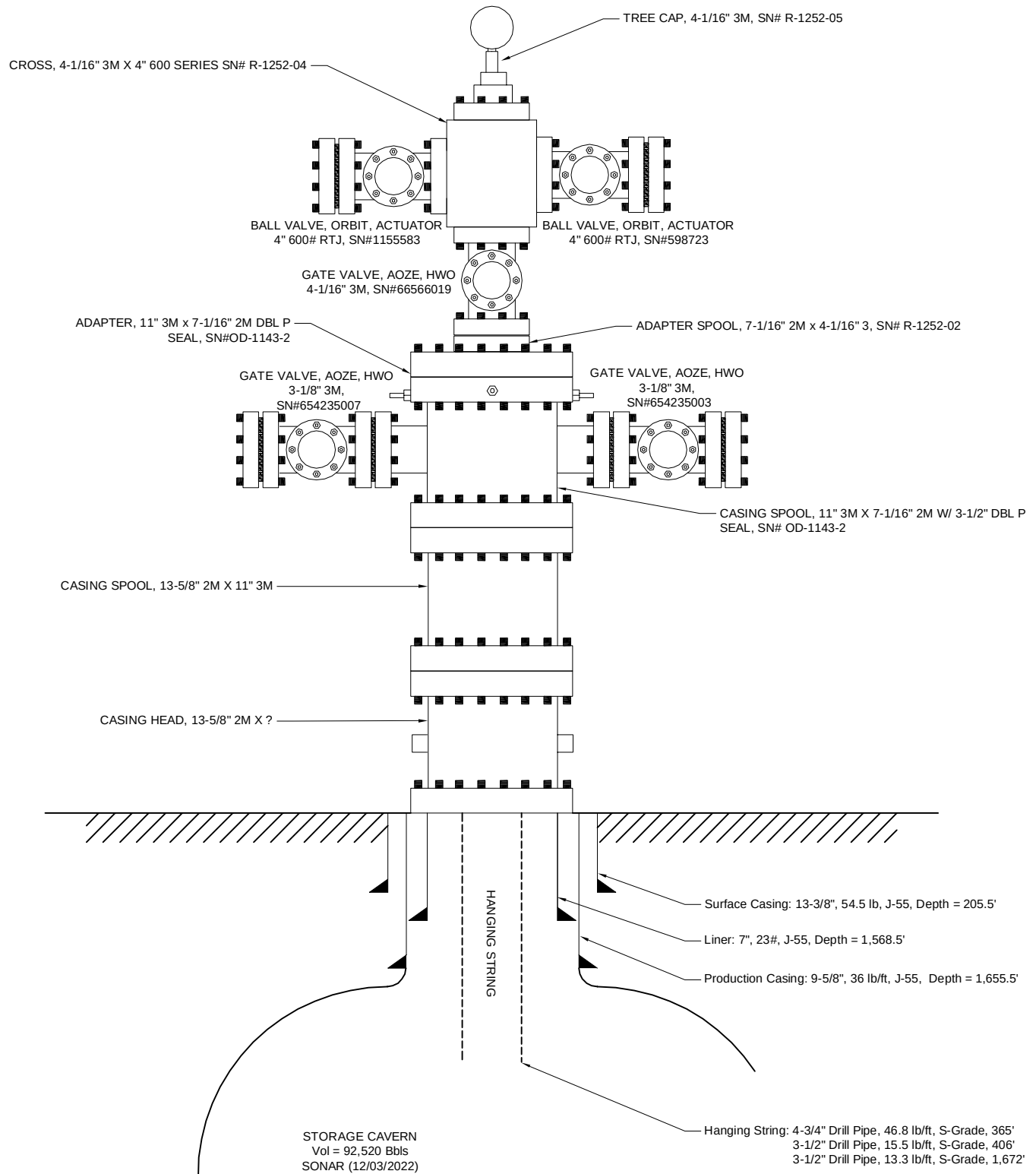
Approved: AP

Date: 12/17/2022

Scale: NONE

Figure No. 1

API: 30-025-35956



WSP USA Inc.
16200 PARK ROW, SUITE 200
HOUSTON, TX 77084
281.589.5900
TBPE # 2263

MARATHON JAL, LEA COUNTY, NEW MEXICO

STATE LPG STORAGE WELL NO. 3 WELLHEAD SCHEMATIC

DRAWN BY: WDD

CHECKED: AAV

DATE: 01/03/2023

SCALE: NONE

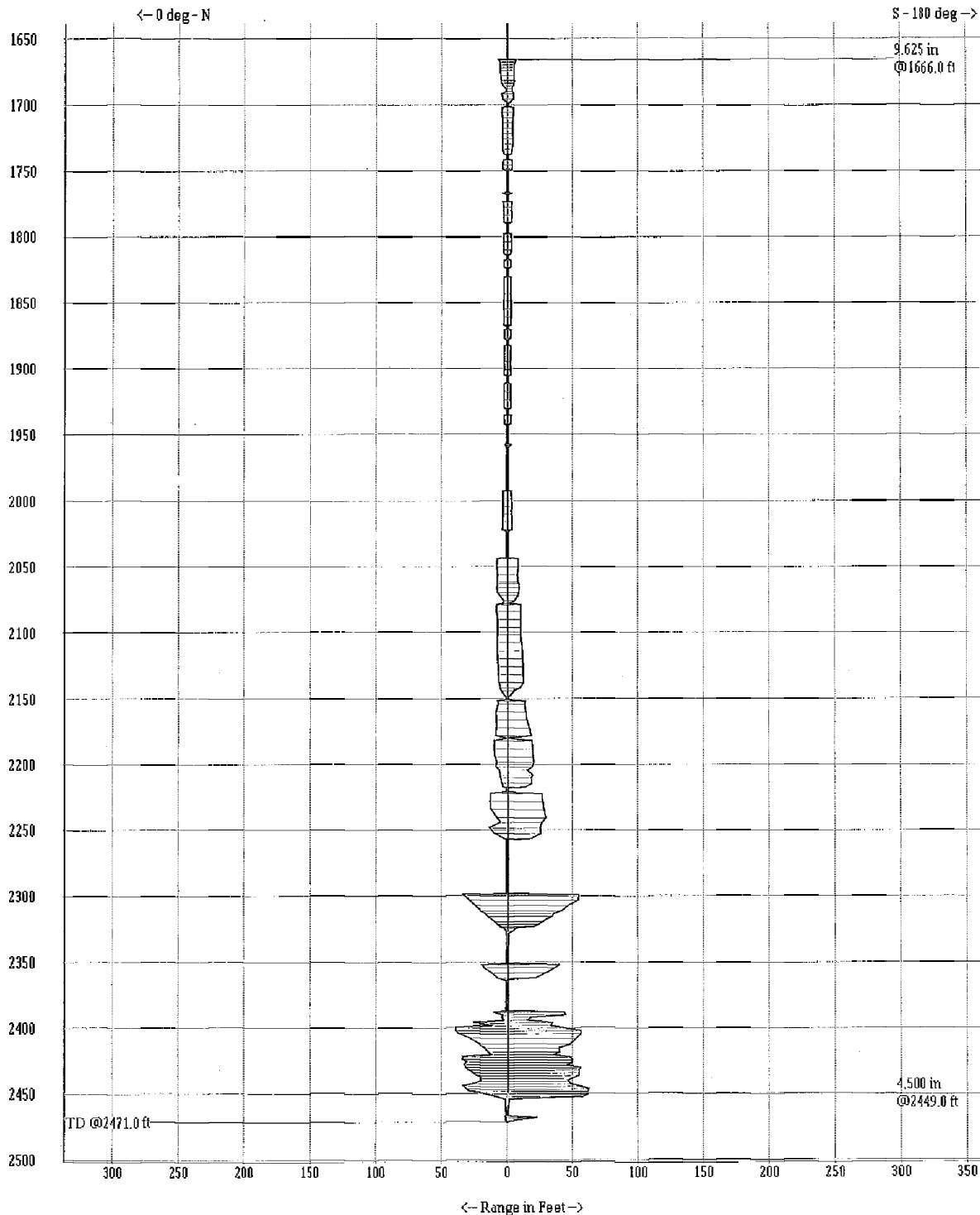
JOB NO. 192025AS

EXISTING WELL

WESTERN REFINING
JAL, NM

SONARWIRE, INC
Vertical Cross Section

STATE LPG WELL NO. 3
Wed, Sep 12, 2007



WSP USA Inc.
16200 Park Row, Ste. 200
Houston, TX 77084
TEL: (281) 589-5900

MARATHON
JAL, LEA COUNTY, NEW MEXICO

STATE LPG STORAGE WELL NO. 3 2007 SONAR

Job No. 192025AS

Drawn: WDD | Checked: AAV | Approved: AP | Date: 10/12/2022 | Scale: NONE

Figure No. 1

Number	Issue Date	Marathon ISN Comment	ISN acct#	Vendor	Description	Contact	HSE/ISN Notes
(Well 4 was 192025AT024 create		10/24 to Sanad for ISN check; Per	400-784127	DHVI - Downhole Video	CaptureCam HD	Jerod Hobbs	ISN-A
192021AS021	11/21/2022	Safety status met 11/8/22	400-603097	Innovex Downhole Solutions			
192025AS	PENDING	material only		Baker Hughes	bit from Hobbs (email 11/4 7:00AM) - IS THIS FOR WELL 4, 3 OR BOTH? (1) 6.125 STX-30 537 TH2309900 5328841 bit \$8500		
192025AS001 NOT NEEDED		SSM = Safety Status Met	400-175870	Delta Oil Tools	mechanical set retrievable bridge plug set in 7" 23# J55	Eddie Bernard	A - Requested ISN update 9/14/22
192025AS002	11/21/2022	SSM = Safety Status Met	400-141258	CDK Perf DBA Nine Energy Service, Inc	Provide casing inspection logs (Weatherford CI flux and GoWell tools) and jet cut of 3.5" tubing, hoist sonar	Pete Curtis	A - Under CDK Perforating, Requested ISN update 9/14/22
192025AS003	11/21/2022	9/19/22 - Safety Status Met	400-164313	Universal Wellhead Service Holdings	remove surface pipe, wellhead and brine line coating, and temporary blind flange rental, welding 10/14 requested rates for certified forklift operator 10/27 2nd request - rates for cert forklift op 10/28 forklift OP \$95/hour	John Madiero Jason White Odessa	A - Requested ISN update 9/14/22
192025AS003A		9/19/22 - Safety Status Met	400-164313	Universal Wellhead Service Holdings	Wellhead/valve inspection, refurbish, and field services	John Madiero	A - Requested ISN update 9/14/22
192025AS004	11/21/2022	SSM = Safety Status Met	400-117856	Weatherford Intl LLC USA	Rentals -BOP package, spool, safety valve, nipple, flanges, casing scraper - No power swivel available 10/14 Per Derrek will add elevators for 3.5 DP and 4-3/4" DC 10/26 Not needing crossovers to NOV agitation tool	Derrek Borne Sabrina Terry	ISN grade A
192025AS004A	11/23/2022	SSM = Safety Status Met	400-117856	Weatherford Intl LLC USA	provide (4) four joints of 3-1/2" 13.30# PPF S135 N C38 TCS TI TK34XT and a bit sub 3-1/2 REG BOX X 3-1/2 IF BOX plus tax as applicable. Freight to be billed direct from Rig	Martin Montanez - Ops Duane Bryant - Sales	
192025AS005	11/21/2022	SSNM=Safety Status Not Met - Haul offsite	400-127753	Tuboscope NOV - not approved by Marathon. Well bore Integrity if available - Safety approved	Perform pipe inspection 3.5" 15.50# S135 used premium IF connections drill pipe and 4-3/4" drill collars The inspection will consist of visual threads, visual tube, OD gage, UT wall, dimensional 2, EMI, and magnetic particle slip/upset area.	Steve Menard Jeremiah Brus	Approved w/Variance, Requested ISN update 9/14/22
192025AS006 NOT NEEDED		no on-site work	400-134304	United Rentals	provide 12K variable reach forklift and light tower (quote 210788749)Rev1)	Jeff Sullivan	rental only, no operator
192025AS007	11/21/2022	ISN compliance not required per Sanad Almahal 10/13/22	400-178867	J & J Rentals, LLC (Hobbs)	Toilets and handwash stations	Christina, Paco Joel Hernandez	Not connected, Sent Request 9-12-22
192025AS008 Ver 1 REV1	11/16/2022 DW (sent MSA)	no site work; rentals only	NA	DH Rockbit	provide (1) one 6-1/8", 537 IADC, 3-1/2" Reg. PIN, Sealed Bearing Hughes STX-30 Motor Bit with gauge protection	Wayne Jared	rentals only
192025AS009 REV2	11/21/2022	SSM = Safety Status Met	400-161827	Standard Energy Services	WO rig, crew, kill truck, vacuum trucks ** find backup for vac trucks; limited availability	Todd Cox	B, Requested ISN update 9/14/22
192025AS010 REV1	11/21/2022	Safety Status Met	400-129164	Sonic Surveys, Ltd.	run 2" low profile Sonar tool and MIT - replace Socon	Sam Tolleson Tony - HSE	A - Requested ISN update 9/14/22
192025AS011	11/21/2022	off site	NA	RINA Tech USA, Inc	Perform 3rd party wellhead inspection services	Amanda Fielder	no site work
192025AS012 NOT NEEDED		Safety Status Met	400-127759	Total Safety US Inc.	HSE OVERSIGHT (wellsite remote H2S monitors not needed) only personal H2S	Sean Chamblee	connection request 10/7/22
192025AS013 NOT NEEDED		Safety Status Met 10/19/22 Sam Flessner	400-128793	Graco Oilfield Services	provide 3.5 power swivel. IF Kelly Valve, Operator, Inspection, Kelly Valve Redress, Trucking (as needed) approximately 20 Days 10/19 5K reverse unit (w/pump/tank/hoses) 10/21/22 casing jacks \$6K/day \$175/hour from Monahans TX	Dennis Cormier	ISN A grade
192025AS014	11/21/2022		400-153639	Adler Tank Rentals	provide Gas buster, 200' layflat line with pump (to move brine from brine pond to frac tank), Frac tank, Containment for frac tank, rig pump & tank, other equipment as requested, including fixed costs for mobilization/demobilization, and cleaning of rental items	Chad Carson	ISN A grade
192025AS015		Safety Status Met 10/19/22 Sanad A	400-246248	Dynasty Energy Services LLC	provide Laydown Machine, Operator, Delivery and Pickup of the machine (approximate 10 days usage) Only have a 10K recirculating unit, not 5K.	Monty Johnston	A - Requested ISN update 9/14/22
192025AS016 Rev1	11/21/2022	equipment only, no on site services	NA	Bourque Sales & Service Inc	tongs w/hydraulic unit and 10 dies, 10 extra dies	Colin	NA
192025AS017	11/21/2022	trucking exempt	400-127685	Acme Truck Line Inc.	Provide miscellaneous trucking	Shannon Runnels	ISN A grade
192025AS018	11/21/2022	trucking exempt	400-129890	Rig Runner	Provide miscellaneous trucking	Rebecca Coleman	ISN-A
192025AS019	11/21/2022	trucking exempt	400-135825	Hughes Oilfield Transportation, Inc	Provide miscellaneous trucking	Lorri Bradshaw	A - Requested ISN update 9/14/22

192025AS020 & 192025AT017 INTERNAL ONLY for billing purposes; split cost	NA	no site work	NA	Agapito Associates Inc	3rd party consultant	Eric Busch	
192025AS022	11/18/22 MN	11/9/22 To MPC for ISN compliance check; Sent connect form; email Mae.penfield to update INS once connected to MPC	400-223133	Pima Oilfield Services LLC	laydown machine w/operator, reverse unit/swivel w/op, light plant, 12K forklift w/operator, manlift, misc spools, SSA, wash head, gaskets, rubbers/sale item.	Shawn Dobson	ISN A grade
192025AS023 REV2	11/17/22 REV1 PO TO PM DW	material only	NA	Patriot Steel Group LLC	New drill pipe and drill collars; returnable if not used; charges to inspect and repair as needed items not used, plus freight	Brandon Gallet Reed Barbier	NA
192025AS025	11/18/2022	SSM – Safety Status Met	400-126914	Cudd Pressure Control Inc.	provide nitrogen services estimated for (1) day for (1) one well	Tony Drainer	ISN-A

	Customer:	WSP	
	Project:	Marathon Cavern Well #3	
	Report No.:	RP002	
	Inspector/s:	Robert Phillips	
	Visit Date/s:	11/29/2022	
Inspection Report	Report Date:	12/1/2022	Page 1 of 6

1. Reference Section

Purchase Order:	192025AS011	RINA Job ID:	PES041-113
Inspection Notification:	Phone/email	Customer Reference:	
Main Vendor:	Universal Wellhead	Main Vendor Location:	Odessa, Texas
Manufacturer:	NA	Manufacturer Location:	NA
Vendor sub-order No.:	NA		
Other key Attendees:	Name of Person	Company / Position & Contact Details	
	Tommy Miller	Odessa Operations Manager 432/661/5810	
Equipment / Material:			
Inspection Activities Performed:	☒ Stage/Intermediate ☐ Final ☐ Dispatch / Shipment		
Next Visit Date/s:	Assignment complete		

2. Overall Result of inspections

X	SATISFACTORY	Witness of hydro test on well head and gate valve
	UNSATISFACTORY	
X	PENDING ITEMS(S)	No MTR's available at time of hydro test for review.
	PUNCHLIST RAISED	PL No.:
	NCR RAISED	NCR No.:
	IRN ISSUED	IRN No.:

CUSTOMER ACTION REQUIRED

☐ YES

☐ NO

If yes, provide details here:

QUALITY FINDINGS (not subject to an NCR being raised, corrected at time of Inspection)

3. Time & Expenses Expenditure

Time

DATE	WORK HOURS	TRAVEL HOURS	DISTANCE
11/29/2022	4	6	390

	Customer:	WSP	
	Project:	Marathon Cavern Well #3	
	Report No.:	RP002	
	Inspector/s:	Robert Phillips	
	Visit Date/s:	11/29/2022	
Inspection Report	Report Date:	12/1/2022	Page 2 of 6

4. Documents Section

Detail all the applied Customer, Vendor docs and International Codes & Standards referenced

Document Number	Rev.	Title	Code Status

5. Presented Quantities

P.O./Tag Item	Item Description	Ordered	Presented This Visit	Rejected This Visit	Accepted This Visit	Qty. for Release
	Well Head and gate valves for Cavern Well #3	1	1	0	1	1

6. Details of Inspection & Test instruments Used

Equipment Name	Manufacturer	Serial No. / ID No.	Next Calibration

	Customer:	WSP	
	Project:	Marathon Cavern Well #3	
	Report No.:	RP002	
	Inspector/s:	Robert Phillips	
	Visit Date/s:	11/29/2022	
Inspection Report	Report Date:	12/1/2022	Page 3 of 6

7. Detailed Results of Inspections

Summary table of the inspection activities performed & results

QCP / ITP Step	Inspection Activity	Result		
	Material Test Reports	☐ Accept	☐ Reject	☒ Pending
	Check Fittings, plugs, seals	☒ Accept	☐ Reject	☐ Pending
	Witness Pressure Test	☒ Accept	☐ Reject	☐ Pending
N/A	Verify Final Dimensions of Casing Spools	☐ Accept	☐ Reject	☐ Pending
	Studs and Nuts Teflon Coated	☒ Accept	☐ Reject	☐ Pending
N/A	Internal Coated	☐ Accept	☐ Reject	☐ Pending
N/A	Final Paint	☐ Accept	☐ Reject	☐ Pending

Detailed results of inspections (QCP/ITP Activity No., Inspection Performed including quality findings)

Detailed here below, in a clear and concise way, the activities performed and the results:

TPI made an inspection visit to Universal Wellhead in Odessa, Texas on November 29, 2022. Equipment was already disassembled, repaired/rebuilt, and reassembled. TPI was advised that casing spool was already rebuilt and changed to 4" per customer request.

Inspector verified fittings, plugs, and seals at time of hydro test. Bolts are B7 grade and Teflon coated. Bolts to conduct hydro test are shipped with wellhead and used when wellhead is reinstalled on well. Well head, spools, and valves were primer coated and stamped with R-1252.

Hydrotest was performed at 3,000 psi for 10 minutes on both the well head and then well head to upper spools spool. The first test on well head to upper spools had to be restarted as the system had air in the system. Second test was conducted and held at 3,000 psi with no leaks or pressure loss on chart or gauge. Lower valve was closed, and upper valves were opened to drain water out of upper section. Lower section was pressured and held at 3,000 psi for 10 minutes with no leaks or pressure drop on chart observed.

TPI requested documentation from Tommy Miller, Universal Odessa Operations Manager, for MTR's, coating reports, welder qualifications for spool that was rebuilt, and reports for valves that were rebuilt at vendor sub-supplier. Final paint was not applied at time of hydro test, so TPI requested coating reports to be provided for external paint as well. Information was not emailed to TPI for review prior to submitting report.

8. HSE

Check and comment on results (as applicable)

	Any Incidents	
	PPE in Use	
	HSE Induction Given	
	Child Labour Seen	
	Poor Working Conditions	
	Unfair / Forced Labour	
	Waste Recycling Practiced	

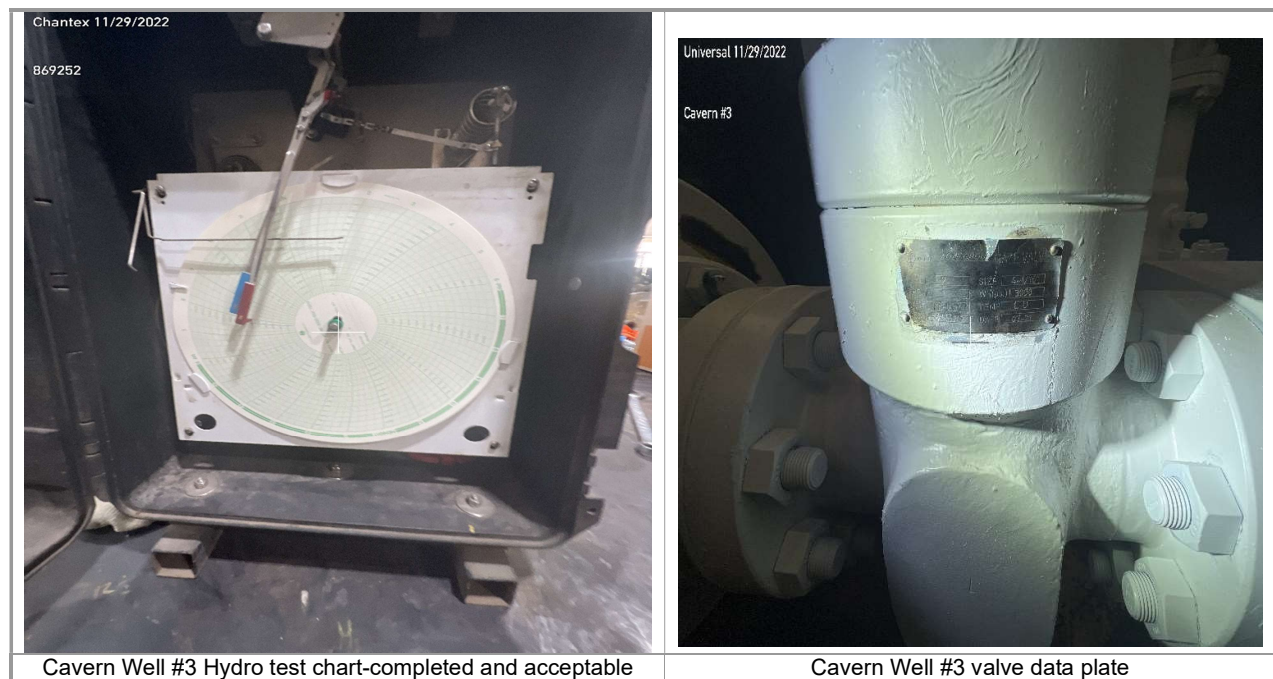
	Customer:	WSP	
	Project:	Marathon Cavern Well #3	
	Report No.:	RP002	
	Inspector/s:	Robert Phillips	
	Visit Date/s:	11/29/2022	
Inspection Report	Report Date:	12/1/2022	Page 4 of 6

Other	
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9. Attachments Section

Document Number	Rev.	Title
WSP Assignment Form		PO 192025AS011

10. Pictures Section





Inspection Report

Customer:	WSP	
Project:	Marathon Cavern Well #3	
Report No.:	RP002	
Inspector/s:	Robert Phillips	
Visit Date/s:	11/29/2022	
Report Date:	12/1/2022	Page 5 of 6



Well head upper section and job stamp on body

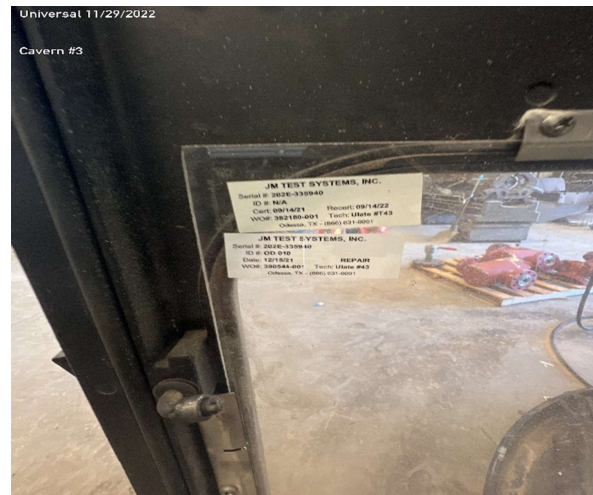


Chart recorder calibration tag. Documentation needs reviewed.



Well head with blind assembled with Teflon bolts for hydro testing

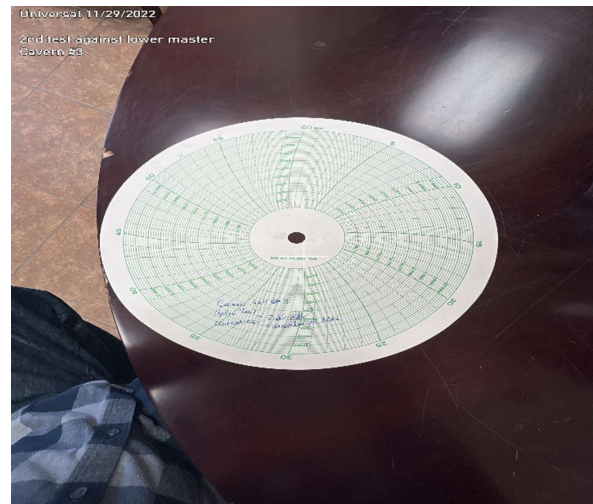
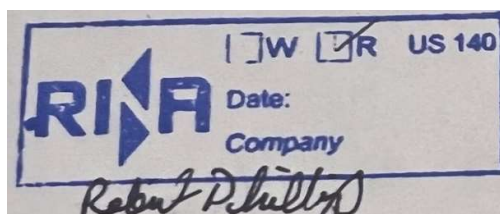


Chart signed off by TPI for test after hydro completed.

	Customer:	WSP	
	Project:	Marathon Cavern Well #3	
	Report No.:	RP002	
	Inspector/s:	Robert Phillips	
Inspection Report	Visit Date/s:	11/29/2022	
	Report Date:	12/1/2022	Page 6 of 6

Place:	<u>Odessa, Texas</u>	Date:	<u>11/29/2022</u>
---------------	----------------------	--------------	-------------------



Inspector Signature and Stamp



UNIVERSAL WELLHEAD SERVICES, LLC.

Field Sheet/Shop

Customer WPS / Mprator Field/Well # Cannon 4

Torque Unit # _____ Calibration Date _____

Flange Location / Size	Torque Value
3 - 900 Qty 2 spawl	170 FT lbs
4 - 900 Qty 2 Trea	230 FT lbs
4 - 600 Qty 2 Trea	230 FT lbs

Durometer tool # _____ Calibration Date _____

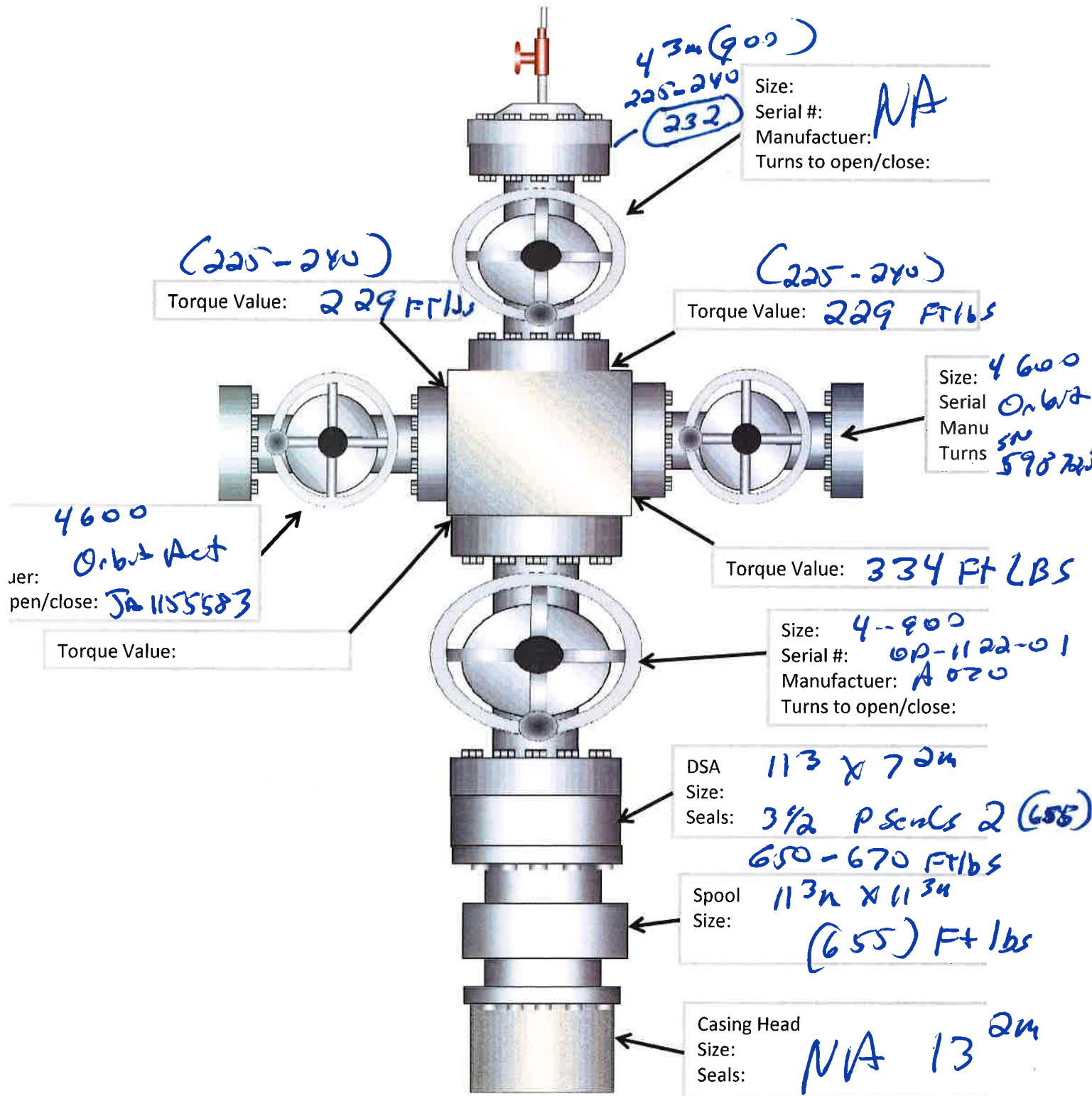
Seal Type	Seal Size	Material	Batch #	Location	Duro reading
Pseals	3 1/2	90 Dure	1	Ode fga	90 Dure

Field Service Tech / Date

Company Rep / Date

Field WPS Marathon

Well # Canyon Well 4A



Tuboscope

DRILL PIPE INSPECTION REPORT



The New Inspection Standard

Customer: WSP USA												Loc: NOV TUBOSCOPE CRANE YARD				Rig:		Inspector: SANTOS RIOS										BA/Invoice:		7948733						
Operator:												Yard:		Inspection Comments:		DOWN GRADES (DBR'S/CLASS II) CONSIST OF LOW WALLS , DEMENSIONAL REJECTS AND ONE CLASS III . DAMAGES CONSIST OF PITTING ON THREADS/SHOULDERS AND VARIOUS HANDLING DAMAGE																				
Category:		3		Dim:		☒ 1 ☐ 2 ☐ 3		UTEA:		☐		Inspection:		☐ DMPI ☐ WMPI		ID/OD Blast:		☐		Blacklight Conns:				☐		EMI:		☒ I ☐ II ☐ FLUT								
Size:		3.5		Lb/ft:		13.30		Grade:		S-135		Conn:		NC38		Range:		2		Type:				DRILL PIPE												
Criteria:		Min OD		Tong Pin		OD Threshold		MAX ID		Nom Wall		Min Wall		Min Seal		Min Shld		Tong Box		CB Max		Bevel Min		Bevel Max		Pin Length Min		Pin Length Max		Box Depth Min		Box Depth Max				
		4 21/32		4		-		2 25/32		0.368		0.294		21/64		-		5 5/8		4 9/64		4 9/16		4 19/32		-		-		-		-				
TUBE BODY												PIN CONNECTION										BOX CONNECTION														
Pipe No.	Serial No.	Length	Slip Cut	Pitting	Bent	Slip Area Mash	Cracked	ID Coating	Tube Wall Min	% Nom	Tube Wall Max	Tube Class	Pin ID	Pin OD	Tong Space	Pin Length	Bevel Dia	Reface	Hard band	Thread Service	Conn Cond	TJ Class	Box OD	Tong Space	CB Dia	Box Depth	Reface	Bevel Dia	Hard band	Thread Service	Conn Cond	TJ Class	Overall Class	Repair Joints	Reject	Comments
1	P17949	-	☐	☐	☐	☐	☐	-	0.35	95.11%	-	2	2 1/2	-	10 3/8	-	-	-	☐	☐	OK	P	4 11/16	9 1/4	-	-	-	-	☐	☐	P	P	2	☒	☐	BOX SLIP AREA ID WASHING
2	2959	-	☐	☐	☐	☐	☐	-	0.32	86.96%	-	P	2 1/2	-	6 3/4	-	-	-	☐	☐	OK	P	4 11/16	7	-	-	-	-	☒	☐	P	P	P	☒	☐	-
3	P5250	-	☐	☐	☐	☐	☐	-	0.289	78.53%	-	2	2 9/16	-	9	-	-	-	☐	☐	P	P	4 3/4	8 9/16	-	-	-	-	☒	☐	P	P	2	☒	☐	LOW WALL
4	97441	-	☐	☐	☐	☐	☐	-	0.291	79.08%	-	2	2 1/2	-	8 3/8	-	-	-	☐	☐	P	P	4 3/4	5 3/4	-	-	-	-	☐	☐	P	P	2	☒	☐	LOW WALL
5	P6908	-	☐	☐	☐	☐	☐	-	0.287	77.99%	-	2	2 9/16	-	8 3/8	-	-	-	☐	☐	P	P	4 25/32	7 3/4	-	-	-	-	☒	☐	P	P	2	☒	☐	LOW WALL
6	P6419	-	☐	☐	☐	☐	☐	-	0.31	84.24%	-	P	2 1/2	-	7 3/16	-	-	-	☐	☐	P	P	4 1/2	7 5/8	-	-	-	-	☒	☐	P	2	2	☒	☐	UNDERSIZED BOX TOOL JOINT/LOW WALL
7	P09411	-	☐	☐	☐	☐	☐	-	0.283	76.90%	-	2	2 9/16	-	9 1/2	-	-	-	☐	☐	P	P	4 5/8	8 7/8	-	-	-	-	☒	☐	DT	2	2	☒	☐	UNDERSIZED BOX TOOL JOINT/LOW WALL
8	P7438	-	☐	☐	☐	☐	☐	-	0.292	79.35%	-	2	2 1/2	-	10	-	-	-	☐	☐	P	P	4 11/16	10 5/8	-	-	-	-	☒	☐	DS	P	2	☒	☐	LOW WALL
9	P2496	-	☐	☐	☐	☐	☐	-	0.292	79.35%	-	2	2 9/16	-	10 1/4	-	-	-	☐	☐	P	P	4 5/8	9 1/4	-	-	-	-	☒	☐	DT	2	2	☒	☐	UNDERSIZED BOX TOOL JOINT/LOW WALL
10	P3638	-	☐	☐	☐	☐	☐	-	0.29	78.80%	-	2	2 9/16	-	5 1/2	-	-	-	☐	☐	P	P	4 13/16	6 15/16	-	-	-	-	☒	☐	P	P	2	☒	☐	LOW WALL
11	P17427	-	☐	☐	☐	☐	☐	-	0.29	78.80%	-	2	2 1/2	-	10 1/4	-	-	-	☐	☐	DT	P	4 11/16	9 1/2	-	-	-	-	☒	☐	OK	P	2	☒	☐	LOW WALL
12	P1620	-	☐	☐	☐	☐	☐	-	0.284	77.17%	-	2	2 1/2	-	9 3/8	-	-	-	☐	☐	DT	P	4 5/8	7 7/8	-	-	-	-	☐	☐	DT	2	2	☒	☐	UNDERSIZED BOX TOOL JOINT/LOW WALL
13	P2734	-	☐	☐	☐	☐	☐	-	0.29	78.80%	-	2	2 9/16	-	8 3/8	-	-	-	☐	☐	DT	P	4 11/16	5 7/8	-	-	-	-	☒	☐	DT	P	2	☒	☐	LOW WALL
14	P6463	-	☐	☐	☐	☐	☐	-	0.319	86.68%	-	2	2 1/2	-	6 9/16	-	-	-	☐	☐	DS	P	4 13/16	6 3/4	-	-	-	-	☒	☐	DT	P	2	☒	☐	EMI PROF UP UT .271
15	P8192	-	☐	☐	☐	☐	☐	-	0.291	79.08%	-	2	2 1/2	-	8 5/8	-	-	-	☐	☐	DS	P	4 11/16	7	-	-	-	-	☐	☐	P	P	2	☒	☐	LOW WALL
16	P5028	-	☐	☐	☐	☐	☐	-	0.274	74.46%	-	2	2 9/16	-	7 1/2	-	-	-	☐	☐	P	P	4 11/16	7 5/8	-	-	-	-	☒	☐	P	P	2	☒	☐	LOW WALL
17	P8124	-	☐	☐	☐	☐	☐	-	0.28	76.09%	-	2	2 9/16	-	8 1/2	-	-	-	☐	☐	P	P	4 11/16	6 3/8	-	-	-	-	☐	☐	P	P	2	☒	☐	LOW WALL
18	P9330	-	☐	☐	☐	☐	☐	-	0.28	76.09%	-	2	2 1/2	-	6 5/8	-	-	-	☐	☐	P	P	4 3/4	7 1/2	-	-	-	-	☐	☐	P	P	2	☒	☐	LOW WALL
19	P0031	-	☐	☐	☐	☐	☐	-	0.319	86.68%	-	P	2 1/2	-	8 3/8	-	-	-	☐	☐	P	P	4 11/16	8 7/8	-	-	-	-	☒	☐	DS	P	P	☒	☐	-
20	P7482	-	☐	☐	☐	☐	☐	-	0.29	78.80%	-	2	2 1/2	-	7 7/8	-	-	-	☐	☐	OK	P	4 11/16	6 7/8	-	-	-	-	☒	☐	DT	P	2	☒	☐	LOW WALL

DRILL PIPE INSPECTION REPORT



The New Inspection Standard

Inspector:

SANTOS RIOS

BA/Invoice:

7948753

Inspection Date:

11/12/2022

Tracking:

Page 125 of 439

Well:

AFE/PO:

Area:

WTX

Specification:

☒ DS-1 ☐ API

Customer:										WSP USA			Loc:		NOV TUBOSCOPE CRANE YARD										Rig:																							
Operator:													Yard:					Inspection Comments:			DOWN GRADES (DBR'S/CLASS II) CONSIST OF LOW WALLS , DEMENSIONAL REJECTS AND ONE CLASS III . DAMAGES CONSIST OF PITTING ON THREADS/SHOULDERS AND VARIOUS HANDLING DAMAGE																											
Category:										3		Dim:		● 1 ○ 2 ○ 3			UTEA:		□		Inspection:		○ DMPI ○ WMPI		ID/OD Blast:		□		Blacklight Conns:			□		EMI:			● I ○ II ○ FLUT											
Size:										3.5		Lb/ft:		13.30		Grade:		S-135		Conn:		NC38		Range:		2		Type:			DRILL PIPE																	
Criteria:										Min OD		Tong Pin		OD Threshold		MAX ID		Nom Wall		Min Wall		Min Seal		Min Shld		Tong Box		CB Max		Bevel Min		Bevel Max		Pin Length Min		Pin Length Max		Box Depth Min		Box Depth Max								
										4 21/32		4		-		2 25/32		0.368		0.294		21/64		-		5 5/8		4 9/64		4 9/16		4 19/32		-		-		-		-								
TUBE BODY													PIN CONNECTION													BOX CONNECTION																						
Pipe No.	Serial No.	Length	Slip Cut	Pitting	Bent	Slip Area Mash	Cracked	ID Coating	Tube Wall Min	% Nom	Tube Wall Max	Tube Class	Pin ID	Pin OD	Tong Space	Pin Length	Bevel Dia	Reface	Hard band	Thread Service	Conn Cond	TJ Class	Box OD	Tong Space	CB Dia	Box Depth	Reface	Bevel Dia	Hard band	Thread Service	Conn Cond	TJ Class	Overall Class	Repair Joints	Reject	Comments												
21	P3182	-	□	□	□	□	□	-	0.289	78.53%	-	2	2 1/2	-	7 1/16	-	-	-	□	□	DS	P	4 11/16	6 7/8	-	-	-	-	☑	□	DT	P	2	☑	□	LOW WALL												
22	P8043	-	□	□	□	□	□	-	0.282	76.63%	-	2	2 9/16	-	8	-	-	-	□	□	DS	P	4 3/4	7	-	-	-	-	☑	□	DT	P	2	☑	□	LOW WALL												
23	P8006	-	□	□	□	□	□	-	0.287	77.99%	-	2	2 9/16	-	7 5/8	-	-	-	□	□	DT	P	4 11/16	7 3/4	-	-	-	-	□	□	P	P	2	☑	□	LOW WALL												
24	P5789	-	□	□	□	□	□	-	0.286	77.72%	-	2	2 9/16	-	8 3/16	-	-	-	□	□	DT	P	4 5/8	6 1/16	-	-	-	-	□	□	P	2	2	☑	□	UNDERSIZED TOOL JOINT/LOW WALL												
25	P7295	-	□	□	□	□	□	-	0.291	79.08%	-	2	2 1/2	-	7 1/2	-	-	-	□	□	OK	P	4 3/4	8 1/8	-	-	-	-	☑	□	P	P	2	☑	□	LOW WALL												
26	P8814	-	□	□	□	□	□	-	0.286	77.72%	-	2	2 1/2	-	8 3/8	-	-	-	□	□	P	P	4 3/4	9 5/16	-	-	-	-	☑	□	P	P	2	☑	□	LOW WALL												
27	P2990	-	□	□	□	□	□	-	0.288	78.26%	-	2	2 1/2	-	8 1/2	-	-	-	□	□	OK	P	4 11/16	6 3/8	-	-	-	-	☑	□	P	P	2	☑	□	LOW WALL												
28	P9184	-	□	□	□	□	□	-	0.292	79.35%	-	2	2 9/16	-	6 3/8	-	-	-	□	□	P	P	4 5/8	5 5/8	-	-	-	-	□	□	DT	2	2	☑	□	UNDERSIZED TOOL JOINT/LOW WALL												
29	P9420	-	□	□	□	□	□	-	0.286	77.72%	-	2	2 1/2	-	6 11/16	-	-	-	□	□	P	P	4 11/16	5 3/4	-	-	-	-	□	□	DT	P	2	☑	□	LOW WALL												
30	P2397	-	□	□	□	□	□	-	0.288	78.26%	-	2	2 9/16	-	8 7/8	-	-	-	□	□	P	P	4 5/8	7	-	-	-	-	□	□	P	2	2	☑	□	UNDERSIZED TOOL JOINT/LOW WALL												
31	P14114	-	□	□	□	□	□	-	0.319	86.68%	-	P	2 1/2	-	10 1/8	-	-	-	□	□	DT	P	4 5/8	9	-	-	-	-	☑	□	P	2	2	☑	□	UNDERSIZED TOOL JOINT												
32	P5725	-	□	□	□	□	□	-	0.256	69.57%	-	3	2 1/2	-	6 3/4	-	-	-	□	□	DS	P	4 3/4	7	-	-	-	-	□	□	DT	P	3	☑	□	LOW WALL												
33	P12430	-	□	□	□	□	□	-	0.281	76.36%	-	2	2 1/2	-	10 3/8	-	-	-	□	□	DS	P	4 11/16	8 3/8	-	-	-	-	☑	□	P	P	2	☑	□	LOW WALL												
34	P8180	-	□	□	□	□	□	-	0.259	70.38%	-	2	2 1/2	-	6 5/16	-	-	-	□	□	OK	P	4 3/4	7 1/4	-	-	-	-	☑	□	P	P	2	☑	□	LOW WALL												
35	P7253	-	□	□	□	□	□	-	0.277	75.27%	-	2	2 1/2	-	8 1/4	-	-	-	□	□	P	P	4 11/16	7 5/8	-	-	-	-	☑	□	DT	P	2	☑	□	LOW WALL												
36	P8448	-	□	□	□	□	□	-	0.284	77.17%	-	2	2 1/2	-	8 5/8	-	-	-	□	□	P	P	4 3/4	5 1/2	-	-	-	-	☑	□	DT	2	2	☑	□	SHORT TONG BOX/LOW WALL												
37	P2195	-	□	□	□	□	□	-	0.274	74.46%	-	2	2 9/16	-	8 3/16	-	-	-	□	□	P	P	4 13/16	5 3/8	-	-	-	-	☑	□	P	2	2	☑	□	SHORT TONG BOX/LOW WALL												
38	P10340	-	□	□	□	□	□	-	0.28	76.09%	-	2	2 1/2	-	9 1/8	-	-	-	□	□	P	P	4 5/8	9 3/8	-	-	-	-	☑	□	P	2	2	☑	□	UNDERSIZED TOOL JOINT/LOW WALL												
39	P1671	-	□	□	□	□	□	-	0.287	77.99%	-	2	2 1/2	-	6 1/2	-	-	-	□	□	DT	P	4 13/16	6 1/2	-	-	-	-	☑	□	P	P	2	☑	□	LOW WALL												
40	P4148	-	□	□	□	□	□	-	0.27	73.37%	-	2	2 1/2	-	7	-	-	-	□	□	DT	P	4 13/16	6 5/8	-	-	-	-	□	□	P	P	2	☑	□	LOW WALL												
41	Released to Imaging: 3/9/2023 4:10:10 PM									76.09%	-	2	2 1/2	-	7 1/8	-	-	-	□	□	P	P	4 13/16	6 5/16	-	-	-	-	□	□	P	P	2	☑	□	LOW WALL												

DRILL PIPE INSPECTION REPORT



The New Inspection Standard

Inspector:

SANTOS RIOS

BA/Invoice:

7948753

Inspection Date:

11/12/2022

Tracking:

Page 126 of 439

Well:

AFE/PO:

Area:

WTX

Specification:

☒ DS-1 ☐ API

Customer:	WSP USA								Loc:	NOV TUBOSCOPE CRANE YARD										Rig:																
Operator:									Yard:				Inspection Comments:		DOWN GRADES (DBR'S/CLASS II) CONSIST OF LOW WALLS , DEMENSIONAL REJECTS AND ONE CLASS III . DAMAGES CONSIST OF PITTING ON THREADS/SHOULDERS AND VARIOUS HANDLING DAMAGE																					
Category:	3		Dim:	☒ 1 ☐ 2 ☐ 3				UTEA:	☐		Inspection:	☐ DMPI ☐ WMPI		ID/OD Blast:	☐		Blacklight Conns:			☐			EMI:			☒ I ☐ II ☐ FLUT										
Size:	3.5		Lb/ft:	13.30		Grade:	S-135		Conn:	NC38		Range:	2		Type:		DRILL PIPE																			
Criteria:	Min OD	Tong Pin	OD Threshold		MAX ID		Nom Wall		Min Wall		Min Seal		Min Shld		Tong Box	CB Max	Bevel Min	Bevel Max	Pin Length Min		Pin Length Max		Box Depth Min	Box Depth Max												
	4 21/32	4	-		2 25/32		0.368		0.294		21/64		-		5 5/8	4 9/64	4 9/16	4 19/32	-		-		-	-												
TUBE BODY												PIN CONNECTION										BOX CONNECTION														
Pipe No.	Serial No.	Length	Slip Cut	Pitting	Bent	Slip Area Mash	Cracke d	ID Coating	Tube Wall Min	% Nom	Tube Wall Max	Tube Class	Pin ID	Pin OD	Tong Space	Pin Length	Bevel Dia	Reface	Hard band	Thread Service	Conn Cond	TJ Class	Box OD	Tong Space	CB Dia	Box Depth	Reface	Bevel Dia	Hard band	Thread Service	Conn Cond	TJ Class	Overall Class	Repair Joints	Reject	Comments
42	P19966	-	☐	☐	☐	☐	☐	-	0.291	79.08%	-	2	2 1/2	-	7 15/16	-	-	-	☐	☐	DT	P	4 3/4	6 9/16	-	-	-	-	☐	☐	DT	P	2	☒	☐	LOW WALL
43	P21052	-	☐	☐	☐	☐	☐	-	0.29	78.80%	-	2	2 9/16	-	7 13/16	-	-	-	☐	☐	DS	P	4 11/16	5 1/4	-	-	-	-	☒	☐	DT	2	2	☒	☐	SHORT TONG BOX/LOW WALL
44	P9066	-	☐	☐	☐	☐	☐	-	0.285	77.45%	-	2	2 1/2	-	7 7/16	-	-	-	☐	☐	P	P	4 3/4	6	-	-	-	-	☐	☐	DT	P	2	☒	☐	LOW WALL
45	P6987	-	☐	☐	☐	☐	☐	-	0.268	72.83%	-	2	2 1/2	-	8 1/8	-	-	-	☐	☐	DS	P	4 3/4	6	-	-	-	-	☐	☐	DT	P	2	☒	☐	LOW WALL
46	P20106	-	☐	☐	☐	☐	☐	-	0.292	79.35%	-	2	2 9/16	-	6 3/4	-	-	-	☐	☐	DT	P	4 3/4	5 15/16	-	-	-	-	☐	☐	P	P	2	☒	☐	LOW WALL
47	P5493	-	☐	☐	☐	☐	☐	-	0.283	76.90%	-	2	2 9/16	-	7 3/4	-	-	-	☐	☐	P	P	4 3/4	8 1/8	-	-	-	-	☒	☐	DS	P	2	☒	☐	LOW WALL
48	P10820	-	☐	☐	☐	☐	☐	-	0.281	76.36%	-	2	2 1/2	-	6 5/8	-	-	-	☐	☐	P	P	4 11/16	7	-	-	-	-	☒	☐	DS	P	2	☒	☐	LOW WALL
49	P0960	-	☐	☐	☐	☐	☐	-	0.287	77.99%	-	2	2 1/2	-	8 3/4	-	-	-	☐	☐	DT	P	4 11/16	7 5/16	-	-	-	-	☐	☐	DS	P	2	☒	☐	LOW WALL
50	P8581	-	☐	☐	☐	☐	☐	-	0.287	77.99%	-	2	2 9/16	-	8 3/16	-	-	-	☐	☐	OK	P	4 13/16	7 9/16	-	-	-	-	☐	☐	DS	P	2	☒	☐	LOW WALL
51	P9637	-	☐	☐	☐	☐	☐	-	0.282	76.63%	-	2	2 2/37	-	9 1/4	-	-	-	☐	☐	P	P	4 11/16	6 3/16	-	-	-	-	☐	☐	DS	P	2	☒	☐	LOW WALL
52	P7772	-	☐	☐	☐	☐	☐	-	0.288	78.26%	-	2	2 1/2	-	8 9/16	-	-	-	☐	☐	DT	P	4 3/4	6 1/16	-	-	-	-	☐	☐	DT	P	2	☒	☐	LOW WALL
53	P15847	-	☐	☐	☐	☐	☐	-	0.287	77.99%	-	2	2 9/16	-	10 1/4	-	-	-	☐	☐	P	P	4 5/8	8 5/16	-	-	-	-	☐	☐	P	2	2	☒	☐	UNDERSIZED BOX TOOL JOINT/LOW WALL

tuboscope

KEY

Metformin Technologies

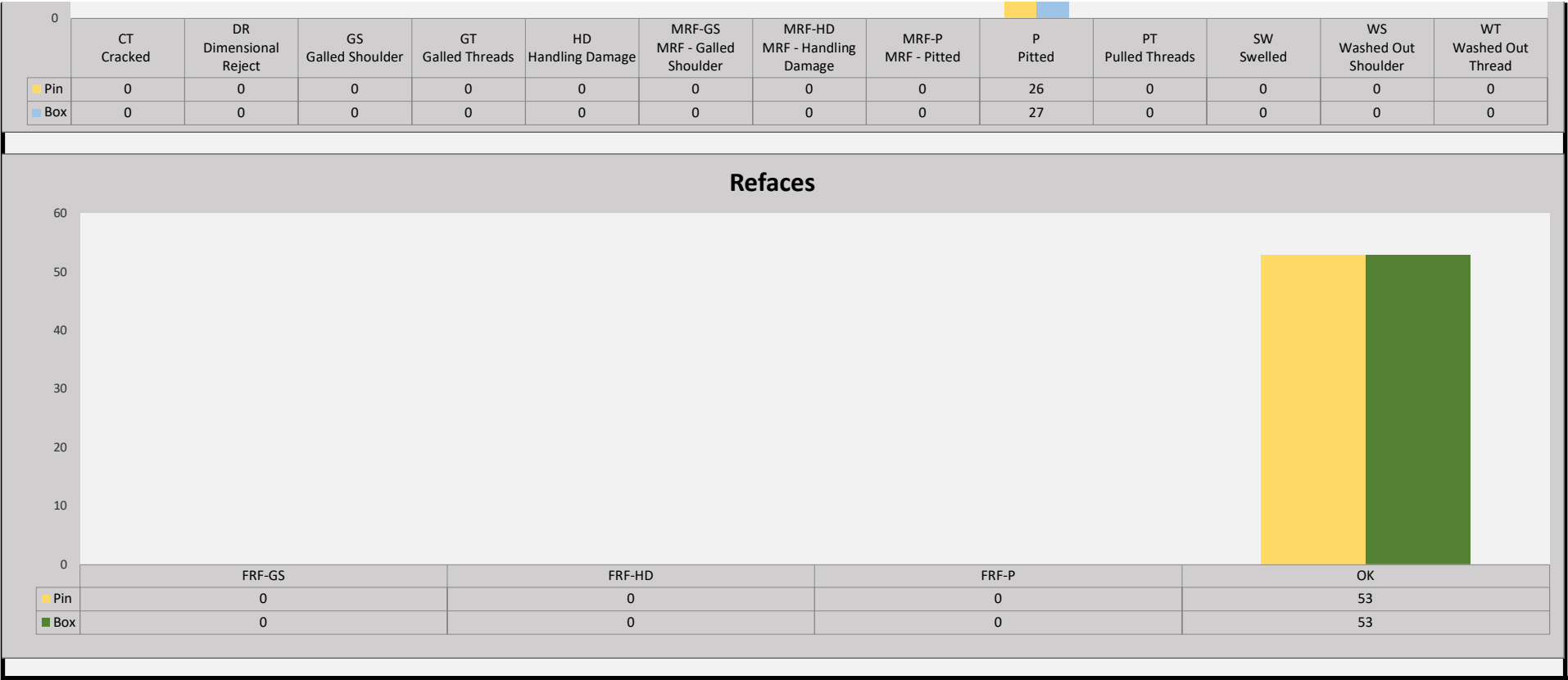
PROBLEM JOINTS

0	Slip Cut				
	Row Number	Serial Number	Overall Class	Comments	
0	Pitting				
	Row Number	Serial Number	Overall Class	Comments	
0	Bent				
	Row Number	Serial Number	Overall Class	Comments	
0	Slip Area Mash				
	Row Number	Serial Number	Overall Class	Comments	
0	Cracked				
	Row Number	Serial Number	Overall Class	Comments	
0	Operator Reject				
	Row Number	Serial Number	Overall Class	Comments	
0	Scrap				
	Row Number	Serial Number	Overall Class	Comments	
0	Pin ODs Within - of Minimum (Minimum: 4.65625 Threshold: 4.65625)				
	Row Number	Serial Number	Pin OD	Overall Class	Comments
0	Box ODs Within - of Minimum (Minimum: 4.65625 Threshold: 4.65625)				
	Row Number	Serial Number	Box OD	Overall Class	Comments
48	Tube Wall % < 0.85				
	Row Number	Serial Number	Tube Wall %	Overall Class	Comments
	3	P5250	78.53%	2	LOW WALL
	4	97441	79.08%	2	LOW WALL
	5	P6908	77.99%	2	LOW WALL
	6	P6419	84.24%	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	7	P09411	76.90%	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	8	P7438	79.35%	2	LOW WALL
	9	P2496	79.35%	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	10	P3638	78.80%	2	LOW WALL
	11	P17427	78.80%	2	LOW WALL
	12	P1620	77.17%	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	13	P2734	78.80%	2	LOW WALL
	15	P8192	79.08%	2	LOW WALL
	16	P5028	74.46%	2	LOW WALL
	17	P8124	76.09%	2	LOW WALL
	18	P9330	76.09%	2	LOW WALL
	20	P7482	78.80%	2	LOW WALL
	21	P3182	78.53%	2	LOW WALL
	22	P8043	76.63%	2	LOW WALL
	23	P8006	77.99%	2	LOW WALL
	24	P5789	77.72%	2	UNDERSIZED TOOL JOINT/LOW WALL
	25	P7295	79.08%	2	LOW WALL
	26	P8814	77.72%	2	LOW WALL
	27	P2990	78.26%	2	LOW WALL
	28	P9184	79.35%	2	UNDERSIZED TOOL JOINT/LOW WALL
	29	P9420	77.72%	2	LOW WALL
	30	P2397	78.26%	2	UNDERSIZED TOOL JOINT/LOW WALL
	32	P5725	69.57%	3	LOW WALL
	33	P12430	76.36%	2	LOW WALL
	34	P8180	70.38%	2	LOW WALL
	35	P7253	75.27%	2	LOW WALL
	36	P8448	77.17%	2	SHORT TONG BOX/LOW WALL
	37	P2195	74.46%	2	SHORT TONG BOX/LOW WALL
	38	P10340	76.09%	2	UNDERSIZED TOOL JOINT/LOW WALL
	39	P1671	77.99%	2	LOW WALL
	40	P4148	73.37%	2	LOW WALL

	41	P6369	76.09%	2	LOW WALL
	42	P19966	79.08%	2	LOW WALL
	43	P21052	78.80%	2	SHORT TONG BOX/LOW WALL
	44	P9066	77.45%	2	LOW WALL
	45	P6987	72.83%	2	LOW WALL
	46	P20106	79.35%	2	LOW WALL
	47	P5493	76.90%	2	LOW WALL
	48	P10820	76.36%	2	LOW WALL
	49	P0960	77.99%	2	LOW WALL
	50	P8581	77.99%	2	LOW WALL
	51	P9637	76.63%	2	LOW WALL
	52	P7772	78.26%	2	LOW WALL
	53	P15847	77.99%	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
46	Pin Connection Conditions (not "OK")				
	Row Number	Serial Number	Pin Conn Condition	Overall Class	Comments
	3	P5250	P	2	LOW WALL
	4	97441	P	2	LOW WALL
	5	P6908	P	2	LOW WALL
	6	P6419	P	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	7	P09411	P	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	8	P7438	P	2	LOW WALL
	9	P2496	P	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	10	P3638	P	2	LOW WALL
	11	P17427	DT	2	LOW WALL
	12	P1620	DT	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
	13	P2734	DT	2	LOW WALL
	14	P6463	DS	2	EMI PROF UP UT .271
	15	P8192	DS	2	LOW WALL
	16	P5028	P	2	LOW WALL
	17	P8124	P	2	LOW WALL
	18	P9330	P	2	LOW WALL
	19	P0031	P	P	-
	21	P3182	DS	2	LOW WALL
	22	P8043	DS	2	LOW WALL
	23	P8006	DT	2	LOW WALL
	24	P5789	DT	2	UNDERSIZED TOOL JOINT/LOW WALL
	26	P8814	P	2	LOW WALL
	28	P9184	P	2	UNDERSIZED TOOL JOINT/LOW WALL
	29	P9420	P	2	LOW WALL
	30	P2397	P	2	UNDERSIZED TOOL JOINT/LOW WALL
	31	P14114	DT	2	UNDERSIZED TOOL JOINT
	32	P5725	DS	3	LOW WALL
	33	P12430	DS	2	LOW WALL
	35	P7253	P	2	LOW WALL
	36	P8448	P	2	SHORT TONG BOX/LOW WALL
	37	P2195	P	2	SHORT TONG BOX/LOW WALL
	38	P10340	P	2	UNDERSIZED TOOL JOINT/LOW WALL
	39	P1671	DT	2	LOW WALL
	40	P4148	DT	2	LOW WALL
	41	P6369	P	2	LOW WALL
	42	P19966	DT	2	LOW WALL
	43	P21052	DS	2	SHORT TONG BOX/LOW WALL
	44	P9066	P	2	LOW WALL
	45	P6987	DS	2	LOW WALL
	46	P20106	DT	2	LOW WALL
	47	P5493	P	2	LOW WALL
	48	P10820	P	2	LOW WALL
	49	P0960	DT	2	LOW WALL
	51	P9637	P	2	LOW WALL
	52	P7772	DT	2	LOW WALL
	53	P15847	P	2	UNDERSIZED BOX TOOL JOINT/LOW WALL
52	Box Connection Conditions (not "OK")				

	Row Number	Serial Number	Box Conn Condition	Overall Class	Comments			
	1	P17949	P	2	BOX SLIP AREA ID WASHING			
	2	2959	P	P	-			
	3	P5250	P	2	LOW WALL			
	4	97441	P	2	LOW WALL			
	5	P6908	P	2	LOW WALL			
	6	P6419	P	2	UNDERSIZED BOX TOOL JOINT/LOW WALL			
	7	P09411	DT	2	UNDERSIZED BOX TOOL JOINT/LOW WALL			
	8	P7438	DS	2	LOW WALL			
	9	P2496	DT	2	UNDERSIZED BOX TOOL JOINT/LOW WALL			
	10	P3638	P	2	LOW WALL			
	12	P1620	DT	2	UNDERSIZED BOX TOOL JOINT/LOW WALL			
	13	P2734	DT	2	LOW WALL			
	14	P6463	DT	2	EMI PROF UP UT .271			
	15	P8192	P	2	LOW WALL			
	16	P5028	P	2	LOW WALL			
	17	P8124	P	2	LOW WALL			
	18	P9330	P	2	LOW WALL			
	19	P0031	DS	P	-			
	20	P7482	DT	2	LOW WALL			
	21	P3182	DT	2	LOW WALL			
	22	P8043	DT	2	LOW WALL			
	23	P8006	P	2	LOW WALL			
	24	P5789	P	2	UNDERSIZED TOOL JOINT/LOW WALL			
	25	P7295	P	2	LOW WALL			
	26	P8814	P	2	LOW WALL			
	27	P2990	P	2	LOW WALL			
	28	P9184	DT	2	UNDERSIZED TOOL JOINT/LOW WALL			
	29	P9420	DT	2	LOW WALL			
	30	P2397	P	2	UNDERSIZED TOOL JOINT/LOW WALL			
	31	P14114	P	2	UNDERSIZED TOOL JOINT			
	32	P5725	DT	3	LOW WALL			
	33	P12430	P	2	LOW WALL			
	34	P8180	P	2	LOW WALL			
	35	P7253	DT	2	LOW WALL			
	36	P8448	DT	2	SHORT TONG BOX/LOW WALL			
	37	P2195	P	2	SHORT TONG BOX/LOW WALL			
	38	P10340	P	2	UNDERSIZED TOOL JOINT/LOW WALL			
	39	P1671	P	2	LOW WALL			
	40	P4148	P	2	LOW WALL			
	41	P6369	P	2	LOW WALL			
	42	P19966	DT	2	LOW WALL			
	43	P21052	DT	2	SHORT TONG BOX/LOW WALL			
	44	P9066	DT	2	LOW WALL			
	45	P6987	DT	2	LOW WALL			
	46	P20106	P	2	LOW WALL			
	47	P5493	DS	2	LOW WALL			
	48	P10820	DS	2	LOW WALL			
	49	P0960	DS	2	LOW WALL			
	50	P8581	DS	2	LOW WALL			
	51	P9637	DS	2	LOW WALL			
	52	P7772	DT	2	LOW WALL			
	53	P15847	P	2	UNDERSIZED BOX TOOL JOINT/LOW WALL			
0	Thread Service							
	Row Number	Serial Number	Overall Class	Pin Thread Service	Pin Conn Condition	Box Thread Service	Box Conn Condition	Comments

1402516.1



 Drill Pipe Inspection Summary Report The New Inspection Standard										Tracking:	
										BA/Invoice:	
										Area:	
Operator:											
Customer:				WSP USA		Rig:				PO/AFE:	
Location:						NOV TUBOSCOPE CRANE YARD		Well:			
Size:		3.5		Range:		2		Inspectors:		SANTOS RIOS	
Grade:		S-135		Nominal Weight:		13.3		Nominal Wall:		0.368	
Connection:						NC38					
Comments:											
Type of Inspection											
Type	Category	Dim	UTEA	Inspection	ID/OD Blast	Blacklight Conns	EMI				
DS-1	3	1	☐		☐	☐	I				
The results of the pipe inspection reported by company to the customer represents good faith opinions and are not to be considered warranties or guarantees of quality, Class or usability of pipe.											
2	PREMIUM	Field Reface		Hardband Repair		Machine Recut		Machine Reface		Bent	
		Pin	Box	Pin	Box	Pin	Box	Pin	Box		
		0	0	0	2	1	2	0	0	0	
Comments:						Total Connections for Thread Service			Total Joints to Repair		
						0			2		
50	CLASS 2	Undersize Tooljoint		Short Tong		Low Wall		Cuts/Gouges		Pitting	
		Pin	Box	Pin	Box						
		0	10	0	3	46		0		0	
		Field Reface		Hardband Repair		Machine Recut		Machine Reface		Bent	
		Pin	Box	Pin	Box	Pin	Box	Pin	Box		
		0	0	0	28	44	49	0	0	0	
Comments:						Total Connections for Thread Service			Total Joints to Repair		
						0			50		
1	CLASS 3	Undersize Tooljoint		Short Tong		Low Wall		Cuts/Gouges		Operator Reject	
		Pin	Box	Pin	Box						
		0	0	0	0	1		0		0	
		Field Reface		Hardband Repair		Machine Recut		Machine Reface		Bent	
		Pin	Box	Pin	Box	Pin	Box	Pin	Box		
		0	0	0	0	1	1	0	0	0	
Comments:						Total Connections for Thread Service			Total Joints to Repair		
						0			1		
0	SCRAP	Cracked Tooljoint		Cracked Tube		Cuts/Gouges		Pitting		Bent	
		Pin	Box								
		0	0	0		0		0		0	
Comments:											

APPENDIX

B LOGS

B.1 NINE ENERGY – MULTI-FINGER IMAGING CALIPER LOG (11/14/2022)

B.2 NINE ENERGY– MAGNETIC FLUX LOG (11/14/2022)

B.3 NINE ENERGY– SECUREVIEW LOG (11/14/2022)

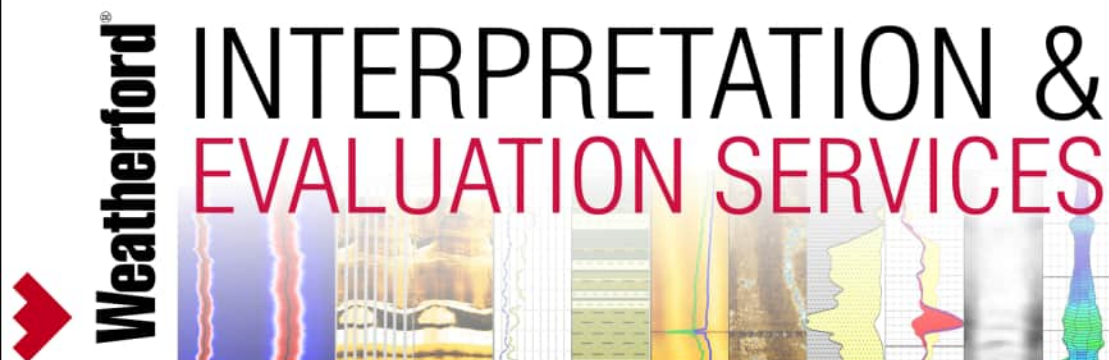
B.4 GoWELL – EPDT LOG (11/22/2022)

B.5 SONIC SURVEY – GYRO SURVEY (11/28/2022)

B.6 SONIC SURVEY – SONAR SURVEY (12/03/2022)



CALIPER ANALYSIS



Company	MARATHON PETROLEUM COMPANY
Well	STATE LPG WELL NO 3
Field	LANGLIE MATRIX
County	LEA COUNTY
State/Province	NEW MEXICO
Country	USA
UWI/API	N/A
Log Date	2022-11-14
Location	N/A

Permanent Datum GL Elevation 33.030	Elevations	
Log Measured from GL above Perm. Datum	KB	
Drilling measured from GL	DF	
	GL	33.030 ft

Run Number	MAIN PASS
Depth Driller	
Depth Logger	1560.000 ft
First Reading	1568.000 ft
Last Reading	-1.000 ft
Casing Driller	
Casing Logger	
Bit Size	
Hole Fluid Type	WATER
Density/Viscosity	/
PH/Fluid Loss	/
Sample Source	
Rm @ Measured Temp	@
Rmf @ Measured Temp	@
Rmc @ Measured Temp	@
Rm @ BHT	@
Max Recorded Temp	
Engineer	R. COLLINS
Base	N/A
Service Order	N/A

In interpreting, communicating or providing information and/or making recommendations or oral, as to logs or test or other data, type or amount of material, or Work or other services or manner of performance, or in predicting results to be obtained, the Contractor will benefit of the Contractor's best judgment based on its experience and will perform all work in a professional and workmanlike manner. Any interpretation of test or other data, and any recommendations or descriptions based upon such interpretations, are opinions based upon inference from empirical relationships and assumptions, which inferences and assumptions may differ in respect to which professional engineers and analysts may differ.

ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THIS ANALYSIS IS THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT GUARANTEE THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION. WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, PRODUCTION, TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER PERSON OR PROPERTY. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICE.

N/A

ANALYSIS REMARKS:

DATA ACQUIRED BY NINE ENERGY SERVICE
PROCESSED USING 7" 23# 155 CASING SPECIFICATIONS
BURST PRESSURE CALCULATED USING BARLOW METHOD, WITHOUT A SAFETY FACTOR

Analysis Date	Log Analyst	Location
2022-11-15	W. LEE	CALGARY

CASING TABLE							
Type	OD (in)	Weight (lb/ft)	Grade	Thread Type	ID (in)	Start Depth (ft)	Stop Depth (ft)
Production	7.000	23.00	J55		6.366	-2.300	1569.000

CLASSIFICATION TABLE					
Class 1 < 20%	Class 2 20% - 40%	Class 3 40% - 60%	Class 4 60% - 80%	Class 5 80% - 100%	Total Joints Logged
42	0	0	0	0	42

JOINT TABLE

Received by: *OC-D: 2/17/2023 3:08:49 PM*

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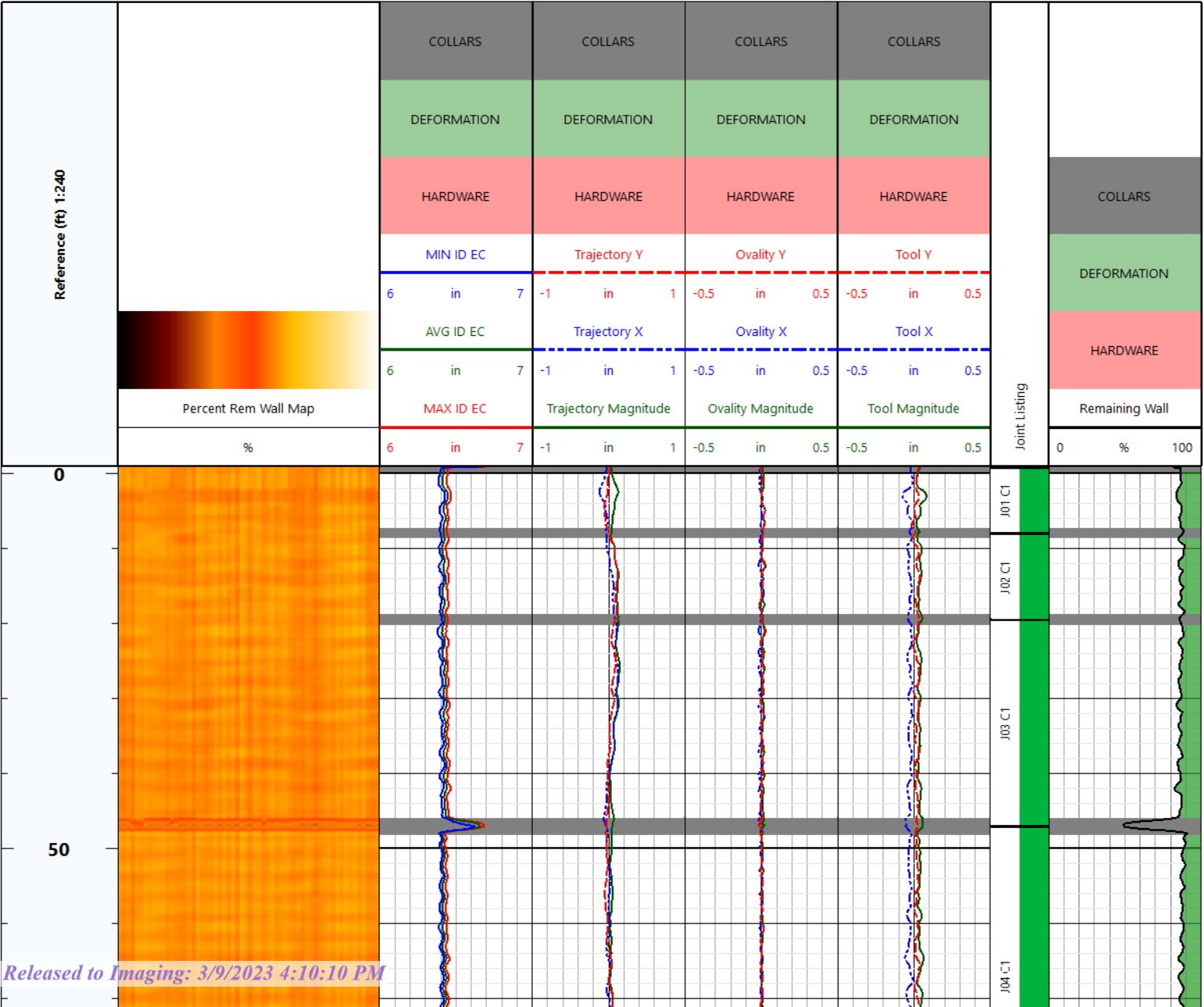
No.	Depth (ft)	Depth (ft)	Length (ft)	Casing OD (in)	Casing Weight (lbm/ft)	Casing Grade	Max Wall Loss (%)	OD/ID	Burst Pressure (psi)	Worst Defect Depth (ft)	Worst Defect Type	Class
1	-0.831	7.971	8.802	7.000	23.00	J55	16.4	ID	4164	3.009	AXL	1
2	7.971	19.494	11.523	7.000	23.00	J55	15.2	ID	4223	11.891	AXL	1
3	19.494	47.039	27.545	7.000	23.00	J55	17.7	ID	4099	42.054	GEN	1
4	47.039	87.179	40.140	7.000	23.00	J55	17.3	ID	4119	78.399	GEN	1
5	87.179	126.025	38.847	7.000	23.00	J55	17.7	ID	4099	119.099	GEN	1
6	126.025	164.706	38.681	7.000	23.00	J55	15.3	ID	4218	128.025	AXL	1
7	164.706	204.258	39.551	7.000	23.00	J55	18.6	ID	4054	203.506	GEN	1
8	204.258	243.436	39.179	7.000	23.00	J55	17.4	ID	4114	206.738	GEN	1
9	243.436	282.564	39.127	7.000	23.00	J55	16.5	ID	4159	245.356	GEN	1
10	282.564	321.114	38.551	7.000	23.00	J55	15.9	ID	4188	305.044	AXL	1
11	321.114	360.250	39.136	7.000	23.00	J55	14.5	ID	4258	355.274	AXL	1
12	360.250	399.984	39.734	7.000	23.00	J55	18.1	ID	4079	387.290	GEN	1
13	399.984	439.123	39.139	7.000	23.00	J55	17.4	ID	4114	436.544	GEN	1
14	439.123	477.523	38.400	7.000	23.00	J55	15.3	ID	4218	473.683	AXL	1
15	477.523	516.030	38.507	7.000	23.00	J55	14.6	ID	4253	489.283	AXL	1
16	516.030	554.297	38.267	7.000	23.00	J55	13.2	ID	4323	551.790	AXL	1
17	554.297	592.982	38.685	7.000	23.00	J55	14.0	ID	4283	590.457	AXL	1
18	592.982	632.090	39.109	7.000	23.00	J55	16.3	ID	4169	595.062	AXL	1
19	632.090	671.096	39.005	7.000	23.00	J55	16.6	ID	4154	634.570	GEN	1
20	671.096	709.989	38.894	7.000	23.00	J55	16.7	ID	4149	698.776	GEN	1
21	709.989	750.024	40.035	7.000	23.00	J55	17.5	ID	4109	715.829	GEN	1
22	750.024	788.130	38.107	7.000	23.00	J55	16.6	ID	4154	754.904	GEN	1
23	788.130	828.268	40.137	7.000	23.00	J55	17.0	ID	4134	823.010	GEN	1
24	828.268	867.976	39.708	7.000	23.00	J55	14.6	ID	4253	857.148	AXL	1
25	867.976	907.237	39.261	7.000	23.00	J55	15.5	ID	4208	904.616	AXL	1
26	907.237	946.916	39.679	7.000	23.00	J55	14.9	ID	4238	915.397	AXL	1
27	946.916	985.520	38.604	7.000	23.00	J55	16.2	ID	4174	983.476	GEN	1
28	985.520	1024.338	38.818	7.000	23.00	J55	16.0	ID	4183	994.000	AXL	1
29	1024.338	1063.558	39.221	7.000	23.00	J55	17.4	ID	4114	1025.138	GEN	1
30	1063.558	1102.624	39.066	7.000	23.00	J55	16.3	ID	4169	1070.918	GEN	1
31	1102.624	1142.058	39.434	7.000	23.00	J55	17.3	ID	4119	1109.104	GEN	1
32	1142.058	1180.803	38.745	7.000	23.00	J55	16.1	ID	4178	1147.498	AXL	1
33	1180.803	1220.523	39.720	7.000	23.00	J55	16.9	ID	4139	1184.723	GEN	1
34	1220.523	1259.394	38.871	7.000	23.00	J55	14.4	ID	4263	1223.243	AXL	1
35	1259.394	1299.269	39.875	7.000	23.00	J55	16.1	ID	4178	1264.914	GEN	1
36	1299.269	1338.648	39.379	7.000	23.00	J55	18.3	ID	4069	1309.109	GEN	1
37	1338.648	1378.169	39.521	7.000	23.00	J55	15.9	ID	4188	1344.488	GEN	1
38	1378.169	1417.692	39.523	7.000	23.00	J55	15.9	ID	4188	1392.569	GEN	1
39	1417.692	1457.116	39.424	7.000	23.00	J55	18.2	ID	4074	1427.052	AXL	1
40	1457.116	1495.684	38.568	7.000	23.00	J55	17.1	ID	4129	1461.276	GEN	1

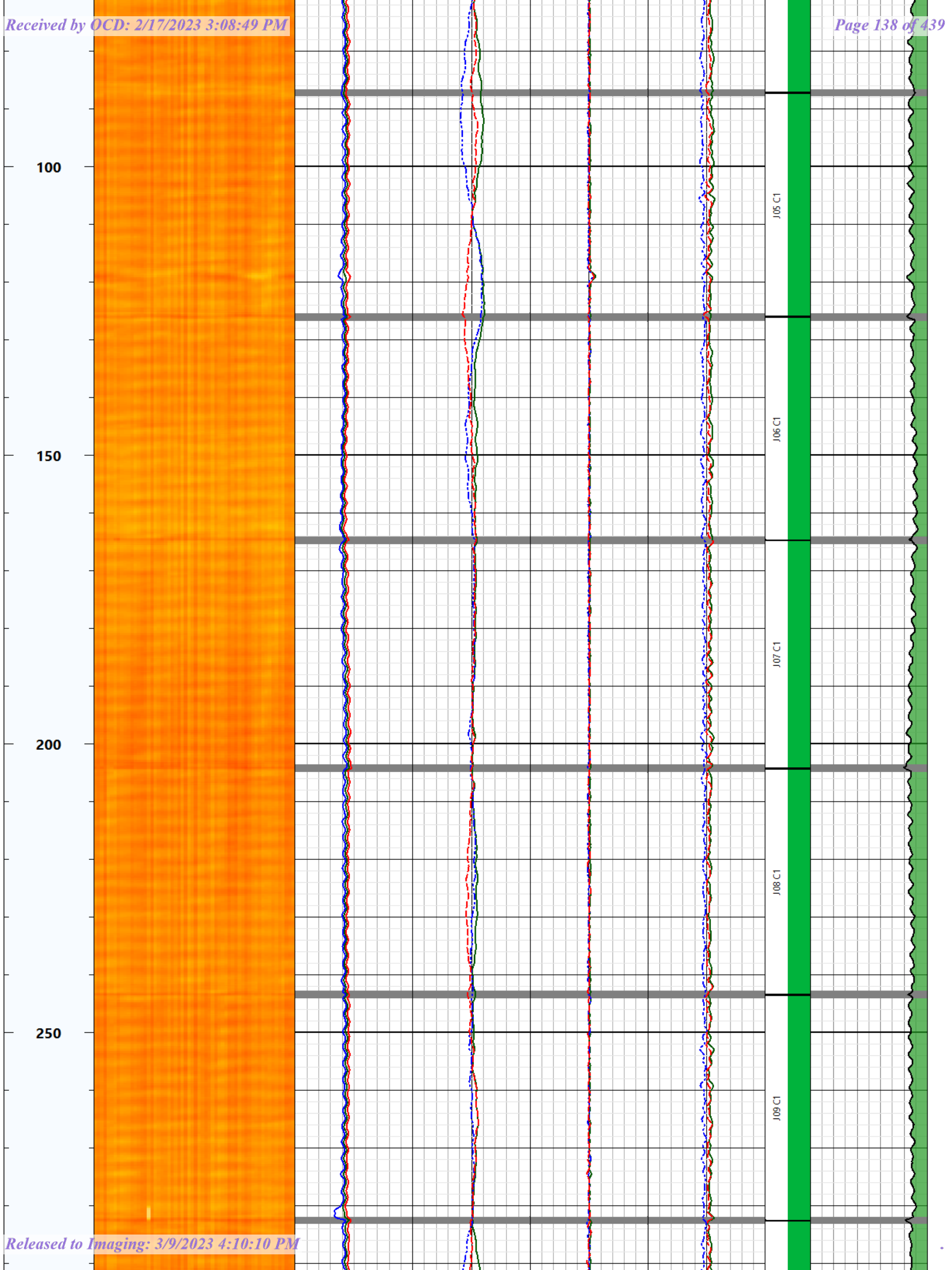
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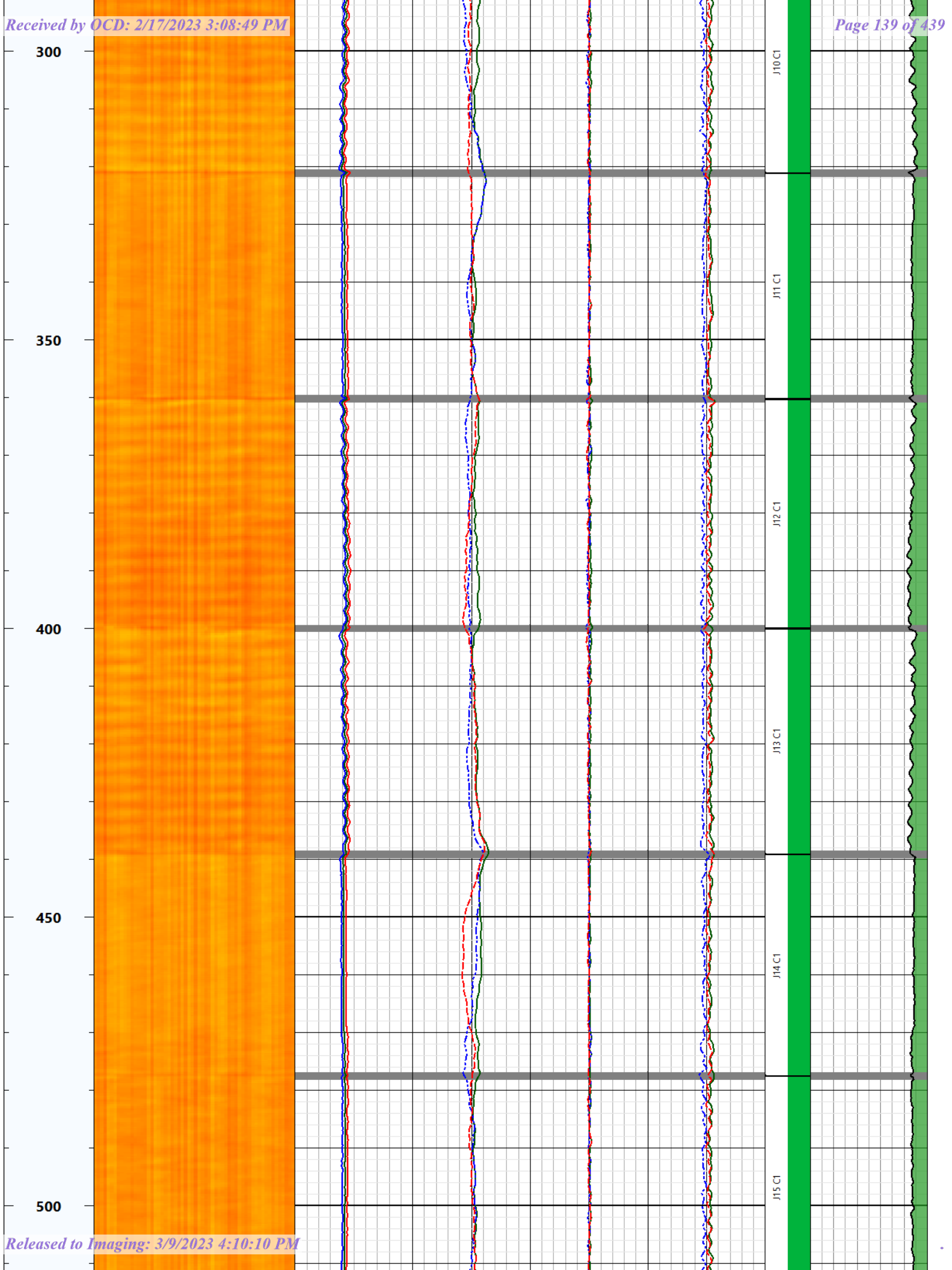
40	1437.110	1493.004	150.000	7.000	23.00	J55	18.1	ID	4079	1508.084	GEN	1
41	1493.664	1634.833	39.149	7.000	23.00	J55	14.4	ID	4263	1555.393	AXL	1

* Defect type derived from Pipeline Operators Forum - 'Specifications and requirements for in-line inspection of pipelines - Version 2016'

ANALYSIS PARAMETERS	
Software Version	2018.1
Rotate To High Arm	No
Wall Loss Colour Threshold	80.0%
Burst Pressure Calculation Method	Barlow
Burst Pressure Safety Factor	1.000
Joint Worst Defect Display	Max Wall Loss
Ignore Defects Below Penetration	12.6%







550

600

650

700

J16 C1

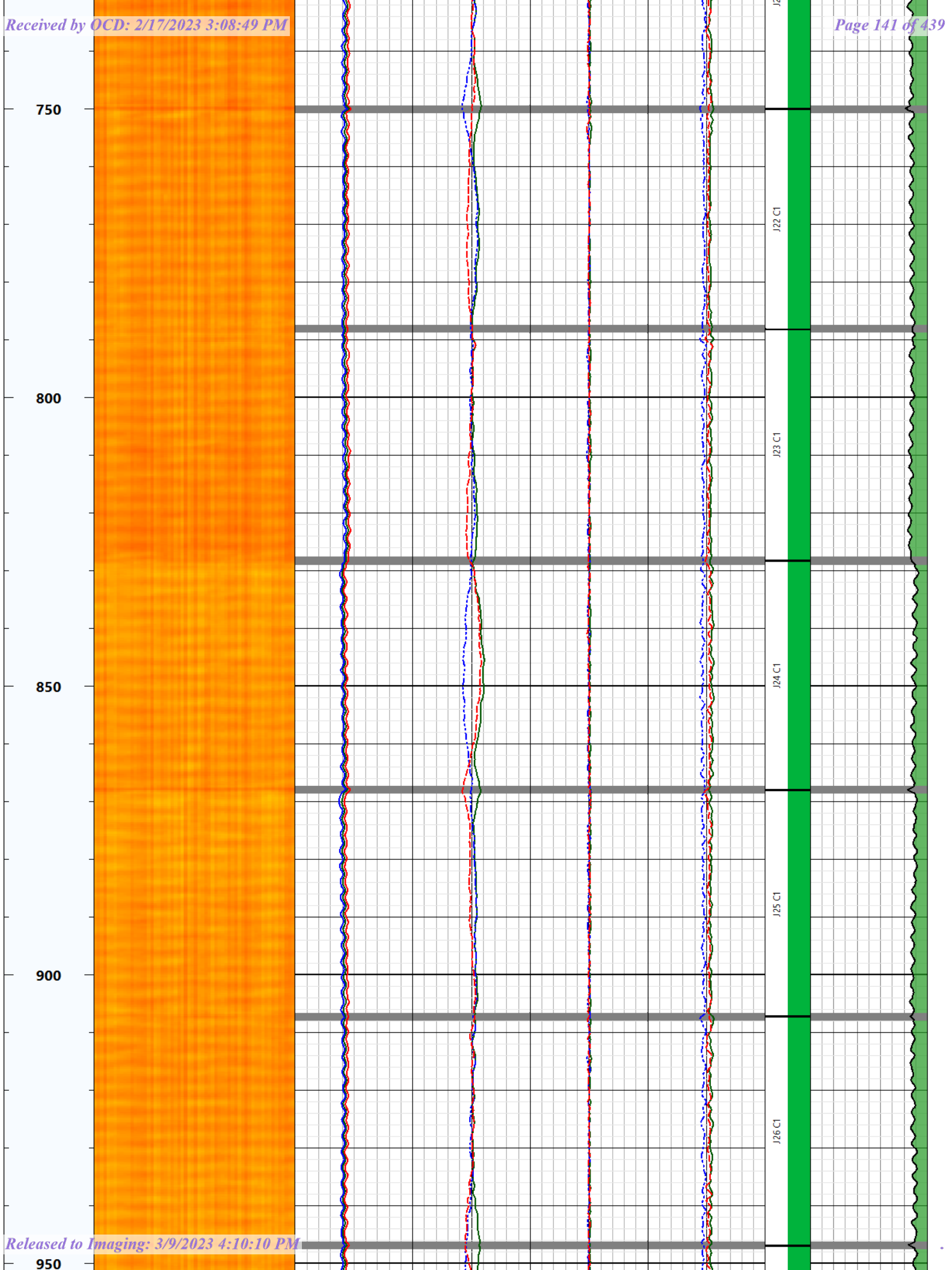
J17 C1

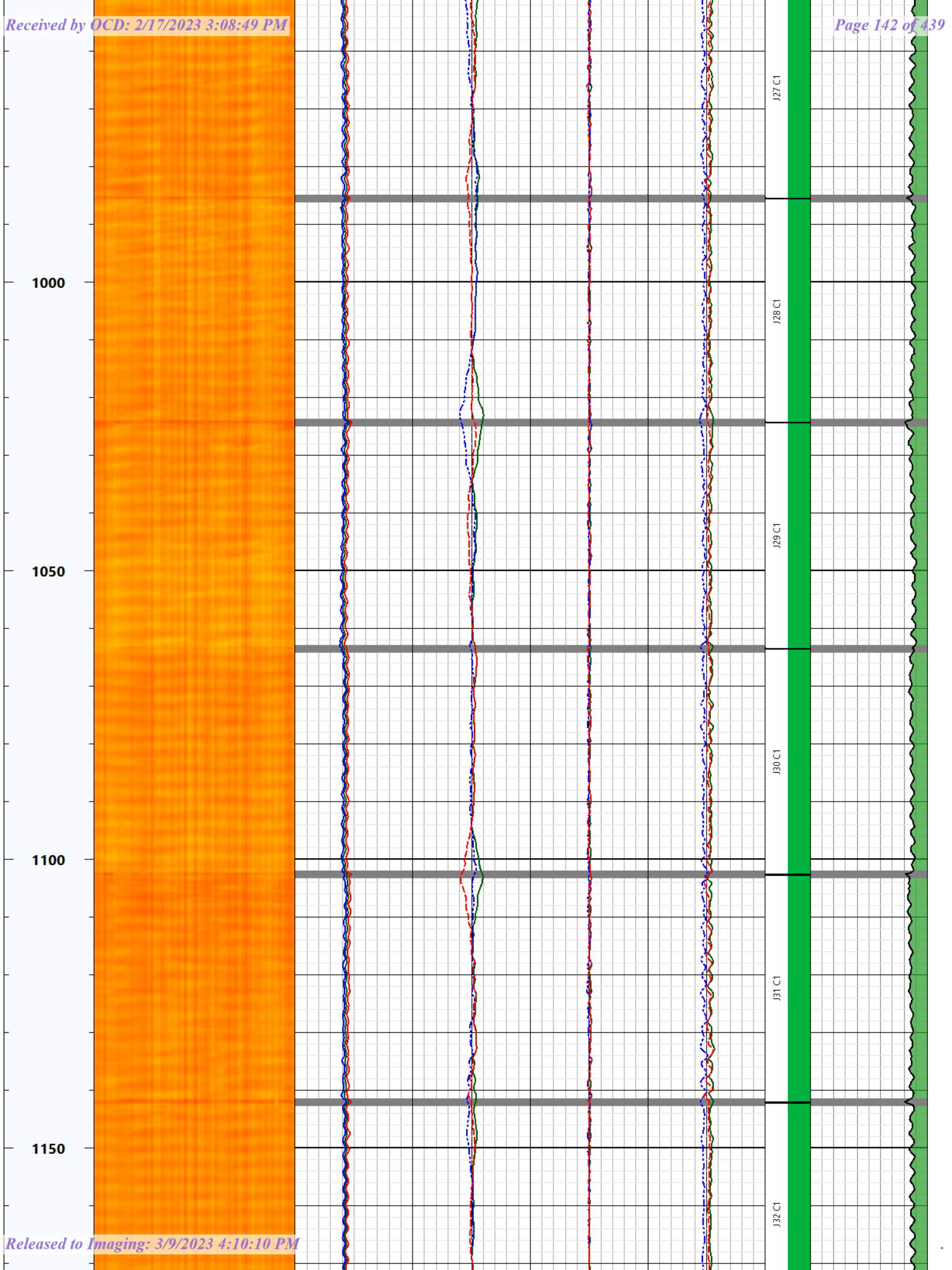
J18 C1

J19 C1

J20 C1

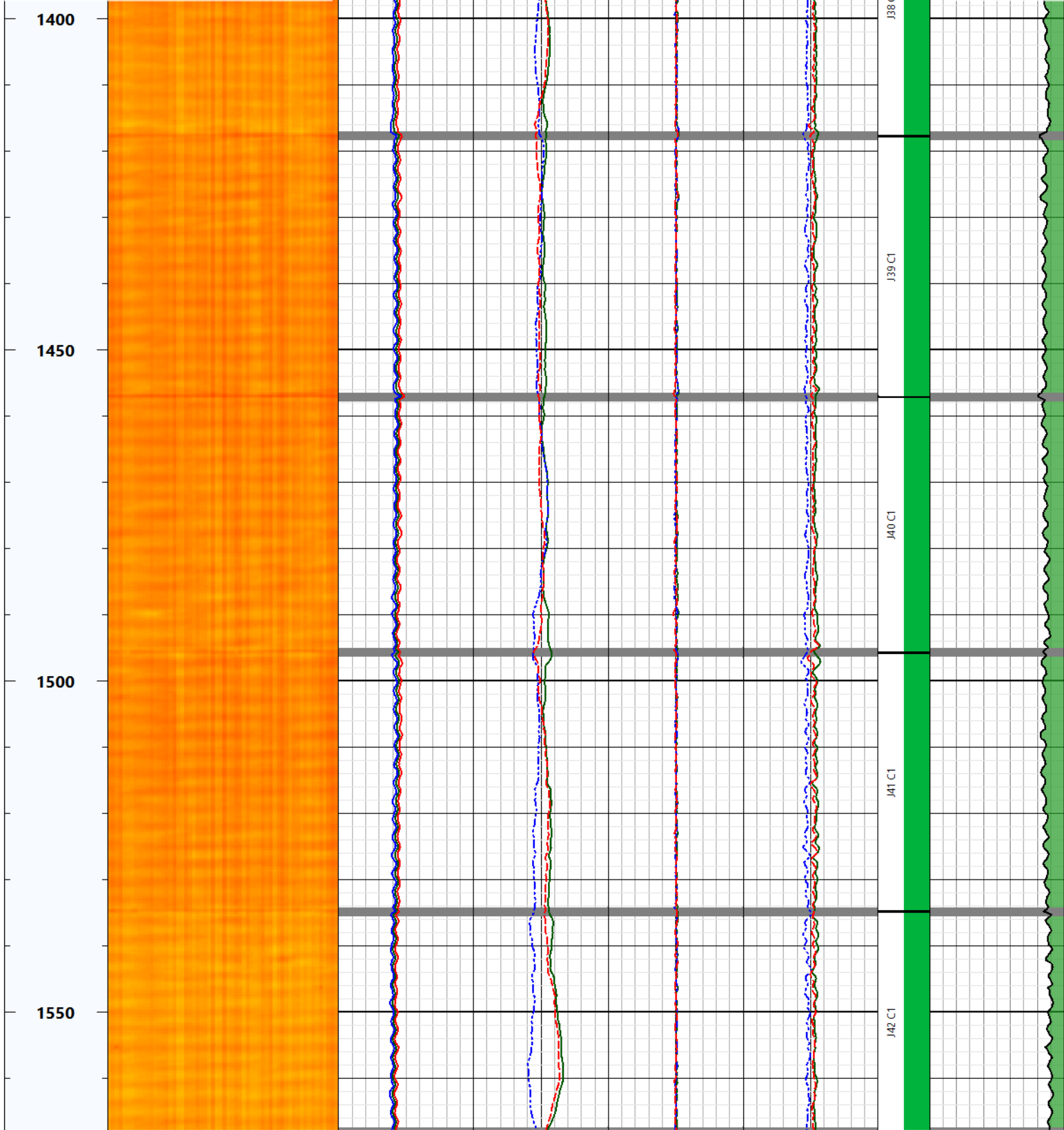
J1 C1







J37 C1



Reference (ft) 1:240		COLLARS	COLLARS	COLLARS	COLLARS		
		DEFORMATION	DEFORMATION	DEFORMATION	DEFORMATION		
		HARDWARE	HARDWARE	HARDWARE	HARDWARE		COLLARS
		MIN ID EC	Trajectory Y	Ovality Y	Tool Y		DEFORMATION
		in 7	-1 in 1	-0.5 in 0.5	-0.5 in 0.5		

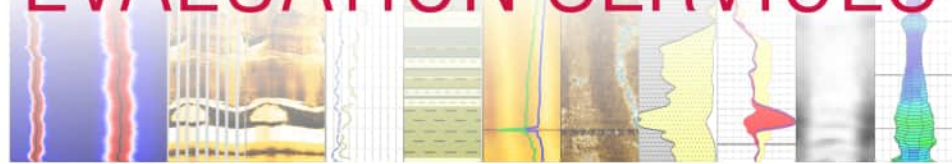
Received by	OCD: 2/17/2023 3:08:49 PM		AVG ID EC			Trajectory X			Ovality X			Tool X			Joint Listing	HARDWARE		
			6	in	7	-1	in	1	-0.5	in	0.5	-0.5	in	0.5		Page 145 of 4		
	Percent Rem Wall Map		MAX ID EC			Trajectory Magnitude			Ovality Magnitude			Tool Magnitude				Remaining Wall		
	%		6	in	7	-1	in	1	-0.5	in	0.5	-0.5	in	0.5		0	%	100

Company	MARATHON PETROLEUM COMPANY
Well	STATE LPG WELL NO 3
Field	LANGLIE MATRIX
State/Province	NEW MEXICO
UWI/API	N/A
  CALIPER ANALYSIS	



SECUREVIEW
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INTERPRETATION &
EVALUATION SERVICES



Company	MARATHON PETROLEUM COMPANY
Well	STATE LPG WELL NO 3
Field	LANGLIE MATRIX
County	LEA COUNTY
State/Province	NEW MEXICO
Country	USA
UWI/API	N/A
Log Date	2022-11-14
Location	N/A

Permanent Datum GL Elevation 33.030	Elevations	
Log Measured from GL above Perm. Datum	KB	
Drilling measured from GL	DF	
	GL	33.030 ft

Run Number	MAIN PASS
Depth Driller	
Depth Logger	1560.000 ft
First Reading	1555.100 ft
Last Reading	-7.000 ft
Casing Driller	
Casing Logger	
Bit Size	
Hole Fluid Type	WATER
Density/Viscosity	/
PH/Fluid Loss	/
Sample Source	
Rm @ Measured Temp	@
Rmf @ Measured Temp	@
Rmc @ Measured Temp	@
Rm @ BHT	@
Max Recorded Temp	
Engineer	R. COLLINS
Base	N/A
Service Order	N/A

In interpreting, communicating or providing information and/or making recommendations or oral, as to logs or test or other data, type or amount of material, or Work or other services or manner of performance, or in predicting results to be obtained, the Contractor will benefit of the Contractor's best judgment based on its experience and will perform all work in an and workmanlike manner. Any interpretation of test or other data, and any recommendations or description based upon such interpretations, are opinions based upon inference from empirical relationships and assumptions, which inferences and assumptions may differ in respect to which professional engineers and analysts may differ.

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N/A

ANALYSIS REMARKS:

DATA ACQUIRED BY NINE ENERGY SERVICE
PROCESSED USING 7" 23# 155 CASING CHARACTERISTICS
BURST PRESSURE CALCULATED USING BARLOW METHOD, WITHOUT A SAFETY FACTOR

Analysis Date	Log Analyst	Location
2022-11-15	W. LEE	CALGARY

CASING TABLE							
Type	OD (in)	Weight (lb/ft)	Grade	Thread Type	ID (in)	Start Depth (ft)	Stop Depth (ft)
Production	7.000	23.00	J55		6.366	-2.300	1569.000

CLASSIFICATION TABLE					
Class 1 < 20%	Class 2 20% - 40%	Class 3 40% - 60%	Class 4 60% - 80%	Class 5 80% - 100%	Total Joints Logged
38	3	0	0	0	41

JOINT TABLE

Received by OGD: 2/17/2023 3:08:49 PM

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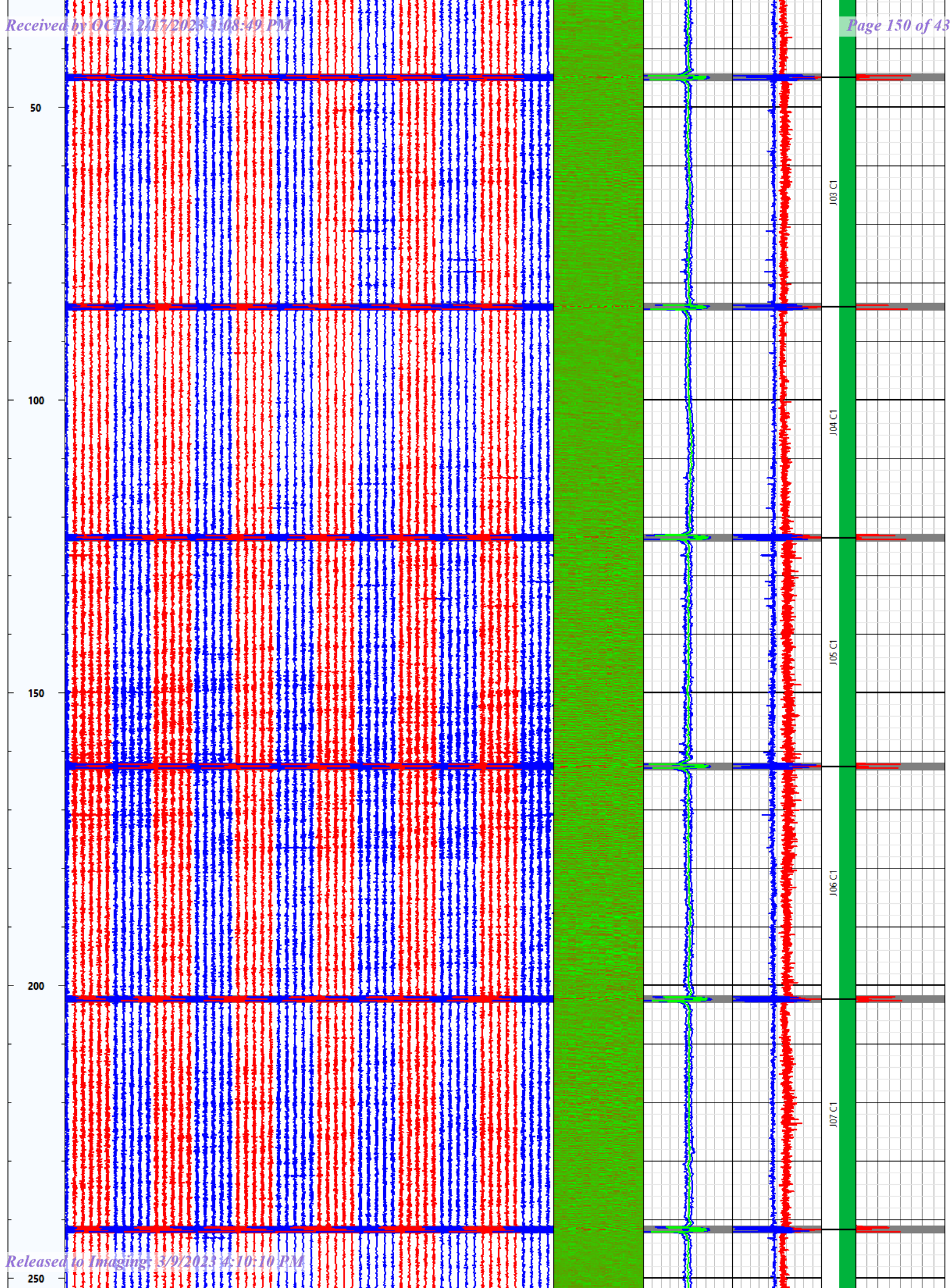
No.	Depth (ft)	Depth (ft)	Length (ft)	Casing OD (in)	Casing Weight (lbm/ft)	Casing Grade	Max Wall Loss (%)	OD/ID	Burst Pressure (psi)	Worst Defect Depth (ft)	Worst Defect Type	Class
1	-2.286	5.252	7.538	7.000	23.00	J55						1
2	5.252	44.948	39.696	7.000	23.00	J55						1
3	44.948	84.166	39.218	7.000	23.00	J55						1
4	84.166	123.547	39.382	7.000	23.00	J55						1
5	123.547	162.625	39.078	7.000	23.00	J55						1
6	162.625	202.390	39.765	7.000	23.00	J55						1
7	202.390	241.771	39.381	7.000	23.00	J55						1
8	241.771	281.037	39.267	7.000	23.00	J55						1
9	281.037	319.864	38.827	7.000	23.00	J55						1
10	319.864	359.095	39.230	7.000	23.00	J55						1
11	359.095	399.004	39.909	7.000	23.00	J55						1
12	399.004	438.261	39.257	7.000	23.00	J55						1
13	438.261	476.701	38.440	7.000	23.00	J55						1
14	476.701	515.526	38.825	7.000	23.00	J55						1
15	515.526	553.703	38.177	7.000	23.00	J55						1
16	553.703	592.552	38.850	7.000	23.00	J55						1
17	592.552	631.511	38.959	7.000	23.00	J55						1
18	631.511	670.781	39.270	7.000	23.00	J55						1
19	670.781	709.815	39.034	7.000	23.00	J55	28.1	OD	3581	705.074	SIP	2
20	709.815	749.879	40.064	7.000	23.00	J55						1
21	749.879	789.481	39.602	7.000	23.00	J55						1
22	789.481	828.723	39.241	7.000	23.00	J55	26.5	OD	3661	793.328	SIP	2
23	828.723	867.918	39.196	7.000	23.00	J55						1
24	867.918	907.145	39.227	7.000	23.00	J55						1
25	907.145	946.734	39.589	7.000	23.00	J55						1
26	946.734	985.517	38.783	7.000	23.00	J55						1
27	985.517	1024.318	38.801	7.000	23.00	J55						1
28	1024.318	1063.451	39.133	7.000	23.00	J55						1
29	1063.451	1102.611	39.160	7.000	23.00	J55						1
30	1102.611	1142.238	39.627	7.000	23.00	J55	34.6	OD	3257	1140.472	SIP	2
31	1142.238	1181.008	38.770	7.000	23.00	J55						1
32	1181.008	1220.560	39.552	7.000	23.00	J55						1
33	1220.560	1259.421	38.861	7.000	23.00	J55						1
34	1259.421	1299.580	40.159	7.000	23.00	J55						1
35	1299.580	1338.674	39.094	7.000	23.00	J55						1
36	1338.674	1377.442	38.768	7.000	23.00	J55						1
37	1377.442	1417.807	40.365	7.000	23.00	J55						1
38	1417.807	1457.216	39.409	7.000	23.00	J55						1
39	1457.216	1495.866	38.650	7.000	23.00	J55						1
40	1495.866	1534.028	39.062	7.000	23.00	J55						1

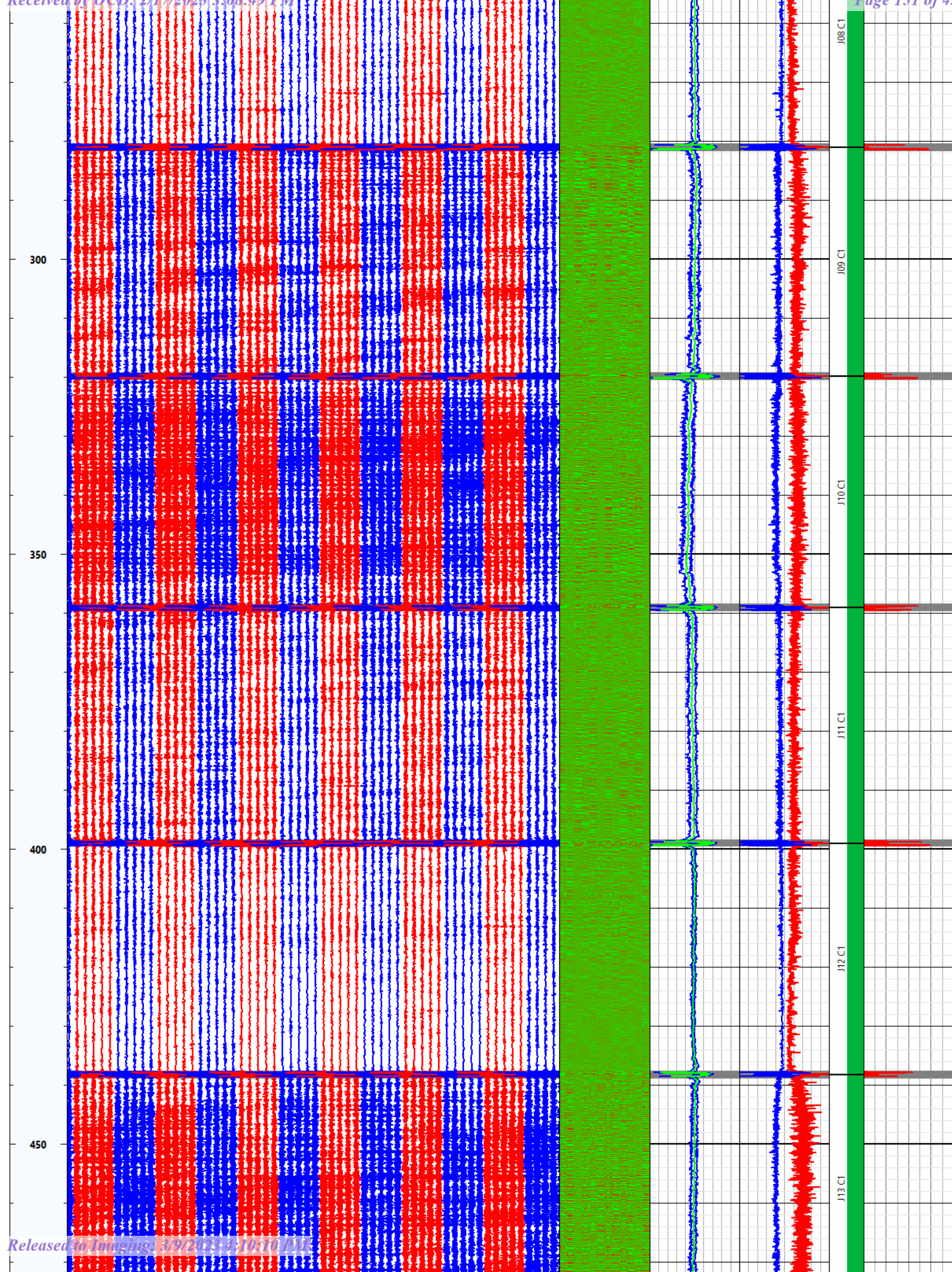
Released to Imaging: 3/9/2023 4:10:10 PM

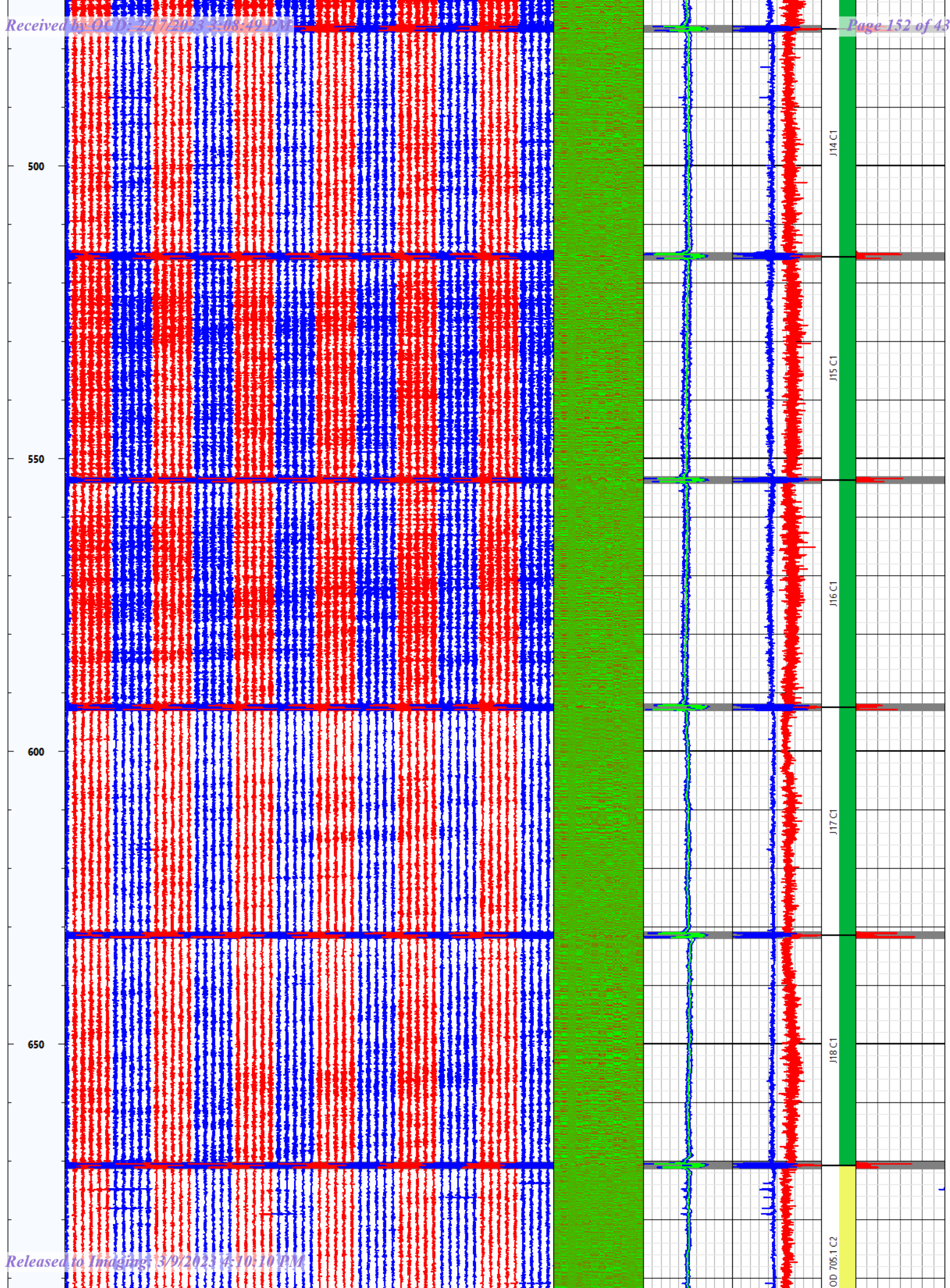
Hardware Table				
Number	Top Depth (ft)	Bottom Depth (ft)	Length (ft)	Description
1	-7.000	-0.881	6.119	Well Head
2	1141.166	1143.054	1.888	Centralizer

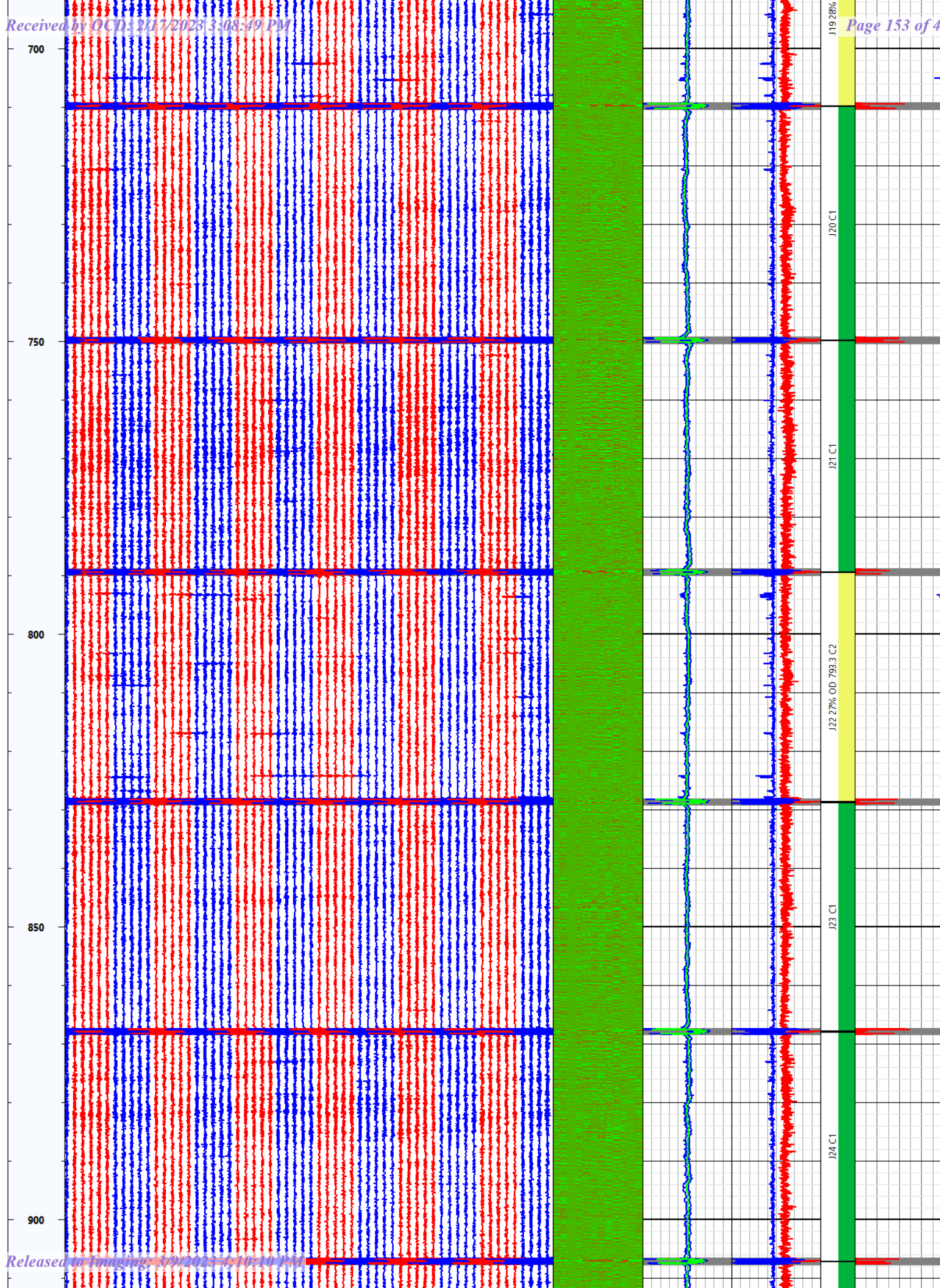
Analysis Parameters	
Software Version	2018.1
Milling Suppression	Off
Analysis Method	SecureView
Burst Pressure Calculation Method	Barlow
Burst Pressure Safety Factor	1.000
Joint Worst Defect Display	Max Wall Loss
Ignore Defects Below Penetration	20.0%

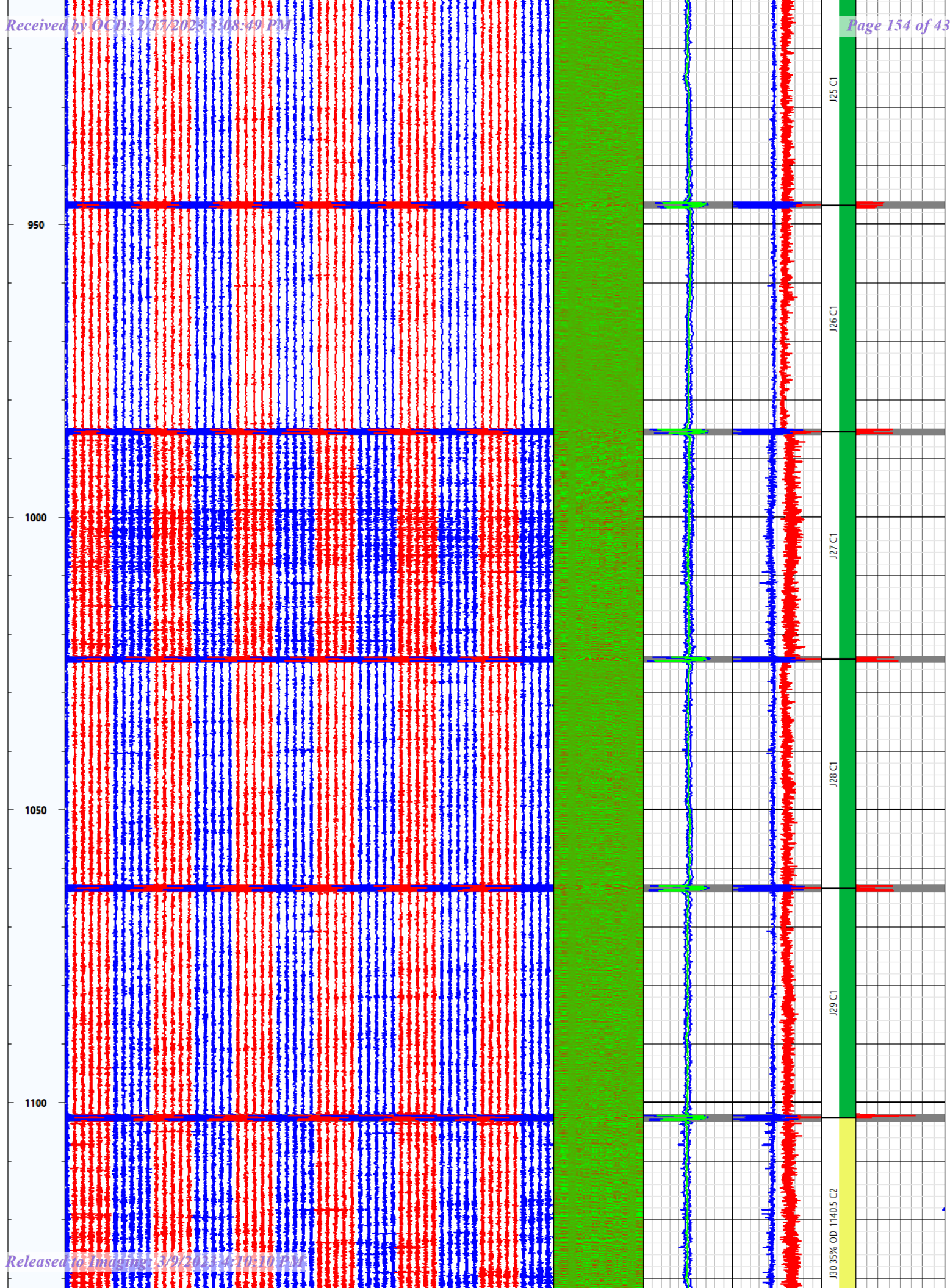


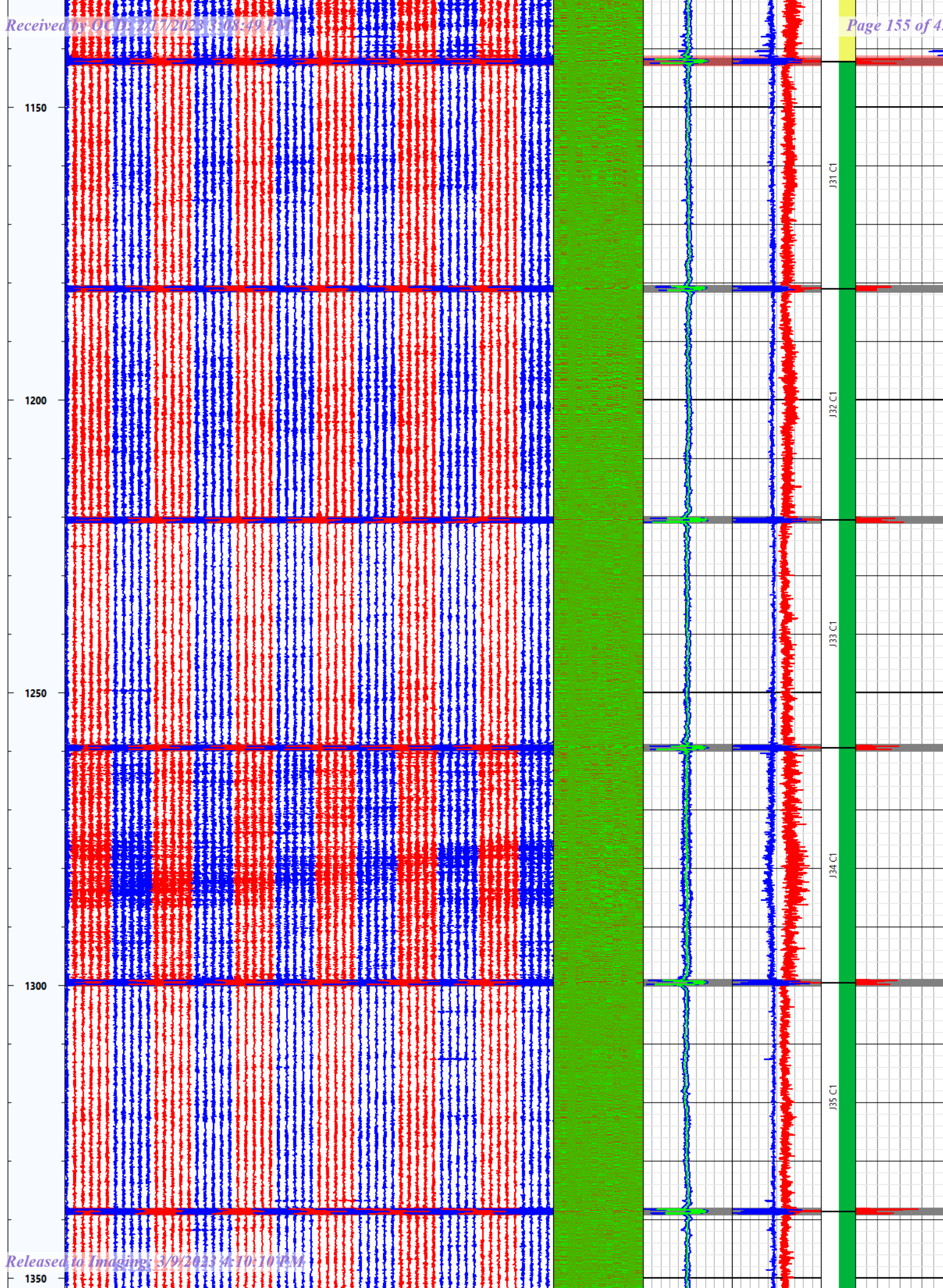


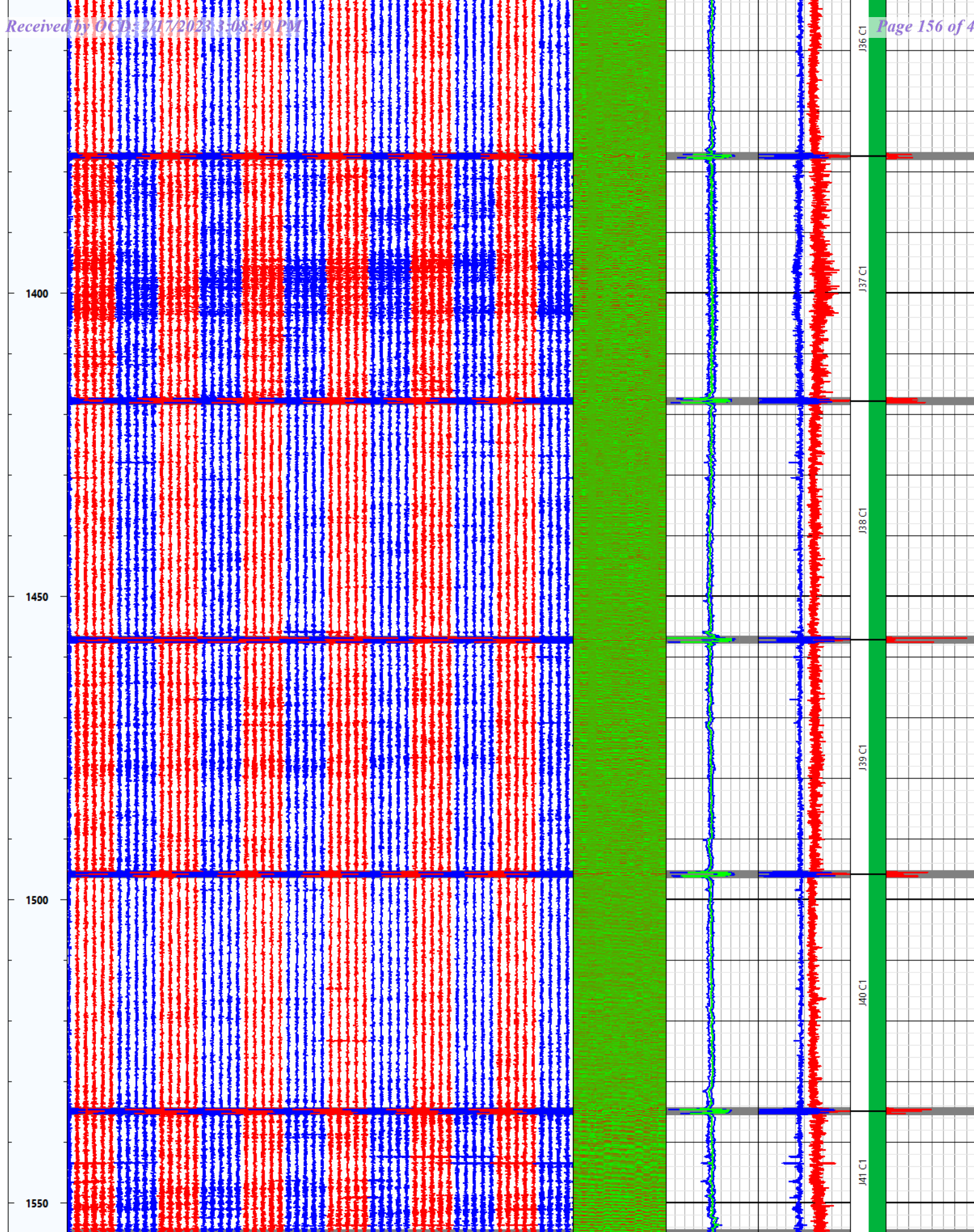












HARDWARE

Reference (ft) 1:240			COLLARS	HARDWARE	
	HARDWARE		Avg Corr		
			-20 gauss 20	COLLARS	COLLARS
	COLLARS	Discriminator	Max Corr	Min Corr 2D	Int. Penetration
		-2.00 1.00	-20 gauss 20	-5 gauss 5	20 % 100
	Corrosion	DS2D	Min Corr	Min Disc 2D	Ext. Penetration
	gauss	-5 (gauss) 5	-20 gauss 20	5 gauss -5	100 % 20

Collar Summary

The following images are representations of the magnetic field as measured by the CIT instruments and are not intended to represent the actual physical shape of the object or defect portrayed. These collars have been removed from the penetration analysis presented.

Well: STATE LPG WELL NO 3

Collar at Joint 1 at -2.286ft

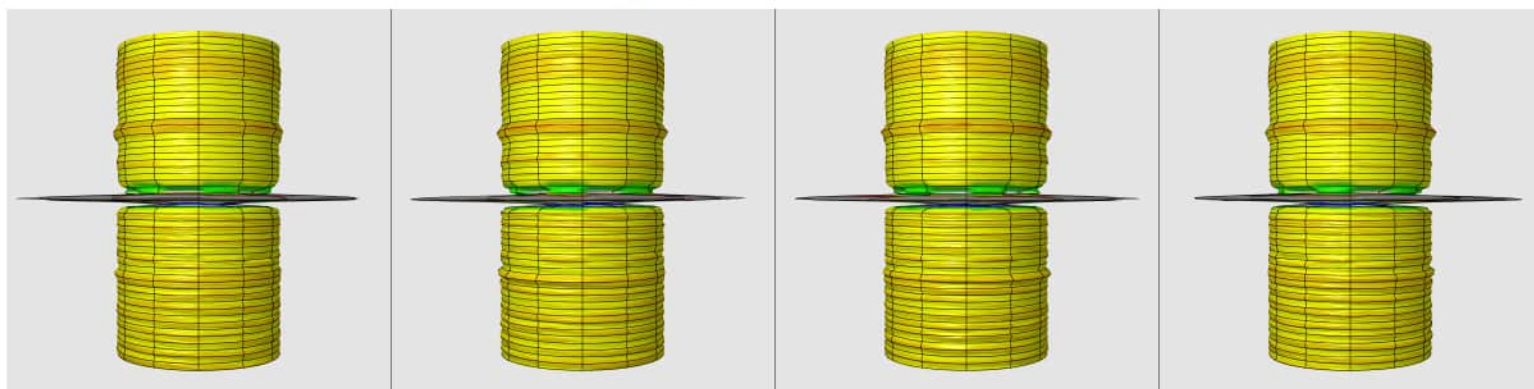
Image Display Range: -4.782ft - 0.213ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 1 and 2 at 5.252ft

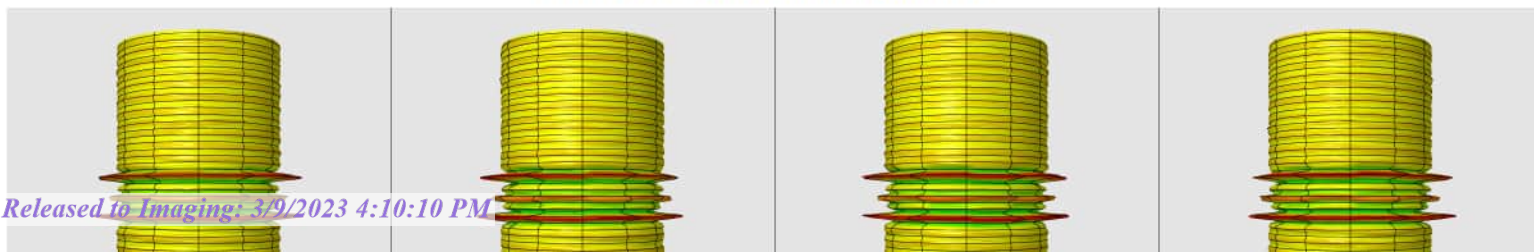
Image Display Range: 2.756ft - 7.751ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 2 and 3 at 44.948ft

Image Display Range: 42.454ft - 47.449ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

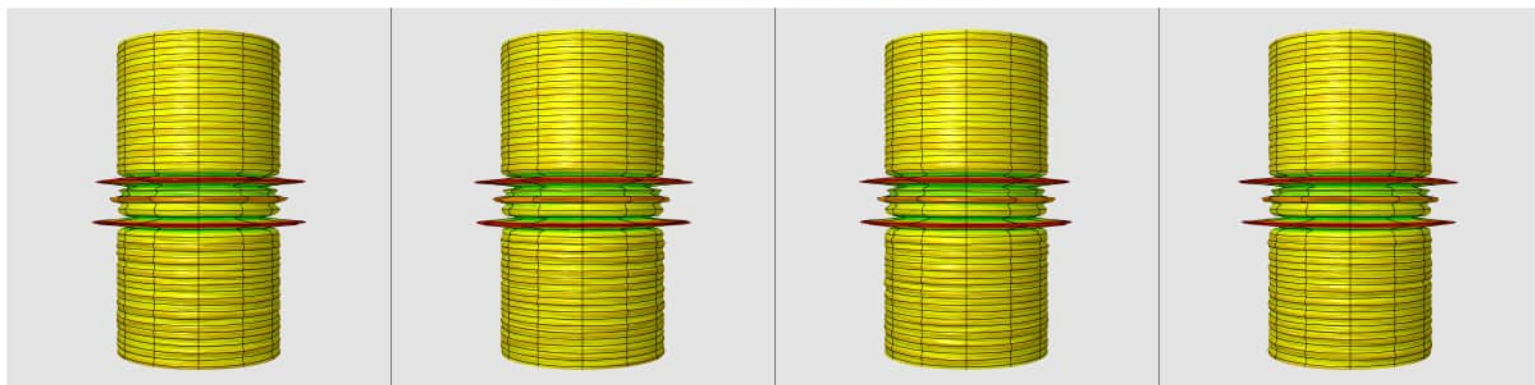
**Collar between Joints 3 and 4 at 84.166ft**

Image Display Range: 81.668ft - 86.663ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

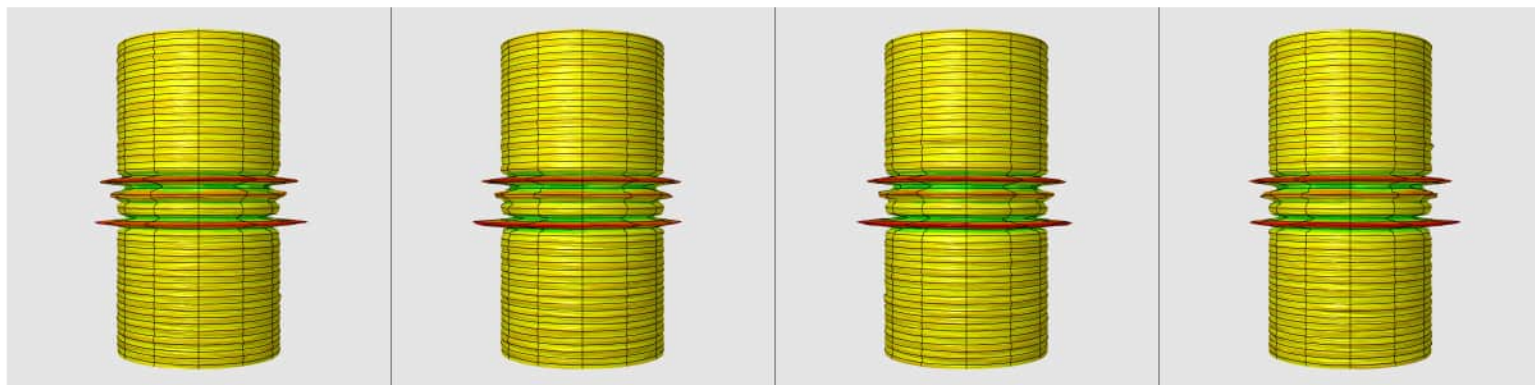
**Collar between Joints 4 and 5 at 123.547ft**

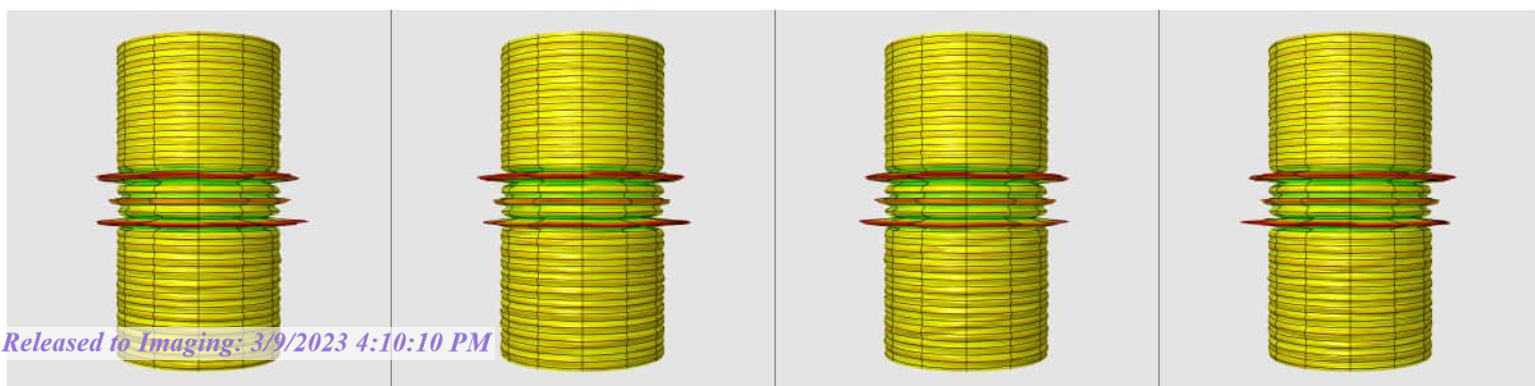
Image Display Range: 121.055ft - 126.050ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 5 and 6 at 162.625ft

Image Display Range: 160.130ft - 165.125ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

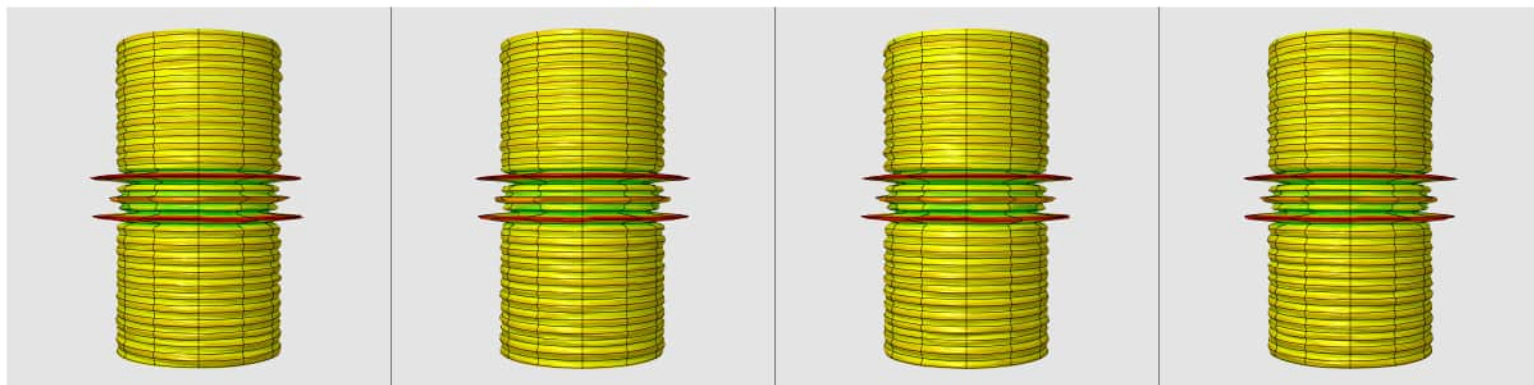
**Collar between Joints 6 and 7 at 202.390ft**

Image Display Range: 199.893ft - 204.888ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

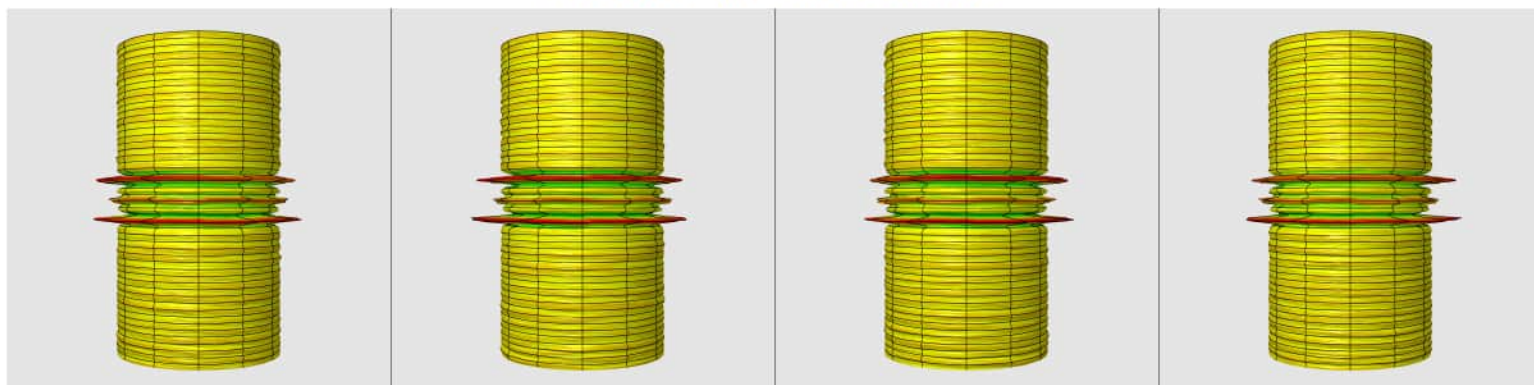
**Collar between Joints 7 and 8 at 241.771ft**

Image Display Range: 239.280ft - 244.275ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

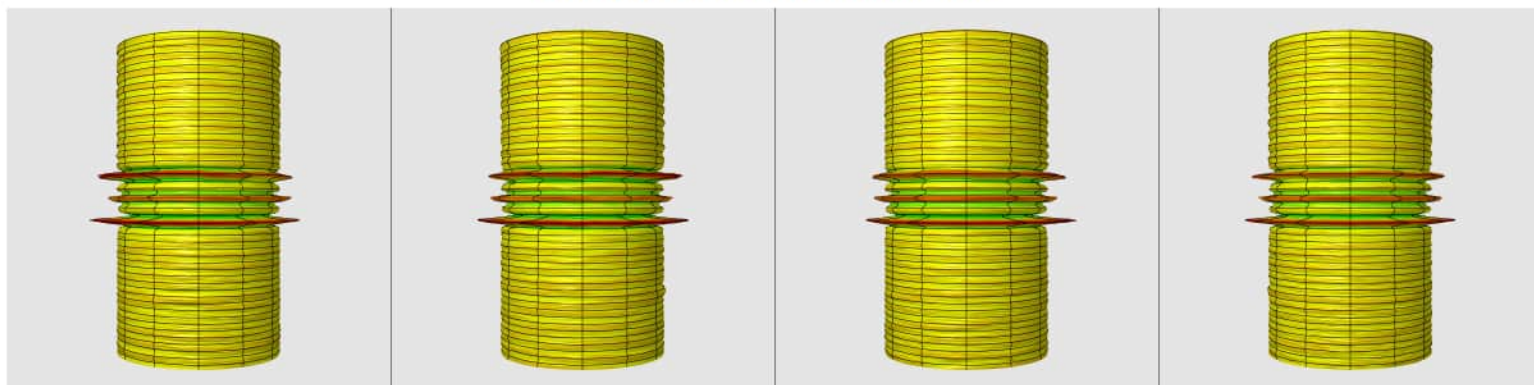
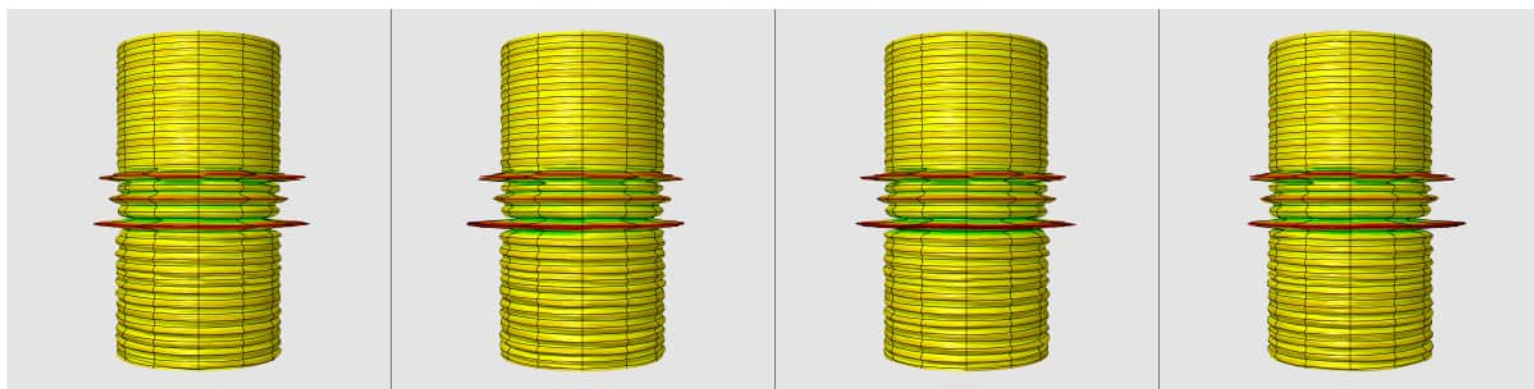
**Collar between Joints 8 and 9 at 281.037ft**

Image Display Range: 278.543ft - 283.538ft

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 9 and 10 at 319.864ft

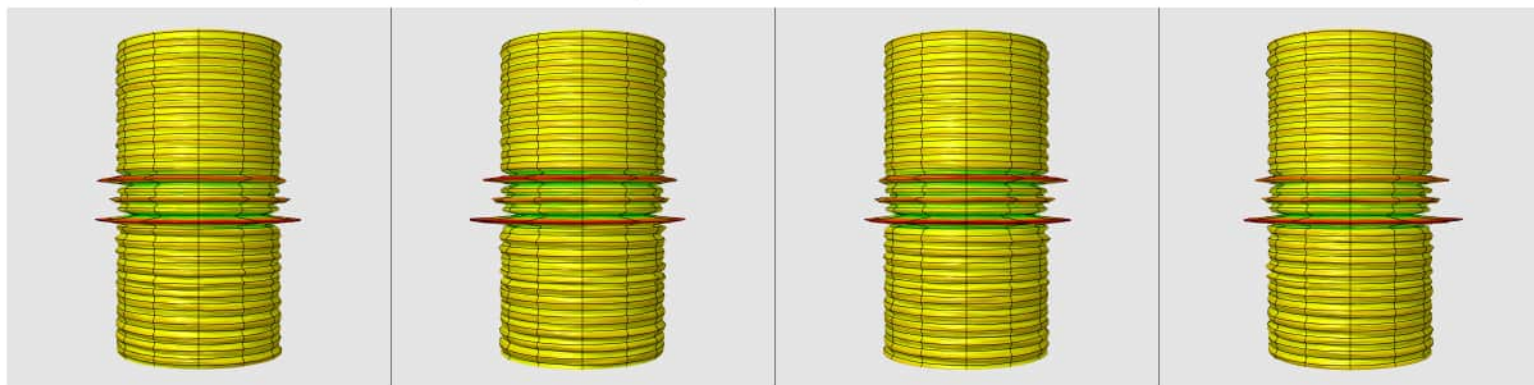
Image Display Range: 317.372ft - 322.367ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 10 and 11 at 359.095ft

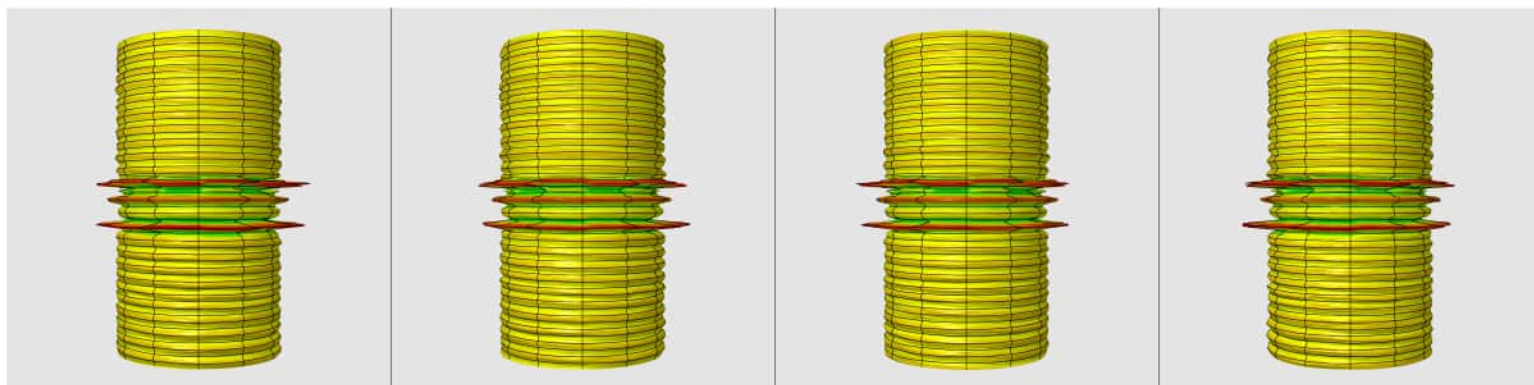
Image Display Range: 356.603ft - 361.598ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 11 and 12 at 399.004ft

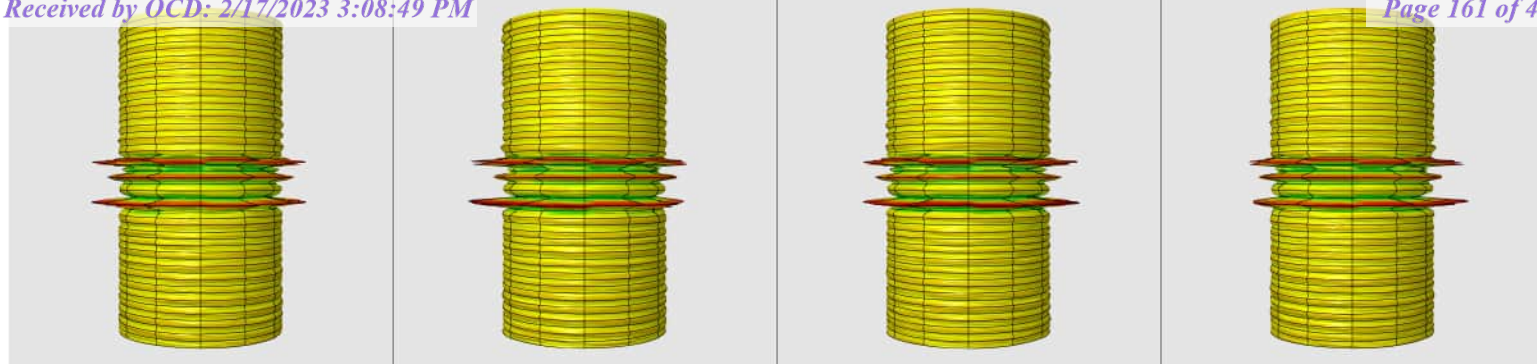
Image Display Range: 396.514ft - 401.509ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 12 and 13 at 438.261ft

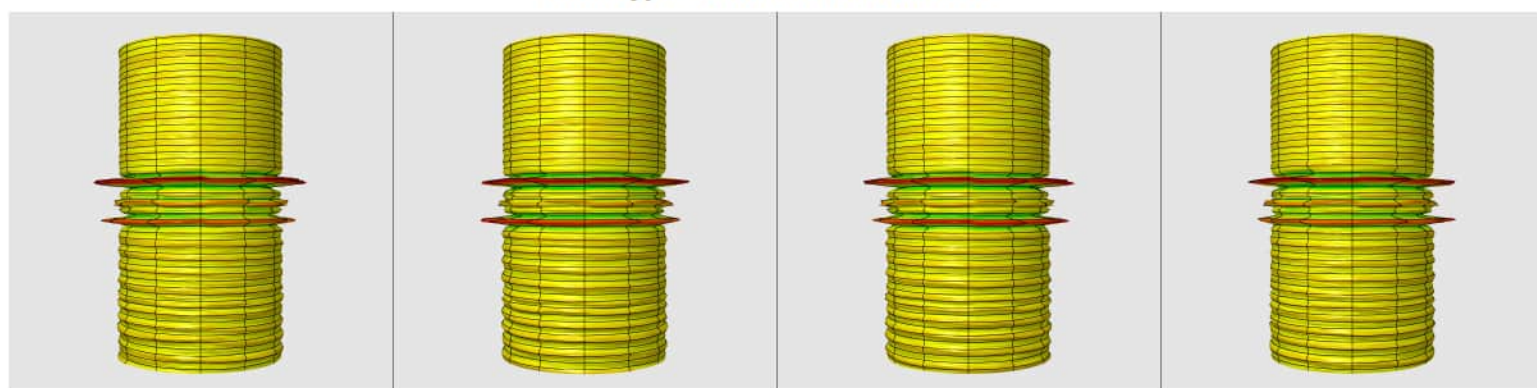
Image Display Range: 435.769ft - 440.764ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 13 and 14 at 476.701ft

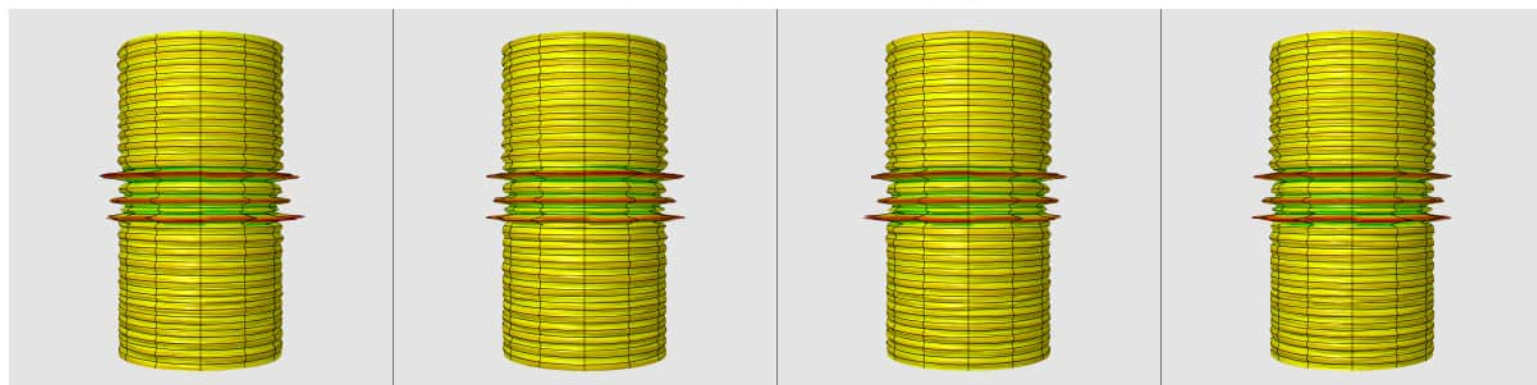
Image Display Range: 474.204ft - 479.199ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 14 and 15 at 515.526ft

Image Display Range: 513.033ft - 518.028ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 15 and 16 at 553.703ft

Image Display Range: 551.206ft - 556.201ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

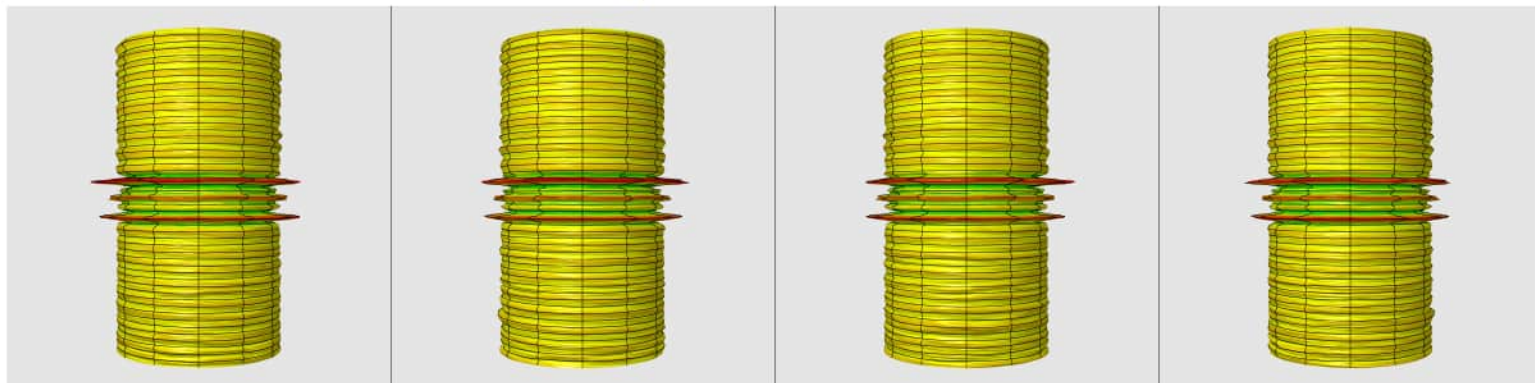
**Collar between Joints 16 and 17 at 592.552ft**

Image Display Range: 590.059ft - 595.054ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

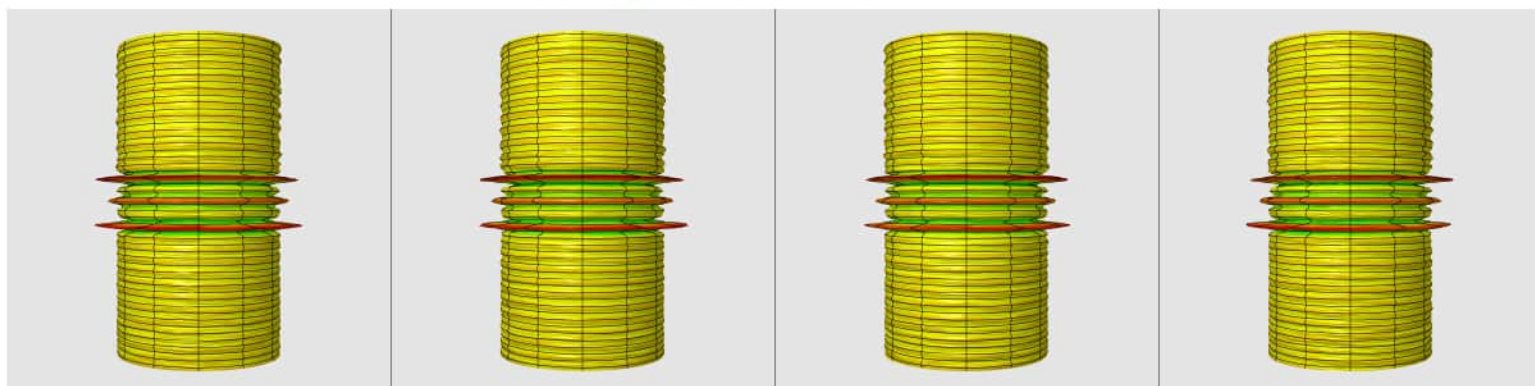
**Collar between Joints 17 and 18 at 631.511ft**

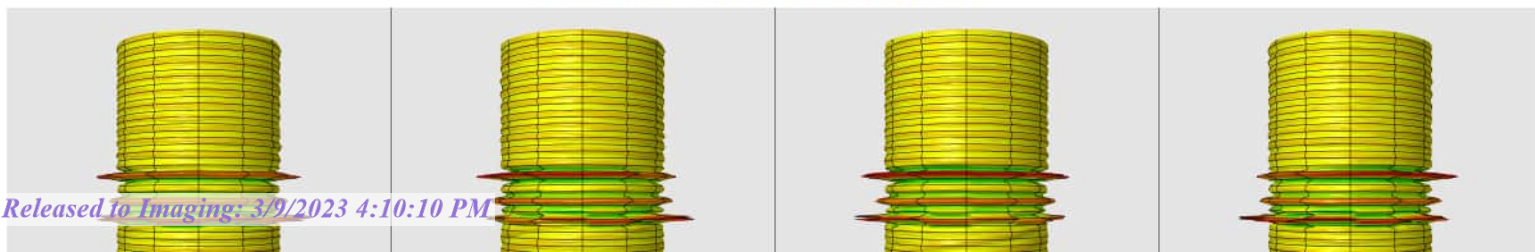
Image Display Range: 629.019ft - 634.014ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 18 and 19 at 670.781ft

Image Display Range: 668.291ft - 673.286ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

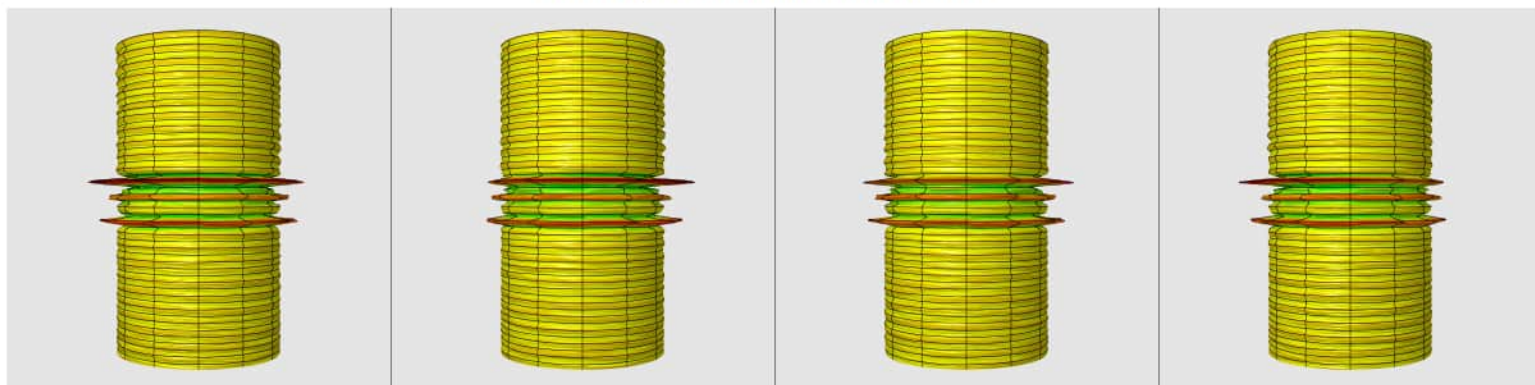
**Collar between Joints 19 and 20 at 709.815ft**

Image Display Range: 707.324ft - 712.320ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

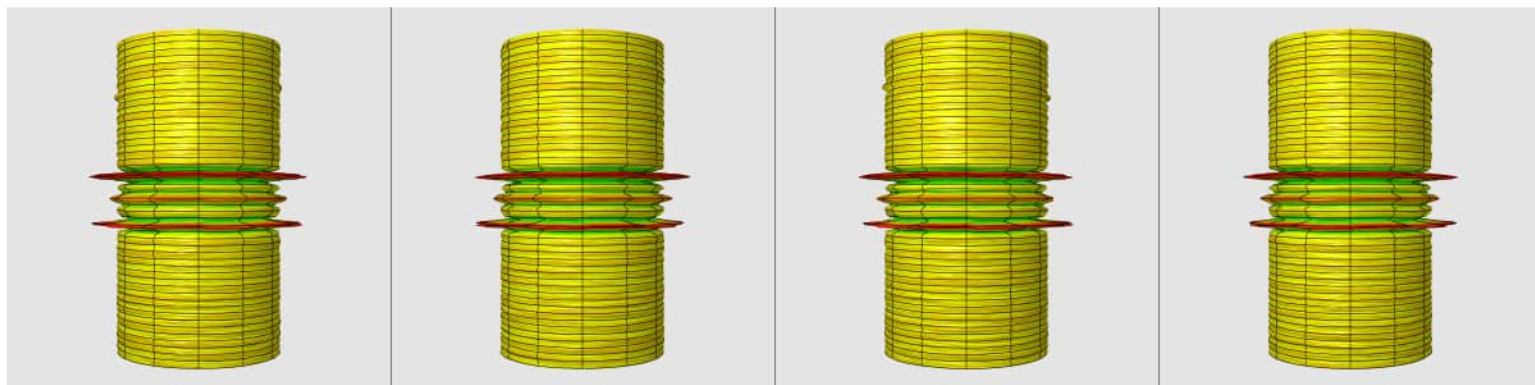
**Collar between Joints 20 and 21 at 749.879ft**

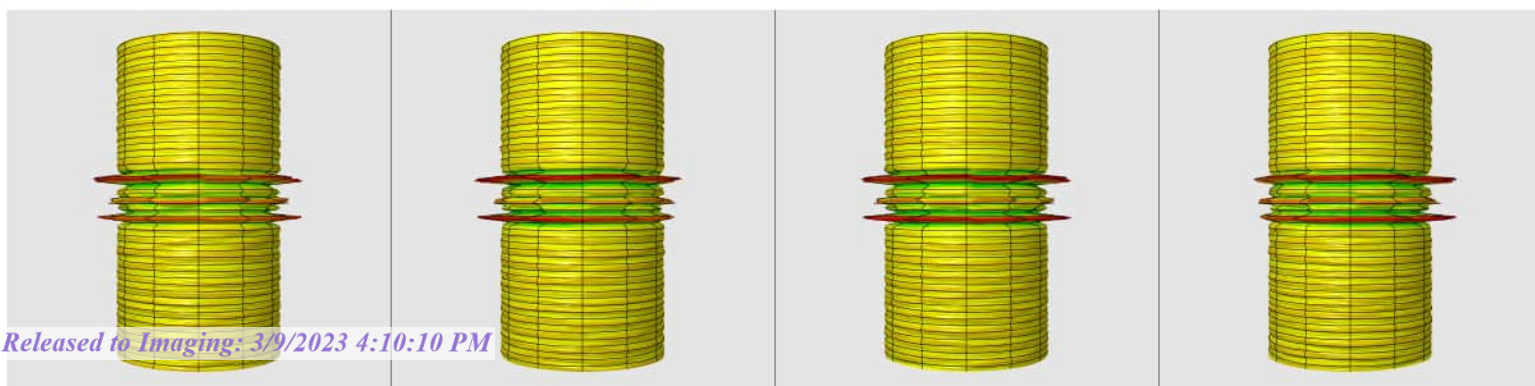
Image Display Range: 747.384ft - 752.379ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 21 and 22 at 789.481ft

Image Display Range: 786.991ft - 791.987ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

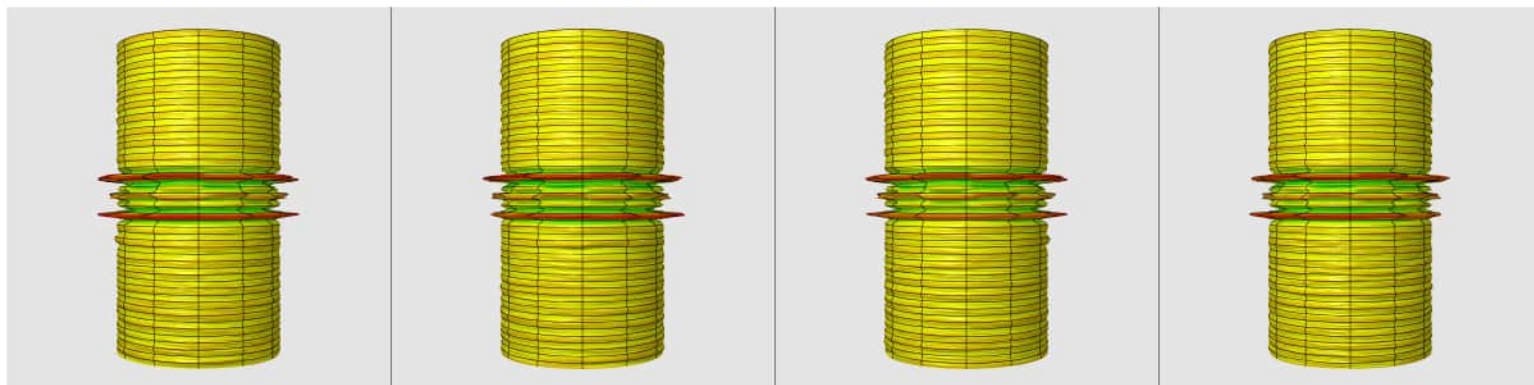
**Collar between Joints 22 and 23 at 828.723ft**

Image Display Range: 826.230ft - 831.225ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

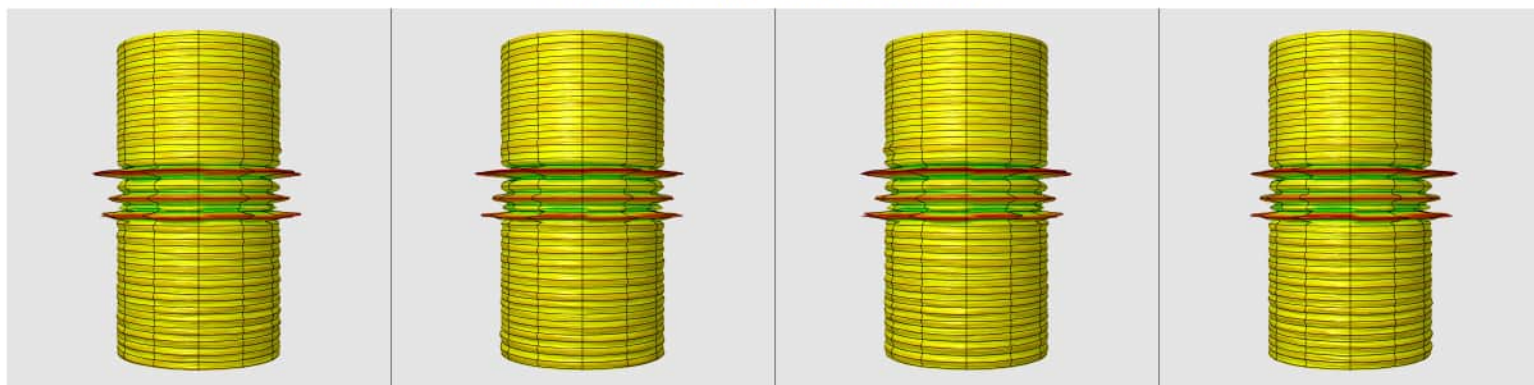
**Collar between Joints 23 and 24 at 867.918ft**

Image Display Range: 865.428ft - 870.423ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

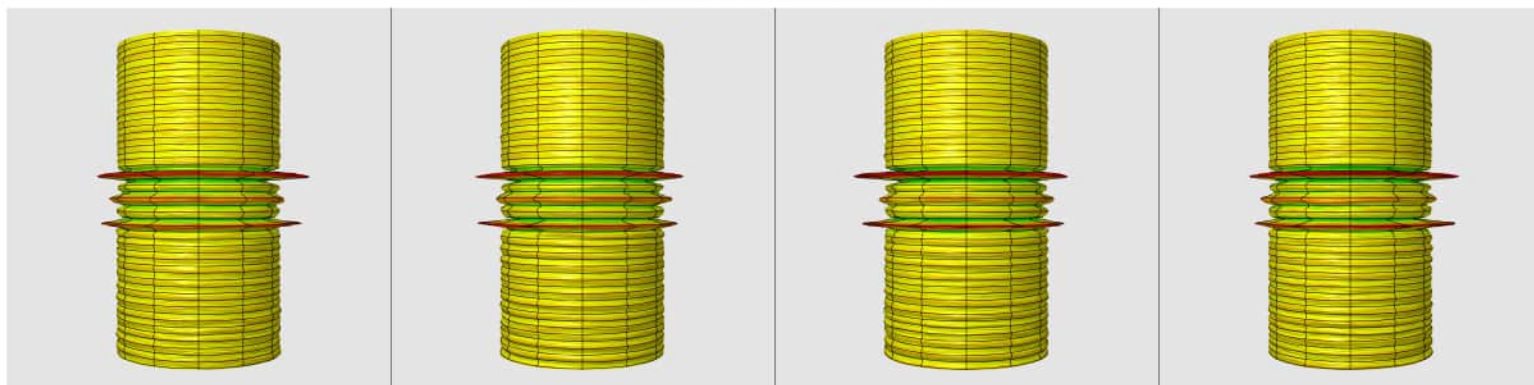
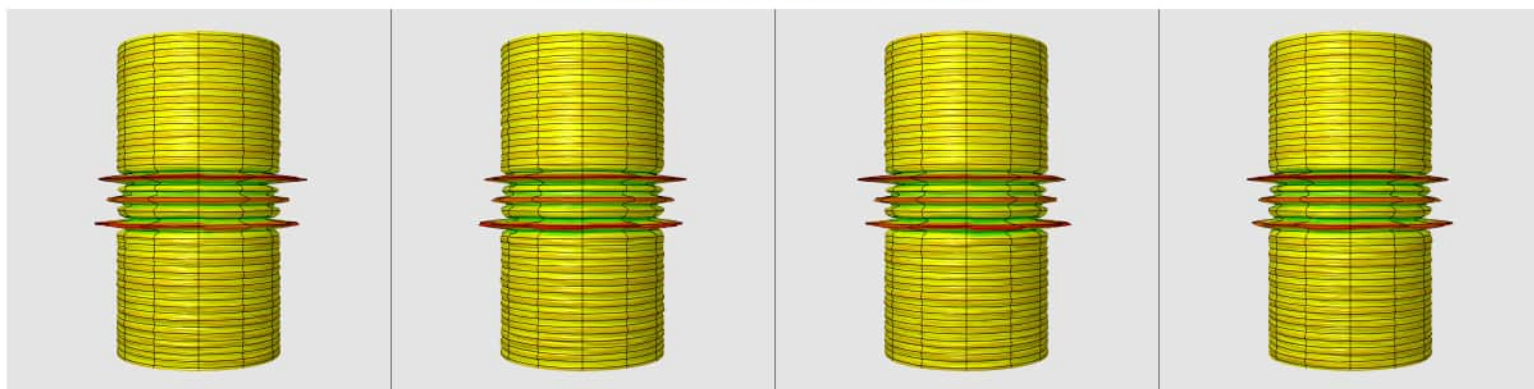
**Collar between Joints 24 and 25 at 907.145ft**

Image Display Range: 904.651ft - 909.646ft

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 25 and 26 at 946.734ft

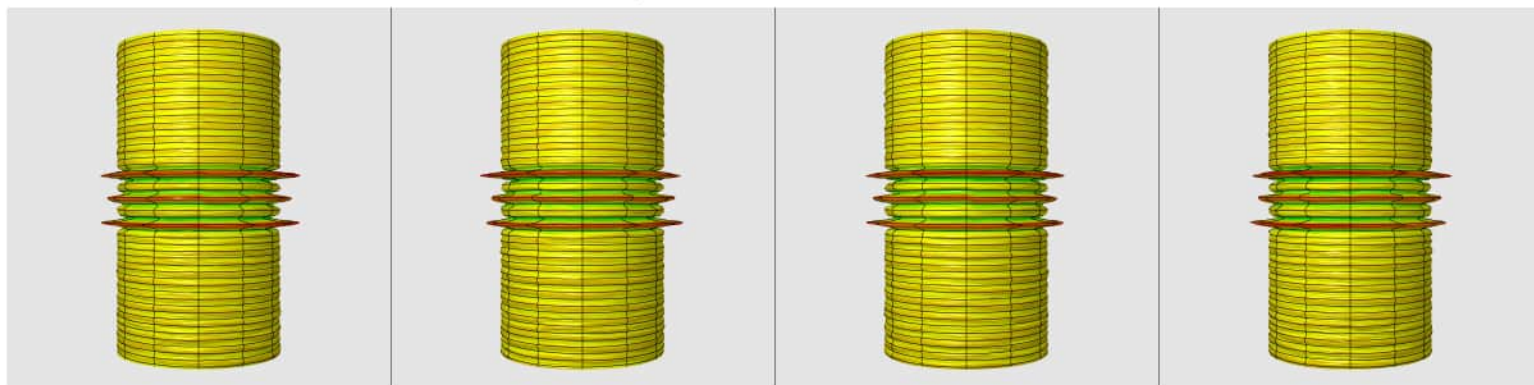
Image Display Range: 944.242ft - 949.237ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 26 and 27 at 985.517ft

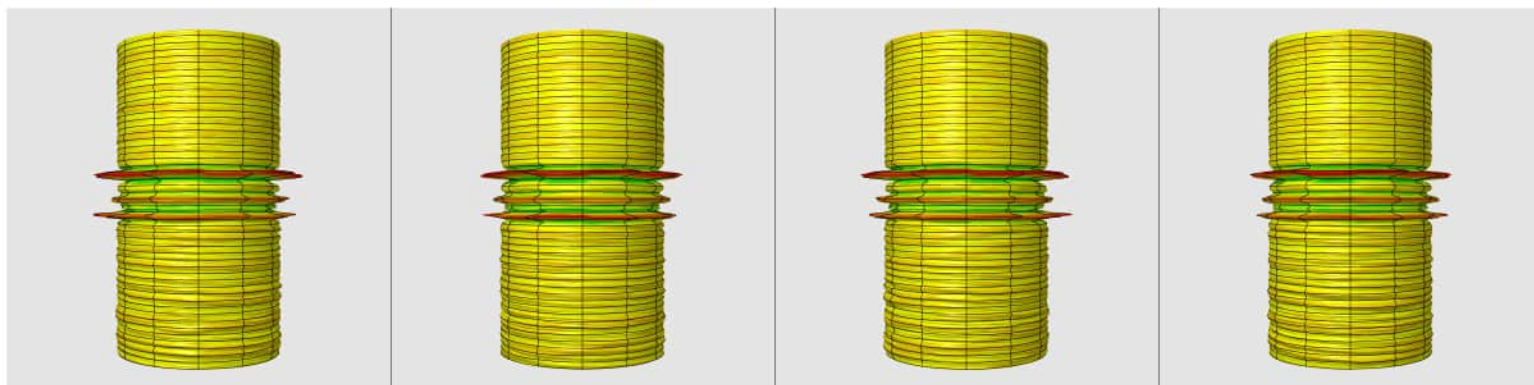
Image Display Range: 983.022ft - 988.017ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 27 and 28 at 1024.318ft

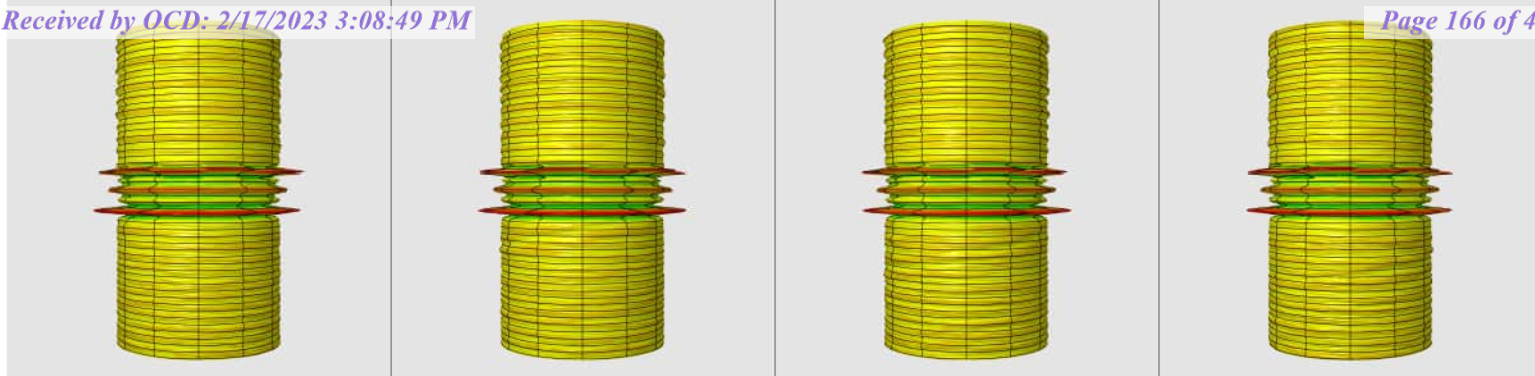
Image Display Range: 1021.826ft - 1026.821ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 28 and 29 at 1063.451ft

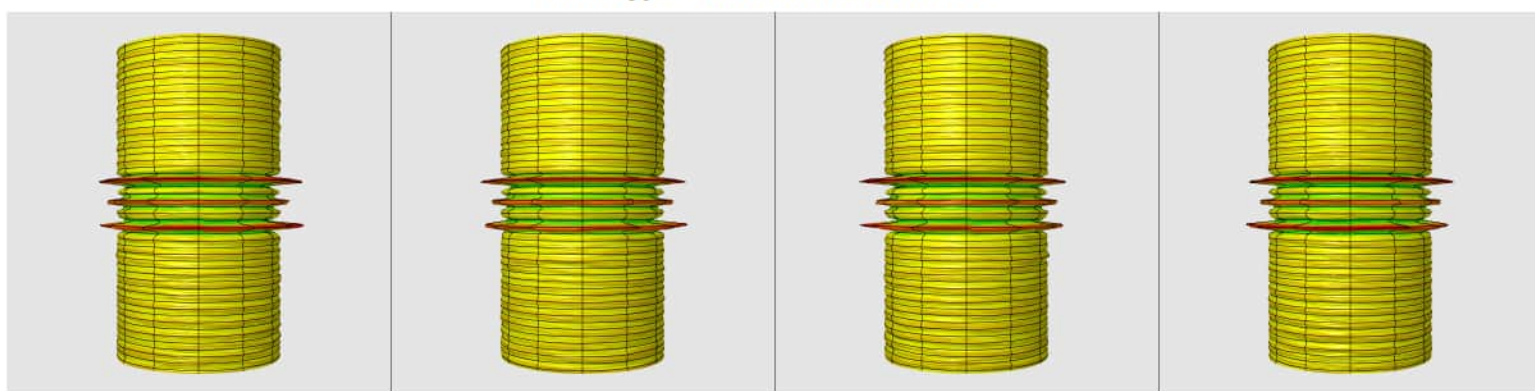
Image Display Range: 1060.958ft - 1065.953ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 29 and 30 at 1102.611ft

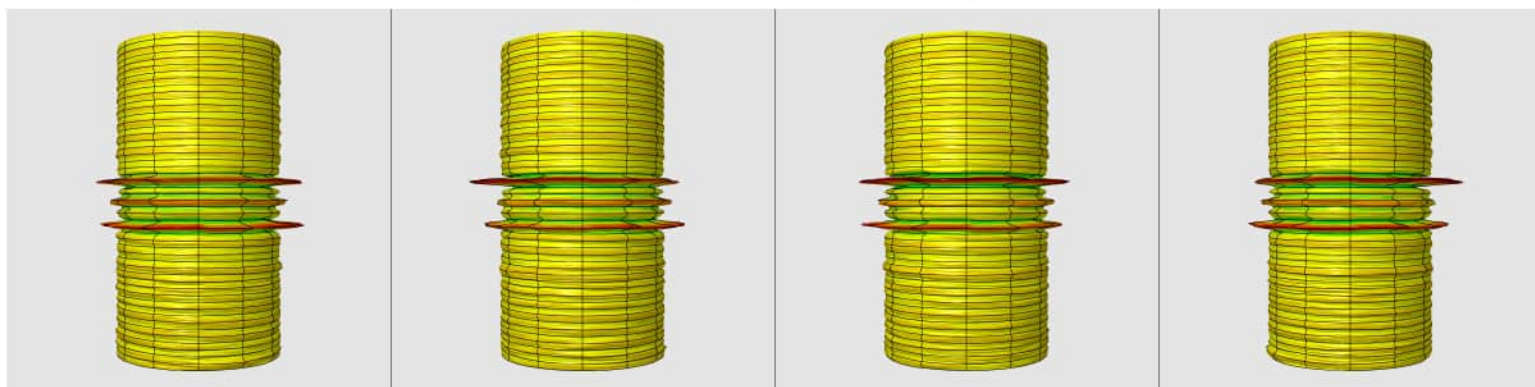
Image Display Range: 1100.115ft - 1105.110ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 30 and 31 at 1142.238ft

Image Display Range: 1139.747ft - 1144.742ft

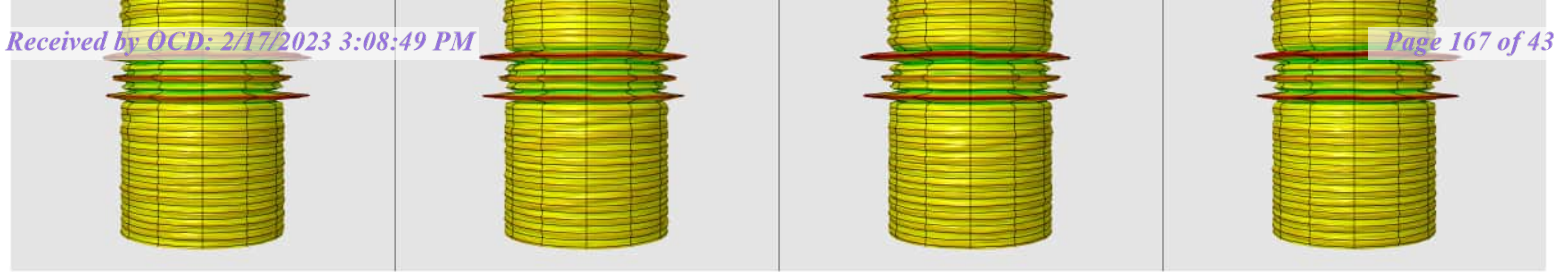
Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative





Collar between Joints 31 and 32 at 1181.008ft

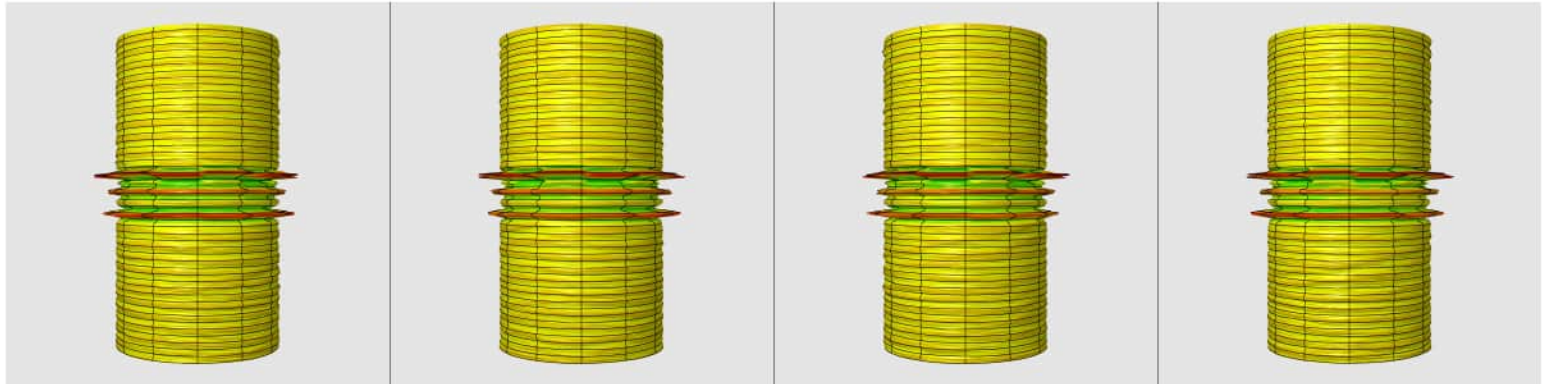
Image Display Range: 1178.519ft - 1183.514ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 32 and 33 at 1220.560ft

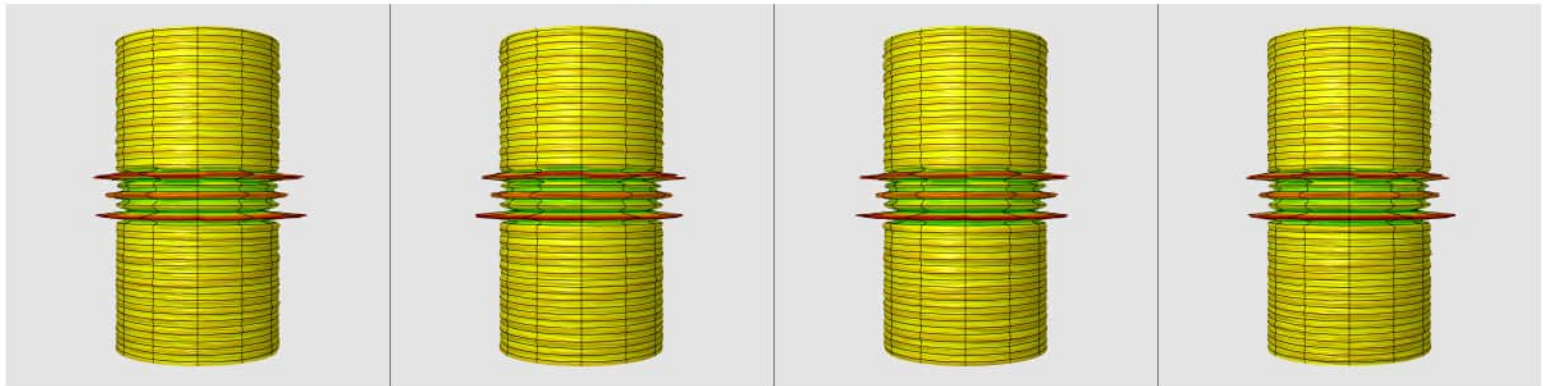
Image Display Range: 1218.069ft - 1223.064ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 33 and 34 at 1259.421ft

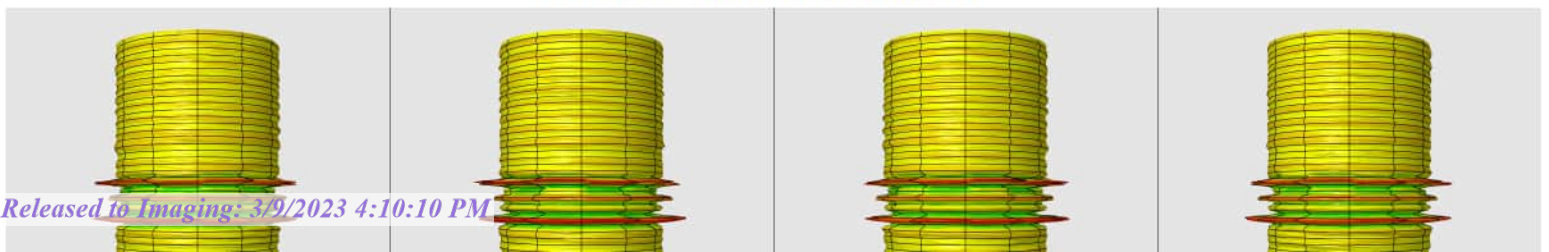
Image Display Range: 1256.931ft - 1261.926ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 34 and 35 at 1299.580ft

Image Display Range: 1297.088ft - 1302.083ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

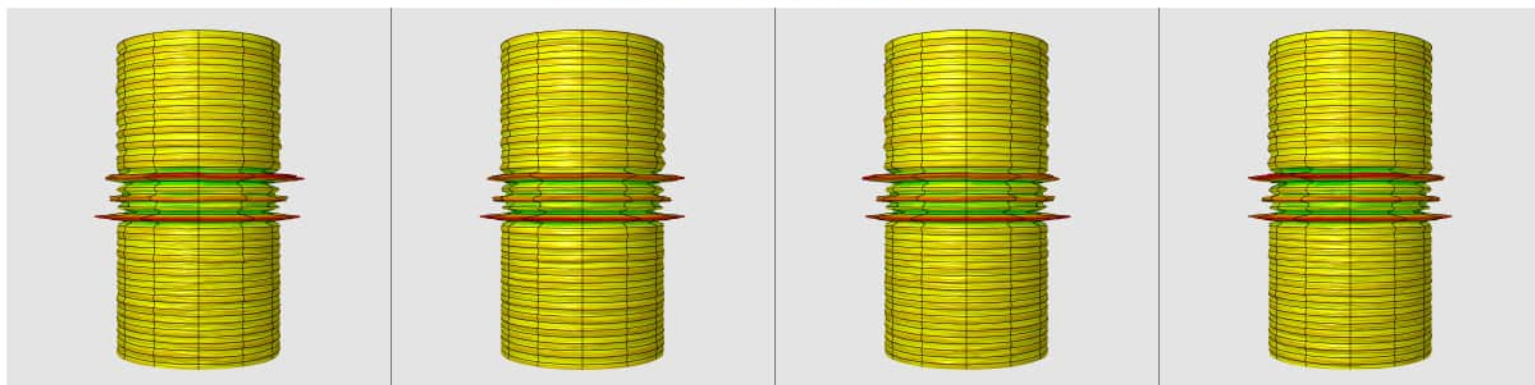
**Collar between Joints 35 and 36 at 1338.674ft**

Image Display Range: 1336.179ft - 1341.175ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

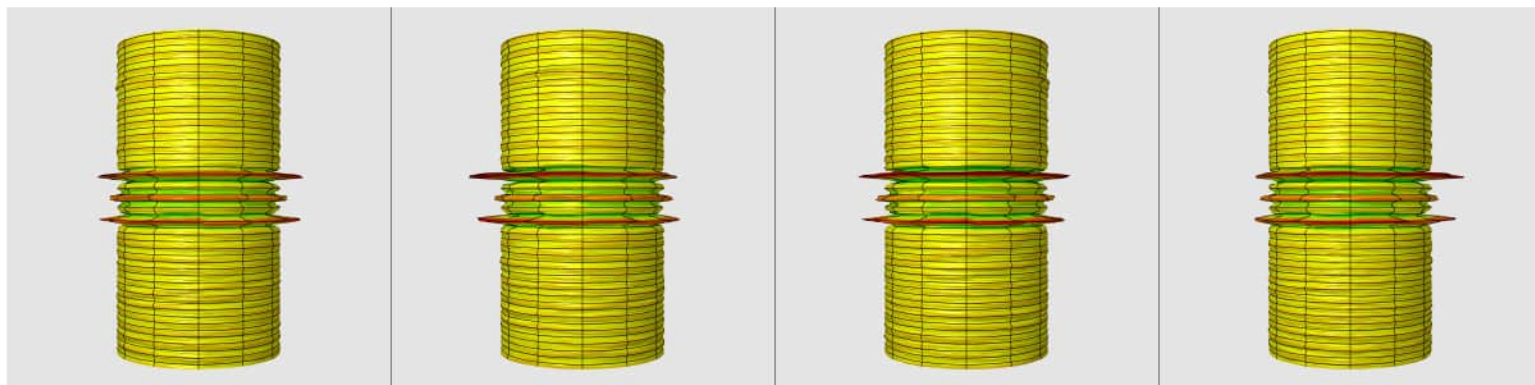
**Collar between Joints 36 and 37 at 1377.442ft**

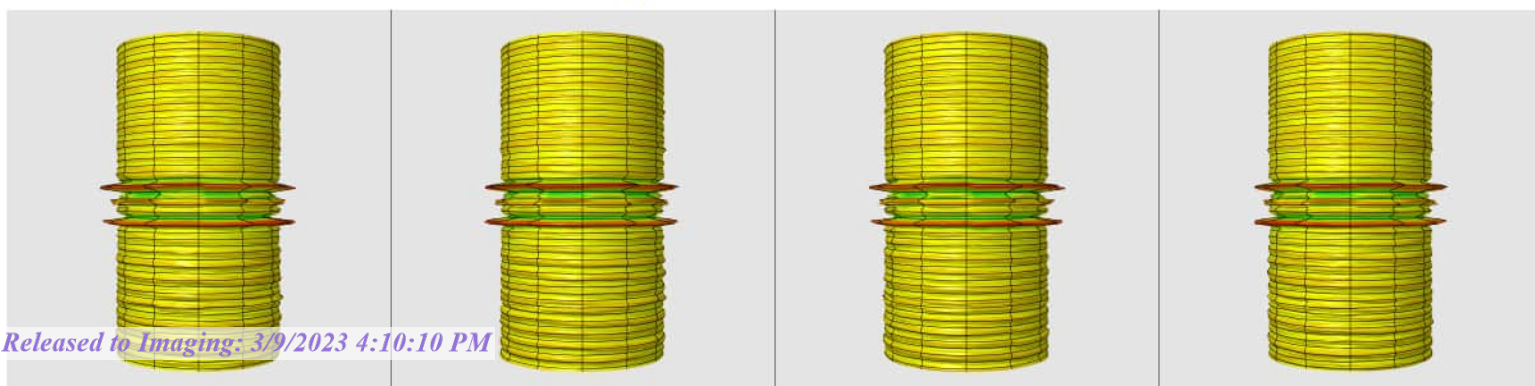
Image Display Range: 1374.951ft - 1379.946ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Collar between Joints 37 and 38 at 1417.807ft

Image Display Range: 1415.313ft - 1420.308ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

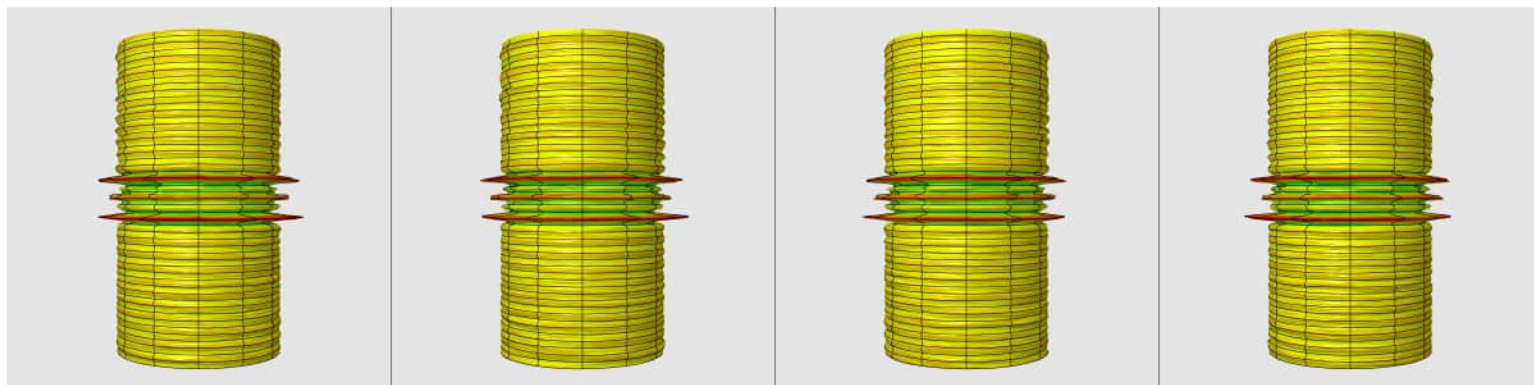
**Collar between Joints 38 and 39 at 1457.216ft**

Image Display Range: 1454.724ft - 1459.719ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

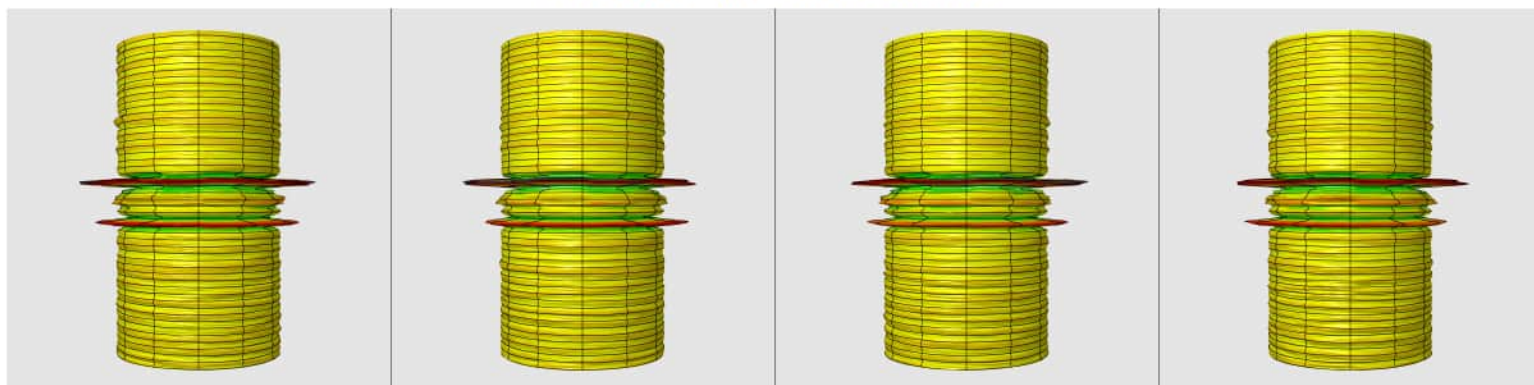
**Collar between Joints 39 and 40 at 1495.866ft**

Image Display Range: 1493.373ft - 1498.368ft

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Corrosion 2nd Derivative

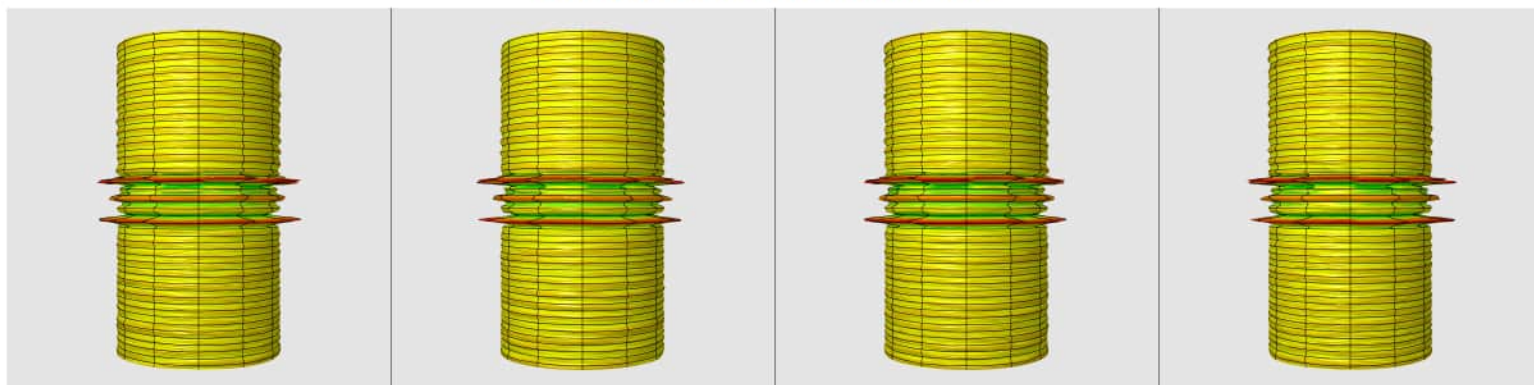
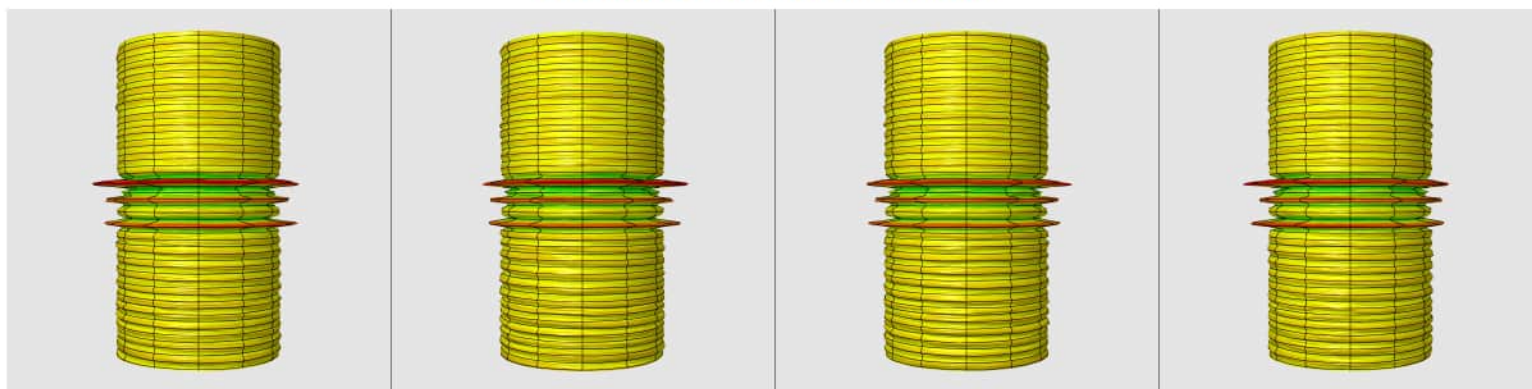
**Collar between Joints 40 and 41 at 1534.928ft**

Image Display Range: 1532.431ft - 1537.426ft

Zoom: 90%

Data Type: Corrosion 2nd Derivative



Hardware Summary

The following images are representations of the magnetic field as measured by the CIT instruments and are not intended to represent the actual physical shape of the object or defect portrayed.

This hardware has been removed from the penetration analysis presented.

Included in the Hardware classification are external casing hardware such as scratchers and centralizers, in-string hardware such as orientation collars and cement staging tools, and internal build-ups of waxes and asphaltenes.

Classified as Hardware: Well Head, -7.000ft to -0.881ft

Image Display Range: -6.996ft - -0.574ft

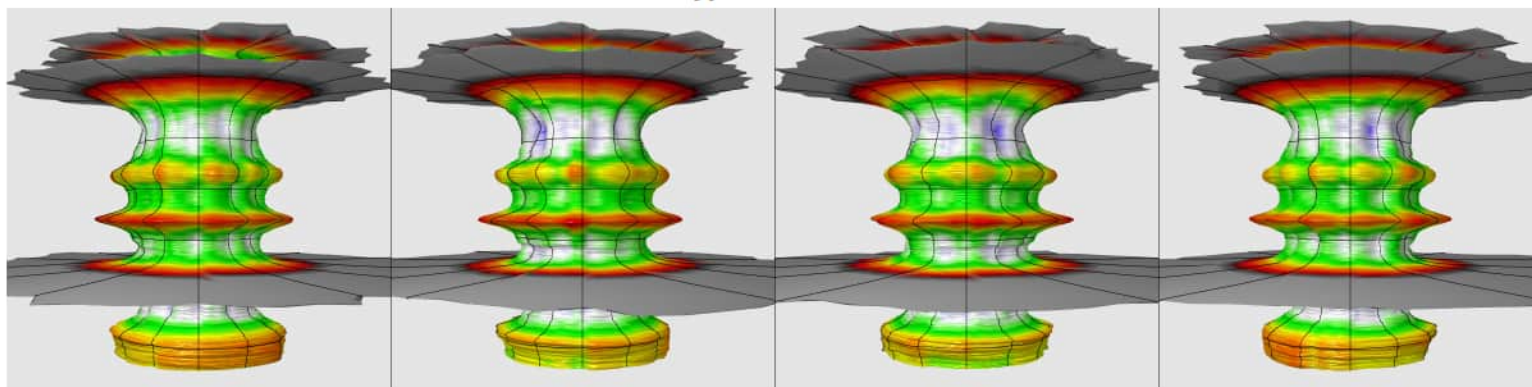
Joints: No Joint - 1

Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

Zoom: 90%

Data Type: Raw Corrosion



Classified as Hardware: Centralizer, 1141.166ft to 1143.054ft

Image Display Range: 1141.076ft - 1143.143ft

Joints: 30 - 31

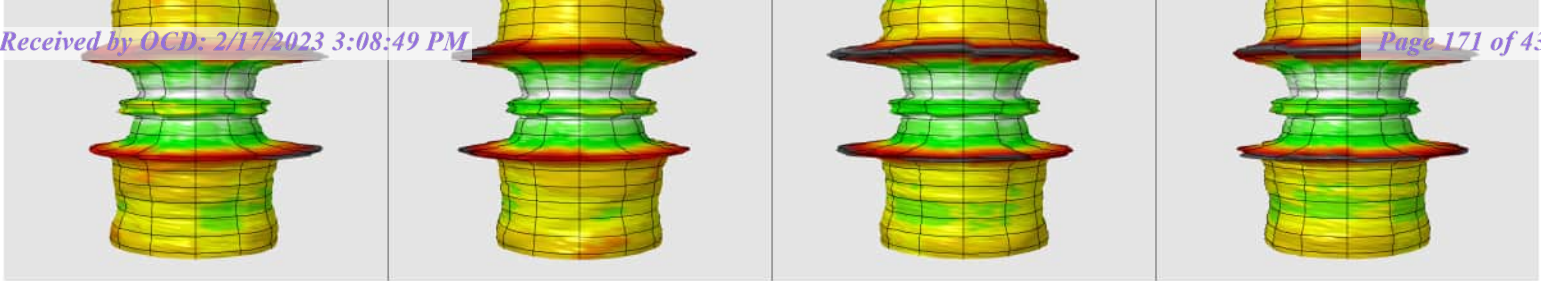
Aspect Magnification: 10.0

Radial Scale: 30.00 - -30.00gauss

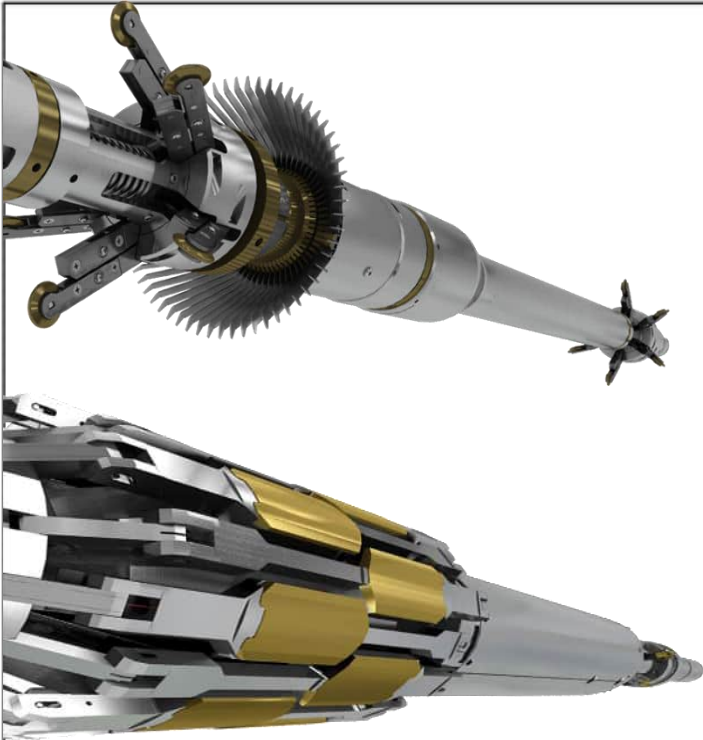
Zoom: 90%

Data Type: Raw Corrosion





Company	MARATHON PETROLEUM COMPANY
Well	STATE LPG WELL NO 3
Field	LANGLIE MATRIX
State/Province	NEW MEXICO
UWI/API	N/A
Nine Weatherford® SECUREVIEW FLUXVIEW ANALYSIS	



Company	MARATHON PETROLEUM COMPANY
Well Name	STATE LPG WELL NO 3
Location	LANGLIE MATRIX, LEA COUNTY, NEW MEXICO, USA
Survey Date	11/14/2022
Interpretation Analyst	W. LEE
Interpretation Date	11/15/2022



SecureViewTM

Evaluation Summary



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1 Executive Summary

FluxView data was acquired from 1555.1ft to surface in addition to Nine Energy Service's 60 arm caliper which was logged from 1568ft to surface. The data was processed using Weatherford's Prospect build of Techlog 2018.2 to classify joints based on percent penetration of the worst-case defect. The processing was performed using 7" 23# J55 casing characteristics. Burst pressure was calculated using Barlow method, without a safety factor.

The analysis identified 41 joints in the logged interval. 38 joints were classified as Class 1 (less than 20% penetration), and 3 joints was classified as Class 2 (20%-40% penetration). The worst-case defect was found at 1140.472ft, showing 34.6% external penetration and a calculated burst pressure of 3257psi.



2 Joint Table

Class 1 <20.0%	38	Class 2 20.0% - 40.0%	3	Class 3 40.0% - 60.0%	0	Class 4 60.0% - 80.0%	0	Class 5 80.0% - 100.0%	0	Total Joints Logged	41
-------------------	----	-----------------------------	---	-----------------------------	---	-----------------------------	---	------------------------------	---	------------------------	----

Joint Number	Top Depth (ft)	Bottom Depth (ft)	Joint Length (ft)	Casing OD (in)	Casing Weight (lbm/ft)	Casing Grade	Max Wall Loss (%)	OD/ID	Burst Pressure (psi)	Worst Defect Depth (ft)	Worst Defect Type	Joint Class
1	-0.831	7.971	8.802	7.000	23.00	J55	16.4	ID	4164	3.009	AXL	1
2	7.971	47.039	39.068	7.000	23.00	J55	17.7	ID	4099	42.051	GEN	1
3	47.039	87.179	40.140	7.000	23.00	J55	17.3	ID	4119	78.399	GEN	1
4	87.179	126.025	38.847	7.000	23.00	J55	17.7	ID	4099	119.099	GEN	1
5	126.025	164.706	38.681	7.000	23.00	J55	15.3	ID	4218	128.025	AXL	1
6	164.706	204.258	39.551	7.000	23.00	J55	18.6	ID	4054	203.506	GEN	1
7	204.258	243.436	39.179	7.000	23.00	J55	17.4	ID	4114	206.738	GEN	1
8	243.436	282.564	39.127	7.000	23.00	J55	16.5	ID	4159	245.356	GEN	1
9	282.564	321.114	38.551	7.000	23.00	J55	15.9	ID	4188	305.044	AXL	1
10	321.114	360.250	39.136	7.000	23.00	J55	14.5	ID	4258	355.274	AXL	1
11	360.250	399.984	39.734	7.000	23.00	J55	18.1	ID	4079	387.290	GEN	1
12	399.984	439.123	39.139	7.000	23.00	J55	17.4	ID	4114	436.544	GEN	1
13	439.123	477.523	38.400	7.000	23.00	J55	15.3	ID	4218	473.683	AXL	1
14	477.523	516.030	38.507	7.000	23.00	J55	14.6	ID	4253	489.283	AXL	1
15	516.030	554.297	38.267	7.000	23.00	J55	13.2	ID	4323	551.790	AXL	1
16	554.297	592.982	38.685	7.000	23.00	J55	14.0	ID	4283	590.457	AXL	1
17	592.982	632.090	39.109	7.000	23.00	J55	16.3	ID	4169	595.062	AXL	1
18	632.090	671.096	39.005	7.000	23.00	J55	16.6	ID	4154	634.570	GEN	1
19	671.096	709.989	38.894	7.000	23.00	J55	28.1	OD	3581	705.074	SIP	2
20	709.989	750.024	40.035	7.000	23.00	J55	17.5	ID	4109	715.829	GEN	1
21	750.024	788.130	38.107	7.000	23.00	J55	16.6	ID	4154	754.904	GEN	1
22	788.130	828.268	40.137	7.000	23.00	J55	26.5	OD	3661	793.328	SIP	2
23	828.268	867.976	39.708	7.000	23.00	J55	14.6	ID	4253	857.148	AXL	1



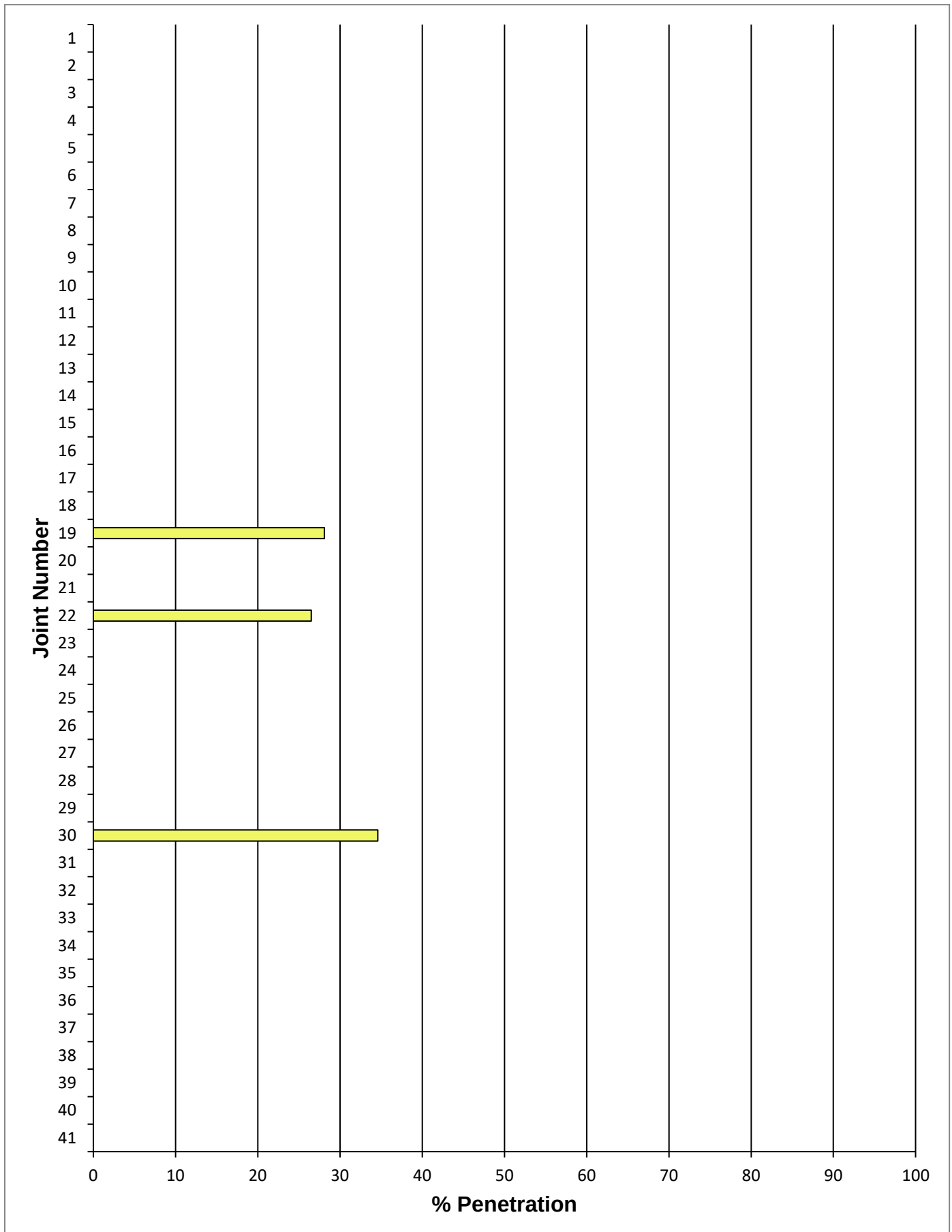
SECUREVIEW™ EVALUATION SUMMARY

Joint Number	Top Depth	Bottom Depth	Joint Length	Casing OD	Casing Weight	Casing Grade	Max Wall Loss	OD/ID	Burst Pressure	Worst Defect Depth	Worst Defect Type	Joint Class
24	867.976	907.237	39.261	7.000	23.00	J55	15.5	ID	4208	904.616	AXL	1
25	907.237	946.916	39.679	7.000	23.00	J55	14.9	ID	4238	915.397	AXL	1
26	946.916	985.520	38.604	7.000	23.00	J55	16.2	ID	4174	983.476	GEN	1
27	985.520	1024.338	38.818	7.000	23.00	J55	16.0	ID	4183	994.000	AXL	1
28	1024.338	1063.558	39.221	7.000	23.00	J55	17.4	ID	4114	1025.138	GEN	1
29	1063.558	1102.624	39.066	7.000	23.00	J55	16.3	ID	4169	1070.918	GEN	1
30	1102.624	1142.058	39.434	7.000	23.00	J55	34.6	OD	3257	1140.472	SIP	2
31	1142.058	1180.803	38.745	7.000	23.00	J55	16.1	ID	4178	1147.498	AXL	1
32	1180.803	1220.523	39.720	7.000	23.00	J55	16.9	ID	4139	1184.723	GEN	1
33	1220.523	1259.394	38.871	7.000	23.00	J55	14.4	ID	4263	1223.243	AXL	1
34	1259.394	1299.269	39.875	7.000	23.00	J55	16.1	ID	4178	1264.914	GEN	1
35	1299.269	1338.648	39.379	7.000	23.00	J55	18.3	ID	4069	1309.109	GEN	1
36	1338.648	1378.169	39.521	7.000	23.00	J55	15.9	ID	4188	1344.488	GEN	1
37	1378.169	1417.692	39.523	7.000	23.00	J55	15.9	ID	4188	1392.569	GEN	1
38	1417.692	1457.116	39.424	7.000	23.00	J55	18.2	ID	4074	1427.052	AXL	1
39	1457.116	1495.684	38.568	7.000	23.00	J55	17.1	ID	4129	1461.276	GEN	1
40	1495.684	1534.833	39.149	7.000	23.00	J55	18.1	ID	4079	1508.084	GEN	1
41	1534.833	1568.000	33.167	7.000	23.00	J55	14.4	ID	4263	1555.393	AXL	1

Defect Type	Description
GEN	General Defect
AXL	Axial Defect
CIR	Circumferential Defect
SIP	Single Isolated Pit
UNCL	Unclassified

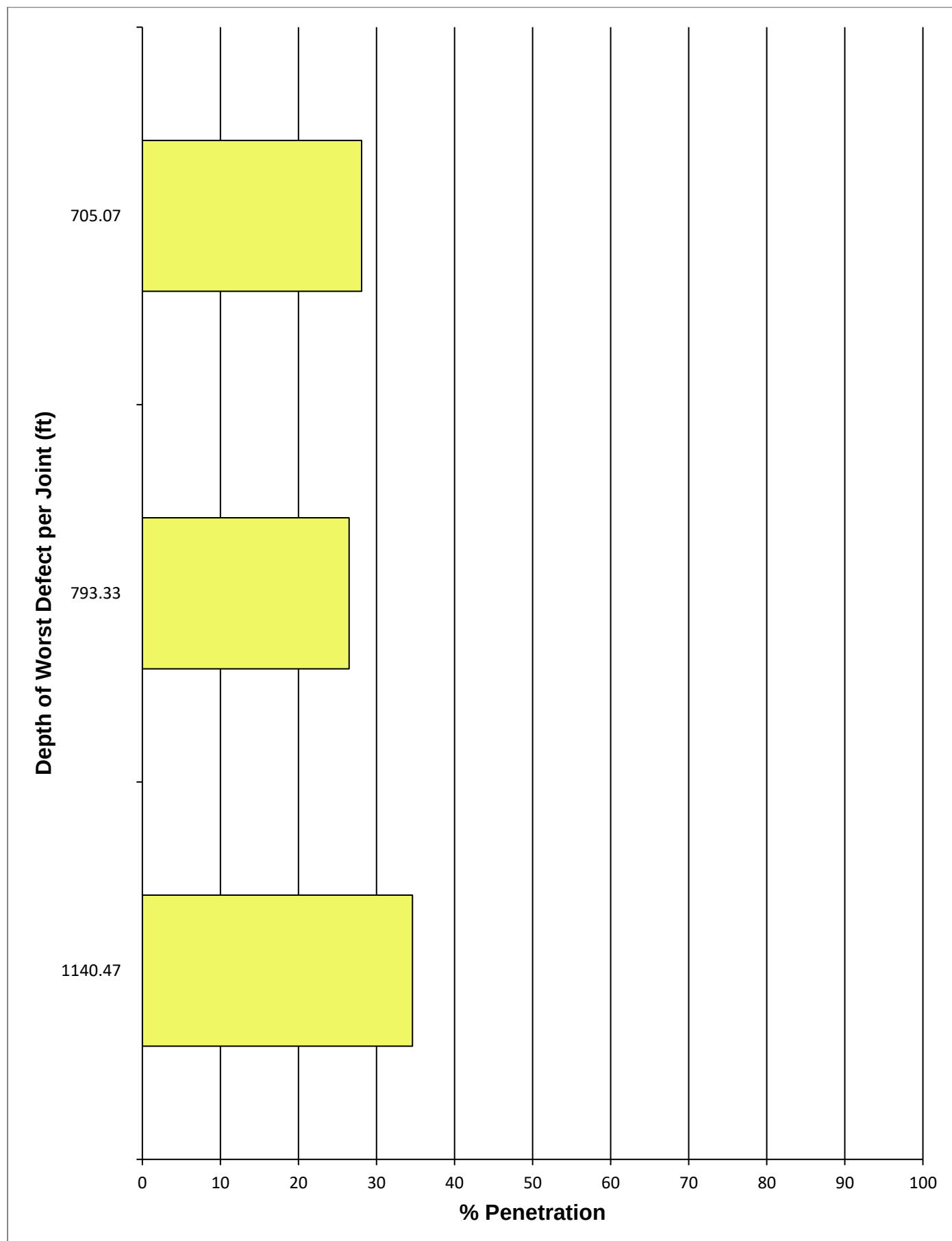


3 Max Penetration by Joint Number



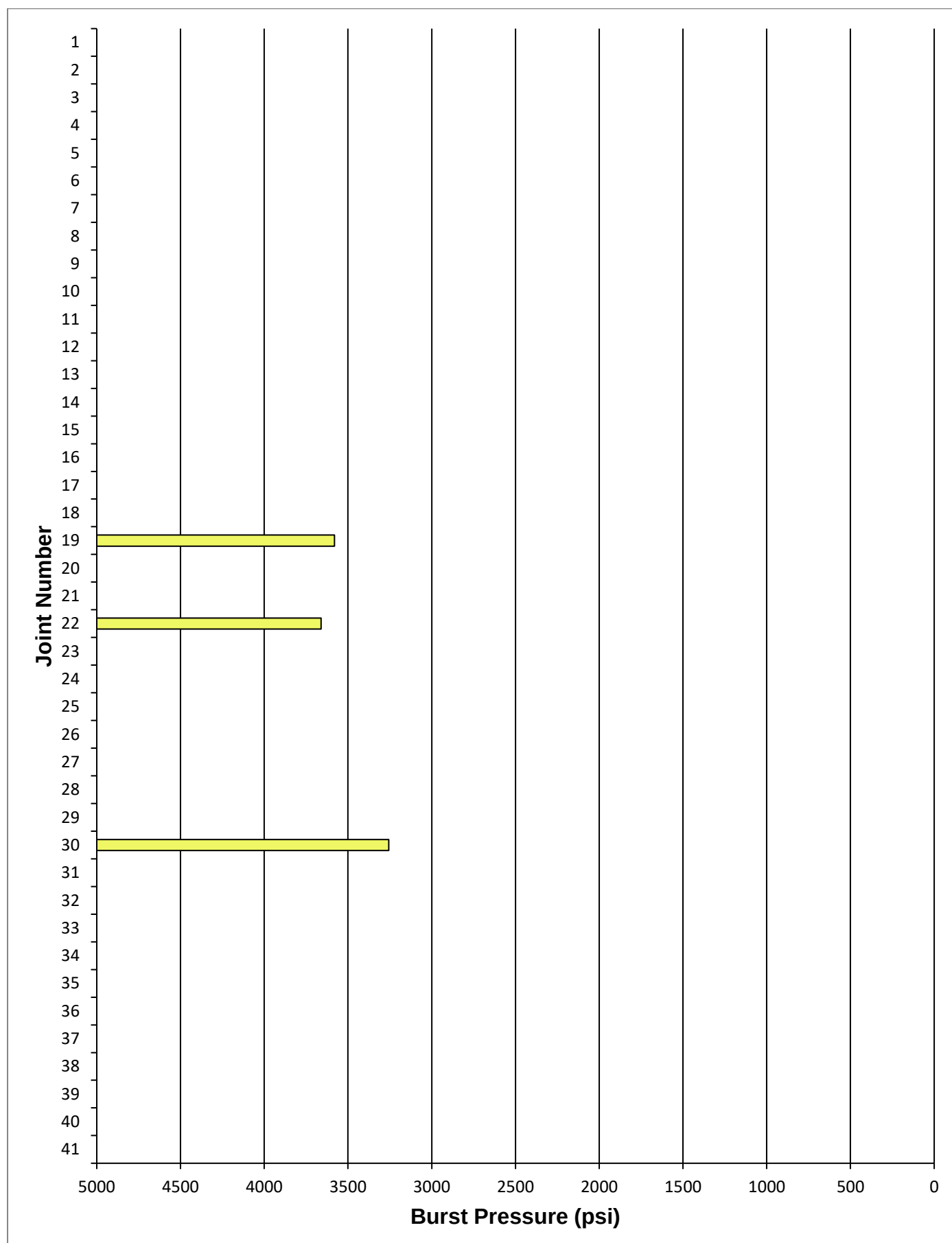


4 Max Penetration by Depth



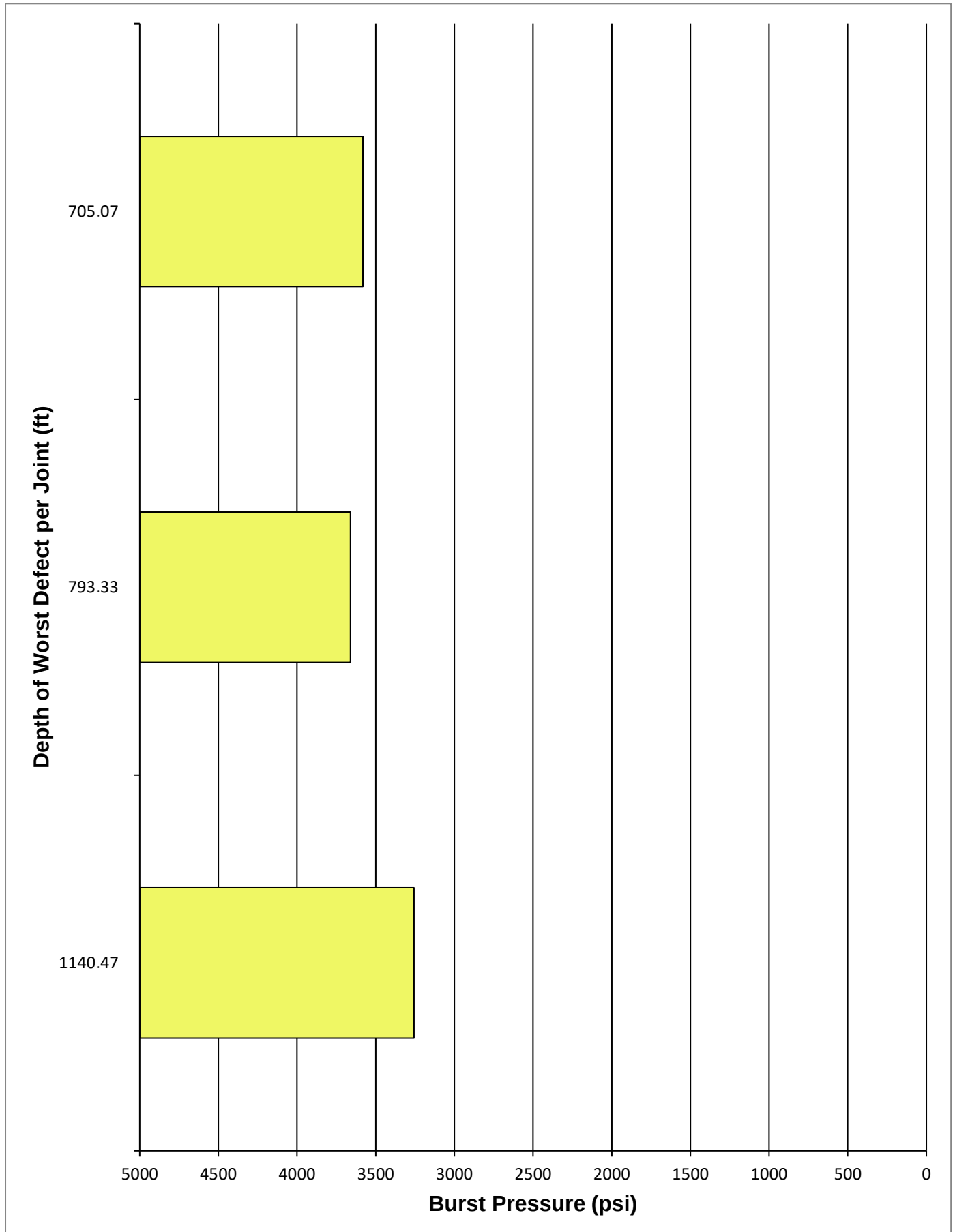


5 Burst Pressure by Joint Number



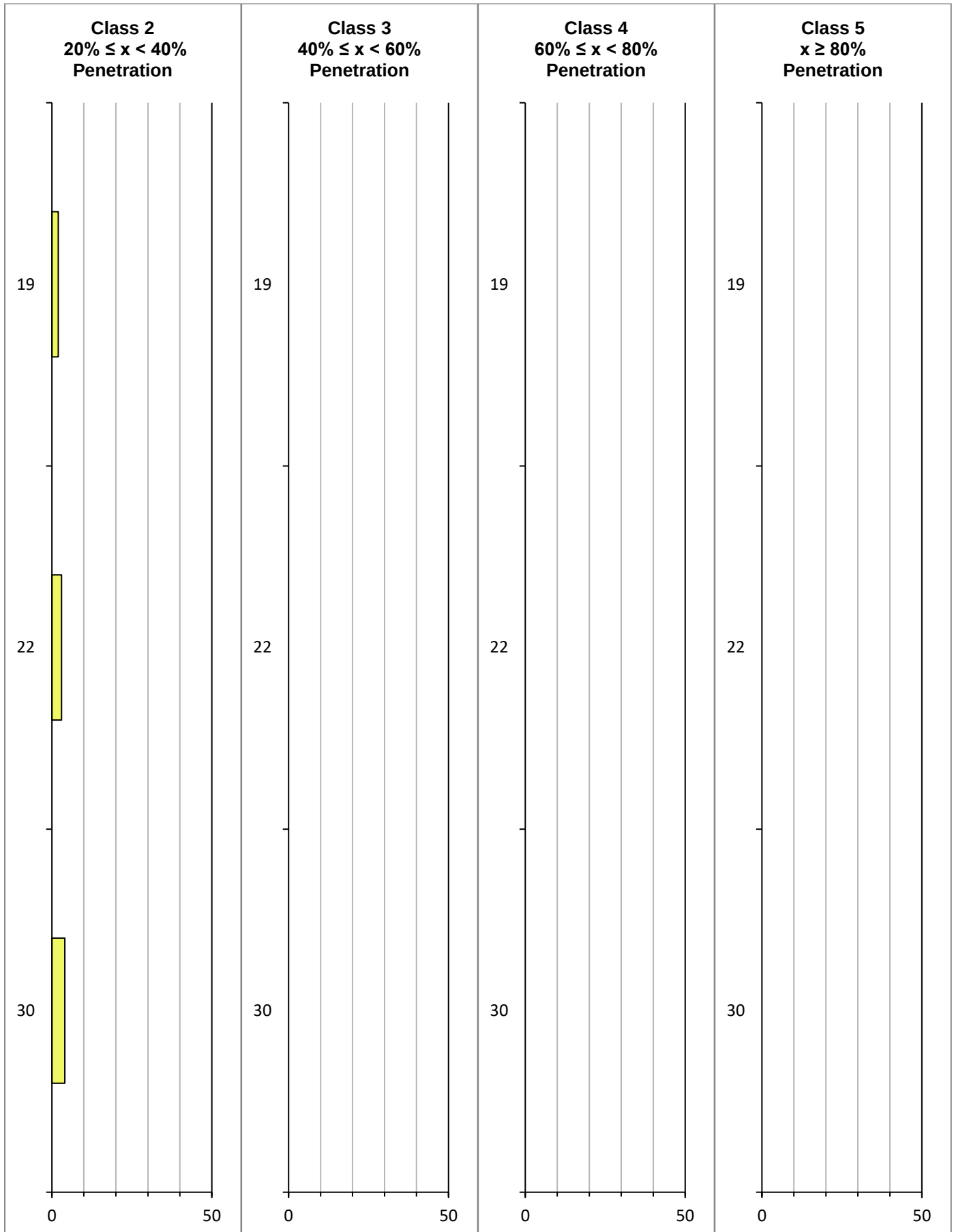


6 Burst Pressure by Depth



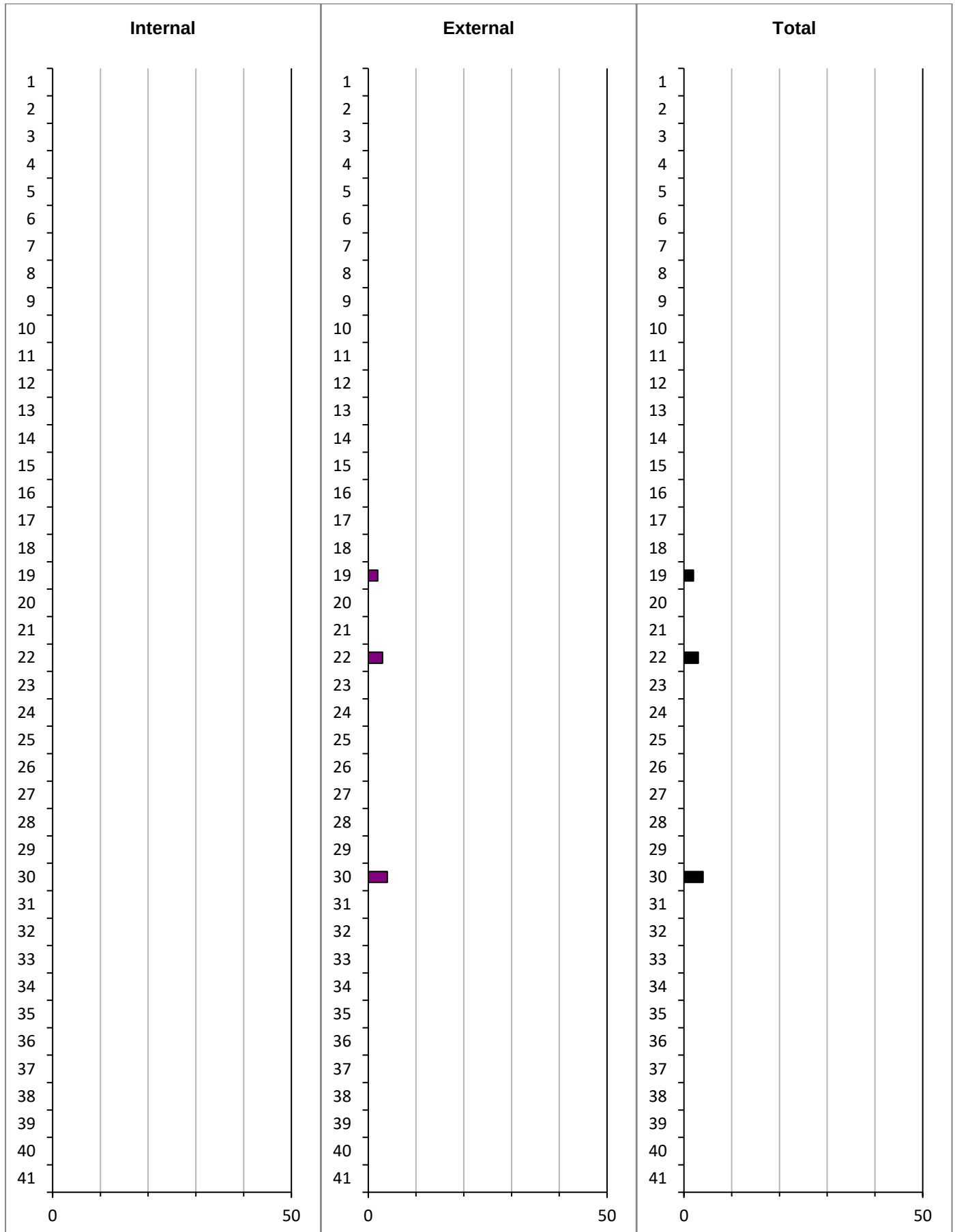


7 Defect Class Frequency by Joint



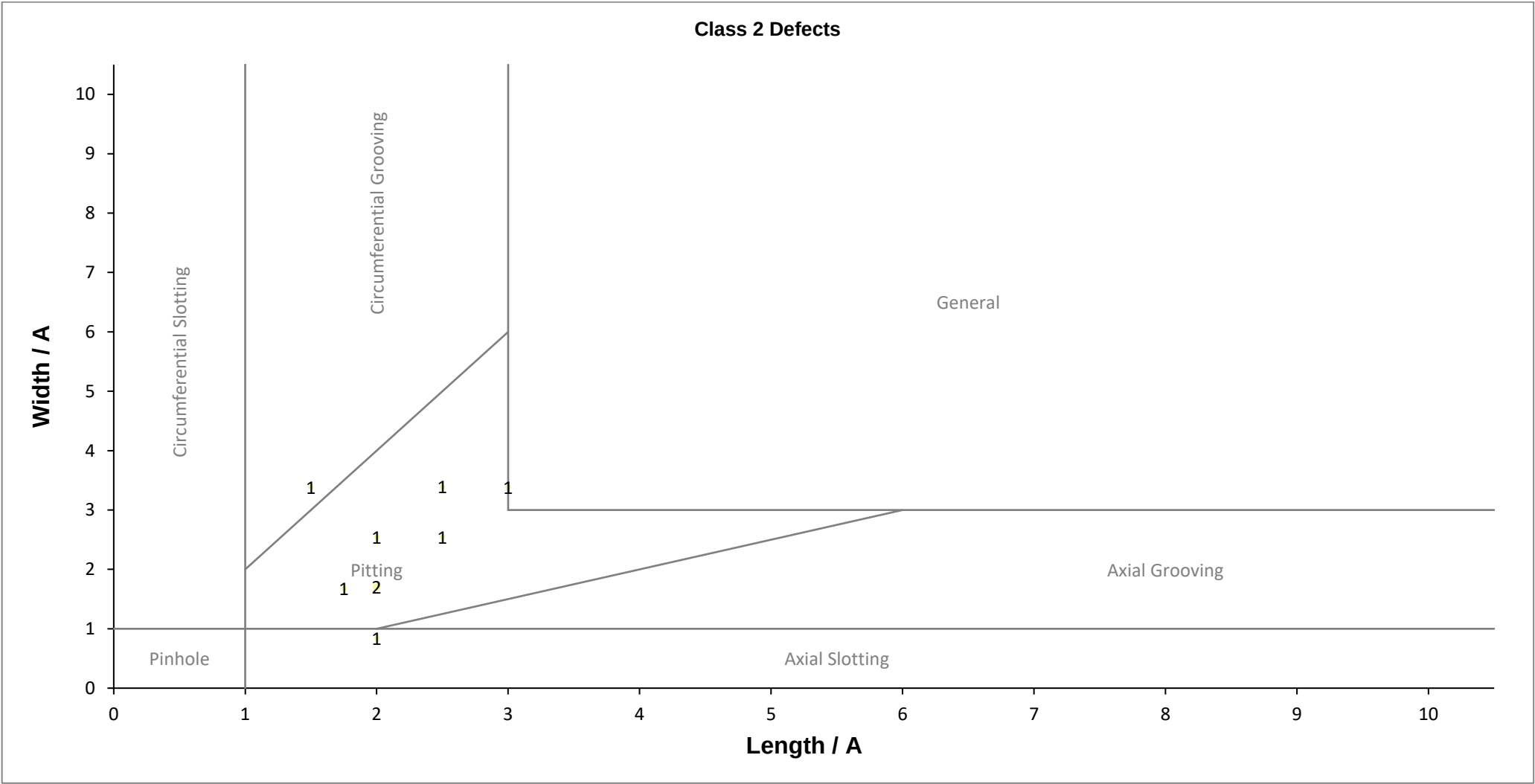


8 Defect Location Frequency by Joint





9 Defect Classification



A = Wall Thickness or 10mm (0.4in), whichever is greater
* Based on Pipeline Operators Forum – ‘Specifications and requirements for in-line inspection of pipelines - Version 2016’



10 Well Data

Well Information

Company	MARATHON PETROLEUM COMPANY				
Well	STATE LPG WELL NO 3				
Field	LANGLIE MATRIX				
County	LEA COUNTY				
State	NEW MEXICO				
Country	USA				
Section	N/A	Township	N/A	Range	N/A

Elevations

Kelly Bushing	N/A			
Drilling Floor	N/A			
Ground Level	33.030			
Permanent Datum	GL	Permanent Datum Elevation	33.030	
Log Measured From	GL	Above Permanent Datum	N/A	
Drilling Measured From	N/A	Above Permanent Datum	N/A	

Casing Table

Type	OD (in)	Weight (lb/ft)	Grade	Thread Type	ID (in)	Start Depth (ft)	Stop Depth (ft)
Production	7.000	23.00	J55		6.366	-2.300	1569.000

11 Service Data

Service Information	
Service Order Number	N/A
Log Date	11/14/2022
Logged By	R. COLLINS
Witnessed By	R. MUSSELWHITE
Location	LANGLIE MATRIX, LEA COUNTY, NEW MEXICO, USA
Equipment Number	113

Logging Information	
Service	FLUXVIEW/CALIPER
Bottom Logged Interval	1568ft
Top Logged Interval	-7ft
Additional Services	N/A
Remarks	ANALYSIS REMARKS: DATA ACQUIRED BY NINE ENERGY SERVICE PROCESSED USING 7" 23# J55 CASING CHARACTERISTICS BURST PRESSURE CALCULATED USING BARLOW METHOD, WITHOUT A SAFETY FACTOR

12 Equipment Data

Equipment	
Tool Series No.	CIS-CA 107
Electronics Series No.	CIC-AA 117
Interface Panel Series No.	N/A
Calibration Reference No.	N/A
Acquisition Software	WLS 22.11.1632
Analysis Software	Prospect 2018.2 (rev:22885)

13 Feature List

Instances	Description
41	Casing Joints
40	Collars
2	Hardware
9	Metal Loss Features



14 Hardware Summary

Instances	Description
1	Well Head
1	Centralizer
2	Total

15 Pressure Calculations

Analysis Parameters	
Burst Pressure Calculation	Barlow
Interaction Criteria	N/A
Analysis Method	SecureView

16 Hardware Table

#	Top Depth (ft)	Length (ft)	Bottom Depth (ft)	Description
1	-7.000	6.119	-0.881	Well Head
2	1141.166	1.888	1143.054	Centralizer

17 FluxView™ Technology Overview

The FluxView measurement and subsequent interpretation enables quantification of internal and external corrosion. These defects can come from multiple sources; such as corrosion, handling and installation mistakes, perforations, manufacturing anomalies, etc...

The FluxView tool employs a powerful rare earth magnet to create a magnetic flux field, which temporarily saturates the inner most casing string. Sensitive Hall Effect Sensors mounted on deployment pads measure these subtle magnetic flux differences, creating a full 360° map of the casing. Proprietary analysis software and processing algorithms take these raw magnetic flux variations and quantify any internal or external defects identified. This processing also allows for size and shape of any detected defect to be quantified allowing for updated burst pressure calculations.

Weatherford's team of Well Integrity Experts take the internal & external defect information, and by utilizing advanced visualization software, generates results distinguishing between milling effects, internal vs. external corrosion, and general corrosion vs. single isolated pitting (SIP). This defect information is then summarized in a joint-by-joint format, allowing a detailed understanding of the condition of the downhole casing.

18 FluxView™ Specifications

18.1 Measurement Specifications

Data	% Penetration
Logging Speed	98 ft/min (30 m/min)
Sensor Sample Rate	122 per ft (400 per m)
Accuracy	± 10% at 3T*
Resolution	20% of 3T*
Borehole Fluids	OBM, WBM, Brine, Gas

18.2 Mechanical Specifications

	CIT-A	CIT-B	CIT-C	CIT-D
Outer Diameter	3.88 in. (98.6 mm)	4.11 in. (104.4 mm)	5.13 in. (130.3 mm)	7.00 in. (177.8 mm)
Length	18.70 ft (5.60 m)		18.30 ft (5.48 m)	18.70 ft (5.60 m)
Weight	429.20 lb (194.6 kg)	430.40 lb (195.2 kg)	582.80 lb (264.3 kg)	889.30 lb (403.4 kg)
Sensor Density (Sensors/Pads)	3/10	4/10	5/12	5/16
Casing Size Range (in.)	4.500 to 5.000	5.000 to 5.500	6.625 to 7.625	8.630 to 9.630
Temperature	320°F (160°C)			
Pressure	15000 psi (103.4 MPa)			

Memory Section
Significantly improves logging speeds by capturing high-resolution data downhole and limiting wireline bandwidth.

Centralizers
Always deployed and capable of supporting the weight of the sonde when horizontal.

Sensor Array
Active Hall effect sensors provide accurate defect measurement in casing joints and collars.

Magnet
Samarium-cobalt (SmCo₅) magnets saturates casing wall with magnetic flux, improving measurements sensitivity.



19 Appendix

Joint 19					
Top Depth 670.781 ft					
Defect	Depth (ft)	Loss (%)	ID OD	Burst Pressure (psi)	Type
1	674.882	26.0	OD	3685	SIP
2	705.074	28.1	OD	3581	SIP

Joint 22					
Top Depth 789.481 ft					
Defect	Depth (ft)	Loss (%)	ID OD	Burst Pressure (psi)	Type
1	793.328	26.5	OD	3661	SIP
2	793.656	24.1	OD	3780	SIP
3	824.496	24.0	OD	3785	SIP

Joint 30					
Top Depth 1102.611 ft					
Defect	Depth (ft)	Loss (%)	ID OD	Burst Pressure (psi)	Type
1	1107.278	20.0	OD	3984	SIP
2	1118.359	22.9	OD	3840	SIP
3	1119.097	20.3	OD	3969	SIP
4	1140.472	34.6	OD	3257	SIP



Well Integrity Log Interpretation (ePDT)

Company: Marathon Petroleum Co.
Well: State LPG Well #3
Field: Langlie Mattix
Country: USA
Run: 1
Logging Date: 11/22/2022
Analyst: William Redfield
Reviewer: -





ePDT Interpretation

Company: Marathon Petroleum Co.
Well: State LPG Well #3
Logging Date: 11/22/2022

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ePDT Interpretation

Company: Marathon Petroleum Co.
Well: State LPG Well #3
Logging Date: 11/22/2022

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ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1. Objective and Conclusions

1.1. Introduction

An Enhanced Pipe-Thickness Detection Tool (ePDT) was run November 22, 2022, in State LPG Well #3 from 1678.45 feet to surface.

1.2. Objectives

The primary objective was to identify and accurately quantify any wall loss or damage (such as cross-sectional distortion or buckling) within the 3-1/2", 7" and 9-5/8" casings.

1.3. Conclusions

- No localized defects of note were found in the 3-1/2" drill pipe, the 7" liner, or the 9-5/8" casing.
- Collars are in-situ tests that demonstrate the ability to see changes in thickness. The 7" and 9-5/8" collars are clearly visible throughout the logged interval, indicating any severe defects would be visible.
- The 3-1/2" collars are thicker than typical wells, likely due to it being drill pipe. Typically, the 13-3/8" casing would be visible as the 4th pipe; however the thick drill pipe likely obscured its signal. (**Figure 1**)
- Changing electromagnetic properties resulted in in multiple "B" grades on the 3-1/2" tubing. (**Figure 2**)
- Please see the table below for a comparison of the ePDT top/bottom depths of each pipe compared to the well schematic depths:

State LPG Well #3 Schematic vs ePDT log depths (ft)			
	7" Shoe	9-5/8" Shoe	13-3/8" Shoe
Schematic	1568.5	1655.5	285.5
ePDT Log	1572	1653.5	284
Difference	3.5	-2	-1.5



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1.4. Log Quality Control

Table 1 –ePDT Log Quality Control	
LQC Area	Result
¹ Are all ePDT curves free from abnormal noise	Yes
² Is the AI curve reading above 300 throughout the log and free from sudden spurious jumps?	Yes
³ Is the Anoise curve centered at 2000 and free from intervals of noise?	Yes
⁴ Do the raw curves (particular A channels) respond consistently with the well schematic?	Yes
⁵ Is the wellbore temperature curve showing typical geothermal trend and free from noise?	Yes
⁶ Is the depth of major well schematic features consistent with the ePDT log responses?	Yes
⁷ Are inner and outer pipe collars clearly identified in the raw A & C curves?	Yes
⁸ Is the Real-Time A sensor QC map clearly showing a regular monotonic decay characteristic?	Yes
⁹ Is the correct logging speed maintained and consistent throughout the log?	Yes
Specific LQC Comments above	
1	
2	
3	
4	
5	
6	
7	
8	
9	Speed of 7 – 9 ft/min was maintained throughout the logged interval
Additional LQC Comments	



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

Supporting Well Information			
Required	Received?	Optional	Received?
LAS File	Yes	Well History	No
Field Print	Yes	Production History	No
Job Log	Yes	Well Status	No
Well Diagram	Yes	Open Hole GR Log	No
Completion Diagram	Yes	Cement Evaluation Log	No
Tool String Diagram	Yes	Borehole Fluid Type	No
Logging Program	Yes	Well Trajectory Survey	Yes
Job Objectives	Yes	DB File	Yes



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1.5. Log Interpretation

1.5.1.Details

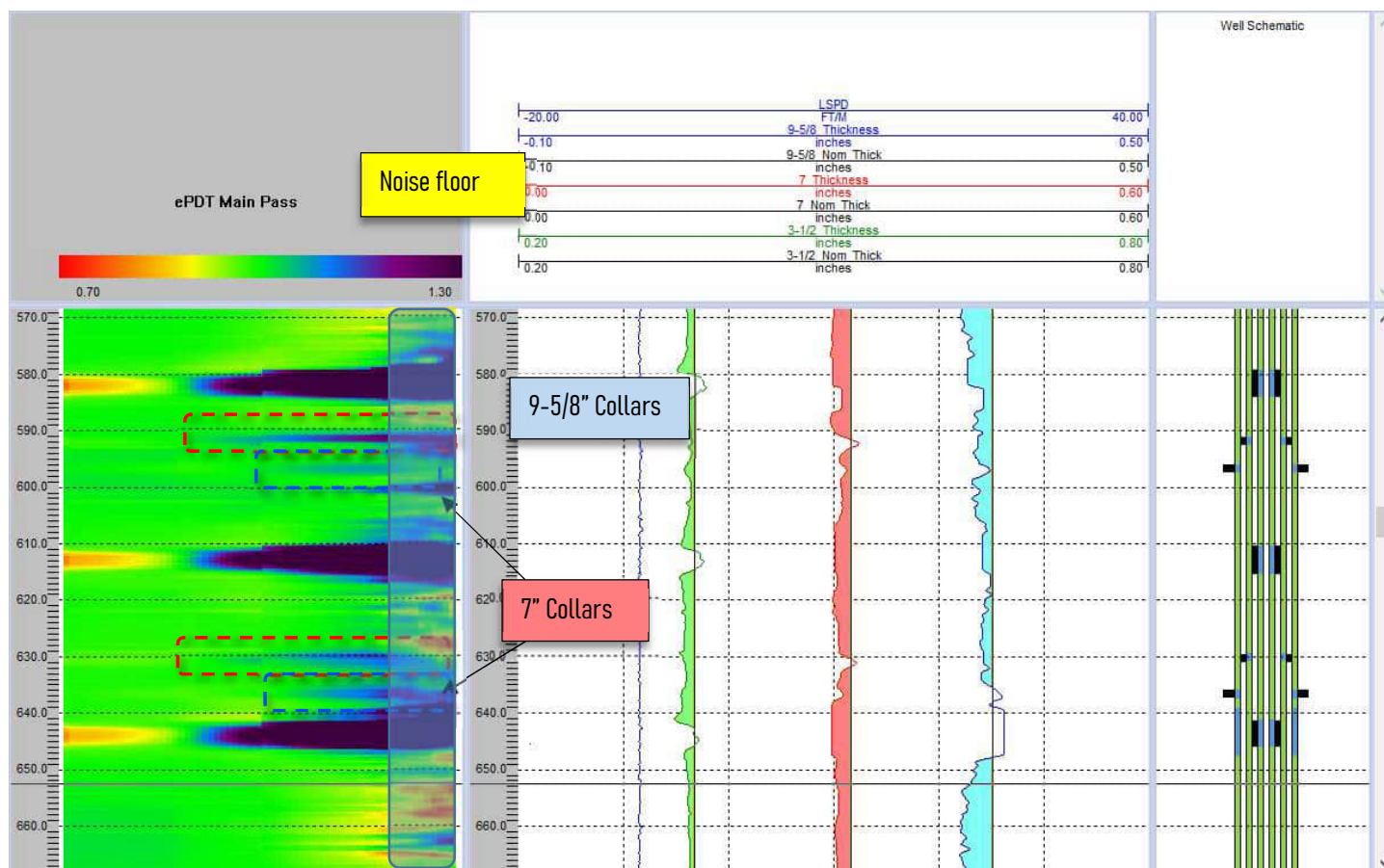


Figure 1, ePDT signal analysis

Collars are in-situ tests that demonstrate the ability to see changes in thickness. The 7" and 9-5/8" collars are clearly visible throughout the logged interval, indicating any severe defects would be visible.

The 3-1/2" collars are thicker than typical wells, likely due to it being drill pipe. Typically, the 13-3/8" casing would be visible as the 4th pipe, however the thick drill pipe likely obscured its signal.



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

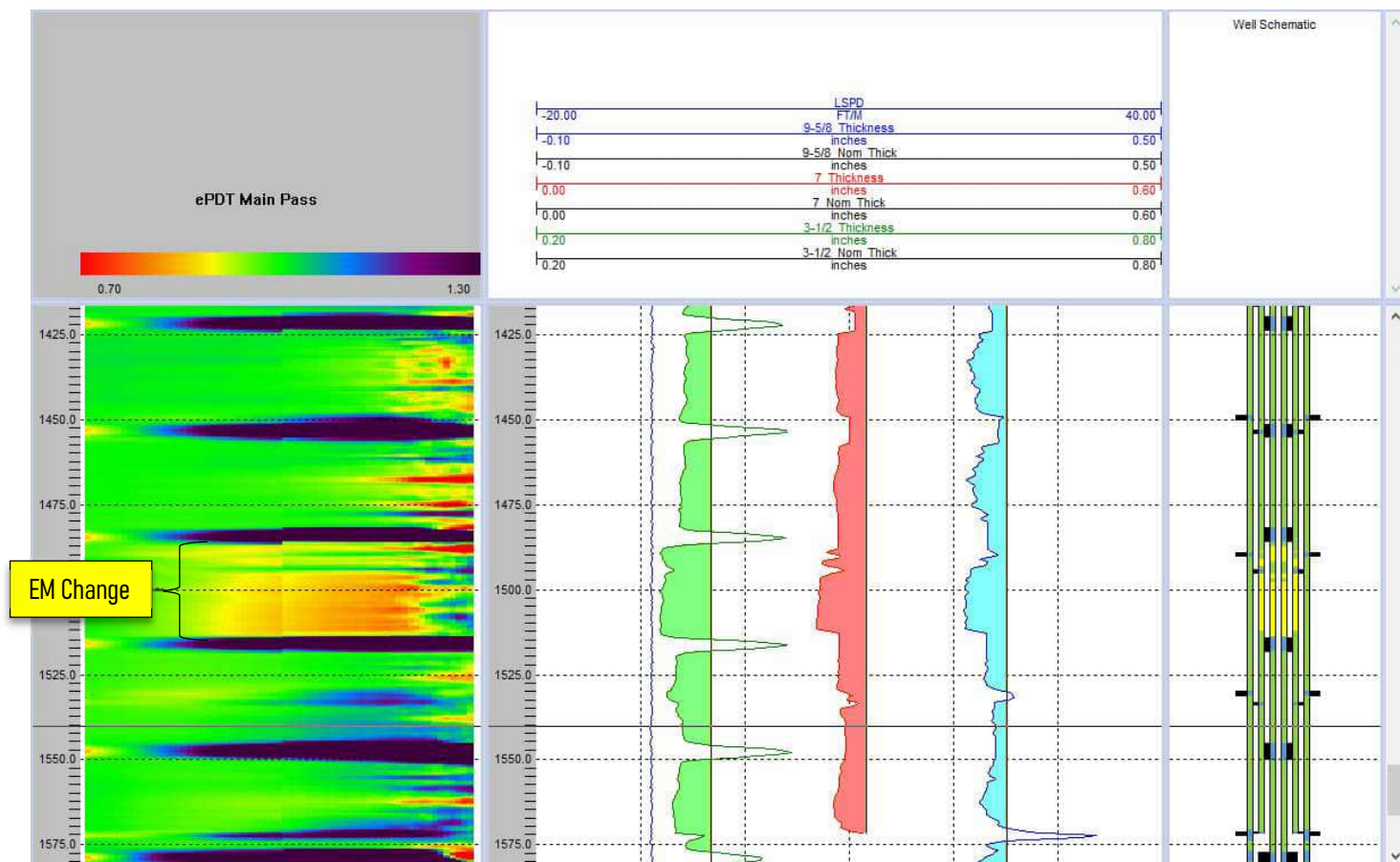


Figure 2, Changing electromagnetic (EM) properties and comparison with caliper profile

Throughout the log, there are a number of whole-joint shifts in the 3-1/2" thickness estimates. These shifts are due to slight changes in electromagnetic (EM) properties for the individual joints, or minor variations in the thickness profile of the joints. The change in the apparent thickness calculations are likely not due to metal gain or loss, but are instead due to the change in the eddy current decay signature versus time, caused by the changing EM properties on the 3-1/2" tubing.

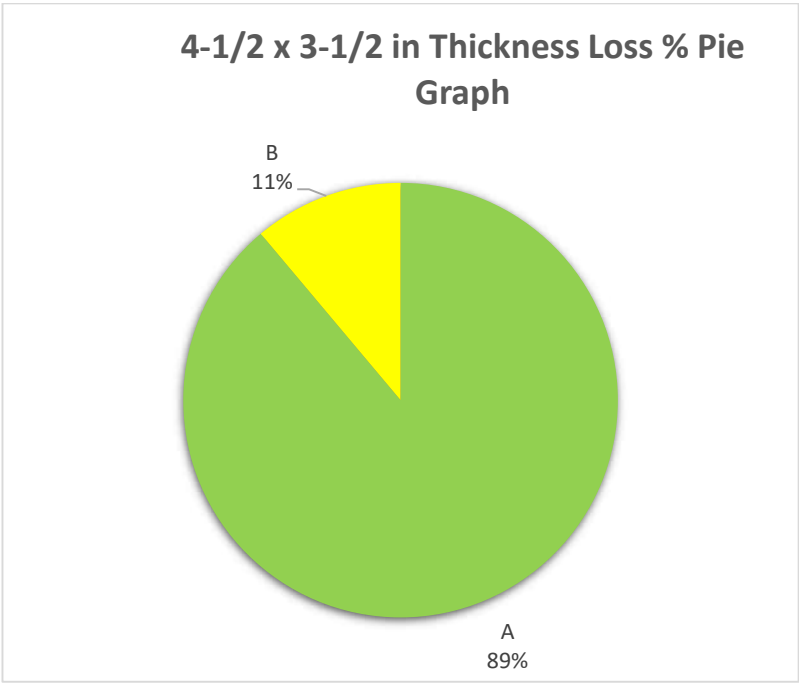
Shown above is one of the 3-1/2" "B" grades found throughout the logged interval.



ePDT Interpretation

Company: Marathon Petroleum Co.
Well: State LPG Well #3
Logging Date: 11/22/2022

1.5.2.4-1/2" x 3-1/2" ePDT Charts



Grade Color	Max Loss (%)	Comment
A	<12%	Very Light
B	12>-20%	Light
C	20>-30%	Moderate
D	30>-40%	Significant
E	>40%	Severe
G	<0%	>Nominal

A	48
B	6
C	0
D	0
E	0
G	0

Figure 3

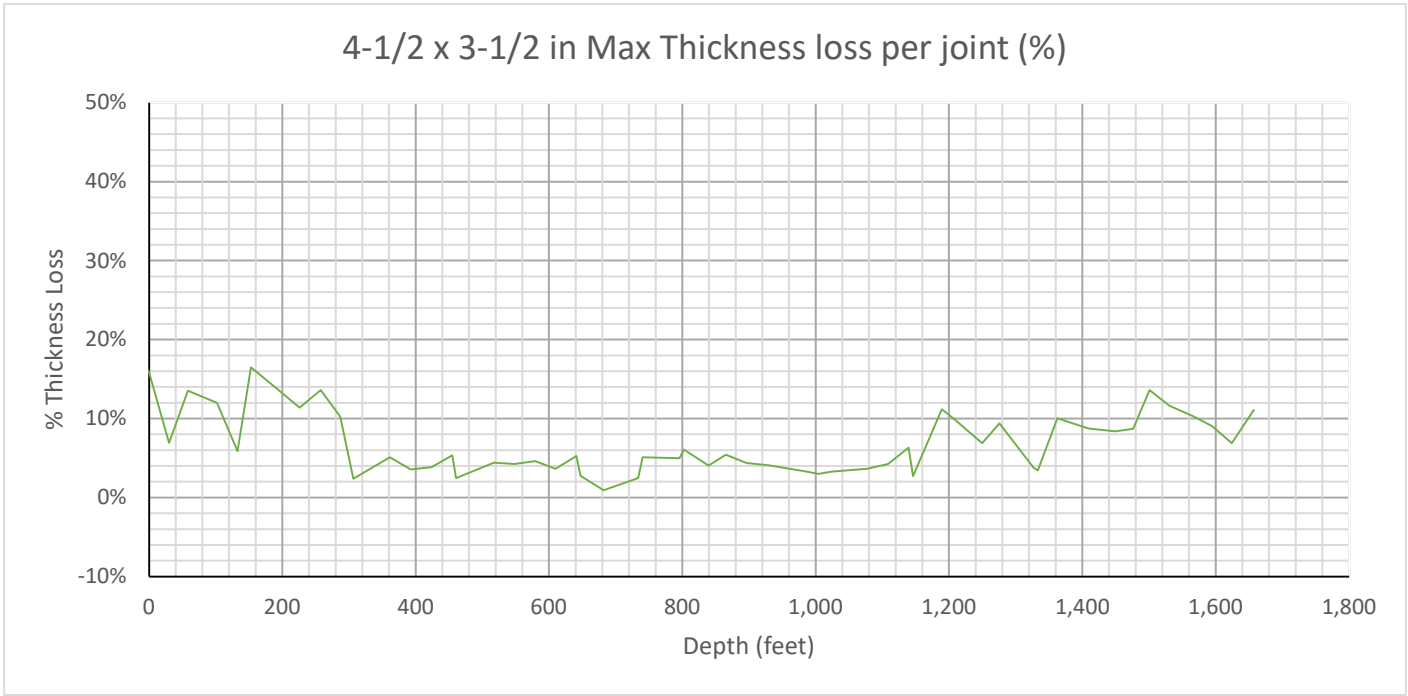


Figure 4, Max Thickness Loss Per Joint (ePDT)



ePDT Interpretation

Company: Marathon Petroleum Co.
Well: State LPG Well #3
Logging Date: 11/22/2022

1.5.3. 7" ePDT Charts

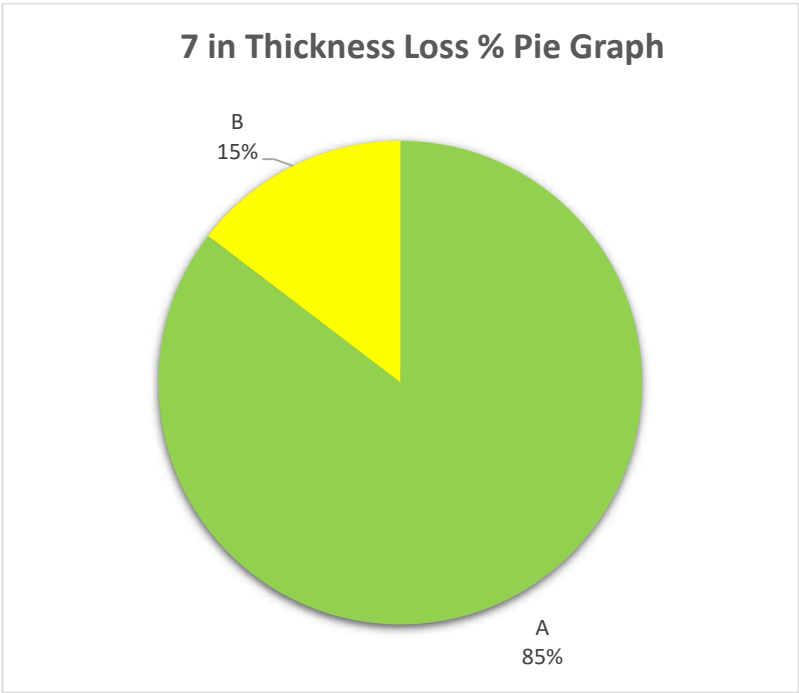


Figure 5



Figure 6, Max Thickness Loss Per Joint (ePDT)



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1.5.4. 9-5/8" ePDT Charts

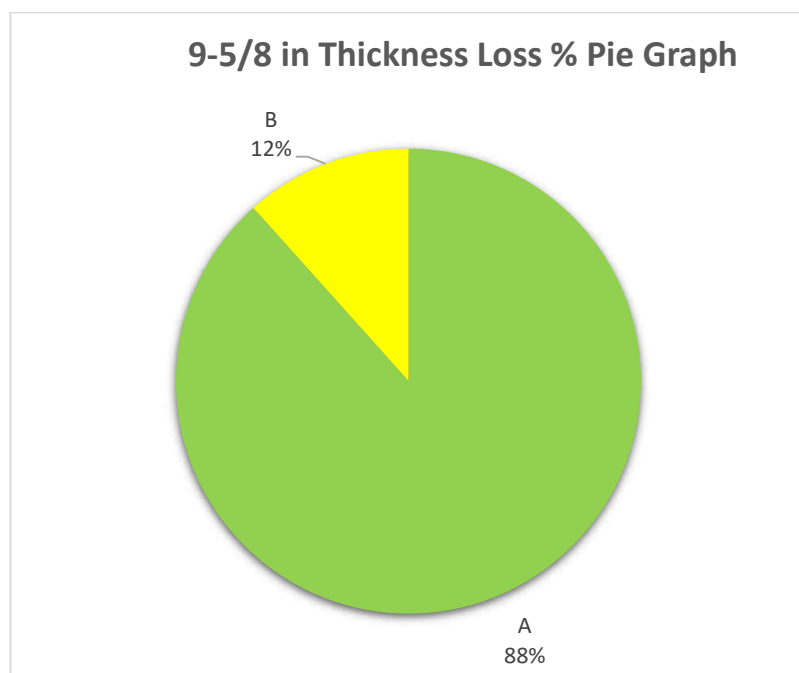


Figure 7

Grade	Color	Wall Loss %	Comment
A	Green	<12%	Very Light
B	Yellow	12>-20%	Light
C	Orange	20>-30%	Moderate
D	Red-Orange	30>-40%	Significant
E	Red	>40%	Severe
G	Blue	<0%	>Nominal

A	38
B	5
C	0
D	0
E	0
G	0



Figure 8, Max Thickness Loss Per Joint (ePDT)



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1.6. 4-1/2" x 3-1/2" Joint Table from ePDT

4-1/2" x 3-1/2" Thickness Joint Table								
#	Top Body(ft)	Bottom Body(ft)	Body Length(ft)	Nom Thk(in)	Min Thk(in)	Max Loss Depth(ft)	Max Loss (%)	Grade
1	-0.73	21.38	22.11	0.250	0.210	-0.63	16.1	B
2	25.48	52.65	27.17	0.250	0.233	29.96	6.9	A
3	56.93	83.60	26.66	0.368	0.318	58.54	13.5	B
4	87.60	114.49	26.90	0.368	0.324	101.87	12.0	A
5	118.49	144.83	26.34	0.368	0.346	132.71	5.9	A
6	148.83	176.47	27.64	0.368	0.307	152.87	16.5	B
7	180.47	206.86	26.39	0.368	0.318	193.54	13.7	B
8	212.58	238.08	25.50	0.368	0.326	225.71	11.4	A
9	243.21	267.68	24.47	0.368	0.318	257.79	13.6	B
10	273.39	298.48	25.09	0.368	0.330	286.79	10.2	A
11	303.90	328.79	24.89	0.368	0.359	306.79	2.4	A
12	334.92	361.33	26.41	0.368	0.349	361.37	5.1	A
13	366.45	393.50	27.05	0.368	0.355	392.62	3.6	A
14	397.50	424.39	26.88	0.368	0.354	423.87	3.8	A
15	428.39	455.07	26.69	0.368	0.348	454.70	5.3	A
16	460.22	486.46	26.24	0.368	0.359	460.62	2.5	A
17	490.99	517.12	26.12	0.368	0.352	517.12	4.4	A
18	522.15	548.93	26.77	0.368	0.352	548.29	4.3	A
19	552.93	579.22	26.29	0.368	0.351	579.20	4.6	A
20	584.09	610.44	26.35	0.368	0.355	610.12	3.6	A
21	615.39	641.32	25.93	0.368	0.349	641.04	5.3	A
22	646.02	671.86	25.84	0.368	0.358	647.54	2.8	A
23	677.32	703.33	26.01	0.368	0.365	682.04	0.9	A
24	708.62	733.96	25.34	0.368	0.359	733.95	2.5	A
25	739.17	765.66	26.49	0.368	0.349	740.54	5.1	A
26	770.47	795.78	25.31	0.368	0.350	795.79	5.0	A
27	801.52	827.20	25.68	0.368	0.346	802.29	6.1	A
28	832.74	859.94	27.19	0.368	0.353	839.29	4.1	A
29	863.94	890.57	26.63	0.368	0.348	865.12	5.4	A
30	895.18	921.95	26.77	0.368	0.352	896.62	4.4	A
31	926.57	954.02	27.45	0.368	0.353	929.04	4.1	A
32	958.02	984.64	26.63	0.368	0.356	984.37	3.3	A
33	988.64	1015.90	27.22	0.368	0.357	1004.50	3.0	A
34	1019.90	1043.90	24.05	0.368	0.356	1023.00	3.3	A



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

4-1/2" x 3-1/2" Thickness Joint Table								
#	Top Body(ft)	Bottom Body(ft)	Body Length(ft)	Nom Thk(in)	Min Thk(in)	Max Loss Depth(ft)	Max Loss (%)	Grade
35	1052.70	1078.30	25.62	0.368	0.355	1077.00	3.6	A
36	1082.30	1108.90	26.63	0.368	0.352	1108.60	4.3	A
37	1112.90	1140.40	27.47	0.368	0.345	1139.50	6.3	A
38	1144.40	1171.20	26.80	0.368	0.358	1146.00	2.7	A
39	1175.20	1199.70	24.49	0.368	0.327	1189.10	11.2	A
40	1204.90	1233.50	28.57	0.368	0.332	1208.00	9.9	A
41	1237.50	1265.10	27.64	0.368	0.343	1249.60	6.9	A
42	1269.10	1294.70	25.59	0.368	0.334	1275.50	9.4	A
43	1300.50	1327.50	26.97	0.368	0.354	1326.90	3.7	A
44	1332.10	1357.10	25.00	0.368	0.355	1333.10	3.4	A
45	1361.10	1387.90	26.86	0.368	0.331	1362.40	10.0	A
46	1392.60	1419.80	27.19	0.368	0.336	1409.10	8.7	A
47	1424.00	1451.40	27.39	0.368	0.337	1449.30	8.4	A
48	1455.40	1481.90	26.52	0.368	0.336	1476.50	8.7	A
49	1486.30	1514.20	27.87	0.368	0.318	1500.70	13.6	B
50	1518.40	1545.30	26.94	0.368	0.325	1530.60	11.6	A
51	1550.30	1577.40	27.10	0.368	0.330	1566.50	10.3	A
52	1581.40	1607.40	26.04	0.368	0.335	1595.00	9.0	A
53	1611.40	1639.60	28.11	0.368	0.343	1624.40	6.9	A
54	1643.60	1667.20	23.63	0.368	0.327	1657.20	11.1	A



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1.7. 7" Joint Table from ePDT

7" Thickness Joint Table								
#	Top Body(ft)	Bottom Body(ft)	Body Length(ft)	Nom Thk(in)	Min Thk(in)	Max Loss Depth(ft)	Max Loss (%)	Grade
1	1.36	8.55	7.19	0.317	0.297	1.37	6.2	A
2	9.75	47.93	38.18	0.317	0.305	31.37	3.9	A
3	49.13	84.06	34.93	0.317	0.284	59.71	10.3	A
4	85.26	125.98	40.73	0.317	0.286	100.12	9.7	A
5	127.18	164.89	37.71	0.317	0.281	161.87	11.5	A
6	166.09	204.50	38.41	0.317	0.281	167.87	11.4	A
7	205.71	242.79	37.09	0.317	0.288	225.71	9.1	A
8	244.59	281.86	37.27	0.317	0.286	251.96	9.7	A
9	283.06	320.30	37.24	0.317	0.278	298.87	12.2	B
10	321.70	360.11	38.40	0.317	0.280	338.54	11.7	A
11	361.50	397.95	36.45	0.317	0.293	371.62	7.5	A
12	399.35	436.46	37.11	0.317	0.290	434.20	8.4	A
13	437.86	475.56	37.70	0.317	0.295	452.20	6.8	A
14	476.96	514.66	37.70	0.317	0.300	496.20	5.2	A
15	516.06	551.80	35.74	0.317	0.296	525.79	6.7	A
16	553.20	591.28	38.09	0.317	0.297	588.37	6.4	A
17	592.68	629.60	36.91	0.317	0.299	619.79	5.7	A
18	631.00	668.79	37.79	0.317	0.298	638.95	5.9	A
19	670.44	707.40	36.96	0.317	0.308	692.70	3.0	A
20	709.23	747.25	38.02	0.317	0.294	744.29	7.2	A
21	750.85	788.23	37.38	0.317	0.292	761.12	8.0	A
22	789.63	830.00	40.38	0.317	0.294	806.29	7.3	A
23	831.40	866.69	35.29	0.317	0.297	856.70	6.2	A
24	868.09	905.14	37.05	0.317	0.300	904.20	5.4	A
25	906.34	944.29	37.95	0.317	0.298	910.12	6.1	A
26	945.49	984.55	39.06	0.317	0.303	973.45	4.3	A
27	985.95	1022.50	36.57	0.317	0.300	1013.60	5.2	A
28	1023.90	1061.20	37.28	0.317	0.301	1060.00	5.2	A
29	1062.60	1099.90	37.28	0.317	0.297	1066.70	6.4	A
30	1101.30	1139.90	38.61	0.317	0.293	1119.50	7.7	A
31	1141.30	1178.60	37.28	0.317	0.272	1177.30	14.4	B
32	1180.00	1217.90	37.94	0.317	0.272	1189.10	14.1	B
33	1219.30	1257.00	37.72	0.317	0.287	1222.10	9.3	A
34	1258.40	1297.30	38.86	0.317	0.277	1282.60	12.5	B
35	1298.70	1336.70	38.01	0.317	0.291	1307.50	8.2	A
36	1337.90	1374.70	36.82	0.317	0.279	1362.60	12.0	A



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

7" Thickness Joint Table								
#	Top Body(ft)	Bottom Body(ft)	Body Length(ft)	Nom Thk(in)	Min Thk(in)	Max Loss Depth(ft)	Max Loss (%)	Grade
37	1375.90	1415.80	39.91	0.317	0.280	1405.10	11.8	A
38	1417.00	1453.10	36.02	0.317	0.286	1435.90	9.6	A
39	1454.50	1494.10	39.61	0.317	0.274	1492.20	13.5	B
40	1495.50	1533.10	37.65	0.317	0.268	1511.90	15.3	B
41	1534.30	1571.10	36.81	0.317	0.285	1563.70	10.1	A



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

1.8. 9-5/8" Joint Table from ePDT

9-5/8" Thickness Joint Table								
#	Top Body(ft)	Bottom Body(ft)	Body Length(ft)	Nom Thk(in)	Min Thk(in)	Max Loss Depth(ft)	Max Loss (%)	Grade
1	2.91	28.64	25.73	0.352	0.326	14.87	7.3	A
2	30.04	70.28	40.25	0.352	0.320	34.04	9.1	A
3	71.68	116.52	44.83	0.352	0.320	107.04	9.2	A
4	117.92	150.35	32.43	0.352	0.329	129.96	6.5	A
5	153.48	192.03	38.54	0.352	0.324	173.46	7.9	A
6	193.43	238.68	45.26	0.352	0.327	222.96	7.1	A
7	243.69	284.30	40.61	0.352	0.325	246.79	7.6	A
8	286.85	320.33	33.48	0.352	0.326	317.71	7.5	A
9	322.51	359.50	37.00	0.352	0.294	350.04	16.4	B
10	360.90	397.52	36.62	0.352	0.299	372.54	15.0	B
11	398.92	422.71	23.79	0.352	0.314	411.96	10.8	A
12	424.11	453.38	29.27	0.352	0.322	440.29	8.5	A
13	454.78	485.97	31.19	0.352	0.322	481.79	8.7	A
14	487.37	518.81	31.45	0.352	0.317	507.87	10.0	A
15	520.21	556.91	36.70	0.352	0.315	536.95	10.5	A
16	558.31	596.06	37.75	0.352	0.321	569.70	8.8	A
17	597.46	636.02	38.56	0.352	0.332	599.29	5.7	A
18	637.42	675.78	38.36	0.352	0.320	665.12	9.2	A
19	677.18	715.98	38.80	0.352	0.321	696.29	8.9	A
20	717.38	756.51	39.13	0.352	0.322	751.54	8.5	A
21	757.91	798.09	40.18	0.352	0.313	786.04	11.1	A
22	799.49	838.25	38.76	0.352	0.325	814.37	7.6	A
23	839.65	878.41	38.76	0.352	0.320	849.95	9.2	A
24	879.81	921.01	41.20	0.352	0.315	911.95	10.6	A
25	922.41	963.40	40.99	0.352	0.319	926.45	9.3	A
26	964.80	1003.50	38.73	0.352	0.320	974.54	9.1	A
27	1004.90	1044.50	39.61	0.352	0.325	1035.50	7.6	A
28	1045.90	1087.20	41.27	0.352	0.313	1068.90	11.0	A
29	1088.60	1127.10	38.47	0.352	0.318	1103.00	9.6	A
30	1128.50	1168.60	40.14	0.352	0.325	1158.00	7.8	A
31	1170.00	1206.80	36.80	0.352	0.299	1196.70	15.1	B
32	1208.20	1248.20	39.98	0.352	0.320	1243.90	9.1	A
33	1249.60	1287.50	37.86	0.352	0.303	1279.00	13.9	B
34	1288.90	1330.40	41.50	0.352	0.320	1292.50	9.0	A



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

9-5/8" Thickness Joint Table								
#	Top Body(ft)	Bottom Body(ft)	Body Length(ft)	Nom Thk(in)	Min Thk(in)	Max Loss Depth(ft)	Max Loss (%)	Grade
35	1331.80	1369.00	37.26	0.352	0.318	1366.60	9.6	A
36	1370.40	1407.50	37.10	0.352	0.308	1403.50	12.4	B
37	1408.90	1448.80	39.90	0.352	0.313	1432.90	11.0	A
38	1450.20	1489.10	38.91	0.352	0.312	1467.80	11.3	A
39	1490.50	1529.90	39.40	0.352	0.310	1506.00	12.0	A
40	1531.30	1571.20	39.88	0.352	0.326	1562.50	7.5	A
41	1572.30	1607.00	34.71	0.352	0.313	1595.50	11.1	A
42	1608.20	1633.90	25.65	0.352	0.323	1625.20	8.1	A
43	1635.10	1651.90	16.83	0.352	0.317	1649.90	9.8	A



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

2. Appendix A: Well Diagram

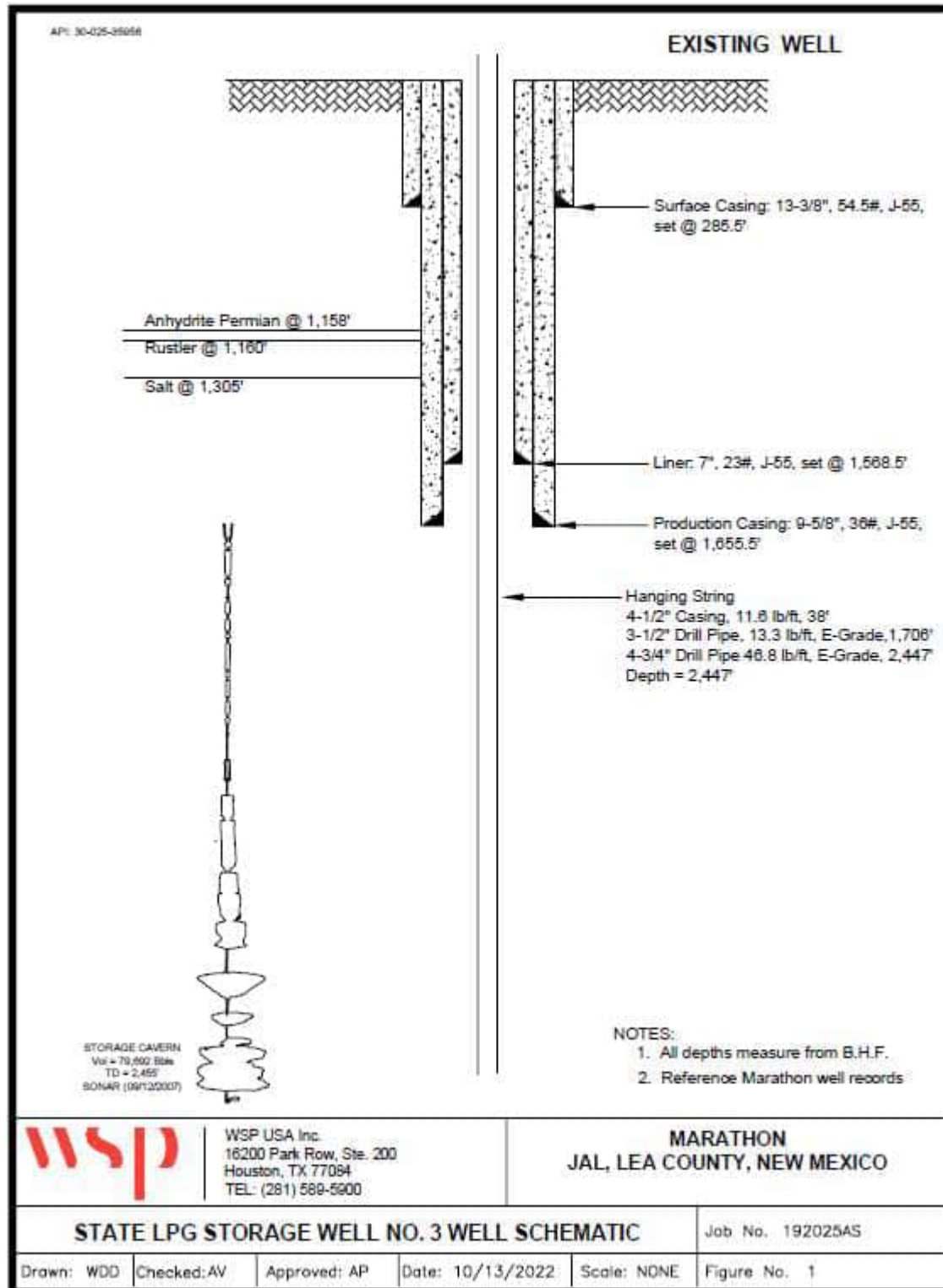


Figure 9, Well Schematic



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

3. Appendix B: Tool Specification

3.1. ePDT Tool Specifications & Logging Modes

General	
Working Temperature	0°C~175°C(32°F~347°F)/2hr
Working Pressure	≤100MPa(14,503psi)
Working Voltage	90VDC±10%
Working Current	60mA~130mA
OD	φ43mm(1.69")
Shipping Length	2253.5mm (88.72")
Make-up Length	2088.5mm(82.22")
Weight	9kg
Max. Logging Speed	300 m/h (16 ft/min)
Pipe String Measuring Range	60mm~324mm (2.362"~12.756")
Single Pipe Measurement	
Pipe Wall Thickness	≤12mm(0.4724")
Measurement Error	±0.5mm(0.0197")
Resolution	0.15mm(0.0059")
Double Pipe Measurement	
Pipe Wall Thickness	≤25mm (0.984")
Measurement Error	±1.5mm(0.059")
Resolution	0.3mm(0.0118")
Temperature Measurement	
Measurement Range	0~175°C
Sensitivity	0.01°C
Accuracy	±1°C



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

3.2. Tool String Diagram

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
WTS_ACCZ	12.69		SWC-43C-K (10004)	0.51	1.69	2.20
WTS_ACCY	12.69		GOWell GO Connection Crossover (GOWell 13-Pin Connection to GOWell 4-Pin connection)			
WTS_ACCX	12.69					
TelCirT	12.69		WTS-43C-C (15345)	2.13	1.69	7.72
WTS_OT	12.69		GOWell High Speed Telemetry Sub (GOWell 13-Pin connection) - Pegasus			
WTS_PT	12.69					
WTS_ET	12.69					
TelHeadV	12.69					
TelTemp	12.69					
ePDTB_ACCZ	4.73		CTL-43C-C (12001)	2.36	1.69	11.46
ePDTB_ACCY	4.73		GOWell Roller Centralizer(Mono Conductor connection)			
ePDTB_ACCX	4.73					
ePDB_AcqCH	4.73					
aPDB_TempMCU	4.73					
ePDB_Powerup	4.73					
ePDB_SNOISE	4.73		EPE-43D-B (10002)	4.12	1.69	10.00
ePDB_ToolSN	4.73		GOWell Enhanced Pipe Detection Tool - Electronic section (GOWell 13-pin connection, ePDT - B) - Pegasus			
ePDB_SMEAN	4.73					
aPDB_StaAcqNegC	4.73					
aPDB_StaAcqPosC	4.73					
ePDB_Polari	4.73					
ePDB_AcqNum	4.73					
aPDB_fVMeasTx	4.73					
ePDB_fMeasTx	4.73					
aPDB_DelayTime	4.73					
ePDB_SeqNum	4.73					
ePDB_Mode	4.73		EPA-51D-B (10002)	3.32	2.00	16.00
ePDB_DuraL	4.73		GOWell Enhanced Pipe Detection Tool - Sensor section (GOWell 13-pin connection, ePDT-B) - Pegasus			
ePDB_DuraM	4.73					
ePDB_DuraS	4.73					
ePDB_TxCurL	4.73					
ePDB_TxCurM	4.73					
ePDB_TxCurS	4.73					
ePDB_ACCZ	4.73		CTL-43C-C (12002)	2.36	1.69	11.46
ePDB_ACCY	4.73		GOWell Roller Centralizer(Mono Conductor connection)			
ePDB_ACCX	4.73					
aPDB_CCBTemp	4.73					
ePDB_CurDraw	4.73		BNT-43C (13005)	0.52	1.69	2.20
ePDB_V10	4.73		GOWell Bull Nose (GOWell 4-Pin connection) - Pegasus			
aPDB_AcqDSPVer	4.73	Dataset: marathon.db: field/well_3/REPEAT_PASS/pass1.2				
aPDB_MainDSPVer	4.73	Total length: 15.33 ft				
aPDB_MilliSecH2	4.73	Total weight: 61.05 lb				
aPDB_MilliSecH1	4.73	O.D.: 2.00 in				

Figure 10, Tool Diagram (ePDT)



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

4. Appendix C: Reading an ePDT Log

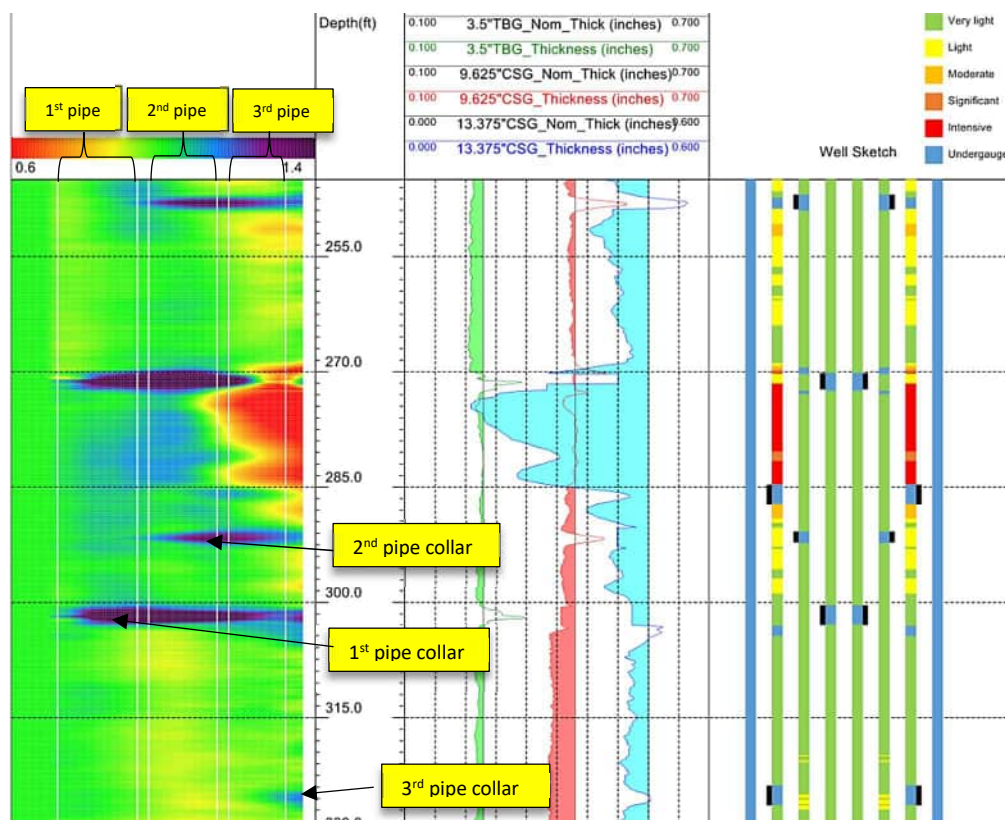


Figure 11, Typical ePDT Log with Damage

The VDL on the left is a picture of the normalized view versus depth of each data-time channel.

The "X-axis" on the VDL is time. Note the bounds for the color bar at the top in this example are 0.6, and 1.4, which means that they are 60% and 140% of what is considered nominal signal. We normalize the channels in this manner, since the absolute signal values are of significantly less importance than the relative changes in signal. It should also be noted, that signal gain or loss is not linearly related to thickness gain or loss. (i.e. 60% signal loss is not equal to 60% wall loss.)

Note that the collars result in an increase of overall signal, due to the increased metal in this area. In this example, a collar response appears across all channels for the first string (the 3-1/2"), while the 9-5/8" collar occurs in the middle to late channels, and the 3rd pipe signal, (14") appears in only the late time channels. The white lines (from left to right) indicate what channels are used to estimate individual pipe thicknesses.

In the second track, the thickness display for each string is shown. Each string's display has two components. There is a nominal thickness curve, and an estimated thickness curve for each string. Thickness less than nominal is shaded and appears to the left of nominal. Thickness greater than nominal extends to the right of nominal value.

The third track shows locations of collars, as well as a collar to indicate what grade the pipe is at that depth.

ePDT analysis assumes that the changes in estimated thicknesses are due to loss or gain around the entire circumference of the pipes. Although magnetic decay is primarily affected by metal loss, it can also be affected by damage length, geometry and changes in the pipes' electromagnetic properties.

In other words, there is no radial resolution information from ePDT data of the magnetic decay. It is unable to determine the orientation of damage. In addition, ePDT data cannot yield whether damage is located on the inner surface of a pipe, or the outer surface. However, combining ePDT data with, for example, imaging caliper data allows distinction between inner wall and outer wall location on the first string.



ePDT Interpretation

Company: Marathon Petroleum Co.

Well: State LPG Well #3

Logging Date: 11/22/2022

5. Appendix D: Data Processing/Data Display

5.1. Data Processing

1) ePDT processing workflow

Loading raw data into MIPS software is the first step for ePDT interpretation. Then the data might be pre-processed including depth correction and abnormal value editing that are optional steps. Collar detection is then used for the processed data from MIPS to locate the top and bottom depths for each joint. The next step is thickness calculation and the appropriate curves are selected. And then make annotation for well schematic and pipe defect according to thickness calculation results. The last is outputting joints analysis tables for different pipes and result LAS file.

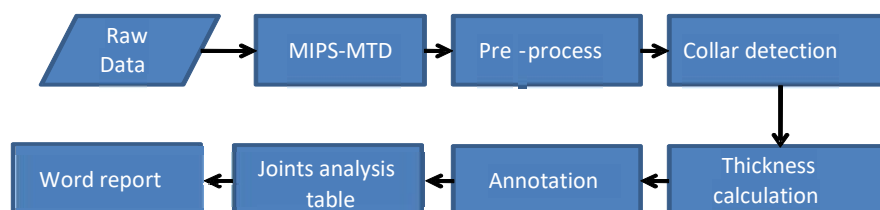


Figure 12 - ePDT processing workflow

5.2. Description of Post Processed Presentation

1) ePDT result plot

Multi-arm track: Normalization curves and color VDL, i.e ADEC[1]....ADEC[59]

Panel 1: GR, green; TEMP, brown; Tubing_Nom_Thick, black; Tubing_Thickness, green; Casing 1_Nom_Thick, black; Casing 1_Thickness, red; Casing 2_Nom_Thick, black; Casing 2_Thickness, blue; shading between Tubing_Nom_Thick and Tubing_Thickness, green; shading between Casing 1_Nom_Thick and Casing 1_Thickness, red; shading between Casing 2_Nom_Thick and Casing 2_Thickness, blue.

Panel 2: Well schematic and defects

5.3. Media & Listing of Files

Files delivered by GOWell are:

1. Final word report;
2. Joint by joint summary table, which lists all the joints damage or corrosion condition;
3. Result Plots with scale of 1:200 & 1:1000 in tiff format;
4. Las file output from MIPS-ePDT after processing.
5. MIPS context files and MIPS viewer



Job Number: 22-400
 Company: Marathon Petroleum Co. LLC
 Lease/Well: State LPG Storage Well #3
 Location: Jal
 Rig Name: Standard Rig #54
 RKB: BHF
 G.L. or M.S.L.: GL

State/Country: Lea County, New Mexico
 Declination:
 Grid:
 File name: C:\WINSERVE\112822.SVY
 Date/Time: 01-Dec-22 / 13:24
 Curve Name:

SONIC SURVEYS
SURFACE RECORDING GYROSCOPIC MULTI-SHOT SURVEY
RUN INSIDE 3 1/2" DRILL PIPE FROM SURFACE TO 2,400' M.D.
SURVEYOR: WILL GUIDRY
28 NOVEMBER 2022

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane .00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>C L O S U R E</i>		<i>Dogleg Severity Deg/100</i>
<i>Distance FT</i>	<i>Direction Deg</i>							
.00	.00	.00	.00	.00	.00	.00	.00	.00
25.00	.34	328.20	25.00	.06	-.04	.07	328.21	1.36
50.00	.47	354.70	50.00	.23	-.09	.24	338.99	.90
75.00	.62	19.00	75.00	.46	-.05	.46	353.39	1.09
100.00	.74	29.00	100.00	.73	.07	.73	5.44	.67
125.00	.67	48.80	124.99	.96	.26	1.00	14.94	1.01
150.00	.75	47.20	149.99	1.17	.49	1.27	22.58	.33
175.00	.87	54.20	174.99	1.39	.76	1.59	28.64	.62
200.00	.64	64.30	199.99	1.57	1.04	1.88	33.62	1.06
225.00	.64	61.20	224.99	1.69	1.29	2.13	37.28	.14
250.00	.45	72.80	249.99	1.79	1.51	2.34	40.07	.88
275.00	.34	56.60	274.98	1.86	1.66	2.49	41.77	.62
300.00	.26	54.20	299.98	1.93	1.77	2.62	42.45	.32
325.00	.14	100.10	324.98	1.96	1.85	2.69	43.25	.76
350.00	.11	133.20	349.98	1.94	1.89	2.71	44.30	.31
375.00	.12	237.20	374.98	1.91	1.89	2.69	44.68	.73
400.00	.11	223.00	399.98	1.88	1.85	2.64	44.57	.12
425.00	.16	257.30	424.98	1.85	1.80	2.58	44.17	.37
450.00	.30	275.20	449.98	1.85	1.70	2.51	42.57	.62
475.00	.21	256.80	474.98	1.85	1.59	2.44	40.75	.48
500.00	.29	287.60	499.98	1.85	1.49	2.38	38.69	.61
525.00	.36	285.70	524.98	1.90	1.35	2.33	35.46	.28

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	C L O S U R E		Dogleg Severity Deg/100
						Distance FT	Direction Deg	
550.00	.34	302.90	549.98	1.96	1.21	2.30	31.77	.43
575.00	.40	306.50	574.98	2.05	1.08	2.32	27.78	.26
600.00	.45	315.00	599.98	2.17	.94	2.37	23.41	.32
625.00	.54	334.20	624.98	2.35	.82	2.48	19.25	.75
650.00	.51	340.00	649.98	2.56	.73	2.66	15.93	.24
675.00	.55	337.60	674.98	2.77	.65	2.85	13.12	.18
700.00	.58	350.60	699.98	3.01	.58	3.06	10.91	.53
725.00	.56	355.50	724.98	3.25	.55	3.30	9.58	.21
750.00	.55	358.10	749.97	3.50	.54	3.54	8.71	.11
775.00	.57	17.80	774.97	3.73	.57	3.78	8.68	.77
800.00	.56	14.50	799.97	3.97	.64	4.02	9.13	.14
825.00	.53	29.00	824.97	4.19	.73	4.25	9.82	.56
850.00	.46	39.80	849.97	4.37	.85	4.45	10.95	.47
875.00	.43	48.70	874.97	4.51	.98	4.61	12.27	.30
900.00	.35	57.00	899.97	4.61	1.11	4.74	13.59	.39
925.00	.34	62.40	924.97	4.69	1.24	4.85	14.87	.14
950.00	.22	66.10	949.97	4.74	1.35	4.93	15.94	.49
975.00	.28	55.40	974.97	4.80	1.45	5.01	16.80	.30
1000.00	.17	99.70	999.97	4.82	1.53	5.06	17.65	.79
1025.00	.18	108.40	1024.97	4.80	1.61	5.07	18.51	.11
1050.00	.16	127.00	1049.97	4.77	1.67	5.06	19.33	.23
1075.00	.16	181.90	1074.97	4.72	1.70	5.01	19.83	.59
1100.00	.22	193.20	1099.97	4.63	1.69	4.93	20.02	.28
1125.00	.19	191.80	1124.97	4.55	1.67	4.84	20.16	.12
1150.00	.20	218.80	1149.97	4.47	1.63	4.76	20.06	.37
1175.00	.05	309.30	1174.97	4.44	1.60	4.72	19.77	.83
1200.00	.21	256.30	1199.97	4.44	1.54	4.70	19.18	.74
1225.00	.15	204.40	1224.97	4.40	1.49	4.64	18.67	.67
1250.00	.12	254.50	1249.97	4.36	1.45	4.60	18.36	.47
1275.00	.15	248.90	1274.97	4.34	1.39	4.56	17.77	.13
1300.00	.11	223.70	1299.97	4.32	1.34	4.52	17.31	.28
1325.00	.07	175.50	1324.97	4.28	1.33	4.48	17.25	.33
1350.00	.12	201.40	1349.97	4.24	1.32	4.44	17.29	.26
1375.00	.12	212.30	1374.97	4.20	1.30	4.39	17.18	.09
1400.00	.14	158.50	1399.97	4.15	1.29	4.34	17.34	.48
1425.00	.13	247.60	1424.97	4.11	1.28	4.30	17.31	.76
1450.00	.12	127.80	1449.97	4.08	1.27	4.27	17.34	.87
1475.00	.14	110.70	1474.97	4.05	1.32	4.26	18.08	.17
1500.00	.40	98.30	1499.97	4.03	1.44	4.28	19.64	1.06
1525.00	.44	98.00	1524.97	4.00	1.62	4.32	22.03	.16
1550.00	.33	101.40	1549.96	3.98	1.79	4.36	24.18	.45
1575.00	.34	91.70	1574.96	3.96	1.93	4.41	25.99	.23
1600.00	.51	99.80	1599.96	3.94	2.11	4.47	28.22	.72
1625.00	.31	100.70	1624.96	3.91	2.29	4.53	30.37	.80
1638.00	1.17	300.20	1637.96	3.97	2.21	4.54	29.12	11.28

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	C L O S U R E		Dogleg Severity Deg/100
						Distance FT	Direction Deg	
1650.00	.57	140.10	1649.96	3.98	2.14	4.52	28.27	14.31
1675.00	.26	263.50	1674.96	3.88	2.17	4.45	29.16	2.98
1700.00	.15	23.40	1699.96	3.91	2.12	4.44	28.52	1.44
1725.00	.19	337.50	1724.96	3.97	2.12	4.50	28.08	.55
1750.00	.19	312.80	1749.96	4.04	2.07	4.54	27.17	.33
1775.00	.23	48.20	1774.96	4.10	2.08	4.60	26.89	1.25
1800.00	.07	2.00	1799.96	4.15	2.12	4.66	27.04	.75
1825.00	.22	31.50	1824.96	4.21	2.14	4.72	27.00	.65
1850.00	.15	37.10	1849.96	4.27	2.19	4.80	27.12	.29
1875.00	.07	5.10	1874.96	4.31	2.21	4.85	27.12	.39
1900.00	.06	332.00	1899.96	4.34	2.20	4.87	26.92	.15
1925.00	.06	271.90	1924.96	4.35	2.19	4.87	26.66	.24
1950.00	.28	163.10	1949.96	4.30	2.19	4.82	27.02	1.22
1975.00	.62	137.90	1974.96	4.14	2.30	4.73	29.06	1.54
2000.00	1.58	113.60	1999.95	3.90	2.71	4.75	34.76	4.19
2025.00	1.64	96.10	2024.94	3.72	3.38	5.03	42.21	1.97
2050.00	.66	80.80	2049.94	3.71	3.87	5.36	46.26	4.07
2075.00	.57	66.50	2074.94	3.78	4.13	5.60	47.54	.71
2100.00	.28	353.00	2099.94	3.89	4.24	5.75	47.45	2.24
2125.00	.25	127.30	2124.94	3.92	4.27	5.80	47.48	1.95
2150.00	.06	142.30	2149.94	3.87	4.32	5.81	48.14	.77
2175.00	.22	265.20	2174.94	3.86	4.29	5.77	47.99	1.03
2200.00	.06	291.20	2199.94	3.86	4.22	5.72	47.58	.67
2225.00	.27	250.30	2224.94	3.85	4.16	5.66	47.23	.91
2250.00	.94	240.80	2249.94	3.73	3.92	5.41	46.48	2.70
2275.00	1.22	135.50	2274.93	3.44	3.93	5.22	48.84	6.90
2300.00	2.21	110.40	2299.92	3.08	4.57	5.51	56.03	4.88
2325.00	2.14	105.10	2324.90	2.79	5.47	6.14	62.99	.85
2350.00	2.44	105.10	2349.88	2.53	6.44	6.91	68.55	1.20
2375.00	3.11	116.10	2374.85	2.09	7.56	7.84	74.53	3.41
2400.00	2.77	116.40	2399.82	1.52	8.71	8.84	80.07	1.36



**Sonar Survey Report
Marathon Petroleum
State LPG Well No. 3
Jal
Lea County, New Mexico
December 3, 2022**



Survey Conducted by: Will Guidry/Richard Lawrence
Company Representative: Mr. Ray Musselwhite

Serving the Storage Well Industry Since 1978



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Well Information

Company:	Marathon Petroleum
State:	New Mexico
County:	Lea
Field:	Jal
Well:	State LPG Well No. 3
API No.:	30-025-35956

Cemented Casing:	9-5/8" @ 1666'
Hanging String:	3-1/2" @ 2427'
Total Depth:	2437.31'

Permanent Datum:	BHF 0'
Depth Correction:	-1

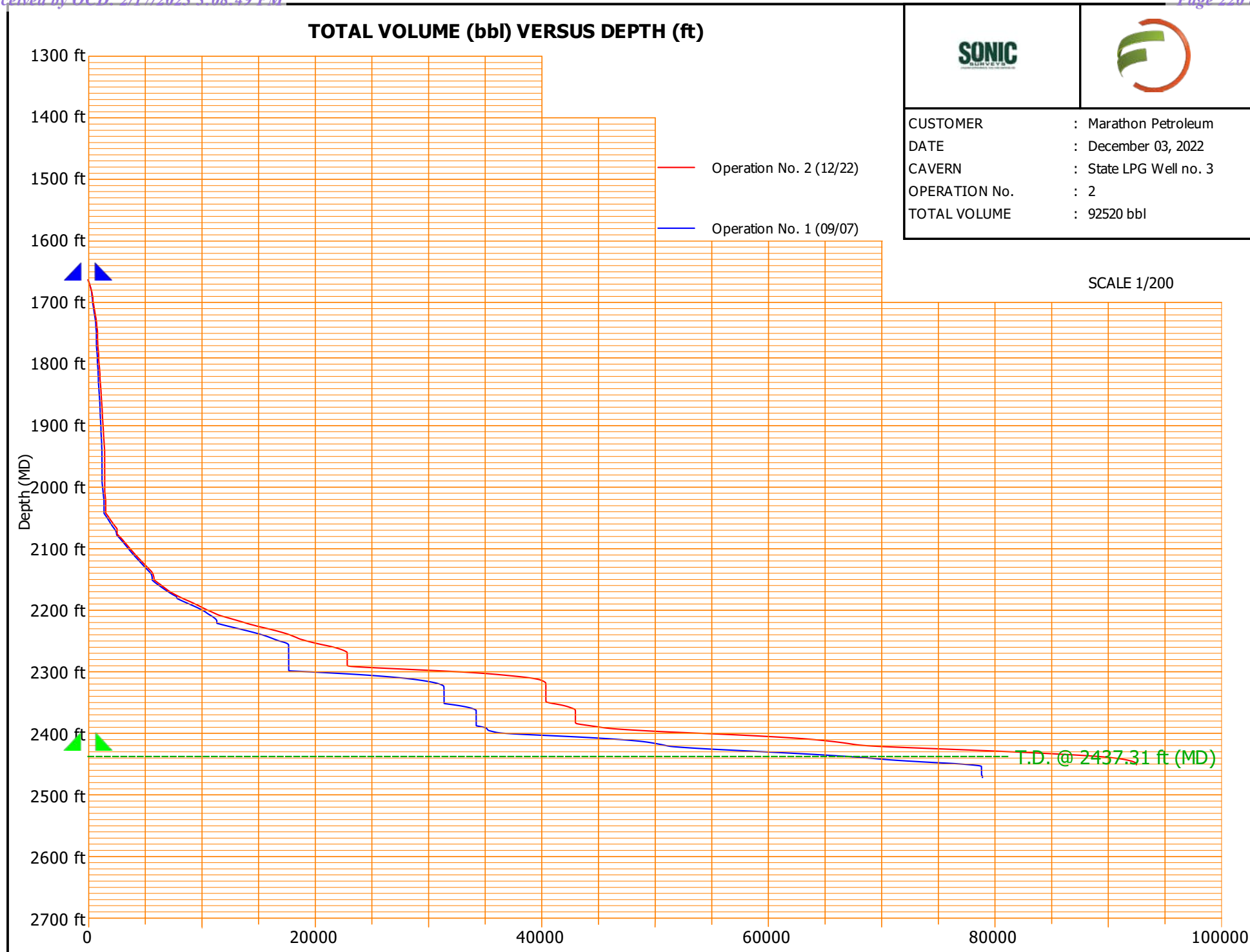
Total Volume BBL:	92,520.27
Total Volume Ft ³ :	519,462.77

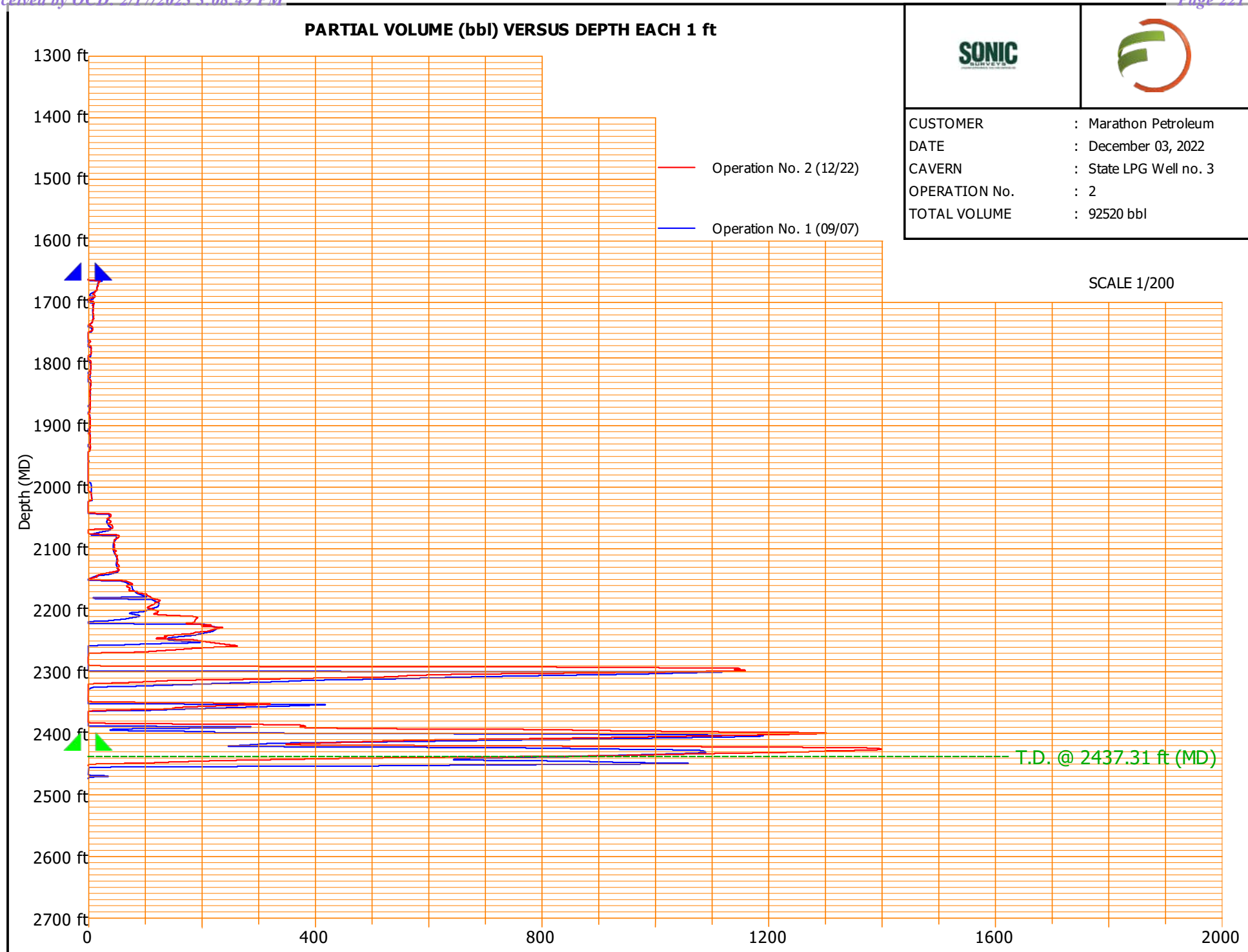
All Sections are orientated to Magnetic North.



List of Acquired Measurements

- Oriented circular horizontal sections from 1666 ft to 2436 ft, with a step of 2 feet.
- Up-tilted orientated circular sections from 2408 ft 3°, 6°, 9°, 12°, 15°, 18°, 21°, 24°, 27°, 30°, 33°, 36°, 39°, 42°, 45°, 48°, 51°, 54°, 57°, 60°, 63°, 66°, 69°, 72°, 75°, 78°, 81°, 84° with respect to the horizontal.
- Down-tilted orientated circular sections from 2408 ft -5°, -10°, -15°, -20°, -25°, -30°, -35°, -40°, -45°, -50°, -55°, -60°, -65°, -70°, -75°, -80°, -84° with respect to the horizontal.
- Up-tilted orientated circular sections from 2429 ft 3°, 6°, 9°, 12°, 15°, 18°, 21°, 24°, 27°, 30°, 33°, 36°, 39°, 42°, 45°, 48°, 51°, 54°, 57°, 60°, 63°, 66°, 69°, 72°, 75°, 78°, 81°, 84° with respect to the horizontal.
- Down-tilted orientated circular sections from 2429 ft -3°, -6°, -9°, -12°, -15°, -18°, -21°, -24°, -27°, -30°, -33°, -36°, -39°, -42°, -45°, -48°, -51°, -54°, -57°, -60°, -63°, -66°, -69°, -72°, -75°, -78°, -81°, -84° with respect to the horizontal.
- 1 complimentary measurement to determine the cavity floor depth.





Released to Imaging: 3/9/2023 4:10:10 PM

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				1		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1666.00	11.15	11.15	-	-	-	-	-	-	-	-	-	
1667.00	32.57	21.42	-	-	-	-	-	-	-	-	-	
1668.00	52.86	20.30	-	-	-	-	-	-	-	-	-	
1669.00	72.13	19.26	-	-	-	-	-	-	-	-	-	
1670.00	90.57	18.45	103.56	5.74	11.48	5.49	6.24	335.00	11.19	11.85	155.00	
1671.00	108.86	18.29	-	-	-	-	-	-	-	-	-	
1672.00	127.00	18.14	-	-	-	-	-	-	-	-	-	
1673.00	144.92	17.92	-	-	-	-	-	-	-	-	-	
1674.00	162.61	17.69	-	-	-	-	-	-	-	-	-	
1675.00	180.03	17.42	-	-	-	-	-	-	-	-	-	
1676.00	196.98	16.95	-	-	-	-	-	-	-	-	-	
1677.00	212.83	15.85	-	-	-	-	-	-	-	-	-	
1678.00	227.98	15.15	-	-	-	-	-	-	-	-	-	
1679.00	243.59	15.61	-	-	-	-	-	-	-	-	-	
1680.00	259.65	16.06	90.10	5.36	10.71	4.41	6.33	320.00	9.78	11.69	140.00	
1681.00	275.79	16.14	-	-	-	-	-	-	-	-	-	
1682.00	291.49	15.71	-	-	-	-	-	-	-	-	-	
1683.00	304.80	13.31	-	-	-	-	-	-	-	-	-	
1684.00	316.48	11.68	-	-	-	-	-	-	-	-	-	
1685.00	328.57	12.08	-	-	-	-	-	-	-	-	-	
1686.00	340.40	11.83	-	-	-	-	-	-	-	-	-	
1687.00	349.69	9.29	-	-	-	-	-	-	-	-	-	
1688.00	357.78	8.10	-	-	-	-	-	-	-	-	-	
1689.00	367.77	9.98	-	-	-	-	-	-	-	-	-	
1690.00	379.58	11.81	66.39	4.60	9.19	4.10	5.01	10.00	8.47	9.89	10.00	
1691.00	392.01	12.43	-	-	-	-	-	-	-	-	-	
1692.00	404.63	12.62	-	-	-	-	-	-	-	-	-	
1693.00	416.01	11.38	-	-	-	-	-	-	-	-	-	
1694.00	424.37	8.36	-	-	-	-	-	-	-	-	-	
1695.00	426.37	2.01	-	-	-	-	-	-	-	-	-	
1696.00	426.40	0.03	-	-	-	-	-	-	-	-	-	
1697.00	426.41	0.01	-	-	-	-	-	-	-	-	-	
1698.00	426.74	0.32	-	-	-	-	-	-	-	-	-	
1699.00	430.30	3.56	-	-	-	-	-	-	-	-	-	
1700.00	439.12	8.83	49.67	3.98	7.95	3.64	4.50	15.00	7.63	8.44	40.00	
1701.00	448.96	9.84	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				2		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1702.00	459.53	10.57	-	-	-	-	-	-	-	-	-	
1703.00	470.30	10.77	-	-	-	-	-	-	-	-	-	
1704.00	480.74	10.44	-	-	-	-	-	-	-	-	-	
1705.00	489.22	8.48	-	-	-	-	-	-	-	-	-	
1706.00	496.54	7.33	-	-	-	-	-	-	-	-	-	
1707.00	504.89	8.35	-	-	-	-	-	-	-	-	-	
1708.00	514.15	9.25	-	-	-	-	-	-	-	-	-	
1709.00	523.43	9.29	-	-	-	-	-	-	-	-	-	
1710.00	532.69	9.26	52.04	4.07	8.14	3.85	4.37	70.00	7.94	8.40	70.00	
1711.00	541.90	9.21	-	-	-	-	-	-	-	-	-	
1712.00	551.09	9.19	-	-	-	-	-	-	-	-	-	
1713.00	560.32	9.24	-	-	-	-	-	-	-	-	-	
1714.00	569.56	9.23	-	-	-	-	-	-	-	-	-	
1715.00	578.66	9.10	-	-	-	-	-	-	-	-	-	
1716.00	587.57	8.91	-	-	-	-	-	-	-	-	-	
1717.00	596.09	8.52	-	-	-	-	-	-	-	-	-	
1718.00	604.47	8.38	-	-	-	-	-	-	-	-	-	
1719.00	613.41	8.93	-	-	-	-	-	-	-	-	-	
1720.00	622.78	9.37	52.55	4.09	8.18	3.69	4.48	20.00	7.81	8.62	20.00	
1721.00	632.24	9.46	-	-	-	-	-	-	-	-	-	
1722.00	641.83	9.58	-	-	-	-	-	-	-	-	-	
1723.00	651.65	9.83	-	-	-	-	-	-	-	-	-	
1724.00	661.55	9.89	-	-	-	-	-	-	-	-	-	
1725.00	671.09	9.55	-	-	-	-	-	-	-	-	-	
1726.00	680.56	9.46	-	-	-	-	-	-	-	-	-	
1727.00	690.63	10.08	-	-	-	-	-	-	-	-	-	
1728.00	700.85	10.21	-	-	-	-	-	-	-	-	-	
1729.00	709.31	8.47	-	-	-	-	-	-	-	-	-	
1730.00	716.73	7.41	41.59	3.64	7.28	3.29	4.12	125.00	7.00	7.63	15.00	
1731.00	724.18	7.46	-	-	-	-	-	-	-	-	-	
1732.00	731.74	7.55	-	-	-	-	-	-	-	-	-	
1733.00	739.48	7.75	-	-	-	-	-	-	-	-	-	
1734.00	746.98	7.50	-	-	-	-	-	-	-	-	-	
1735.00	753.08	6.09	-	-	-	-	-	-	-	-	-	
1736.00	757.15	4.07	-	-	-	-	-	-	-	-	-	
1737.00	758.34	1.19	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				3		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1738.00	759.09	0.74	-	-	-	-	-	-	-	-	-	
1739.00	762.18	3.10	-	-	-	-	-	-	-	-	-	
1740.00	768.38	6.20	34.27	3.30	6.61	2.83	3.94	40.00	6.03	7.23	75.00	
1741.00	775.69	7.30	-	-	-	-	-	-	-	-	-	
1742.00	783.76	8.07	-	-	-	-	-	-	-	-	-	
1743.00	791.90	8.14	-	-	-	-	-	-	-	-	-	
1744.00	800.09	8.19	-	-	-	-	-	-	-	-	-	
1745.00	808.28	8.19	-	-	-	-	-	-	-	-	-	
1746.00	816.29	8.01	-	-	-	-	-	-	-	-	-	
1747.00	823.85	7.56	-	-	-	-	-	-	-	-	-	
1748.00	829.05	5.20	-	-	-	-	-	-	-	-	-	
1749.00	830.44	1.39	-	-	-	-	-	-	-	-	-	
1750.00	830.60	0.16	0.89	0.53	1.06	0.53	0.53	195.00	0.53	1.06	165.00	
1751.00	830.76	0.16	-	-	-	-	-	-	-	-	-	
1752.00	830.92	0.16	-	-	-	-	-	-	-	-	-	
1753.00	831.07	0.16	-	-	-	-	-	-	-	-	-	
1754.00	831.23	0.16	-	-	-	-	-	-	-	-	-	
1755.00	831.39	0.16	-	-	-	-	-	-	-	-	-	
1756.00	831.55	0.16	-	-	-	-	-	-	-	-	-	
1757.00	831.70	0.16	-	-	-	-	-	-	-	-	-	
1758.00	831.86	0.16	-	-	-	-	-	-	-	-	-	
1759.00	832.02	0.16	-	-	-	-	-	-	-	-	-	
1760.00	832.25	0.23	0.89	0.53	1.06	0.53	0.53	15.00	0.53	1.06	155.00	
1761.00	832.93	0.68	-	-	-	-	-	-	-	-	-	
1762.00	834.36	1.43	-	-	-	-	-	-	-	-	-	
1763.00	836.81	2.45	-	-	-	-	-	-	-	-	-	
1764.00	840.55	3.75	-	-	-	-	-	-	-	-	-	
1765.00	845.04	4.49	-	-	-	-	-	-	-	-	-	
1766.00	848.17	3.12	-	-	-	-	-	-	-	-	-	
1767.00	850.17	2.01	-	-	-	-	-	-	-	-	-	
1768.00	851.31	1.14	-	-	-	-	-	-	-	-	-	
1769.00	851.82	0.51	-	-	-	-	-	-	-	-	-	
1770.00	852.19	0.37	0.95	0.55	1.10	0.55	0.55	205.00	1.10	1.10	15.00	
1771.00	854.28	2.09	-	-	-	-	-	-	-	-	-	
1772.00	859.13	4.85	-	-	-	-	-	-	-	-	-	
1773.00	864.31	5.18	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				4		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1774.00	869.54	5.23	-	-	-	-	-	-	-	-	-	
1775.00	874.95	5.40	-	-	-	-	-	-	-	-	-	
1776.00	880.45	5.51	-	-	-	-	-	-	-	-	-	
1777.00	885.80	5.34	-	-	-	-	-	-	-	-	-	
1778.00	891.03	5.23	-	-	-	-	-	-	-	-	-	
1779.00	896.32	5.29	-	-	-	-	-	-	-	-	-	
1780.00	901.72	5.40	30.07	3.09	6.19	2.79	3.53	145.00	5.95	6.39	0.00	
1781.00	907.39	5.68	-	-	-	-	-	-	-	-	-	
1782.00	913.26	5.86	-	-	-	-	-	-	-	-	-	
1783.00	918.95	5.69	-	-	-	-	-	-	-	-	-	
1784.00	924.46	5.51	-	-	-	-	-	-	-	-	-	
1785.00	929.82	5.35	-	-	-	-	-	-	-	-	-	
1786.00	934.13	4.31	-	-	-	-	-	-	-	-	-	
1787.00	935.54	1.41	-	-	-	-	-	-	-	-	-	
1788.00	935.74	0.20	-	-	-	-	-	-	-	-	-	
1789.00	935.90	0.16	-	-	-	-	-	-	-	-	-	
1790.00	936.06	0.16	0.89	0.53	1.06	0.53	0.53	15.00	0.53	1.06	175.00	
1791.00	936.22	0.16	-	-	-	-	-	-	-	-	-	
1792.00	936.37	0.16	-	-	-	-	-	-	-	-	-	
1793.00	936.53	0.16	-	-	-	-	-	-	-	-	-	
1794.00	936.92	0.39	-	-	-	-	-	-	-	-	-	
1795.00	938.98	2.05	-	-	-	-	-	-	-	-	-	
1796.00	943.31	4.33	-	-	-	-	-	-	-	-	-	
1797.00	948.10	4.79	-	-	-	-	-	-	-	-	-	
1798.00	953.24	5.14	-	-	-	-	-	-	-	-	-	
1799.00	958.48	5.24	-	-	-	-	-	-	-	-	-	
1800.00	963.74	5.27	29.76	3.08	6.16	2.80	3.52	35.00	5.83	6.46	5.00	
1801.00	968.82	5.07	-	-	-	-	-	-	-	-	-	
1802.00	973.78	4.96	-	-	-	-	-	-	-	-	-	
1803.00	978.82	5.04	-	-	-	-	-	-	-	-	-	
1804.00	983.92	5.10	-	-	-	-	-	-	-	-	-	
1805.00	989.02	5.10	-	-	-	-	-	-	-	-	-	
1806.00	994.13	5.11	-	-	-	-	-	-	-	-	-	
1807.00	999.24	5.11	-	-	-	-	-	-	-	-	-	
1808.00	1004.36	5.12	-	-	-	-	-	-	-	-	-	
1809.00	1009.52	5.16	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				5		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1810.00	1014.27	4.75	27.86	2.98	5.96	2.73	3.65	50.00	5.49	6.45	25.00	
1811.00	1017.70	3.43	-	-	-	-	-	-	-	-	-	
1812.00	1020.52	2.82	-	-	-	-	-	-	-	-	-	
1813.00	1024.12	3.60	-	-	-	-	-	-	-	-	-	
1814.00	1028.35	4.24	-	-	-	-	-	-	-	-	-	
1815.00	1032.72	4.37	-	-	-	-	-	-	-	-	-	
1816.00	1037.19	4.47	-	-	-	-	-	-	-	-	-	
1817.00	1041.67	4.48	-	-	-	-	-	-	-	-	-	
1818.00	1045.24	3.58	-	-	-	-	-	-	-	-	-	
1819.00	1046.33	1.09	-	-	-	-	-	-	-	-	-	
1820.00	1046.49	0.16	0.89	0.53	1.06	0.53	0.53	15.00	0.53	1.06	175.00	
1821.00	1046.65	0.16	-	-	-	-	-	-	-	-	-	
1822.00	1046.81	0.16	-	-	-	-	-	-	-	-	-	
1823.00	1046.96	0.16	-	-	-	-	-	-	-	-	-	
1824.00	1047.28	0.32	-	-	-	-	-	-	-	-	-	
1825.00	1048.86	1.57	-	-	-	-	-	-	-	-	-	
1826.00	1052.24	3.38	-	-	-	-	-	-	-	-	-	
1827.00	1056.27	4.03	-	-	-	-	-	-	-	-	-	
1828.00	1060.89	4.62	-	-	-	-	-	-	-	-	-	
1829.00	1065.80	4.91	-	-	-	-	-	-	-	-	-	
1830.00	1070.93	5.13	28.80	3.03	6.06	2.52	3.67	5.00	5.51	6.41	5.00	
1831.00	1076.07	5.15	-	-	-	-	-	-	-	-	-	
1832.00	1081.20	5.13	-	-	-	-	-	-	-	-	-	
1833.00	1086.22	5.02	-	-	-	-	-	-	-	-	-	
1834.00	1091.17	4.96	-	-	-	-	-	-	-	-	-	
1835.00	1096.24	5.07	-	-	-	-	-	-	-	-	-	
1836.00	1101.27	5.02	-	-	-	-	-	-	-	-	-	
1837.00	1105.50	4.24	-	-	-	-	-	-	-	-	-	
1838.00	1109.14	3.64	-	-	-	-	-	-	-	-	-	
1839.00	1112.88	3.74	-	-	-	-	-	-	-	-	-	
1840.00	1116.83	3.95	21.77	2.63	5.26	2.18	3.19	5.00	4.90	5.69	10.00	
1841.00	1121.21	4.38	-	-	-	-	-	-	-	-	-	
1842.00	1125.93	4.72	-	-	-	-	-	-	-	-	-	
1843.00	1130.43	4.50	-	-	-	-	-	-	-	-	-	
1844.00	1134.47	4.04	-	-	-	-	-	-	-	-	-	
1845.00	1137.27	2.80	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				6		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1846.00	1139.32	2.06	-	-	-	-	-	-	-	-	-	
1847.00	1142.41	3.08	-	-	-	-	-	-	-	-	-	
1848.00	1146.52	4.12	-	-	-	-	-	-	-	-	-	
1849.00	1150.03	3.50	-	-	-	-	-	-	-	-	-	
1850.00	1152.85	2.82	16.34	2.28	4.56	1.36	3.04	305.00	3.99	5.42	125.00	
1851.00	1155.12	2.27	-	-	-	-	-	-	-	-	-	
1852.00	1157.10	1.98	-	-	-	-	-	-	-	-	-	
1853.00	1159.68	2.58	-	-	-	-	-	-	-	-	-	
1854.00	1163.18	3.50	-	-	-	-	-	-	-	-	-	
1855.00	1166.80	3.63	-	-	-	-	-	-	-	-	-	
1856.00	1170.46	3.66	-	-	-	-	-	-	-	-	-	
1857.00	1174.05	3.59	-	-	-	-	-	-	-	-	-	
1858.00	1177.60	3.55	-	-	-	-	-	-	-	-	-	
1859.00	1181.24	3.64	-	-	-	-	-	-	-	-	-	
1860.00	1185.01	3.76	21.01	2.59	5.17	2.24	3.05	90.00	4.89	5.70	15.00	
1861.00	1188.90	3.90	-	-	-	-	-	-	-	-	-	
1862.00	1192.88	3.97	-	-	-	-	-	-	-	-	-	
1863.00	1196.66	3.78	-	-	-	-	-	-	-	-	-	
1864.00	1200.28	3.62	-	-	-	-	-	-	-	-	-	
1865.00	1203.97	3.69	-	-	-	-	-	-	-	-	-	
1866.00	1207.71	3.74	-	-	-	-	-	-	-	-	-	
1867.00	1211.40	3.69	-	-	-	-	-	-	-	-	-	
1868.00	1215.05	3.65	-	-	-	-	-	-	-	-	-	
1869.00	1218.68	3.64	-	-	-	-	-	-	-	-	-	
1870.00	1222.36	3.67	20.46	2.55	5.10	2.06	3.23	130.00	4.77	5.39	130.00	
1871.00	1226.20	3.84	-	-	-	-	-	-	-	-	-	
1872.00	1230.19	3.99	-	-	-	-	-	-	-	-	-	
1873.00	1234.20	4.01	-	-	-	-	-	-	-	-	-	
1874.00	1238.03	3.83	-	-	-	-	-	-	-	-	-	
1875.00	1241.08	3.05	-	-	-	-	-	-	-	-	-	
1876.00	1243.61	2.53	-	-	-	-	-	-	-	-	-	
1877.00	1246.17	2.56	-	-	-	-	-	-	-	-	-	
1878.00	1248.85	2.68	-	-	-	-	-	-	-	-	-	
1879.00	1251.93	3.08	-	-	-	-	-	-	-	-	-	
1880.00	1254.83	2.90	18.96	2.46	4.91	1.88	3.12	125.00	4.39	5.18	130.00	
1881.00	1255.82	0.99	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				7		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1882.00	1256.12	0.30	-	-	-	-	-	-	-	-	-	
1883.00	1257.30	1.18	-	-	-	-	-	-	-	-	-	
1884.00	1259.64	2.34	-	-	-	-	-	-	-	-	-	
1885.00	1262.13	2.50	-	-	-	-	-	-	-	-	-	
1886.00	1264.79	2.66	-	-	-	-	-	-	-	-	-	
1887.00	1267.84	3.05	-	-	-	-	-	-	-	-	-	
1888.00	1271.31	3.47	-	-	-	-	-	-	-	-	-	
1889.00	1275.00	3.69	-	-	-	-	-	-	-	-	-	
1890.00	1278.83	3.83	21.73	2.63	5.26	2.08	3.46	170.00	4.74	5.54	170.00	
1891.00	1282.50	3.67	-	-	-	-	-	-	-	-	-	
1892.00	1286.06	3.56	-	-	-	-	-	-	-	-	-	
1893.00	1289.73	3.67	-	-	-	-	-	-	-	-	-	
1894.00	1293.51	3.78	-	-	-	-	-	-	-	-	-	
1895.00	1297.27	3.77	-	-	-	-	-	-	-	-	-	
1896.00	1301.00	3.72	-	-	-	-	-	-	-	-	-	
1897.00	1304.62	3.62	-	-	-	-	-	-	-	-	-	
1898.00	1308.19	3.57	-	-	-	-	-	-	-	-	-	
1899.00	1311.95	3.76	-	-	-	-	-	-	-	-	-	
1900.00	1315.88	3.94	22.21	2.66	5.32	2.09	3.52	175.00	4.86	5.61	175.00	
1901.00	1319.80	3.92	-	-	-	-	-	-	-	-	-	
1902.00	1323.69	3.89	-	-	-	-	-	-	-	-	-	
1903.00	1327.54	3.85	-	-	-	-	-	-	-	-	-	
1904.00	1331.27	3.74	-	-	-	-	-	-	-	-	-	
1905.00	1334.63	3.35	-	-	-	-	-	-	-	-	-	
1906.00	1337.63	3.00	-	-	-	-	-	-	-	-	-	
1907.00	1340.36	2.73	-	-	-	-	-	-	-	-	-	
1908.00	1343.00	2.64	-	-	-	-	-	-	-	-	-	
1909.00	1346.09	3.09	-	-	-	-	-	-	-	-	-	
1910.00	1349.64	3.56	19.93	2.52	5.04	1.77	3.50	165.00	4.32	5.34	160.00	
1911.00	1353.35	3.71	-	-	-	-	-	-	-	-	-	
1912.00	1356.58	3.23	-	-	-	-	-	-	-	-	-	
1913.00	1357.69	1.11	-	-	-	-	-	-	-	-	-	
1914.00	1358.00	0.31	-	-	-	-	-	-	-	-	-	
1915.00	1359.62	1.62	-	-	-	-	-	-	-	-	-	
1916.00	1363.27	3.64	-	-	-	-	-	-	-	-	-	
1917.00	1367.07	3.80	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				8		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1918.00	1370.83	3.77	-	-	-	-	-	-	-	-	-	
1919.00	1374.64	3.81	-	-	-	-	-	-	-	-	-	
1920.00	1378.51	3.87	21.62	2.62	5.25	1.75	3.72	140.00	4.61	5.47	140.00	
1921.00	1382.49	3.99	-	-	-	-	-	-	-	-	-	
1922.00	1386.56	4.07	-	-	-	-	-	-	-	-	-	
1923.00	1390.55	4.00	-	-	-	-	-	-	-	-	-	
1924.00	1394.48	3.93	-	-	-	-	-	-	-	-	-	
1925.00	1398.36	3.88	-	-	-	-	-	-	-	-	-	
1926.00	1402.21	3.84	-	-	-	-	-	-	-	-	-	
1927.00	1405.98	3.77	-	-	-	-	-	-	-	-	-	
1928.00	1409.58	3.60	-	-	-	-	-	-	-	-	-	
1929.00	1412.64	3.06	-	-	-	-	-	-	-	-	-	
1930.00	1415.44	2.80	15.35	2.21	4.42	1.74	2.94	155.00	3.67	5.22	155.00	
1931.00	1418.73	3.29	-	-	-	-	-	-	-	-	-	
1932.00	1422.46	3.73	-	-	-	-	-	-	-	-	-	
1933.00	1426.35	3.89	-	-	-	-	-	-	-	-	-	
1934.00	1430.43	4.07	-	-	-	-	-	-	-	-	-	
1935.00	1434.63	4.20	-	-	-	-	-	-	-	-	-	
1936.00	1438.92	4.30	-	-	-	-	-	-	-	-	-	
1937.00	1443.11	4.19	-	-	-	-	-	-	-	-	-	
1938.00	1447.11	4.00	-	-	-	-	-	-	-	-	-	
1939.00	1450.69	3.58	-	-	-	-	-	-	-	-	-	
1940.00	1453.94	3.25	18.21	2.41	4.81	1.39	3.69	130.00	3.98	5.33	150.00	
1941.00	1457.15	3.22	-	-	-	-	-	-	-	-	-	
1942.00	1459.95	2.80	-	-	-	-	-	-	-	-	-	
1943.00	1460.92	0.97	-	-	-	-	-	-	-	-	-	
1944.00	1461.06	0.13	-	-	-	-	-	-	-	-	-	
1945.00	1461.17	0.11	-	-	-	-	-	-	-	-	-	
1946.00	1461.28	0.11	-	-	-	-	-	-	-	-	-	
1947.00	1461.40	0.11	-	-	-	-	-	-	-	-	-	
1948.00	1461.51	0.11	-	-	-	-	-	-	-	-	-	
1949.00	1461.63	0.11	-	-	-	-	-	-	-	-	-	
1950.00	1461.74	0.11	0.64	0.45	0.90	0.45	0.45	15.00	0.45	0.90	170.00	
1951.00	1461.85	0.11	-	-	-	-	-	-	-	-	-	
1952.00	1461.97	0.11	-	-	-	-	-	-	-	-	-	
1953.00	1462.08	0.11	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				9		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1954.00	1462.19	0.11	-	-	-	-	-	-	-	-	-	
1955.00	1462.31	0.11	-	-	-	-	-	-	-	-	-	
1956.00	1462.42	0.11	-	-	-	-	-	-	-	-	-	
1957.00	1462.53	0.11	-	-	-	-	-	-	-	-	-	
1958.00	1462.65	0.11	-	-	-	-	-	-	-	-	-	
1959.00	1462.76	0.11	-	-	-	-	-	-	-	-	-	
1960.00	1462.87	0.11	0.64	0.45	0.90	0.45	0.45	15.00	0.45	0.90	120.00	
1961.00	1462.99	0.11	-	-	-	-	-	-	-	-	-	
1962.00	1463.10	0.11	-	-	-	-	-	-	-	-	-	
1963.00	1463.22	0.11	-	-	-	-	-	-	-	-	-	
1964.00	1463.33	0.11	-	-	-	-	-	-	-	-	-	
1965.00	1463.44	0.11	-	-	-	-	-	-	-	-	-	
1966.00	1463.56	0.11	-	-	-	-	-	-	-	-	-	
1967.00	1463.67	0.11	-	-	-	-	-	-	-	-	-	
1968.00	1463.78	0.11	-	-	-	-	-	-	-	-	-	
1969.00	1463.90	0.11	-	-	-	-	-	-	-	-	-	
1970.00	1464.01	0.11	0.64	0.45	0.90	0.45	0.47	350.00	0.45	0.92	170.00	
1971.00	1464.12	0.11	-	-	-	-	-	-	-	-	-	
1972.00	1464.24	0.11	-	-	-	-	-	-	-	-	-	
1973.00	1464.35	0.11	-	-	-	-	-	-	-	-	-	
1974.00	1464.46	0.11	-	-	-	-	-	-	-	-	-	
1975.00	1464.58	0.11	-	-	-	-	-	-	-	-	-	
1976.00	1464.69	0.11	-	-	-	-	-	-	-	-	-	
1977.00	1464.81	0.11	-	-	-	-	-	-	-	-	-	
1978.00	1464.92	0.11	-	-	-	-	-	-	-	-	-	
1979.00	1465.03	0.11	-	-	-	-	-	-	-	-	-	
1980.00	1465.15	0.11	0.64	0.45	0.90	0.45	0.45	60.00	0.45	0.90	15.00	
1981.00	1465.26	0.11	-	-	-	-	-	-	-	-	-	
1982.00	1465.37	0.11	-	-	-	-	-	-	-	-	-	
1983.00	1465.49	0.11	-	-	-	-	-	-	-	-	-	
1984.00	1465.60	0.11	-	-	-	-	-	-	-	-	-	
1985.00	1465.71	0.11	-	-	-	-	-	-	-	-	-	
1986.00	1465.83	0.11	-	-	-	-	-	-	-	-	-	
1987.00	1465.94	0.11	-	-	-	-	-	-	-	-	-	
1988.00	1466.05	0.11	-	-	-	-	-	-	-	-	-	
1989.00	1466.17	0.11	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				10		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
1990.00	1466.28	0.11	0.64	0.45	0.90	0.45	0.45	215.00	0.45	0.90	165.00	
1991.00	1466.39	0.11	-	-	-	-	-	-	-	-	-	
1992.00	1466.52	0.13	-	-	-	-	-	-	-	-	-	
1993.00	1466.73	0.21	-	-	-	-	-	-	-	-	-	
1994.00	1467.01	0.27	-	-	-	-	-	-	-	-	-	
1995.00	1467.19	0.18	-	-	-	-	-	-	-	-	-	
1996.00	1467.32	0.12	-	-	-	-	-	-	-	-	-	
1997.00	1467.44	0.12	-	-	-	-	-	-	-	-	-	
1998.00	1467.57	0.12	-	-	-	-	-	-	-	-	-	
1999.00	1467.69	0.12	-	-	-	-	-	-	-	-	-	
2000.00	1467.81	0.12	0.70	0.47	0.94	0.47	0.47	355.00	0.47	0.94	175.00	
2001.00	1467.94	0.12	-	-	-	-	-	-	-	-	-	
2002.00	1468.06	0.12	-	-	-	-	-	-	-	-	-	
2003.00	1468.19	0.12	-	-	-	-	-	-	-	-	-	
2004.00	1468.31	0.12	-	-	-	-	-	-	-	-	-	
2005.00	1468.44	0.12	-	-	-	-	-	-	-	-	-	
2006.00	1468.66	0.22	-	-	-	-	-	-	-	-	-	
2007.00	1469.58	0.92	-	-	-	-	-	-	-	-	-	
2008.00	1471.71	2.14	-	-	-	-	-	-	-	-	-	
2009.00	1475.58	3.87	-	-	-	-	-	-	-	-	-	
2010.00	1481.13	5.55	31.71	3.18	6.35	3.11	3.60	220.00	6.22	6.73	40.00	
2011.00	1486.72	5.58	-	-	-	-	-	-	-	-	-	
2012.00	1492.28	5.57	-	-	-	-	-	-	-	-	-	
2013.00	1497.95	5.67	-	-	-	-	-	-	-	-	-	
2014.00	1503.72	5.77	-	-	-	-	-	-	-	-	-	
2015.00	1509.54	5.82	-	-	-	-	-	-	-	-	-	
2016.00	1515.41	5.87	-	-	-	-	-	-	-	-	-	
2017.00	1521.32	5.91	-	-	-	-	-	-	-	-	-	
2018.00	1527.33	6.01	-	-	-	-	-	-	-	-	-	
2019.00	1533.61	6.28	-	-	-	-	-	-	-	-	-	
2020.00	1539.98	6.38	36.07	3.39	6.78	3.28	3.75	170.00	6.63	7.13	170.00	
2021.00	1546.06	6.08	-	-	-	-	-	-	-	-	-	
2022.00	1551.29	5.23	-	-	-	-	-	-	-	-	-	
2023.00	1553.89	2.60	-	-	-	-	-	-	-	-	-	
2024.00	1554.69	0.80	-	-	-	-	-	-	-	-	-	
2025.00	1554.79	0.10	-	-	-	-	-	-	-	-	-	

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		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2026.00	1554.87	0.08	-	-	-	-	-	-	-	-	-	
2027.00	1554.95	0.08	-	-	-	-	-	-	-	-	-	
2028.00	1555.04	0.08	-	-	-	-	-	-	-	-	-	
2029.00	1555.12	0.08	-	-	-	-	-	-	-	-	-	
2030.00	1555.20	0.08	0.46	0.38	0.76	0.38	0.38	340.00	0.38	0.76	160.00	
2031.00	1555.28	0.08	-	-	-	-	-	-	-	-	-	
2032.00	1555.36	0.08	-	-	-	-	-	-	-	-	-	
2033.00	1555.44	0.08	-	-	-	-	-	-	-	-	-	
2034.00	1555.53	0.08	-	-	-	-	-	-	-	-	-	
2035.00	1555.61	0.08	-	-	-	-	-	-	-	-	-	
2036.00	1555.69	0.08	-	-	-	-	-	-	-	-	-	
2037.00	1555.77	0.08	-	-	-	-	-	-	-	-	-	
2038.00	1555.85	0.08	-	-	-	-	-	-	-	-	-	
2039.00	1555.93	0.08	-	-	-	-	-	-	-	-	-	
2040.00	1556.01	0.08	0.46	0.38	0.76	0.38	0.38	235.00	0.38	0.76	120.00	
2041.00	1556.10	0.08	-	-	-	-	-	-	-	-	-	
2042.00	1556.70	0.60	-	-	-	-	-	-	-	-	-	
2043.00	1569.47	12.77	-	-	-	-	-	-	-	-	-	
2044.00	1606.88	37.42	-	-	-	-	-	-	-	-	-	
2045.00	1646.93	40.05	-	-	-	-	-	-	-	-	-	
2046.00	1687.08	40.14	-	-	-	-	-	-	-	-	-	
2047.00	1727.38	40.31	-	-	-	-	-	-	-	-	-	
2048.00	1767.49	40.11	-	-	-	-	-	-	-	-	-	
2049.00	1805.99	38.50	-	-	-	-	-	-	-	-	-	
2050.00	1842.72	36.74	208.20	8.14	16.28	7.47	8.75	205.00	16.01	16.85	70.00	
2051.00	1877.37	34.65	-	-	-	-	-	-	-	-	-	
2052.00	1910.64	33.27	-	-	-	-	-	-	-	-	-	
2053.00	1945.34	34.70	-	-	-	-	-	-	-	-	-	
2054.00	1981.82	36.48	-	-	-	-	-	-	-	-	-	
2055.00	2020.40	38.58	-	-	-	-	-	-	-	-	-	
2056.00	2060.76	40.36	-	-	-	-	-	-	-	-	-	
2057.00	2100.92	40.16	-	-	-	-	-	-	-	-	-	
2058.00	2140.15	39.22	-	-	-	-	-	-	-	-	-	
2059.00	2176.69	36.55	-	-	-	-	-	-	-	-	-	
2060.00	2211.84	35.14	192.77	7.83	15.67	7.09	9.38	195.00	14.73	16.82	15.00	
2061.00	2250.33	38.49	-	-	-	-	-	-	-	-	-	

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		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2062.00	2292.02	41.69	-	-	-	-	-	-	-	-	-	
2063.00	2334.56	42.54	-	-	-	-	-	-	-	-	-	
2064.00	2377.71	43.16	-	-	-	-	-	-	-	-	-	
2065.00	2421.05	43.34	-	-	-	-	-	-	-	-	-	
2066.00	2464.47	43.42	-	-	-	-	-	-	-	-	-	
2067.00	2507.80	43.33	-	-	-	-	-	-	-	-	-	
2068.00	2546.16	38.35	-	-	-	-	-	-	-	-	-	
2069.00	2557.17	11.02	-	-	-	-	-	-	-	-	-	
2070.00	2557.43	0.26	0.70	0.47	0.95	0.47	0.50	25.00	0.47	0.97	25.00	
2071.00	2557.57	0.13	-	-	-	-	-	-	-	-	-	
2072.00	2557.71	0.14	-	-	-	-	-	-	-	-	-	
2073.00	2557.84	0.13	-	-	-	-	-	-	-	-	-	
2074.00	2557.97	0.13	-	-	-	-	-	-	-	-	-	
2075.00	2558.13	0.16	-	-	-	-	-	-	-	-	-	
2076.00	2559.74	1.61	-	-	-	-	-	-	-	-	-	
2077.00	2579.01	19.27	-	-	-	-	-	-	-	-	-	
2078.00	2629.32	50.31	-	-	-	-	-	-	-	-	-	
2079.00	2683.52	54.21	-	-	-	-	-	-	-	-	-	
2080.00	2738.49	54.97	309.60	9.93	19.85	8.72	11.32	70.00	18.84	21.01	155.00	
2081.00	2792.97	54.48	-	-	-	-	-	-	-	-	-	
2082.00	2846.67	53.70	-	-	-	-	-	-	-	-	-	
2083.00	2898.78	52.11	-	-	-	-	-	-	-	-	-	
2084.00	2949.22	50.44	-	-	-	-	-	-	-	-	-	
2085.00	2997.35	48.12	-	-	-	-	-	-	-	-	-	
2086.00	3043.50	46.15	-	-	-	-	-	-	-	-	-	
2087.00	3089.38	45.88	-	-	-	-	-	-	-	-	-	
2088.00	3135.28	45.90	-	-	-	-	-	-	-	-	-	
2089.00	3181.56	46.28	-	-	-	-	-	-	-	-	-	
2090.00	3228.03	46.47	261.82	9.13	18.26	7.71	10.52	130.00	17.49	18.99	40.00	
2091.00	3273.87	45.84	-	-	-	-	-	-	-	-	-	
2092.00	3319.19	45.32	-	-	-	-	-	-	-	-	-	
2093.00	3365.27	46.08	-	-	-	-	-	-	-	-	-	
2094.00	3412.15	46.88	-	-	-	-	-	-	-	-	-	
2095.00	3458.64	46.49	-	-	-	-	-	-	-	-	-	
2096.00	3504.80	46.17	-	-	-	-	-	-	-	-	-	
2097.00	3551.17	46.37	-	-	-	-	-	-	-	-	-	

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		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2098.00	3597.75	46.57	-	-	-	-	-	-	-	-	-	
2099.00	3644.43	46.69	-	-	-	-	-	-	-	-	-	
2100.00	3690.88	46.45	262.91	9.15	18.30	7.86	10.79	165.00	17.29	19.15	165.00	
2101.00	3735.61	44.73	-	-	-	-	-	-	-	-	-	
2102.00	3779.58	43.97	-	-	-	-	-	-	-	-	-	
2103.00	3826.96	47.38	-	-	-	-	-	-	-	-	-	
2104.00	3876.79	49.83	-	-	-	-	-	-	-	-	-	
2105.00	3925.07	48.28	-	-	-	-	-	-	-	-	-	
2106.00	3972.15	47.08	-	-	-	-	-	-	-	-	-	
2107.00	4019.07	46.92	-	-	-	-	-	-	-	-	-	
2108.00	4066.21	47.13	-	-	-	-	-	-	-	-	-	
2109.00	4114.49	48.28	-	-	-	-	-	-	-	-	-	
2110.00	4163.99	49.50	276.85	9.39	18.77	7.74	11.26	220.00	17.58	19.53	30.00	
2111.00	4214.78	50.79	-	-	-	-	-	-	-	-	-	
2112.00	4266.47	51.69	-	-	-	-	-	-	-	-	-	
2113.00	4317.33	50.86	-	-	-	-	-	-	-	-	-	
2114.00	4367.54	50.22	-	-	-	-	-	-	-	-	-	
2115.00	4418.45	50.91	-	-	-	-	-	-	-	-	-	
2116.00	4470.09	51.65	-	-	-	-	-	-	-	-	-	
2117.00	4521.97	51.88	-	-	-	-	-	-	-	-	-	
2118.00	4574.07	52.09	-	-	-	-	-	-	-	-	-	
2119.00	4626.36	52.30	-	-	-	-	-	-	-	-	-	
2120.00	4678.77	52.41	294.62	9.68	19.37	7.63	11.78	240.00	18.37	19.88	60.00	
2121.00	4730.88	52.11	-	-	-	-	-	-	-	-	-	
2122.00	4782.58	51.70	-	-	-	-	-	-	-	-	-	
2123.00	4833.59	51.01	-	-	-	-	-	-	-	-	-	
2124.00	4884.23	50.65	-	-	-	-	-	-	-	-	-	
2125.00	4935.86	51.63	-	-	-	-	-	-	-	-	-	
2126.00	4988.61	52.75	-	-	-	-	-	-	-	-	-	
2127.00	5042.50	53.89	-	-	-	-	-	-	-	-	-	
2128.00	5097.31	54.81	-	-	-	-	-	-	-	-	-	
2129.00	5152.09	54.78	-	-	-	-	-	-	-	-	-	
2130.00	5206.36	54.27	307.18	9.89	19.78	7.65	12.39	230.00	18.50	20.31	50.00	
2131.00	5258.55	52.19	-	-	-	-	-	-	-	-	-	
2132.00	5309.40	50.85	-	-	-	-	-	-	-	-	-	
2133.00	5362.09	52.68	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				14		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2134.00	5416.61	54.53	-	-	-	-	-	-	-	-	-	
2135.00	5471.41	54.79	-	-	-	-	-	-	-	-	-	
2136.00	5525.32	53.91	-	-	-	-	-	-	-	-	-	
2137.00	5574.15	48.84	-	-	-	-	-	-	-	-	-	
2138.00	5617.58	43.43	-	-	-	-	-	-	-	-	-	
2139.00	5654.76	37.18	-	-	-	-	-	-	-	-	-	
2140.00	5686.28	31.52	181.58	7.60	15.21	5.82	10.35	185.00	13.27	16.61	60.00	
2141.00	5712.58	26.30	-	-	-	-	-	-	-	-	-	
2142.00	5734.27	21.69	-	-	-	-	-	-	-	-	-	
2143.00	5752.05	17.78	-	-	-	-	-	-	-	-	-	
2144.00	5767.11	15.06	-	-	-	-	-	-	-	-	-	
2145.00	5782.92	15.81	-	-	-	-	-	-	-	-	-	
2146.00	5798.62	15.70	-	-	-	-	-	-	-	-	-	
2147.00	5809.61	10.99	-	-	-	-	-	-	-	-	-	
2148.00	5816.42	6.81	-	-	-	-	-	-	-	-	-	
2149.00	5818.44	2.03	-	-	-	-	-	-	-	-	-	
2150.00	5820.21	1.77	0.70	0.47	0.94	0.47	0.47	300.00	0.94	0.94	30.00	
2151.00	5842.07	21.86	-	-	-	-	-	-	-	-	-	
2152.00	5901.87	59.80	-	-	-	-	-	-	-	-	-	
2153.00	5969.41	67.54	-	-	-	-	-	-	-	-	-	
2154.00	6039.63	70.23	-	-	-	-	-	-	-	-	-	
2155.00	6112.44	72.80	-	-	-	-	-	-	-	-	-	
2156.00	6187.92	75.48	-	-	-	-	-	-	-	-	-	
2157.00	6265.66	77.74	-	-	-	-	-	-	-	-	-	
2158.00	6344.05	78.39	-	-	-	-	-	-	-	-	-	
2159.00	6417.08	73.03	-	-	-	-	-	-	-	-	-	
2160.00	6485.52	68.44	383.79	11.05	22.11	9.03	14.41	220.00	18.46	24.19	10.00	
2161.00	6553.43	67.91	-	-	-	-	-	-	-	-	-	
2162.00	6622.06	68.63	-	-	-	-	-	-	-	-	-	
2163.00	6693.47	71.41	-	-	-	-	-	-	-	-	-	
2164.00	6767.24	73.77	-	-	-	-	-	-	-	-	-	
2165.00	6841.12	73.88	-	-	-	-	-	-	-	-	-	
2166.00	6914.67	73.54	-	-	-	-	-	-	-	-	-	
2167.00	6986.47	71.80	-	-	-	-	-	-	-	-	-	
2168.00	7058.66	72.19	-	-	-	-	-	-	-	-	-	
2169.00	7138.75	80.09	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				15 	
		DATE : December 03, 2022				OPERATION No. : 2					
		MAIN CHARACTERISTICS DATASHEET									
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)
2170.00	7225.82	87.06	491.93	12.51	25.03	8.58	17.21	200.00	21.37	26.69	155.00
2171.00	7312.62	86.80	-	-	-	-	-	-	-	-	-
2172.00	7400.50	87.88	-	-	-	-	-	-	-	-	-
2173.00	7496.23	95.73	-	-	-	-	-	-	-	-	-
2174.00	7599.42	103.19	-	-	-	-	-	-	-	-	-
2175.00	7703.08	103.67	-	-	-	-	-	-	-	-	-
2176.00	7806.81	103.73	-	-	-	-	-	-	-	-	-
2177.00	7913.28	106.47	-	-	-	-	-	-	-	-	-
2178.00	8022.58	109.30	-	-	-	-	-	-	-	-	-
2179.00	8132.99	110.41	-	-	-	-	-	-	-	-	-
2180.00	8244.77	111.78	624.88	14.10	28.21	10.21	18.90	185.00	25.58	29.39	5.00
2181.00	8359.32	114.55	-	-	-	-	-	-	-	-	-
2182.00	8477.26	117.94	-	-	-	-	-	-	-	-	-
2183.00	8600.41	123.15	-	-	-	-	-	-	-	-	-
2184.00	8727.58	127.17	-	-	-	-	-	-	-	-	-
2185.00	8853.66	126.08	-	-	-	-	-	-	-	-	-
2186.00	8978.22	124.55	-	-	-	-	-	-	-	-	-
2187.00	9098.93	120.72	-	-	-	-	-	-	-	-	-
2188.00	9216.50	117.57	-	-	-	-	-	-	-	-	-
2189.00	9333.92	117.42	-	-	-	-	-	-	-	-	-
2190.00	9450.89	116.97	659.85	14.49	28.99	10.63	19.93	200.00	25.77	31.13	50.00
2191.00	9565.37	114.47	-	-	-	-	-	-	-	-	-
2192.00	9677.32	111.96	-	-	-	-	-	-	-	-	-
2193.00	9786.89	109.57	-	-	-	-	-	-	-	-	-
2194.00	9894.20	107.31	-	-	-	-	-	-	-	-	-
2195.00	9999.37	105.18	-	-	-	-	-	-	-	-	-
2196.00	10103.75	104.38	-	-	-	-	-	-	-	-	-
2197.00	10212.12	108.37	-	-	-	-	-	-	-	-	-
2198.00	10324.63	112.50	-	-	-	-	-	-	-	-	-
2199.00	10439.82	115.20	-	-	-	-	-	-	-	-	-
2200.00	10558.04	118.21	662.04	14.52	29.03	9.75	20.85	210.00	22.10	31.45	160.00
2201.00	10679.69	121.66	-	-	-	-	-	-	-	-	-
2202.00	10803.72	124.02	-	-	-	-	-	-	-	-	-
2203.00	10926.32	122.61	-	-	-	-	-	-	-	-	-
2204.00	11048.46	122.14	-	-	-	-	-	-	-	-	-
2205.00	11166.37	117.91	-	-	-	-	-	-	-	-	-

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				16		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2206.00	11282.14	115.77	-	-	-	-	-	-	-	-	-	
2207.00	11404.94	122.80	-	-	-	-	-	-	-	-	-	
2208.00	11543.44	138.49	-	-	-	-	-	-	-	-	-	
2209.00	11705.82	162.39	-	-	-	-	-	-	-	-	-	
2210.00	11890.93	185.10	1042.69	18.22	36.44	15.99	19.56	240.00	34.49	38.20	115.00	
2211.00	12081.55	190.62	-	-	-	-	-	-	-	-	-	
2212.00	12274.95	193.40	-	-	-	-	-	-	-	-	-	
2213.00	12466.80	191.85	-	-	-	-	-	-	-	-	-	
2214.00	12657.36	190.56	-	-	-	-	-	-	-	-	-	
2215.00	12846.91	189.54	-	-	-	-	-	-	-	-	-	
2216.00	13035.70	188.79	-	-	-	-	-	-	-	-	-	
2217.00	13224.00	188.30	-	-	-	-	-	-	-	-	-	
2218.00	13412.07	188.08	-	-	-	-	-	-	-	-	-	
2219.00	13600.19	188.12	-	-	-	-	-	-	-	-	-	
2220.00	13785.09	184.89	1048.98	18.27	36.55	13.59	25.43	175.00	30.02	39.97	170.00	
2221.00	13958.11	173.02	-	-	-	-	-	-	-	-	-	
2222.00	14131.99	173.88	-	-	-	-	-	-	-	-	-	
2223.00	14330.71	198.73	-	-	-	-	-	-	-	-	-	
2224.00	14547.47	216.76	-	-	-	-	-	-	-	-	-	
2225.00	14751.09	203.62	-	-	-	-	-	-	-	-	-	
2226.00	14951.69	200.59	-	-	-	-	-	-	-	-	-	
2227.00	15172.95	221.26	-	-	-	-	-	-	-	-	-	
2228.00	15410.34	237.39	-	-	-	-	-	-	-	-	-	
2229.00	15641.95	231.61	-	-	-	-	-	-	-	-	-	
2230.00	15868.11	226.16	1273.82	20.14	40.27	13.77	28.25	195.00	34.34	43.42	140.00	
2231.00	16090.04	221.92	-	-	-	-	-	-	-	-	-	
2232.00	16308.47	218.43	-	-	-	-	-	-	-	-	-	
2233.00	16523.61	215.14	-	-	-	-	-	-	-	-	-	
2234.00	16734.35	210.74	-	-	-	-	-	-	-	-	-	
2235.00	16932.23	197.88	-	-	-	-	-	-	-	-	-	
2236.00	17120.73	188.51	-	-	-	-	-	-	-	-	-	
2237.00	17306.75	186.02	-	-	-	-	-	-	-	-	-	
2238.00	17487.65	180.90	-	-	-	-	-	-	-	-	-	
2239.00	17652.60	164.95	-	-	-	-	-	-	-	-	-	
2240.00	17803.98	151.38	855.62	16.50	33.01	7.59	26.92	185.00	21.79	35.23	25.00	
2241.00	17944.37	140.39	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				17 	
		DATE : December 03, 2022				OPERATION No. : 2					
		MAIN CHARACTERISTICS DATASHEET									
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)
2242.00	18078.96	134.59	-	-	-	-	-	-	-	-	-
2243.00	18216.94	137.97	-	-	-	-	-	-	-	-	-
2244.00	18354.10	137.16	-	-	-	-	-	-	-	-	-
2245.00	18475.59	121.49	-	-	-	-	-	-	-	-	-
2246.00	18595.68	120.09	-	-	-	-	-	-	-	-	-
2247.00	18749.53	153.85	-	-	-	-	-	-	-	-	-
2248.00	18935.56	186.03	-	-	-	-	-	-	-	-	-
2249.00	19128.49	192.93	-	-	-	-	-	-	-	-	-
2250.00	19328.63	200.14	1117.51	18.86	37.72	15.44	23.83	155.00	33.18	40.83	160.00
2251.00	19536.31	207.68	-	-	-	-	-	-	-	-	-
2252.00	19751.84	215.53	-	-	-	-	-	-	-	-	-
2253.00	19975.55	223.71	-	-	-	-	-	-	-	-	-
2254.00	20207.76	232.21	-	-	-	-	-	-	-	-	-
2255.00	20448.79	241.03	-	-	-	-	-	-	-	-	-
2256.00	20698.96	250.17	-	-	-	-	-	-	-	-	-
2257.00	20958.59	259.63	-	-	-	-	-	-	-	-	-
2258.00	21221.80	263.21	-	-	-	-	-	-	-	-	-
2259.00	21464.78	242.98	-	-	-	-	-	-	-	-	-
2260.00	21686.55	221.77	1262.67	20.05	40.10	18.48	21.65	215.00	37.86	42.53	25.00
2261.00	21887.95	201.39	-	-	-	-	-	-	-	-	-
2262.00	22070.98	183.04	-	-	-	-	-	-	-	-	-
2263.00	22240.05	169.06	-	-	-	-	-	-	-	-	-
2264.00	22394.74	154.69	-	-	-	-	-	-	-	-	-
2265.00	22531.72	136.98	-	-	-	-	-	-	-	-	-
2266.00	22652.33	120.61	-	-	-	-	-	-	-	-	-
2267.00	22758.99	106.66	-	-	-	-	-	-	-	-	-
2268.00	22840.54	81.55	-	-	-	-	-	-	-	-	-
2269.00	22864.01	23.47	-	-	-	-	-	-	-	-	-
2270.00	22865.32	1.31	5.60	1.34	2.67	1.34	1.34	275.00	1.34	2.67	95.00
2271.00	22866.32	1.00	-	-	-	-	-	-	-	-	-
2272.00	22867.31	1.00	-	-	-	-	-	-	-	-	-
2273.00	22868.31	1.00	-	-	-	-	-	-	-	-	-
2274.00	22869.17	0.86	-	-	-	-	-	-	-	-	-
2275.00	22869.55	0.38	-	-	-	-	-	-	-	-	-
2276.00	22869.68	0.12	-	-	-	-	-	-	-	-	-
2277.00	22869.79	0.11	-	-	-	-	-	-	-	-	-

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				18		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2278.00	22869.90	0.11	-	-	-	-	-	-	-	-	-	
2279.00	22870.01	0.11	-	-	-	-	-	-	-	-	-	
2280.00	22870.12	0.11	0.63	0.45	0.90	0.45	0.45	315.00	0.45	0.90	135.00	
2281.00	22870.24	0.11	-	-	-	-	-	-	-	-	-	
2282.00	22870.35	0.11	-	-	-	-	-	-	-	-	-	
2283.00	22870.46	0.11	-	-	-	-	-	-	-	-	-	
2284.00	22870.57	0.11	-	-	-	-	-	-	-	-	-	
2285.00	22870.71	0.14	-	-	-	-	-	-	-	-	-	
2286.00	22871.04	0.32	-	-	-	-	-	-	-	-	-	
2287.00	22871.62	0.59	-	-	-	-	-	-	-	-	-	
2288.00	22872.54	0.91	-	-	-	-	-	-	-	-	-	
2289.00	22873.77	1.24	-	-	-	-	-	-	-	-	-	
2290.00	22895.39	21.62	8.68	1.66	3.32	1.66	1.98	160.00	1.66	3.64	160.00	
2291.00	23197.70	302.31	-	-	-	-	-	-	-	-	-	
2292.00	24024.07	826.37	-	-	-	-	-	-	-	-	-	
2293.00	25031.09	1007.02	-	-	-	-	-	-	-	-	-	
2294.00	26178.58	1147.50	-	-	-	-	-	-	-	-	-	
2295.00	27328.76	1150.18	-	-	-	-	-	-	-	-	-	
2296.00	28469.03	1140.27	-	-	-	-	-	-	-	-	-	
2297.00	29627.63	1158.60	-	-	-	-	-	-	-	-	-	
2298.00	30787.10	1159.47	-	-	-	-	-	-	-	-	-	
2299.00	31877.47	1090.37	-	-	-	-	-	-	-	-	-	
2300.00	32894.91	1017.44	5788.38	42.92	85.85	30.83	54.96	205.00	79.91	92.02	135.00	
2301.00	33824.21	929.30	-	-	-	-	-	-	-	-	-	
2302.00	34663.35	839.14	-	-	-	-	-	-	-	-	-	
2303.00	35392.25	728.90	-	-	-	-	-	-	-	-	-	
2304.00	36032.55	640.31	-	-	-	-	-	-	-	-	-	
2305.00	36629.54	596.99	-	-	-	-	-	-	-	-	-	
2306.00	37192.15	562.61	-	-	-	-	-	-	-	-	-	
2307.00	37739.16	547.01	-	-	-	-	-	-	-	-	-	
2308.00	38261.28	522.12	-	-	-	-	-	-	-	-	-	
2309.00	38719.04	457.76	-	-	-	-	-	-	-	-	-	
2310.00	39116.71	397.67	2284.89	26.97	53.94	20.01	34.93	185.00	48.37	57.75	120.00	
2311.00	39455.53	338.81	-	-	-	-	-	-	-	-	-	
2312.00	39729.14	273.61	-	-	-	-	-	-	-	-	-	
2313.00	39919.69	190.55	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				19		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2314.00	40059.67	139.99	-	-	-	-	-	-	-	-	-	
2315.00	40179.36	119.68	-	-	-	-	-	-	-	-	-	
2316.00	40276.30	96.94	-	-	-	-	-	-	-	-	-	
2317.00	40347.95	71.65	-	-	-	-	-	-	-	-	-	
2318.00	40389.63	41.68	-	-	-	-	-	-	-	-	-	
2319.00	40399.44	9.81	-	-	-	-	-	-	-	-	-	
2320.00	40399.63	0.20	0.94	0.55	1.09	0.55	0.55	315.00	0.55	1.09	135.00	
2321.00	40399.80	0.17	-	-	-	-	-	-	-	-	-	
2322.00	40399.97	0.17	-	-	-	-	-	-	-	-	-	
2323.00	40400.13	0.17	-	-	-	-	-	-	-	-	-	
2324.00	40400.30	0.17	-	-	-	-	-	-	-	-	-	
2325.00	40400.47	0.17	-	-	-	-	-	-	-	-	-	
2326.00	40400.63	0.17	-	-	-	-	-	-	-	-	-	
2327.00	40400.80	0.17	-	-	-	-	-	-	-	-	-	
2328.00	40400.97	0.17	-	-	-	-	-	-	-	-	-	
2329.00	40401.14	0.17	-	-	-	-	-	-	-	-	-	
2330.00	40401.30	0.17	0.94	0.55	1.09	0.55	0.55	60.00	0.55	1.09	60.00	
2331.00	40401.47	0.17	-	-	-	-	-	-	-	-	-	
2332.00	40401.64	0.17	-	-	-	-	-	-	-	-	-	
2333.00	40401.80	0.17	-	-	-	-	-	-	-	-	-	
2334.00	40401.97	0.17	-	-	-	-	-	-	-	-	-	
2335.00	40402.14	0.17	-	-	-	-	-	-	-	-	-	
2336.00	40402.30	0.17	-	-	-	-	-	-	-	-	-	
2337.00	40402.47	0.17	-	-	-	-	-	-	-	-	-	
2338.00	40402.64	0.17	-	-	-	-	-	-	-	-	-	
2339.00	40402.81	0.17	-	-	-	-	-	-	-	-	-	
2340.00	40402.97	0.17	0.94	0.55	1.09	0.55	0.55	315.00	0.55	1.09	135.00	
2341.00	40403.14	0.17	-	-	-	-	-	-	-	-	-	
2342.00	40403.31	0.17	-	-	-	-	-	-	-	-	-	
2343.00	40403.47	0.17	-	-	-	-	-	-	-	-	-	
2344.00	40403.64	0.17	-	-	-	-	-	-	-	-	-	
2345.00	40403.81	0.17	-	-	-	-	-	-	-	-	-	
2346.00	40403.97	0.17	-	-	-	-	-	-	-	-	-	
2347.00	40404.14	0.17	-	-	-	-	-	-	-	-	-	
2348.00	40410.04	5.90	-	-	-	-	-	-	-	-	-	
2349.00	40492.64	82.60	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				20		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2350.00	40713.83	221.19	1216.20	19.68	39.35	18.03	21.06	240.00	37.74	40.82	50.00	
2351.00	40989.95	276.11	-	-	-	-	-	-	-	-	-	
2352.00	41311.41	321.46	-	-	-	-	-	-	-	-	-	
2353.00	41607.32	295.91	-	-	-	-	-	-	-	-	-	
2354.00	41871.02	263.71	-	-	-	-	-	-	-	-	-	
2355.00	42096.22	225.20	-	-	-	-	-	-	-	-	-	
2356.00	42289.50	193.27	-	-	-	-	-	-	-	-	-	
2357.00	42456.58	167.09	-	-	-	-	-	-	-	-	-	
2358.00	42609.84	153.26	-	-	-	-	-	-	-	-	-	
2359.00	42758.74	148.90	-	-	-	-	-	-	-	-	-	
2360.00	42892.16	133.42	825.06	16.21	32.41	6.14	26.54	190.00	13.27	33.40	20.00	
2361.00	42967.59	75.43	-	-	-	-	-	-	-	-	-	
2362.00	42999.93	32.33	-	-	-	-	-	-	-	-	-	
2363.00	43007.39	7.46	-	-	-	-	-	-	-	-	-	
2364.00	43007.62	0.23	-	-	-	-	-	-	-	-	-	
2365.00	43007.85	0.23	-	-	-	-	-	-	-	-	-	
2366.00	43008.08	0.23	-	-	-	-	-	-	-	-	-	
2367.00	43008.32	0.23	-	-	-	-	-	-	-	-	-	
2368.00	43008.55	0.23	-	-	-	-	-	-	-	-	-	
2369.00	43008.78	0.23	-	-	-	-	-	-	-	-	-	
2370.00	43009.01	0.23	1.31	0.64	1.29	0.64	0.65	70.00	0.65	1.29	70.00	
2371.00	43009.25	0.23	-	-	-	-	-	-	-	-	-	
2372.00	43009.48	0.23	-	-	-	-	-	-	-	-	-	
2373.00	43009.70	0.23	-	-	-	-	-	-	-	-	-	
2374.00	43009.93	0.23	-	-	-	-	-	-	-	-	-	
2375.00	43010.15	0.22	-	-	-	-	-	-	-	-	-	
2376.00	43010.35	0.19	-	-	-	-	-	-	-	-	-	
2377.00	43010.52	0.17	-	-	-	-	-	-	-	-	-	
2378.00	43010.66	0.15	-	-	-	-	-	-	-	-	-	
2379.00	43010.79	0.13	-	-	-	-	-	-	-	-	-	
2380.00	43010.90	0.11	0.63	0.45	0.90	0.45	0.45	340.00	0.45	0.90	105.00	
2381.00	43011.01	0.11	-	-	-	-	-	-	-	-	-	
2382.00	43013.54	2.52	-	-	-	-	-	-	-	-	-	
2383.00	43043.50	29.96	-	-	-	-	-	-	-	-	-	
2384.00	43191.83	148.33	-	-	-	-	-	-	-	-	-	
2385.00	43500.55	308.72	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				21		
		DATE : December 03, 2022				OPERATION No. : 2						
		MAIN CHARACTERISTICS DATASHEET										
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation	
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)	
2386.00	43874.93	374.38	-	-	-	-	-	-	-	-	-	
2387.00	44255.45	380.52	-	-	-	-	-	-	-	-	-	
2388.00	44639.12	383.67	-	-	-	-	-	-	-	-	-	
2389.00	45012.83	373.71	-	-	-	-	-	-	-	-	-	
2390.00	45394.91	382.08	2111.76	25.93	51.85	11.75	46.55	190.00	31.70	59.89	10.00	
2391.00	45833.98	439.07	-	-	-	-	-	-	-	-	-	
2392.00	46378.72	544.74	-	-	-	-	-	-	-	-	-	
2393.00	47146.81	768.09	-	-	-	-	-	-	-	-	-	
2394.00	48001.38	854.58	-	-	-	-	-	-	-	-	-	
2395.00	48923.13	921.75	-	-	-	-	-	-	-	-	-	
2396.00	49934.30	1011.17	-	-	-	-	-	-	-	-	-	
2397.00	51046.99	1112.69	-	-	-	-	-	-	-	-	-	
2398.00	52300.47	1253.48	-	-	-	-	-	-	-	-	-	
2399.00	53602.92	1302.46	-	-	-	-	-	-	-	-	-	
2400.00	54887.83	1284.90	7257.09	48.06	96.13	37.30	63.15	160.00	83.60	101.86	160.00	
2401.00	56124.75	1236.92	-	-	-	-	-	-	-	-	-	
2402.00	57305.63	1180.88	-	-	-	-	-	-	-	-	-	
2403.00	58423.43	1117.80	-	-	-	-	-	-	-	-	-	
2404.00	59479.11	1055.68	-	-	-	-	-	-	-	-	-	
2405.00	60467.28	988.16	-	-	-	-	-	-	-	-	-	
2406.00	61390.64	923.36	-	-	-	-	-	-	-	-	-	
2407.00	62245.07	854.43	-	-	-	-	-	-	-	-	-	
2408.00	63023.98	778.91	-	-	-	-	-	-	-	-	-	
2409.00	63714.01	690.03	-	-	-	-	-	-	-	-	-	
2410.00	64325.22	611.21	3487.69	33.32	66.64	20.22	50.49	155.00	52.30	72.17	155.00	
2411.00	64881.93	556.71	-	-	-	-	-	-	-	-	-	
2412.00	65401.81	519.88	-	-	-	-	-	-	-	-	-	
2413.00	65885.78	483.97	-	-	-	-	-	-	-	-	-	
2414.00	66331.72	445.94	-	-	-	-	-	-	-	-	-	
2415.00	66741.52	409.79	-	-	-	-	-	-	-	-	-	
2416.00	67114.77	373.25	-	-	-	-	-	-	-	-	-	
2417.00	67463.86	349.09	-	-	-	-	-	-	-	-	-	
2418.00	67838.24	374.38	-	-	-	-	-	-	-	-	-	
2419.00	68413.99	575.75	-	-	-	-	-	-	-	-	-	
2420.00	69250.83	836.84	4553.28	38.21	76.42	7.70	59.10	195.00	50.32	87.62	15.00	
2421.00	70333.04	1082.21	-	-	-	-	-	-	-	-	-	

SONIC SURVEYS		CUSTOMER : Marathon Petroleum				CAVERN : State LPG Well no. 3				22 	
		DATE : December 03, 2022				OPERATION No. : 2					
		MAIN CHARACTERISTICS DATASHEET									
Depth	Cumulated Volume	Volume Section	Section Area	Mean Radius	Mean Diameter	Min Radius	Max Radius	Max Radius Orientation	Min Diameter	Max Diameter	Max Diam. Orientation
(ft)	(bbl)	(bbl)	(ft²)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(°)
2422.00	71593.98	1260.94	-	-	-	-	-	-	-	-	-
2423.00	72968.04	1374.06	-	-	-	-	-	-	-	-	-
2424.00	74364.17	1396.12	-	-	-	-	-	-	-	-	-
2425.00	75764.76	1400.60	-	-	-	-	-	-	-	-	-
2426.00	77156.99	1392.23	-	-	-	-	-	-	-	-	-
2427.00	78509.20	1352.21	-	-	-	-	-	-	-	-	-
2428.00	79809.15	1299.95	-	-	-	-	-	-	-	-	-
2429.00	81081.04	1271.90	-	-	-	-	-	-	-	-	-
2430.00	82313.16	1232.12	6982.14	47.14	94.29	30.81	65.10	210.00	84.21	98.38	25.00
2431.00	83485.57	1172.41	-	-	-	-	-	-	-	-	-
2432.00	84591.00	1105.43	-	-	-	-	-	-	-	-	-
2433.00	85642.41	1051.41	-	-	-	-	-	-	-	-	-
2434.00	86640.91	998.50	-	-	-	-	-	-	-	-	-
2435.00	87591.35	950.44	-	-	-	-	-	-	-	-	-
2436.00	88473.29	881.94	-	-	-	-	-	-	-	-	-
2437.00	89235.12	761.83	-	-	-	-	-	-	-	-	-
2438.00	89863.89	628.77	-	-	-	-	-	-	-	-	-
2439.00	90384.33	520.44	-	-	-	-	-	-	-	-	-
2440.00	90826.76	442.43	2535.95	28.51	57.02	5.71	62.60	180.00	-	-	-
2441.00	91208.84	382.07	-	-	-	-	-	-	-	-	-
2442.00	91530.78	321.94	-	-	-	-	-	-	-	-	-
2443.00	91792.38	261.60	-	-	-	-	-	-	-	-	-
2444.00	92006.06	213.68	-	-	-	-	-	-	-	-	-
2445.00	92183.10	177.05	-	-	-	-	-	-	-	-	-
2446.00	92324.93	141.83	-	-	-	-	-	-	-	-	-
2447.00	92441.69	116.76	-	-	-	-	-	-	-	-	-
2448.00	92505.63	63.94	-	-	-	-	-	-	-	-	-
2449.00	92519.45	13.82	-	-	-	-	-	-	-	-	-
2450.00	92520.27	0.82	3.63	1.08	2.15	35.00	37.14	195.00	-	-	-
2451.00	92520.27	0.00	-	-	-	-	-	-	-	-	-



CUSTOMER : Marathon Petroleum

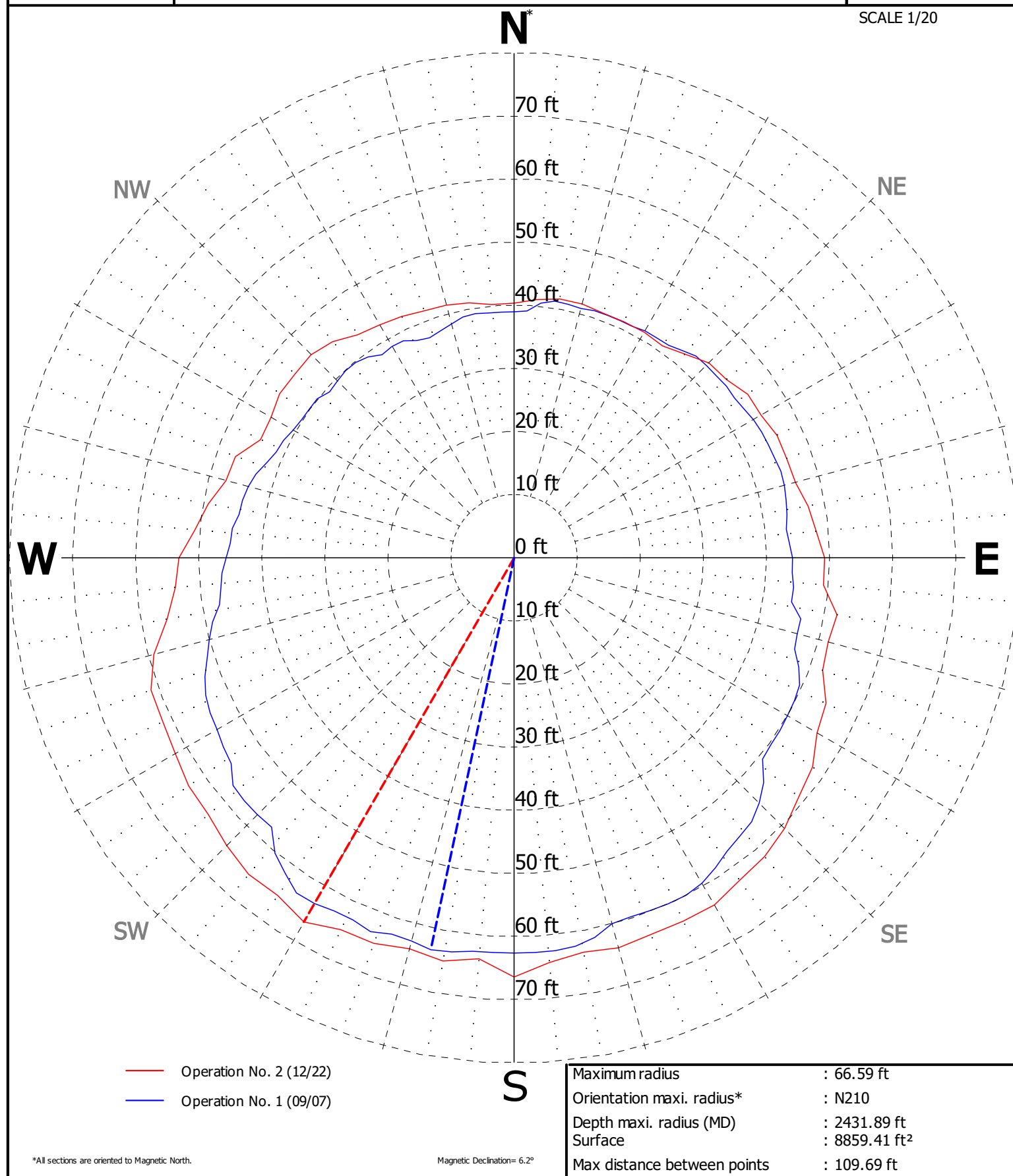
CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. : 2

**MAXIMUM EXTENSION**

SCALE 1/20





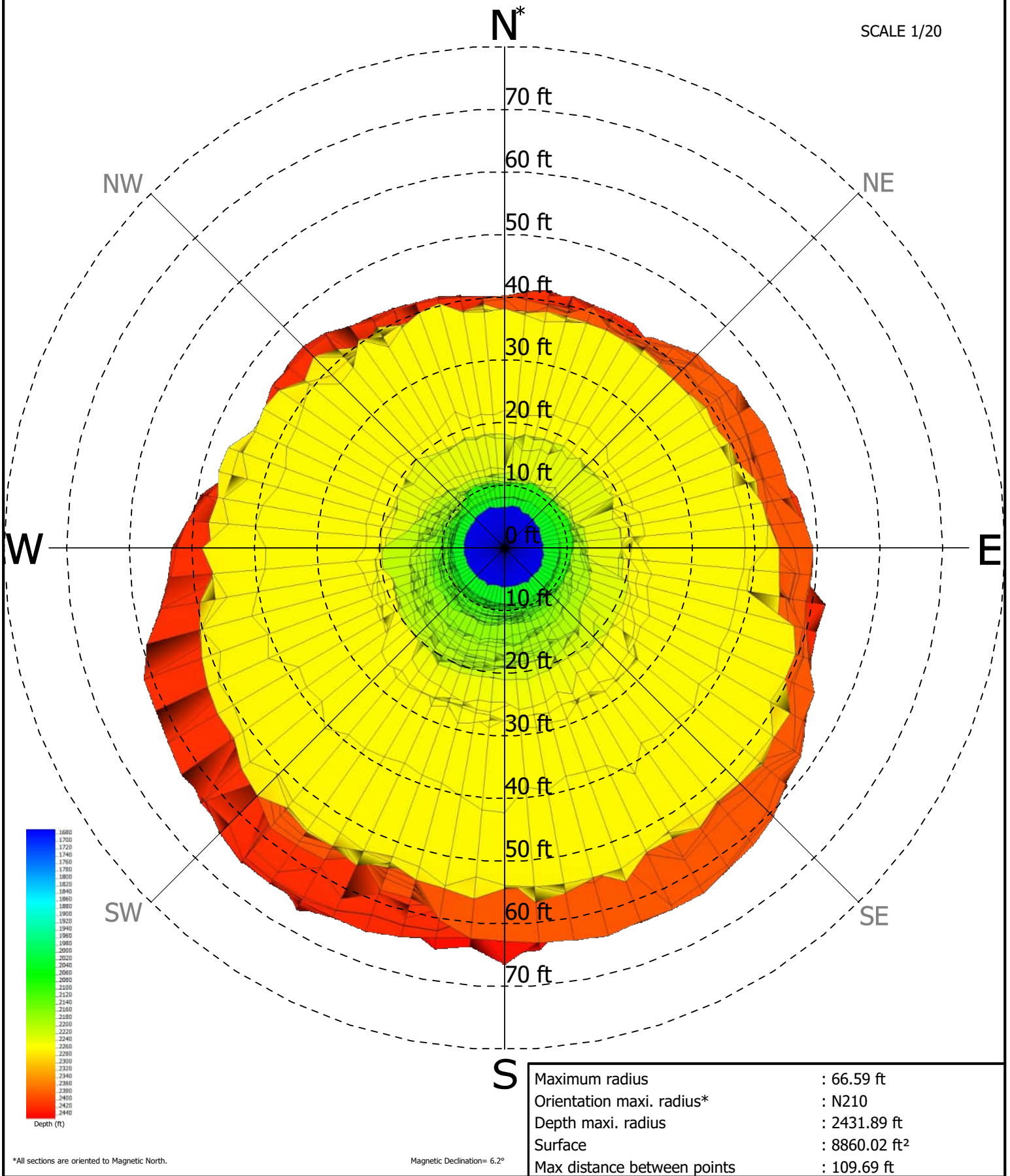
CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



VIEW FROM ABOVE

SCALE 1/20





CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



WALL RANGE VS BEARING

Bearing	0.0	5.0	10.0	15.0
0	41.2: 2425.84	41.1: 2425.84	41.1: 2425.84	41.1: 2425.84
20	41.1: 2425.84	40.4: 2399.97	39.1: 2399.97	40.2: 2399.97
40	41.2: 2399.97	42.2: 2399.97	43.9: 2399.97	43.8: 2399.97
60	43.1: 2399.97	45.5: 2399.97	45.0: 2399.97	45.0: 2427.88
80	46.4: 2399.97	48.4: 2427.88	50.3: 2427.88	51.9: 2427.88
100	51.9: 2427.88	51.8: 2425.84	52.0: 2398.04	51.3: 2427.88
120	52.5: 2296.15	52.4: 2296.15	53.7: 2297.89	53.0: 2296.15
140	55.7: 2427.88	57.8: 2427.88	58.2: 2427.88	58.4: 2427.88
160	58.7: 2427.88	58.8: 2427.88	59.8: 2429.84	61.8: 2427.88
180	61.9: 2427.88	62.2: 2427.88	63.0: 2427.88	64.1: 2427.88
200	65.0: 2427.88	65.0: 2429.84	66.6: 2431.89	65.3: 2429.84
220	64.8: 2429.84	64.2: 2425.84	62.5: 2429.84	61.8: 2429.84
240	61.6: 2425.84	60.3: 2425.84	58.4: 2425.84	60.4: 2425.84
260	60.1: 2425.84	49.5: 2425.84	48.2: 2294.1	47.3: 2297.89
280	46.4: 2297.89	47.2: 2297.89	47.0: 2297.89	45.0: 2425.84
300	45.0: 2425.84	44.8: 2425.84	44.8: 2425.84	43.7: 2425.84
320	42.7: 2425.84	41.8: 2425.84	41.5: 2425.84	41.1: 2425.84
340	40.6: 2425.84	40.5: 2425.84	40.2: 2425.84	39.9: 2399.97



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. : 2



Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1666.0	0	6.50	6.46	5.96	6.27	6.19	6.27	6.42	6.66
1668.1	0	6.27	5.97	5.97	6.06	6.09	5.91	5.91	6.06
1670.0	0	5.85	5.61	5.58	5.58	5.67	5.70	5.67	6.03
1671.9	0	5.85	5.64	5.61	5.70	5.58	5.79	5.64	5.91
1674.0	0	5.89	5.49	5.52	5.64	5.59	5.46	5.49	5.89
1675.9	0	5.67	5.40	5.19	5.37	5.76	5.61	5.82	5.61
1677.9	0	5.40	5.00	4.85	4.12	5.52	5.43	5.64	5.58
1679.9	0	6.00	4.95	4.60	5.20	5.07	5.13	5.88	6.09
1682.0	0	5.67	5.52	4.92	5.02	4.89	5.52	5.61	6.00
1683.9	0	5.04	4.52	4.48	4.06	4.10	4.36	4.71	5.11
1686.0	0	5.31	4.43	4.48	4.91	4.95	4.82	4.51	4.63
1687.9	0	3.67	3.01	3.08	3.41	4.06	4.21	4.34	4.00
1690.0	0	4.63	4.78	4.71	4.10	4.76	4.58	4.52	4.37
1692.0	0	5.19	4.85	4.67	4.80	4.76	4.65	4.63	4.93
1693.9	0	4.61	4.48	4.28	3.93	3.89	4.23	4.36	4.48
1696.0	0	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
1697.9	0	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
1699.9	0	4.24	4.12	3.97	3.64	3.75	3.97	3.88	4.09
1701.9	0	4.57	4.45	4.34	4.21	4.12	4.27	4.33	4.30
1703.9	0	4.50	4.65	4.43	4.21	4.08	4.37	4.56	4.47
1705.9	0	3.78	3.69	3.71	3.65	3.19	3.36	3.25	3.64
1708.0	0	4.24	4.47	4.12	4.00	3.93	4.02	4.10	4.12
1709.9	0	4.12	4.37	4.23	4.10	3.93	3.84	3.95	4.06
1711.8	0	4.15	4.03	4.06	4.06	3.97	3.97	3.97	4.12
1713.8	0	4.24	4.12	4.03	4.00	3.86	4.15	4.03	4.00
1715.9	0	4.21	4.12	4.00	3.97	3.97	4.06	3.97	3.97
1717.9	0	4.06	3.75	3.95	3.86	4.13	4.00	3.76	3.64
1719.9	0	4.24	4.26	4.17	4.19	3.97	4.26	3.99	3.70
1722.0	0	4.26	4.34	4.24	4.26	3.89	4.13	4.00	3.95
1723.8	0	4.57	4.34	4.32	4.39	4.00	3.99	3.97	4.10
1725.9	0	4.37	4.44	4.39	3.99	3.88	3.88	3.88	3.88
1728.0	0	4.45	4.50	4.36	4.24	4.36	4.19	4.28	4.32
1729.8	0	3.67	3.64	3.64	3.82	3.46	3.58	3.49	3.40
1731.8	0	3.80	3.88	3.93	3.82	3.51	3.45	3.64	3.34
1733.9	0	3.84	4.09	3.67	3.58	3.55	3.75	3.67	3.61
1735.9	0	3.23	3.01	3.41	2.97	2.89	2.89	2.95	3.19
1737.8	0	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
1739.9	0	3.41	3.71	3.52	3.32	3.04	2.83	3.01	3.21



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. : 2



Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1741.8	0	3.88	3.91	3.76	3.60	3.69	3.73	3.80	3.80
1743.9	0	3.85	3.91	3.99	3.69	3.60	3.62	3.94	4.00
1745.8	0	3.94	3.88	3.82	3.78	3.73	3.52	3.70	3.79
1747.8	0	3.75	3.46	3.51	3.41	3.67	3.47	3.62	4.10
1749.8	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1751.7	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1753.8	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1756.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1758.1	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1760.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1764.9	0	2.95	2.90	2.98	2.90	3.10	3.01	2.95	2.97
1770.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1772.1	0	2.94	2.84	3.01	3.23	3.27	3.10	3.01	2.80
1774.0	0	2.90	2.86	2.80	3.06	3.34	3.36	3.16	3.03
1776.0	0	2.94	2.97	3.03	3.19	3.32	3.14	3.23	2.99
1778.0	0	2.82	2.94	3.05	3.21	3.32	3.12	2.86	2.77
1780.0	0	2.90	2.84	3.03	3.30	3.49	3.25	3.16	2.84
1782.0	0	3.16	3.16	3.16	3.16	3.61	3.30	3.16	3.16
1784.0	0	2.89	2.83	3.04	3.55	3.55	3.60	3.07	2.92
1785.9	0	2.80	2.80	2.86	3.54	3.37	3.07	3.01	2.80
1788.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1790.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1792.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1793.9	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1795.9	0	3.08	3.03	3.05	2.58	2.42	2.38	2.74	2.92
1797.9	0	3.42	3.36	2.94	2.86	2.80	2.80	2.80	3.22
1799.9	0	3.43	3.49	3.14	3.05	2.95	2.86	2.83	3.06
1801.9	0	3.40	2.94	2.81	2.99	2.79	2.75	2.86	3.43
1803.9	0	3.64	3.43	2.92	2.75	2.83	2.80	2.83	2.98
1806.0	0	3.43	3.37	2.80	2.80	2.80	2.80	2.92	3.27
1807.9	0	3.30	3.38	2.83	2.80	2.80	2.80	2.80	3.10
1809.8	0	3.61	3.40	3.04	2.80	2.80	2.98	2.80	3.13
1811.9	0	1.94	2.27	2.53	2.49	1.90	1.73	2.18	1.99
1813.8	0	3.08	3.27	2.60	2.53	2.36	2.20	2.70	2.95
1815.8	0	3.22	3.34	3.07	2.84	2.49	2.29	2.68	3.05
1817.9	0	3.19	3.16	2.71	2.56	2.47	2.53	2.65	2.98
1819.9	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1820.1	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

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Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1822.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1824.0	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1825.9	0	2.65	2.77	2.32	2.42	1.94	1.82	2.24	2.95
1827.9	0	3.28	3.08	2.97	2.70	2.44	2.44	2.53	3.01
1829.9	0	3.58	3.28	2.83	2.74	2.74	2.74	2.66	3.25
1831.9	0	3.34	3.42	3.05	2.74	2.74	2.74	2.74	3.75
1834.0	0	3.40	3.40	3.04	2.86	2.66	2.66	2.75	3.27
1836.0	0	3.43	3.56	2.92	2.79	2.70	2.86	2.86	3.33
1838.0	0	2.80	2.66	2.44	2.44	2.40	2.03	2.31	2.70
1840.0	0	2.92	3.01	2.44	2.29	2.29	2.29	2.49	3.05
1842.0	0	3.25	3.16	2.74	2.82	2.58	2.50	2.68	3.51
1844.1	0	3.19	3.01	2.62	2.44	2.29	2.47	2.69	3.14
1846.0	0	2.24	1.79	1.57	1.50	1.53	1.50	1.70	2.52
1848.1	0	3.28	2.97	2.65	2.41	2.38	2.35	2.90	3.49
1852.0	0	2.46	2.16	2.46	0.44	0.44	0.44	0.44	2.31
1854.0	0	2.27	2.59	2.47	2.50	3.07	2.62	2.35	2.24
1856.0	0	2.24	2.47	2.53	2.97	3.04	2.65	2.32	2.24
1858.0	0	2.24	2.44	2.24	2.60	3.05	2.47	2.24	2.24
1860.0	0	2.24	2.53	3.05	2.70	2.70	2.47	2.41	2.34
1862.0	0	2.33	2.69	2.98	3.22	3.04	2.71	2.53	2.25
1864.0	0	2.24	2.32	3.04	2.80	2.82	2.41	2.24	2.27
1866.0	0	2.24	2.65	3.07	3.10	2.74	2.59	2.24	2.24
1868.0	0	2.18	2.64	3.03	3.01	2.51	2.49	2.15	2.06
1869.9	0	2.44	2.65	2.95	3.23	2.32	2.47	2.12	2.09
1872.0	0	2.42	2.68	3.07	3.16	2.44	2.41	2.18	2.24
1873.9	0	2.29	2.88	3.16	3.19	2.71	2.35	2.18	2.18
1875.9	0	2.12	2.09	2.03	2.65	2.03	1.94	2.03	1.85
1878.0	0	2.09	2.03	2.41	2.74	2.20	2.05	1.88	1.88
1880.0	0	2.20	2.47	2.91	3.10	2.84	2.06	2.06	2.06
1881.9	0	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
1884.0	0	1.44	2.12	2.10	2.70	2.53	2.53	1.61	1.66
1886.0	0	1.96	2.16	2.38	2.10	1.98	2.29	2.21	2.21
1888.0	0	1.81	2.09	2.47	3.05	3.22	2.44	2.21	1.94
1890.0	0	2.09	2.29	3.13	3.07	3.19	3.21	2.32	2.09
1892.0	0	1.94	2.12	2.77	3.03	3.28	2.44	2.09	1.88
1894.1	0	2.12	2.24	2.83	3.22	3.28	2.62	2.15	2.09
1896.0	0	2.24	2.15	2.65	3.34	3.22	2.83	2.12	2.18
1898.1	0	1.95	2.15	2.65	3.13	3.22	2.35	2.22	1.82



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Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1900.0	0	2.09	2.27	2.83	3.31	3.46	2.71	2.34	2.09
1902.2	0	2.01	2.18	2.72	3.43	3.25	2.95	2.38	2.09
1904.0	0	1.89	2.12	2.75	3.23	3.42	3.09	2.15	1.87
1906.0	0	1.74	1.72	2.25	2.90	2.86	2.90	2.02	1.76
1908.0	0	1.71	1.89	2.22	2.69	2.73	2.48	1.84	1.73
1910.1	0	1.81	1.85	2.67	3.15	3.34	2.46	2.17	1.96
1912.0	0	1.89	2.31	2.68	3.31	3.71	2.17	2.08	1.87
1914.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
1916.0	0	1.92	2.31	2.94	3.49	3.49	2.41	2.06	1.75
1918.0	0	1.96	2.10	3.00	3.52	3.34	2.44	1.83	1.77
1919.9	0	1.85	2.52	2.98	3.46	3.38	2.42	1.98	1.75
1922.0	0	2.12	2.40	3.11	3.59	3.32	2.43	2.15	1.85
1924.0	0	1.98	2.11	2.91	3.55	3.53	2.25	1.98	1.96
1926.0	0	1.99	2.44	2.78	3.34	3.36	2.46	1.90	1.70
1928.0	0	1.98	2.27	3.13	3.67	3.15	2.03	1.98	1.65
1929.9	0	1.93	1.80	2.26	2.80	2.46	1.87	1.98	1.80
1932.0	0	2.24	2.37	2.30	3.44	3.34	2.62	2.02	2.12
1934.0	0	2.00	2.21	3.26	3.72	3.30	2.13	1.87	1.73
1936.1	0	2.21	2.68	3.32	3.72	3.46	2.00	1.83	1.98
1938.1	0	2.15	2.31	3.38	3.72	3.66	2.15	1.98	1.81
1939.9	0	1.69	2.25	2.97	3.46	2.70	1.96	1.46	1.38
1942.1	0	1.62	2.64	3.26	3.56	2.25	1.81	1.48	1.52
1944.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1946.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1947.9	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1949.9	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1954.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1956.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1958.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1959.9	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1962.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1964.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1966.1	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1970.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1975.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1980.1	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1985.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1989.9	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45



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Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
1992.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
1994.0	0	1.75	0.72	0.72	0.72	0.72	0.72	0.72	0.72
1995.8	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
1997.9	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2000.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2002.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2004.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2006.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2010.0	0	3.19	3.11	3.19	3.11	3.13	3.49	3.11	3.19
2012.0	0	3.11	3.11	3.11	3.15	3.11	3.11	3.13	3.19
2014.0	0	3.19	3.19	3.25	3.23	3.19	3.19	3.25	3.19
2016.1	0	3.25	3.28	3.25	3.25	3.28	3.22	3.28	3.25
2018.0	0	3.31	3.25	3.19	3.19	3.40	3.34	3.19	3.19
2019.8	0	3.37	3.37	3.37	3.37	3.37	3.37	3.40	3.37
2022.0	0	3.13	3.32	3.13	3.22	3.13	3.61	3.28	3.13
2025.0	0	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2029.8	0	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2034.9	0	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2040.0	0	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2042.2	0	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
2044.0	0	7.95	8.40	8.63	8.78	8.87	8.60	8.46	8.01
2046.1	0	8.16	8.22	8.46	8.75	8.99	8.66	8.54	8.28
2048.0	0	8.07	8.34	8.46	8.81	9.14	8.69	8.43	8.10
2050.0	0	7.65	7.95	8.04	8.51	8.60	8.51	8.01	7.89
2052.0	0	7.23	7.38	7.71	8.37	8.28	7.77	7.20	7.35
2054.1	0	7.59	7.83	8.07	8.28	8.66	8.43	7.98	7.62
2056.1	0	8.13	8.25	8.34	8.81	8.99	8.93	8.60	8.31
2058.0	0	7.83	8.04	8.40	8.57	9.11	8.99	8.48	8.19
2060.0	0	7.41	7.20	7.50	8.16	9.35	8.55	7.86	7.65
2062.0	0	8.04	8.04	8.60	8.96	9.53	9.20	8.66	8.28
2064.1	0	7.92	8.25	8.60	9.02	9.44	9.41	8.69	8.22
2066.1	0	8.07	8.13	8.54	9.38	9.68	9.65	9.05	8.22
2068.2	0	7.62	8.10	8.90	9.32	9.77	9.44	8.90	8.04
2070.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2072.0	0	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
2074.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2076.0	0	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
2078.0	0	10.36	10.69	10.71	9.80	9.32	8.66	8.78	8.99



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Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2080.0	0	10.40	10.85	11.02	9.89	9.42	9.42	8.96	8.99
2082.0	0	10.29	10.40	9.94	9.97	9.47	8.66	8.63	9.92
2084.2	0	8.84	10.03	10.49	10.07	10.42	8.43	8.46	8.84
2086.0	0	8.78	9.97	10.40	9.71	9.32	8.75	7.56	8.03
2088.0	0	8.96	9.71	10.07	10.20	9.22	8.44	7.95	8.04
2090.0	0	8.57	9.76	10.34	10.18	9.68	8.72	7.77	8.13
2092.2	0	8.38	8.94	10.33	9.44	9.71	8.77	8.60	7.74
2094.0	0	8.19	8.90	10.10	10.26	10.16	8.75	8.01	7.59
2096.0	0	8.06	8.43	9.93	10.39	9.95	9.33	8.18	8.00
2098.0	0	7.96	8.44	10.09	10.07	9.79	9.68	8.59	7.83
2100.0	0	8.24	8.10	9.29	10.24	10.52	9.66	8.40	7.95
2102.0	0	8.09	8.40	8.57	10.01	9.38	9.57	8.31	8.11
2103.9	0	8.40	8.46	8.86	10.71	10.76	10.54	8.40	8.59
2106.0	0	8.14	8.10	8.40	9.64	10.79	10.77	8.79	8.51
2108.0	0	8.13	7.80	8.48	9.14	10.86	10.58	9.29	8.25
2110.0	0	8.48	8.16	8.07	9.63	10.99	10.77	9.78	8.80
2112.0	0	8.07	7.95	8.90	10.40	11.15	10.94	9.95	8.57
2114.1	0	7.77	7.86	8.46	10.43	11.01	11.45	9.75	8.10
2116.1	0	7.94	8.10	8.34	10.12	11.08	11.22	9.38	8.59
2118.1	0	7.98	8.01	9.23	11.16	11.21	11.24	9.68	8.28
2120.1	0	7.83	7.92	9.10	10.14	11.52	11.45	10.09	8.66
2122.0	0	8.16	8.27	8.35	10.37	11.50	11.27	10.28	8.40
2124.0	0	7.81	7.50	8.07	9.18	11.58	11.73	9.73	9.14
2128.0	0	8.40	8.33	8.35	8.96	11.49	12.68	11.39	9.09
2130.0	0	8.01	7.86	7.92	9.63	12.02	12.28	11.26	9.29
2132.1	0	8.40	7.38	8.00	8.97	11.98	11.98	9.05	8.22
2133.9	0	7.86	7.20	8.14	11.78	11.64	11.98	9.82	8.33
2136.0	0	7.87	7.89	8.49	10.92	11.88	12.45	10.28	8.38
2137.9	0	7.23	7.39	8.37	10.14	9.84	10.79	9.12	7.95
2140.0	0	6.04	6.20	7.04	7.17	10.35	9.73	6.87	6.12
2142.0	0	5.35	5.05	5.14	5.41	9.08	8.06	6.55	5.14
2144.0	0	3.75	3.84	3.73	4.30	8.24	6.39	5.97	3.51
2145.9	0	4.27	4.48	5.90	7.38	6.75	6.00	4.39	4.36
2148.0	0	3.93	3.04	2.92	2.89	3.66	4.34	4.36	4.17
2150.0	0	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
2152.1	0	6.90	8.06	9.62	11.91	14.52	12.74	11.47	10.43
2154.0	0	7.60	7.63	9.20	12.13	14.92	14.81	12.55	9.40
2156.0	0	8.84	8.80	9.58	13.04	15.13	15.08	11.60	9.18



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. :2



Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2158.0	0	9.19	8.96	10.36	13.41	15.06	14.89	12.52	9.85
2160.1	0	9.07	9.54	9.54	11.51	14.02	13.90	11.24	9.31
2161.9	0	8.33	7.17	9.27	12.14	13.90	14.94	12.08	9.52
2164.0	0	8.80	8.99	9.11	12.18	15.21	14.00	12.18	9.69
2166.0	0	9.07	9.19	10.55	12.40	15.01	14.32	11.61	8.99
2168.0	0	7.44	8.14	8.41	11.83	15.55	14.37	11.64	9.35
2170.0	0	9.31	9.46	10.78	12.30	17.05	15.55	13.43	10.39
2172.0	0	9.47	8.64	12.14	12.92	17.62	13.85	12.70	10.41
2174.1	0	10.25	10.56	11.81	16.83	17.51	16.58	12.45	10.95
2176.1	0	10.25	10.55	12.87	13.65	17.59	16.90	12.90	10.82
2178.1	0	10.01	9.86	12.09	17.20	18.05	17.42	13.69	11.02
2180.0	0	10.58	10.76	12.80	15.46	18.71	17.52	13.96	11.44
2182.0	0	11.23	11.11	12.51	14.32	18.95	17.26	14.75	12.75
2183.9	0	11.87	10.99	12.29	15.11	19.10	18.38	19.44	12.59
2186.1	0	11.20	11.48	13.29	14.90	18.62	19.14	14.32	11.96
2188.0	0	11.47	10.68	12.63	13.69	19.02	18.24	15.66	12.84
2190.0	0	10.82	10.72	11.41	13.20	18.71	19.90	15.23	12.99
2196.0	0	9.05	9.05	10.78	16.90	17.71	18.20	13.84	10.73
2198.0	0	8.84	9.22	10.37	15.31	20.96	18.26	14.02	10.34
2202.0	0	11.11	11.76	11.26	20.18	20.48	20.12	11.50	11.41
2204.0	0	8.43	9.37	12.97	20.54	20.30	18.35	12.06	7.80
2205.9	0	8.24	8.36	11.11	16.34	18.09	18.95	15.28	10.55
2207.8	0	17.52	17.57	12.65	11.79	10.53	18.28	15.03	17.95
2210.0	0	17.47	18.29	18.65	17.64	18.28	18.56	19.00	18.00
2211.9	0	18.14	18.52	18.04	18.24	19.24	19.27	18.86	20.05
2219.9	0	13.99	15.03	17.09	21.84	24.44	18.48	14.99	15.29
2221.8	0	15.84	16.73	17.77	21.88	18.77	16.14	14.95	16.56
2223.9	0	15.46	14.75	18.49	21.05	25.17	26.33	19.59	15.99
2225.8	0	14.44	16.38	14.44	22.21	22.68	22.47	18.97	16.81
2228.0	0	14.36	14.59	18.25	26.10	27.50	25.45	20.26	17.05
2229.8	0	14.21	15.41	20.22	26.03	27.32	19.78	18.06	16.18
2232.0	0	13.35	14.07	21.75	23.92	25.07	21.51	18.92	14.20
2234.1	0	13.97	16.53	20.42	24.43	24.01	23.77	18.96	13.29
2236.0	0	11.60	17.37	19.49	27.49	25.29	13.57	12.37	11.70
2237.9	0	9.72	14.86	19.93	27.49	27.29	16.76	10.42	9.53
2241.8	0	6.34	7.13	7.36	21.61	25.21	23.14	8.24	7.13
2243.9	0	9.33	11.64	12.88	16.88	24.20	23.16	11.15	9.53
2246.0	0	14.38	11.46	14.99	14.02	22.12	11.34	11.89	14.38



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. : 2



Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2247.9	0	14.66	15.30	15.79	23.28	23.10	20.97	16.03	15.73
2258.0	0	21.94	22.92	21.45	21.58	21.88	20.97	22.25	21.67
2259.9	0	20.48	20.05	20.19	19.59	20.88	19.99	19.59	19.89
2262.0	0	17.55	18.41	17.52	17.72	18.89	17.61	17.22	17.82
2264.0	0	16.64	17.22	16.24	15.94	17.92	16.34	17.07	16.44
2266.0	0	15.24	14.76	14.46	14.46	16.58	14.95	14.46	14.56
2268.1	0	12.59	13.08	12.98	12.49	13.71	12.59	14.17	13.47
2270.0	0	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
2271.9	0	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
2274.0	0	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
2276.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2280.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2285.0	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2287.9	0	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
2290.0	0	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
2292.0	0	38.15	38.01	38.30	38.59	42.11	40.54	38.01	36.98
2294.1	0	37.13	37.87	41.73	52.23	53.69	50.87	48.25	38.92
2296.2	0	37.87	36.55	43.73	52.96	54.22	51.32	38.65	43.09
2297.9	0	35.52	36.93	41.68	52.23	52.52	55.75	46.81	41.97
2299.9	0	33.76	34.05	37.43	52.68	50.60	53.40	46.37	40.36
2302.0	0	30.68	31.71	37.75	38.29	42.54	47.25	41.82	33.04
2304.0	0	27.90	29.80	29.51	38.56	42.90	35.57	30.24	33.91
2306.0	0	25.99	27.43	26.58	33.47	43.63	32.15	26.73	31.77
2307.9	0	24.08	23.50	29.96	34.35	37.65	37.38	32.50	30.78
2310.1	0	20.55	20.57	24.97	33.22	32.95	30.23	24.82	21.63
2311.9	0	17.79	18.23	18.08	30.41	28.33	29.22	21.91	19.55
2313.8	0	15.88	17.79	15.44	16.17	15.44	16.47	18.52	16.32
2315.7	0	13.31	14.30	13.94	13.58	14.94	13.58	14.57	13.24
2317.8	0	10.32	10.71	10.32	10.42	8.96	9.57	10.32	10.42
2319.9	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2321.8	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2323.9	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2326.0	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2327.9	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2330.0	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2331.9	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2333.9	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2336.0	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
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Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2338.1	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2340.0	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2341.9	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2344.1	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2346.1	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2348.0	0	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
2349.9	0	18.17	18.53	19.10	19.75	19.57	20.88	19.87	19.99
2352.0	0	34.48	27.61	20.54	18.81	18.53	18.71	21.43	29.92
2353.9	0	30.05	21.77	17.13	14.80	16.03	16.73	21.40	29.87
2355.9	0	20.09	14.02	11.70	12.29	16.49	18.18	25.73	25.99
2358.0	0	9.43	9.43	9.13	9.92	10.02	21.93	26.05	22.80
2360.0	0	20.68	21.21	24.93	25.12	24.93	25.54	21.37	24.08
2363.9	0	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
2365.9	0	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
2367.9	0	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
2369.9	0	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
2374.9	0	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
2379.9	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2383.8	0	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
2387.9	0	16.29	12.85	13.54	14.36	26.34	26.68	26.34	16.23
2389.8	0	14.50	12.85	12.71	23.45	37.13	39.43	20.00	18.90
2394.0	0	31.15	36.45	40.78	50.00	46.82	44.10	36.79	24.90
2396.0	0	30.87	35.83	40.37	49.72	42.43	42.74	42.84	30.68
2398.0	0	36.79	41.05	46.01	52.09	41.88	42.74	42.83	38.99
2400.0	0	40.37	42.15	44.36	43.39	42.23	42.57	39.27	37.39
2403.9	0	33.57	34.50	36.96	40.02	41.13	42.15	38.83	34.17
2406.0	0	29.74	30.46	34.45	37.64	38.07	39.77	38.30	31.01
2408.1	-55	34.99	36.94	32.66	34.80	41.02	39.47	13.61	12.64
2408.1	-50	37.33	40.44	36.94	43.74	41.22	41.41	14.00	13.03
2408.1	-40	40.05	36.16	44.13	48.02	61.05	18.28	14.97	14.00
2408.1	-35	19.83	37.72	44.67	48.21	71.16	18.86	15.75	14.19
2408.1	-30	20.61	39.08	20.22	51.13	73.88	22.16	16.33	15.16
2408.1	-25	44.13	40.24	20.61	52.88	58.13	63.57	17.50	15.55
2408.1	-20	28.97	26.25	22.75	54.44	31.58	37.33	18.08	17.30
2408.1	-15	25.27	24.30	24.50	39.86	32.47	38.49	21.97	18.66
2408.1	-10	23.91	24.30	26.44	42.38	34.99	35.97	21.39	19.25
2408.1	-6	23.72	24.89	28.19	42.38	37.91	36.36	21.97	19.83
2408.1	0	26.69	28.24	33.30	39.13	53.32	44.38	37.38	26.88



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. : 2



Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2408.1	3	31.34	33.10	36.80	63.63	53.52	47.30	31.35	28.83
2408.1	6	33.69	36.21	39.32	59.93	58.77	53.52	35.24	30.97
2408.1	9	37.96	39.13	44.38	61.29	63.04	56.43	39.32	34.46
2408.1	12	40.88	44.57	50.21	55.27	43.21	43.99	43.60	38.35
2408.1	15	37.96	43.60	45.16	53.91	43.99	44.67	36.60	38.94
2408.1	18	33.26	43.80	47.30	50.02	47.68	46.13	31.74	30.19
2408.1	21	29.60	43.21	44.43	46.71	44.96	42.15	35.24	30.38
2408.1	24	29.60	36.80	38.74	43.80	48.85	37.96	32.13	33.49
2408.1	27	30.58	33.49	33.30	40.49	50.21	38.35	32.33	29.02
2408.1	30	28.24	30.38	31.35	38.35	45.94	44.38	30.77	27.08
2408.1	33	26.49	28.44	29.22	41.07	42.82	41.85	29.02	25.72
2408.1	36	24.74	25.72	28.24	40.88	39.91	39.71	27.27	24.94
2408.1	39	23.38	24.55	27.27	38.74	37.38	38.35	25.52	24.16
2408.1	42	22.41	22.61	25.91	36.60	35.05	36.41	24.36	23.97
2408.1	45	20.47	22.02	24.74	34.46	33.49	33.69	24.36	23.38
2408.1	50	20.08	21.44	22.99	33.88	32.71	30.58	29.02	25.52
2408.1	55	21.05	20.27	22.02	30.38	29.22	28.44	26.49	24.55
2408.1	60	23.58	25.91	29.22	28.24	27.85	26.69	25.72	23.19
2408.1	65	23.38	25.33	26.88	27.27	26.69	25.72	25.13	22.99
2408.1	70	23.58	25.13	25.91	25.91	25.52	24.36	23.77	22.99
2408.1	75	23.77	24.55	24.94	25.13	24.94	23.97	23.38	23.19
2408.1	80	23.77	23.97	24.55	24.16	24.16	23.58	23.38	23.19
2408.1	84	23.58	23.77	24.16	24.16	23.97	23.58	23.19	23.19
2408.1	-65	31.30	30.91	30.72	31.69	35.77	34.99	36.36	37.33
2408.1	-60	34.99	33.44	32.08	32.66	36.36	36.16	14.00	36.62
2408.1	-45	39.27	35.77	40.05	42.19	55.99	18.08	14.39	13.22
2411.9	0	19.28	24.24	28.63	28.78	41.38	32.30	21.36	23.44
2414.0	0	15.30	25.26	23.65	23.80	23.72	22.63	18.19	18.67
2415.9	0	13.31	16.75	24.35	22.33	21.72	21.89	24.09	16.17
2418.0	0	22.04	18.81	19.46	18.81	20.55	19.64	13.94	12.36
2425.8	0	41.24	36.40	48.12	51.94	59.12	64.25	47.10	43.73
2427.9	0	38.74	36.99	50.32	51.50	61.90	61.90	43.29	40.36
2429.0	-72	8.09	6.84	7.08	9.14	7.35	7.58	10.03	9.53
2429.0	-66	8.87	7.00	6.77	9.95	8.87	9.37	9.64	11.21
2429.0	-63	9.53	7.23	6.96	10.19	9.84	10.81	11.51	11.59
2429.0	-60	10.11	7.35	7.19	8.02	10.62	10.77	12.37	12.10
2429.0	-57	10.18	7.82	7.43	8.24	10.81	10.93	12.36	12.36
2429.0	-54	11.63	8.24	8.01	12.13	11.00	10.93	14.35	14.04



CUSTOMER : Marathon Petroleum

CAVERN : State LPG Well no. 3

DATE : December 03, 2022

OPERATION No. : 2



Wall Range versus Depth (N, NE, E, SE, S, SW, W, NW)

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2429.0	-51	11.70	8.59	7.97	10.27	11.24	11.24	14.85	16.88
2429.0	-48	10.85	8.94	8.21	10.41	11.43	13.34	15.24	18.17
2429.0	-45	12.90	9.67	8.65	10.41	13.34	14.07	15.24	17.59
2429.0	-42	14.07	10.55	9.09	10.99	14.80	14.22	15.68	18.76
2429.0	-39	14.95	12.75	10.41	11.14	16.27	15.83	17.88	20.23
2429.0	-36	14.22	13.19	11.58	11.14	19.20	20.46	20.37	20.23
2429.0	-33	14.07	13.78	12.60	12.31	18.76	21.54	31.66	23.16
2429.0	-30	16.00	15.24	13.04	14.07	18.32	20.52	32.83	18.76
2429.0	-27	16.41	21.98	15.24	16.12	21.54	22.42	35.03	23.01
2429.0	-21	20.23	22.28	18.47	21.54	26.67	28.14	31.66	29.75
2429.0	-18	23.45	23.01	28.69	27.70	28.51	36.79	33.27	29.90
2429.0	-15	30.63	25.94	28.60	39.57	31.22	53.13	32.83	30.34
2429.0	-12	29.94	26.05	31.50	39.66	67.27	54.63	33.83	31.88
2429.0	-9	30.33	26.25	33.63	42.19	60.27	55.02	37.91	33.24
2429.0	-6	30.33	26.83	34.80	42.77	53.27	58.13	38.11	33.44
2429.0	3	40.30	36.41	45.35	51.77	58.77	64.79	53.13	45.55
2429.0	6	40.30	38.35	48.46	51.18	58.57	62.46	52.55	45.16
2429.0	9	40.69	38.55	48.27	51.18	57.60	51.57	42.75	44.96
2429.0	12	41.66	39.32	47.88	51.77	43.60	41.79	34.08	30.19
2429.0	15	32.33	38.94	40.49	43.02	33.88	38.35	29.22	30.19
2429.0	18	31.16	29.41	33.88	43.41	33.88	37.96	26.88	30.19
2429.0	21	26.10	28.63	28.24	48.46	36.60	40.88	23.97	25.13
2429.0	24	23.58	26.10	23.77	50.60	36.60	44.77	21.24	22.22
2429.0	27	20.47	25.33	22.02	64.99	70.04	58.57	19.30	20.66
2429.0	30	18.72	29.60	20.27	66.54	62.46	61.49	17.74	18.52
2429.0	33	17.36	26.49	24.55	61.49	57.79	57.02	16.19	16.58
2429.0	36	16.00	29.41	56.82	60.52	52.74	52.93	14.83	15.22
2429.0	39	15.41	51.38	53.32	58.57	57.79	57.21	14.25	14.05
2429.0	42	14.63	53.91	54.88	60.71	56.43	64.79	13.08	13.86
2429.0	45	14.25	51.18	51.96	56.43	62.85	61.49	12.50	13.08
2429.0	48	42.63	48.66	50.02	51.38	60.13	58.77	12.11	12.30
2429.0	51	44.38	46.91	47.30	48.85	57.21	57.79	47.10	12.11
2429.0	54	43.41	45.16	45.74	47.30	58.12	56.24	45.55	13.66
2429.0	57	41.66	43.80	43.99	46.13	56.04	54.88	44.19	13.08
2429.0	60	41.07	42.24	43.99	45.94	51.77	53.32	43.21	42.05
2429.0	63	40.10	40.88	42.63	51.38	50.99	50.60	42.24	42.44
2429.0	66	39.13	39.91	42.82	51.77	49.63	49.05	48.85	41.46
2429.0	69	38.94	39.71	41.85	50.41	50.02	48.07	46.32	44.19



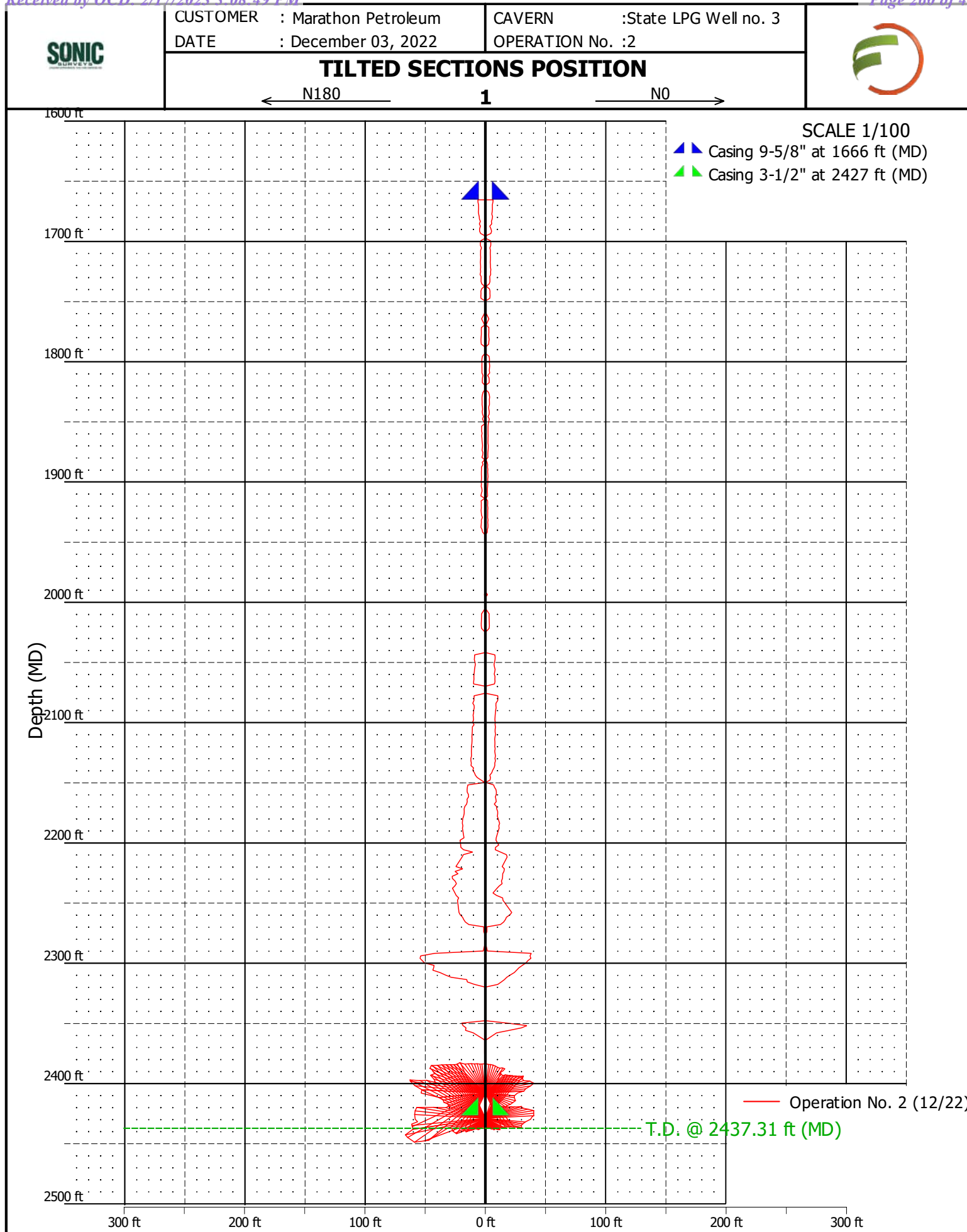
CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



**Wall Range versus Depth
(N, NE, E, SE, S, SW, W, NW)**

DEPTH	TILT	N	NE	E	SE	S	SW	W	NW
2429.0	72	40.10	39.91	41.27	49.24	49.82	47.49	45.74	43.41
2429.0	75	43.60	44.91	47.10	48.03	47.88	46.32	45.55	43.02
2429.0	78	43.80	44.77	46.52	47.10	47.10	45.55	44.77	43.41
2429.0	81	44.38	45.74	45.74	46.13	45.94	45.35	44.77	44.19
2429.0	84	44.96	45.35	45.55	45.74	46.13	45.35	44.77	44.19
2429.0	-84	8.13	7.58	7.62	7.70	8.01	7.93	8.98	8.59
2429.0	-81	7.97	7.23	7.50	7.66	8.13	7.78	7.93	8.63
2429.0	-78	7.58	7.19	7.50	8.32	6.30	6.73	8.20	8.63
2429.0	-75	7.82	6.96	7.66	8.67	6.82	6.49	8.71	9.10
2429.0	-69	8.40	6.88	6.73	9.33	7.82	8.83	9.99	7.97
2429.8	0	37.57	31.68	44.02	48.12	58.24	63.37	42.41	39.04
2431.9	0	33.47	30.98	44.02	50.76	56.19	58.38	38.89	35.37
2433.8	0	30.83	25.44	33.62	44.75	49.74	59.70	40.80	33.76
2435.8	0	1.37	2.40	2.54	1.52	1.96	31.42	29.51	1.81





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

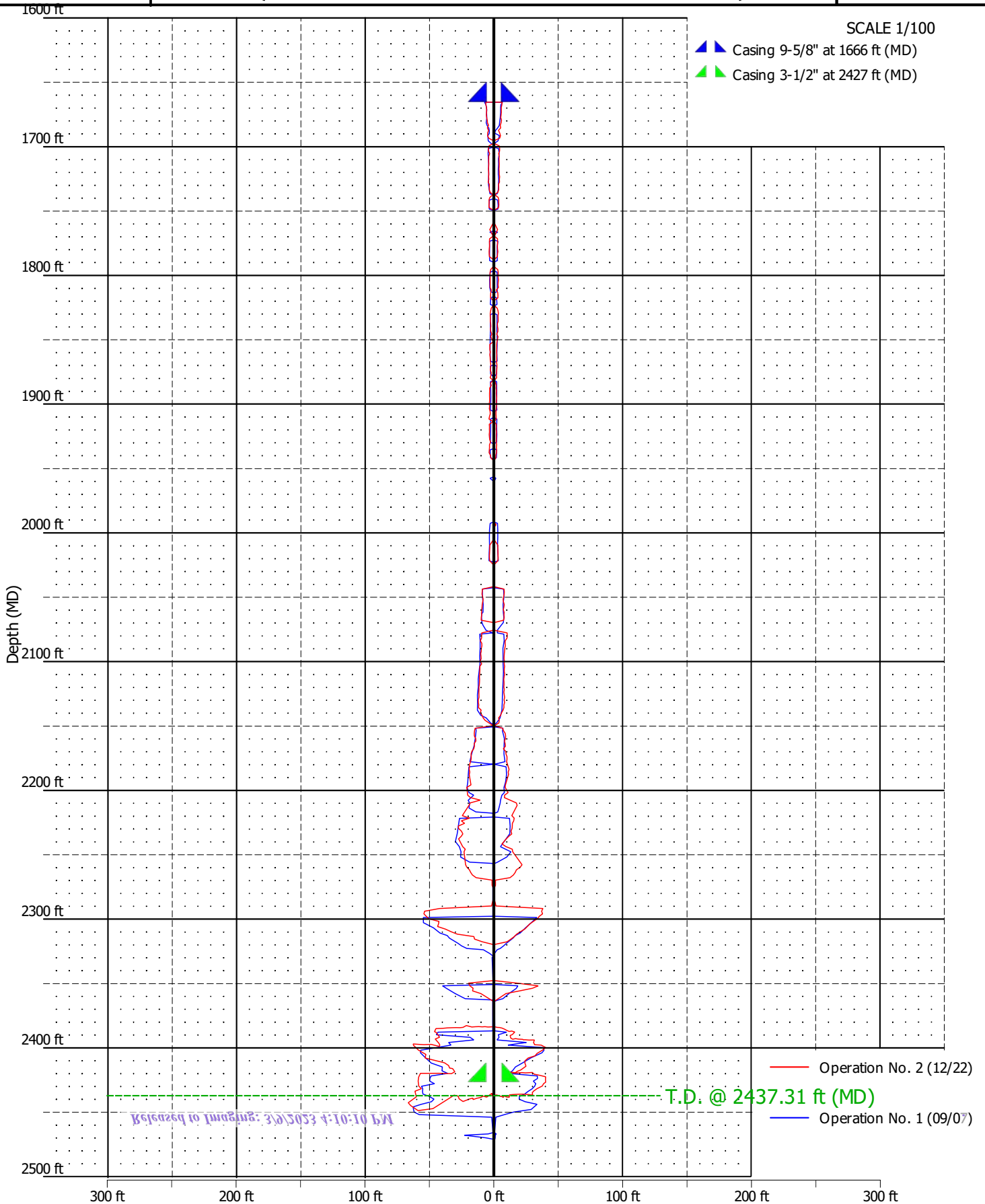
OPERATION No. : 2

**VERTICAL SECTION**

← N180

1

→ N0 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

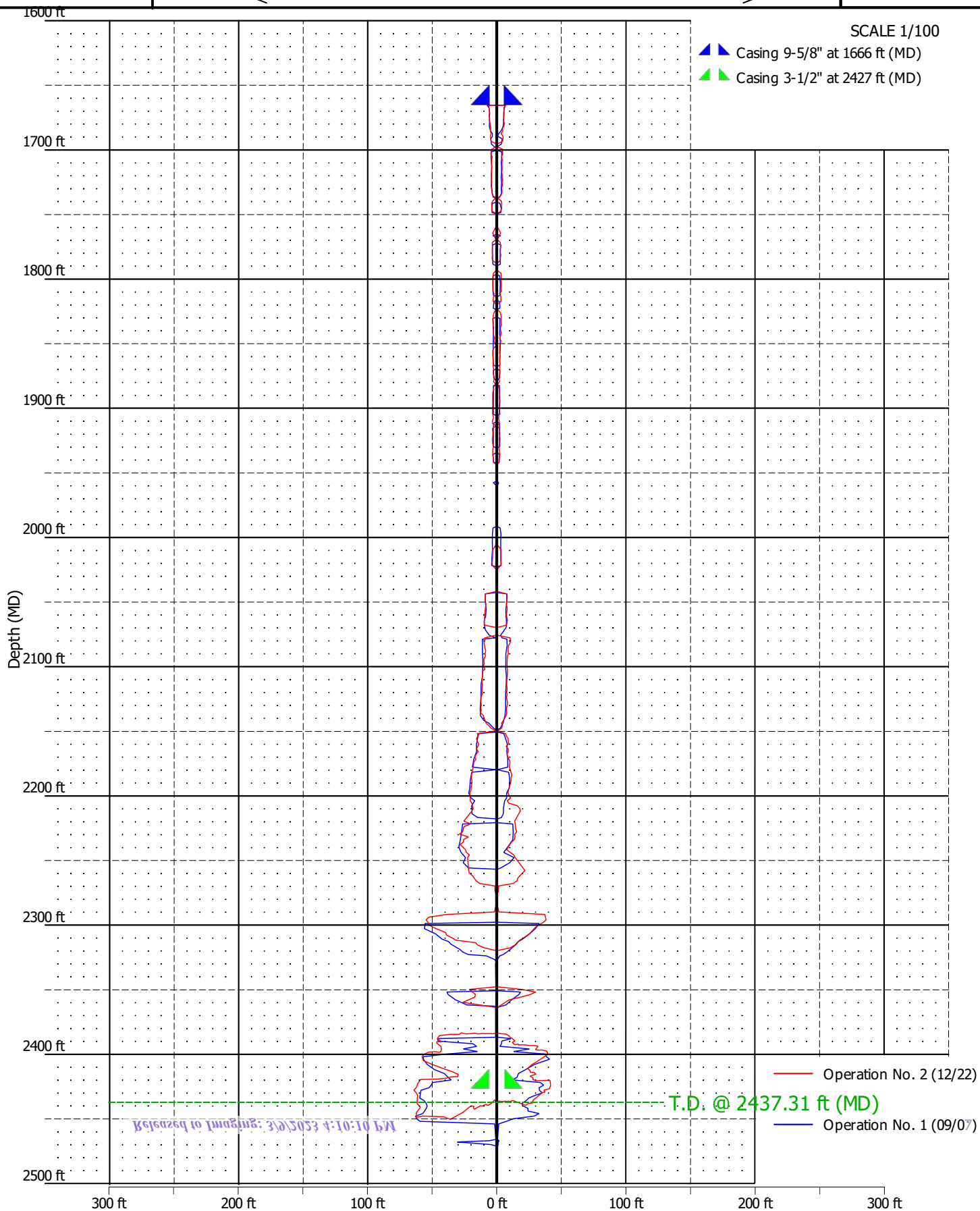
OPERATION No. : 2

**VERTICAL SECTION**

← N195

2

N15 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

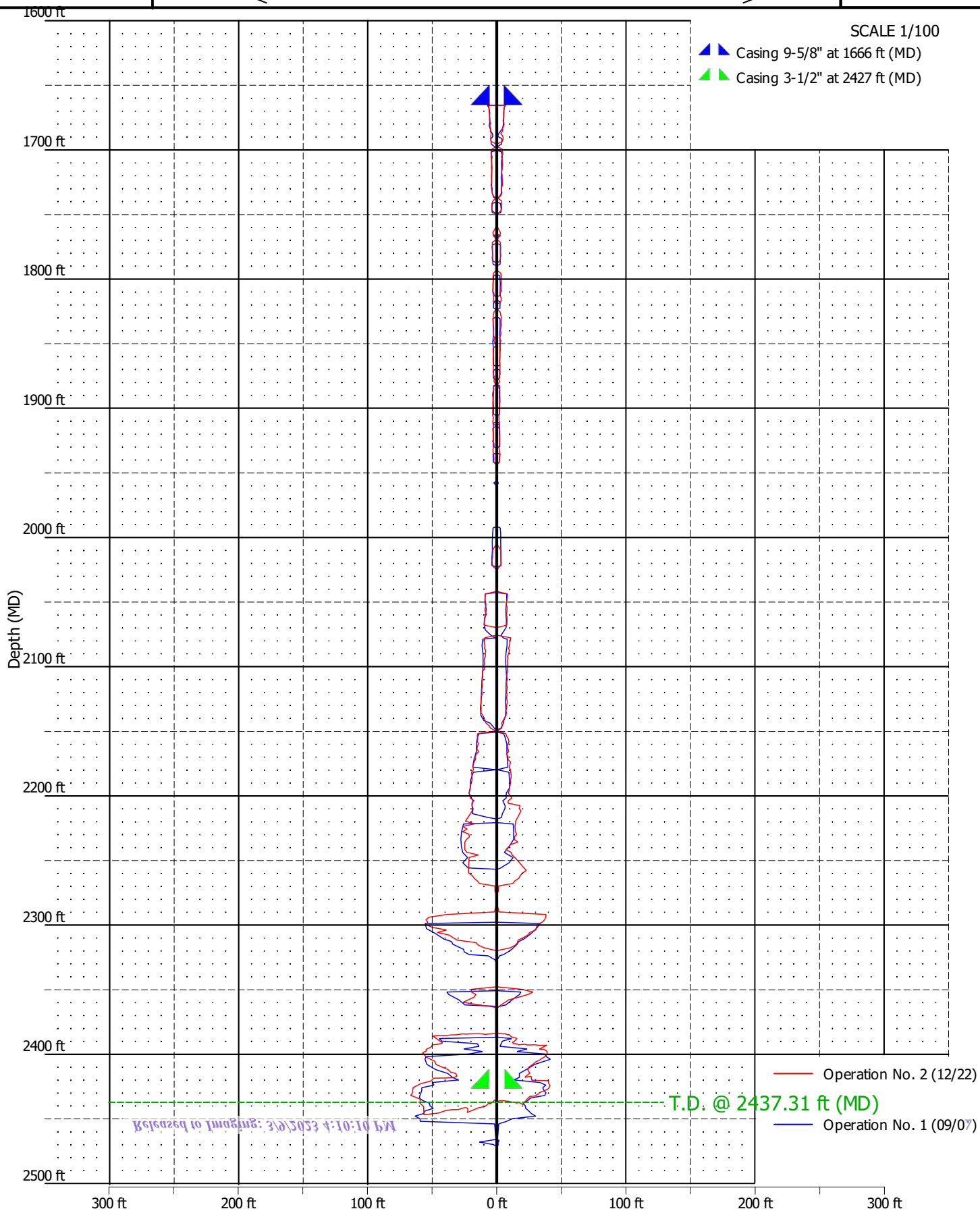
OPERATION No. : 2

**VERTICAL SECTION**

← N210

3

N30 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

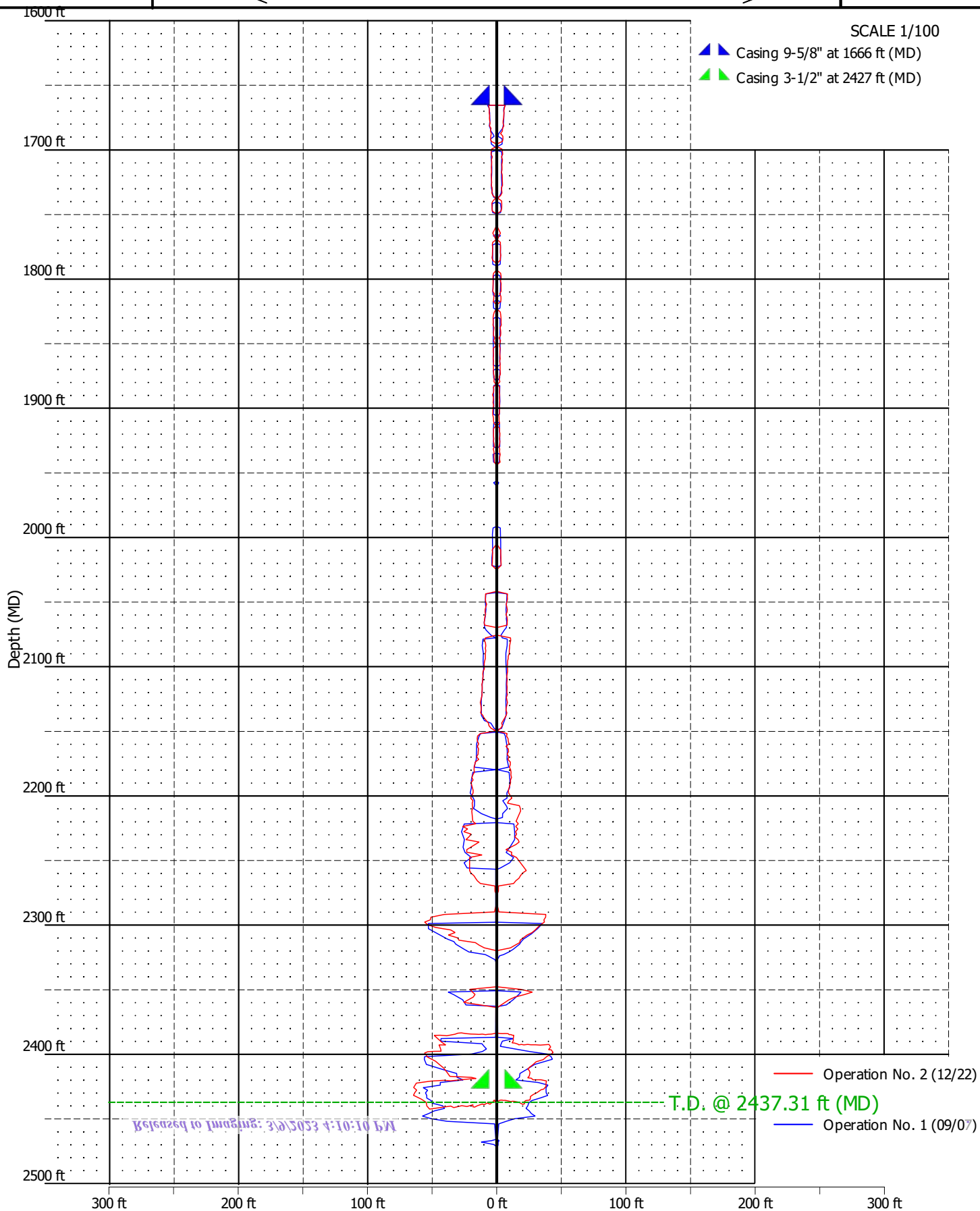
OPERATION No. : 2

**VERTICAL SECTION**

← N225

4

N45 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

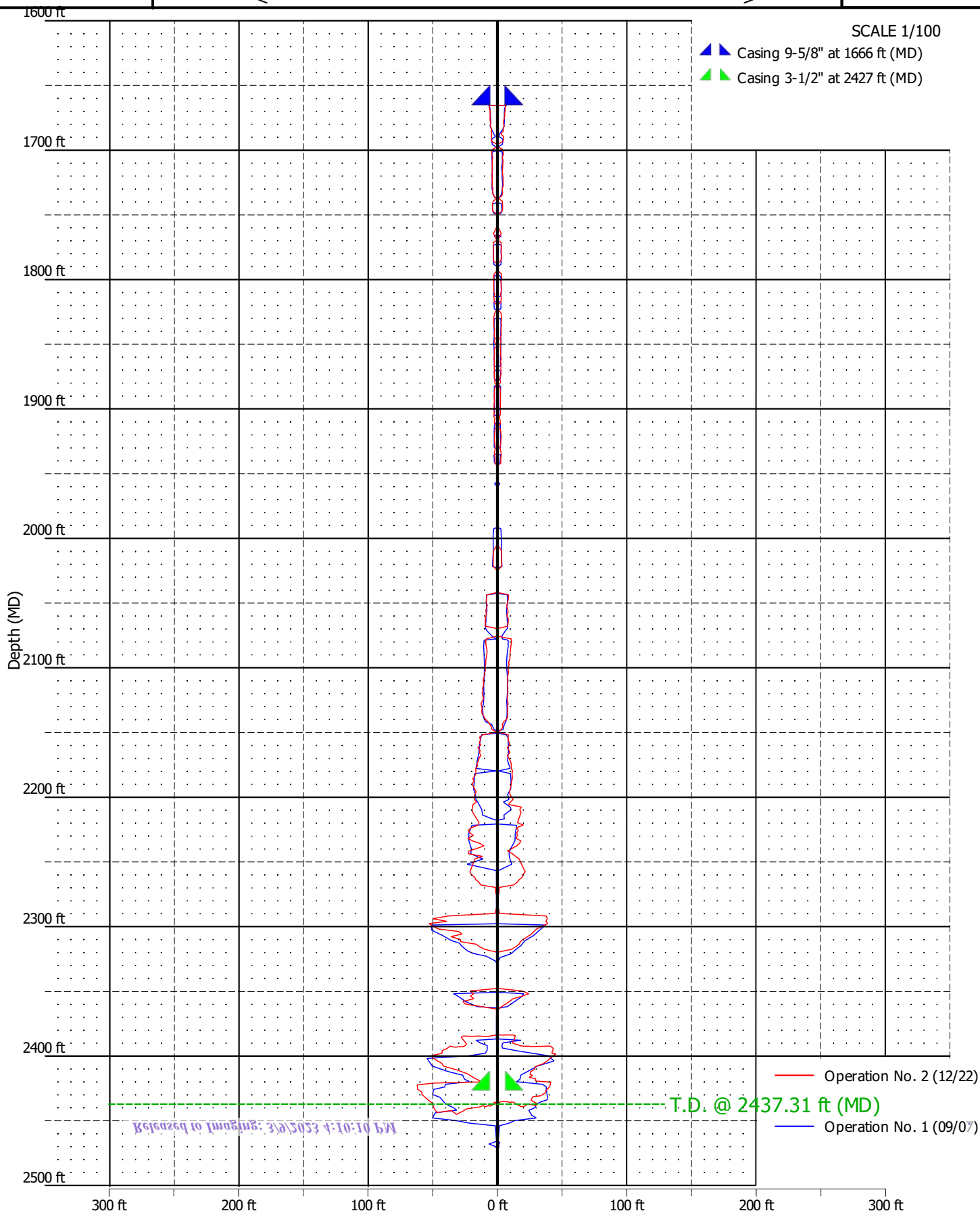
OPERATION No. : 2

**VERTICAL SECTION**

← N240

5

N60 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

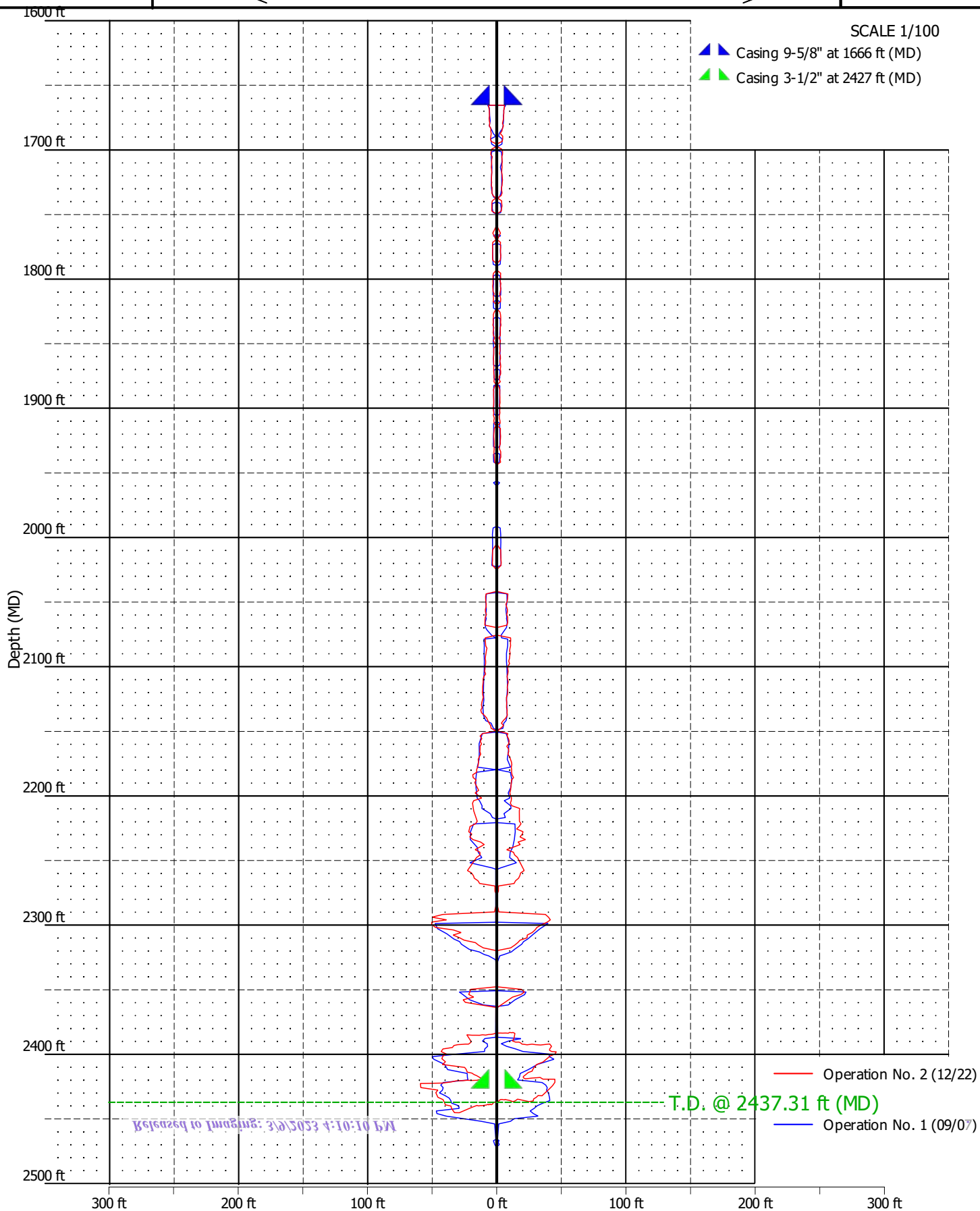
OPERATION No. : 2

**VERTICAL SECTION**

← N255

6

N75 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

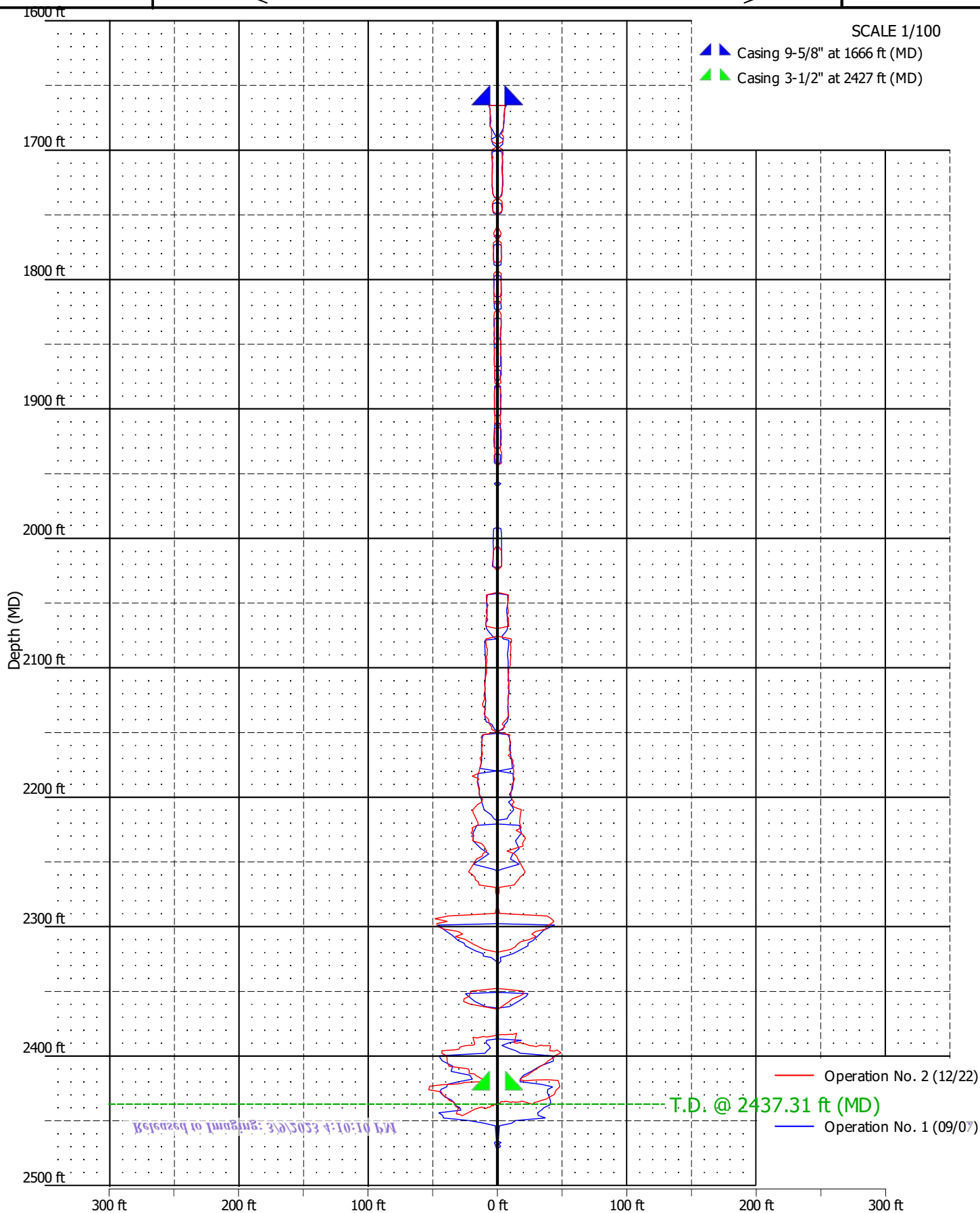
OPERATION No. : 2

**VERTICAL SECTION**

N270

7

N90





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

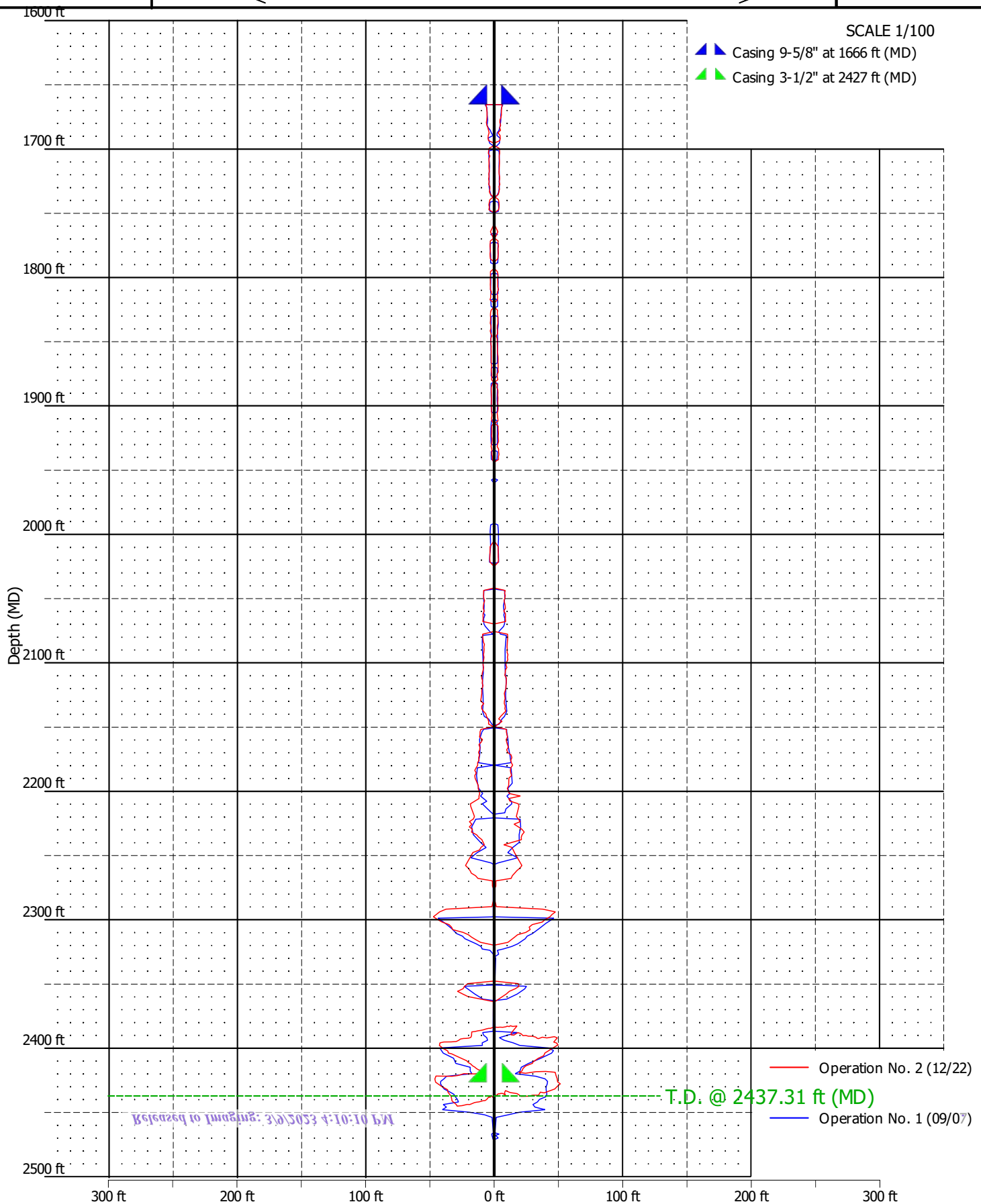
OPERATION No. : 2

**VERTICAL SECTION**

← N285

8

N105 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

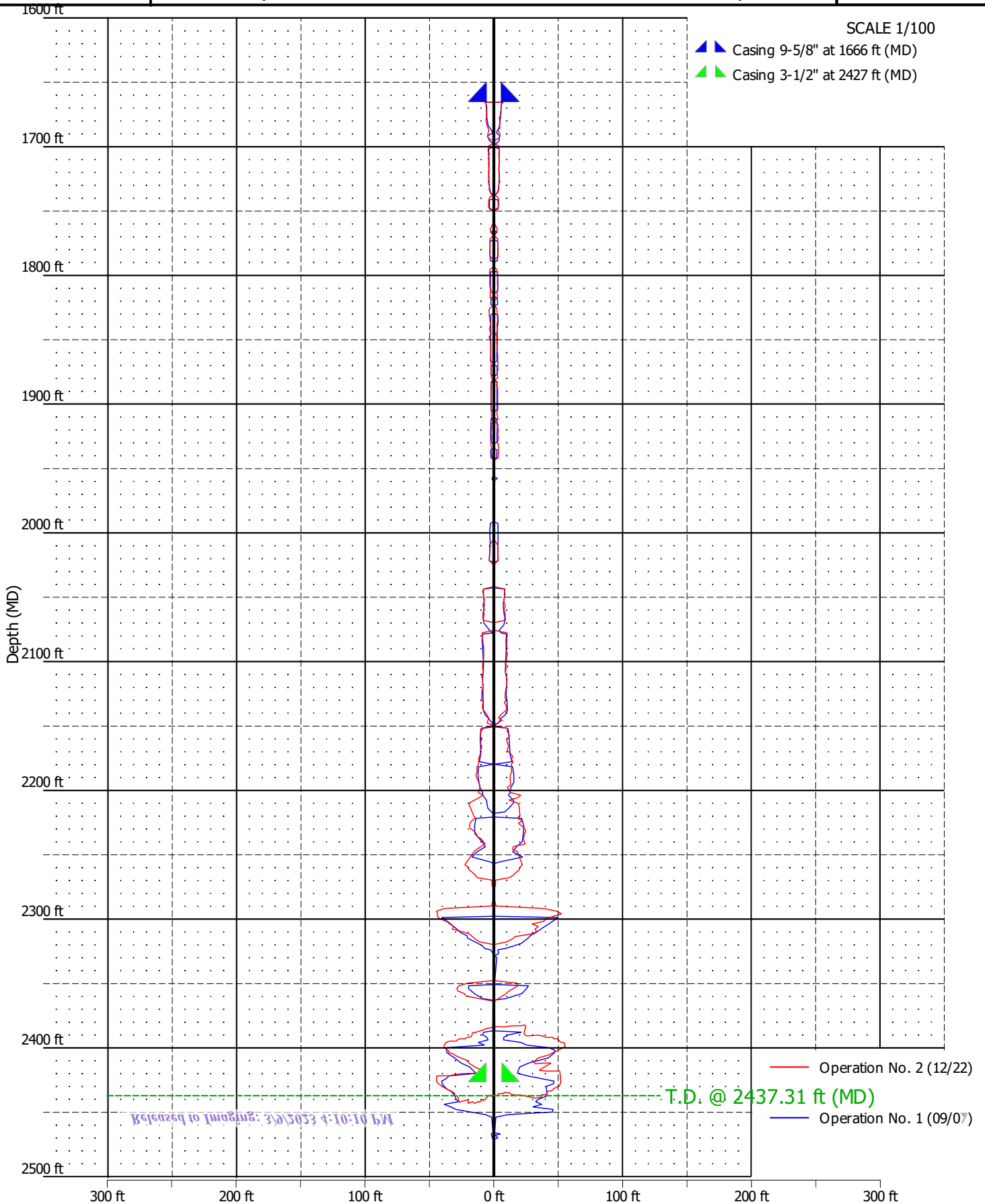
OPERATION No. : 2

**VERTICAL SECTION**

N300

9

N120





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

OPERATION No. : 2

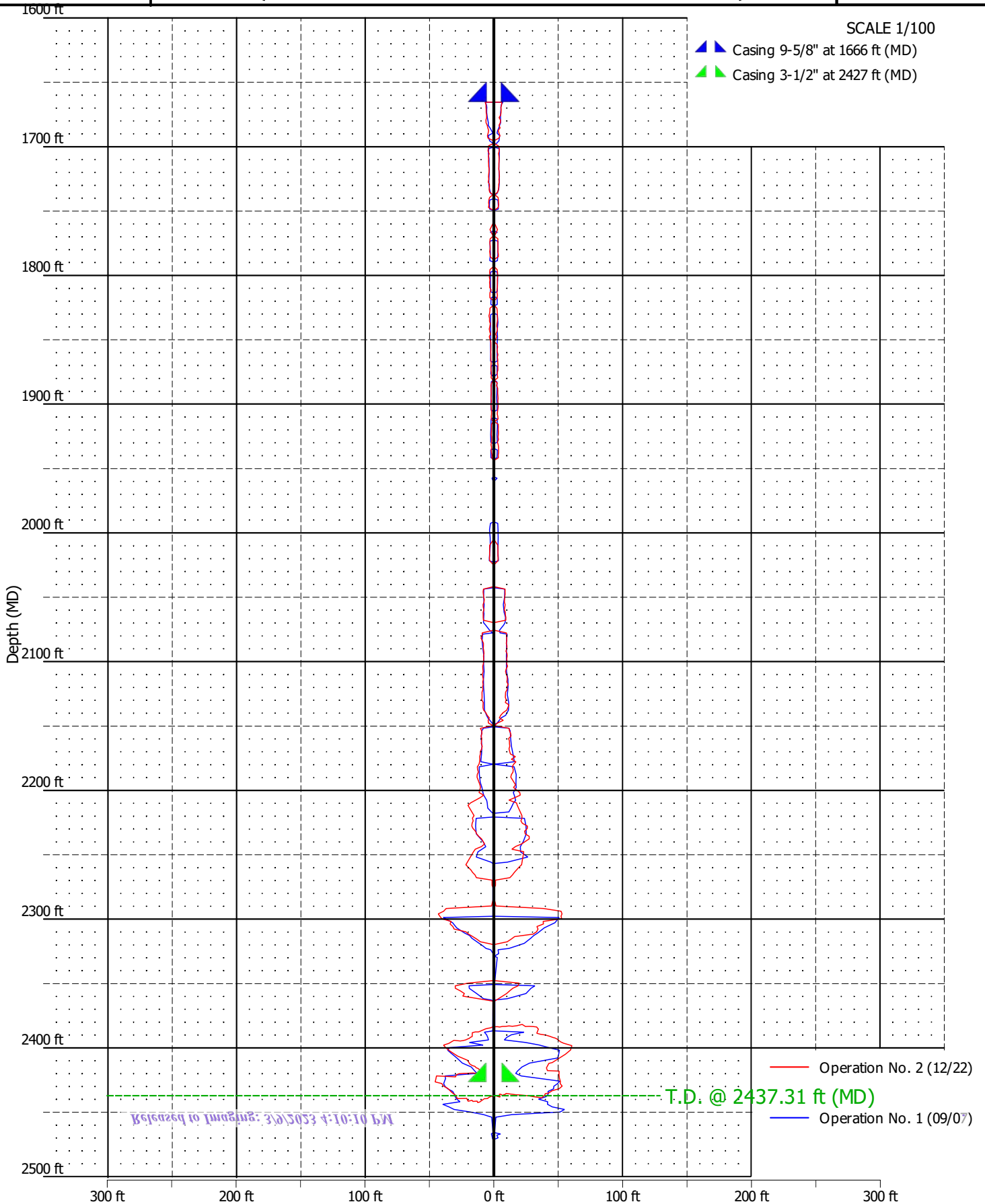


VERTICAL SECTION

← N315

10

N135 →





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

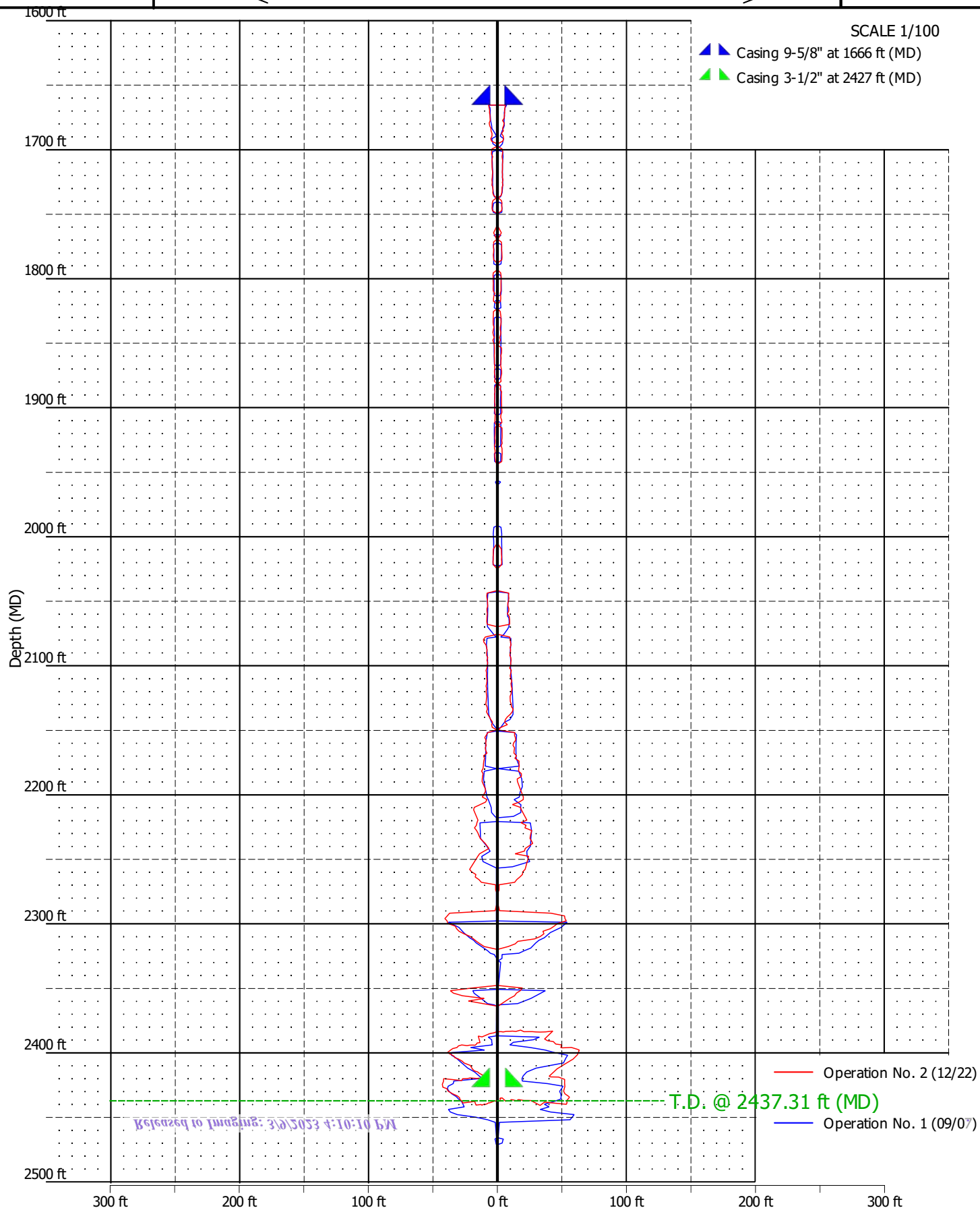
OPERATION No. : 2

**VERTICAL SECTION**

N330

11

N150





CUSTOMER : Marathon Petroleum

DATE : December 03, 2022

CAVERN : State LPG Well no. 3

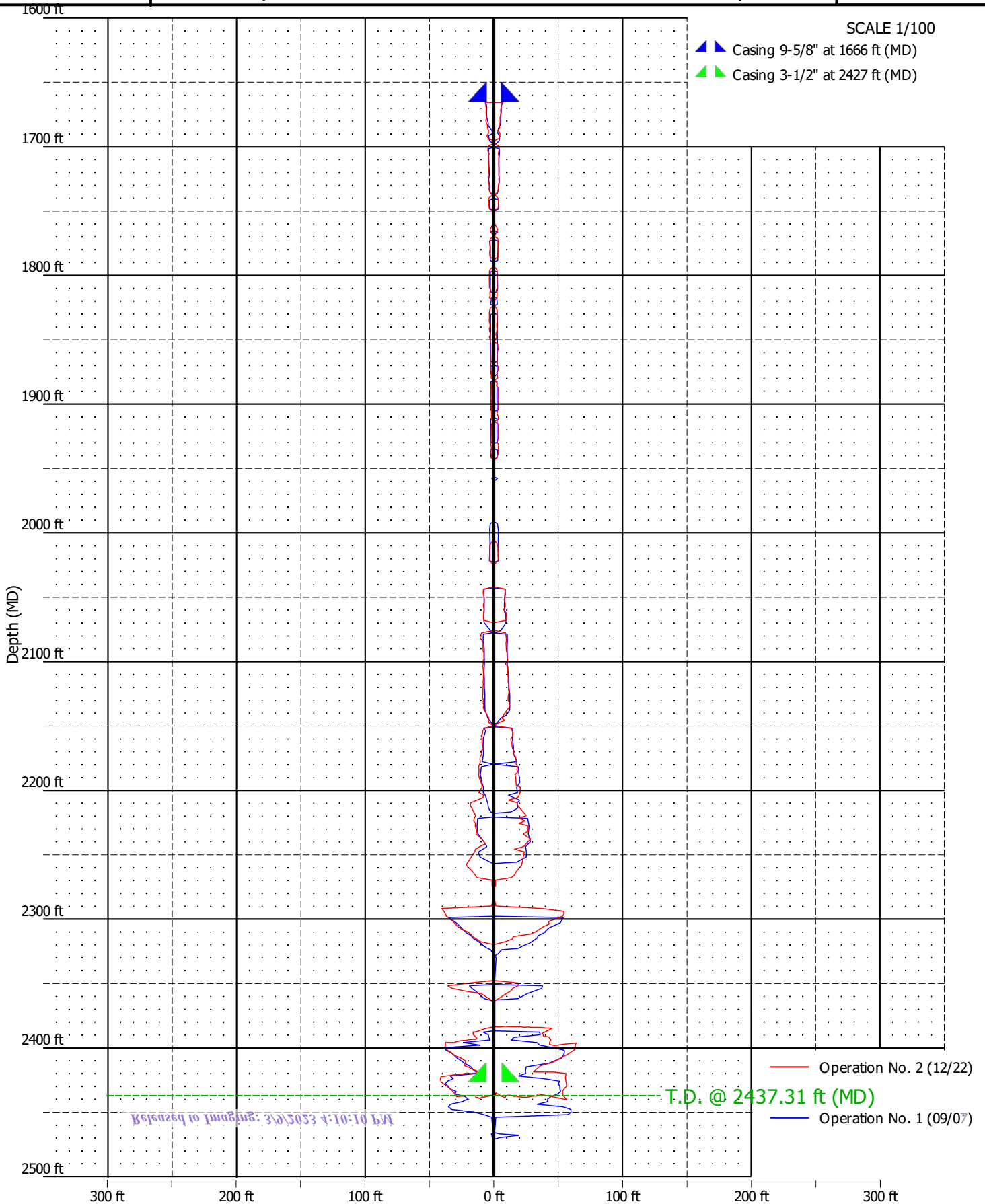
OPERATION No. : 2

**VERTICAL SECTION**

← N345

12

N165 →





CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2

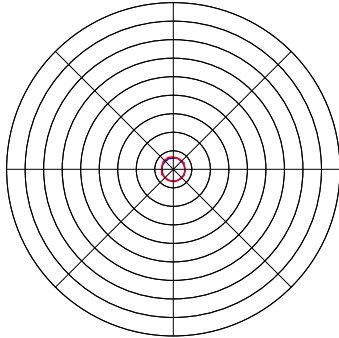


HORIZONTAL SECTIONS between 1670 ft and 1780 ft

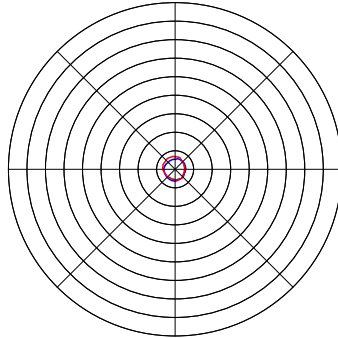
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

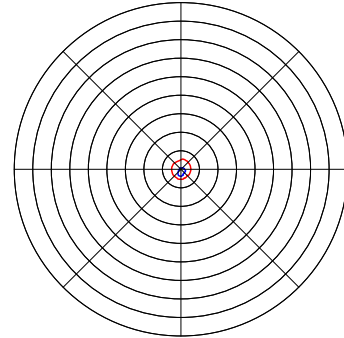
SCALE 10.0 ft per division



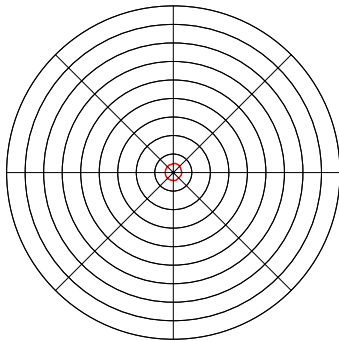
1670 ft / 103.56 ft²



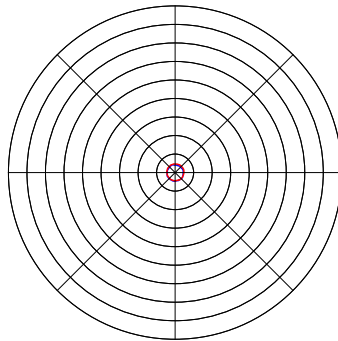
1680 ft / 90.10 ft²



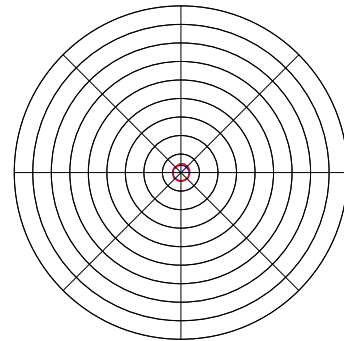
1690 ft / 66.39 ft²



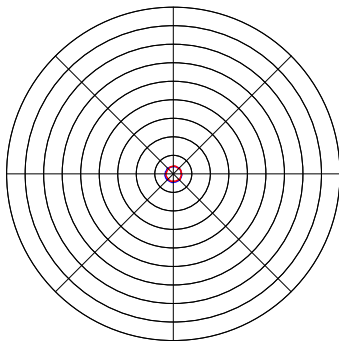
1700 ft / 49.67 ft²



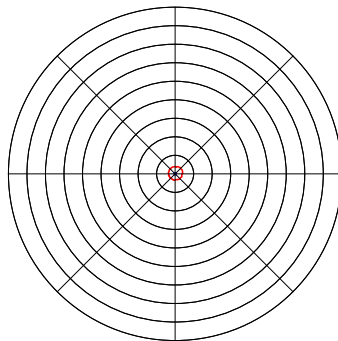
1710 ft / 52.04 ft²



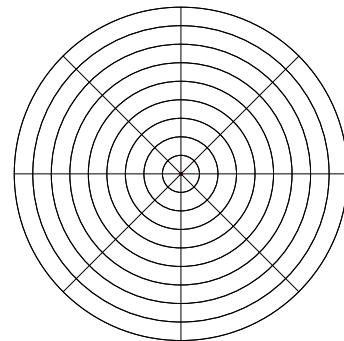
1720 ft / 52.55 ft²



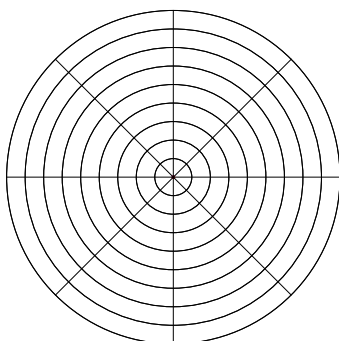
1730 ft / 41.59 ft²



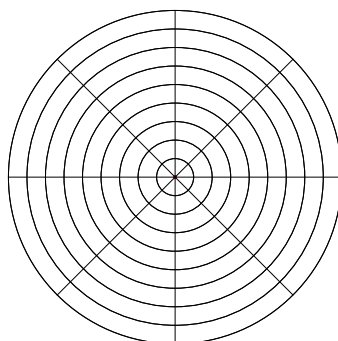
1740 ft / 34.27 ft²



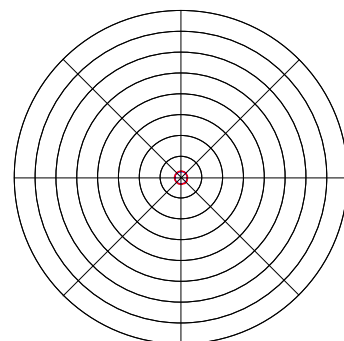
1750 ft / 0.89 ft²



1760 ft / 0.89 ft²



1770 ft / 0.95 ft²



1780 ft / 30.07 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2

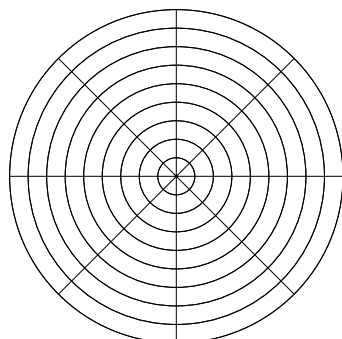


HORIZONTAL SECTIONS between 1790 ft and 1900 ft

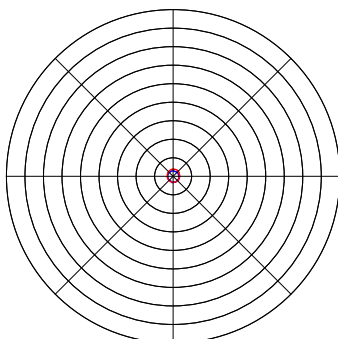
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

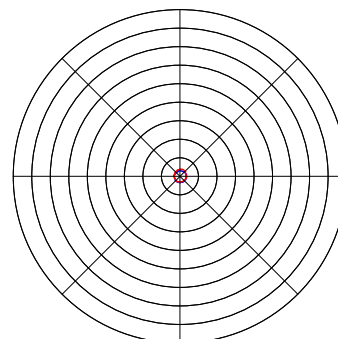
SCALE 10.0 ft per division



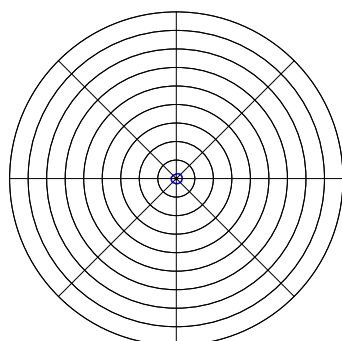
1790 ft / 0.89 ft²



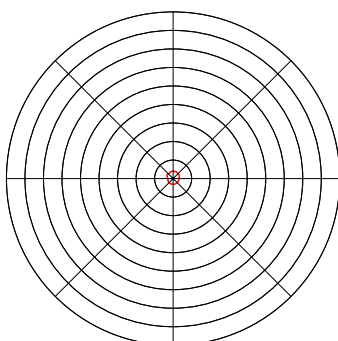
1800 ft / 29.76 ft²



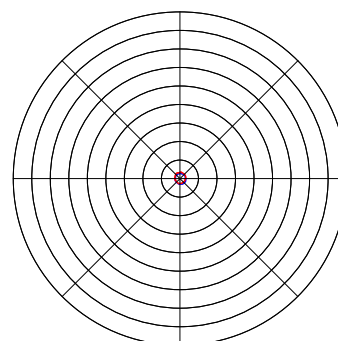
1810 ft / 27.86 ft²



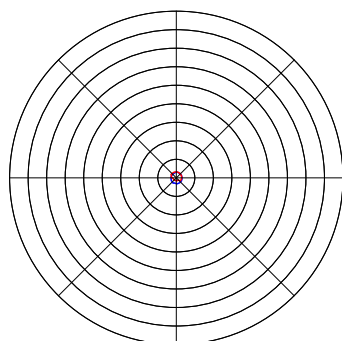
1820 ft / 0.89 ft²



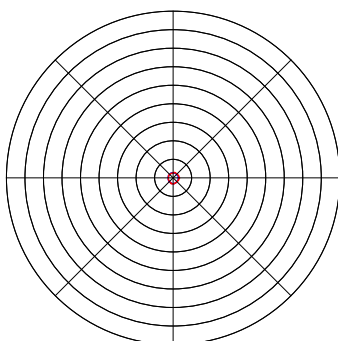
1830 ft / 28.80 ft²



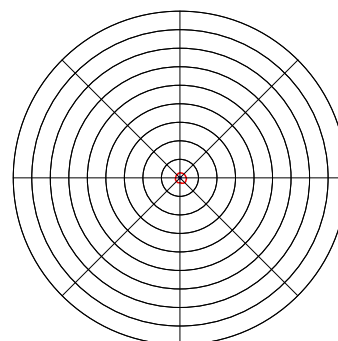
1840 ft / 21.77 ft²



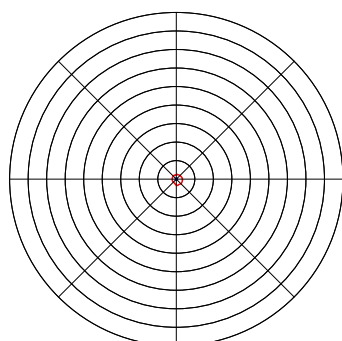
1850 ft / 16.34 ft²



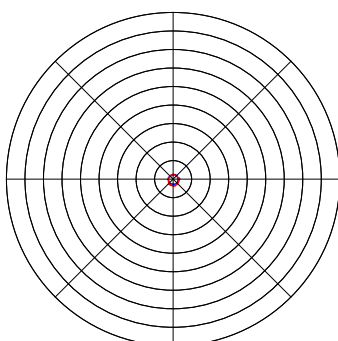
1860 ft / 21.01 ft²



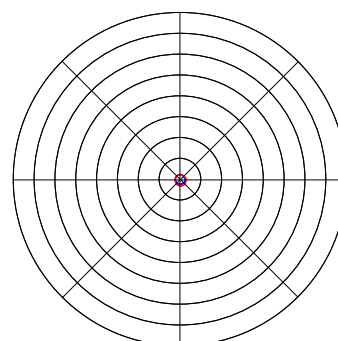
1870 ft / 20.46 ft²



1880 ft / 18.96 ft²



1890 ft / 21.73 ft²



1900 ft / 22.21 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2

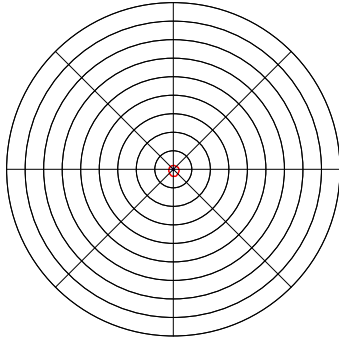


HORIZONTAL SECTIONS between 1910 ft and 2020 ft

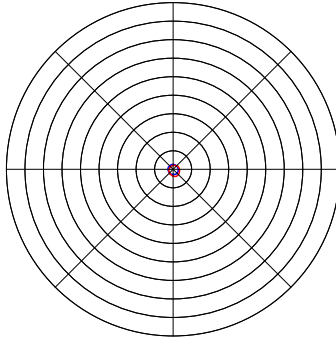
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

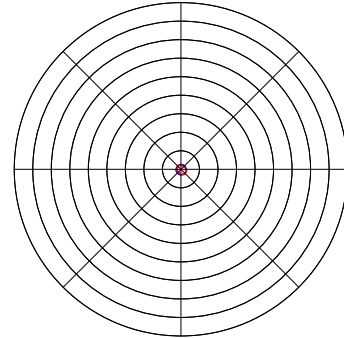
SCALE 10.0 ft per division



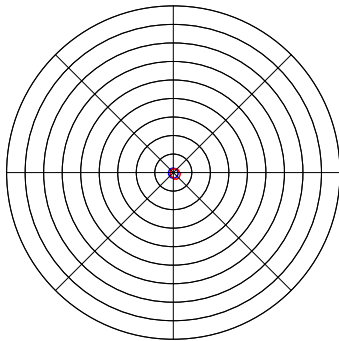
1910 ft / 19.93 ft²



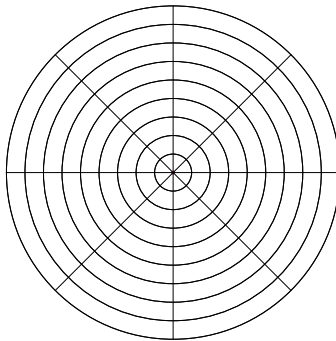
1920 ft / 21.62 ft²



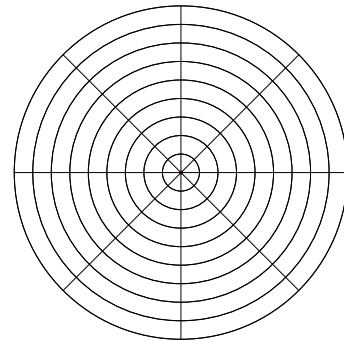
1930 ft / 15.35 ft²



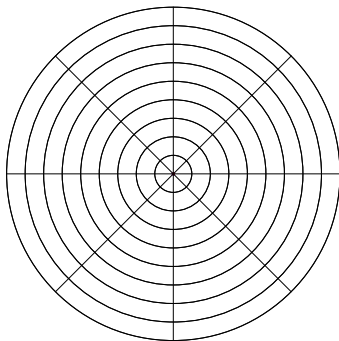
1940 ft / 18.21 ft²



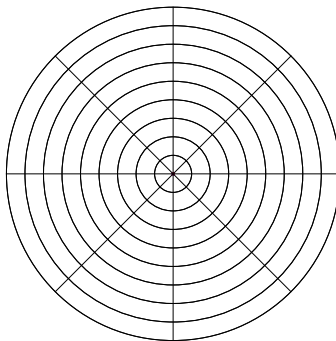
1950 ft / 0.64 ft²



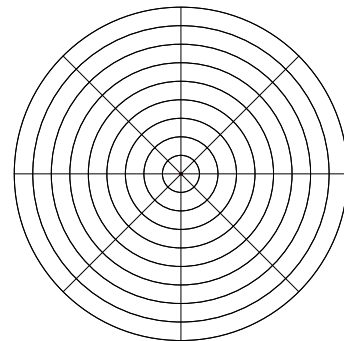
1960 ft / 0.64 ft²



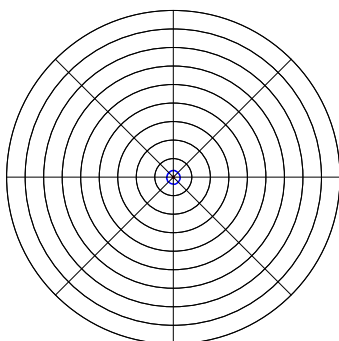
1970 ft / 0.64 ft²



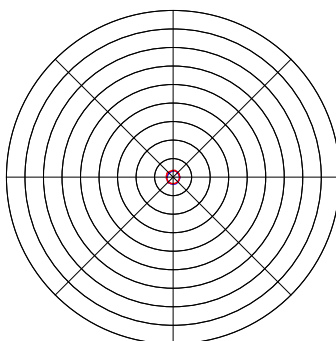
1980 ft / 0.64 ft²



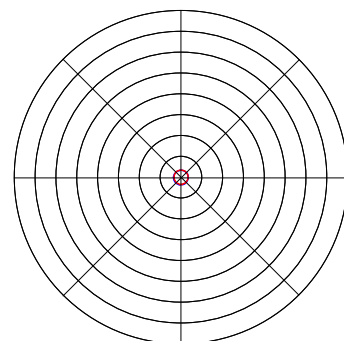
1990 ft / 0.64 ft²



2000 ft / 0.70 ft²



2010 ft / 31.71 ft²



2020 ft / 36.07 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



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DATE : December 03, 2022

CAVERN : State LPG Well no. 3
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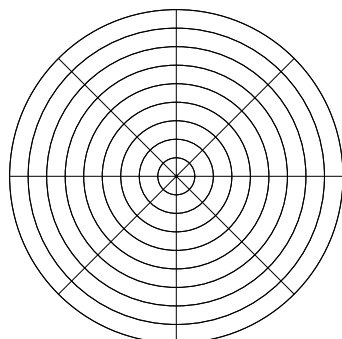


HORIZONTAL SECTIONS between 2030 ft and 2140 ft

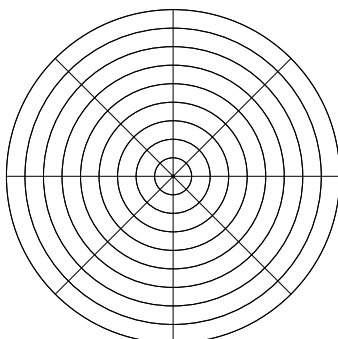
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

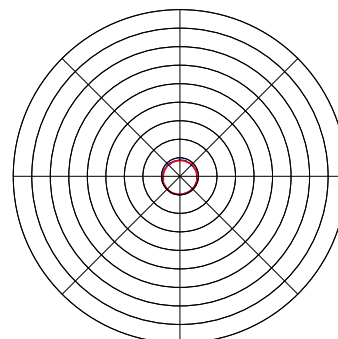
SCALE 10.0 ft per division



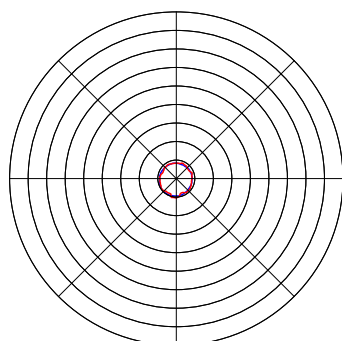
2030 ft / 0.46 ft²



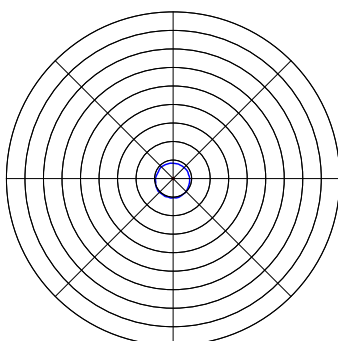
2040 ft / 0.46 ft²



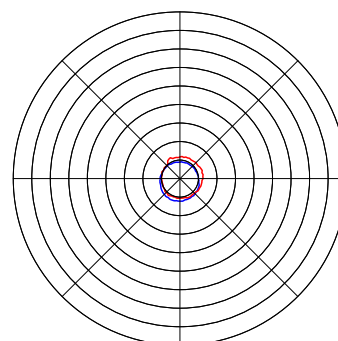
2050 ft / 208.20 ft²



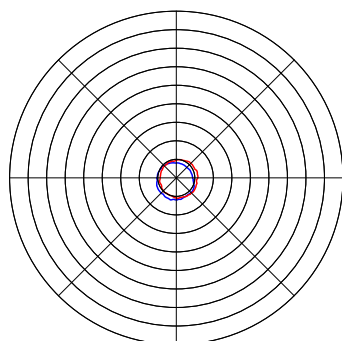
2060 ft / 192.77 ft²



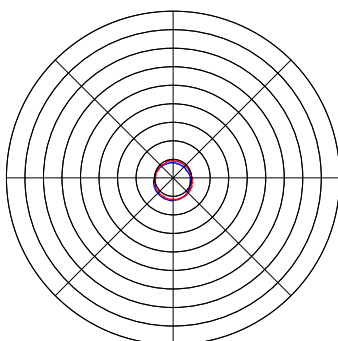
2070 ft / 0.70 ft²



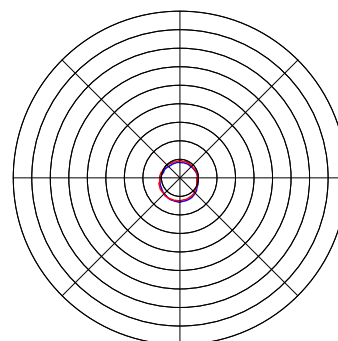
2080 ft / 309.60 ft²



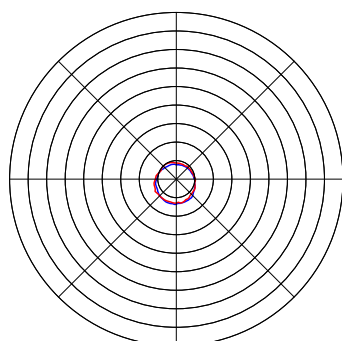
2090 ft / 261.82 ft²



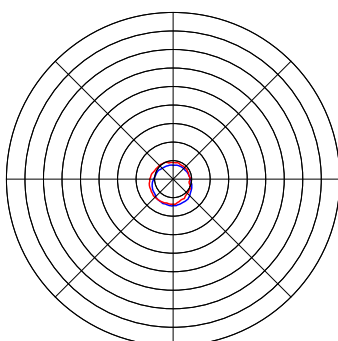
2100 ft / 262.91 ft²



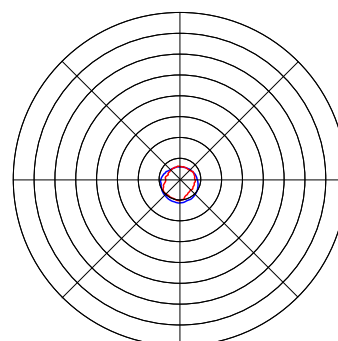
2110 ft / 276.85 ft²



2120 ft / 294.62 ft²



2130 ft / 307.18 ft²



2140 ft / 181.58 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
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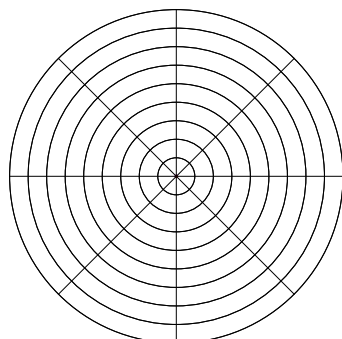


HORIZONTAL SECTIONS between 2150 ft and 2260 ft

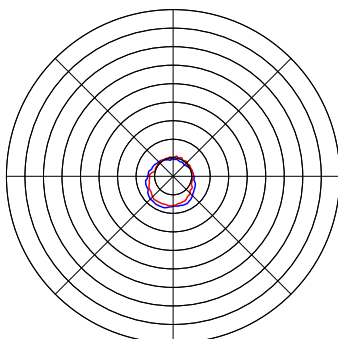
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

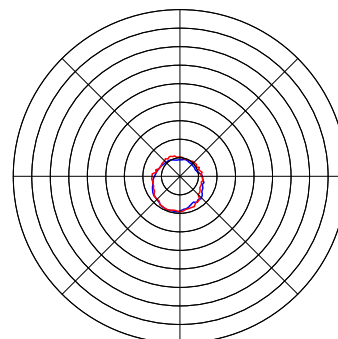
SCALE 10.0 ft per division



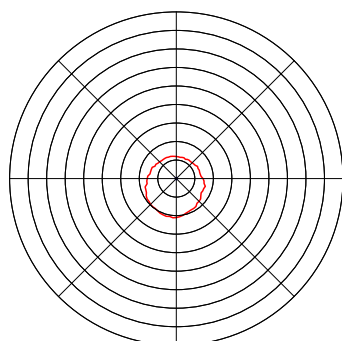
2150 ft / 0.70 ft²



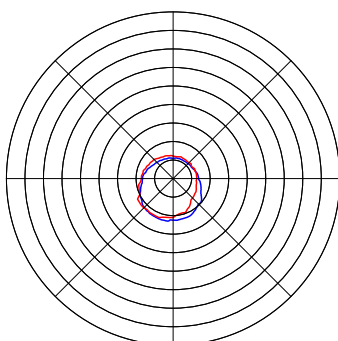
2160 ft / 383.79 ft²



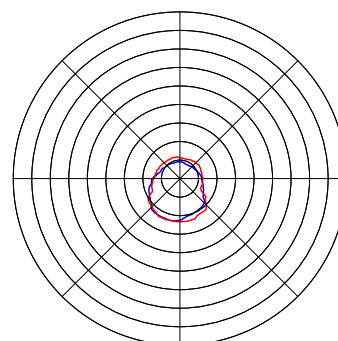
2170 ft / 491.93 ft²



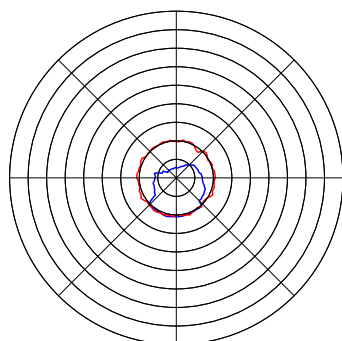
2180 ft / 624.88 ft²



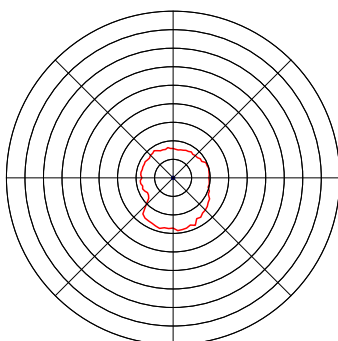
2190 ft / 659.85 ft²



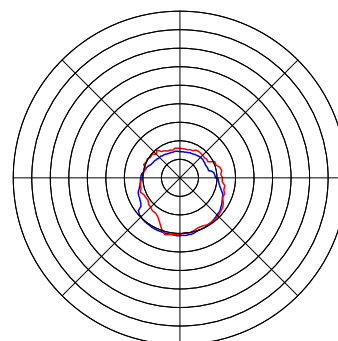
2200 ft / 662.04 ft²



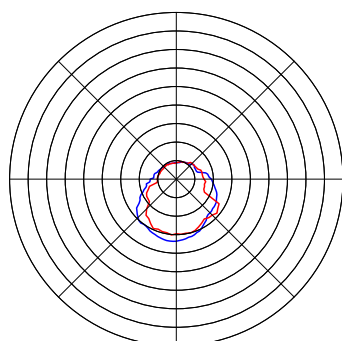
2210 ft / 1042.69 ft²



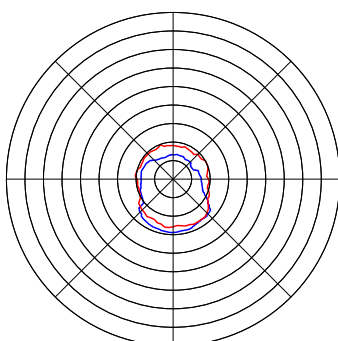
2220 ft / 1048.98 ft²



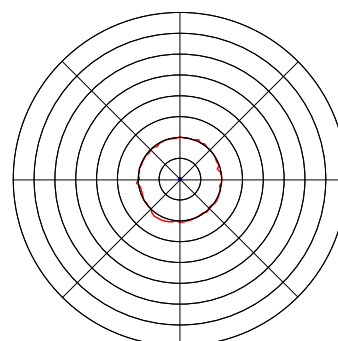
2230 ft / 1273.82 ft²



2240 ft / 855.62 ft²



2250 ft / 1117.51 ft²



2260 ft / 1262.67 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2

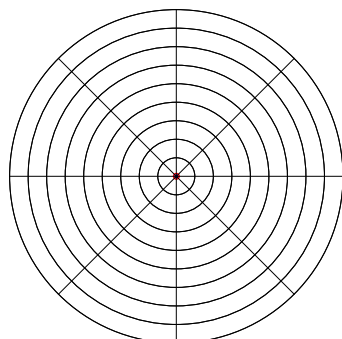


HORIZONTAL SECTIONS between 2270 ft and 2380 ft

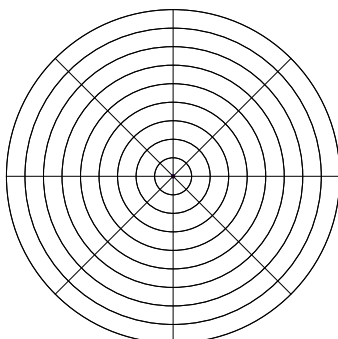
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

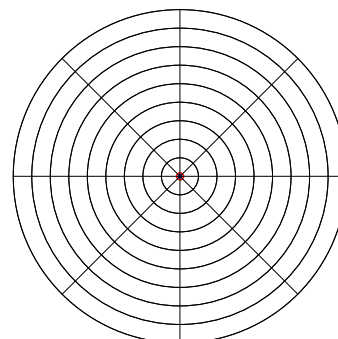
SCALE 10.0 ft per division



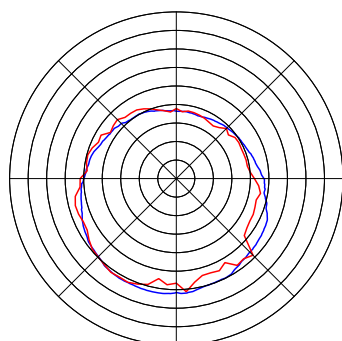
2270 ft / 5.60 ft²



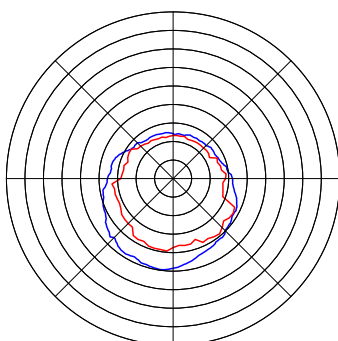
2280 ft / 0.63 ft²



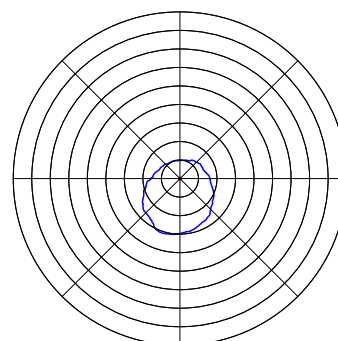
2290 ft / 8.68 ft²



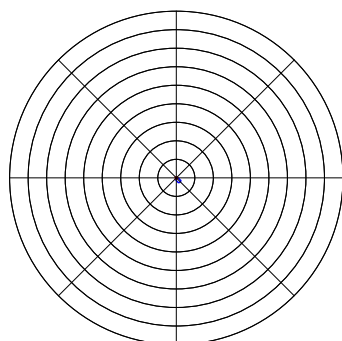
2300 ft / 5788.38 ft²



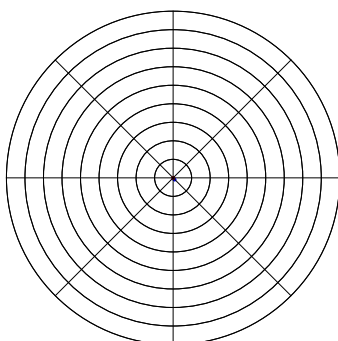
2310 ft / 2284.89 ft²



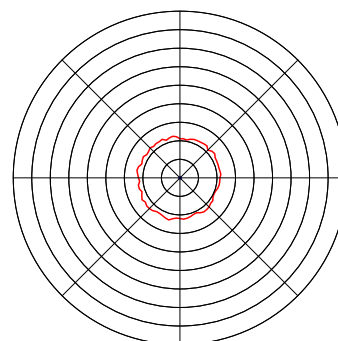
2320 ft / 0.94 ft²



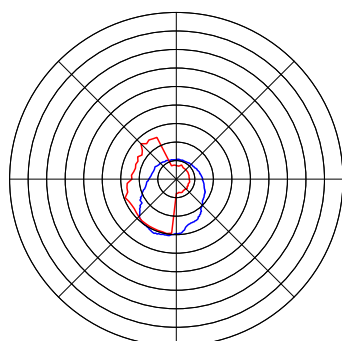
2330 ft / 0.94 ft²



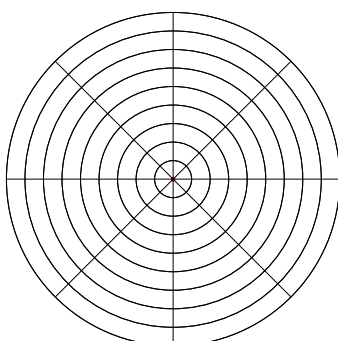
2340 ft / 0.94 ft²



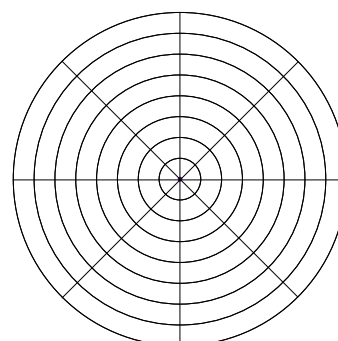
2350 ft / 1216.20 ft²



2360 ft / 825.06 ft²



2370 ft / 1.31 ft²



2380 ft / 0.63 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2

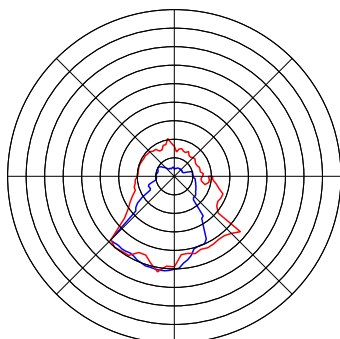


**HORIZONTAL SECTIONS
between 2390 ft and 2450 ft**

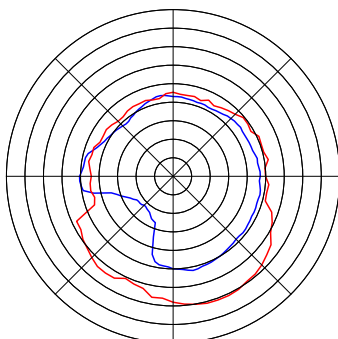
— Operation No. 2 (12/22)

— Operation No. 1 (09/07)

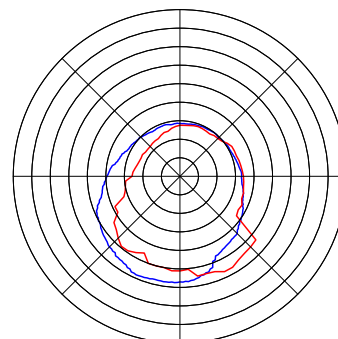
SCALE 10.0 ft per division



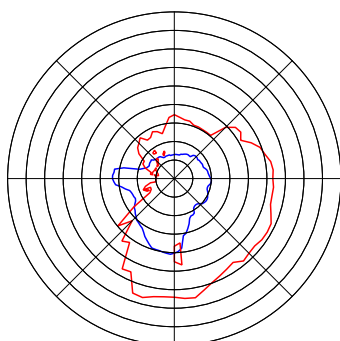
2390 ft / 2111.76 ft²



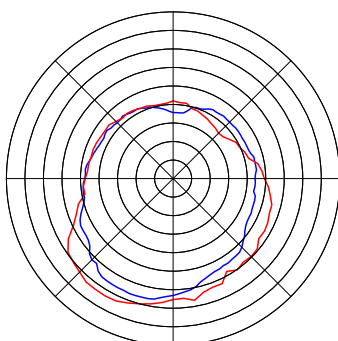
2400 ft / 7257.09 ft²



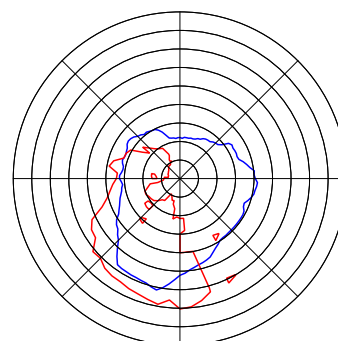
2410 ft / 3487.69 ft²



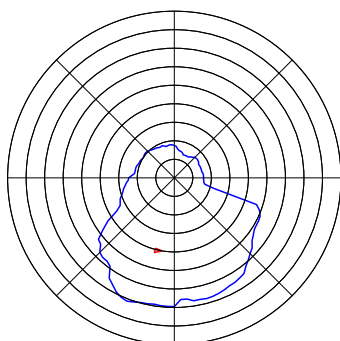
2420 ft / 4553.28 ft²



2430 ft / 6982.14 ft²



2440 ft / 2535.95 ft²



2450 ft / 3.63 ft²

*All sections are oriented to Magnetic North.

Magnetic Declination= 6.2°



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



WALL RANGES VS DEPTH

DEPTH	1666.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.5	6.6	6.9	6.8	6.9	6.4	6.3	6.6
40	6.3	6.5	6.2	6.2	6.4	6.1	6.1	6.0
80	6.0	6.2	6.0	6.1	6.3	6.2	6.2	6.5
120	6.3	6.5	6.2	6.3	6.2	6.6	6.2	6.2
160	6.2	6.2	6.2	6.1	6.2	6.2	6.0	6.0
200	6.2	6.5	6.1	6.2	6.3	6.3	6.3	6.3
240	6.3	6.4	6.5	6.3	6.5	6.5	6.4	6.5
280	6.5	6.5	6.5	6.5	6.4	6.5	6.4	6.7
320	6.7	6.7	6.7	6.8	7.0	6.6	6.5	6.5

DEPTH	1668.1		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.3	6.0	6.1	6.1	6.5	5.9	5.9	6.0
40	5.9	6.0	5.9	6.1	6.1	6.0	5.9	5.9
80	5.9	5.9	6.0	5.9	6.0	5.9	6.0	6.0
120	5.9	5.9	6.0	6.1	6.1	5.9	5.9	6.0
160	5.9	6.1	5.9	5.9	6.1	5.9	5.9	5.9
200	6.0	6.0	5.9	5.9	5.9	5.9	5.9	6.2
240	6.2	6.2	6.1	6.0	5.9	5.9	5.9	5.9
280	6.0	5.9	6.0	5.9	6.0	6.1	6.0	6.1
320	6.1	6.1	6.4	6.4	6.5	6.3	6.2	6.3

DEPTH	1670.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.8	5.8	5.8	5.6	5.6	5.7	5.7	5.7
40	5.7	5.6	5.6	5.9	6.0	5.6	5.6	5.5
80	5.6	5.6	5.6	5.6	5.7	5.7	5.7	5.6
120	5.9	5.7	5.8	5.6	5.5	5.6	5.6	5.6
160	5.6	5.7	5.6	5.7	5.7	5.6	5.6	5.6
200	5.7	5.8	5.8	5.7	5.7	5.7	5.6	5.7
240	5.7	6.1	5.9	5.7	5.7	5.7	5.7	5.7
280	5.7	5.7	5.7	5.8	5.9	6.1	6.1	6.0
320	6.1	5.9	6.0	6.2	6.1	5.9	6.0	5.9



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



WALL RANGES VS DEPTH

DEPTH	1671.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.8	6.1	6.1	5.8	5.7	5.6	5.6	5.6
40	5.6	5.6	5.6	5.6	5.7	5.6	5.6	5.5
80	5.5	5.6	5.6	5.5	5.5	5.6	5.8	5.8
120	5.7	5.6	5.6	5.7	5.7	5.7	5.7	5.7
160	5.7	6.0	5.8	5.7	5.6	5.6	5.6	5.6
200	5.7	5.7	5.7	5.7	5.7	5.8	5.7	5.6
240	5.6	5.7	5.7	5.7	5.8	5.7	5.6	5.6
280	5.6	5.5	5.5	5.6	5.7	5.6	5.6	5.9
320	5.8	5.8	6.1	6.1	6.0	5.9	5.9	5.8

DEPTH	1674.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.9	5.9	5.6	5.6	5.6	5.6	5.5	5.6
40	5.6	5.5	5.7	5.6	5.8	5.6	5.5	5.4
80	5.4	5.5	5.5	5.7	5.7	5.7	5.6	5.7
120	5.7	5.4	5.8	5.6	5.4	5.4	5.4	5.6
160	5.8	5.8	5.6	5.5	5.6	5.6	5.5	5.8
200	5.8	5.7	5.5	5.7	5.7	5.5	5.5	5.7
240	5.6	5.6	5.6	5.6	5.6	5.5	5.5	5.6
280	5.5	5.5	5.4	5.6	5.6	5.8	5.8	5.9
320	5.7	5.7	5.7	5.8	5.7	6.0	6.1	6.0

DEPTH	1675.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.7	5.7	5.6	5.5	5.5	5.5	5.4	5.3
40	5.4	5.4	5.5	5.5	5.3	5.3	5.3	5.3
80	5.4	5.4	5.2	5.2	5.2	5.3	5.4	5.5
120	5.4	5.4	5.2	5.4	5.6	5.6	5.4	5.4
160	5.4	5.5	5.4	5.5	5.8	5.4	5.6	5.6
200	5.7	5.7	5.6	5.6	5.6	5.6	5.6	5.7
240	5.7	5.7	5.9	5.8	5.8	5.8	5.8	6.0
280	5.6	5.6	5.5	5.7	5.7	5.6	5.6	5.6
320	5.7	5.6	5.6	5.7	5.9	5.8	5.8	5.7



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



WALL RANGES VS DEPTH

DEPTH	1677.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.4	5.3	5.4	5.2	5.3	5.2	4.9	5.0
40	5.0	5.0	5.0	4.7	4.8	4.7	4.9	4.9
80	4.8	4.7	4.9	4.8	4.6	4.5	4.4	4.2
120	4.2	4.2	4.0	4.1	4.1	3.9	4.1	4.0
160	4.4	4.8	4.8	5.4	5.5	5.5	5.6	5.8
200	5.8	5.7	5.5	5.4	5.4	5.4	5.5	5.5
240	5.6	5.7	5.7	5.7	5.8	5.8	5.6	5.6
280	5.6	5.7	5.7	5.7	5.8	5.8	5.6	5.6
320	5.6	5.7	5.6	5.5	5.5	5.5	5.5	5.4

DEPTH	1679.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.0	6.0	6.1	6.1	6.1	5.9	5.6	5.3
40	5.2	4.9	4.8	4.8	4.8	4.6	4.5	4.5
80	4.5	4.6	4.6	4.4	4.4	4.4	4.5	4.5
120	4.5	4.6	4.6	5.2	5.4	5.3	5.3	5.0
160	5.0	4.9	5.1	5.1	5.1	5.0	4.7	5.1
200	4.8	4.7	4.6	4.7	5.0	5.1	5.1	5.1
240	5.1	5.1	5.2	5.4	5.4	5.9	5.9	6.0
280	6.0	6.0	6.3	6.2	6.1	6.1	6.1	6.1
320	6.3	6.3	6.3	6.2	6.2	6.2	6.3	6.1

DEPTH	1682.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.7	5.6	5.6	5.6	5.4	5.4	5.5	5.5
40	5.5	5.5	5.6	5.5	5.3	5.1	5.2	5.2
80	5.0	5.0	4.9	5.0	5.0	5.0	4.8	4.9
120	4.9	4.9	5.0	5.0	5.0	5.0	4.9	4.9
160	5.0	4.9	4.9	4.8	4.9	4.9	4.9	4.9
200	4.9	5.1	5.4	5.4	5.5	5.5	5.4	5.4
240	5.5	5.6	5.7	5.7	5.6	5.6	5.6	5.6
280	5.8	5.7	5.9	5.7	5.7	5.8	6.0	6.0
320	6.0	6.0	5.9	5.9	5.8	5.8	5.8	5.9



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



WALL RANGES VS DEPTH

DEPTH	1683.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.0	5.0	4.8	4.6	4.6	4.6	4.6	4.4
40	4.5	4.5	4.6	4.5	4.4	4.5	4.8	4.4
80	4.5	4.5	4.5	4.5	4.2	4.4	4.2	4.2
120	4.5	4.3	4.3	4.1	4.1	4.1	4.1	4.0
160	4.0	4.0	4.1	4.1	4.1	4.1	4.1	4.6
200	4.6	4.6	4.5	4.5	4.4	4.4	4.4	4.4
240	4.5	4.5	4.4	4.5	4.6	4.4	4.7	4.5
280	4.6	4.9	5.0	5.0	5.2	5.0	5.2	5.1
320	5.1	5.2	5.0	5.0	4.7	4.9	5.1	5.1

DEPTH	1686.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.3	5.3	5.4	4.7	4.7	4.6	4.6	4.6
40	4.4	4.4	4.3	4.5	4.5	4.6	4.4	4.0
80	4.0	4.2	4.5	4.9	4.9	5.0	5.0	4.8
120	4.8	4.9	4.8	4.9	4.9	4.9	4.7	4.7
160	4.7	4.7	4.7	4.7	5.0	5.0	5.0	4.9
200	4.9	5.1	4.9	4.9	4.8	4.8	4.7	4.7
240	4.7	4.8	4.8	4.5	4.5	4.3	4.5	4.5
280	4.5	4.4	4.4	4.4	4.4	4.5	4.6	4.6
320	4.6	4.6	4.9	4.9	4.9	4.9	5.1	5.2

DEPTH	1687.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.7	3.6	3.6	3.4	3.4	3.4	3.2	3.1
40	3.0	3.0	3.0	2.8	2.8	2.8	2.8	2.7
80	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.3
120	3.3	3.3	3.3	3.4	3.4	3.4	3.3	3.2
160	3.0	3.3	3.2	3.2	4.1	3.9	4.0	4.3
200	4.2	4.1	4.2	4.2	4.2	4.2	4.3	4.4
240	4.4	4.3	4.2	4.2	4.2	4.3	4.3	4.3
280	4.3	3.9	3.8	3.8	3.9	4.2	4.2	4.0
320	4.0	3.9	4.2	4.1	4.1	4.1	4.1	3.7



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
OPERATION No. : 2



WALL RANGES VS DEPTH

DEPTH	1690.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.6	4.8	5.0	4.9	5.0	4.9	4.8	4.9
40	4.8	4.8	4.6	4.7	4.7	4.7	4.7	4.7
80	4.6	4.7	4.7	4.7	4.7	4.6	4.6	4.6
120	4.6	4.6	4.6	4.1	4.3	4.5	4.6	4.7
160	4.4	4.8	4.8	4.9	4.8	4.8	4.9	4.9
200	4.9	4.6	4.6	4.6	4.6	4.6	4.6	4.7
240	4.6	4.6	4.5	4.5	4.5	4.5	4.5	4.5
280	4.5	4.6	4.4	4.4	4.4	4.5	4.4	4.4
320	4.2	4.2	4.2	4.2	4.2	4.2	4.3	4.4

DEPTH	1692.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.2	4.9	4.9	4.9	5.0	4.8	5.0	4.9
40	4.9	4.9	4.8	4.8	4.8	4.7	4.7	4.7
80	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7
120	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.8
160	4.8	4.7	4.7	4.8	4.8	4.8	4.7	4.7
200	4.6	4.7	4.6	4.5	4.6	4.7	4.7	4.8
240	4.7	4.8	4.5	4.7	4.7	4.8	4.6	4.7
280	4.6	4.7	4.5	4.9	4.7	4.9	4.9	4.9
320	4.9	5.0	5.1	5.4	5.5	5.2	5.2	5.3

DEPTH	1693.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.6	4.6	4.6	4.6	4.4	4.4	4.4	4.5
40	4.5	4.5	4.5	4.3	4.3	4.5	4.6	4.3
80	4.3	4.3	4.3	4.3	4.2	4.5	4.1	4.1
120	4.0	4.0	3.9	3.9	4.0	4.2	4.2	4.0
160	4.2	4.3	4.1	4.1	3.9	4.1	4.1	4.1
200	4.1	4.1	4.4	4.4	4.3	4.2	4.2	4.2
240	4.3	4.4	4.3	4.3	4.2	4.2	4.4	4.4
280	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5
320	4.5	4.7	4.5	4.4	4.4	4.3	4.3	4.3



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1696.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
40	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
120	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
160	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
200	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
240	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
280	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
320	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

DEPTH	1697.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
40	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
120	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
160	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
200	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
240	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
280	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
320	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

DEPTH	1699.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.2	4.3	4.5	4.5	4.4	4.4	4.4	4.4
40	4.4	4.1	4.1	4.2	4.0	3.9	3.9	3.9
80	3.9	4.0	4.0	4.0	4.0	4.0	3.9	3.7
120	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.7
160	3.9	3.9	3.9	3.9	3.7	3.7	3.8	3.7
200	3.8	3.8	3.8	3.8	4.0	4.0	3.9	3.9
240	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
280	3.9	3.9	4.0	3.9	3.9	3.9	4.1	4.1
320	4.0	4.1	4.2	4.1	4.0	4.0	4.0	4.3



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1701.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.6	4.6	4.7	4.5	4.5	4.4	4.4	4.4
40	4.4	4.4	4.4	4.3	4.5	4.5	4.6	4.5
80	4.4	4.3	4.3	4.3	4.4	4.3	4.3	4.3
120	4.3	4.3	4.2	4.2	4.2	4.2	4.2	4.1
160	4.1	4.2	4.2	4.1	4.1	4.1	4.4	4.4
200	4.2	4.4	4.3	4.3	4.3	4.3	4.3	4.4
240	4.3	4.2	4.2	4.4	4.4	4.3	4.3	4.3
280	4.3	4.3	4.3	4.2	4.3	4.3	4.3	4.3
320	4.3	4.4	4.4	4.5	4.5	4.5	4.5	4.5

DEPTH	1703.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.5	4.5	4.5	4.7	4.7	4.7	4.7	4.7
40	4.7	4.7	4.7	4.6	4.6	4.5	4.5	4.5
80	4.5	4.5	4.4	4.4	4.4	4.3	4.3	4.3
120	4.2	4.2	4.2	4.2	4.2	4.2	3.9	4.1
160	4.0	4.0	4.1	4.0	4.1	4.1	4.1	4.5
200	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
240	4.4	4.5	4.6	4.6	4.6	4.3	4.6	4.5
280	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.5
320	4.5	4.5	4.5	4.6	4.6	4.6	4.5	4.5

DEPTH	1705.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.8	3.9	3.7	3.6	3.6	3.7	3.6	3.6
40	3.6	3.7	3.7	3.7	3.7	3.8	4.0	4.0
80	3.9	3.7	3.7	3.7	3.7	3.9	4.1	4.0
120	3.8	3.8	3.6	3.7	3.6	3.6	3.6	3.6
160	3.5	3.5	3.4	3.2	3.2	3.2	3.3	3.4
200	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
240	3.4	3.4	3.4	3.4	3.4	3.2	3.3	3.2
280	3.2	3.3	3.3	3.3	3.3	3.2	3.5	3.6
320	3.6	3.6	3.6	3.4	3.5	3.5	3.7	3.7



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WALL RANGES VS DEPTH

DEPTH	1708.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.2	4.3	4.3	4.3	4.3	4.3	4.4	4.4
40	4.4	4.5	4.3	4.4	4.3	4.2	4.2	4.2
80	4.1	4.1	4.1	3.9	3.9	4.0	4.0	4.0
120	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.9
160	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
200	3.9	3.9	3.9	4.0	4.1	4.0	4.0	4.0
240	4.0	3.9	3.9	3.9	4.1	4.0	4.1	4.1
280	4.0	4.0	4.0	4.0	4.0	4.0	4.1	4.1
320	4.1	4.1	4.1	4.1	4.2	4.1	4.2	4.2

DEPTH	1709.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.1	4.1	4.1	4.2	4.2	4.2	4.3	4.3
40	4.3	4.4	4.2	4.3	4.3	4.3	4.4	4.3
80	4.3	4.2	4.2	4.2	4.1	4.1	4.0	4.0
120	4.1	4.1	4.1	4.1	4.1	4.1	4.2	3.8
160	4.0	3.8	3.9	3.9	3.9	3.9	3.9	3.9
200	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.8
240	3.9	3.9	4.0	3.9	3.9	3.9	3.9	4.1
280	4.0	4.0	4.0	4.1	4.2	4.1	4.1	4.1
320	4.0	4.1	4.2	4.1	4.1	4.1	4.2	4.1

DEPTH	1711.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.1	4.1	4.1	4.1	4.2	4.1	4.6	4.3
40	4.2	4.0	4.1	4.2	4.2	4.0	4.1	4.1
80	4.0	4.1	4.1	4.0	4.0	4.1	4.1	4.0
120	4.1	4.1	4.1	4.1	4.0	4.0	4.0	4.0
160	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
200	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
240	4.0	4.1	4.1	4.0	4.0	4.0	4.0	4.0
280	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.1
320	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1



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WALL RANGES VS DEPTH

DEPTH	1713.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.2	4.2	4.2	4.2	4.3	4.4	4.3	4.3
40	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
80	4.1	4.1	4.0	4.0	4.1	4.1	4.0	4.0
120	4.1	4.1	4.1	4.0	4.0	4.0	4.0	4.0
160	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
200	4.0	4.1	4.1	4.0	4.1	4.1	4.0	4.0
240	4.0	4.1	4.3	4.2	4.1	4.0	4.0	4.0
280	4.1	4.1	4.0	4.0	4.1	4.1	4.1	4.0
320	4.0	4.1	4.1	4.1	4.1	4.1	4.2	4.3

DEPTH	1715.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.2	4.3	4.3	4.2	4.2	4.1	4.2	4.2
40	4.0	4.1	4.1	4.0	4.0	4.0	4.0	4.0
80	4.0	4.0	4.0	4.0	4.0	4.0	4.1	4.0
120	4.0	4.1	4.0	4.0	4.0	4.0	4.0	4.0
160	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
200	4.0	4.0	4.0	4.0	4.0	4.1	4.1	4.0
240	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
280	4.0	4.0	4.0	4.1	4.0	4.0	4.0	4.0
320	4.0	4.0	4.0	4.0	4.1	4.0	4.0	4.2

DEPTH	1717.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.1	4.0	4.0	3.9	3.9	3.9	3.8	3.6
40	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9
80	3.8	3.9	3.9	3.8	3.7	3.8	3.8	3.8
120	3.8	3.9	3.9	3.9	3.8	3.8	3.8	3.7
160	3.7	3.9	4.0	4.1	4.1	4.0	4.0	3.9
200	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0
240	3.9	3.8	3.8	3.8	3.7	3.7	3.8	3.8
280	3.7	3.7	3.9	3.9	3.8	3.7	3.7	3.6
320	3.7	3.6	3.6	3.8	3.9	3.9	3.9	3.9



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WALL RANGES VS DEPTH

DEPTH	1719.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.2	4.2	4.2	4.3	4.5	4.1	4.2	4.3
40	4.2	4.3	4.2	4.2	4.2	4.3	4.3	4.2
80	4.2	4.2	4.2	4.2	4.1	3.9	4.1	4.0
120	4.1	4.0	4.2	4.2	4.1	4.0	4.0	4.0
160	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.2
200	4.2	4.1	4.1	4.1	4.2	4.3	4.3	4.3
240	4.3	4.1	4.0	3.9	3.9	3.9	4.0	4.0
280	4.1	4.1	4.0	3.9	4.1	3.9	3.9	3.7
320	3.7	3.8	3.8	3.9	4.0	4.0	4.2	4.2

DEPTH	1722.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.3	4.3	4.4	4.3	4.3	4.2	4.2	4.4
40	4.4	4.3	4.3	4.4	4.5	4.4	4.3	4.3
80	4.3	4.3	4.2	4.2	4.2	4.2	4.3	4.3
120	4.3	4.3	4.3	4.3	4.2	3.9	3.9	3.9
160	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
200	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.1
240	4.1	4.1	4.1	4.0	4.2	4.1	4.0	4.0
280	3.9	4.0	4.0	4.0	3.9	3.9	3.9	3.9
320	4.0	4.0	3.9	4.1	4.0	4.2	4.1	4.2

DEPTH	1723.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.6	4.5	4.4	4.6	4.5	4.4	4.4	4.4
40	4.4	4.3	4.3	4.3	4.4	4.4	4.4	4.5
80	4.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3
120	4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.4
160	4.2	4.1	4.0	4.0	4.0	4.0	4.0	4.0
200	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
240	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.2
280	4.3	4.3	4.2	4.2	4.1	4.3	4.1	4.1
320	4.1	4.1	4.2	4.4	4.3	4.3	4.4	4.5



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WALL RANGES VS DEPTH

DEPTH	1725.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.4	4.4	4.7	4.2	4.7	4.4	4.4	4.4
40	4.4	4.4	4.4	4.5	4.5	4.4	4.4	4.3
80	4.2	4.1	4.4	3.9	3.9	4.0	4.1	4.3
120	4.3	3.9	4.2	4.0	4.0	4.0	3.9	3.9
160	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
200	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
240	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
280	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
320	3.9	3.9	4.0	4.0	4.2	4.2	4.5	4.3

DEPTH	1728.0		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.4	4.2	4.5	4.6	4.7	4.6	4.6	4.6
40	4.5	4.5	4.7	4.6	4.5	4.6	4.2	4.2
80	4.3	4.4	4.4	4.3	4.4	4.4	4.5	4.5
120	4.8	4.8	4.2	4.2	4.3	4.4	4.3	4.2
160	4.2	4.2	4.4	4.4	4.4	4.4	4.4	4.4
200	4.4	4.4	4.4	4.4	4.2	4.2	4.2	4.2
240	4.2	4.2	4.1	4.2	4.3	4.3	4.3	4.3
280	4.2	4.2	4.2	4.2	4.3	4.3	4.3	4.3
320	4.3	4.3	4.2	4.2	4.2	4.2	4.5	4.5

DEPTH	1729.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.7	3.8	3.8	3.8	3.8	3.7	3.5	3.5
40	3.5	3.6	3.7	3.9	3.9	3.9	3.9	3.7
80	3.8	4.1	3.6	3.9	3.8	3.8	3.8	3.8
120	3.8	4.1	4.1	3.8	3.7	3.6	3.6	3.6
160	3.6	3.6	3.6	3.4	3.5	3.6	3.5	3.8
200	3.7	3.7	3.5	3.6	3.6	3.6	3.5	3.5
240	3.4	3.5	3.6	3.5	3.5	3.5	3.5	3.5
280	3.5	3.3	3.3	3.3	3.3	3.3	3.4	3.4
320	3.4	3.4	3.5	3.6	3.6	3.6	3.7	3.7



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WALL RANGES VS DEPTH

DEPTH	1731.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.8	3.9	3.8	4.1	4.0	3.9	3.8	3.9
40	3.9	3.9	3.9	3.8	3.8	4.0	4.0	3.8
80	3.8	3.3	3.9	3.9	3.9	4.2	4.1	4.1
120	4.0	4.3	4.0	3.8	3.8	3.7	3.6	3.5
160	3.4	3.4	3.4	3.5	3.5	3.5	3.4	3.5
200	3.7	3.6	3.5	3.5	3.4	3.5	3.5	3.5
240	3.6	3.5	3.5	3.6	3.6	3.9	3.6	3.8
280	3.8	3.3	3.3	3.3	3.3	3.3	3.4	3.3
320	3.3	3.2	3.4	3.4	3.4	3.3	3.3	3.4

DEPTH	1733.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.8	3.9	3.9	4.1	4.1	4.1	4.1	4.2
40	4.2	4.1	4.3	4.1	4.1	3.9	4.0	4.2
80	3.8	3.9	3.7	4.1	3.8	3.7	3.9	3.8
120	3.8	3.8	3.8	3.6	3.6	3.7	3.4	3.4
160	3.4	3.4	3.3	3.4	3.5	3.7	3.8	3.6
200	3.7	3.5	3.5	3.7	3.7	3.7	3.7	3.8
240	3.7	3.6	3.6	3.7	3.6	3.7	3.7	3.7
280	3.7	3.7	3.7	3.6	3.6	3.7	3.6	3.6
320	3.7	3.6	3.5	3.6	3.6	3.7	3.7	3.9

DEPTH	1735.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.1	3.1	3.1	3.1	3.1	3.2	3.1
40	3.1	3.0	3.2	3.4	3.4	3.2	3.5	3.5
80	3.5	3.3	3.4	3.4	3.3	3.2	3.4	3.2
120	3.2	3.3	3.2	3.0	2.9	3.0	3.0	3.0
160	3.2	3.0	2.9	2.9	2.9	2.8	2.9	3.0
200	3.0	2.9	2.8	3.0	2.8	2.9	2.8	2.9
240	2.8	2.8	2.8	2.8	2.8	2.8	3.0	2.9
280	2.8	2.8	2.8	2.8	2.9	2.7	2.8	3.2
320	2.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

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WALL RANGES VS DEPTH

DEPTH	1737.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
40	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
80	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
120	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
160	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
200	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
240	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
280	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
320	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH	1739.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.4	3.1	3.5	3.7	3.7	3.7	3.7
40	3.9	3.7	3.7	3.7	3.9	3.8	3.7	3.8
80	3.5	3.6	3.5	3.2	3.2	3.3	3.5	3.5
120	3.3	3.1	3.2	3.3	3.3	3.1	3.1	2.9
160	3.0	2.8	2.8	2.8	3.0	3.1	2.9	3.1
200	2.9	3.0	2.8	3.0	2.8	2.8	3.3	2.9
240	3.2	3.0	2.9	3.4	2.9	3.1	3.0	3.1
280	3.3	3.3	3.0	3.2	3.1	3.5	3.3	3.2
320	3.2	3.4	3.4	3.4	3.5	3.4	3.4	3.4

DEPTH	1741.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0
40	3.9	3.9	3.9	3.9	3.9	3.8	3.9	3.9
80	3.8	3.8	3.8	3.7	3.7	3.7	3.8	3.8
120	3.8	3.8	3.7	3.6	3.6	3.6	3.6	3.6
160	3.5	3.6	3.7	3.5	3.7	3.8	3.7	3.9
200	3.9	3.7	3.6	3.7	3.7	3.7	3.8	3.7
240	3.8	3.7	3.7	3.7	3.8	3.8	3.8	3.8
280	3.8	3.7	3.7	4.1	3.8	3.8	3.8	3.8
320	3.9	4.0	3.9	3.8	3.8	4.0	4.1	4.0



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1743.9		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.8	3.8	3.9	3.8	3.8	3.8	3.8	3.8
40	3.7	3.9	3.7	3.9	4.0	4.1	4.3	4.1
80	4.0	3.9	4.0	4.0	3.9	3.9	3.9	3.7
120	3.7	3.7	3.7	3.7	3.7	3.4	3.4	3.5
160	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7
200	3.6	3.6	3.6	3.6	3.9	3.6	3.7	3.7
240	3.9	3.7	3.8	3.7	3.7	3.7	3.9	3.9
280	4.0	4.1	4.0	4.1	4.0	4.0	4.1	4.0
320	4.1	4.1	4.0	3.9	3.9	3.9	3.9	3.8

DEPTH	1745.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.9	3.9	3.8	3.8	3.9	4.0	3.9	3.9
40	4.0	3.9	3.9	4.1	4.1	4.1	3.8	3.8
80	4.1	3.7	3.8	3.9	3.9	3.9	3.8	3.8
120	3.8	3.8	3.8	3.8	3.7	3.5	3.5	3.6
160	3.6	3.8	3.8	3.6	3.7	3.7	3.8	3.8
200	3.8	3.8	3.8	3.8	3.8	3.5	3.7	3.8
240	3.7	3.8	3.7	3.8	3.8	3.9	3.7	3.7
280	4.0	3.8	3.9	3.9	3.9	3.9	3.9	3.8
320	3.9	4.1	4.1	3.8	3.8	3.7	4.0	3.9

DEPTH	1747.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.7	3.4	3.6	3.3	3.5	3.4	3.4	3.7
40	3.7	3.5	3.6	3.6	3.5	3.7	3.4	3.6
80	3.5	3.5	3.5	3.6	3.5	3.5	3.4	3.4
120	3.4	3.4	3.4	3.4	3.4	3.0	3.4	3.4
160	3.5	3.7	3.6	3.6	3.7	3.7	3.7	3.7
200	3.6	3.4	3.3	3.6	3.7	3.5	3.4	3.4
240	3.5	3.6	3.6	3.8	3.7	3.7	3.6	4.0
280	4.0	4.1	4.0	4.0	4.0	4.0	4.1	4.1
320	3.9	3.6	3.8	3.8	3.6	3.7	3.6	3.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1749.8		TILT	0		VOS	5976.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1751.7		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1753.8		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1756.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1758.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1760.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1764.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.0	3.0	3.1	3.1	3.0	3.0	3.0	3.0
40	3.0	2.9	2.9	3.1	3.0	3.0	2.9	2.9
80	2.8	3.0	3.0	2.9	2.9	2.9	2.9	2.9
120	2.9	2.8	2.8	2.9	2.9	2.8	3.1	3.1
160	2.9	3.1	3.1	2.9	3.1	3.1	3.1	3.1
200	3.1	3.1	3.0	3.0	3.0	3.0	2.9	2.9
240	3.0	3.0	3.0	3.0	3.0	2.8	3.0	3.0
280	3.0	2.9	2.9	2.9	2.9	3.0	3.0	3.0
320	2.9	2.8	2.9	2.8	2.8	2.8	2.9	2.9

DEPTH	1770.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1772.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.9	2.8	2.9	2.7	3.0	2.9	2.9	3.0
40	2.9	2.8	2.9	3.0	2.9	3.0	3.0	3.0
80	2.7	3.0	3.0	3.0	3.1	3.1	3.2	3.1
120	3.1	3.2	3.2	3.2	3.2	3.2	3.1	3.1
160	3.2	3.2	3.2	3.3	3.3	3.3	3.4	3.4
200	3.4	3.4	3.4	3.3	3.1	3.1	3.1	3.1
240	3.3	3.1	3.1	3.1	3.2	3.1	3.0	3.0
280	2.9	2.9	2.9	2.8	2.9	3.1	3.2	2.8
320	2.8	2.5	2.9	2.5	2.9	2.6	3.0	2.9



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1774.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.9	3.0	2.9	2.9	2.9	2.9	2.9	2.9
40	2.9	2.9	2.9	2.8	2.8	2.9	2.9	2.8
80	3.0	3.1	2.8	2.8	2.9	2.8	2.8	2.8
120	2.9	2.8	3.0	3.1	3.1	3.0	3.3	3.2
160	3.3	3.3	3.4	3.3	3.3	3.2	3.6	3.4
200	3.4	3.3	3.3	3.2	3.3	3.4	3.3	3.2
240	3.2	3.2	3.0	3.1	3.2	3.2	3.2	3.2
280	3.0	3.0	3.0	3.0	3.1	3.0	3.0	3.0
320	3.0	3.0	2.8	2.8	3.0	3.0	3.0	2.9

DEPTH	1776.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
40	3.0	3.0	3.0	3.0	3.0	2.9	2.8	3.0
80	3.0	3.1	3.0	3.0	3.1	3.3	3.1	3.2
120	3.1	3.0	3.2	3.2	3.4	3.4	3.4	3.4
160	3.5	3.5	3.4	3.4	3.3	3.4	3.3	3.3
200	3.5	3.5	3.6	3.5	3.5	3.1	3.2	3.2
240	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.2
280	3.2	3.2	3.2	3.0	3.0	3.0	3.0	3.0
320	3.0	3.0	3.0	3.0	3.0	3.1	2.9	2.9

DEPTH	1778.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9
40	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0
80	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.4
120	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.3
160	3.3	3.3	3.3	3.3	3.3	3.1	3.1	3.4
200	3.3	3.3	3.3	3.3	3.0	3.1	3.1	3.1
240	3.1	3.1	3.1	3.0	3.0	3.0	2.9	3.0
280	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.8
320	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.8



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WALL RANGES VS DEPTH

DEPTH	1780.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8
40	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9
80	3.0	3.1	3.0	2.8	3.2	3.1	3.1	3.1
120	3.4	3.4	3.2	3.3	3.3	3.5	3.5	3.4
160	3.2	3.3	3.4	3.5	3.5	3.4	3.4	3.4
200	3.4	3.4	3.3	3.3	3.3	3.3	3.2	3.2
240	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1
280	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8
320	2.8	2.9	2.9	2.9	2.9	2.9	2.8	2.9

DEPTH	1782.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
40	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
80	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
120	3.2	3.2	3.3	3.2	3.6	3.8	3.6	3.6
160	3.5	3.6	3.5	3.6	3.6	3.6	3.4	3.3
200	3.3	3.5	3.3	3.3	3.4	3.3	3.2	3.2
240	3.1	3.3	3.2	3.2	3.2	3.2	3.2	3.2
280	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
320	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

DEPTH	1784.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8
40	2.8	2.8	2.8	2.8	2.8	2.9	2.9	3.0
80	2.9	2.9	3.0	3.0	2.9	3.0	3.0	3.3
120	3.3	3.2	3.3	3.6	3.6	3.7	3.6	3.4
160	3.4	3.5	3.6	3.6	3.6	3.5	3.4	3.5
200	3.4	3.5	3.5	3.3	3.3	3.6	3.3	3.3
240	3.0	3.4	3.2	3.2	3.1	3.3	3.1	3.2
280	3.0	3.1	3.0	3.2	3.1	3.1	2.9	2.9
320	2.9	3.0	3.0	3.0	3.0	3.1	3.0	2.8



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

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WALL RANGES VS DEPTH

DEPTH	1785.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
40	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.8
80	2.9	3.0	2.9	3.0	3.0	2.9	2.8	3.1
120	3.4	3.4	3.4	3.5	3.6	3.5	3.4	3.4
160	3.5	3.4	3.6	3.5	3.4	3.4	3.4	3.3
200	3.4	3.3	3.3	3.1	3.3	3.1	3.1	3.0
240	3.1	3.0	3.2	3.0	3.0	3.1	3.0	2.9
280	3.0	2.9	3.0	3.0	2.8	3.0	2.8	2.8
320	3.2	2.8	2.8	2.8	2.8	2.9	3.0	2.8

DEPTH	1788.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1790.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
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WALL RANGES VS DEPTH

DEPTH	1792.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1793.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1795.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.1	3.0	3.2	3.3	3.3	3.2	3.2	3.2
40	3.1	3.0	3.1	3.2	3.0	3.1	3.1	3.1
80	3.1	3.0	3.0	2.8	2.6	2.5	2.5	2.3
120	2.4	2.5	2.7	2.6	2.6	2.6	2.6	2.5
160	2.5	2.4	2.4	2.4	2.4	2.6	2.5	2.5
200	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3
240	2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.5
280	2.8	2.9	2.9	2.9	2.9	3.0	3.0	2.9
320	3.0	3.1	3.1	2.9	2.9	2.9	2.9	3.2



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1797.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.4	3.5	3.4	3.4	3.5	3.4	3.3
40	3.3	3.4	3.3	3.4	3.2	3.2	2.9	3.0
80	2.9	2.9	2.9	2.8	2.9	3.0	2.8	2.8
120	2.8	2.8	2.9	2.9	2.8	2.8	2.8	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
200	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
240	2.8	2.8	2.8	2.9	2.9	3.0	2.8	2.9
280	2.9	2.9	3.0	3.0	3.3	2.9	3.2	3.2
320	3.2	3.2	3.4	3.3	3.4	3.4	3.3	3.3

DEPTH	1799.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.5	3.2	3.5	3.5	3.5	3.5	3.5
40	3.5	3.5	3.4	3.4	3.4	3.2	3.0	3.2
80	3.2	3.2	3.1	3.1	3.1	3.0	3.0	3.0
120	3.1	3.2	2.9	3.0	3.0	3.0	3.0	3.0
160	2.8	2.8	2.9	2.9	3.0	3.0	2.9	2.8
200	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.8
240	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
280	2.8	2.9	2.9	2.9	3.1	3.1	3.1	3.1
320	3.1	3.2	3.2	3.3	3.3	3.3	3.4	3.5

DEPTH	1801.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.4	3.4	3.4	3.4	3.6	3.5	3.3
40	3.2	2.9	2.9	2.8	2.6	2.6	2.6	2.6
80	2.7	2.8	2.8	2.9	2.8	2.7	2.7	2.8
120	2.9	3.0	3.0	3.0	2.9	2.9	2.9	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
200	2.8	2.7	2.7	2.7	2.8	2.8	2.7	2.7
240	2.7	2.8	2.8	2.9	2.9	2.9	2.9	2.9
280	3.0	3.0	2.9	2.9	3.0	3.1	3.2	3.4
320	3.3	3.3	3.3	3.4	3.3	3.4	3.4	3.4



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WALL RANGES VS DEPTH

DEPTH	1803.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.6	3.5	3.6	3.6	3.5	3.5	3.5	3.6
40	3.4	3.4	3.0	3.4	2.9	2.9	3.3	3.2
80	2.8	2.8	2.9	2.9	2.8	2.8	2.8	2.8
120	2.8	2.9	2.9	2.8	2.8	2.8	2.8	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
200	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
240	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.9
280	2.8	2.9	2.9	2.9	3.0	3.0	3.0	3.0
320	3.0	3.1	3.1	3.3	3.3	3.5	3.6	3.5

DEPTH	1806.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.5	3.6	3.6	3.4	3.4	3.4	3.4
40	3.4	3.4	3.3	3.3	2.9	2.9	2.9	2.9
80	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
120	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
200	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
240	2.8	2.8	2.8	3.1	3.0	2.9	2.9	3.0
280	2.8	3.0	3.0	3.2	3.2	3.2	3.2	3.3
320	3.3	3.2	3.2	3.3	3.3	3.4	3.4	3.4

DEPTH	1807.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.3	3.5	3.4	3.4	3.3	3.3	3.3
40	3.4	3.4	3.4	3.3	3.1	3.2	3.2	3.2
80	3.1	3.1	2.8	2.8	2.8	2.8	2.8	2.8
120	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
200	2.8	2.8	2.8	2.8	3.0	2.8	3.0	2.9
240	2.8	3.0	3.0	2.9	2.9	2.9	2.8	2.8
280	2.8	2.9	3.0	3.0	3.1	3.2	3.0	3.1
320	3.2	3.2	3.3	3.3	3.3	3.4	3.3	3.3



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WALL RANGES VS DEPTH

DEPTH	1809.8		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.6	3.6	3.4	3.6	3.6	3.6	3.6	3.5
40	3.3	3.4	3.8	3.0	3.0	3.0	3.1	2.8
80	2.8	3.1	3.0	3.0	2.8	3.4	2.9	3.0
120	3.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.8
200	2.8	3.0	2.9	2.9	3.0	3.0	2.8	2.8
240	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
280	2.9	2.9	2.8	2.8	2.8	3.2	3.2	3.1
320	3.1	3.2	3.2	3.2	3.5	3.3	3.3	3.3

DEPTH	1811.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	2.2	2.1	2.1	2.2	2.2	2.2	2.2
40	2.3	2.3	2.3	2.3	2.3	2.4	2.7	2.4
80	2.2	2.5	2.5	2.4	2.6	2.5	2.5	2.6
120	2.7	2.5	2.5	2.5	2.4	2.2	2.3	2.0
160	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0
200	2.1	2.0	2.0	2.0	1.9	1.7	2.1	2.1
240	2.0	2.0	1.9	1.9	1.8	2.2	2.2	2.1
280	2.1	2.1	2.1	2.1	2.0	2.1	1.9	2.0
320	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0

DEPTH	1813.8		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.1	3.1	3.2	3.2	3.3	3.3	3.1	3.0
40	3.1	3.3	3.3	3.3	3.0	3.0	3.0	2.7
80	2.8	2.7	2.6	2.7	2.6	2.5	2.6	2.6
120	2.3	2.4	2.5	2.5	2.6	2.5	2.6	2.6
160	2.5	2.5	2.7	2.6	2.4	2.3	2.8	2.3
200	2.5	2.4	2.3	2.2	2.1	2.2	2.4	2.4
240	2.8	2.6	2.7	2.6	2.7	2.7	2.7	2.7
280	2.7	2.7	2.7	2.7	2.8	2.8	2.8	3.0
320	2.9	2.8	2.7	2.7	2.9	3.0	3.0	3.0



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WALL RANGES VS DEPTH

DEPTH	1815.8		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.7	3.4	3.3	3.3	3.3	3.5	3.4
40	3.3	3.3	3.3	3.1	2.9	3.0	2.9	3.1
80	3.0	2.9	3.1	3.0	2.8	2.8	2.8	2.8
120	2.9	2.9	2.8	2.8	2.6	2.7	2.6	2.4
160	2.4	2.4	2.4	2.4	2.5	2.8	2.7	2.7
200	2.3	2.3	2.3	2.3	2.2	2.3	2.5	2.4
240	2.4	2.4	2.4	2.4	2.5	2.5	2.7	2.5
280	2.7	2.7	2.6	2.8	2.7	3.1	3.1	3.0
320	2.9	2.9	3.0	3.0	2.9	2.8	3.0	3.0

DEPTH	1817.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.2	3.3	3.2	3.3	3.5	3.3	3.3
40	3.2	3.2	3.3	3.2	2.8	2.9	2.9	3.0
80	2.7	2.8	2.7	2.7	2.8	2.6	2.7	2.5
120	2.9	2.8	2.7	2.6	2.6	2.5	2.4	2.4
160	2.6	2.5	2.4	2.4	2.5	2.5	2.7	2.6
200	2.6	2.5	2.5	2.4	2.5	2.5	2.6	2.7
240	2.6	2.7	2.7	2.7	2.6	2.7	2.7	2.7
280	2.8	3.2	3.0	2.9	2.9	3.1	2.9	3.0
320	3.0	3.0	3.0	3.1	3.1	3.3	3.1	3.2

DEPTH	1819.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1820.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1822.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1824.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1825.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.7	2.6	2.5	2.5	2.7	2.6	2.7	2.8
40	2.8	2.8	2.7	2.6	2.5	2.5	2.4	2.5
80	2.4	2.4	2.3	2.3	2.5	2.7	2.7	2.6
120	2.3	2.4	2.4	2.4	2.6	2.5	2.3	2.0
160	2.1	2.0	2.1	1.9	1.9	2.0	1.9	1.9
200	2.0	2.1	2.1	1.8	1.8	1.8	1.8	1.8
240	1.9	1.9	1.9	1.9	2.1	2.0	2.2	2.2
280	2.3	2.3	2.3	2.6	3.1	3.1	3.1	3.0
320	2.9	2.8	3.0	2.9	2.8	2.8	2.7	2.8

DEPTH	1827.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.3	3.3	3.3	3.2	3.2	3.1	3.1
40	3.3	3.1	3.1	3.1	3.1	3.0	2.9	3.0
80	3.0	3.0	3.0	2.9	2.6	2.5	2.5	2.6
120	2.6	2.7	2.7	2.7	2.4	2.4	2.5	2.4
160	2.4	2.6	2.6	2.5	2.4	2.5	2.4	2.4
200	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4
240	2.4	2.5	2.6	2.6	2.6	2.6	2.5	2.5
280	2.6	2.8	2.8	3.3	3.8	3.9	3.8	3.0
320	3.1	3.1	3.1	3.1	3.1	3.1	3.3	3.3

DEPTH	1829.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.6	3.7	3.5	3.5	3.6	3.6	3.6	3.4
40	3.4	3.3	3.3	3.3	3.4	3.2	3.1	3.1
80	3.0	3.1	2.8	3.0	2.8	2.8	2.8	2.8
120	2.7	2.8	2.7	2.7	2.7	2.7	2.7	2.7
160	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.8
200	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.7
240	2.7	2.7	2.5	2.5	2.6	2.6	2.7	2.7
280	2.7	2.9	3.1	3.3	3.4	3.5	3.4	3.3
320	3.2	3.2	3.2	3.3	3.4	3.5	3.5	3.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1831.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.5	3.4	3.3	3.3	3.4	3.4	3.6
40	3.5	3.4	3.3	3.3	3.2	3.2	3.0	3.1
80	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.9
120	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
160	2.6	2.8	2.8	2.7	2.7	2.7	2.7	2.7
200	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
240	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
280	2.7	2.7	3.1	3.4	3.6	3.7	3.7	3.7
320	3.2	3.2	3.2	3.3	3.3	3.3	3.4	3.4

DEPTH	1834.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.5	3.4	3.4	3.4	3.4	3.4	3.5
40	3.4	3.4	3.2	3.2	2.9	2.9	2.9	3.0
80	2.9	3.0	3.0	2.9	2.9	2.9	2.9	2.9
120	2.9	2.9	3.0	2.9	2.9	2.9	2.9	2.9
160	2.9	2.6	2.6	2.7	2.7	2.6	2.6	2.5
200	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7
240	2.7	2.8	2.8	2.6	2.6	2.7	2.8	2.9
280	2.9	2.8	2.8	2.8	3.0	3.0	3.4	3.3
320	3.1	3.3	3.3	3.3	3.3	3.4	3.4	3.4

DEPTH	1836.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.6	3.6	3.5	3.5	3.7	3.5	3.5
40	3.5	3.6	3.3	3.3	3.3	3.3	3.3	3.3
80	3.1	3.1	2.9	2.9	2.9	2.9	2.9	2.9
120	2.9	2.9	2.9	2.8	2.8	2.7	2.7	2.7
160	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
200	2.7	2.6	2.6	2.7	2.7	2.9	2.9	2.9
240	2.9	2.9	2.9	3.0	2.9	2.9	2.9	3.1
280	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.3
320	3.2	3.2	3.2	3.2	3.3	3.5	3.4	3.4



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WALL RANGES VS DEPTH

DEPTH	1838.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.8	3.0	3.0	2.8	3.1	3.2	3.2	2.9
40	2.8	2.7	2.9	2.9	2.7	2.7	2.8	2.8
80	2.5	2.5	2.4	2.3	2.5	2.5	2.5	2.5
120	2.5	2.5	2.4	2.4	2.5	2.3	2.3	2.3
160	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3
200	2.3	2.3	2.3	2.3	2.3	2.0	2.1	2.1
240	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
280	2.5	2.5	2.3	2.4	2.4	2.3	2.4	2.7
320	2.6	2.6	2.6	2.8	2.9	2.9	2.8	2.8

DEPTH	1840.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.9	3.2	3.2	3.0	3.0	3.0	2.9	2.9
40	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.8
80	2.8	2.8	2.4	2.5	2.6	2.4	2.5	2.5
120	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4
160	2.4	2.3	2.4	2.4	2.3	2.3	2.5	2.5
200	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3
240	2.2	2.2	2.5	2.5	2.2	2.2	2.5	2.7
280	2.5	2.5	2.6	2.7	2.8	2.7	2.8	3.0
320	3.0	3.0	3.1	3.1	2.7	2.9	2.9	2.9

DEPTH	1842.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.3	3.3	3.4	3.4	3.3	3.3	3.1
40	3.1	3.2	3.1	3.0	3.0	3.0	3.0	2.8
80	3.1	2.8	2.7	2.8	2.8	2.6	2.6	3.0
120	3.0	3.1	2.8	2.8	2.4	2.4	2.7	2.6
160	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6
200	2.6	2.4	2.4	2.5	2.5	2.5	2.5	2.5
240	2.4	2.6	2.8	2.8	2.7	2.7	2.7	2.7
280	2.8	3.0	3.1	3.2	3.4	3.3	3.5	3.5
320	3.5	3.5	3.5	3.4	3.4	3.4	3.4	3.5



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WALL RANGES VS DEPTH

DEPTH	1844.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.2	3.3	3.1	3.1	3.1	3.0	3.2
40	3.1	3.0	3.0	3.1	2.9	3.0	2.9	2.8
80	2.8	2.6	2.6	2.5	2.4	2.8	2.7	2.7
120	2.8	2.8	2.8	2.4	2.4	2.4	2.5	2.4
160	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4
200	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.4
240	2.5	2.5	2.6	2.5	2.7	2.7	2.7	2.5
280	2.5	2.6	2.9	2.9	2.9	2.8	3.1	3.1
320	3.1	3.3	3.1	3.2	3.2	3.2	3.2	3.2

DEPTH	1846.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.1	2.0	2.2	2.1	2.1	2.1	2.1
40	1.9	1.8	1.8	1.9	1.9	1.8	1.8	1.7
80	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.5
120	1.5	1.5	1.5	1.5	1.6	1.8	1.8	1.5
160	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.6
200	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5
240	1.7	1.7	1.6	1.6	1.6	1.6	1.7	1.7
280	1.7	1.7	1.8	1.8	1.9	2.0	2.0	2.5
320	2.3	2.3	2.4	2.4	2.3	2.2	2.3	2.2

DEPTH	1848.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2
40	3.1	3.0	3.0	3.0	2.8	2.9	2.8	2.9
80	2.8	2.6	2.7	2.7	2.5	2.4	2.5	2.4
120	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3
160	2.3	2.4	2.3	2.3	2.4	2.4	2.3	2.2
200	2.4	2.3	2.2	2.3	2.3	2.4	2.5	2.5
240	2.5	2.5	2.5	2.5	2.7	2.8	2.9	2.5
280	2.5	2.6	2.6	2.6	3.6	3.6	3.5	3.5
320	3.4	3.5	3.5	3.4	3.5	3.4	3.4	3.4



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WALL RANGES VS DEPTH

DEPTH	1852.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.4
40	2.2	2.2	2.3	2.3	2.3	2.3	2.5	2.3
80	2.2	2.4	2.5	2.4	2.4	2.5	2.5	2.4
120	2.4	2.4	2.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.3
280	2.3	2.5	2.5	2.5	2.4	2.4	2.2	2.3
320	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2

DEPTH	1854.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.5
40	2.6	2.6	2.6	2.6	2.4	2.7	2.7	2.5
80	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.6
120	2.3	2.3	2.5	2.5	2.8	3.2	3.2	3.2
160	3.1	3.2	3.1	3.1	3.1	3.1	2.7	2.4
200	2.8	2.8	2.8	2.7	2.7	2.6	2.4	2.3
240	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.2
280	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
320	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2

DEPTH	1856.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4
40	2.4	2.5	2.5	2.5	2.5	2.5	2.7	2.6
80	2.4	2.4	2.5	2.4	2.6	2.6	2.4	2.6
120	2.7	2.8	2.8	3.0	3.0	3.3	3.3	3.3
160	3.3	3.2	3.2	3.1	3.0	3.0	3.0	3.0
200	2.9	2.8	2.7	2.7	2.7	2.7	2.5	2.5
240	2.4	2.4	2.3	2.3	2.2	2.4	2.3	2.3
280	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2
320	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2



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WALL RANGES VS DEPTH

DEPTH	1858.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4
40	2.4	2.4	2.6	2.5	2.5	2.3	2.4	2.2
80	2.5	2.3	2.2	2.3	2.3	2.6	2.6	2.8
120	2.8	2.6	2.6	2.6	2.7	2.8	3.2	3.1
160	3.2	3.4	3.3	3.2	3.0	3.1	3.3	3.0
200	3.0	2.6	2.6	2.6	2.2	2.5	2.4	2.3
240	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.2
280	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2
320	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2

DEPTH	1860.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.4	2.5	2.7	2.7	2.7	2.6	2.5
40	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.8
80	2.9	2.9	3.0	3.0	2.7	2.8	2.7	2.9
120	2.7	2.6	2.7	2.7	2.7	2.6	2.8	2.7
160	2.7	2.7	2.9	3.0	2.7	2.9	2.9	3.0
200	2.9	2.5	2.7	2.6	2.5	2.5	2.4	2.4
240	2.4	2.4	2.3	2.4	2.4	2.3	2.4	2.3
280	2.3	2.3	2.2	2.4	2.5	2.5	2.4	2.3
320	2.2	2.3	2.3	2.3	2.2	2.2	2.4	2.4

DEPTH	1862.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5
40	2.6	2.7	2.7	2.8	2.9	3.0	3.0	2.9
80	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
120	3.1	3.0	3.0	3.2	3.0	3.0	3.0	2.9
160	2.9	2.9	2.9	3.0	3.0	3.1	3.0	2.9
200	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.5
240	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5
280	2.3	2.2	2.3	2.3	2.2	2.3	2.4	2.3
320	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4



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WALL RANGES VS DEPTH

DEPTH	1864.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
40	2.3	2.3	2.5	2.4	2.4	2.5	2.3	2.4
80	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.1
120	3.1	3.0	2.8	2.8	2.9	2.9	2.8	2.8
160	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
200	2.7	2.7	2.7	2.6	2.5	2.4	2.4	2.3
240	2.2	2.4	2.4	2.4	2.4	2.3	2.2	2.2
280	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
320	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2

DEPTH	1866.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.2	2.5	2.4	2.5	2.5	2.6
40	2.6	2.7	2.7	2.7	2.9	2.8	2.8	2.9
80	3.0	3.1	3.1	3.1	3.1	3.0	3.1	3.1
120	3.0	3.0	3.0	3.1	2.6	2.6	2.7	2.7
160	2.7	2.6	2.7	2.6	2.7	2.8	2.8	2.7
200	2.8	2.8	2.7	2.6	2.6	2.6	2.4	2.5
240	2.4	2.3	2.4	2.4	2.2	2.2	2.2	2.2
280	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
320	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.2

DEPTH	1868.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.6
40	2.5	2.6	2.7	2.7	2.7	2.7	2.9	3.1
80	3.0	3.0	3.0	3.1	3.0	3.0	3.0	3.3
120	3.2	3.2	3.1	3.0	3.0	2.8	2.6	2.6
160	2.7	2.8	2.7	2.5	2.5	2.5	2.8	2.7
200	2.8	2.6	2.6	2.5	2.5	2.5	2.5	2.5
240	2.5	2.3	2.4	2.2	2.2	2.1	2.1	2.1
280	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1
320	2.0	2.0	2.1	2.2	2.3	2.1	2.1	2.1



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WALL RANGES VS DEPTH

DEPTH	1869.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5
40	2.6	2.7	2.6	2.6	2.7	2.7	2.7	2.8
80	2.7	3.0	3.0	3.0	3.1	3.1	3.0	3.1
120	3.2	3.2	3.2	3.2	3.2	3.0	3.0	2.9
160	2.7	2.8	2.5	2.4	2.3	2.4	2.4	2.4
200	2.5	2.5	2.5	2.4	2.4	2.5	2.4	2.4
240	2.3	2.4	2.4	2.3	2.3	2.1	2.1	2.1
280	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
320	2.2	2.1	2.1	2.3	2.3	2.3	2.4	2.4

DEPTH	1872.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.4	2.6	2.6	2.6	2.6	2.5	2.6	2.6
40	2.6	2.7	2.6	2.8	2.8	2.8	3.1	3.1
80	3.1	3.1	3.1	3.1	3.1	3.0	3.0	3.1
120	3.1	3.4	3.2	3.2	3.2	3.2	3.3	3.3
160	3.5	3.5	2.9	2.5	2.4	2.4	2.6	2.6
200	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.3
240	2.5	2.6	2.4	2.3	2.2	2.3	2.2	2.2
280	2.2	2.2	2.3	2.4	2.2	2.1	2.4	2.2
320	2.2	2.2	2.2	2.1	2.1	2.3	2.3	2.4

DEPTH	1873.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.3	2.3	2.3	2.5	2.5	2.6	2.7	2.7
40	2.7	2.9	2.7	2.9	2.8	3.0	3.1	3.0
80	3.1	3.1	3.2	3.1	3.2	3.2	3.4	3.4
120	3.2	3.3	3.2	3.2	3.2	3.2	3.3	3.3
160	3.2	3.3	3.4	2.7	2.7	2.7	2.7	2.7
200	2.7	2.6	2.5	2.3	2.4	2.4	2.5	2.4
240	2.4	2.3	2.3	2.2	2.2	2.1	2.2	2.4
280	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2
320	2.2	2.2	2.2	2.1	2.4	2.2	2.1	2.3



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WALL RANGES VS DEPTH

DEPTH	1875.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0
40	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0
80	2.0	2.1	2.0	2.1	2.3	2.2	2.4	2.5
120	2.6	2.6	2.7	2.7	2.7	2.7	2.9	2.7
160	2.7	2.6	2.7	2.3	2.0	2.0	2.0	2.0
200	1.8	1.8	1.8	1.8	1.7	1.9	1.9	2.1
240	2.3	2.2	2.0	1.9	2.1	2.1	2.0	2.0
280	1.8	1.8	1.8	1.8	2.1	1.8	1.8	1.8
320	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8

DEPTH	1878.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.0	2.2	1.8	1.9	1.9	1.7	1.7
40	1.9	2.0	2.2	2.4	2.1	2.0	2.0	2.0
80	2.4	2.4	2.4	2.4	2.5	2.5	2.7	2.7
120	2.8	2.9	2.7	2.7	2.7	2.6	2.6	2.6
160	2.4	2.7	2.7	2.1	2.2	2.1	2.0	2.0
200	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0
240	2.0	1.9	1.9	2.0	1.9	1.9	1.9	2.1
280	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9
320	1.9	1.9	1.9	2.1	1.9	1.9	2.1	2.0

DEPTH	1880.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.1	2.4	2.3	2.3	2.3	2.4	2.4
40	2.4	2.5	2.6	2.5	2.6	2.7	2.7	2.8
80	3.0	2.9	2.9	2.9	3.1	3.0	3.1	3.1
120	3.1	3.2	3.1	3.1	3.1	3.0	2.9	2.9
160	2.9	3.1	3.1	3.1	2.8	3.0	2.5	2.5
200	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1
240	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
280	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
320	2.1	2.1	2.2	2.1	2.1	2.1	1.9	2.0



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WALL RANGES VS DEPTH

DEPTH	1881.9		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1884.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6
40	1.7	2.1	2.1	2.1	2.0	2.0	2.0	1.8
80	1.9	2.1	2.1	2.1	2.3	2.5	2.5	2.6
120	2.6	2.4	2.4	2.7	2.7	2.7	2.7	2.7
160	2.6	2.5	2.6	2.5	2.5	2.5	2.5	2.4
200	2.4	2.5	2.5	2.5	2.6	2.5	2.5	2.4
240	1.9	1.9	1.8	1.8	1.7	1.7	1.6	1.6
280	1.6	1.6	1.6	1.8	1.7	1.6	1.7	1.7
320	1.7	1.6	1.6	1.7	1.6	1.5	1.5	1.4

DEPTH	1886.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1
40	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.4
80	2.4	2.4	2.4	2.1	1.9	2.1	2.1	2.1
120	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2
160	2.2	2.2	2.2	2.3	2.0	2.0	2.0	2.1
200	2.0	2.0	2.1	2.3	2.3	2.3	2.4	2.6
240	2.4	2.4	2.4	2.4	2.1	2.2	2.2	2.1
280	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2
320	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0



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WALL RANGES VS DEPTH

DEPTH	1888.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.8	1.9	2.1	1.9	1.9	1.9	2.0	2.1
40	2.1	2.1	2.1	2.1	2.3	2.3	2.4	2.4
80	2.4	2.4	2.5	2.4	2.5	2.9	3.1	2.9
120	3.0	3.0	3.0	3.0	3.2	3.3	3.3	3.3
160	3.4	3.3	3.3	3.2	3.2	3.1	3.1	3.0
200	3.0	3.0	3.0	2.9	2.5	2.4	2.4	2.1
240	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.2
280	2.1	2.2	2.1	2.1	1.8	1.9	1.9	1.9
320	1.9	1.9	1.8	1.9	1.8	1.8	1.8	1.8

DEPTH	1890.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1
40	2.1	2.3	2.3	2.3	2.3	2.3	2.4	2.4
80	3.1	3.1	3.1	3.0	2.9	3.0	3.0	3.0
120	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.2
160	3.3	3.4	3.5	3.2	3.2	3.2	3.2	3.1
200	3.2	3.0	3.3	3.0	3.1	3.2	2.6	2.7
240	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3
280	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1
320	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1

DEPTH	1892.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
40	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.5
80	2.5	2.5	2.8	2.8	2.8	2.8	2.9	2.9
120	3.1	3.0	3.1	3.0	3.0	3.1	3.1	3.2
160	3.2	3.2	3.3	3.3	3.3	3.2	3.1	3.1
200	2.9	2.9	2.9	2.8	2.8	2.4	2.6	2.5
240	2.4	2.4	2.5	2.3	2.3	2.3	2.1	2.1
280	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.9
320	2.0	1.9	2.0	2.0	1.9	2.0	2.0	1.9



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WALL RANGES VS DEPTH

DEPTH	1894.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1
40	2.2	2.2	2.4	2.4	2.4	2.5	2.5	2.5
80	2.6	2.7	2.8	2.9	3.0	3.0	3.0	3.0
120	3.0	3.0	3.2	3.2	3.3	3.3	3.2	3.3
160	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.1
200	3.0	2.9	2.9	2.9	2.9	2.6	2.6	2.4
240	2.3	2.3	2.1	2.3	2.5	2.4	2.1	2.1
280	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.1
320	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1

DEPTH	1896.0		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2
40	2.2	2.1	2.1	2.2	2.2	2.3	2.4	2.6
80	2.6	2.6	2.7	2.9	2.9	2.9	3.0	3.0
120	3.0	3.0	3.3	3.3	3.2	3.2	3.2	3.2
160	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1
200	3.1	3.1	3.0	2.8	2.8	2.8	2.8	2.5
240	2.5	2.3	2.2	2.3	2.2	2.1	2.1	2.1
280	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
320	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1

DEPTH	1898.1		TILT	0		VOS	5978.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	1.9	1.9	1.9	2.1	2.1	2.2	2.3
40	2.1	2.1	2.2	2.2	2.2	2.3	2.2	2.2
80	2.5	2.5	2.7	2.7	2.8	2.8	2.8	3.0
120	3.0	3.1	3.0	3.1	3.1	3.2	3.3	3.2
160	3.2	3.2	3.3	3.3	3.2	3.2	3.2	3.0
200	3.0	3.0	3.0	2.8	2.8	2.4	2.4	2.4
240	2.6	2.4	2.4	2.3	2.1	2.1	2.2	2.1
280	2.1	2.1	2.2	2.0	2.0	2.0	1.8	1.8
320	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8



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WALL RANGES VS DEPTH

DEPTH	1900.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.2
40	2.2	2.3	2.3	2.2	2.4	2.4	2.5	2.6
80	2.9	2.8	2.8	2.9	2.9	3.0	3.0	3.0
120	3.0	3.2	3.2	3.3	3.4	3.4	3.3	3.3
160	3.3	3.4	3.3	3.5	3.5	3.3	3.1	3.1
200	3.2	3.0	3.0	3.0	2.8	2.7	2.6	2.6
240	2.6	2.5	2.5	2.5	2.5	2.5	2.3	2.4
280	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1
320	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1

DEPTH	1902.2		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.0	1.9	2.1	2.1	2.1	2.1	2.2
40	2.2	2.2	2.2	2.4	2.4	2.4	2.4	2.4
80	2.4	2.4	2.7	3.0	3.0	3.1	2.9	3.0
120	3.1	3.2	3.3	3.4	3.4	3.4	3.4	3.4
160	3.4	3.6	3.5	3.5	3.3	3.3	3.3	3.1
200	3.1	3.1	3.1	2.9	2.9	3.0	2.5	2.6
240	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.2
280	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
320	2.1	2.1	2.1	1.8	1.9	1.9	2.0	2.0

DEPTH	1904.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.2
40	2.2	2.1	2.2	2.4	2.4	2.4	2.6	2.5
80	2.8	2.7	2.8	2.8	2.8	2.9	3.1	3.1
120	3.2	3.2	3.2	3.2	3.3	3.4	3.5	3.6
160	3.5	3.5	3.4	3.5	3.4	3.3	3.3	3.3
200	3.3	3.0	3.1	3.0	3.0	3.1	2.7	2.7
240	2.4	2.4	2.5	2.3	2.2	2.2	2.1	2.1
280	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9
320	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9



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WALL RANGES VS DEPTH

DEPTH	1906.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7
40	1.8	1.7	1.7	1.8	1.7	1.7	1.8	2.1
80	2.3	2.4	2.3	2.3	2.4	2.4	2.5	2.6
120	2.6	2.8	2.9	2.9	2.9	2.8	2.7	2.7
160	2.8	2.8	2.8	2.9	2.9	2.8	3.0	2.9
200	2.9	3.1	3.1	2.9	2.9	2.9	2.9	2.9
240	2.8	2.7	2.7	2.5	2.4	2.2	2.0	1.9
280	1.9	1.9	1.8	1.9	1.9	1.8	1.7	1.8
320	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.7

DEPTH	1908.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.7	1.7	1.6	1.6	1.7	1.7	1.9	1.9
40	1.9	1.9	2.0	1.9	1.9	2.0	2.1	2.1
80	2.2	2.2	2.2	2.2	2.4	2.6	2.6	2.4
120	2.4	2.4	2.6	2.7	2.6	2.6	2.6	2.5
160	2.6	2.6	2.8	2.7	2.7	2.6	2.6	2.5
200	2.4	2.4	2.4	2.5	2.4	2.5	2.1	1.9
240	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8
280	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7
320	1.9	1.9	1.8	1.7	1.7	1.7	1.7	1.7

DEPTH	1910.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.8	1.9	2.0	1.9	1.9	1.9	1.9	1.9
40	1.9	1.9	2.0	2.2	2.2	2.4	2.5	2.5
80	2.6	2.6	2.7	2.7	2.8	2.9	2.9	2.9
120	2.9	3.0	3.0	3.2	3.2	3.2	3.3	3.5
160	3.5	3.5	3.4	3.4	3.3	3.4	3.3	3.3
200	3.3	3.0	2.9	2.9	2.9	2.5	2.4	2.4
240	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.1
280	2.0	2.1	2.1	2.1	1.9	2.0	1.9	2.0
320	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
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WALL RANGES VS DEPTH

DEPTH	1912.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	1.9	2.0	2.2	2.3	2.2	2.2	2.2
40	2.2	2.3	2.2	2.3	2.5	2.6	2.7	2.7
80	3.2	3.1	2.7	2.7	2.8	3.0	3.3	3.2
120	3.3	3.4	3.4	3.3	3.3	3.4	3.5	3.5
160	3.5	3.5	3.5	3.6	3.7	3.4	3.4	3.3
200	3.1	2.9	2.9	2.8	2.5	2.2	2.0	2.0
240	2.0	2.0	2.0	2.0	2.0	2.0	2.1	1.9
280	1.9	1.9	2.1	2.0	1.9	1.9	2.0	1.9
320	1.9	1.9	2.0	2.2	2.1	1.9	1.9	1.9

DEPTH	1914.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1916.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.2
40	2.2	2.3	2.4	2.4	2.4	2.7	2.9	2.9
80	2.9	3.0	2.9	2.9	3.1	3.1	3.2	3.2
120	3.3	3.4	3.4	3.5	3.5	3.5	3.6	3.6
160	3.5	3.7	3.7	3.5	3.5	3.4	3.5	3.3
200	3.1	3.1	3.1	3.1	2.9	2.4	2.4	1.9
240	1.9	1.9	1.9	1.9	2.1	2.1	2.1	2.0
280	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7
320	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.9



CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN : State LPG Well no. 3
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WALL RANGES VS DEPTH

DEPTH	1918.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.0	2.3	2.1	2.0	2.0	2.1	2.1
40	2.1	2.1	2.2	2.4	2.6	2.7	2.8	2.8
80	2.9	2.9	3.0	3.0	3.1	3.0	3.0	3.0
120	3.0	3.2	3.4	3.5	3.6	3.6	3.6	3.6
160	3.6	3.5	3.5	3.6	3.3	3.2	3.2	3.1
200	3.0	3.0	2.9	2.9	2.6	2.4	2.4	2.1
240	2.0	2.0	1.7	2.0	2.1	1.9	1.8	1.9
280	1.8	1.9	1.9	2.0	1.7	1.9	1.8	1.8
320	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.8

DEPTH	1919.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.3
40	2.1	2.5	2.6	2.5	2.8	2.7	2.8	2.9
80	2.9	3.0	3.0	3.2	3.2	3.2	3.3	3.3
120	3.3	3.5	3.5	3.5	3.7	3.7	3.7	3.7
160	3.7	3.5	3.4	3.5	3.4	3.3	3.0	2.9
200	2.9	2.6	2.7	2.8	2.6	2.4	2.4	2.4
240	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0
280	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7
320	1.7	1.7	1.7	1.7	1.8	1.9	1.9	1.7

DEPTH	1922.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.1	2.0	2.2	2.2	2.1	2.2	2.3
40	2.3	2.4	2.3	2.3	3.1	3.1	3.2	3.0
80	3.0	3.1	3.1	3.1	3.3	3.3	3.4	3.6
120	3.4	3.5	3.6	3.6	3.7	3.6	3.7	3.7
160	3.7	3.4	3.4	3.4	3.3	3.3	3.4	3.1
200	3.0	3.0	2.7	2.5	2.4	2.4	2.5	2.5
240	2.2	2.2	2.3	2.3	2.2	2.0	2.1	2.1
280	2.0	1.9	1.9	1.8	2.0	1.7	1.8	1.9
320	1.8	1.8	1.9	1.8	1.8	2.0	1.8	1.9



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1924.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.0	1.9	1.9	1.9	2.1	2.2	2.1
40	2.1	2.1	2.6	2.7	2.7	2.8	3.0	2.9
80	3.0	2.9	2.9	3.0	3.0	3.1	3.1	3.0
120	3.0	3.2	3.3	3.5	3.6	3.6	3.6	3.7
160	3.6	3.6	3.5	3.5	3.5	3.5	3.4	3.4
200	3.2	2.7	2.5	2.6	2.5	2.2	2.3	2.3
240	2.3	2.3	2.1	2.1	2.1	2.1	2.0	2.0
280	2.0	2.0	1.9	2.0	2.0	2.0	1.9	2.0
320	2.0	2.1	2.0	2.0	2.0	1.9	1.9	2.0

DEPTH	1926.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
40	2.1	2.4	2.4	2.5	2.6	2.7	2.7	2.8
80	2.8	2.8	2.8	3.0	3.1	3.3	3.5	3.4
120	3.5	3.5	3.3	3.3	3.5	3.4	3.4	3.4
160	3.5	3.5	3.4	3.4	3.4	3.3	3.3	3.3
200	3.4	3.4	3.2	3.1	2.7	2.5	2.4	2.3
240	2.2	2.0	2.0	2.0	2.0	2.0	1.9	1.9
280	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.7
320	1.7	1.7	1.7	1.7	1.9	2.0	2.1	2.0

DEPTH	1928.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.2
40	2.3	2.3	2.6	2.6	2.5	2.7	2.8	2.8
80	2.8	2.9	3.1	3.2	3.3	3.4	3.4	3.5
120	3.5	3.5	3.7	3.7	3.6	3.7	3.7	3.7
160	3.6	3.2	3.2	3.3	3.2	3.2	3.1	3.2
200	2.8	2.2	2.0	2.0	2.0	2.0	2.0	2.0
240	1.9	2.1	1.9	2.0	2.0	2.0	2.0	2.0
280	2.0	1.7	1.7	1.6	1.8	1.7	1.7	1.7
320	1.7	1.7	1.8	1.9	2.1	2.1	2.1	2.0



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WALL RANGES VS DEPTH

DEPTH	1929.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.9	1.9	2.0	1.9	1.7	1.7	1.7	1.7
40	1.7	1.8	1.9	2.1	2.0	2.2	2.2	2.1
80	2.2	2.2	2.3	2.5	2.7	2.8	2.8	2.8
120	2.8	2.6	2.5	2.8	2.6	2.9	2.9	2.9
160	2.5	2.6	2.5	2.4	2.5	2.5	2.4	2.3
200	2.0	2.0	2.1	1.9	1.9	1.9	1.9	1.8
240	1.8	2.0	2.1	2.1	2.0	2.1	2.0	2.1
280	2.0	2.0	1.9	1.9	2.0	1.8	1.8	1.8
320	1.9	2.2	2.2	2.3	2.2	2.0	2.0	2.1

DEPTH	1932.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.1	2.1	2.0	1.8	2.0	2.0	2.2
40	2.2	2.4	2.4	2.4	2.3	2.3	2.3	2.3
80	2.3	2.3	2.3	2.4	2.4	2.4	2.4	3.6
120	3.5	3.5	3.4	3.4	3.5	3.6	3.6	3.7
160	3.7	3.7	3.5	3.5	3.3	2.8	3.0	3.0
200	2.8	2.9	2.8	2.6	2.6	2.6	2.2	1.8
240	1.8	1.8	1.8	1.9	1.8	2.0	2.0	2.2
280	2.3	2.3	2.3	2.5	2.4	2.2	2.1	2.1
320	2.0	2.2	2.2	2.2	2.1	2.2	2.2	2.5

DEPTH	1934.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2
40	2.2	2.2	2.7	2.7	2.8	2.9	3.3	3.1
80	3.1	3.2	3.3	3.3	3.5	3.5	3.6	3.6
120	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6
160	3.7	3.5	3.5	3.3	3.3	3.4	3.4	3.0
200	3.0	2.9	2.8	2.3	2.3	2.1	2.1	2.2
240	2.3	2.3	2.2	2.1	2.0	2.0	1.9	1.8
280	1.8	1.8	1.7	1.7	1.7	1.8	1.7	1.7
320	1.8	1.9	1.7	1.7	1.8	1.9	1.9	1.9



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1936.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.2	2.2	2.3	2.5	2.5	2.6	2.6	2.5
40	2.7	2.7	3.3	3.1	3.0	3.2	3.1	3.1
80	3.3	3.3	3.3	3.5	3.5	3.4	3.4	3.9
120	3.8	3.8	3.7	3.7	3.7	3.7	3.8	3.8
160	3.8	3.7	3.5	3.5	3.5	3.4	3.5	3.0
200	2.5	2.3	2.3	2.3	2.0	2.0	2.1	2.1
240	2.2	2.1	2.1	2.0	2.0	2.0	1.8	1.8
280	1.8	1.8	1.8	1.8	2.0	2.0	2.0	2.0
320	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1

DEPTH	1938.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3
40	2.3	2.3	2.6	2.7	2.7	3.0	3.1	3.2
80	3.2	3.2	3.4	3.4	3.7	3.8	3.8	3.7
120	3.7	3.8	3.8	3.7	3.7	3.7	3.6	3.5
160	3.5	3.6	3.5	3.7	3.7	3.2	2.8	2.9
200	2.4	2.2	2.2	2.3	2.2	2.1	2.1	2.0
240	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9
280	1.8	1.9	1.8	1.9	1.8	1.8	1.8	1.8
320	1.8	1.7	2.0	2.0	2.3	2.3	2.3	2.2

DEPTH	1939.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.7	1.7	1.7	1.7	1.9	2.0	2.2	2.2
40	2.3	2.3	2.5	2.5	2.6	2.7	2.7	2.6
80	2.8	2.8	3.0	3.4	3.4	3.3	3.4	3.4
120	3.5	3.5	3.7	3.5	3.5	3.6	3.6	3.6
160	3.2	3.2	3.2	3.2	2.7	2.3	2.3	2.3
200	2.2	2.2	2.1	2.2	2.0	2.0	1.9	1.8
240	1.8	1.7	1.7	1.8	1.6	1.5	1.5	1.5
280	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4
320	1.4	1.7	1.8	1.8	1.8	1.7	1.8	1.7



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1942.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.6	1.7	1.9	2.0	2.0	2.1	2.1	2.3
40	2.6	2.6	2.7	2.9	2.8	2.8	3.0	3.0
80	3.0	3.0	3.3	3.3	3.4	3.4	3.4	3.5
120	3.5	3.6	3.6	3.6	3.6	3.6	3.4	2.8
160	2.7	2.3	2.3	2.2	2.3	2.5	2.4	2.6
200	2.6	2.3	2.3	2.2	2.1	1.8	1.8	1.8
240	1.8	1.7	1.7	1.4	1.5	1.5	1.5	1.5
280	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.5
320	1.5	1.4	1.4	1.4	1.4	1.6	1.6	1.7

DEPTH	1944.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1946.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	1947.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1949.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1954.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1956.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1958.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1959.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1962.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1964.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1966.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1970.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1975.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1980.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1985.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1989.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1992.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	1994.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
40	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
80	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
120	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
160	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
200	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
240	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
280	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
320	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

DEPTH	1995.8		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	1997.9		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	2000.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2002.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2004.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	2006.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2010.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.1	3.1	3.5	3.2	3.1	3.2	3.1
40	3.1	3.1	3.1	3.2	3.3	3.1	3.1	3.1
80	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.1
120	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
160	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.1
200	3.3	3.2	3.1	3.1	3.6	3.5	3.5	3.1
240	3.1	3.1	3.1	3.1	3.3	3.1	3.1	3.2
280	3.4	3.1	3.1	3.4	3.5	3.5	3.2	3.2
320	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.3

DEPTH	2012.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.1	3.2	3.2	3.1	3.2	3.1	3.2	3.1
40	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1
80	3.1	3.3	3.1	3.1	3.1	3.1	3.1	3.2
120	3.2	3.2	3.1	3.2	3.2	3.1	3.2	3.1
160	3.1	3.2	3.2	3.2	3.1	3.5	3.2	3.1
200	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.3
240	3.2	3.4	3.1	3.2	3.1	3.1	3.1	3.1
280	3.1	3.1	3.1	3.2	3.1	3.1	3.4	3.2
320	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1



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WALL RANGES VS DEPTH

DEPTH	2014.0		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.2	3.3	3.3	3.2	3.2	3.3	3.2	3.2
40	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
80	3.3	3.2	3.3	3.2	3.2	3.2	3.2	3.2
120	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
160	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
200	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
240	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.2
280	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.2
320	3.2	3.2	3.2	3.2	3.2	3.2	3.4	3.2

DEPTH	2016.1		TILT	0		VOS	5979.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.4	3.3	3.2	3.2	3.2	3.3	3.2
40	3.2	3.3	3.3	3.2	3.2	3.4	3.1	3.2
80	3.2	3.3	3.3	3.3	3.2	3.2	3.2	3.2
120	3.2	3.2	3.2	3.3	3.3	3.4	3.4	3.5
160	3.4	3.5	3.4	3.3	3.3	3.3	3.3	3.2
200	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3
240	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.2
280	3.2	3.3	3.3	3.2	3.2	3.2	3.2	3.3
320	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

DEPTH	2018.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2
40	3.2	3.3	3.2	3.2	3.2	3.2	3.2	3.3
80	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
120	3.3	3.2	3.2	3.2	3.2	3.3	3.2	3.2
160	3.3	3.2	3.2	3.6	3.4	3.5	3.5	3.5
200	3.4	3.4	3.6	3.5	3.3	3.3	3.4	3.2
240	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
280	3.3	3.3	3.3	3.5	3.2	3.2	3.2	3.2
320	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3



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WALL RANGES VS DEPTH

DEPTH	2019.8		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.4
40	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5
80	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
120	3.4	3.4	3.4	3.4	3.4	3.6	3.4	3.4
160	3.4	3.4	3.8	3.4	3.4	3.7	3.5	3.5
200	3.4	3.4	3.4	3.5	3.5	3.4	3.4	3.4
240	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3
280	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.4
320	3.4	3.5	3.4	3.4	3.4	3.4	3.4	3.4

DEPTH	2022.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.1	3.1	3.1	3.3	3.1	3.1	3.1	3.1
40	3.4	3.3	3.3	3.1	3.1	3.1	3.1	3.3
80	3.3	3.2	3.1	3.1	3.3	3.2	3.2	3.3
120	3.1	3.2	3.2	3.2	3.5	3.1	3.2	3.2
160	3.2	3.2	3.2	3.2	3.1	3.5	3.5	3.3
200	3.3	3.8	3.6	3.2	3.5	3.6	3.1	3.1
240	3.1	3.1	3.1	3.1	3.2	3.5	3.3	3.1
280	3.1	3.1	3.3	3.3	3.3	3.1	3.1	3.1
320	3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1

DEPTH	2025.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



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WALL RANGES VS DEPTH

DEPTH	2029.8		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2034.9		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2040.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



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WALL RANGES VS DEPTH

DEPTH	2042.2		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2044.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.9	8.1	8.2	8.0	8.1	8.3	8.4	8.2
40	8.4	8.4	8.5	8.7	8.7	8.8	8.7	8.7
80	8.8	8.7	8.6	8.7	8.7	8.6	8.8	8.5
120	8.8	8.8	8.7	8.8	8.9	8.8	8.9	9.1
160	8.9	9.0	8.9	8.9	8.9	8.8	8.8	8.7
200	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.5
240	8.3	8.3	8.4	8.2	8.2	8.2	8.5	8.2
280	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0
320	8.2	8.0	7.9	7.9	7.9	7.9	7.9	8.0

DEPTH	2046.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.2	8.1	8.2	8.2	8.2	8.2	8.3	8.3
40	8.3	8.2	8.2	8.5	8.6	8.5	8.4	8.5
80	8.5	8.4	8.5	8.1	8.2	8.1	8.3	8.6
120	8.5	8.6	8.6	8.8	8.8	8.9	8.7	8.8
160	8.8	8.9	8.8	8.9	9.0	8.9	9.0	8.9
200	8.8	8.8	8.9	8.8	8.7	8.7	8.8	8.6
240	8.2	8.5	8.5	8.6	8.5	8.5	8.5	8.3
280	8.2	8.2	8.2	8.2	8.6	8.3	8.3	8.3
320	8.4	8.3	8.2	8.2	8.2	8.2	8.2	8.2



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WALL RANGES VS DEPTH

DEPTH	2048.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.2
40	8.4	8.3	8.4	8.3	8.3	8.5	8.4	8.4
80	8.5	8.5	8.5	8.6	8.6	8.7	8.7	8.8
120	8.8	8.8	8.8	8.8	8.9	8.9	8.9	8.8
160	9.1	9.1	9.0	9.1	9.1	9.0	9.0	9.0
200	8.9	8.8	9.1	9.0	8.9	8.7	8.7	8.6
240	8.6	8.6	8.6	8.5	8.4	8.5	8.4	8.3
280	8.2	8.2	8.3	8.3	8.0	8.2	8.0	8.1
320	7.9	8.1	8.0	8.0	8.1	8.1	8.1	8.1

DEPTH	2050.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.6	7.6	7.6	7.6	7.6	7.6	7.7	8.0
40	7.9	7.9	8.0	8.0	7.8	7.8	8.2	8.1
80	8.0	8.1	8.0	8.1	8.2	8.3	8.3	8.3
120	8.3	8.4	8.4	8.5	8.5	8.6	8.6	8.6
160	8.5	8.6	8.6	8.6	8.6	8.6	8.6	8.6
200	8.6	8.8	8.7	8.6	8.6	8.5	8.6	8.5
240	8.5	8.6	8.6	8.4	8.1	8.1	8.0	8.0
280	7.9	8.0	7.9	7.8	7.8	7.8	7.9	7.9
320	7.5	7.5	7.6	7.6	7.5	7.5	7.5	7.5

DEPTH	2052.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.2	7.2	7.4	7.6	7.2	7.3	7.3	7.4
40	7.4	7.4	7.5	7.4	7.3	7.1	7.1	7.1
80	7.3	7.7	7.7	7.8	7.7	7.8	7.7	7.7
120	7.7	7.9	8.0	8.4	8.4	8.0	8.1	8.0
160	8.2	8.0	8.3	8.3	8.3	8.5	7.9	8.3
200	8.3	8.3	8.3	8.3	7.8	7.8	7.7	7.7
240	7.8	7.7	7.8	8.1	7.6	7.6	7.2	7.1
280	7.3	7.4	7.3	7.5	7.2	7.2	7.3	7.3
320	7.2	7.2	7.6	7.3	7.3	7.3	7.2	7.2



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WALL RANGES VS DEPTH

DEPTH	2054.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.6	7.5	8.0	8.0	8.1	8.1	8.0	8.0
40	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7
80	7.7	8.1	8.1	8.0	8.2	8.2	8.2	7.8
120	7.9	8.2	8.2	8.3	8.6	8.2	8.3	8.2
160	8.5	8.6	8.7	8.7	8.7	8.8	8.5	8.6
200	8.7	8.8	8.7	8.5	8.5	8.4	8.5	8.5
240	8.4	8.1	8.4	8.2	8.0	8.1	8.0	8.0
280	8.0	8.1	7.8	7.9	7.7	7.6	7.8	7.6
320	7.4	7.0	7.5	7.5	7.5	7.4	7.5	7.4

DEPTH	2056.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.1
40	8.0	8.2	8.2	8.2	8.2	8.4	8.3	8.3
80	8.5	8.3	8.3	8.4	8.4	8.6	8.6	8.6
120	8.8	8.8	8.7	8.8	8.8	8.8	8.9	9.0
160	8.9	8.9	8.9	9.0	9.0	9.1	8.9	8.9
200	9.0	9.1	9.1	9.0	8.9	8.9	8.9	8.9
240	8.9	8.8	8.7	8.8	8.7	8.6	8.6	8.5
280	8.5	8.4	8.4	8.4	8.4	8.2	8.3	8.3
320	8.3	8.2	8.1	8.1	8.1	8.1	8.0	8.0

DEPTH	2058.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.8	7.8	7.8	7.9	7.8	7.8	7.9	8.0
40	8.0	8.0	7.9	8.0	8.2	8.2	8.2	8.2
80	8.3	8.3	8.4	8.4	8.7	8.8	8.7	8.8
120	8.7	8.7	8.7	8.6	8.7	8.7	8.8	8.8
160	8.8	8.8	9.0	9.1	9.1	9.0	9.0	8.9
200	9.0	8.8	8.8	8.8	8.8	9.0	8.7	8.6
240	8.7	8.7	8.6	8.6	8.8	8.5	8.5	8.6
280	8.5	8.5	8.3	8.7	8.1	8.1	8.0	8.2
320	8.2	8.0	8.0	7.8	8.0	7.9	7.8	7.9



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WALL RANGES VS DEPTH

DEPTH	2060.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.4	7.4	7.4	7.4	7.9	7.9	7.6	7.7
40	7.7	7.2	7.1	7.1	7.2	7.6	8.1	7.8
80	7.4	7.5	7.5	7.4	7.3	7.5	7.6	7.9
120	7.8	8.2	8.2	8.2	8.2	8.2	7.8	7.3
160	7.3	7.4	8.5	8.9	9.4	9.2	9.2	9.4
200	7.8	7.8	7.9	7.9	7.8	8.6	8.5	8.6
240	8.6	8.1	8.1	7.9	8.0	7.9	7.9	8.0
280	7.7	7.7	7.2	7.1	7.2	7.2	7.7	7.6
320	7.5	7.8	7.8	7.7	7.4	7.5	7.3	7.4

DEPTH	2062.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.0	8.0	8.0	7.9	7.9	7.9	8.0	8.2
40	8.1	8.0	8.0	8.1	8.4	8.3	8.4	8.5
80	8.5	8.6	8.6	8.6	8.7	8.8	8.8	8.7
120	8.7	8.6	8.8	9.0	9.0	9.2	9.2	9.4
160	9.4	9.4	9.1	9.1	9.5	9.4	9.3	9.4
200	9.4	9.5	9.3	9.3	9.2	9.2	9.2	9.1
240	9.2	9.2	8.8	8.8	8.8	8.6	8.7	8.5
280	8.5	8.6	8.6	8.3	8.3	8.2	8.2	8.3
320	8.2	7.9	8.0	8.0	8.0	7.8	8.0	8.1

DEPTH	2064.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.9	8.1	8.3	8.3	8.0	8.1	8.1	8.1
40	8.2	8.2	8.3	8.5	8.5	8.5	8.5	8.5
80	8.5	8.6	8.6	8.8	8.9	8.8	8.8	8.9
120	8.9	8.8	8.8	9.0	9.0	9.7	9.4	9.7
160	9.8	9.8	9.4	9.4	9.4	9.4	9.4	9.5
200	9.5	9.6	9.5	9.5	9.4	9.4	9.4	9.4
240	9.4	9.2	9.1	9.1	9.1	9.0	8.7	8.7
280	8.7	8.6	8.6	8.6	8.4	8.5	8.2	8.2
320	8.2	8.2	8.1	8.0	8.0	8.0	8.0	7.9



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WALL RANGES VS DEPTH

DEPTH	2066.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.0	8.0	8.0	8.1	8.0	8.0	8.1
40	8.1	8.1	8.3	8.3	8.2	8.4	8.4	8.5
80	8.6	8.5	8.5	8.5	8.5	8.7	8.8	8.9
120	8.9	9.1	9.0	9.4	9.4	9.4	9.5	9.4
160	9.4	9.5	9.7	9.6	9.7	9.7	9.7	9.6
200	9.7	9.7	9.6	9.7	9.6	9.7	9.4	9.4
240	9.3	9.3	9.2	9.1	9.1	9.1	9.1	9.1
280	8.5	8.5	8.5	8.5	8.5	8.6	8.3	8.2
320	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.0

DEPTH	2068.2		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.6	7.8	7.7	7.7	7.9	7.9	7.9	8.1
40	8.1	8.1	8.1	7.9	8.0	8.0	8.0	8.0
80	8.3	9.0	8.9	8.9	8.9	9.0	9.1	9.2
120	9.2	9.1	9.3	9.3	9.5	9.5	9.6	9.7
160	9.5	9.5	9.4	9.5	9.8	9.8	9.6	9.7
200	9.7	9.8	9.9	9.9	9.7	9.4	9.6	9.4
240	9.4	9.3	9.2	9.2	9.1	9.1	8.9	8.9
280	9.0	8.8	8.9	8.3	8.2	8.4	8.4	8.0
320	8.0	8.1	7.9	7.9	7.8	7.7	7.6	7.6

DEPTH	2070.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	2072.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5

DEPTH	2074.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2076.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
160	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
200	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
240	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
280	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
320	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6



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WALL RANGES VS DEPTH

DEPTH	2078.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.4	10.2	10.5	10.4	11.0	11.3	10.9	10.8
40	10.7	10.7	10.8	10.7	10.7	10.8	10.9	10.8
80	10.9	10.8	10.7	10.6	10.6	10.4	10.4	10.5
120	10.5	10.5	10.2	9.8	9.6	9.5	9.5	9.5
160	9.5	9.1	9.4	9.6	9.3	9.3	9.2	9.2
200	9.1	8.9	9.3	8.6	8.5	8.7	9.0	8.6
240	8.6	8.7	9.1	8.8	8.8	8.9	8.8	8.8
280	9.1	8.9	9.2	9.2	9.1	9.0	9.1	9.0
320	9.0	9.2	9.3	9.1	9.1	9.4	9.6	10.4

DEPTH	2080.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.4	10.6	10.3	10.7	10.5	10.8	10.4	10.5
40	10.6	10.8	10.6	10.6	11.0	11.1	11.3	10.8
80	11.2	11.0	11.0	10.5	10.6	10.6	10.6	10.4
120	10.4	10.4	9.9	9.9	9.7	9.7	10.0	10.0
160	9.9	9.4	9.4	9.4	9.4	9.5	9.5	9.2
200	9.4	9.3	9.5	9.8	9.4	9.4	9.5	9.1
240	9.0	9.0	8.7	8.8	8.8	8.8	9.0	8.9
280	8.8	8.8	9.4	8.9	8.8	9.2	8.9	9.0
320	9.1	10.4	10.8	11.1	10.2	10.3	10.3	10.1

DEPTH	2082.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.3	9.9	9.8	10.3	10.1	10.2	10.1	10.1
40	10.4	10.4	10.5	10.2	10.7	10.5	11.2	10.6
80	10.9	10.7	9.9	10.3	10.6	10.5	10.6	10.2
120	10.1	10.4	10.6	10.0	10.1	10.1	10.2	9.5
160	9.8	9.7	9.8	9.8	9.5	9.8	9.8	9.8
200	10.0	9.4	9.6	9.2	9.1	8.7	8.6	8.6
240	8.9	8.7	8.7	8.7	8.8	8.6	8.6	9.0
280	8.7	8.6	8.7	8.8	8.9	8.7	8.8	9.9
320	9.9	10.8	10.5	10.6	10.6	10.5	10.6	10.3



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WALL RANGES VS DEPTH

DEPTH	2084.2		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.8	9.1	9.3	9.1	9.4	10.1	9.8	9.9
40	10.0	10.0	10.1	10.0	10.4	10.5	10.5	10.8
80	10.5	10.4	10.5	10.4	10.6	10.3	10.2	10.6
120	10.3	10.1	9.9	10.1	10.0	10.5	10.6	10.1
160	10.4	9.7	10.0	10.4	10.4	10.4	10.2	9.4
200	9.3	9.1	9.1	9.0	8.8	8.4	8.5	8.4
240	8.6	8.8	8.6	8.5	8.5	8.5	8.5	8.2
280	8.4	8.3	8.6	8.6	8.5	8.8	9.0	8.8
320	8.5	8.8	8.8	9.0	8.7	9.0	8.9	9.1

DEPTH	2086.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.8	9.0	8.8	9.0	9.2	9.3	9.3	9.3
40	9.4	10.0	10.3	10.3	10.1	10.3	10.2	10.3
80	10.3	10.2	10.4	10.1	9.9	10.2	10.2	10.2
120	10.1	9.7	9.7	9.7	9.7	9.9	9.9	9.5
160	9.6	9.4	9.6	9.3	9.3	9.6	9.3	9.1
200	8.9	9.0	9.4	9.2	8.6	8.8	8.6	8.2
240	8.0	7.9	7.4	7.5	7.5	7.6	7.6	7.6
280	7.5	7.5	7.6	8.0	8.2	8.4	8.1	8.0
320	8.2	8.2	8.4	8.4	8.6	8.3	8.4	8.6

DEPTH	2088.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.0	8.6	8.8	8.8	8.9	9.2	9.8	9.8
40	10.0	9.7	9.7	9.8	9.9	10.0	10.0	10.0
80	9.8	10.2	10.1	10.1	10.1	10.1	9.9	10.1
120	10.1	10.3	10.3	10.2	10.0	10.0	10.3	9.8
160	9.8	9.6	9.6	9.2	9.2	9.1	8.8	8.5
200	8.4	8.4	8.4	8.5	8.5	8.4	8.4	8.4
240	8.0	8.2	7.9	8.0	7.9	7.9	7.9	7.9
280	8.1	8.0	7.9	7.9	7.9	7.9	8.0	8.0
320	7.9	8.0	7.9	7.9	8.2	8.4	9.0	9.2



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WALL RANGES VS DEPTH

DEPTH	2090.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.6	8.6	8.9	9.0	9.0	9.1	9.3	9.7
40	9.9	9.8	10.0	9.8	9.8	9.8	10.4	10.4
80	10.2	10.4	10.3	9.8	9.8	10.2	10.1	10.3
120	10.4	10.5	10.5	10.2	10.3	10.0	10.1	10.0
160	9.7	9.7	9.6	9.9	9.7	9.6	9.2	8.9
200	9.0	8.9	8.7	8.8	9.1	8.7	8.6	8.6
240	8.1	8.0	8.1	8.3	8.2	7.9	7.8	7.7
280	7.7	7.8	7.8	8.0	7.8	8.0	8.1	8.1
320	8.0	7.9	8.3	8.3	8.2	8.3	8.1	8.1

DEPTH	2092.2		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.4	8.2	8.1	8.3	8.5	8.6	8.4	8.6
40	8.8	8.9	9.2	9.3	9.7	9.9	9.6	10.1
80	10.1	10.5	10.3	10.3	10.3	10.1	10.4	9.8
120	9.6	9.5	9.5	9.4	9.6	9.3	9.7	9.7
160	9.8	9.8	9.7	9.7	9.7	9.5	9.3	8.8
200	9.0	8.9	8.8	9.0	8.8	8.8	8.7	8.5
240	8.5	8.5	8.6	8.6	9.0	8.7	8.6	8.6
280	8.2	8.0	7.8	7.7	7.8	8.0	7.9	7.7
320	7.9	8.2	8.3	8.2	8.2	8.2	8.2	8.0

DEPTH	2094.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.2	8.2	8.4	8.2	8.5	8.8	8.7	8.8
40	8.8	8.9	9.0	9.4	9.7	9.7	9.8	9.9
80	9.8	9.8	10.1	10.1	10.3	10.7	10.8	10.5
120	10.7	10.7	10.3	10.3	10.5	10.4	10.4	10.2
160	10.6	10.4	10.4	10.4	10.2	10.0	10.0	9.7
200	9.6	9.5	9.4	9.0	8.8	8.8	9.0	9.1
240	8.9	8.9	8.9	8.9	8.9	8.5	8.0	7.8
280	8.1	8.3	8.0	7.9	7.8	7.4	7.6	7.6
320	7.7	7.7	7.4	7.7	7.8	7.6	7.7	7.9



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WALL RANGES VS DEPTH

DEPTH	2096.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.2	7.9	8.1	8.1	8.1	8.1	8.5
40	8.7	8.4	8.6	8.5	8.6	9.2	9.1	9.3
80	9.6	9.7	9.9	10.0	10.2	10.3	10.5	10.2
120	10.2	10.5	10.6	10.4	10.4	10.5	10.6	10.2
160	10.3	10.3	10.3	10.0	10.0	9.9	9.7	9.9
200	9.5	9.7	9.7	9.7	9.6	9.3	9.4	9.4
240	9.0	8.9	8.8	8.5	8.4	8.4	8.2	8.1
280	7.9	7.9	7.9	7.8	7.8	8.0	7.8	8.0
320	8.0	8.0	8.1	7.7	7.7	7.7	7.7	8.1

DEPTH	2098.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.0	8.0	7.9	8.0	8.3	8.2	8.5	8.5
40	8.4	8.4	8.5	8.9	9.1	9.3	9.6	10.0
80	10.2	10.0	10.1	10.6	10.6	10.7	10.6	10.1
120	9.9	10.1	10.1	10.1	10.1	10.2	10.3	10.5
160	10.5	10.7	10.3	10.2	9.8	9.7	9.5	9.6
200	9.5	9.4	9.3	9.6	9.7	9.7	9.5	9.4
240	9.1	9.0	8.9	8.5	8.5	8.7	8.6	8.6
280	8.6	8.1	7.8	8.0	7.9	7.9	8.0	7.8
320	7.7	7.8	7.5	7.6	7.6	7.6	7.8	8.0

DEPTH	2100.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.2	8.1	8.2	8.0	8.2	8.1	8.3	8.2
40	8.1	8.1	8.3	8.5	8.4	8.5	8.5	8.6
80	8.7	8.7	9.3	9.2	9.2	9.5	9.4	10.1
120	9.9	10.1	10.2	10.2	10.2	10.5	10.4	10.4
160	10.5	10.8	10.6	10.4	10.5	10.3	10.4	10.4
200	10.5	10.1	10.1	10.3	10.0	9.7	9.7	9.8
240	9.7	9.5	9.0	9.0	9.0	8.5	8.4	8.5
280	8.4	8.5	8.5	8.5	8.1	8.4	8.3	7.9
320	8.2	7.9	7.9	8.0	8.4	8.4	8.3	8.2



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WALL RANGES VS DEPTH

DEPTH	2102.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.4	8.2	8.2	8.6	8.3	8.2	8.2
40	8.0	8.4	8.3	8.2	8.4	8.5	8.3	8.6
80	8.6	8.6	8.6	8.7	9.2	9.2	9.2	8.7
120	8.7	9.5	9.5	10.0	9.8	9.8	9.5	9.4
160	9.4	8.9	9.1	9.6	9.4	8.9	9.0	9.0
200	9.1	9.2	9.2	9.3	9.5	9.6	9.7	10.0
240	9.2	9.4	9.4	9.1	8.8	8.7	8.3	8.4
280	8.2	8.6	8.5	8.8	8.6	8.4	8.0	8.1
320	8.2	8.0	8.1	8.2	8.3	8.1	8.0	8.1

DEPTH	2103.9		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.4	8.4	8.3	8.3	8.4	8.4	8.4	8.3
40	8.5	8.5	8.5	8.7	8.7	8.8	8.9	8.9
80	8.9	8.9	8.9	9.3	9.1	9.9	10.1	10.5
120	10.9	10.6	10.7	10.7	10.7	10.6	10.8	10.8
160	10.8	10.8	10.7	10.7	10.8	10.8	10.9	10.9
200	11.0	10.9	11.0	10.8	10.5	10.5	10.0	10.0
240	9.8	9.8	9.5	9.3	8.7	8.6	8.4	8.4
280	8.3	8.2	8.5	8.6	8.6	8.6	8.4	8.6
320	8.7	8.8	8.8	8.7	8.7	8.6	8.6	8.6

DEPTH	2106.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.0	8.0	8.3	8.1	7.9	7.9	8.0
40	8.1	8.1	8.2	8.1	8.1	8.5	8.5	8.6
80	8.5	8.4	8.4	8.6	8.8	8.8	8.8	8.9
120	9.3	9.6	9.6	9.6	9.6	10.3	10.4	10.6
160	10.7	11.0	11.0	10.9	10.8	10.9	10.9	11.1
200	10.9	10.7	11.0	10.8	10.8	10.8	10.5	9.8
240	9.5	8.7	8.6	8.5	8.8	8.8	8.8	8.4
280	8.4	8.5	8.7	8.7	8.6	8.6	8.5	8.5
320	8.6	8.5	8.3	8.4	8.4	8.2	8.1	8.1



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WALL RANGES VS DEPTH

DEPTH	2108.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	7.8	8.0	8.1	8.0	7.8	7.8	7.8
40	7.9	7.8	7.8	7.9	7.9	7.9	8.0	8.1
80	8.1	8.3	8.5	8.4	8.5	8.7	8.9	9.0
120	9.2	9.2	9.1	9.1	9.3	9.5	10.0	10.0
160	10.6	10.6	10.5	10.5	10.9	10.9	10.9	11.0
200	11.0	10.7	10.7	10.7	10.8	10.6	10.3	10.6
240	10.6	10.7	10.1	10.0	9.9	9.6	9.3	9.0
280	9.1	9.1	8.4	8.3	7.9	7.8	7.8	8.2
320	8.7	8.6	8.5	8.4	8.3	8.1	8.1	8.1

DEPTH	2110.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.5	8.4	7.7	7.9	8.3	8.1	8.4	8.0
40	8.1	8.2	7.8	7.9	8.2	8.3	8.3	8.4
80	8.5	8.4	8.1	8.1	8.1	8.3	8.5	8.9
120	9.2	9.3	9.3	9.6	10.1	10.2	10.3	10.4
160	10.6	10.8	10.7	10.8	11.0	11.0	11.0	11.2
200	11.1	11.2	11.2	11.2	11.3	10.8	10.9	10.8
240	11.0	10.7	10.5	10.5	9.9	9.7	9.8	9.8
280	9.6	9.4	9.1	9.1	8.8	8.9	8.9	8.8
320	8.6	8.4	8.2	8.3	8.1	7.9	8.1	8.2

DEPTH	2112.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.1	7.9	7.9	7.9	7.9	7.7	8.0
40	7.9	7.9	8.1	8.2	8.0	8.2	8.1	9.0
80	8.7	8.6	8.9	9.2	9.5	9.5	9.7	9.9
120	10.0	10.0	10.4	10.4	10.5	10.9	11.2	11.1
160	11.0	11.2	11.0	11.1	11.1	11.4	11.4	11.5
200	11.6	11.6	11.6	11.6	11.4	10.9	10.7	11.0
240	10.6	10.8	10.6	10.4	10.0	10.0	10.0	9.8
280	9.8	9.7	9.5	9.6	9.4	9.1	8.6	8.6
320	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0



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WALL RANGES VS DEPTH

DEPTH	2114.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.8	8.0	7.7	7.8	7.7	7.7	7.7	7.7
40	8.1	7.9	7.8	7.9	7.9	8.6	8.5	8.6
80	8.2	8.1	8.5	8.7	9.4	9.4	9.8	9.7
120	9.7	10.3	10.4	10.4	10.3	10.3	10.6	10.7
160	10.9	11.2	11.0	11.3	11.0	11.5	11.3	11.0
200	11.3	11.3	11.1	11.3	11.4	11.4	10.7	10.7
240	10.8	10.4	10.4	10.7	9.8	9.7	9.7	9.4
280	9.2	9.0	9.2	9.0	8.5	8.5	8.0	8.1
320	7.8	7.9	8.3	7.9	8.0	8.0	7.7	8.0

DEPTH	2116.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.9	7.9	8.1	7.9	8.1	7.9	8.2	8.0
40	8.1	8.1	8.2	8.0	8.1	7.9	7.9	8.2
80	8.1	8.4	8.3	8.6	8.9	9.5	9.6	9.6
120	10.2	10.2	10.1	10.1	10.3	10.9	10.8	10.9
160	11.0	11.0	11.5	11.0	11.1	11.0	11.5	11.3
200	11.3	11.1	11.2	11.1	11.3	11.2	11.4	11.2
240	11.4	11.1	10.9	10.9	10.4	9.5	9.4	10.0
280	10.2	9.3	9.4	9.2	8.7	8.3	8.4	8.6
320	8.7	8.6	8.8	8.8	8.6	8.3	8.3	8.5

DEPTH	2118.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.0	7.9	7.8	8.1	7.7	7.9	7.9	8.0
40	8.0	8.0	8.0	8.3	8.1	8.0	8.0	8.5
80	9.0	9.2	9.2	9.4	9.4	9.2	9.5	9.8
120	10.0	10.7	10.7	11.2	11.2	11.4	11.3	11.4
160	11.2	11.7	11.1	11.4	11.2	11.2	11.0	11.4
200	11.6	11.9	11.7	11.4	11.3	11.2	11.3	11.2
240	11.1	10.9	10.9	10.8	10.5	9.8	9.7	9.5
280	8.6	8.7	8.3	8.5	8.3	8.2	8.2	8.3
320	8.1	8.1	8.2	8.2	8.1	8.1	7.9	8.0



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WALL RANGES VS DEPTH

DEPTH	2120.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.8	7.7	7.7	7.7	7.6	7.7	7.6	7.6
40	8.1	7.9	8.0	8.2	8.1	8.1	8.3	8.5
80	8.5	8.8	9.1	9.1	8.9	9.2	9.5	10.0
120	10.1	9.9	10.0	10.1	10.2	10.7	11.0	10.8
160	11.3	11.6	11.7	11.1	11.5	11.5	11.4	11.3
200	11.4	11.4	11.4	11.4	11.4	11.4	11.3	11.5
240	11.8	11.2	11.0	11.0	10.9	10.5	10.1	10.0
280	9.8	9.3	8.9	8.6	8.4	8.7	8.9	8.7
320	8.8	8.8	8.7	8.6	8.5	8.2	8.1	7.8

DEPTH	2122.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.2	8.2	8.2	8.1	8.1	8.1	8.1	7.9
40	8.2	8.3	8.3	8.2	7.9	8.0	8.0	8.4
80	8.4	8.4	8.3	8.3	8.5	8.6	8.8	9.1
120	9.3	9.4	9.9	10.4	10.4	10.4	10.7	10.9
160	11.4	11.4	11.3	11.6	11.5	11.4	11.4	11.3
200	11.4	11.3	11.3	11.6	11.5	11.3	11.4	11.4
240	11.2	10.8	10.7	10.8	10.3	10.4	10.3	9.7
280	9.9	9.6	9.8	9.1	9.0	8.6	8.5	8.4
320	8.6	8.3	8.5	8.5	8.4	8.4	8.3	8.1

DEPTH	2124.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.8	8.0	7.8	7.6	7.6	7.7	7.6	7.6
40	7.8	7.5	7.5	7.5	7.6	7.7	7.9	7.5
80	8.4	7.8	8.1	8.0	7.7	7.9	8.2	8.7
120	9.0	9.3	9.2	9.2	9.2	9.7	9.9	10.7
160	12.0	11.9	11.4	11.4	11.6	12.0	12.0	12.1
200	12.1	11.9	12.0	11.6	11.8	11.7	11.4	10.7
240	10.7	10.6	10.5	10.4	10.4	10.3	9.7	9.6
280	9.6	9.6	9.3	9.3	9.3	9.3	9.1	9.1
320	8.7	8.3	8.2	8.3	8.3	8.4	8.4	8.1



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WALL RANGES VS DEPTH

DEPTH	2128.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.4	8.4	8.5	8.3	8.7	8.5	8.3	8.4
40	8.4	8.3	8.0	8.0	8.3	8.2	7.8	7.8
80	8.1	8.4	8.3	8.4	8.3	8.5	8.7	8.8
120	8.7	9.0	9.0	9.0	9.1	9.3	10.0	10.2
160	10.8	11.1	11.2	11.4	11.5	11.6	11.8	12.2
200	12.3	12.0	12.0	12.3	12.7	12.7	12.2	12.2
240	12.7	12.5	12.0	11.5	11.1	11.5	11.4	10.8
280	10.4	10.1	10.5	9.9	9.3	9.4	9.1	9.1
320	8.9	8.8	8.6	8.7	8.8	8.8	8.4	8.4

DEPTH	2130.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.0	7.9	7.9	8.2	8.1	7.9	7.7	7.8
40	7.9	7.9	7.9	8.1	7.8	7.9	7.9	7.6
80	7.8	8.2	7.9	8.0	7.7	8.0	8.8	8.8
120	9.5	9.2	9.6	9.6	9.8	10.1	10.8	10.6
160	10.7	11.2	11.5	12.1	12.0	12.1	12.0	11.8
200	12.1	12.1	12.2	12.2	12.2	12.3	12.4	12.1
240	12.0	11.8	11.9	11.8	11.6	11.3	11.3	10.8
280	10.8	10.5	10.0	9.7	9.7	9.4	9.3	9.3
320	9.2	9.0	9.0	8.9	8.6	8.0	8.0	8.0

DEPTH	2132.1		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.4	8.1	7.8	7.7	7.8	7.9	7.8	7.8
40	7.6	7.4	7.5	7.7	8.0	7.8	7.8	7.6
80	7.9	7.9	8.0	8.1	8.2	7.9	8.1	8.1
120	8.2	8.2	8.6	9.0	9.0	9.6	10.9	11.3
160	11.9	11.9	12.0	12.0	12.0	12.3	12.3	12.3
200	12.0	11.9	12.0	12.1	12.1	12.0	12.1	12.1
240	11.8	11.6	11.3	11.3	10.5	10.4	9.0	8.6
280	8.1	8.1	8.1	8.3	8.0	8.1	8.1	8.2
320	8.3	8.4	8.0	8.0	8.1	8.3	8.4	8.4



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WALL RANGES VS DEPTH

DEPTH	2133.9		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.9	7.3	7.3	7.5	7.2	7.2	7.2	7.3
40	7.3	7.2	7.1	7.6	7.9	8.2	8.3	8.1
80	8.2	8.3	8.1	8.3	8.6	8.6	8.6	8.7
120	9.4	10.1	11.8	11.8	12.0	12.0	12.3	12.3
160	12.3	12.2	11.6	11.6	11.6	11.6	11.9	11.9
200	11.9	12.1	12.1	12.1	12.2	12.0	11.9	11.5
240	12.1	11.9	12.5	12.3	12.1	11.2	9.8	9.8
280	9.8	9.7	9.2	9.1	8.8	8.5	8.5	8.3
320	8.3	8.0	7.7	7.6	7.8	7.7	8.1	8.2

DEPTH	2136.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.9	7.8	7.9	7.7	7.8	7.7	7.6	7.8
40	7.9	7.9	7.9	8.0	7.9	8.1	8.2	8.0
80	8.1	8.5	8.5	8.5	9.1	8.4	8.8	9.1
120	9.8	10.2	10.6	10.9	11.4	11.5	11.5	11.8
160	11.9	11.9	12.1	12.1	11.9	12.2	12.5	12.7
200	12.6	12.0	12.1	12.2	12.3	12.5	12.1	12.0
240	11.8	11.7	11.6	11.7	10.6	10.5	10.3	10.0
280	9.6	9.7	9.1	9.0	8.8	8.3	8.4	8.4
320	8.3	8.4	8.4	8.3	8.0	8.2	8.3	8.1

DEPTH	2137.9		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.2	7.4	7.5	7.5	7.5	7.6	7.3	7.3
40	7.5	7.4	7.6	7.6	8.1	8.5	8.3	8.2
80	8.3	8.0	8.4	8.4	8.4	9.1	9.3	9.3
120	9.7	9.8	10.3	10.1	10.2	10.4	10.0	10.0
160	10.0	10.2	10.2	10.0	9.8	10.1	10.5	10.4
200	10.4	10.4	10.8	10.5	10.8	10.8	10.4	10.8
240	10.3	10.4	9.9	9.6	9.1	9.1	9.1	9.1
280	8.8	8.3	8.3	8.3	8.3	8.1	8.1	7.9
320	7.9	7.6	7.4	7.4	7.4	7.3	7.2	7.3



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WALL RANGES VS DEPTH

DEPTH	2140.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.0	6.0	5.8	6.2	6.1	6.1	6.1	6.1
40	6.0	6.2	6.5	6.5	7.2	7.0	7.1	7.1
80	7.2	7.0	7.0	7.3	7.4	7.0	7.2	7.3
120	7.2	7.5	7.7	7.2	7.3	7.5	7.6	8.2
160	8.3	8.7	10.0	9.8	10.4	10.4	10.3	9.9
200	9.8	9.8	9.8	9.6	9.6	9.7	9.9	9.7
240	9.4	8.7	8.5	7.7	7.1	6.9	6.9	7.1
280	6.9	6.4	6.0	6.3	6.3	6.1	6.1	6.1
320	6.1	6.1	6.2	6.2	5.9	6.1	6.3	6.2

DEPTH	2142.0		TILT	0		VOS	5980.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	5.3	5.3	5.0	5.1	5.1	5.3	5.0	5.2
40	5.2	5.0	5.0	5.2	5.0	5.1	5.0	5.1
80	5.1	5.2	5.1	5.1	5.0	5.1	5.2	5.0
120	5.0	5.2	5.3	5.4	5.8	6.1	6.2	7.1
160	7.1	7.5	9.1	9.0	9.1	9.1	9.3	9.0
200	9.0	8.9	9.0	8.8	8.6	8.1	7.8	7.4
240	7.2	7.0	6.8	6.9	6.6	6.9	6.5	6.3
280	6.2	5.9	5.9	5.1	5.0	5.0	5.0	5.1
320	5.0	5.4	5.1	5.2	5.2	5.2	5.3	5.2

DEPTH	2144.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.7	3.9	3.9	3.8	3.8	4.0	3.8	3.7
40	3.7	3.8	3.9	3.6	3.7	4.0	3.5	3.7
80	3.7	3.7	3.7	3.7	3.8	3.5	3.7	3.8
120	3.7	4.1	4.1	4.3	4.3	4.2	5.7	5.8
160	6.1	6.2	6.3	8.1	8.2	8.2	8.1	8.1
200	8.3	8.1	8.2	8.1	7.4	6.4	5.6	5.7
240	5.8	5.8	5.8	5.9	5.7	6.0	6.0	5.6
280	5.2	4.9	4.1	4.3	4.1	4.0	3.8	3.5
320	3.5	3.6	3.7	3.8	4.0	3.9	3.9	3.7



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WALL RANGES VS DEPTH

DEPTH	2145.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	4.3	4.5	4.3	4.4	4.2	4.4	4.4	4.5
40	4.4	4.5	4.4	4.4	4.4	4.7	4.8	5.3
80	5.5	5.8	5.9	5.9	6.2	6.1	6.3	6.1
120	6.7	6.8	7.2	7.4	7.2	7.5	7.8	7.6
160	8.4	8.5	8.6	7.6	6.8	6.7	6.2	6.0
200	6.0	5.9	6.0	6.0	6.1	6.0	5.5	4.6
240	4.6	4.3	4.2	4.6	4.3	4.2	4.4	4.3
280	4.3	4.2	4.4	4.4	4.5	4.3	4.8	4.4
320	4.4	4.4	4.4	4.3	4.2	4.3	4.3	4.2

DEPTH	2148.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	3.9	3.3	3.5	3.8	3.7	3.7	3.8	3.8
40	3.0	3.0	3.1	2.9	3.0	3.0	3.1	3.1
80	3.2	3.0	2.9	3.0	3.4	3.2	3.0	3.0
120	2.9	3.4	3.0	2.9	3.1	3.0	2.9	3.0
160	3.0	3.3	3.5	3.6	3.7	3.9	4.0	4.3
200	4.7	4.7	4.7	4.3	4.4	4.3	4.3	4.3
240	4.3	4.4	4.5	4.3	4.4	4.4	4.4	4.4
280	4.5	4.3	5.0	5.1	5.2	4.4	4.0	4.2
320	4.0	3.9	4.0	3.7	4.0	3.6	3.9	4.2

DEPTH	2150.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2152.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.9	6.4	6.7	6.8	7.2	7.2	7.1	7.8
40	7.8	8.1	8.0	8.1	8.5	8.3	8.7	8.7
80	9.7	9.6	9.6	9.9	9.6	9.6	9.8	9.9
120	11.0	11.3	11.4	11.9	12.3	12.9	13.6	13.8
160	13.6	13.8	13.8	13.9	14.5	14.6	14.6	15.0
200	14.8	14.9	14.7	14.2	14.2	12.7	12.5	11.5
240	11.2	11.3	11.6	10.9	11.6	11.5	11.5	10.5
280	10.3	10.3	10.6	10.4	10.0	10.3	9.4	10.4
320	9.7	9.5	7.4	7.0	6.6	6.7	6.9	6.7

DEPTH	2154.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.6	7.4	7.4	7.6	7.7	8.0	7.6	7.3
40	7.4	7.6	7.7	7.4	8.3	7.3	7.7	8.0
80	8.3	8.8	9.2	9.0	9.2	9.5	9.5	10.2
120	10.2	10.3	11.5	12.1	12.1	12.6	13.3	13.5
160	14.0	14.2	15.2	15.3	14.9	14.2	14.3	14.5
200	14.6	14.8	15.0	15.1	15.1	14.8	14.8	14.0
240	13.8	13.8	13.2	12.8	12.7	12.7	12.5	12.5
280	11.2	10.9	10.7	10.6	10.2	9.9	9.5	9.4
320	8.7	8.6	8.5	8.6	8.6	8.6	7.6	8.4

DEPTH	2156.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.8	8.3	8.8	8.8	8.6	8.8	8.9	8.8
40	9.7	8.8	8.8	9.1	8.3	9.4	9.0	9.2
80	9.0	8.5	9.6	9.0	8.7	9.9	11.6	11.6
120	11.3	12.4	13.0	13.0	13.7	14.1	14.0	14.5
160	13.6	14.9	15.3	15.7	15.1	15.1	15.1	15.7
200	15.0	14.6	14.7	14.8	14.1	15.1	14.6	13.4
240	13.0	13.8	11.5	11.5	11.5	11.5	11.6	11.5
280	11.7	11.0	10.5	10.4	10.3	10.5	9.6	9.2
320	9.5	10.1	9.8	9.5	9.5	8.7	9.1	9.2



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2158.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.2	8.9	9.0	9.0	9.0	10.2	9.4	9.0
40	9.5	9.0	9.1	9.2	9.2	9.6	9.1	9.7
80	10.2	10.1	10.4	9.6	10.3	10.4	11.6	11.7
120	12.4	12.8	13.4	13.4	13.7	13.8	14.2	14.3
160	14.8	14.8	15.3	15.0	15.1	14.9	14.8	15.0
200	14.9	14.9	14.9	15.1	15.0	14.9	14.6	15.0
240	14.0	14.0	13.2	12.7	12.5	12.2	12.5	12.5
280	11.9	11.3	11.2	11.0	10.7	10.2	10.3	9.9
320	9.9	9.4	8.7	9.1	9.4	9.7	10.2	8.6

DEPTH	2160.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.1	9.4	9.9	9.3	9.5	9.9	9.0	9.1
40	9.6	9.5	9.1	9.5	9.4	9.3	9.5	9.2
80	9.7	9.7	9.5	9.1	9.3	9.3	9.3	9.7
120	10.6	10.7	10.5	11.5	11.8	11.9	12.6	13.1
160	13.1	13.3	13.3	13.8	14.0	14.3	14.3	13.9
200	14.1	14.1	14.1	14.2	14.4	13.9	13.4	12.9
240	12.9	12.8	12.3	11.8	11.6	11.3	11.2	11.3
280	10.2	9.0	9.0	9.3	9.2	9.2	9.4	9.3
320	9.1	9.3	9.0	9.3	9.2	9.0	9.4	9.2

DEPTH	2161.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.3	7.4	7.6	7.3	7.2	7.4	8.2	7.2
40	7.1	7.2	7.4	7.8	7.6	7.7	8.0	7.8
80	8.2	9.1	9.3	9.3	9.7	9.7	9.8	9.8
120	10.0	10.9	11.2	12.1	12.1	12.1	12.1	12.5
160	12.8	13.4	13.7	13.7	13.9	14.7	14.6	14.6
200	14.9	15.0	14.9	15.0	14.9	14.9	15.0	15.0
240	15.1	14.1	12.8	12.8	12.1	11.8	12.1	10.4
280	10.4	10.0	9.7	9.7	9.9	10.1	9.9	9.5
320	9.3	9.1	8.7	9.0	9.4	9.2	8.2	7.7



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WALL RANGES VS DEPTH

DEPTH	2164.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.8	9.0	9.0	9.0	8.9	8.8	8.8	8.8
40	8.6	9.0	9.3	9.3	9.0	8.7	8.7	9.2
80	9.2	9.0	9.1	9.1	9.3	10.4	10.4	10.8
120	10.8	10.5	11.2	12.2	12.2	12.5	13.3	13.7
160	13.4	14.1	13.5	14.7	15.2	14.8	14.8	15.5
200	14.8	15.5	15.3	15.5	14.8	14.0	13.7	13.3
240	13.3	13.3	13.0	12.8	12.8	12.7	12.2	12.0
280	11.8	11.8	11.8	10.8	10.3	10.2	10.0	9.7
320	9.7	9.7	9.3	9.2	9.2	9.0	9.1	9.0

DEPTH	2166.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.1	9.2	9.0	9.0	9.2	9.2	9.3	8.8
40	8.7	9.2	9.0	9.7	9.7	9.2	9.3	9.3
80	9.4	9.7	10.5	10.3	10.3	11.0	11.2	11.5
120	11.7	11.7	12.3	12.4	12.7	13.5	13.0	14.0
160	14.5	14.2	14.4	15.0	15.0	15.0	13.7	14.3
200	14.3	14.2	14.0	14.4	14.0	14.3	15.0	14.1
240	13.8	14.0	13.5	13.0	12.2	11.7	11.6	11.9
280	11.7	11.1	9.6	9.4	9.3	8.8	8.8	9.0
320	8.9	9.5	9.0	9.0	8.8	8.7	8.8	8.6

DEPTH	2168.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.4	7.8	8.0	8.0	8.2	7.4	7.6	7.1
40	8.5	8.1	7.6	8.0	7.6	7.9	8.5	8.7
80	8.5	8.3	8.4	8.6	8.8	9.8	9.8	9.7
120	10.5	11.4	11.9	11.8	12.4	12.7	12.8	13.9
160	14.2	14.6	15.5	15.2	15.5	15.8	15.7	15.8
200	15.8	15.8	15.7	15.5	15.1	14.4	14.4	13.7
240	12.8	12.5	12.4	12.4	12.2	12.3	11.6	11.6
280	11.6	11.2	11.0	10.6	9.8	9.7	9.3	9.3
320	8.1	8.0	8.0	7.4	7.3	8.0	8.4	7.4



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WALL RANGES VS DEPTH

DEPTH	2170.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.3	9.2	8.8	8.6	8.9	8.8	8.8	9.0
40	9.4	9.5	9.6	9.8	8.8	10.3	9.4	10.0
80	10.8	9.8	10.8	10.9	11.3	10.5	11.0	10.9
120	10.9	11.7	12.3	12.3	14.6	14.8	14.8	16.1
160	15.9	16.1	16.1	16.8	17.1	16.7	16.5	16.8
200	17.2	17.0	16.7	16.8	15.6	15.5	15.6	15.3
240	14.1	14.1	13.5	13.5	13.4	13.7	13.4	13.5
280	11.5	12.1	10.6	10.5	10.4	10.6	10.5	10.4
320	11.1	10.2	10.7	10.6	10.1	10.2	9.3	9.3

DEPTH	2172.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.5	9.1	9.4	9.5	9.0	9.3	8.7	9.1
40	9.6	8.6	8.8	9.5	9.9	10.7	11.2	10.7
80	10.5	11.7	12.1	12.1	12.5	13.2	13.1	12.9
120	13.3	12.8	12.6	12.9	12.9	13.5	13.6	13.2
160	13.2	15.1	15.4	17.4	17.6	16.6	14.9	16.1
200	14.5	15.2	16.4	14.9	14.7	13.9	15.6	15.5
240	14.5	14.4	14.3	14.3	14.3	14.1	12.7	12.3
280	11.5	11.4	10.5	10.2	10.4	10.5	10.4	10.4
320	10.6	10.0	9.9	10.1	9.8	9.2	9.7	10.2

DEPTH	2174.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.3	10.4	10.7	10.3	10.5	10.7	10.7	10.7
40	10.6	10.6	10.8	10.6	10.6	11.0	11.0	11.5
80	11.5	11.6	11.8	12.7	13.1	13.8	14.5	14.6
120	14.7	15.1	15.4	16.8	17.2	16.8	16.8	15.9
160	16.5	16.9	17.0	17.0	17.5	17.9	17.7	17.7
200	17.8	17.7	17.4	16.8	17.0	16.6	16.5	15.7
240	15.7	14.8	14.8	14.1	13.8	12.7	12.5	12.6
280	12.0	12.0	11.8	11.5	11.2	10.9	11.2	10.9
320	10.9	10.7	10.5	10.5	10.6	10.6	10.4	10.3



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WALL RANGES VS DEPTH

DEPTH	2176.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.3	9.7	10.2	9.9	10.0	10.1	10.3	10.5
40	10.7	10.5	10.6	10.7	10.7	10.7	11.1	11.7
80	11.7	12.1	12.9	12.6	13.0	12.9	13.1	12.9
120	13.6	13.6	14.5	13.7	15.0	16.0	16.7	17.0
160	17.2	17.3	17.2	17.1	17.6	18.1	18.0	18.0
200	18.2	17.9	18.2	17.6	17.3	16.9	17.0	15.4
240	15.4	15.9	15.1	14.2	13.2	12.7	12.9	12.9
280	13.4	11.7	11.7	11.6	11.8	11.3	10.8	10.8
320	10.8	10.8	10.7	10.6	10.7	10.7	10.5	10.2

DEPTH	2178.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.0	9.8	9.8	9.8	9.8	9.7	9.8	9.8
40	9.8	9.9	9.9	10.2	10.8	11.0	11.1	11.3
80	11.4	11.3	12.1	13.0	13.7	13.4	13.7	15.3
120	15.0	15.0	15.6	17.2	17.2	17.1	17.0	17.3
160	18.3	17.6	18.2	18.0	18.0	17.2	17.5	18.1
200	18.3	17.3	18.4	18.1	17.5	17.4	17.1	16.7
240	16.7	16.0	15.4	14.8	15.1	15.2	13.7	13.1
280	12.9	12.8	12.9	12.6	11.6	11.6	11.0	11.0
320	11.6	10.9	10.8	10.2	10.6	10.5	10.3	10.2

DEPTH	2180.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.6	10.5	10.3	10.5	10.6	10.2	10.6	10.7
40	10.6	10.8	10.9	11.1	11.7	11.5	11.7	11.6
80	11.6	11.9	12.8	13.3	13.5	14.4	14.0	14.0
120	13.7	14.3	15.2	15.5	15.4	16.4	16.6	16.6
160	16.9	17.3	17.9	18.4	18.7	18.9	18.4	18.7
200	18.5	18.4	17.9	17.5	17.6	17.5	17.1	17.1
240	16.7	15.8	15.6	15.5	14.2	14.2	14.0	13.7
280	12.8	12.8	12.8	12.8	11.8	12.0	11.5	11.4
320	11.1	11.1	11.1	11.1	10.9	11.0	10.8	10.7



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WALL RANGES VS DEPTH

DEPTH	2182.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.2	11.0	11.0	11.1	11.1	10.8	10.9	11.0
40	11.3	11.1	11.0	11.0	11.3	11.1	11.2	11.6
80	12.1	11.9	12.5	12.3	12.6	13.0	13.1	13.0
120	14.0	14.2	14.6	14.3	15.5	16.0	16.5	17.3
160	18.4	18.5	18.6	18.7	19.0	18.9	19.1	18.9
200	19.1	19.4	19.4	19.3	17.5	17.3	16.9	17.1
240	16.4	16.4	15.9	15.4	15.5	15.1	14.7	13.8
280	13.9	13.9	13.5	13.6	13.0	13.1	12.7	12.7
320	12.2	12.2	12.2	12.1	11.9	11.8	11.5	11.3

DEPTH	2183.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.9	12.3	11.4	11.7	11.4	11.3	11.2	10.8
40	11.0	11.0	10.9	11.2	11.5	11.8	11.6	11.9
80	11.9	12.6	12.3	12.6	12.8	12.6	13.3	13.4
120	13.6	13.9	14.5	15.1	17.4	17.4	18.6	19.0
160	18.6	17.9	18.3	18.7	19.1	19.2	19.3	19.4
200	19.2	19.2	19.2	19.4	18.4	18.4	18.5	17.7
240	17.5	17.4	18.4	18.5	19.7	19.7	19.4	17.4
280	15.7	15.0	13.9	12.9	13.1	12.6	12.4	12.6
320	12.1	11.7	11.1	11.2	11.4	11.5	11.6	11.9

DEPTH	2186.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.2	11.6	11.2	11.1	11.1	11.1	11.2	11.0
40	11.4	11.5	11.3	11.5	11.6	11.7	11.7	13.1
80	12.9	13.0	13.3	13.0	13.0	13.0	13.1	13.5
120	13.9	14.3	14.6	14.9	17.2	17.8	18.6	18.2
160	18.0	18.6	18.6	18.6	18.6	18.7	19.3	19.7
200	19.7	19.4	19.0	18.9	18.7	19.1	19.2	19.1
240	18.9	18.6	18.8	18.2	17.5	16.5	14.3	14.2
280	13.9	13.9	13.7	12.9	12.8	12.8	12.4	12.0
320	11.3	11.2	11.5	11.3	11.4	11.5	11.5	11.4



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WALL RANGES VS DEPTH

DEPTH	2188.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.5	11.6	11.0	11.1	10.8	10.8	10.7	10.8
40	10.7	10.7	10.7	10.7	11.0	11.0	11.2	11.4
80	12.0	12.2	12.6	12.9	13.3	13.6	13.8	13.4
120	13.0	13.1	13.6	13.7	14.2	15.2	15.4	16.0
160	16.0	16.5	17.5	17.9	19.0	19.0	18.8	19.2
200	19.4	19.5	19.0	19.0	18.6	18.2	18.9	17.8
240	18.0	17.6	16.7	15.9	15.5	15.7	15.7	15.4
280	15.1	15.0	14.0	14.0	14.0	13.8	12.9	12.8
320	11.9	11.7	11.7	11.3	11.3	11.6	11.8	11.8

DEPTH	2190.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.8	10.6	10.6	10.8	11.1	10.8	10.8	10.8
40	10.6	10.7	11.2	10.7	10.7	11.3	11.0	11.3
80	11.3	11.3	11.4	11.1	11.4	11.5	11.8	12.3
120	12.6	12.7	13.0	13.2	13.3	14.5	15.6	16.2
160	17.3	17.1	17.2	17.7	18.7	18.8	18.9	19.2
200	19.9	19.8	19.7	19.8	19.4	19.9	19.9	19.8
240	19.7	17.6	17.3	17.0	16.8	15.6	15.2	15.2
280	14.7	14.8	14.1	14.0	13.4	13.4	13.0	13.0
320	12.4	11.9	11.8	11.5	11.5	11.4	11.1	11.1

DEPTH	2196.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.0	9.0	8.9	9.1	9.1	9.5	9.7	9.7
40	9.2	9.0	9.4	9.7	9.5	9.9	9.4	10.7
80	11.3	10.8	10.8	11.3	10.9	11.3	11.9	12.2
120	13.1	13.3	13.8	16.9	16.9	17.5	17.8	16.7
160	17.1	17.4	17.4	17.4	17.7	19.4	19.7	20.0
200	20.1	20.0	20.8	19.7	17.9	18.2	16.7	16.6
240	16.4	15.0	15.0	13.9	13.5	13.8	13.8	13.6
280	12.7	12.3	11.9	11.1	10.9	10.3	10.5	10.7
320	10.4	9.2	9.2	8.9	8.9	9.2	9.4	8.9



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2198.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.8	8.8	9.0	8.7	8.9	8.9	9.0	8.7
40	9.0	9.2	9.5	9.6	9.7	10.1	9.8	10.1
80	10.2	10.3	10.4	10.4	10.4	10.3	10.2	10.2
120	10.5	11.9	13.0	15.3	18.3	18.5	18.6	19.0
160	20.7	20.7	21.2	21.0	21.0	20.7	20.8	20.8
200	21.1	21.1	21.3	19.6	19.0	18.3	18.3	17.9
240	17.4	16.9	16.8	16.7	15.1	14.4	14.0	12.7
280	12.6	12.4	12.6	10.8	10.7	10.5	10.3	10.3
320	9.7	9.5	9.3	9.6	9.7	9.1	9.1	8.9

DEPTH	2202.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.1	11.0	10.6	10.7	10.7	11.1	11.7	11.8
40	12.6	11.8	12.2	12.5	12.1	11.9	11.4	11.4
80	11.0	11.3	11.3	11.3	11.5	11.8	11.5	11.5
120	13.0	18.4	18.4	20.2	20.4	20.3	20.2	20.2
160	20.7	20.4	20.4	20.5	20.5	20.8	20.7	20.4
200	20.6	20.4	20.4	20.3	20.1	20.1	19.5	19.1
240	17.9	12.3	11.8	11.6	11.9	11.9	11.5	11.4
280	11.5	11.2	11.2	11.7	12.0	11.6	11.7	11.4
320	11.4	11.8	11.6	11.3	11.9	11.7	11.9	11.7

DEPTH	2204.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.4	7.8	7.9	8.2	8.2	8.6	8.9	8.4
40	9.1	9.4	9.4	9.5	10.1	10.8	10.8	11.2
80	11.9	12.1	13.0	12.7	15.2	20.4	20.7	20.9
120	20.8	21.0	21.2	20.5	20.7	19.1	20.1	20.2
160	20.6	19.7	20.6	20.3	20.3	20.4	20.4	20.6
200	20.0	19.2	17.5	17.9	18.4	18.4	18.4	17.7
240	16.1	16.5	17.9	17.8	12.1	11.1	12.1	12.1
280	11.8	11.8	11.6	11.4	8.3	8.0	7.9	7.8
320	8.1	7.9	8.0	7.8	8.3	7.9	7.9	7.9



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2205.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.2	8.7	8.7	9.3	8.5	8.4	8.8	8.3
40	8.3	8.4	8.5	8.2	8.6	8.9	10.5	10.6
80	11.0	10.6	11.1	10.9	11.1	11.3	18.6	18.6
120	18.8	16.9	16.3	16.3	17.5	18.1	16.9	17.4
160	19.2	18.5	18.2	18.7	18.1	18.3	18.7	19.2
200	18.9	19.9	19.2	19.2	19.3	19.0	17.6	19.4
240	18.8	19.0	18.4	18.7	18.0	15.9	15.3	15.0
280	12.4	11.7	11.5	11.6	11.3	10.8	11.1	10.5
320	10.0	9.8	9.1	8.5	8.3	8.3	8.4	8.5

DEPTH	2207.8		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	12.6	17.3	15.8	16.0	16.8	16.5	18.1	17.3
40	18.8	17.6	18.2	18.7	18.5	19.1	13.0	11.6
80	11.8	11.8	12.6	12.4	12.8	12.2	12.1	11.9
120	11.8	11.8	11.7	11.8	11.9	11.3	11.7	11.8
160	11.9	11.6	11.7	11.7	10.5	18.4	18.6	18.7
200	18.9	19.2	19.0	19.1	18.9	18.8	17.8	19.1
240	19.2	18.9	18.6	18.4	18.2	17.0	17.0	16.9
280	15.2	14.9	14.7	15.1	14.9	14.1	14.3	14.1
320	13.9	13.8	13.3	13.1	13.0	12.8	13.1	12.8

DEPTH	2210.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	17.5	17.4	18.4	17.8	18.4	18.2	17.4	16.4
40	16.0	18.3	18.7	18.1	17.3	18.0	18.3	17.8
80	18.6	18.6	18.6	18.2	18.4	18.8	18.4	19.3
120	18.4	17.4	17.2	17.6	18.4	17.5	17.8	18.1
160	19.0	18.4	18.3	17.8	18.3	18.5	18.4	18.2
200	18.9	18.5	18.9	19.0	18.5	18.6	18.1	18.9
240	19.6	18.7	18.9	18.1	18.3	18.3	19.0	19.0
280	18.4	18.4	18.2	18.9	19.0	17.7	17.9	18.0
320	18.2	18.2	17.9	18.2	18.3	17.9	18.3	17.6



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WALL RANGES VS DEPTH

DEPTH	2211.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	18.1	17.6	18.3	18.3	18.5	18.5	18.8	18.6
40	18.2	18.5	18.6	18.7	18.3	17.8	18.1	17.5
80	18.7	18.6	18.0	19.0	19.0	19.3	18.6	18.6
120	19.5	19.0	17.9	18.2	19.9	18.8	18.6	18.2
160	18.0	18.4	18.4	19.1	19.2	19.2	18.3	19.1
200	18.9	19.0	19.0	19.0	19.1	19.3	19.2	18.2
240	19.1	19.1	18.6	17.8	18.5	18.5	18.9	18.3
280	17.9	18.2	18.4	18.5	18.9	19.2	19.3	20.1
320	19.0	18.5	18.4	18.2	18.7	18.2	18.4	18.3

DEPTH	2219.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.0	13.7	13.5	13.9	14.1	14.6	14.7	15.3
40	14.7	15.0	15.0	15.7	15.6	17.3	17.3	17.6
80	17.2	17.3	17.1	17.3	17.5	17.3	18.5	18.7
120	20.3	20.5	21.4	21.8	22.2	23.3	22.9	25.6
160	24.4	25.3	25.6	25.8	24.4	24.6	24.5	25.4
200	24.8	24.3	24.2	23.9	23.0	18.5	15.2	14.3
240	14.2	14.9	15.5	15.1	15.8	15.9	15.0	15.6
280	15.7	15.3	15.4	15.3	15.6	15.0	14.7	15.3
320	15.3	15.9	15.0	14.3	14.3	14.0	14.7	14.1

DEPTH	2221.8		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.8	14.3	14.9	14.4	14.2	14.7	14.5	14.2
40	14.6	16.7	18.4	19.4	20.1	17.8	18.1	18.8
80	20.5	19.3	17.8	18.1	18.4	18.9	18.1	17.7
120	18.2	20.4	20.6	21.9	18.8	18.8	18.2	18.2
160	19.8	19.4	18.5	18.7	18.8	21.0	21.1	19.9
200	20.4	20.1	17.0	17.8	16.3	16.1	16.3	16.3
240	15.0	17.4	16.6	16.3	16.7	15.4	14.9	14.8
280	15.6	16.1	16.1	14.6	14.3	15.1	15.4	16.6
320	14.9	15.5	15.8	14.8	15.5	15.1	14.8	14.4



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WALL RANGES VS DEPTH

DEPTH	2223.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.5	14.7	14.5	14.5	14.2	14.4	14.1	14.4
40	14.4	14.7	14.3	14.3	14.7	14.7	14.5	17.4
80	18.0	18.6	18.5	19.6	20.0	20.2	21.4	21.7
120	22.1	21.5	20.5	21.0	21.1	21.9	22.3	22.6
160	23.6	24.4	24.7	24.7	25.2	26.2	26.1	25.2
200	25.4	26.3	26.4	26.4	25.5	26.3	25.6	22.6
240	20.3	20.8	20.4	20.6	20.6	20.7	19.6	19.8
280	19.8	19.3	18.6	17.8	17.2	16.6	16.4	16.0
320	16.1	15.9	16.2	15.9	15.9	15.6	15.6	15.5

DEPTH	2225.8		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.4	14.2	14.4	14.7	14.2	14.6	14.4	15.2
40	15.0	16.4	15.7	15.3	16.1	16.8	15.8	15.4
80	14.2	15.2	14.4	14.2	14.7	15.5	14.4	14.4
120	19.1	19.6	20.4	22.2	21.8	22.0	21.3	20.1
160	19.5	19.5	20.7	25.2	22.7	24.7	25.0	25.9
200	26.0	25.6	22.8	22.7	21.9	22.5	21.3	21.6
240	22.4	21.4	21.5	21.1	18.2	19.3	19.0	18.1
280	18.2	17.2	17.2	17.4	18.5	17.6	17.6	16.8
320	17.0	17.8	17.7	15.9	15.0	14.3	14.4	14.6

DEPTH	2228.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.4	14.4	14.4	15.5	14.4	14.7	14.4	14.6
40	14.7	14.6	14.6	14.3	15.0	15.1	18.4	20.4
80	19.8	20.6	18.2	18.2	19.4	18.9	19.4	20.6
120	21.8	23.0	25.8	26.1	27.0	26.1	26.6	26.6
160	26.5	27.2	26.8	27.1	27.5	26.6	26.6	26.3
200	26.1	26.4	26.5	26.9	26.9	25.5	22.5	20.2
240	21.0	21.9	22.6	21.7	20.1	19.5	20.3	18.9
280	19.8	19.3	18.9	19.0	18.8	18.4	17.4	17.0
320	16.5	16.2	16.1	15.4	14.7	14.4	15.1	14.9



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WALL RANGES VS DEPTH

DEPTH	2229.8		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.2	14.2	14.1	14.0	14.5	14.4	15.5	15.7
40	15.6	15.4	15.3	15.8	15.5	18.6	18.3	19.9
80	20.3	19.6	20.2	20.0	21.6	21.6	22.5	22.2
120	23.9	24.9	25.2	26.0	26.1	26.0	26.1	25.4
160	25.5	26.0	27.0	26.4	27.3	27.5	28.2	28.9
200	26.4	23.4	21.5	20.4	20.6	19.8	19.6	18.4
240	18.6	18.8	20.2	19.3	19.2	18.7	18.1	18.0
280	17.5	16.9	18.8	18.2	18.4	17.4	17.8	16.2
320	17.6	15.5	15.1	14.3	14.3	13.8	14.5	14.4

DEPTH	2232.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	13.3	13.6	13.6	14.2	13.5	13.6	13.8	13.5
40	13.6	14.1	14.0	13.9	14.4	16.5	17.2	18.0
80	19.9	20.2	21.7	22.2	23.8	23.4	24.3	25.5
120	24.9	25.5	25.9	23.9	25.2	25.8	25.6	26.0
160	25.5	27.0	25.2	26.6	25.1	23.5	21.6	21.8
200	21.5	22.4	21.1	22.6	21.2	21.5	21.1	21.9
240	22.8	22.6	20.8	20.8	20.7	20.7	18.9	18.3
280	17.6	17.6	17.0	15.2	15.2	15.8	14.9	14.2
320	15.0	14.5	14.2	13.4	13.5	13.1	13.3	13.3

DEPTH	2234.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.0	14.0	13.9	13.7	13.8	13.7	13.7	14.1
40	14.4	16.5	16.8	15.8	18.2	19.7	20.4	22.2
80	22.3	22.4	20.4	21.1	21.5	21.8	22.2	22.8
120	23.6	22.7	24.6	24.4	24.9	25.0	25.3	27.4
160	25.4	22.7	23.1	22.7	24.0	25.1	24.8	25.7
200	24.6	23.0	23.5	23.2	24.7	23.8	23.2	19.6
240	19.2	17.2	17.9	18.3	19.1	19.1	19.0	14.9
280	14.4	13.7	13.8	13.2	13.4	13.5	13.3	13.3
320	13.3	13.3	13.2	13.8	13.7	13.8	14.1	13.8



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WALL RANGES VS DEPTH

DEPTH	2236.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.6	11.5	11.3	11.6	11.9	14.2	16.5	16.3
40	16.4	17.4	16.8	17.1	17.1	17.1	16.5	16.5
80	17.0	17.7	19.5	19.1	20.0	21.1	20.9	21.0
120	23.6	24.8	27.2	27.5	27.4	27.9	26.5	25.6
160	25.3	25.5	24.9	25.0	25.3	25.5	25.5	25.7
200	25.7	24.4	24.6	24.9	15.5	13.6	14.7	12.8
240	13.5	13.2	12.3	12.5	12.8	12.9	12.4	13.4
280	13.2	12.0	12.6	12.7	12.9	12.4	12.0	11.7
320	11.4	11.8	11.4	12.3	11.4	11.7	12.2	11.5

DEPTH	2237.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.7	9.6	9.3	10.1	10.4	11.0	10.8	11.4
40	14.3	14.9	14.8	14.8	14.8	15.9	18.2	18.2
80	18.5	18.7	19.9	20.5	20.8	21.2	21.1	21.5
120	22.8	24.9	27.7	27.5	27.7	26.3	27.4	27.2
160	29.0	28.7	29.0	28.6	27.3	28.7	27.5	28.3
200	26.8	27.7	24.7	21.4	21.4	16.8	9.9	9.6
240	10.2	9.3	9.5	9.6	9.6	9.8	10.4	9.9
280	10.8	9.5	9.3	9.2	9.7	9.2	9.2	9.5
320	9.4	10.4	9.4	9.7	9.2	9.4	9.1	9.1

DEPTH	2241.8		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.3	6.6	7.4	7.7	6.9	7.3	7.2	7.2
40	7.1	7.1	7.1	7.4	7.8	7.4	7.5	7.8
80	7.4	7.5	7.4	8.4	7.4	7.6	7.7	9.0
120	24.4	23.8	23.4	21.6	21.0	20.7	21.6	23.6
160	23.8	24.9	24.0	24.7	25.2	25.4	24.9	24.1
200	24.5	24.8	24.6	24.6	23.7	23.1	23.0	22.7
240	22.0	21.5	18.6	16.6	9.3	8.3	8.2	8.3
280	7.4	7.7	7.5	7.7	6.8	7.2	6.7	7.1
320	6.8	6.9	6.5	6.5	6.6	6.6	6.5	6.2



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WALL RANGES VS DEPTH

DEPTH	2243.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.3	9.3	10.0	10.3	10.3	10.7	11.1	10.7
40	11.3	11.6	11.7	11.5	11.5	11.8	12.6	13.0
80	13.0	13.2	12.9	13.3	13.5	13.7	13.5	13.5
120	15.2	15.8	15.5	16.9	17.2	21.1	21.0	22.4
160	23.5	23.3	23.4	24.1	24.2	24.7	25.1	23.6
200	22.6	22.9	23.2	23.2	23.2	23.2	23.2	23.2
240	22.4	18.7	13.5	13.0	13.0	11.7	11.2	11.2
280	10.3	10.2	10.4	9.7	9.8	9.8	10.2	9.5
320	9.5	10.3	10.1	11.0	10.9	10.8	10.9	10.9

DEPTH	2246.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.4	13.2	13.3	13.3	12.5	12.6	11.9	11.1
40	11.4	11.5	11.6	13.0	14.1	14.1	13.9	13.9
80	14.6	15.1	15.0	14.4	14.4	14.9	13.2	13.8
120	14.6	15.5	14.7	14.0	14.1	13.6	13.8	14.6
160	15.7	16.0	15.6	20.4	22.1	22.6	23.8	21.1
200	21.1	14.1	14.3	10.9	11.2	11.3	11.3	10.6
240	11.6	12.6	12.7	12.8	11.0	12.1	11.9	11.5
280	11.3	11.4	11.3	12.4	13.2	13.3	13.3	14.4
320	13.7	13.6	13.8	14.0	14.1	14.1	14.3	13.8

DEPTH	2247.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.7	14.4	14.5	14.2	14.9	14.5	14.1	13.8
40	13.5	15.3	15.3	15.4	16.8	16.8	16.8	16.1
80	15.5	14.9	15.8	15.9	15.8	15.8	17.4	18.3
120	18.3	20.3	22.2	23.3	24.3	24.3	24.3	24.4
160	23.6	23.6	23.0	22.5	23.1	23.8	23.8	22.5
200	22.4	21.3	21.4	21.9	21.0	21.0	20.4	19.8
240	17.4	16.3	16.0	15.5	15.9	15.2	16.0	17.2
280	16.8	16.5	15.2	15.3	15.3	15.7	15.6	15.7
320	15.9	15.4	15.1	15.4	16.1	14.9	15.0	14.8



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WALL RANGES VS DEPTH

DEPTH	2258.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	21.9	21.8	21.5	21.8	22.6	22.5	22.9	23.4
40	22.7	22.9	21.5	21.5	21.5	21.5	21.5	21.3
80	21.0	21.0	21.5	23.0	21.2	21.6	22.4	22.1
120	22.1	21.4	21.7	21.6	21.6	21.3	21.5	21.5
160	21.7	21.7	21.6	21.9	21.9	21.7	21.8	21.7
200	21.8	21.6	21.8	21.8	21.9	21.0	21.0	21.6
240	21.2	21.7	22.3	22.6	22.9	23.9	22.2	22.1
280	22.5	22.2	22.2	22.2	22.5	22.7	22.4	21.7
320	21.4	21.4	21.5	22.2	23.1	21.4	21.6	21.3

DEPTH	2259.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.5	20.0	20.1	20.0	20.0	21.1	20.0	20.8
40	20.1	20.1	20.1	20.1	19.7	19.5	20.0	18.5
80	19.8	20.0	20.2	20.1	19.3	20.2	20.2	20.4
120	20.4	20.4	19.6	19.6	20.5	19.6	19.7	20.1
160	20.1	20.4	20.4	20.7	20.9	20.2	20.8	21.3
200	21.5	21.7	21.7	21.8	21.2	20.0	20.1	19.8
240	20.2	19.7	19.4	19.4	19.6	21.1	19.6	20.1
280	20.0	20.3	19.8	19.9	19.8	20.0	19.4	19.9
320	20.0	19.2	20.0	20.0	20.2	20.0	19.8	19.8

DEPTH	2262.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	17.6	17.6	17.4	18.0	18.2	18.3	18.2	17.6
40	18.6	18.4	19.5	18.2	19.2	18.0	18.0	17.9
80	17.4	18.2	17.5	17.6	17.7	17.7	18.1	17.9
120	19.7	19.3	19.1	17.7	19.3	19.3	19.4	18.7
160	18.1	18.6	18.6	18.6	18.9	18.8	18.7	18.7
200	18.8	18.9	18.8	17.9	17.7	17.6	17.6	17.7
240	17.6	17.3	17.3	18.0	18.2	18.5	17.2	17.6
280	18.3	18.7	17.8	19.2	19.2	18.8	19.3	17.8
320	17.4	17.6	16.6	16.9	17.7	17.7	17.9	17.4



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WALL RANGES VS DEPTH

DEPTH	2264.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	16.6	17.1	17.1	16.3	16.0	16.3	17.1	17.6
40	16.9	17.2	16.6	17.7	16.8	16.8	16.9	16.9
80	16.6	16.1	16.2	16.1	16.2	15.9	17.4	17.3
120	17.3	16.9	16.9	15.9	16.3	16.9	17.4	17.5
160	16.2	17.1	17.0	16.8	17.9	17.8	17.4	17.4
200	17.4	17.5	17.4	17.4	18.0	16.3	16.6	16.6
240	16.6	16.6	16.2	17.3	15.8	16.7	17.1	16.2
280	16.1	17.7	17.1	16.0	16.5	16.4	16.3	16.4
320	16.6	17.2	17.1	16.4	15.7	15.8	17.5	16.4

DEPTH	2266.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.2	15.4	15.4	15.8	14.7	15.3	14.2	15.0
40	14.5	14.8	14.8	14.5	15.3	14.9	14.7	14.6
80	14.7	14.2	14.5	14.2	14.6	14.2	14.6	14.5
120	15.3	14.7	14.6	14.5	15.1	15.4	15.1	14.9
160	14.2	16.0	16.8	16.6	16.6	16.8	16.4	15.8
200	14.7	14.9	15.1	14.7	14.7	15.0	14.1	14.1
240	14.3	14.6	14.4	14.5	14.5	14.5	14.5	14.7
280	14.5	14.5	14.4	15.0	14.4	14.9	14.5	14.6
320	14.4	14.8	14.3	14.5	14.7	14.5	14.6	15.3

DEPTH	2268.1		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	12.6	12.6	12.7	12.6	12.6	12.5	12.5	13.4
40	13.5	13.1	12.6	12.9	12.6	13.0	13.5	13.5
80	13.0	13.9	13.0	13.3	13.3	13.2	13.4	12.5
120	12.2	12.5	12.5	12.5	12.6	14.0	13.4	14.0
160	13.6	13.5	13.4	13.7	13.7	13.0	13.5	13.1
200	12.8	14.3	13.4	13.5	13.2	12.6	13.3	12.7
240	12.9	13.2	12.7	13.2	13.7	13.7	14.2	12.5
280	12.7	12.6	12.7	12.8	12.8	12.5	12.7	13.5
320	13.2	12.5	12.4	12.5	12.8	13.2	12.5	12.5



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WALL RANGES VS DEPTH

DEPTH	2270.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
40	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
120	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
160	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
200	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
240	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
280	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
320	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

DEPTH	2271.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
40	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
120	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
160	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
200	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
240	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
280	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
320	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

DEPTH	2274.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
40	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
120	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
160	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
200	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
240	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
280	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
320	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3



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WALL RANGES VS DEPTH

DEPTH	2276.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2280.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2285.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4



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WALL RANGES VS DEPTH

DEPTH	2287.9		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
40	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
80	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
120	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
160	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
200	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
240	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
280	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
320	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

DEPTH	2290.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
40	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
120	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
160	2.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7
200	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
240	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
280	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
320	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7

DEPTH	2292.0		TILT	0		VOS	5981.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	38.2	37.3	36.5	37.3	38.2	38.3	38.2	37.7
40	37.9	38.0	38.2	37.9	37.7	38.0	38.4	37.7
80	38.0	38.3	38.3	38.2	37.7	37.9	38.0	37.7
120	38.9	37.7	39.3	38.6	38.7	37.9	41.5	38.2
160	37.9	37.6	39.2	38.2	42.1	41.8	40.1	38.7
200	38.5	37.7	38.4	38.9	38.7	40.5	38.0	38.6
240	37.9	41.5	40.1	41.7	40.0	38.3	38.0	39.9
280	39.2	37.4	37.1	38.3	38.3	39.2	40.6	37.0
320	37.6	40.5	37.0	38.7	39.9	40.4	38.2	37.7



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WALL RANGES VS DEPTH

DEPTH	2294.1		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	37.1	37.6	38.3	37.7	38.0	37.9	38.0	38.6
40	38.3	37.9	38.3	39.2	38.6	39.5	38.5	40.1
80	41.7	42.1	41.7	39.2	39.2	47.7	49.3	49.3
120	48.9	52.1	51.9	52.2	52.2	51.9	52.1	53.1
160	54.3	54.3	54.3	54.1	53.7	52.5	54.6	52.5
200	52.2	53.1	52.3	52.2	52.5	50.9	53.0	50.9
240	49.9	50.3	48.1	50.0	44.9	46.6	48.2	44.2
280	45.5	42.4	44.5	43.9	44.5	43.9	41.1	38.9
320	38.9	39.0	38.8	39.3	38.9	38.7	38.3	38.3

DEPTH	2296.2		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	37.9	37.9	38.2	38.2	38.3	37.9	37.0	37.7
40	37.9	36.5	36.4	37.0	37.6	37.7	39.6	41.5
80	41.1	42.4	43.7	43.9	44.4	45.0	48.0	48.1
120	52.5	52.4	53.1	53.0	52.7	54.3	52.4	52.4
160	52.7	54.4	55.7	54.0	54.2	56.0	55.0	54.7
200	53.2	53.3	54.8	54.8	53.7	51.3	49.0	44.7
240	39.0	40.0	39.2	38.9	39.4	38.9	38.7	39.6
280	45.2	45.0	45.1	43.7	43.4	41.8	41.6	43.1
320	39.6	39.0	40.6	39.2	38.9	37.6	37.7	39.0

DEPTH	2297.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	35.5	34.6	35.4	36.4	37.0	37.0	35.4	38.6
40	37.0	36.9	37.4	38.1	38.9	38.9	39.6	39.2
80	38.9	39.4	41.7	43.1	41.3	43.4	44.0	46.4
120	46.5	48.1	53.7	52.2	52.8	53.4	53.4	53.4
160	56.5	53.5	54.9	56.6	52.5	53.2	54.9	53.2
200	53.1	55.7	53.3	53.8	54.0	55.7	54.7	52.7
240	52.8	52.2	51.3	50.2	46.8	46.8	46.8	47.3
280	46.4	47.2	47.0	44.3	43.9	41.5	40.1	42.0
320	41.4	39.1	39.0	37.9	38.4	36.8	36.0	35.7



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WALL RANGES VS DEPTH

DEPTH	2299.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	33.8	32.3	33.0	32.9	32.5	32.0	31.3	30.8
40	32.0	34.1	32.6	34.5	34.8	34.5	34.5	34.8
80	34.5	35.5	37.4	39.8	41.1	39.8	40.2	40.8
120	40.8	41.4	42.7	52.7	50.9	51.2	46.7	49.0
160	48.3	48.4	50.9	55.2	50.6	51.5	48.7	52.8
200	54.1	55.2	54.9	55.1	54.1	53.4	53.0	51.5
240	49.6	49.2	50.0	50.3	49.3	46.4	46.4	43.1
280	43.9	44.2	43.1	41.5	42.0	38.9	39.8	40.4
320	38.6	38.5	38.3	37.1	35.8	34.2	33.1	32.1

DEPTH	2302.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.7	30.4	30.7	29.9	30.1	30.2	30.8	30.8
40	30.5	31.7	32.7	31.5	30.4	30.4	32.6	31.1
80	36.0	36.2	37.7	36.8	39.1	37.5	38.5	38.0
120	38.6	39.9	39.0	38.3	37.6	43.4	44.0	44.4
160	45.5	42.6	42.3	41.3	42.5	44.2	50.1	49.1
200	49.5	51.0	49.4	49.8	48.1	47.2	46.5	44.3
240	45.7	48.7	49.0	47.2	48.1	46.7	41.8	39.2
280	41.2	40.5	39.2	35.7	36.6	32.6	32.4	33.0
320	32.9	33.8	32.6	33.3	31.4	31.6	31.7	30.7

DEPTH	2304.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	27.9	27.5	27.5	28.0	26.6	27.3	30.2	29.2
40	28.9	29.8	30.7	29.8	28.2	29.1	29.4	29.7
80	29.4	29.8	29.5	29.1	29.4	29.7	31.0	31.0
120	29.7	30.5	30.7	38.6	39.8	40.4	41.1	40.4
160	41.7	43.0	42.7	45.9	42.9	42.3	43.0	44.4
200	47.2	44.3	38.9	40.1	37.4	35.6	34.9	31.4
240	29.9	30.3	30.1	33.5	33.5	32.9	30.2	32.6
280	31.3	35.1	34.8	34.5	34.2	32.7	34.2	33.9
320	33.7	34.2	31.6	31.7	31.3	29.8	28.2	27.6



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2306.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	26.0	25.6	26.0	26.3	26.6	26.9	25.6	27.0
40	26.4	27.4	27.2	27.2	26.3	27.0	27.0	27.5
80	27.3	26.6	26.6	26.6	27.2	27.2	33.5	34.9
120	34.6	33.5	33.5	33.5	34.3	33.9	35.3	38.9
160	38.7	38.8	39.6	39.6	43.6	39.9	38.6	39.5
200	45.0	43.4	45.8	40.0	38.6	32.1	27.8	26.4
240	27.3	29.8	28.9	27.5	26.9	27.6	26.7	26.9
280	33.1	33.1	31.4	32.2	31.2	30.2	31.8	31.8
320	30.1	30.5	29.7	29.5	29.5	27.9	27.9	25.4

DEPTH	2307.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	24.1	23.8	24.1	23.9	23.4	23.6	23.9	23.9
40	24.1	23.5	23.4	23.5	23.4	24.4	21.9	23.6
80	24.4	27.0	30.0	27.9	28.9	28.1	27.9	28.1
120	32.0	33.4	33.1	34.3	36.3	35.5	36.1	35.1
160	35.8	35.7	37.2	38.5	37.7	37.0	37.2	38.8
200	38.8	36.5	36.7	36.9	34.6	37.4	36.3	36.1
240	36.0	35.7	33.4	33.7	33.7	32.3	32.5	32.3
280	32.1	32.1	32.3	31.9	32.3	32.4	31.9	30.8
320	29.5	28.6	25.9	26.2	26.2	25.3	24.5	23.5

DEPTH	2310.1		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.5	20.6	20.5	20.9	20.0	20.1	20.4	20.6
40	20.6	20.6	20.9	20.7	20.0	23.3	22.6	23.5
80	23.5	25.4	25.0	23.8	24.1	24.6	25.3	32.7
120	33.3	32.9	31.6	33.2	34.6	34.1	33.2	33.8
160	30.9	32.4	32.4	32.0	32.9	34.8	34.5	34.5
200	34.3	33.1	33.6	33.2	30.2	30.2	30.1	29.9
240	28.7	28.1	28.3	28.6	28.3	29.4	24.8	24.3
280	23.8	24.1	22.7	23.7	24.2	24.2	21.9	21.6
320	21.2	20.4	20.9	20.4	20.1	20.4	19.8	20.3



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2311.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	17.8	17.8	18.1	17.8	17.9	17.9	16.5	19.1
40	18.1	18.2	18.1	18.2	17.8	18.1	17.9	18.1
80	17.9	18.2	18.1	19.0	19.1	18.2	18.4	18.1
120	28.3	28.1	29.2	30.4	29.9	30.4	28.9	29.5
160	29.4	28.3	28.5	27.9	28.3	26.2	25.6	31.6
200	29.1	29.8	30.3	28.8	29.1	29.2	28.0	27.7
240	28.2	28.2	26.7	25.2	25.3	23.5	21.9	19.0
280	19.2	20.0	19.7	19.7	18.7	19.1	18.5	19.5
320	19.0	18.7	18.5	18.1	18.1	17.9	17.3	17.8

DEPTH	2313.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.9	16.3	15.7	15.7	15.9	15.7	16.2	19.7
40	16.3	17.8	20.0	16.8	16.8	17.3	16.3	16.3
80	15.9	15.3	15.4	16.8	15.9	15.9	15.9	16.5
120	16.6	16.6	16.6	16.2	16.3	13.5	15.9	15.4
160	15.1	15.1	15.1	16.2	15.4	15.1	15.1	16.3
200	16.5	15.1	15.9	16.5	15.7	16.5	15.9	15.9
240	16.3	16.3	15.9	16.5	15.9	16.3	18.5	18.1
280	15.9	17.5	17.2	16.3	16.6	15.9	16.8	16.3
320	16.6	15.6	16.2	16.3	15.7	16.3	15.6	16.0

DEPTH	2315.7		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	13.3	12.2	12.9	13.9	13.4	13.8	14.4	14.4
40	14.4	14.3	13.9	14.1	14.2	14.2	14.2	13.9
80	14.0	14.1	13.9	13.7	13.2	13.4	13.4	13.7
120	14.2	14.0	13.6	13.6	13.6	13.8	13.8	13.8
160	14.0	14.4	14.9	14.5	14.9	13.7	14.2	14.7
200	14.1	13.7	14.2	14.1	14.0	13.6	13.7	13.7
240	13.7	14.0	13.9	14.0	14.4	14.6	14.6	14.3
280	14.7	14.3	14.2	14.2	14.3	14.6	14.0	13.2
320	13.9	13.8	13.4	13.5	13.6	13.4	13.4	13.4



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2317.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.3	10.2	10.4	10.4	10.5	10.3	10.4	10.5
40	10.5	10.7	10.5	10.7	10.8	10.4	10.7	10.9
80	10.2	10.6	10.3	10.7	10.3	10.7	10.6	10.7
120	10.2	10.1	10.2	10.4	9.3	9.5	8.4	8.7
160	8.7	8.8	8.8	9.0	9.0	9.1	9.4	9.4
200	9.5	9.4	9.5	9.5	9.6	9.6	9.1	9.3
240	9.6	10.6	10.6	10.4	10.8	10.4	10.3	10.2
280	10.5	10.5	10.5	10.2	11.2	10.1	10.2	10.4
320	10.3	10.8	10.2	10.2	10.1	10.1	10.1	10.1

DEPTH	2319.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2321.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	2323.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2326.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2327.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	2330.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2331.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2333.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2336.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2338.1		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2340.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



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WALL RANGES VS DEPTH

DEPTH	2341.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2344.1		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2346.1		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2348.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
120	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
160	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
200	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
240	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
280	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
320	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

DEPTH	2349.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	18.2	18.4	18.0	18.8	19.3	19.3	19.4	19.6
40	19.8	18.5	19.7	20.1	19.3	19.1	19.1	19.1
80	19.3	19.6	19.1	19.1	19.1	18.8	18.2	18.0
120	18.2	19.2	19.1	19.8	19.9	20.0	19.4	18.5
160	18.7	19.3	19.7	19.9	19.6	19.4	19.9	21.0
200	20.6	20.0	19.7	19.8	20.6	20.9	21.0	20.4
240	21.2	20.3	19.4	20.2	20.3	19.4	19.9	20.4
280	21.0	20.5	19.3	19.8	20.1	19.1	19.4	20.0
320	19.3	19.7	19.4	19.9	18.7	19.3	19.7	19.3

DEPTH	2352.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	34.5	30.7	31.0	30.1	30.1	30.0	28.0	28.2
40	27.6	27.6	26.0	25.7	24.3	24.3	24.1	21.5
80	20.8	20.9	20.5	19.2	19.2	19.4	18.4	18.3
120	18.6	18.1	19.0	18.8	18.4	18.4	17.7	17.8
160	19.0	18.9	18.9	19.0	18.5	19.0	18.8	18.8
200	19.0	19.4	19.5	19.4	18.9	18.7	19.1	18.6
240	18.3	19.3	21.1	20.8	20.8	21.1	21.4	22.2
280	22.2	23.0	25.7	26.2	27.1	28.7	28.9	29.9
320	31.7	31.8	36.3	35.1	35.2	35.7	36.7	36.2



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WALL RANGES VS DEPTH

DEPTH	2353.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.1	29.1	26.7	26.0	25.1	24.2	24.3	22.9
40	22.6	21.8	20.9	19.7	19.2	18.9	18.7	18.8
80	18.7	17.6	17.1	16.6	16.4	16.5	16.5	16.3
120	15.6	15.4	14.6	14.8	14.8	14.8	14.8	14.8
160	14.8	14.8	15.1	15.2	16.0	16.0	16.4	16.4
200	15.7	15.7	16.0	15.9	16.4	16.7	20.2	20.4
240	20.8	21.3	21.8	21.6	20.8	21.0	21.4	22.5
280	24.0	24.2	26.5	27.4	28.6	26.8	28.8	29.9
320	33.6	34.3	34.1	33.3	33.0	32.5	32.7	31.5

DEPTH	2355.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.1	20.7	18.7	18.6	18.6	17.6	17.3	16.7
40	15.2	14.0	13.9	13.0	12.0	11.7	12.0	12.3
80	12.1	11.7	11.7	12.2	11.9	11.8	11.7	11.7
120	12.1	11.7	12.3	12.3	12.7	13.5	13.4	12.9
160	13.6	13.4	14.5	15.4	16.5	16.9	16.9	16.9
200	16.9	16.9	17.5	18.2	18.2	18.2	18.2	19.2
240	18.2	18.9	19.4	17.9	18.7	20.8	25.7	28.4
280	28.3	28.5	28.3	28.9	28.2	27.5	27.4	26.0
320	27.3	26.7	27.0	26.9	25.9	23.2	20.9	20.1

DEPTH	2358.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.4	9.3	9.2	9.7	10.6	9.9	9.3	9.2
40	9.2	9.4	9.2	9.3	9.3	9.2	9.1	9.2
80	8.9	9.0	9.1	9.1	9.4	9.4	8.9	9.0
120	9.5	9.0	10.0	9.9	9.1	9.4	9.4	10.0
160	10.0	9.7	9.4	10.0	10.0	21.7	21.9	21.7
200	21.7	21.7	21.9	22.2	22.2	22.0	26.3	24.5
240	26.6	25.7	25.7	26.0	25.8	25.5	26.0	26.0
280	25.5	24.4	24.0	23.4	22.8	22.8	22.8	22.8
320	22.8	9.7	10.2	9.9	9.9	9.9	9.9	9.8



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WALL RANGES VS DEPTH

DEPTH	2360.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	6.5	6.4	6.4	6.7	7.3	6.8	6.4	6.4
40	6.4	6.5	6.4	6.4	6.4	6.4	6.3	6.4
80	6.2	6.2	6.3	6.3	6.5	6.5	6.2	6.2
120	6.6	6.2	6.9	6.8	6.3	6.5	6.5	6.9
160	6.9	6.7	6.5	6.9	6.9	26.1	26.6	26.2
200	26.2	26.1	26.1	26.0	26.0	25.5	25.1	24.7
240	24.8	25.2	26.2	24.2	24.1	23.7	21.4	21.7
280	20.8	20.4	20.8	20.4	21.5	20.2	21.4	24.1
320	22.3	23.0	22.4	22.2	6.8	6.8	6.8	6.7

DEPTH	2363.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
160	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
200	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
240	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
280	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
320	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH	2365.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
160	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
200	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
240	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
280	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
320	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6



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WALL RANGES VS DEPTH

DEPTH	2367.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
160	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
200	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
240	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
280	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
320	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH	2369.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
160	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
200	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
240	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
280	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
320	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

DEPTH	2374.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
120	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
160	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
200	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.1
240	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
280	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
320	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6



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WALL RANGES VS DEPTH

DEPTH	2379.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2383.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
40	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
120	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
160	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
200	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
240	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
280	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

DEPTH	2387.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	16.3	11.9	11.9	12.0	12.1	15.6	15.7	13.7
40	12.7	12.8	13.7	13.5	13.0	13.7	13.4	13.4
80	13.0	13.1	13.5	13.4	13.3	13.7	23.9	23.8
120	23.7	25.7	27.9	33.7	35.7	35.9	38.2	38.2
160	38.0	39.7	40.6	40.5	45.4	45.4	45.6	45.5
200	42.2	42.3	46.8	46.9	47.2	45.8	32.8	28.7
240	26.1	23.6	21.4	21.3	19.3	19.0	18.3	17.9
280	17.7	17.4	16.8	14.0	13.4	13.1	12.1	14.7
320	14.6	15.0	14.6	14.6	16.0	16.0	16.4	16.4



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WALL RANGES VS DEPTH

DEPTH	2389.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.5	11.6	13.7	14.1	13.0	12.7	14.1	12.3
40	12.0	12.8	13.1	12.2	11.6	11.9	12.2	12.2
80	11.7	11.5	12.7	13.1	11.7	13.0	24.4	24.4
120	24.0	24.9	25.5	37.0	36.5	36.7	37.1	37.3
160	37.1	38.3	37.5	37.5	43.6	43.5	46.4	43.6
200	40.5	40.6	44.2	44.2	44.9	43.7	31.4	27.2
240	24.7	22.3	20.1	20.1	19.1	18.9	17.7	17.5
280	17.5	17.5	17.4	17.2	16.8	17.0	16.7	16.7
320	15.8	15.8	14.1	14.1	16.0	16.0	18.9	16.2

DEPTH	2394.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	26.1	27.0	31.7	31.9	32.6	37.1	37.2	38.9
40	39.1	41.4	42.9	43.0	43.0	42.6	41.9	42.4
80	42.4	41.6	40.8	40.4	45.7	47.5	47.8	47.2
120	50.2	50.3	47.0	50.0	51.8	50.9	50.0	48.8
160	43.4	44.2	44.2	44.5	44.8	45.5	43.1	43.1
200	43.3	53.1	50.4	50.5	50.0	44.1	44.0	41.3
240	38.5	37.0	35.6	33.6	30.6	30.0	29.3	28.4
280	27.5	27.5	29.1	28.8	28.1	26.3	21.9	21.9
320	20.1	19.5	16.9	15.3	15.3	20.1	21.9	22.8

DEPTH	2396.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.9	27.9	30.1	30.5	31.4	33.3	33.2	39.2
40	39.9	40.6	42.7	43.0	42.9	42.1	42.4	41.1
80	40.2	40.8	40.4	47.1	46.5	48.4	50.5	50.4
120	53.5	56.1	52.7	53.0	53.0	54.3	49.1	50.0
160	43.8	43.3	43.2	43.0	43.1	43.8	42.1	42.8
200	42.7	53.5	53.9	53.6	53.5	43.4	42.7	42.4
240	42.7	42.8	41.6	41.6	42.7	41.2	42.8	42.7
280	42.1	42.1	38.3	36.8	37.0	35.4	33.8	33.8
320	32.2	32.7	31.3	31.4	30.3	30.5	31.7	31.3



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WALL RANGES VS DEPTH

DEPTH	2398.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	36.8	36.9	39.3	38.9	39.6	39.2	38.8	40.0
40	41.9	43.1	42.6	42.4	42.1	42.4	42.4	42.6
80	44.9	47.7	48.3	48.6	48.3	48.9	52.0	53.7
120	55.2	57.3	57.1	59.2	60.4	62.2	63.5	63.5
160	52.4	45.9	43.0	41.9	41.9	42.7	42.7	43.3
200	51.9	53.9	55.3	57.0	57.0	50.7	44.6	42.7
240	42.7	49.2	42.8	43.0	42.2	41.9	42.8	42.6
280	42.6	42.6	40.4	40.2	38.3	39.1	39.0	39.0
320	39.8	37.6	36.3	37.0	36.9	37.5	37.5	37.0

DEPTH	2400.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.4	39.5	39.4	39.7	38.7	40.4	39.1	40.2
40	41.2	42.2	43.9	43.8	43.1	45.5	45.0	45.0
80	46.4	44.2	44.4	46.1	45.6	45.8	50.3	52.5
120	54.0	57.3	58.6	60.2	61.3	61.6	62.7	63.2
160	63.2	63.1	62.4	61.6	60.5	58.7	59.0	55.6
200	55.0	54.1	56.5	56.7	56.5	55.2	53.8	52.9
240	51.2	51.1	40.1	38.9	40.0	39.9	39.3	40.1
280	41.2	40.4	40.5	38.7	38.7	39.2	38.4	37.4
320	37.3	38.3	38.7	38.5	38.7	38.0	37.9	39.9

DEPTH	2403.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	34.5	34.0	34.0	34.0	34.0	34.0	34.0	35.4
40	35.9	36.4	36.6	37.3	38.5	38.5	38.5	38.5
80	39.8	40.0	39.2	39.3	39.5	39.5	41.1	45.7
120	46.1	51.9	55.0	57.1	58.4	58.5	59.8	60.0
160	59.9	59.2	57.4	56.1	55.0	57.1	57.4	57.1
200	57.2	51.0	51.2	51.3	51.0	50.4	49.4	47.7
240	46.2	46.4	44.3	42.0	38.0	39.3	38.8	35.5
280	35.1	35.6	35.6	34.8	34.9	32.1	32.0	32.2
320	32.3	32.5	33.0	32.5	33.0	33.0	33.9	34.5



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WALL RANGES VS DEPTH

DEPTH	2406.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	32.4	30.0	30.0	31.0	30.1	30.5	30.3	30.7
40	30.6	30.5	30.9	30.6	35.6	35.9	35.9	36.1
80	37.2	37.0	36.9	37.1	37.8	38.5	39.0	40.4
120	41.6	46.3	51.7	54.3	55.5	55.7	57.1	57.0
160	56.7	55.8	54.4	53.4	52.8	55.9	55.6	54.6
200	54.7	47.5	47.8	47.9	48.3	46.8	46.3	44.7
240	42.9	46.7	46.5	39.6	39.9	39.6	38.3	37.6
280	31.4	30.0	29.8	29.6	29.9	29.1	28.6	29.0
320	28.8	28.6	28.4	29.0	29.8	30.3	31.2	31.4

DEPTH	2408.1		TILT	84		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.6	23.6	23.8	23.8	23.8	23.8	23.8	23.8
40	23.8	23.8	24.0	24.0	24.0	24.0	24.2	24.2
80	24.2	24.2	24.2	24.2	24.2	24.0	24.0	24.2
120	24.2	24.0	24.2	24.2	24.2	24.2	24.2	24.0
160	24.0	24.0	24.2	24.2	24.0	23.8	23.8	23.6
200	23.8	23.8	23.6	23.6	23.6	23.6	23.6	23.6
240	23.6	23.4	23.4	23.4	23.4	23.4	23.2	23.2
280	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
320	23.2	23.2	23.2	23.2	23.4	23.4	23.6	23.6

DEPTH	2408.1		TILT	80		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8
40	24.0	24.0	24.2	24.2	24.2	24.2	24.2	24.4
80	24.4	24.5	24.5	24.4	24.4	24.4	24.4	24.4
120	24.4	24.4	24.2	24.2	24.2	24.4	24.2	24.2
160	24.2	24.2	24.4	24.4	24.2	24.0	24.0	24.0
200	23.8	23.8	23.8	23.8	23.6	23.6	23.6	23.6
240	23.6	23.6	23.4	23.4	23.4	23.4	23.4	23.4
280	23.4	23.4	23.4	23.4	23.2	23.2	23.2	23.2
320	23.2	23.2	23.2	23.4	23.4	23.4	23.6	23.8



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	75		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.8	24.0	24.0	24.2	24.2	24.2	24.4	24.4
40	24.5	24.5	24.4	24.7	24.7	24.5	24.7	24.9
80	24.9	24.9	24.9	24.9	24.9	24.7	24.7	24.7
120	24.7	24.5	24.7	25.1	25.1	25.1	25.1	25.1
160	25.1	24.9	24.7	24.7	24.9	24.5	24.5	24.5
200	24.4	24.4	24.2	24.2	24.0	24.0	24.2	23.8
240	23.8	23.8	23.8	23.8	23.6	23.6	23.4	23.4
280	23.4	23.4	23.4	23.2	23.2	23.2	23.0	23.2
320	23.2	23.2	23.2	23.2	23.4	23.4	23.6	23.6

DEPTH	2408.1		TILT	70		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.6	23.6	23.4	24.0	24.0	24.0	24.2	24.4
40	25.1	25.1	25.5	25.5	25.5	25.3	25.5	25.5
80	25.5	25.7	25.9	25.9	25.9	25.9	25.9	25.5
120	25.5	26.1	26.1	25.9	25.9	25.9	25.9	25.9
160	25.9	25.9	25.7	25.7	25.5	25.1	25.1	25.1
200	24.7	24.7	24.5	24.5	24.5	24.4	24.4	24.4
240	24.2	24.2	24.0	24.0	24.0	24.0	23.8	23.6
280	23.6	23.4	23.2	23.2	23.0	23.0	23.0	23.0
320	23.0	23.0	23.0	23.4	23.4	23.4	23.6	23.6

DEPTH	2408.1		TILT	65		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.4	23.2	23.2	23.2	23.4	23.6	24.2	24.4
40	24.9	25.3	25.9	26.1	26.5	26.1	26.1	26.9
80	26.9	26.9	26.9	27.1	27.1	27.1	27.1	27.3
120	27.1	27.1	27.3	27.3	26.9	27.3	27.1	26.9
160	26.9	26.7	26.9	26.9	26.7	26.7	26.7	26.3
200	26.3	25.9	25.9	25.9	25.7	25.7	25.1	25.1
240	25.3	24.7	25.1	25.1	24.7	24.9	25.1	24.0
280	24.0	23.8	23.6	23.4	23.2	23.0	23.0	23.0
320	23.0	23.0	23.0	23.2	23.4	23.6	23.6	23.6



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	60		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.6	23.2	23.2	23.2	23.4	23.8	24.2	24.4
40	25.3	25.9	26.9	26.9	27.1	27.7	27.5	27.6
80	27.7	28.8	29.2	29.2	28.8	28.4	28.4	28.4
120	28.6	28.6	29.0	28.2	28.4	28.0	28.0	28.0
160	27.9	27.9	28.8	28.4	27.9	27.7	27.1	27.1
200	27.5	27.5	27.3	27.1	26.9	26.7	26.7	26.7
240	26.7	26.3	26.1	25.9	25.9	25.7	25.7	25.1
280	24.9	24.5	24.0	23.8	23.6	23.4	23.2	23.2
320	23.2	23.2	23.2	23.8	23.8	23.8	24.0	24.0

DEPTH	2408.1		TILT	55		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	25.1	20.9	20.9	20.7	20.7	20.7	20.7	20.5
40	20.3	20.3	20.7	21.0	21.2	21.2	21.8	21.8
80	21.8	22.2	22.0	21.8	30.6	30.6	31.4	30.6
120	30.4	31.2	31.5	30.4	30.0	29.8	31.0	30.8
160	29.4	29.4	29.4	29.2	29.2	29.0	29.4	29.4
200	29.2	29.2	28.8	28.8	28.6	28.4	28.0	28.0
240	28.2	28.2	27.7	27.5	27.1	26.7	26.5	25.7
280	25.7	25.3	25.1	24.4	24.2	24.2	23.6	24.5
320	24.7	25.1	25.3	25.5	25.3	24.5	25.2	25.1

DEPTH	2408.1		TILT	50		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.1	19.9	20.3	20.5	20.7	20.7	20.7	20.7
40	20.7	21.4	22.0	22.0	22.0	22.0	22.0	22.4
80	22.6	23.0	23.0	23.0	23.0	23.4	33.7	33.5
120	32.5	32.5	32.1	33.9	33.7	31.7	31.5	31.4
160	31.4	31.5	32.9	31.4	32.7	32.5	31.0	31.0
200	31.2	30.8	30.8	30.6	30.8	30.6	30.6	30.4
240	30.0	29.8	29.4	29.4	30.0	29.2	29.0	28.0
280	27.3	26.7	26.1	25.9	25.3	25.1	25.5	25.5
320	24.2	24.2	20.5	20.3	19.7	19.9	20.1	20.1



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	45		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.5	21.8	21.8	22.1	21.1	21.9	22.1	22.1
40	22.1	22.3	22.7	22.7	23.0	23.0	23.2	24.3
80	24.3	24.3	25.5	25.5	25.5	27.6	36.6	36.6
120	34.9	34.9	34.7	34.5	34.5	34.5	34.3	33.9
160	33.9	33.5	33.5	33.5	33.5	33.7	33.3	33.3
200	33.3	33.1	33.1	33.3	33.7	33.7	33.5	33.5
240	32.7	32.9	32.9	32.3	26.9	26.5	24.4	24.0
280	24.4	24.5	24.5	24.2	24.0	24.4	23.4	23.4
320	21.6	21.8	21.8	20.7	20.3	20.3	20.5	20.5

DEPTH	2408.1		TILT	42		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	22.4	22.4	22.4	22.4	22.6	22.6	22.6	22.0
40	22.6	22.6	22.6	23.2	23.4	23.6	24.0	24.7
80	24.9	25.1	25.9	26.5	26.9	28.1	34.0	32.7
120	32.1	36.6	36.6	36.6	36.4	36.2	36.2	35.8
160	35.8	35.8	35.6	35.4	35.0	35.4	35.6	36.4
200	36.4	35.4	35.2	35.2	34.9	36.4	35.0	35.2
240	34.9	34.3	26.1	26.1	25.1	24.7	24.4	24.0
280	24.0	24.2	24.2	24.2	24.2	24.2	24.0	24.0
320	21.6	21.6	21.6	20.5	20.7	21.6	21.8	22.2

DEPTH	2408.1		TILT	39		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.4	24.0	24.0	24.2	24.2	24.4	24.4	24.2
40	24.5	24.5	24.2	24.5	24.7	24.5	24.5	24.9
80	26.7	27.1	27.3	27.3	28.1	28.3	30.2	30.2
120	30.1	33.2	40.9	38.7	38.7	38.4	38.2	38.4
160	38.4	37.6	37.4	37.2	37.4	36.8	36.8	37.0
200	36.6	37.0	37.0	36.8	38.2	38.4	37.4	36.2
240	35.8	27.7	27.1	26.3	25.5	25.5	25.5	24.7
280	24.2	24.9	25.3	25.3	25.5	25.5	24.2	24.2
320	23.6	22.6	21.8	20.7	22.0	22.8	23.0	23.2



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	36		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	24.7	25.3	25.7	25.7	25.7	25.7	26.5	26.5
40	26.5	25.7	25.7	26.1	26.1	26.1	26.3	26.3
80	26.7	27.5	28.2	28.6	29.6	30.2	30.4	30.4
120	29.8	30.4	40.9	40.9	40.9	40.7	40.7	40.7
160	40.3	40.3	40.3	39.5	39.9	39.7	38.9	39.5
200	39.5	39.5	38.9	39.7	39.7	39.7	38.7	37.0
240	29.2	27.3	26.9	26.7	27.3	27.3	27.3	26.9
280	27.0	26.3	26.3	26.3	26.3	25.9	24.9	24.9
320	24.0	23.8	23.6	23.0	23.4	24.0	24.5	24.5

DEPTH	2408.1		TILT	33		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	26.5	26.9	27.5	27.5	27.5	27.3	27.7	28.4
40	28.4	28.4	27.7	28.6	28.4	28.0	27.3	27.9
80	28.2	29.0	29.2	30.0	31.5	31.5	31.7	31.9
120	31.5	31.5	31.7	41.1	40.7	40.7	44.2	43.9
160	42.8	43.5	43.4	43.0	42.8	44.0	43.4	42.8
200	42.4	41.7	41.9	42.0	42.0	41.9	40.9	30.6
240	29.2	28.6	28.4	28.8	28.6	28.6	29.0	28.6
280	28.0	28.2	28.0	27.5	27.1	27.1	25.7	25.7
320	25.1	25.1	25.3	25.3	25.1	25.1	25.7	26.5

DEPTH	2408.1		TILT	30		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	28.2	29.0	29.0	29.0	29.2	29.6	30.2	30.6
40	31.0	30.4	30.2	30.4	30.2	30.6	29.0	31.4
80	29.8	30.6	31.4	31.5	31.9	34.3	34.9	34.9
120	34.9	33.9	33.7	38.4	40.9	41.1	49.4	49.4
160	47.3	46.5	46.3	46.3	45.9	46.8	47.4	45.5
200	45.7	45.0	44.8	45.0	44.6	44.4	35.6	30.8
240	30.2	30.0	30.2	31.0	31.2	30.6	30.8	30.8
280	30.2	30.0	29.2	29.3	29.8	28.6	27.1	27.1
320	26.7	26.9	26.9	27.1	27.3	27.3	27.1	27.3



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	27		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.6	30.6	32.1	32.3	32.3	32.5	33.5	33.5
40	34.3	33.5	33.9	34.7	33.7	33.7	33.7	33.7
80	33.9	33.5	33.3	34.1	34.1	36.2	37.4	38.4
120	38.9	36.2	40.5	40.5	40.5	40.7	40.9	40.9
160	41.1	50.8	51.4	50.2	50.2	49.2	49.4	49.4
200	49.6	49.8	49.6	49.2	48.7	49.8	35.0	33.1
240	33.1	34.1	34.7	33.7	33.7	33.1	32.3	31.4
280	30.8	30.8	31.4	31.4	31.2	30.4	29.4	29.0
320	29.8	29.8	30.8	29.8	28.6	29.4	30.0	30.0

DEPTH	2408.1		TILT	24		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	34.3	30.2	34.7	34.9	36.0	36.2	36.2	35.8
40	36.8	36.8	36.8	38.4	37.8	37.2	36.8	37.0
80	37.2	38.7	38.7	38.2	37.8	37.6	38.9	40.3
120	41.7	40.3	44.8	43.8	42.6	41.9	42.4	42.8
160	41.7	41.7	41.5	42.4	50.2	49.6	49.8	49.8
200	43.6	43.8	53.7	54.1	53.9	50.4	37.8	37.8
240	36.0	36.4	37.4	36.0	33.5	32.9	32.3	32.3
280	31.0	32.1	33.5	33.1	32.1	31.7	33.5	33.7
320	32.5	32.7	32.7	32.2	31.6	31.4	32.5	32.5

DEPTH	2408.1		TILT	24		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	34.3	30.2	34.7	34.9	36.0	36.2	36.2	35.8
40	36.8	36.8	36.8	38.4	37.8	37.2	36.8	37.0
80	37.2	38.7	38.7	38.2	37.8	37.6	38.9	40.3
120	41.7	40.3	44.8	43.8	42.6	41.9	42.4	42.8
160	41.7	41.7	41.5	42.4	48.9	49.6	49.8	49.8
200	43.6	43.8	53.7	54.1	53.9	50.4	37.8	37.8
240	36.0	36.4	37.4	36.0	33.5	32.9	32.3	32.3
280	31.0	32.1	33.5	33.1	32.1	31.7	33.5	33.7
320	32.5	32.7	32.7	32.2	31.6	31.4	32.5	32.5



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	21		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	33.0	30.4	31.5	32.1	33.5	41.1	41.5	41.5
40	41.3	43.2	42.6	44.6	43.5	44.1	44.2	43.9
80	43.9	43.8	43.8	43.9	45.3	44.5	43.2	45.6
120	44.4	45.4	46.7	46.7	46.1	46.7	46.3	45.7
160	45.5	45.5	45.2	45.0	45.0	45.5	49.8	49.4
200	49.4	47.0	45.7	45.7	45.4	42.1	43.8	41.6
240	40.3	39.3	37.7	36.6	35.8	35.6	35.2	34.9
280	35.4	35.6	35.2	36.6	36.6	36.0	35.0	35.0
320	34.0	34.3	33.4	33.5	33.4	33.5	33.7	33.4

DEPTH	2408.1		TILT	18		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	33.3	35.2	36.6	36.4	37.8	38.2	38.2	40.9
40	41.7	43.8	45.2	45.2	45.2	44.8	44.0	44.3
80	44.0	43.4	42.6	43.7	47.8	51.6	52.2	48.7
120	48.7	48.5	48.7	50.0	49.6	48.1	47.5	46.1
160	45.5	46.5	46.5	47.1	47.7	48.7	45.2	45.2
200	45.4	50.9	49.8	50.1	50.0	46.4	46.2	44.2
240	42.2	41.3	40.9	40.4	40.2	39.9	39.9	40.7
280	40.7	41.1	39.2	38.7	38.8	37.8	36.6	36.6
320	37.4	36.4	36.2	38.5	38.2	39.3	39.3	32.7

DEPTH	2408.1		TILT	15		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	38.2	38.4	40.6	40.0	41.3	40.2	40.0	40.9
40	43.0	43.6	43.6	44.0	43.8	42.6	42.4	42.2
80	42.6	44.0	45.2	48.1	47.6	48.3	49.5	50.2
120	52.4	52.5	50.5	52.3	53.7	53.0	51.3	50.9
160	45.1	44.7	44.3	44.0	44.0	43.8	43.7	44.3
200	44.6	54.9	52.4	52.4	52.0	44.7	44.2	43.9
240	44.1	45.3	43.4	43.5	43.9	42.9	44.3	44.1
280	43.7	43.7	41.0	40.6	39.4	39.8	39.5	39.5
320	40.1	38.8	37.8	38.3	38.2	38.7	38.7	38.3



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	12		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.5	40.5	40.3	40.4	39.6	40.9	39.9	41.9
40	43.0	44.6	44.8	46.1	46.1	46.9	46.9	47.1
80	47.3	49.0	50.2	50.2	49.8	50.8	52.5	55.7
120	56.0	57.6	55.5	55.3	54.3	56.2	58.0	51.9
160	50.4	47.5	43.8	43.0	43.2	50.4	45.5	45.2
200	50.6	54.7	55.9	55.7	55.7	48.9	47.0	46.3
240	45.8	49.8	41.8	40.4	41.5	41.3	40.9	42.8
280	42.6	41.7	41.3	39.7	39.5	40.0	39.3	37.9
320	37.9	39.1	39.3	39.2	39.4	38.7	38.6	40.2

DEPTH	2408.1		TILT	9		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	38.0	37.8	36.4	37.0	36.8	37.0	37.6	38.0
40	39.1	39.1	40.3	42.0	42.0	41.7	41.9	41.9
80	43.4	44.4	44.4	45.4	44.6	44.6	50.8	53.5
120	56.0	58.4	59.2	61.3	62.5	63.0	64.2	64.2
160	64.2	64.0	63.6	63.6	63.0	60.5	60.1	55.2
200	54.9	54.7	58.0	58.4	58.8	56.4	54.9	53.9
240	51.8	51.8	42.1	42.0	44.4	41.7	39.3	38.7
280	38.2	36.4	35.8	35.6	35.2	34.1	34.1	34.5
320	34.7	34.3	33.9	33.9	35.4	35.8	37.0	37.6

DEPTH	2408.1		TILT	6		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	33.7	33.3	33.1	32.9	33.1	33.3	33.7	35.0
40	35.4	36.2	36.2	37.0	38.5	38.5	38.5	38.5
80	40.1	40.3	39.3	39.5	39.7	39.7	41.5	48.3
120	48.3	56.8	59.2	59.9	61.1	61.3	62.5	63.2
160	63.2	63.2	62.3	60.7	58.8	57.4	58.6	58.0
200	58.2	54.5	54.7	54.7	53.3	53.5	51.8	49.6
240	47.9	46.3	43.8	42.6	37.8	39.4	39.0	36.1
280	34.3	33.1	32.5	32.1	31.9	31.2	30.8	31.0
320	31.2	30.8	30.4	30.6	31.7	32.5	33.3	33.7



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	3		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	32.1	29.2	29.3	30.1	29.8	29.9	29.7	29.9
40	30.1	29.9	30.3	30.2	35.2	35.6	35.6	35.8
80	37.0	36.8	36.8	37.0	37.8	38.5	38.9	40.5
120	42.0	47.7	52.5	55.7	57.2	57.3	58.8	58.8
160	58.7	57.6	55.1	53.5	52.7	57.4	57.0	56.6
200	56.8	47.7	48.1	48.3	48.9	47.3	46.7	44.8
240	43.0	47.3	47.1	39.7	39.9	39.6	38.3	37.6
280	30.6	28.8	28.6	28.4	29.0	28.0	27.5	28.0
320	27.7	27.5	27.3	28.2	29.0	29.4	30.6	30.7

DEPTH	2408.1		TILT	3		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	32.1	29.2	29.3	30.1	29.8	29.9	29.7	29.9
40	30.1	29.9	30.3	30.2	35.2	35.6	35.6	35.8
80	37.0	36.8	36.8	37.0	37.8	38.5	38.9	40.5
120	42.0	47.7	52.5	55.7	57.2	57.3	58.8	58.8
160	58.7	57.6	55.1	53.5	52.7	57.2	57.0	56.8
200	56.8	47.7	48.1	48.3	48.9	47.3	46.7	44.8
240	43.0	47.3	47.1	39.7	39.9	39.6	38.3	37.6
280	30.6	28.8	28.6	28.4	29.0	28.0	27.5	28.0
320	27.7	27.5	27.3	28.2	29.0	29.4	30.6	30.7

DEPTH	2408.1		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	26.7	27.1	27.3	27.3	29.0	28.0	27.9	27.7
40	28.4	28.2	28.4	28.8	29.8	30.2	30.2	31.0
80	32.1	33.5	33.3	33.1	33.9	34.3	33.3	33.9
120	34.3	39.4	49.5	51.0	51.7	52.2	53.6	53.3
160	52.6	52.0	52.9	53.3	53.3	52.7	52.4	49.8
200	49.8	46.7	46.9	46.5	46.3	44.4	44.4	44.6
240	41.5	43.8	43.6	42.0	42.0	38.7	37.4	36.6
280	26.7	25.5	25.2	25.0	25.4	24.6	24.3	24.6
320	24.6	26.1	25.7	25.5	25.7	25.5	25.3	26.1



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	-6		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.7	23.7	23.9	24.3	24.3	24.3	24.1	23.9
40	24.5	24.7	25.3	26.8	27.8	27.8	27.8	28.2
80	28.2	28.2	28.8	29.2	29.2	29.7	30.1	31.7
120	30.7	32.6	43.9	42.4	43.9	44.1	45.9	49.2
160	43.8	42.6	43.3	37.1	37.9	38.5	38.4	39.2
200	39.1	35.5	37.8	40.3	40.3	39.7	36.0	34.2
240	30.5	29.7	25.1	24.3	23.9	23.9	22.0	21.8
280	21.4	20.8	20.4	20.2	20.4	19.8	19.8	19.8
320	20.2	20.4	20.4	21.2	21.8	21.8	22.7	23.3

DEPTH	2408.1		TILT	-6		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.7	23.7	23.9	24.3	24.3	24.3	24.1	23.9
40	24.5	24.9	25.3	26.8	27.8	27.8	27.8	28.2
80	28.2	28.2	28.8	29.2	29.2	29.7	30.1	31.7
120	30.7	32.6	43.9	42.4	43.9	44.1	45.9	49.2
160	43.8	42.6	43.3	37.1	37.9	38.5	38.4	39.2
200	39.1	35.5	37.8	40.3	40.3	39.7	36.0	34.2
240	30.5	29.7	25.1	24.3	23.9	23.9	22.0	21.8
280	21.4	20.8	20.4	20.2	20.4	19.8	19.8	19.8
320	20.2	20.4	20.4	21.2	21.8	21.8	22.7	23.3

DEPTH	2408.1		TILT	-10		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.9	20.6	24.1	24.5	24.5	24.3	23.5	23.9
40	24.1	24.3	25.1	26.1	25.6	26.8	27.2	27.4
80	26.2	26.1	26.4	27.2	27.1	27.8	28.2	28.2
120	39.8	41.9	41.1	41.3	42.4	42.9	43.3	45.5
160	40.0	36.2	36.2	35.6	35.0	34.6	34.2	33.8
200	33.6	35.2	35.6	34.7	36.2	38.2	36.3	28.1
240	26.7	26.4	24.1	23.3	22.6	22.4	21.4	20.8
280	20.6	19.8	19.6	19.4	19.4	19.2	19.1	19.2
320	19.2	19.2	19.8	20.2	21.2	21.6	22.6	23.3



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	-15		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	25.3	18.3	23.5	30.3	27.6	25.5	26.1	25.7
40	25.9	26.0	23.4	24.8	26.7	27.0	26.8	24.7
80	24.3	24.1	24.5	24.3	24.7	24.5	25.1	25.0
120	36.3	52.5	51.6	51.8	40.1	40.3	42.2	42.4
160	36.4	33.8	34.2	34.4	32.5	38.1	29.9	30.1
200	31.1	31.7	31.7	32.3	32.8	36.2	28.9	23.0
240	23.2	23.2	23.1	23.1	22.4	20.6	22.0	18.9
280	18.3	18.1	18.3	18.5	18.5	18.5	18.7	18.7
320	18.5	19.1	19.2	21.2	21.6	23.1	24.3	24.7

DEPTH	2408.1		TILT	-20		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.6	16.8	21.8	26.8	24.1	24.3	24.5	24.7
40	25.7	26.2	24.8	29.3	25.5	25.5	24.3	23.3
80	22.7	22.7	22.7	22.4	22.9	23.3	23.5	22.8
120	54.7	54.5	54.3	54.4	58.6	59.8	54.9	55.3
160	33.1	32.1	32.9	32.9	31.6	63.6	64.5	65.5
200	66.4	67.5	69.7	67.2	68.7	37.3	33.1	21.5
240	21.6	21.2	20.2	19.8	19.1	18.7	18.1	18.1
280	17.7	17.3	17.1	16.9	16.9	17.1	16.5	17.3
320	17.7	17.7	18.3	18.5	20.2	20.8	22.0	22.7

DEPTH	2408.1		TILT	-25		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	22.4	15.7	20.4	44.3	23.1	23.1	23.5	23.7
40	42.1	41.2	40.6	41.2	42.0	42.8	23.1	22.2
80	21.8	21.0	20.6	20.8	22.4	23.3	23.3	21.2
120	53.6	54.8	55.7	55.8	54.7	58.7	58.2	62.7
160	59.7	59.0	58.4	59.6	66.3	60.4	66.6	67.2
200	62.8	65.4	64.7	65.0	65.7	23.1	22.1	29.4
240	20.2	19.4	18.7	18.7	18.1	17.7	17.5	16.7
280	16.3	16.1	15.7	16.1	16.1	15.9	15.6	15.6
320	15.7	15.9	16.3	16.7	17.7	19.1	20.2	21.2



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	-30		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.6	15.0	19.4	42.6	41.8	41.2	41.2	40.2
40	39.5	39.1	39.3	41.2	41.8	41.8	42.8	43.2
80	45.4	46.6	20.2	20.4	21.4	22.0	22.0	50.5
120	51.1	51.1	51.1	51.1	51.1	61.8	61.7	63.4
160	60.7	64.8	68.4	73.7	73.9	73.0	74.3	68.4
200	68.7	66.2	64.9	64.8	64.2	22.2	22.2	20.5
240	19.1	18.5	18.3	17.3	17.1	16.9	16.3	16.1
280	15.6	15.6	15.4	15.2	15.2	15.2	15.2	15.2
320	15.4	15.4	15.7	16.1	16.9	18.1	18.7	19.6

DEPTH	2408.1		TILT	-35		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	19.8	41.0	41.0	40.4	40.2	40.0	39.3	38.5
40	38.1	37.7	37.9	38.7	39.9	40.4	41.2	42.2
80	42.1	44.3	44.7	44.9	44.9	46.9	46.9	46.9
120	49.4	49.4	48.2	48.2	50.0	51.8	54.3	53.3
160	50.5	51.4	70.0	69.6	71.2	71.0	70.8	69.6
200	70.8	69.4	67.8	61.7	61.1	18.9	18.7	18.7
240	18.1	17.5	16.9	16.5	16.5	16.1	15.7	15.2
280	15.0	15.0	14.6	14.6	14.2	14.2	14.2	14.2
320	14.6	14.8	15.0	15.2	15.9	16.7	17.5	18.9

DEPTH	2408.1		TILT	-40		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	16.9	39.2	39.3	39.7	39.1	37.8	37.9	37.5
40	36.7	36.2	36.7	37.1	36.3	37.5	38.9	39.4
80	39.9	41.3	41.8	41.2	44.5	44.5	46.1	47.0
120	47.4	47.0	48.4	48.0	48.2	47.0	47.0	45.1
160	44.5	43.7	61.6	61.0	61.0	61.4	61.4	62.4
200	64.9	60.4	58.4	57.9	55.2	51.5	55.2	17.5
240	17.3	16.5	15.9	15.9	15.7	15.4	15.0	15.0
280	14.6	14.2	13.8	13.6	13.4	13.4	13.6	14.0
320	14.4	14.2	14.4	15.0	15.4	15.9	16.3	17.3



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	-50		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	36.5	38.9	38.7	39.0	37.3	36.4	35.5	35.5
40	36.0	36.0	38.3	39.6	38.1	38.3	36.9	37.1
80	37.2	37.0	37.1	37.3	37.4	38.3	39.5	37.8
120	38.5	37.4	37.5	37.8	38.4	37.0	37.7	37.6
160	38.7	39.7	39.7	39.7	41.2	52.1	54.6	55.2
200	54.0	46.7	45.3	45.3	41.0	41.4	46.5	46.7
240	48.4	49.2	48.4	15.4	15.0	14.2	14.0	13.8
280	13.8	13.8	13.8	13.4	13.0	13.2	12.8	13.0
320	13.0	13.4	14.0	14.0	14.0	13.6	13.5	37.0

DEPTH	2408.1		TILT	-55		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	34.1	37.1	38.3	38.3	38.5	35.8	35.8	36.0
40	36.2	36.9	37.1	38.5	37.0	36.2	36.0	33.4
80	33.2	32.7	32.7	34.8	35.7	35.9	37.9	34.2
120	34.8	34.8	34.6	34.8	35.2	32.9	35.2	35.4
160	35.4	36.9	37.1	41.0	41.0	41.6	41.8	45.1
200	45.1	44.3	40.6	39.7	39.5	39.5	39.3	39.3
240	39.9	45.5	45.9	44.0	43.7	14.2	13.6	13.8
280	13.8	13.8	13.7	13.5	13.4	38.9	12.6	12.6
320	12.8	13.0	13.5	36.9	36.9	35.8	34.8	35.0

DEPTH	2408.1		TILT	-45		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.0	38.9	38.9	39.2	36.8	36.5	35.2	34.7
40	36.2	36.3	34.9	37.1	38.5	38.5	38.4	39.5
80	39.9	40.2	39.6	39.7	40.3	40.7	41.9	41.8
120	43.6	41.5	41.3	42.2	44.3	45.1	46.3	41.0
160	40.2	41.8	41.0	41.0	41.0	57.4	57.4	57.2
200	58.5	50.4	49.3	49.5	47.6	46.9	48.4	48.5
240	48.9	16.1	15.6	15.4	15.2	14.8	14.4	14.2
280	14.2	14.2	14.0	13.8	13.0	13.0	13.0	13.2
320	13.6	13.6	14.2	14.4	14.6	14.6	14.7	15.6



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WALL RANGES VS DEPTH

DEPTH	2408.1		TILT	-60		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	32.4	34.1	33.9	34.0	34.3	35.0	33.6	33.6
40	33.4	33.4	34.9	35.2	35.8	35.8	31.9	31.0
80	31.1	31.5	31.6	31.3	31.5	31.1	30.9	31.9
120	33.1	33.6	33.4	32.7	32.5	32.5	32.5	33.6
160	33.6	34.2	36.4	36.4	36.4	37.1	36.1	36.9
200	38.1	41.5	42.0	39.6	38.0	36.1	36.4	36.7
240	36.9	36.8	36.7	38.1	38.1	39.3	40.2	40.3
280	42.7	41.4	41.1	38.6	39.0	37.3	37.1	38.4
320	36.7	35.0	34.2	34.0	34.0	33.5	32.8	32.5

DEPTH	2408.1		TILT	-65		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	31.2	31.9	30.8	30.9	31.0	31.6	32.3	31.9
40	30.9	31.2	31.1	31.0	31.0	31.0	29.9	31.2
80	30.9	30.3	30.2	30.1	30.3	29.2	29.7	29.9
120	30.7	32.1	31.9	30.6	31.4	31.5	31.7	31.6
160	32.5	32.0	33.0	34.6	34.9	34.7	35.1	37.1
200	37.2	37.2	37.7	37.7	36.7	35.0	34.6	34.2
240	34.6	34.4	34.6	34.8	35.3	35.3	35.6	35.6
280	38.3	38.3	37.7	37.9	37.3	37.3	36.7	36.9
320	36.8	35.7	35.5	34.5	32.4	32.8	32.7	31.7

DEPTH	2411.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	24.1	19.6	24.2	24.7	24.7	24.5	23.8	24.1
40	24.3	24.4	25.4	26.5	26.4	27.4	27.7	28.0
80	27.1	26.9	27.4	28.2	28.4	29.9	30.2	30.3
120	31.7	33.0	45.1	44.0	44.8	45.4	47.3	49.9
160	45.0	44.1	44.4	37.3	38.0	38.4	38.4	39.3
200	39.3	34.6	37.7	40.8	41.5	40.1	36.3	32.1
240	28.4	27.8	24.4	23.6	22.7	22.3	21.7	20.3
280	19.8	19.1	19.1	19.1	19.1	19.0	19.0	19.1
320	19.0	19.3	19.7	20.7	21.5	22.0	22.9	23.6



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WALL RANGES VS DEPTH

DEPTH	2414.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	24.8	16.0	23.4	26.0	26.5	26.1	25.1	25.2
40	25.5	25.7	23.2	24.5	25.3	26.7	26.7	25.3
80	24.3	24.1	24.6	24.5	25.0	24.5	25.4	25.7
120	41.1	43.1	42.3	41.8	43.2	43.7	44.8	46.3
160	41.5	36.7	36.8	35.7	35.0	34.6	33.8	33.5
200	33.3	35.2	35.7	34.6	36.3	38.6	36.4	22.7
240	22.9	22.9	22.8	22.8	19.6	18.6	18.2	18.2
280	17.2	16.6	16.2	16.2	16.2	16.3	15.5	16.4
320	17.2	17.2	18.0	18.9	20.7	22.7	24.0	24.3

DEPTH	2415.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.0	13.0	20.4	29.3	24.2	23.8	24.1	24.2
40	25.0	25.4	24.1	31.0	25.9	25.4	24.2	22.5
80	21.8	21.6	21.5	21.0	22.0	22.5	22.8	21.9
120	38.0	41.1	40.0	40.9	41.7	42.2	42.7	45.1
160	38.2	34.1	34.5	34.4	34.1	33.8	29.9	29.7
200	30.7	31.6	31.3	32.3	33.1	37.2	21.5	19.9
240	20.0	18.9	17.5	17.4	16.5	16.0	15.3	14.7
280	13.9	13.9	13.5	13.3	13.0	13.0	13.0	13.0
320	13.5	13.6	14.2	14.7	16.0	18.2	20.3	21.6

DEPTH	2418.0		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	19.3	14.4	17.0	27.4	23.1	21.8	26.8	22.0
40	23.9	24.3	23.7	28.1	29.6	30.3	21.3	20.5
80	19.5	19.6	18.1	18.4	20.0	21.4	21.4	18.1
120	38.8	40.2	39.8	45.4	39.6	39.9	40.4	40.7
160	34.2	31.7	32.5	32.6	30.8	37.7	38.1	36.6
200	33.9	33.7	33.0	34.9	35.0	19.6	20.1	19.6
240	16.2	15.0	13.7	13.3	13.0	12.2	11.3	11.1
280	10.8	10.6	10.4	10.0	8.9	9.1	8.7	9.0
320	9.3	9.7	10.7	11.3	12.2	13.5	15.1	17.3



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WALL RANGES VS DEPTH

DEPTH	2425.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.2	41.1	41.1	41.1	41.1	38.0	40.5	39.2
40	38.6	37.4	36.7	37.3	38.5	39.4	40.5	41.8
80	42.6	43.8	46.1	47.4	48.4	49.3	50.4	51.8
120	52.0	51.8	51.5	51.6	52.0	52.3	52.3	52.0
160	54.2	56.0	57.7	58.5	58.7	59.1	61.9	62.2
200	62.2	63.7	64.5	64.5	64.4	64.2	62.3	61.6
240	61.6	60.3	58.4	58.7	55.8	53.8	53.0	50.7
280	48.9	45.7	43.5	44.1	44.3	44.8	45.2	45.3
320	44.6	43.1	42.4	42.1	41.6	41.0	40.9	40.1
DEPTH	2427.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	38.7	39.0	37.7	36.5	35.4	35.2	37.8	36.1
40	34.5	33.9	34.2	35.8	37.1	37.8	38.5	39.7
80	41.5	43.0	44.8	46.7	51.9	51.5	51.9	51.3
120	51.6	51.2	52.1	51.5	55.7	57.8	51.9	53.7
160	54.9	56.3	58.8	58.2	58.5	62.2	63.0	64.1
200	65.0	64.8	65.0	64.4	62.8	61.9	60.4	58.4
240	58.4	53.0	48.6	45.5	45.5	45.0	43.3	43.3
280	44.0	43.7	43.6	43.3	43.0	41.5	40.6	40.4
320	40.1	39.6	39.2	38.6	39.5	39.0	39.5	38.9
DEPTH	2429.0		TILT	81		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	139.4	44.4	45.0	44.8	139.4	139.4	139.4	139.3
40	139.4	139.4	139.4	139.4	139.3	139.4	139.4	139.3
80	139.4	139.4	139.4	139.4	139.3	139.4	139.4	139.3
120	139.4	139.3	139.4	139.4	139.4	139.4	139.5	139.4
160	139.4	139.3	139.4	139.4	139.5	139.5	139.4	139.4
200	139.4	139.3	139.4	139.4	139.4	139.4	139.4	139.4
240	139.4	139.5	139.4	139.5	139.4	139.4	139.4	139.4
280	139.4	139.3	139.3	139.4	139.4	139.4	139.4	139.3
320	139.3	139.4	139.3	139.4	139.4	139.4	139.4	139.4



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	78		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	140.4	43.8	43.8	44.0	43.6	43.8	44.8	44.8
40	44.8	44.8	44.8	44.8	45.7	46.3	46.5	46.5
80	46.3	46.5	46.5	46.5	46.7	46.7	46.7	140.3
120	140.4	140.3	140.4	140.4	140.4	140.3	140.5	140.4
160	140.3	140.3	140.4	140.4	140.5	140.5	140.4	140.4
200	140.4	140.3	140.4	140.4	140.4	140.5	140.4	140.4
240	140.3	140.5	140.4	140.5	140.4	140.4	140.4	140.4
280	140.4	140.3	140.3	140.4	140.4	140.4	140.5	140.3
320	140.3	140.5	140.3	140.4	140.4	140.5	140.4	140.3

DEPTH	2429.0		TILT	75		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	141.8	141.1	140.8	141.2	43.0	43.0	43.4	44.0
40	44.0	44.9	45.4	46.1	46.3	46.3	47.3	47.1
80	47.3	47.3	47.1	47.7	47.9	47.7	47.9	141.7
120	141.8	141.7	141.8	141.8	141.8	141.7	141.9	141.7
160	141.7	141.7	141.8	141.8	141.9	141.9	141.9	141.8
200	141.8	141.7	141.8	141.8	141.8	141.9	141.7	141.8
240	141.7	141.9	141.9	141.9	141.9	141.8	141.7	141.8
280	141.8	141.7	141.6	141.8	141.8	141.8	141.9	141.3
320	141.7	141.9	141.2	141.8	141.9	141.9	141.8	141.7

DEPTH	2429.0		TILT	72		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.1	81.7	81.7	81.6	81.6	81.6	81.4	81.4
40	81.3	81.2	80.9	80.8	40.1	43.3	40.7	40.7
80	40.7	41.1	40.9	41.8	139.8	142.4	142.6	142.6
120	142.6	142.8	143.0	142.9	142.9	142.8	143.2	143.0
160	143.0	143.0	143.1	143.0	143.4	143.3	143.2	143.0
200	142.9	142.9	142.9	143.0	143.0	143.0	142.9	142.8
240	142.7	143.1	142.7	143.1	141.9	142.3	142.5	138.6
280	142.1	140.3	141.6	139.3	138.8	81.5	81.5	81.7
320	81.8	81.8	82.1	82.1	82.0	82.1	44.0	43.8



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	69		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	82.9	38.7	38.4	38.5	38.5	38.5	39.5	39.5
40	39.5	39.7	39.7	39.9	40.3	40.3	40.3	40.7
80	40.9	41.2	41.2	41.2	41.2	41.5	49.9	49.2
120	142.7	143.7	143.9	144.1	144.1	144.1	143.7	144.5
160	144.7	144.7	144.7	144.6	144.6	144.4	144.7	144.4
200	144.2	144.5	144.3	144.3	144.4	142.1	144.5	140.7
240	140.6	140.5	140.4	138.5	46.4	46.0	45.8	45.1
280	44.8	78.1	44.0	78.5	43.2	43.1	43.2	82.2
320	82.6	82.6	83.1	83.0	83.0	83.1	83.2	83.1

DEPTH	2429.0		TILT	66		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	39.0	39.7	39.9	40.1	38.9	39.9	39.7	39.7
40	39.7	39.9	40.3	40.3	40.5	40.5	40.7	41.7
80	41.7	41.7	42.8	42.6	42.6	44.6	51.0	51.0
120	50.1	50.2	49.9	51.0	50.8	49.5	49.4	49.2
160	49.1	49.3	50.2	49.1	50.1	49.9	48.8	48.8
200	49.0	48.6	48.6	48.5	48.6	48.5	48.5	48.3
240	48.0	47.9	47.6	47.5	47.2	46.0	43.3	41.8
280	42.4	42.5	42.3	41.8	41.5	41.9	40.8	40.8
320	38.9	82.3	84.3	84.2	84.2	84.3	84.4	84.3

DEPTH	2429.0		TILT	63		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	39.9	40.3	40.3	40.4	40.4	40.5	40.5	40.4
40	40.6	40.6	40.4	40.7	40.9	40.8	40.9	41.5
80	42.2	42.3	42.8	43.3	43.6	45.0	52.7	52.0
120	52.2	51.4	51.0	51.4	51.4	50.7	50.6	50.3
160	50.3	50.1	50.5	50.1	50.4	50.5	49.9	49.9
200	49.9	49.7	49.7	49.8	50.1	50.0	49.9	49.9
240	49.3	49.4	49.4	49.0	41.9	41.7	41.5	41.1
280	40.7	41.2	41.4	41.4	41.5	41.5	40.7	40.7
320	40.0	39.3	38.8	38.3	38.9	39.4	39.6	39.7



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	60		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.8	41.2	41.5	41.5	41.5	41.5	42.0	42.0
40	42.0	41.5	41.5	41.8	41.8	41.8	41.9	41.9
80	42.5	43.2	43.6	43.7	44.4	44.4	46.3	46.3
120	46.3	52.5	52.4	52.3	52.2	52.1	52.1	51.8
160	51.8	51.7	51.6	51.5	51.2	51.5	51.5	51.9
200	51.9	51.4	51.3	51.3	51.1	52.0	51.2	51.3
240	51.0	50.6	42.8	42.4	42.6	42.6	42.6	42.3
280	42.2	41.9	42.0	42.0	42.0	41.7	40.8	40.8
320	40.1	40.0	40.0	39.8	39.9	40.1	40.6	40.7

DEPTH	2429.0		TILT	57		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	41.7	42.3	42.6	42.6	42.6	42.6	42.8	43.3
40	43.3	43.3	42.8	43.4	43.3	43.1	42.5	43.0
80	43.2	43.8	44.0	44.6	45.5	45.8	46.0	46.0
120	45.6	45.9	55.0	54.0	53.9	53.7	53.6	53.6
160	53.6	53.1	52.9	52.8	52.9	52.5	52.5	52.6
200	52.3	52.6	52.6	52.5	53.4	53.7	52.9	51.9
240	44.3	43.5	43.3	43.6	43.5	43.5	43.7	43.5
280	43.1	43.2	43.1	42.6	42.5	42.3	41.4	41.4
320	41.0	41.2	41.0	41.1	41.1	41.1	41.3	41.5

DEPTH	2429.0		TILT	54		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	43.1	43.5	43.7	43.7	43.8	44.1	44.4	44.7
40	44.9	44.6	44.4	44.6	44.4	44.7	43.9	45.1
80	44.2	44.7	45.2	45.4	46.1	47.0	47.2	47.3
120	47.1	46.9	55.8	55.6	55.5	55.4	55.4	55.4
160	55.1	55.1	55.1	54.5	54.8	54.7	54.2	54.5
200	54.5	54.5	54.1	54.6	54.6	54.6	53.9	45.0
240	44.4	44.3	44.4	44.9	45.0	44.7	44.8	44.8
280	44.4	44.2	43.7	43.8	44.2	43.4	42.5	42.4
320	42.6	12.1	43.0	42.5	42.1	42.4	42.5	42.6



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	51		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	44.7	43.4	45.6	45.7	45.7	45.8	46.4	46.4
40	46.8	46.4	46.6	46.9	46.5	46.5	46.4	46.6
80	46.5	46.4	46.4	46.8	46.9	48.6	49.1	49.3
120	49.3	48.4	49.0	53.6	54.7	54.8	57.8	57.7
160	56.9	57.3	57.3	57.0	56.9	57.8	57.2	56.8
200	56.6	56.0	56.1	56.3	56.3	56.1	49.1	46.2
240	46.2	46.6	46.9	46.6	46.6	46.2	45.6	44.8
280	11.5	11.5	11.7	12.3	12.3	13.9	11.9	12.1
320	12.1	12.1	12.3	12.5	12.9	13.1	13.3	44.2

DEPTH	2429.0		TILT	48		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	46.6	42.7	47.1	47.2	47.8	47.9	48.1	47.9
40	48.5	48.3	48.4	49.2	48.7	48.5	48.4	48.4
80	48.9	49.2	50.0	49.8	50.0	49.2	49.6	51.4
120	51.8	50.2	52.6	53.0	53.5	53.7	61.1	61.0
160	59.9	59.5	59.3	59.3	59.0	59.7	60.3	58.7
200	58.9	58.3	58.2	58.3	58.1	58.0	49.1	48.6
240	47.9	48.3	48.8	48.0	46.2	12.7	12.1	12.1
280	11.7	11.9	12.1	12.3	12.3	12.3	12.5	12.3
320	12.3	12.5	12.7	12.5	12.7	13.1	13.5	45.2

DEPTH	2429.0		TILT	45		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.2	44.8	45.4	45.2	45.4	46.1	46.3	50.3
40	50.6	51.0	50.9	51.7	51.3	51.3	51.3	51.2
80	51.6	51.4	52.0	52.7	52.4	52.7	52.4	52.4
120	53.5	52.7	55.4	54.9	54.3	53.7	54.2	54.5
160	53.6	54.3	62.5	54.1	61.8	61.3	61.5	61.3
200	61.5	61.5	61.4	61.2	60.8	61.5	52.5	51.6
240	51.6	51.0	51.0	48.1	12.5	12.5	12.5	12.3
280	12.7	12.5	12.5	12.7	12.9	12.9	12.7	13.1
320	12.9	13.1	13.1	13.1	13.3	13.7	13.5	13.7



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	42		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.6	46.9	47.9	47.7	48.7	48.8	48.8	52.1
40	52.2	54.2	53.8	55.0	54.5	55.1	55.3	54.9
80	54.9	54.9	54.9	55.3	55.7	54.9	54.3	55.7
120	55.1	55.5	57.1	56.8	56.2	56.3	56.3	56.1
160	55.8	55.8	55.6	55.6	58.2	56.2	61.1	57.2
200	56.6	56.6	56.0	56.0	65.4	64.8	54.7	53.1
240	51.9	51.1	50.7	50.2	13.3	13.3	13.1	13.1
280	13.3	13.1	13.3	13.3	13.3	13.3	13.3	13.9
320	13.7	13.9	13.9	13.7	13.7	13.9	14.4	14.4

DEPTH	2429.0		TILT	39		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.4	48.3	49.9	49.6	52.4	49.8	49.6	50.4
40	51.2	51.4	55.1	55.1	55.1	54.5	54.0	52.9
80	51.8	52.2	52.2	54.3	58.2	59.9	58.6	59.2
120	58.8	58.0	58.8	58.6	59.0	57.8	57.3	56.2
160	55.6	56.5	56.4	56.8	57.1	57.8	58.8	59.3
200	59.9	59.5	58.0	58.2	58.6	57.2	56.4	54.1
240	53.2	15.4	14.6	14.4	14.2	14.1	14.2	13.3
280	14.2	14.2	14.2	14.4	14.4	14.4	14.2	14.1
320	14.4	14.4	14.4	14.4	14.4	15.0	14.8	15.2

DEPTH	2429.0		TILT	36		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	16.0	46.7	29.2	30.0	30.0	30.2	30.6	29.6
40	29.6	29.4	52.5	52.5	52.4	52.5	52.5	52.5
80	53.3	54.8	56.8	57.0	56.6	57.0	57.8	58.6
120	60.9	60.9	58.4	60.5	61.7	61.1	59.7	59.4
160	53.1	53.3	53.1	51.7	51.8	52.5	52.5	52.9
200	54.1	61.3	61.3	61.5	60.9	52.9	52.9	16.6
240	15.8	15.0	15.0	15.2	15.0	15.0	14.8	15.0
280	15.0	15.0	15.2	15.4	15.4	15.6	15.2	15.2
320	15.0	15.4	15.4	15.0	15.2	15.4	15.6	16.0



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	33		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	17.4	17.9	29.8	30.4	30.0	30.0	29.2	28.6
40	28.6	29.8	27.3	28.8	30.2	54.2	53.6	53.7
80	55.1	52.3	58.0	58.0	57.7	58.6	60.2	60.3
120	61.3	61.5	61.1	61.5	62.7	62.1	59.9	58.8
160	57.8	56.2	56.6	57.4	57.8	57.6	54.9	56.6
200	58.0	63.2	61.9	61.9	61.7	57.0	17.6	17.0
240	16.2	16.6	16.2	16.6	16.0	16.4	16.2	16.4
280	16.6	16.4	16.6	16.8	16.6	16.6	16.6	16.6
320	17.0	17.2	16.8	16.8	16.4	17.0	17.0	17.6

DEPTH	2429.0		TILT	30		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	18.7	19.7	19.9	29.8	30.2	30.6	29.0	29.4
40	29.6	29.6	28.2	28.2	29.0	30.6	30.8	31.5
80	22.9	22.4	20.3	20.3	20.3	34.3	34.9	61.8
120	35.6	38.0	63.7	63.9	63.6	64.4	66.0	61.9
160	61.5	63.4	62.3	62.3	62.5	62.8	61.9	60.9
200	61.2	62.1	62.7	64.4	64.0	61.5	18.5	17.9
240	17.4	17.4	17.9	17.4	17.6	17.7	17.7	17.9
280	17.6	17.6	17.7	17.9	17.9	17.7	18.3	18.5
320	17.7	17.4	17.9	17.7	18.1	18.1	18.5	18.7

DEPTH	2429.0		TILT	27		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.5	21.8	21.4	32.3	31.2	24.3	24.5	25.1
40	27.7	28.3	26.3	30.8	30.4	27.7	24.0	23.2
80	22.8	22.2	22.0	22.0	21.2	21.4	21.8	22.0
120	36.0	36.8	65.5	67.4	68.0	69.1	69.5	70.2
160	70.8	71.6	71.0	70.6	70.0	69.8	67.3	63.0
200	62.5	60.6	62.7	63.1	62.0	60.4	55.2	50.0
240	46.4	52.6	52.1	46.7	46.7	19.3	19.3	19.6
280	19.0	19.4	19.6	19.7	19.7	19.7	20.6	20.2
320	20.5	20.5	20.1	20.3	20.1	19.5	20.5	20.7



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	24		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.6	23.8	24.3	33.1	26.5	24.9	29.0	23.6
40	25.7	26.1	25.9	36.4	29.2	29.5	25.9	24.2
80	24.4	24.0	23.8	24.2	24.2	23.8	23.0	23.4
120	41.7	42.4	56.4	63.2	65.7	66.1	68.0	68.8
160	68.8	68.8	67.7	58.9	57.6	41.9	44.2	35.4
200	62.6	38.3	34.5	38.9	41.5	44.8	39.5	22.8
240	21.4	21.4	21.0	21.0	21.6	21.2	21.2	21.6
280	20.9	21.8	22.0	21.8	21.8	22.2	23.6	22.2
320	22.4	22.2	23.0	22.8	22.8	22.8	22.2	23.2

DEPTH	2429.0		TILT	21		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	26.1	27.9	28.2	29.8	28.2	29.0	28.6	28.4
40	28.0	28.6	28.6	29.2	31.5	32.3	28.8	29.0
80	28.0	28.0	28.2	28.6	27.6	25.9	26.7	27.3
120	47.5	49.4	49.2	48.5	48.1	51.2	55.5	54.1
160	49.2	48.7	46.7	36.8	36.6	36.0	33.5	32.1
200	32.7	32.9	32.9	32.5	33.1	40.9	38.9	25.1
240	24.0	24.2	23.9	24.4	24.0	23.4	24.0	23.6
280	24.2	25.1	24.9	25.7	24.7	24.0	24.7	25.1
320	25.7	24.9	24.7	25.5	25.2	24.5	25.9	25.7

DEPTH	2429.0		TILT	18		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	31.4	30.2	29.8	29.6	28.6	28.6	28.4	28.4
40	28.4	29.4	29.8	30.8	31.0	31.9	32.9	35.2
80	36.8	34.6	33.5	34.0	34.3	34.1	34.1	35.4
120	37.0	43.2	41.7	42.9	44.4	45.4	46.1	48.5
160	36.7	32.6	33.5	33.5	32.2	38.5	38.4	36.8
200	35.4	35.4	35.0	36.3	36.2	38.0	31.6	28.0
240	27.3	28.8	27.7	27.3	27.1	27.3	26.9	26.3
280	26.7	26.9	27.9	27.3	27.7	30.4	28.4	28.2
320	28.2	28.2	28.2	27.9	27.5	26.7	27.9	29.4



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	18		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	31.4	30.2	29.8	29.4	28.6	28.6	28.4	28.4
40	28.4	29.4	29.8	30.8	31.0	31.9	32.9	35.2
80	36.8	34.6	33.5	34.0	34.3	34.1	34.1	35.4
120	37.0	43.2	41.7	42.9	44.4	45.4	46.1	52.0
160	36.7	32.6	33.5	33.5	32.2	38.5	38.5	36.8
200	36.0	35.4	35.0	36.3	36.2	38.0	31.6	28.0
240	27.3	28.8	27.7	27.3	27.1	27.3	26.9	26.3
280	26.7	26.9	27.9	27.3	27.7	30.4	28.4	28.2
320	28.2	28.2	28.2	27.9	27.5	26.7	27.9	29.4

DEPTH	2429.0		TILT	15		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	32.3	31.9	30.4	32.1	31.9	32.4	33.1	35.4
40	33.9	35.2	39.3	40.1	35.2	37.6	36.6	37.0
80	40.1	40.3	40.5	40.7	40.5	41.5	42.4	42.2
120	41.7	41.5	41.1	43.0	40.3	40.7	41.5	41.5
160	38.5	38.7	37.9	31.5	33.9	39.7	40.3	40.1
200	40.3	38.9	40.5	37.7	38.4	33.3	35.5	32.7
240	31.7	32.7	32.7	32.1	33.1	32.9	29.2	29.2
280	29.4	29.2	32.1	31.7	31.4	33.5	30.6	30.2
320	29.4	28.4	28.4	29.2	28.8	31.0	31.4	33.7

DEPTH	2429.0		TILT	12		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	36.2	37.1	41.7	42.0	40.9	40.7	40.7	40.5
40	39.5	39.3	39.1	39.7	42.0	42.4	44.6	45.9
80	48.3	49.0	47.9	48.5	48.3	48.5	49.4	52.0
120	52.2	52.0	51.2	51.8	52.4	47.1	48.4	49.6
160	50.0	47.9	47.3	43.6	43.6	45.0	45.9	46.5
200	48.0	49.6	49.7	39.3	40.9	41.8	39.7	39.7
240	39.5	40.1	39.1	35.8	37.6	37.4	34.1	33.1
280	34.2	33.5	34.8	35.6	34.5	33.5	32.9	30.2
320	45.4	34.9	42.4	42.4	36.0	35.0	35.2	35.2



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	9		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.7	41.5	42.0	42.0	41.3	41.1	40.7	40.3
40	39.9	38.5	38.2	40.1	41.3	42.8	44.8	45.5
80	46.9	47.5	48.3	48.7	48.5	48.7	50.6	52.0
120	52.2	52.0	51.0	51.2	52.4	52.5	52.7	53.5
160	54.9	56.8	58.8	58.4	57.6	57.6	58.2	59.5
200	59.2	50.6	51.6	53.9	52.9	51.6	45.9	51.0
240	50.4	45.2	43.4	42.0	45.5	43.6	42.7	41.7
280	48.7	45.7	43.8	44.2	44.8	45.4	45.2	45.0
320	44.6	43.6	42.2	42.0	41.9	41.5	41.1	40.5

DEPTH	2429.0		TILT	6		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.3	41.1	41.9	41.9	41.5	41.5	41.5	40.3
40	39.7	38.4	37.6	38.7	39.7	40.3	42.2	43.4
80	44.8	45.5	48.5	48.7	48.7	49.2	50.0	51.8
120	52.0	51.6	51.6	51.2	52.0	52.5	52.4	52.7
160	54.3	55.9	58.2	58.8	58.6	58.8	58.6	61.3
200	58.8	61.9	59.0	63.3	62.8	62.5	63.2	63.2
240	62.3	61.7	61.5	59.3	55.9	53.7	52.5	51.0
280	48.3	46.3	43.6	44.2	44.6	45.5	45.2	45.2
320	44.6	43.2	42.8	42.2	41.9	41.7	40.9	40.5

DEPTH	2429.0		TILT	3		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	40.3	41.1	40.7	40.7	40.5	39.9	39.9	38.4
40	37.6	36.4	35.6	35.4	37.4	38.7	39.1	40.9
80	41.5	43.0	45.4	47.1	48.5	49.4	50.6	52.0
120	52.2	52.0	51.6	51.8	52.2	52.4	52.4	52.0
160	54.3	56.0	57.8	58.6	58.8	59.3	61.9	62.2
200	62.1	63.6	64.2	64.5	64.3	64.2	62.4	61.7
240	61.7	60.4	57.9	58.8	55.9	53.9	53.1	50.8
280	49.2	45.5	43.6	44.2	44.4	44.6	45.4	45.5
320	44.8	43.2	42.2	42.2	41.7	40.7	41.1	39.9



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-6		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	32.7	31.3	30.7	31.9	30.3	29.0	30.2	29.4
40	28.3	27.4	28.3	29.0	27.0	29.4	30.9	31.7
80	32.7	37.9	38.5	39.2	39.2	43.2	43.1	44.0
120	44.7	45.0	45.1	45.1	44.9	53.7	55.6	57.5
160	55.8	52.9	54.0	55.1	60.6	53.7	60.6	61.2
200	57.0	59.7	58.8	59.3	60.5	58.1	55.4	53.9
240	53.1	49.6	50.7	45.1	42.2	42.0	38.1	37.7
280	36.7	35.8	34.6	36.2	35.6	35.5	34.7	34.5
320	34.9	33.8	33.5	33.3	32.5	33.1	33.4	33.0

DEPTH	2429.0		TILT	-9		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.9	30.1	30.3	30.7	30.1	29.2	25.3	24.7
40	26.4	25.9	24.9	25.7	26.4	27.8	29.7	30.3
80	30.9	32.1	34.6	35.4	36.6	35.8	38.5	39.0
120	41.3	42.8	42.2	42.2	42.6	54.2	53.9	56.2
160	55.8	53.9	59.3	61.0	60.3	56.3	61.2	61.6
200	59.7	59.3	59.4	59.1	58.1	54.6	54.2	53.1
240	50.2	48.4	47.0	41.4	40.6	38.9	36.9	35.4
280	35.0	35.8	34.8	33.2	32.7	34.3	32.9	33.2
320	33.2	31.5	30.7	31.7	31.3	31.9	31.9	31.2

DEPTH	2429.0		TILT	-9		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.9	30.1	30.3	30.7	30.1	29.2	25.3	24.7
40	26.4	25.9	24.9	25.7	26.4	27.8	29.7	30.3
80	30.9	32.1	34.6	35.3	36.6	39.0	39.0	39.0
120	41.3	42.8	42.2	42.2	42.6	54.2	53.9	56.2
160	55.8	53.9	59.3	61.0	60.3	56.3	61.2	61.6
200	59.7	59.3	59.4	59.1	58.1	54.6	54.2	53.1
240	50.2	48.4	47.0	41.4	40.6	38.9	36.9	35.4
280	35.0	35.8	34.8	33.2	32.7	34.3	32.9	33.2
320	33.2	31.5	30.7	31.7	31.3	31.9	31.9	31.2



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-12		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	29.9	28.4	29.0	29.2	26.2	25.5	24.5	23.9
40	25.7	26.1	24.7	26.6	26.1	27.4	28.6	28.6
80	29.9	32.1	31.5	29.2	35.3	35.1	37.2	37.3
120	37.5	38.5	39.9	39.7	39.3	43.2	54.0	55.8
160	37.5	34.8	60.3	63.7	67.3	60.5	62.2	59.7
200	59.3	58.5	57.2	57.0	56.4	54.6	55.4	50.5
240	50.0	47.6	45.3	40.8	39.5	38.3	33.8	33.1
280	33.8	34.8	34.0	31.5	30.7	32.9	30.9	31.9
320	30.9	29.6	29.4	29.9	30.5	30.7	32.1	31.3

DEPTH	2429.0		TILT	-15		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.6	28.0	28.4	28.3	25.9	24.8	23.6	23.6
40	25.8	25.9	30.5	31.1	31.2	29.6	27.0	28.7
80	29.2	29.8	28.6	28.9	30.2	30.5	34.0	32.8
120	37.5	37.1	34.0	38.2	38.4	37.0	37.1	32.3
160	29.6	34.1	30.9	30.6	31.2	64.9	65.4	63.8
200	65.7	59.8	57.8	53.8	52.7	53.1	58.6	49.4
240	49.4	47.2	41.0	40.5	35.5	36.3	32.8	32.4
280	32.2	34.0	33.7	30.5	30.6	30.5	29.8	30.3
320	29.6	28.6	29.3	29.8	30.0	30.3	31.1	31.7

DEPTH	2429.0		TILT	-18		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	23.4	28.0	29.1	28.9	25.1	24.2	23.4	23.4
40	23.0	23.0	31.5	30.5	30.9	25.4	24.6	25.6
80	27.0	27.0	28.7	25.5	25.5	28.1	29.3	29.5
120	33.6	25.8	26.7	27.7	29.9	24.6	26.7	26.1
160	27.3	29.7	60.4	61.1	28.5	62.8	61.7	64.8
200	62.7	61.4	58.7	50.7	48.2	36.8	47.8	36.9
240	48.4	38.4	40.3	36.6	35.2	34.0	33.3	32.5
280	35.8	34.1	30.5	29.9	29.0	29.3	29.3	29.9
320	30.2	30.6	28.1	28.6	29.0	29.8	31.1	24.9



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-21		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	20.2	25.8	25.9	25.8	24.9	23.4	22.4	22.4
40	22.6	22.3	22.4	26.8	24.0	23.9	24.0	16.7
80	16.9	17.4	18.5	17.9	18.0	18.6	15.4	20.8
120	23.7	22.0	21.7	22.2	23.6	18.8	23.0	23.2
160	24.6	27.2	54.1	53.0	53.6	54.0	52.8	53.7
200	57.8	53.3	40.7	38.5	36.7	34.9	36.8	36.9
240	37.4	37.6	37.4	36.8	36.5	33.4	31.7	31.5
280	35.8	34.4	30.0	29.9	28.9	28.7	28.6	29.8
320	30.8	30.0	28.3	27.7	28.2	24.3	22.7	21.4

DEPTH	2429.0		TILT	-27		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	16.4	20.1	20.2	20.7	22.6	23.6	22.4	20.5
40	20.8	22.0	22.4	24.2	22.6	20.6	20.1	15.7
80	15.8	15.8	15.2	14.7	15.1	9.2	10.4	11.9
120	12.8	14.2	13.6	16.1	16.0	15.8	17.0	17.1
160	17.7	18.0	18.2	26.7	27.2	43.5	44.2	44.1
200	45.6	33.2	27.8	28.6	25.5	25.5	28.1	28.6
240	35.3	36.0	35.2	36.1	35.3	34.4	35.0	33.1
280	32.8	32.7	33.4	32.8	29.7	24.3	24.8	23.0
320	21.3	20.4	19.6	19.5	19.3	18.3	17.0	16.1

DEPTH	2429.0		TILT	-30		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	15.1	16.0	13.9	14.2	14.7	17.3	17.9	18.9
40	14.5	15.2	15.1	14.4	13.5	13.2	12.5	15.1
80	14.7	12.9	13.0	12.9	12.8	9.4	9.7	10.7
120	12.5	12.6	13.0	14.1	16.0	15.8	16.9	16.1
160	15.7	18.2	16.7	23.9	23.7	19.2	21.1	22.9
200	25.5	25.2	25.6	24.0	23.6	20.5	21.1	21.5
240	23.0	22.9	25.5	32.8	30.9	32.4	32.8	33.0
280	31.4	32.5	30.6	23.0	23.2	23.6	21.5	23.0
320	21.2	19.9	19.3	18.3	17.4	16.4	16.3	16.1



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-33		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.1	15.0	13.2	13.0	13.0	13.0	15.5	13.9
40	14.1	13.8	13.2	12.3	12.2	11.6	12.5	14.2
80	12.6	12.3	12.6	12.3	12.8	9.4	9.7	9.8
120	10.8	10.8	11.0	12.3	13.6	14.4	13.9	14.5
160	16.1	14.5	17.4	18.6	18.8	17.9	19.5	20.5
200	22.6	25.4	25.8	27.0	22.4	21.5	20.7	21.0
240	20.2	20.0	31.1	22.6	22.6	25.4	31.7	31.2
280	28.7	29.2	29.5	23.0	22.9	21.1	21.7	23.2
320	21.3	20.2	19.5	17.0	15.8	16.3	16.3	14.8

DEPTH	2429.0		TILT	-36		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.2	13.8	13.2	13.0	12.9	13.0	13.6	13.9
40	13.2	13.2	12.3	12.3	12.0	11.1	11.3	11.6
80	12.3	12.5	11.6	12.2	11.1	9.5	9.8	9.7
120	9.5	11.0	11.1	11.1	11.3	13.0	12.6	13.0
160	13.0	13.6	14.8	18.6	19.2	17.9	19.5	21.7
200	21.4	26.2	27.6	21.7	22.6	20.5	18.4	17.3
240	18.2	17.7	18.2	18.2	21.0	19.5	20.4	21.3
280	28.1	25.4	24.5	25.4	24.2	22.7	21.4	20.2
320	20.1	19.2	19.8	18.0	17.3	16.6	16.0	15.2

DEPTH	2429.0		TILT	-39		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.9	13.2	12.9	11.9	11.5	11.4	12.1	12.8
40	12.6	11.7	11.1	11.1	10.6	10.2	10.3	10.3
80	10.9	10.5	10.2	11.3	11.1	9.8	9.8	9.7
120	9.7	9.8	11.4	11.1	11.3	11.4	12.5	12.8
160	12.8	12.6	14.1	14.5	16.3	18.5	16.9	21.5
200	21.5	21.5	23.0	21.0	20.2	16.4	15.5	16.4
240	16.6	15.8	16.1	17.6	16.4	17.6	17.9	17.6
280	16.7	23.7	23.5	20.2	20.7	20.5	19.9	20.2
320	20.4	18.6	18.0	15.5	16.6	15.2	15.2	14.8



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-42		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	14.1	12.8	12.6	11.0	10.6	10.3	11.0	11.9
40	12.0	10.6	10.1	10.1	9.5	9.5	9.5	9.4
80	9.7	8.9	9.1	10.6	10.8	11.3	10.0	10.0
120	9.5	9.8	10.1	11.0	10.8	11.6	12.6	12.6
160	14.1	12.3	13.0	13.6	14.8	15.2	16.1	16.3
200	17.3	17.4	18.8	14.8	14.2	14.2	15.1	14.8
240	13.9	16.0	15.3	16.1	16.0	16.9	15.7	15.5
280	16.3	20.1	20.4	23.0	20.5	17.9	17.7	18.8
320	17.0	17.1	16.6	17.0	15.1	15.2	14.2	14.4

DEPTH	2429.0		TILT	-45		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	12.9	13.2	11.4	11.1	11.4	10.3	10.3	10.3
40	9.7	9.7	9.7	9.4	9.1	8.8	9.1	8.5
80	8.9	8.9	8.6	8.8	8.8	8.9	9.2	8.8
120	9.4	9.5	10.1	10.4	10.8	11.4	11.4	12.5
160	13.2	12.2	12.5	13.0	13.3	12.0	12.8	15.7
200	15.5	16.3	17.1	13.8	13.8	14.1	14.7	14.4
240	13.9	13.2	14.9	15.2	15.5	16.3	15.2	15.5
280	15.8	18.5	19.9	21.3	19.9	20.2	18.2	17.6
320	16.4	16.1	16.4	14.4	14.7	14.7	14.2	12.3

DEPTH	2429.0		TILT	-48		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.8	10.8	10.6	9.8	11.3	10.3	9.8	9.5
40	9.4	8.9	8.9	8.8	8.5	8.5	8.6	8.5
80	8.4	8.2	8.2	8.5	8.4	8.4	8.5	8.8
120	8.6	8.9	9.1	10.4	10.6	11.0	11.1	12.5
160	12.3	12.9	14.8	12.6	11.4	11.9	12.9	14.2
200	14.2	15.8	15.8	13.2	13.0	13.3	12.8	13.0
240	13.6	13.0	13.3	14.2	14.5	14.7	15.2	15.4
280	16.6	17.3	18.8	19.9	17.0	19.5	17.0	18.2
320	16.9	14.9	14.5	13.9	14.7	12.3	12.5	11.7



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-51		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.7	10.0	9.3	9.4	9.4	9.4	9.0	9.3
40	8.6	8.6	8.2	8.3	8.0	8.1	8.0	8.0
80	7.8	8.0	8.0	8.0	8.0	8.0	8.2	8.4
120	8.4	8.4	8.4	10.3	10.3	10.4	10.6	11.3
160	11.3	12.5	12.5	10.7	11.2	11.8	12.5	12.6
200	13.3	13.9	15.2	12.5	11.4	11.2	11.4	11.3
240	12.9	13.1	12.9	13.4	13.7	14.0	14.9	14.6
280	14.7	16.1	17.2	17.5	17.1	16.2	17.1	16.9
320	14.9	15.1	14.1	14.0	12.1	12.0	11.7	11.7

DEPTH	2429.0		TILT	-54		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	11.6	10.0	9.3	9.2	8.6	8.7	8.4	8.6
40	8.2	8.2	8.0	7.5	7.4	7.7	7.5	7.5
80	7.5	7.8	8.0	7.9	7.6	7.7	7.7	8.1
120	8.1	8.2	8.5	8.8	12.1	7.2	10.5	11.0
160	10.6	10.4	10.4	10.6	11.0	11.6	11.9	12.6
200	12.7	13.1	13.1	10.8	10.6	10.9	11.0	11.0
240	11.3	11.6	12.5	12.5	13.1	13.6	14.3	14.9
280	14.6	14.9	14.9	14.2	13.4	13.5	13.7	14.0
320	13.6	13.8	13.0	12.0	11.8	11.6	11.5	11.2

DEPTH	2429.0		TILT	-57		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.2	9.7	8.9	9.1	8.6	8.4	8.4	8.4
40	7.9	7.8	7.7	7.5	7.2	7.2	7.3	7.1
80	7.3	7.3	7.4	7.4	7.5	7.7	7.7	7.8
120	7.9	7.9	8.2	8.2	11.2	6.9	8.2	8.4
160	8.6	10.4	10.4	10.5	10.8	11.2	11.5	12.3
200	12.4	12.8	10.3	10.4	10.9	10.9	11.3	11.1
240	11.5	11.8	11.4	11.5	12.0	12.3	12.4	12.7
280	13.8	14.0	13.9	13.8	14.2	13.5	13.3	12.4
320	11.7	11.6	11.5	11.2	11.1	10.5	10.1	10.1



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-60		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	10.1	9.6	9.0	8.5	8.4	8.0	8.0	7.6
40	7.6	7.3	7.2	7.1	7.1	6.8	7.0	6.9
80	7.3	7.2	7.2	7.2	7.4	7.4	7.5	7.7
120	7.5	7.6	7.7	8.0	10.8	7.0	6.8	7.7
160	8.5	9.2	9.2	10.6	10.6	11.0	11.5	12.0
200	12.2	10.3	10.4	10.4	10.8	10.8	11.0	11.1
240	10.9	11.5	11.7	11.7	12.2	12.4	12.4	12.7
280	13.6	13.6	13.5	13.7	12.9	12.4	11.9	12.1
320	11.7	11.6	11.2	10.8	10.8	10.1	10.0	10.1

DEPTH	2429.0		TILT	-63		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	9.5	9.0	8.8	8.5	8.3	8.0	8.0	7.5
40	7.2	7.2	7.0	6.8	6.8	6.6	6.6	6.6
80	6.8	6.8	7.0	7.1	7.2	7.2	7.3	7.3
120	7.4	7.4	10.2	10.2	10.8	6.7	6.7	7.4
160	7.5	8.2	8.7	8.8	9.8	10.0	10.8	10.8
200	11.0	10.5	10.5	10.7	10.6	10.8	11.0	10.9
240	10.8	10.8	10.8	10.6	10.8	10.8	11.5	12.4
280	12.3	12.3	11.2	11.0	9.4	11.7	11.7	11.6
320	11.3	11.0	10.4	10.0	9.7	9.5	9.4	9.8

DEPTH	2429.0		TILT	-66		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.9	8.5	8.0	8.1	7.8	7.9	7.6	7.5
40	7.0	7.0	6.8	6.8	6.7	6.7	6.6	6.6
80	6.7	6.7	6.8	6.9	7.0	7.1	7.2	7.3
120	7.3	7.3	9.8	10.0	10.5	6.5	6.5	6.7
160	7.0	7.5	8.4	8.3	8.9	8.9	9.0	9.8
200	10.0	10.0	9.3	9.4	9.8	9.4	9.5	9.7
240	9.7	10.6	10.8	10.8	10.8	9.9	9.6	9.6
280	10.1	9.8	9.5	9.4	9.0	9.0	11.0	11.2
320	10.7	10.3	10.0	9.9	9.8	9.4	9.4	9.1



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-72		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	7.9	8.0	7.6	7.4	7.4	7.2	7.0
40	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
80	6.8	6.7	7.1	7.1	7.1	7.3	8.2	8.6
120	8.8	8.8	9.0	9.1	9.3	6.6	6.2	6.2
160	6.5	6.5	7.1	6.8	7.3	7.3	7.3	7.6
200	7.6	7.7	7.7	7.6	8.0	7.6	7.6	7.5
240	6.8	7.0	8.6	9.9	10.0	10.0	10.0	10.1
280	10.1	9.7	9.2	7.9	8.0	8.0	8.0	9.5
320	9.4	8.7	9.1	8.8	8.8	8.1	8.1	8.1

DEPTH	2429.0		TILT	-69		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.4	8.4	8.0	8.0	7.8	7.6	7.3	7.3
40	7.0	6.9	6.9	6.6	6.6	6.7	6.6	6.7
80	6.7	6.7	6.7	7.0	7.0	7.2	7.0	8.8
120	8.8	9.1	9.2	9.3	9.3	6.6	6.6	6.2
160	7.0	7.2	7.2	7.9	7.8	8.4	8.7	8.9
200	8.9	8.9	8.9	8.7	8.9	8.8	8.7	8.6
240	8.5	9.0	9.2	10.6	10.7	10.0	10.0	9.9
280	10.1	9.6	9.2	9.1	9.1	8.0	8.0	10.1
320	9.7	9.4	9.1	8.9	8.9	8.9	8.7	8.9

DEPTH	2429.0		TILT	-75		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.8	7.8	7.8	7.3	7.3	7.2	7.2	7.0
40	6.9	7.0	7.0	7.0	6.9	6.9	6.9	6.8
80	6.8	7.0	7.7	7.8	8.1	8.1	8.2	8.2
120	8.3	8.2	8.6	8.7	8.7	8.6	8.6	6.0
160	6.0	6.0	6.1	6.7	6.8	7.0	6.6	6.7
200	6.8	6.9	6.6	6.7	7.0	6.5	6.6	6.8
240	6.8	6.8	6.9	8.3	8.4	8.4	8.7	8.8
280	8.0	8.0	8.0	7.9	8.0	8.0	8.0	9.1
320	8.9	8.7	8.4	8.5	8.4	8.1	8.1	8.1



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WALL RANGES VS DEPTH

DEPTH	2429.0		TILT	-78		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	7.6	7.6	7.4	7.4	7.4	7.3	7.3	7.3
40	7.2	7.2	7.0	7.0	7.0	7.2	7.3	7.3
80	7.5	7.5	7.5	7.5	7.9	8.0	8.0	8.0
120	8.0	8.4	8.3	8.3	8.5	8.5	8.5	8.5
160	8.4	6.3	6.3	6.3	6.3	7.5	6.6	6.6
200	6.6	6.5	6.5	6.5	6.5	6.7	6.7	6.7
240	6.8	6.8	6.8	8.2	8.2	8.2	8.2	8.2
280	8.1	8.1	8.1	8.1	8.1	8.1	8.7	8.6
320	8.6	8.4	8.4	8.4	8.1	7.9	7.9	7.9

DEPTH	2429.0		TILT	-81		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.0	7.7	7.9	7.5	7.5	7.5	7.5	7.4
40	7.4	7.2	7.2	7.4	7.2	7.4	7.5	7.5
80	7.5	7.5	7.5	7.5	7.7	7.5	7.5	8.1
120	8.1	8.3	8.4	8.3	7.9	7.9	7.9	8.4
160	8.4	8.3	8.1	8.1	8.1	8.1	6.5	6.5
200	6.5	6.5	6.5	7.7	7.8	7.8	7.8	7.9
240	7.9	8.0	8.0	8.0	8.0	7.9	7.9	7.9
280	8.8	8.9	8.7	8.7	8.7	8.6	8.7	8.6
320	8.5	8.4	8.4	8.1	8.0	8.0	7.7	7.7

DEPTH	2429.0		TILT	-84		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	8.1	8.1	8.1	7.9	8.0	7.7	7.6	7.5
40	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5
80	7.6	7.5	7.6	7.9	7.8	7.9	7.8	8.0
120	7.7	7.7	7.6	7.7	7.6	7.7	7.9	8.0
160	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
200	8.0	8.0	8.2	8.2	8.1	7.9	7.9	7.9
240	7.9	7.9	7.9	7.9	7.9	8.9	9.0	9.0
280	9.0	9.1	8.7	8.7	8.7	8.7	8.7	8.6
320	8.6	8.6	8.0	8.1	8.1	8.0	8.1	8.1



CUSTOMER : Marathon Petroleum
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WALL RANGES VS DEPTH

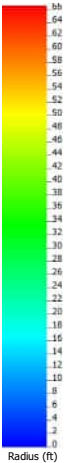
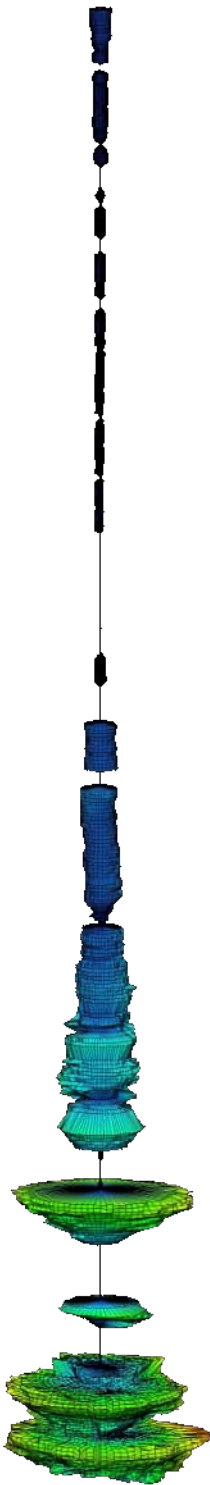
DEPTH	2429.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	37.6	36.8	37.0	34.9	34.6	33.6	33.0	32.1
40	31.8	31.1	31.5	33.2	35.1	35.5	36.9	37.6
80	41.7	43.0	44.0	46.2	47.8	49.2	49.3	50.3
120	50.9	50.2	52.8	53.1	52.7	53.5	51.3	55.9
160	55.6	56.6	59.8	57.9	58.2	59.8	61.2	62.3
200	63.8	65.0	65.0	65.3	64.8	63.4	62.5	61.8
240	58.2	52.8	49.3	47.1	43.0	43.3	42.4	41.4
280	41.4	40.9	41.2	40.8	40.3	40.2	40.5	39.0
320	38.0	38.6	38.2	37.4	37.3	36.4	36.3	36.5

DEPTH	2431.9		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	33.5	32.7	31.4	32.6	30.8	29.4	30.5	29.7
40	28.4	27.4	28.0	29.1	27.3	29.7	32.1	35.5
80	36.0	39.5	40.3	41.6	41.7	47.2	46.8	47.4
120	46.4	50.2	50.6	50.8	48.6	53.7	52.4	53.0
160	54.3	54.6	53.1	54.9	56.2	57.8	59.9	61.2
200	60.4	62.8	66.6	61.3	65.4	64.4	63.2	59.9
240	56.0	51.3	50.2	46.2	42.7	42.7	39.6	39.0
280	38.2	37.2	36.1	37.9	37.1	36.4	35.7	35.4
320	35.8	34.8	34.6	34.1	34.3	33.8	34.2	33.8

DEPTH	2433.8		TILT	0		VOS	5982.00	
Bearing	+ 0	+ 5	+ 10	+ 15	+ 20	+ 25	+ 30	+ 35
0	30.8	29.8	30.2	30.6	28.5	26.8	24.6	24.0
40	25.9	26.1	24.8	26.4	26.3	27.7	29.5	30.0
80	30.9	32.3	36.5	37.3	37.3	41.9	41.8	42.0
120	41.8	44.0	44.8	44.8	44.3	53.9	55.2	56.5
160	54.9	53.4	54.1	54.4	61.2	54.8	60.5	61.4
200	58.2	61.0	61.8	60.2	62.6	60.4	59.1	58.1
240	53.8	50.0	51.0	44.6	41.9	41.0	37.6	36.3
280	35.7	36.0	35.0	33.7	33.0	34.8	33.2	33.6
320	33.6	31.5	30.6	31.7	31.4	32.0	32.0	31.1

	CUSTOMER :Marathon Petroleum	CAVERN :State LPG Well no. 3	
	DATE :December 03, 2022	OPERATION No. :2	
	VIEW FROM NORTH with an overhang of 10°		

SCALE 1/100





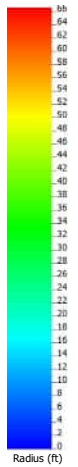
CUSTOMER :Marathon Petroleum
DATE :December 03, 2022

CAVERN :State LPG Well no. 3
OPERATION No. :2



VIEW FROM EAST
with an overhang of 10°

SCALE 1/100





CUSTOMER :Marathon Petroleum
DATE :December 03, 2022

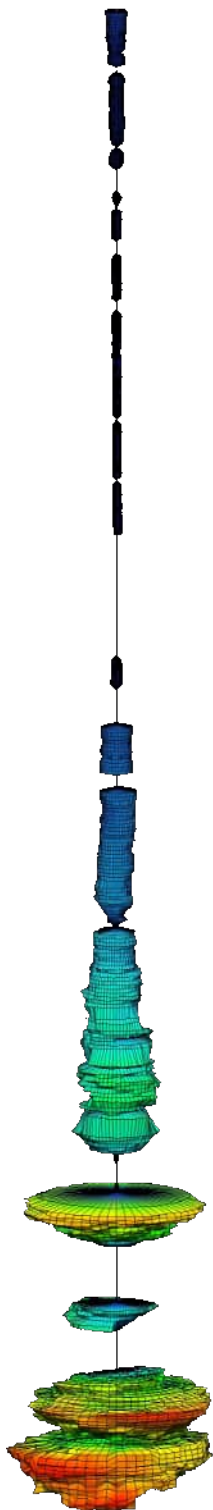
CAVERN :State LPG Well no. 3
OPERATION No. :2



VIEW FROM SOUTH

with an overhang of 10°

SCALE 1/100





CUSTOMER :Marathon Petroleum
DATE :December 03, 2022

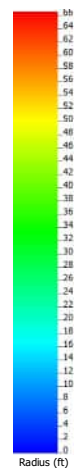
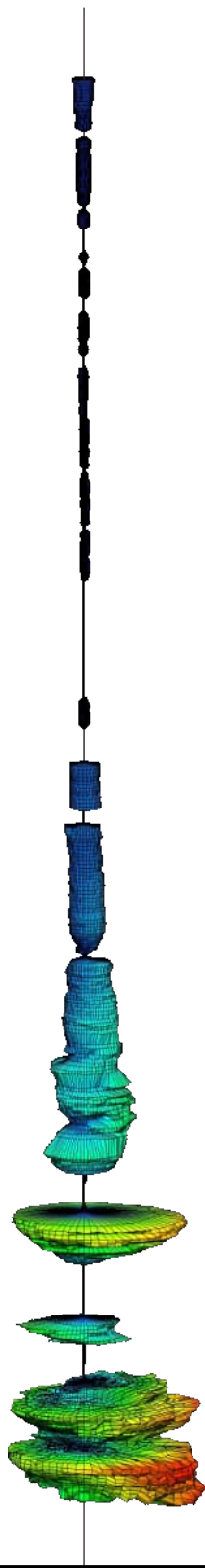
CAVERN :State LPG Well no. 3
OPERATION No. :2



VIEW FROM WEST

with an overhang of 10°

SCALE 1/100



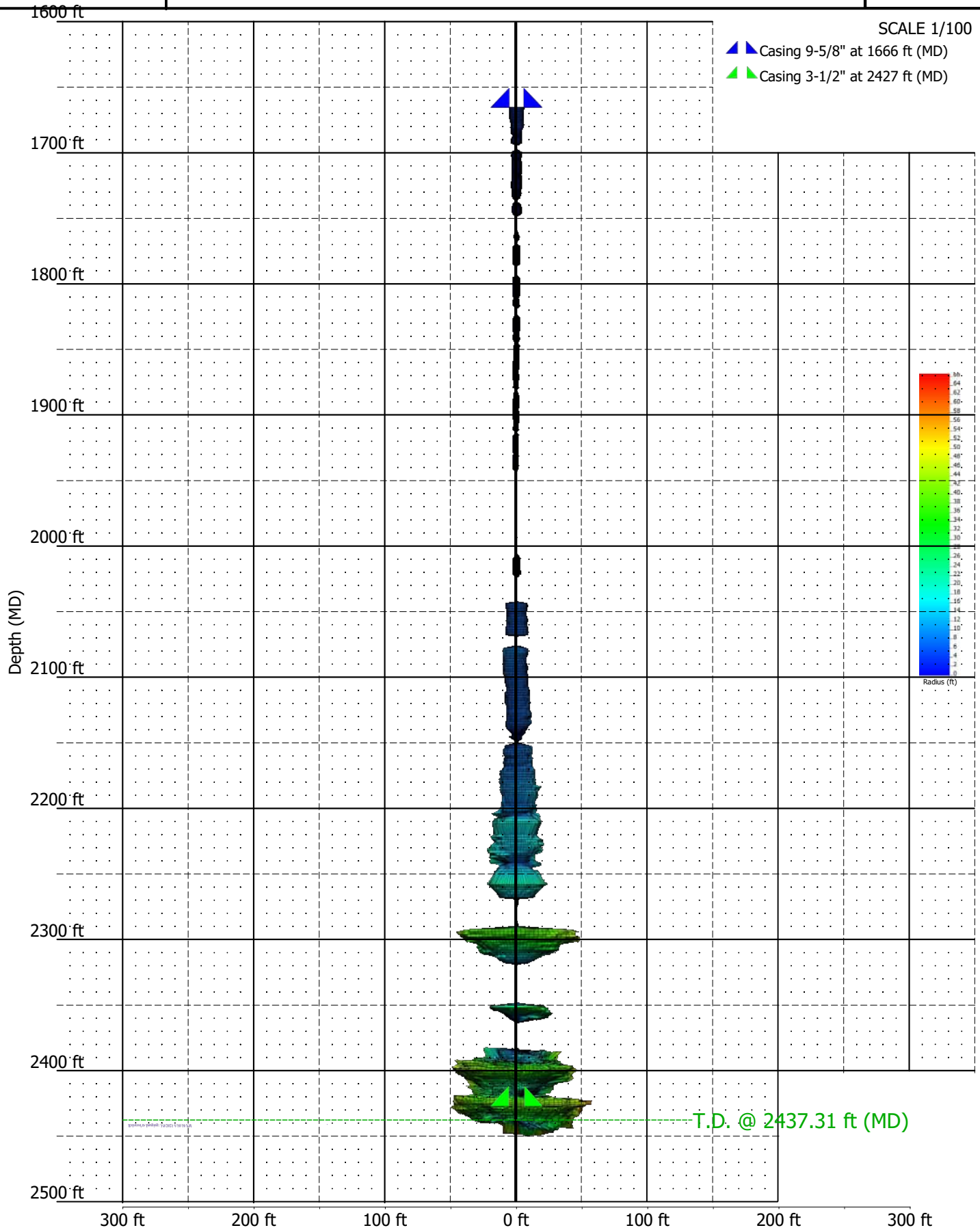


CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN State LPG Well no. 3
OPERATION No. 2



VIEW FROM NORTH
with an overhang of 0°



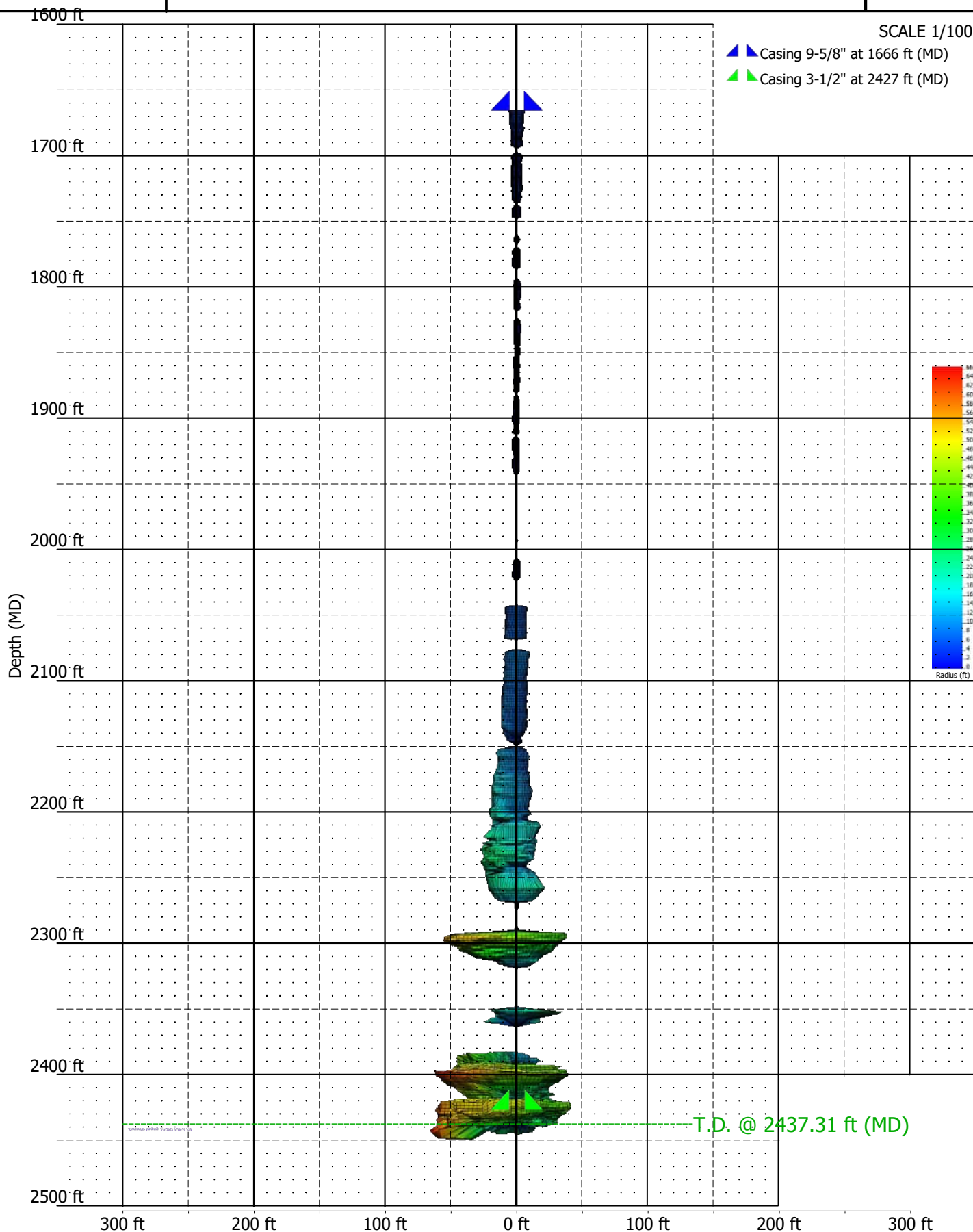


CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN State LPG Well no. 3
OPERATION No. 2



VIEW FROM EAST
with an overhang of 0°





CUSTOMER : Marathon Petroleum
DATE : December 03, 2022

CAVERN State LPG Well no. 3
OPERATION No. 2



VIEW FROM SOUTH

with an overhang of 0°

1600 ft

1700 ft

1800 ft

1900 ft

2000 ft

Depth (MD)

2100 ft

2200 ft

2300 ft

2400 ft

2500 ft

300 ft

200 ft

100 ft

0 ft

100 ft

200 ft

300 ft

SCALE 1/100

- ▲ Casing 9-5/8" at 1666 ft (MD)
- ▲ Casing 3-1/2" at 2427 ft (MD)



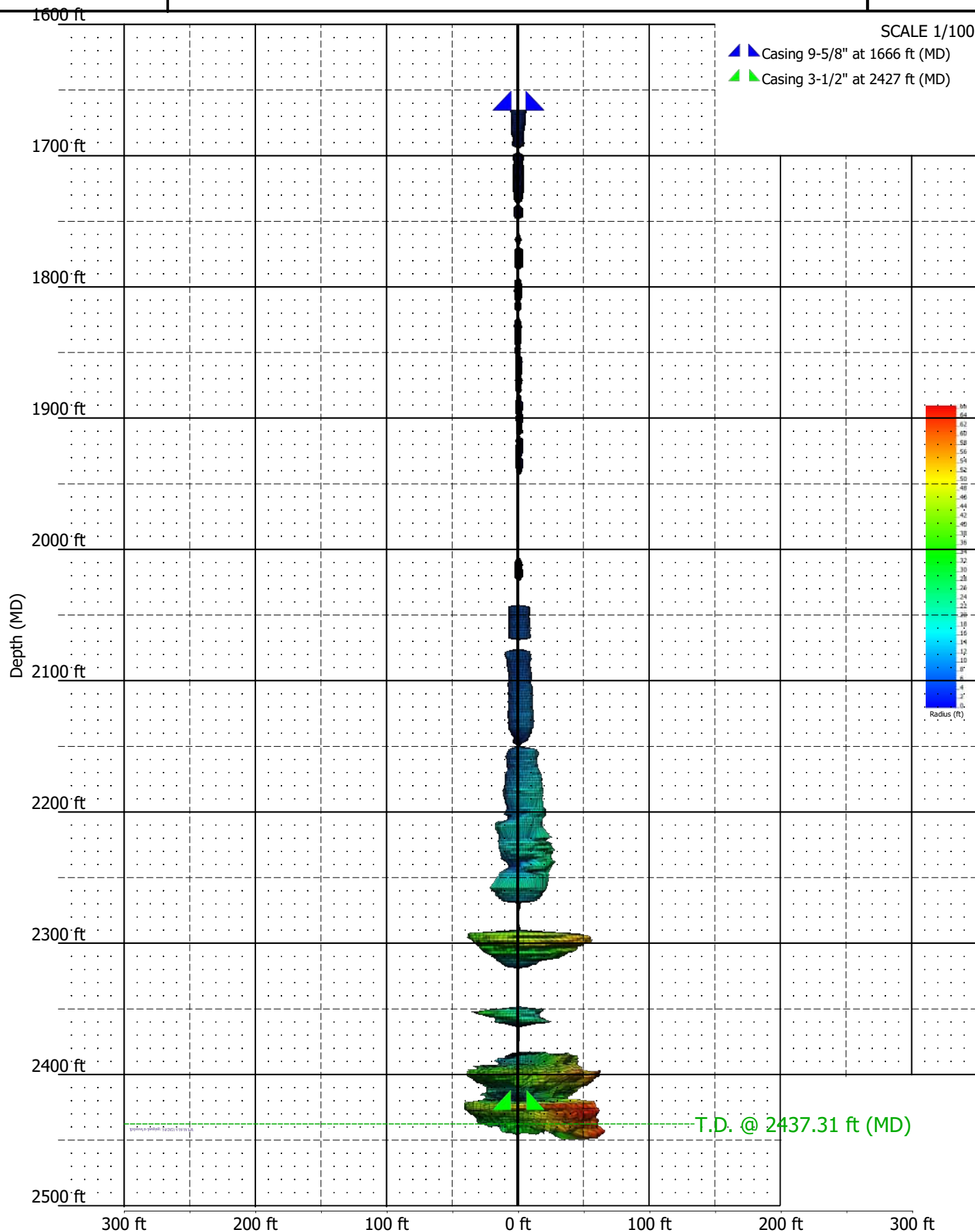
Radius (ft)

T.D. @ 2437.31 ft (MD)



VIEW FROM WEST

with an overhang of 0°



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

State of New Mexico
 Energy, Minerals and Natural Resources

Form C-103
 Revised July 18, 2013

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

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.)		WELL API NO. 30-025-35956
1. Type of Well: Oil Well ☐ Gas Well ☐ Other X: LPG Storage		5. Indicate Type of Lease STATE X FEE ☐
2. Name of Operator Western Refining Company, LP		6. State Oil & Gas Lease No.
3. Address of Operator PO Box 1345 Jal, New Mexico 88252		7. Lease Name or Unit Agreement Name State LPG Storage Well
4. Well Location Unit Letter M : 1000 feet from the South line and 530 feet from the West line Section 32 Township 23S Range 37E NMPM Lea County		8. Well Number 3
11. Elevation (Show whether DR, RKB, RT, GR, etc.)		9. OGRID Number 248440
10. Pool name or Wildcat Langlie Mattix		

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 X	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: ☐		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.

Marathon successfully completed Workover and MIT activities at Jal Cavern #3 in Q4 2022. Please see the attached reports for additional details.

Spud Date:

Rig Release Date:

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

SIGNATURE  TITLE Project Engineer III DATE 2023.02.17

Type or print name Sam Flessner E-mail address: sjflessner@mplx.com PHONE: 419.348.4269

For State Use Only

APPROVED BY:  TITLE Environmental Engineer DATE 3/3/2023

Conditions of Approval (if any):

From: [Flessner, Samuel J.](#)
To: [Chavez, Carl, EMNRD](#)
Cc: [O'Brien, Jessica L.](#); [Brorman, Jeff A.](#); [McElhane, Brian R.](#); [Holmes, Gabriel C.](#); [Villarreal, Adrian](#)
Subject: RE: [EXTERNAL] Jal Cavern #3, #4 WO, MIT Reports
Date: Wednesday, March 8, 2023 2:24:27 PM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Carl – Apologies for any difficulties you encountered during review. Below are summaries of the calculated leakage rates (CLRs) from each Cavern. The CLR was communicated in “bbl./year” terms in the summary table/report. I simply converted this figure to “bbl./hr.” for your reference.

Cavern #3

- Test Duration: 24:06
- N2 Volume Test Start: 183,295 scf
- N2 Volume Test End: 182,633 scf
- Calculated Leak Rate (CLR): 519 bbl./year
- **Converted CLR: 0.0592 bbl./hr.**

The start/end test pressure/volume figures are summarized in “Table 6 Test Summary” on page 8. Annual CLR is listed in “Table 7 CLR Summary” on page 9.

Table 6 Test Summary

Parameter	Test Start	Test End	Change
Date (month/day/year)	December 08, 2022	December 09, 2022	-
Time (hours)	8:58	9:04	24.1
Wellhead Tubing Pressure (psig)	388.6	418.9	30.3
Wellhead Annulus Pressure (psig)	1,199.1	1,194.1	-5.0
Nitrogen-Brine Interface Depth (ft)	1,688.75	1,688.75	0.00
Average Temperature in N ₂ Column (°F)	74.2	73.7	-0.5
Average N ₂ Compressibility Factor	1.00	1.00	0.00
Volume of N ₂ (SCF)	183,295	182,633	-662
Pressure Gradient at Casing Shoe (psi/ft)	0.76	0.76	0.00

Table 7 CLR Summary

CLR Parameter	Value
Average Pressure in N ₂ Column (psig)	1,234.1
Average Wellbore Temperature in N ₂ Column (°F)	73.9
Average N ₂ Compressibility Factor	1.00
Change of N ₂ (cubic ft/Test Period)	-8.02
Change of N ₂ Volume (bbls/Test Period)	-1.43
CLR (bbls/yr)	519

Cavern #4

- Test Duration: 26:06
- N2 Volume Test Start: 296,039
- N2 Volume Test End: 293,202
- Calculated Leak Rate (CLR): 528 bbl./year
- **Converted CLR: 0.0603 bbl./hr.**

The start/end test pressure/volume figures are summarized in "Table 6 Test Summary" on page 9. Annual CLR is listed in "Table 7 CLR Summary" on page 10.

Table 6 Test Summary

Parameter	Test Start	Test End	Change
Date (month/day/year)	November 21, 2022	November 22, 2022	-
Time (hours)	12:03	14:09	26.1
Wellhead Tubing Pressure (psig)	952.2	1,203.0	250.8
Wellhead Annulus Pressure (psig)	1,205.1	1,201.6	-3.5
Tubing Nitrogen-Brine Interface Depth (ft)	1,147.50	1,674.50	527.00
Cavern Nitrogen-Brine Interface Depth (ft)	1,680.00	1,679.50	-0.50
Average Temperature in N ₂ Column (°F)	73.6	73.7	0.1
Average N ₂ Compressibility Factor	1.00	1.00	0.00
Volume of N ₂ in Cavern (SCF)	296,039	293,202	-2,837
Volume of N ₂ in the Tubing (SCF)	2,538	4,640	2,102
Pressure Gradient at Casing Shoe (psi/ft)	0.77	0.77	0.00

Table 7 CLR Summary

CLR Parameter	Value
Average Pressure in N ₂ Column (psig)	1242.2
Average Wellbore Temperature in N ₂ Column (°F)	73.7
Average N ₂ Compressibility Factor	1.00
Change of N ₂ (cubic ft/Test Period)	-8.84
Change of N ₂ Volume (bbls/Test Period)	-1.57
CLR (bbls/yr)	528

Thanks,
Sam

From: Chavez, Carl, EMNRD <CarlJ.Chavez@emnrd.nm.gov>
Sent: Friday, March 03, 2023 9:29 AM
To: Flessner, Samuel J. <sjflessner@marathonpetroleum.com>
Cc: O'Brien, Jessica L. <JOBrien@Marathonpetroleum.com>; Brorman, Jeff A. <JBrorman@marathonpetroleum.com>; McElhaney, Brian R. <BrMcElhaney@marathonpetroleum.com>
Subject: RE: [EXTERNAL] Jal Cavern #3, #4 WO, MIT Reports

Sam, et al.,

Good morning!

I've been studying the above subject cavern MITs performed in 2022.

I'm having difficulty locating the final Nitrogen leakage rate determined at the end of the 24 hour or greater tests.

For example, OCD had allowed leakage rate of 0.11 bbl/hr to determine passing.

Could you please point me to where the final leakage rates are in the reports? Also, it was difficult to follow the starting test pressure/vol vs. the ending test pressure/vol to quickly assess the test results at each cavern.

Please contact me to discuss.

Thank you.

Carl J. Chavez • UIC Group
Engineering Bureau
EMNRD - Oil Conservation Division
Horizon Building
8801 Horizon Blvd., Suite 260 | Albuquerque, NM 87113
505.660.7923 | CarlJ.Chavez@emnrd.nm.gov
www.emnrd.nm.gov



From: Flessner, Samuel J. <sjflessner@marathonpetroleum.com>
Sent: Friday, February 17, 2023 3:25 PM
To: Chavez, Carl, EMNRD <CarlJ.Chavez@emnrd.nm.gov>
Cc: Goetze, Phillip, EMNRD <phillip.goetze@emnrd.nm.gov>; O'Brien, Jessica L. <JOBrien@Marathonpetroleum.com>; Brorman, Jeff A. <JBrorman@marathonpetroleum.com>; McElhaney, Brian R. <BrMcElhaney@marathonpetroleum.com>
Subject: [EXTERNAL] Jal Cavern #3, #4 WO, MIT Reports

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Carl – I submitted the Workover/Mechanical Integrity Test Reports and C-103Z forms for Jal Caverns #3 and #4 to the OCD Website. Action IDs are provided below for reference.

Cavern #3: 187653

Cavern #4: 187684

Thanks,
Sam



Sam Flessner

Project Engineer III

L3S Mountain West

803 N 300 W, Salt Lake City, UT 84103

C: (419) 348-4269

sjflessner@marathonpetroleum.com

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

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

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

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

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

COMMENTS

Action 187653

COMMENTS

Operator: WESTERN REFINING COMPANY, L.P. 15 Smith Road Midland, TX 79705	OGRID: 248440
	Action Number: 187653
	Action Type: [C-103] Sub. General Sundry (C-103Z)

COMMENTS

Created By	Comment	Comment Date
cchavez	Form C-103Z Well Work Over & MIT	3/1/2023

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
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1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 187653

CONDITIONS

Operator: WESTERN REFINING COMPANY, L.P. 15 Smith Road Midland, TX 79705	OGRID: 248440
	Action Number: 187653
	Action Type: [C-103] Sub. General Sundry (C-103Z)

CONDITIONS

Created By	Condition	Condition Date
cchavez	None	3/9/2023