2023 MECHANICAL INTEGRITY TESTING AND PRESSURE FALLOFF TESTING REPORT

REPUBLIC INDUSTRIAL & ENERGY SOLUTIONS, LLC

WELL NO. 1-12

API No. 21-163-M452
EPA Permit No. MI-163-1W-C0010
Michigan EGLE Permit No. M-452
Romulus, MI

October 2023

Baton Rouge, LA

Project No. 192128AP

Prepared by Jeffry Tahtouh and Troy Gillen Reviewed by Steve Kelly

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

EXHIBITS

ATTACHMENTS

USB FLASH DRIVE CONTAINING:

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (U.S. EPA), requirements included in the Class I UIC permit number MI-163-1W-C010 granted to Republic Industrial and Energy Solutions, LLC (Republic) and with the State of Michigan Administrative Rule R299.2393 (MI Permit #M-452) the annual mechanical integrity testing was performed on Well No. 1-12 on August 11 and September 5, 2023 to demonstrate the mechanical integrity of the casing, packer, and tubing.

Republic Industrial and Energy Solutions, LLC (Republic) retained WSP USA (WSP) to perform the annual mechanical integrity testing on Well No. 1-12 at Republic's facility in Romulus, MI. The mechanical integrity tests included a Radioactive Tracer Survey and an Annulus Pressure Test. All tests were conducted in accordance with United States Environmental Protection Agency (USEPA) 40 CFR 146.8 and 146.13(b)(3), (c)(2)(i), and (d). Approved testing procedures are included as Appendix A.

In addition to the mechanical integrity testing, a bottom hole pressure falloff test (Ambient Pressure Monitoring) was run in Well No. 1-12 to assist in evaluating the injection zone. A chronology of field activities is included as Appendix B. Wellhead and wellbore schematics of Well No. 1-12 are included as Figures 1 and 2, respectively.

2.0 REPORT OF FIELD OPERATIONS

All depths in this report, unless otherwise noted, are referenced to the Kelly Bushing (KB) elevation which is 13 feet above the ground level elevation for Well No. 1-12. A wellbore schematic of Well 1-12 is presented as Figure 2. A chronological report of field activities is presented as Appendix B.

Republic performed the annulus pressure test (APT) on August 11, 2023, to demonstrate that there is no significant leak in the tubing, casing or packer. JoAnne Mitock with Environmental Solutions AQ (support for USEPA Region 5) and Emma Atkinson with Michigan EGLE-OGMD witnessed and passed the test. The annulus pressure test results are detailed in Section 3.0.

Field wireline operations began on September 5, 2023, when Michigan Wireline spotted and rigged up on the well with Casing Collar Locator (CCL) and Radioactive Tracer tools. A radioactive tracer survey (RTS) was run on September 5, 2023. A pre-survey base log and 5-minute statistical checks were ran with no injection. Injection was initiated at 42 gallons (gpm), then a slug of radioactive material was released at 3100 feet. A dissipated slug was located at approximately 4291 feet with Chase Pass No. 4. A slug of radioactive material was ejected at 3750 feet, and the lower gamma ray detector was run downhole and positioned at 4050 feet to observe the slug passing by and monitor for any upward migration. The time-drive survey was conducted for approximately 30 minutes at 42 gpm and 487 psi injection pressure. To conclude the RTS, the well was shut-in and the post-survey log was run. The radioactive tracer survey results are detailed in Section 4.0.

On September 7, 2023, Impact Completions spotted and rigged up slickline with memory-type bottom-hole pressure gauges. The memory gauges were run downhole and set at 4080 feet (top gauge at 4078 feet). Injection was initiated at 2029 hours. Republic began to discontinue injection of plant effluent into Well 1-12 at 0746 hours on September 8, 2023. The pressure falloff was monitored for approximately 23.3 hours and was concluded on September 9, 2023. While pulling the gauges out of the well, static pressure gradient stops were made at 4000 feet, 3000 feet, 2000 feet, 1000 feet, and at the surface. Well 2-12 was shut-in throughout the build-up and falloff period. The falloff test and bottom hole static pressure gradient results are detailed in Sections 5.0 and 6.0, respectively.

3.0 ANNULUS PRESSURE TEST

An Annulus Pressure Test (APT) was conducted on Well #1-12 on Monday, August 11, 2023, with JoAnne Mitock with Environmental Solutions AQ (support for USEPA Region 5) and Emma Atkinson with Michigan EGLE-OGMD witnessed and passed the test. Between 03:28 PM and 03:30 PM, the annulus pressure was increased from 983.49 psig to 1181.07 psig. The official APT was started at 03:53 PM at a pressure of 1161.57 psig. One hour later at 04:53 PM, the annulus pressure had declined to 1144.61 psig which was a decrease of 16.96 psi (-1.46%) and within the ±3%/hour allowed by the EPA Region 5.

A plot of the APT is provided as Figure 3, and a tabulate of the APT data is provided as Appendix C. A calibration certificate for the digital pressure gauge is included in Appendix D. Signed copy of the Standard Annular Pressure Test Form is provided as Appendix E.

4.0 RADIOACTIVE TRACER SURVEY

A Radioactive Tracer Survey was run in Well #1-12 on September 5, 2023. The survey was conducted using the facility's pump and fresh water. After correlating the log with the top of the packer set at 4032 feet, the tool tagged bottom at 4486 feet.

A Base Pass was made from 4486 feet to 2973 feet, and 5-minute statistical checks were made at 3802 feet and 3955 feet. While injecting into the well at 1 bbl/min (42 gal/min), a 4-second slug of radioactive material (Iodine-131) was released at 3100 feet. Four Chase Passes were made through the radioactive slug as it traveled down the tubing and dissipated into the Injection Interval, below the 7-inch protection casing set at 4075 feet, dissipating at approximately 4291 feet. A summary of the Chase Passes with flow rate is provided as Table 1. No radioactive material was detected exiting the well above the Injection Interval, demonstrating the external mechanical integrity of the well.

The injection rate was kept at 42 gal/min, and a 4-second slug of radioactive material was released at 3750 feet. The upper and lower gamma ray detectors were then positioned at 4,041 feet and 4,050 feet, respectively. At 14:41:45 the slug passed by the upper gamma ray detector, and 16 seconds later at 14:42:01, the slug passed by the lower gamma ray detector. Approximately 40 seconds after the radioactive slug passed by each gamma ray detector, the level of radiation returned to background levels on both gamma ray detectors and remained at background levels for the duration of the time-drive survey. The time-drive survey was terminated at 15:13:55 which was 32 minutes after the radioactive slug passed by the lower gamma ray detector. No vertical migration was detected during the time-drive survey, demonstrating the base of the 7-inch protection casing cement had mechanical integrity.

Injection was ceased. A final gamma ray pass was made from 4486 feet to 2988 feet following the time-drive survey. Above approximately 4220 feet, the final pass repeated the base pass with the upper and lower gamma ray detectors. Below 4250 feet, both gamma ray detectors averaged approximately 15 counts/sec higher on the final pass, indicating residual tracer material in the borehole. Some of this small increase may have been due to residual radioactive material in the borehole getting dispersed with movement of the tool.

A copy of the Radioactive Tracer Survey is included as Exhibit 1. Appendix F provides a completed EPA Radioactive Tracer Survey Form with background information of the Well #1-12 survey.

5.0 PRESSURE FALLOFF ANALYSIS

Pressure falloff testing was conducted on Well 1-12 from September 7, 2023, through September 9, 2023. A Badger Low Temp, Serial No. 91874 pressure gauge was utilized during the testing. The gauge calibration certificates are presented in Appendix D and show the gauges have been calibrated as specified by the gauge manufacturer.

Injection Period

The rate data used in the analysis of the falloff pressure data was the injection period on September 7, 2023, through shut-in. Well 1-12 had been shut in for approximately 48 hours prior to commencement of the buildup portion of the test. Injection began September 7, 2023 at 2029 hours, then continued for approximately 11.29 hours. General well and reservoir information is presented in Table 2. Information pertinent to the injection period is presented in Table 3.

Falloff Period

Well 1-12 was shut in at 0746 hours on September 8, 2023 and remained shut-in for approximately 23.29 hours while the bottom-hole pressure and temperature were recorded. Appendix G lists the pressure and temperature data recorded during the test. Table 4 contains information pertinent to the falloff period of the test.

Analysis of Falloff Test

The pressure data obtained during the falloff test were analyzed utilizing the commercially available pressure transient analysis software program PanSystem©. The PanSystem© output for the analysis of this test is presented in Appendix H. Impact Completion's pressure test report is presented as Appendix I. A completed EPA Pressure Falloff Test Form is provided in Appendix J.

Figure 4 shows the pressure response recorded by the bottom-hole pressure tool from the time the tool was in place through the 23.29-hour shut-in period. Figure 5 is a Cartesian plot of the pressure data recorded during the falloff period. The superposition time function was used to account for all rate changes during the injection buildup period of the testing.

Figure 6 is a log-log diagnostic plot of the falloff data, showing change in pressure and pressure derivative versus elapsed shut-in time. Radial flow begins to appear at an elapsed time following shut-in of 0.89 hours and continues until an elapsed time following shut-in of 2.92 hours. The radial flow regime is indicated on Figure 7.

The reservoir permeability was determined from the radial flow region of the superposition Horner plot (Figure 7). The radial flow regime begins at a superposition Horner time of 13.66 and continues until 4.88. Figure 8 shows an expanded view of the superposition Horner plot. The slope of the radial flow period was determined to be 19.989 psi/cycle.

An estimate of mobility-thickness, kh/μ, for the reservoir was determined from the following equation:

$$\frac{kh}{\mu} = 162.6 * \frac{qB}{m}$$

Where,

kh/μ	=	formation mobility-thickness, millidarcy-feet/centipoise
q	=	rate prior to shut-in, bpd
B	=	formation volume factor, reservoir volume/surface volume
m	=	slope radial flow period, psi/cycle

With the following values, the mobility-thickness was found to be 14,084.3 md-ft/cp:

q	=	1731.43 barrels/day (50.5 gallons/minute)
m	=	19.989 psi/cycle
B	=	1.0 reservoir barrel/surface barrel

$$\frac{kh}{\mu} = 162.6 \frac{(1731.43)(1.0)}{19.989}$$

$$= 14{,}084.3 \text{ md-ft/cp}$$

The permeability-thickness, kh, was determined to be 18,872.9 md-ft by multiplying the mobility-thickness, kh/μ, by the viscosity of the formation fluid viscosity, $\mu_{formation}$, of 1.34 centipoise:

$$kh = \left(\frac{kh}{\mu}\right)\mu_{waste}$$

$$= (14{,}084.3)\ (1.34)$$

$$= 18{,}872.9 \text{ md-ft}$$

The average reservoir permeability using the total thickness of 133 feet was determined to be 141.9 md:

$$k = \frac{(kh)}{h}$$

$$= \frac{18{,}872.9}{133}$$

$$= 141.9 \text{ md}$$

To determine whether the pressure transient was indeed beyond the waste front, the travel time for the pressure transient to pass beyond the waste front was calculated. The distance to the waste front is determined from the following equation:

$$r_{waste} = \left(\frac{0.13368\,V}{\pi h \phi}\right)^{1/2}$$

Where:

r_{waste}	=	radius to waste front, feet
V	=	total volume injected into the injection interval, gallons
h	=	formation thickness, feet
ϕ	=	formation porosity, fraction
0.13368	=	constant

The time necessary for a pressure transient to travel this distance is calculated from the following equation:

$$t_{waste} = 948\frac{\phi\,\mu_{waste}\,c_t\,r^2{}_{waste}}{k}$$

Where:

t_{waste}	=	time for pressure transient to reach waste front, hours
ϕ	=	formation porosity, fraction
μ_{waste}	=	viscosity of the waste at reservoir conditions, centipoise
r_{waste}	=	radius to waste front, feet
c_t	=	total compressibility of the formation and fluid, psi
k	=	formation permeability, millidarcies
948	=	constant

Combining the previous two equations results in:

$$t_{waste} = 126.73\frac{\mathrm{V}\,\mu_{waste}\,c_t}{\pi k h}$$

The waste viscosity is 0.80 centipoise at reservoir conditions, while viscosity of brine in the reservoir is 1.34 centipoise. A cumulative volume of approximately 111,539,596 gallons of waste has been injected the injection interval (from both Well 1-12 & 2-12) since injection began. The formation has a porosity of 0.11 and a total compressibility of 6.20 x 10^{-6} psi^{-1}. The time necessary for a pressure transient to traverse the distance from the wellbore to the leading edge of the waste front, would then be 1.18 hours:

$$t = 126.73\frac{(111{,}539{,}596)(0.80)(6.20\,x\,10^{-6})}{(\pi)(141.9)(133)}$$
$$= 1.18\ hours$$

Since the radial flow period occurred from 0.89 to 2.92 hours elapsed time following shut-in, most of the regime occurred in the formation fluid (> 1.18 hours). Therefore, use of the formation fluid viscosity in the analysis is valid.

The skin factor was determined from the following equation:

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

Where,

s	=	formation skin damage at open perforations, dimensionless
1.151	=	constant
p_{wf}	=	flowing pressure immediately prior to shut-in, psia
p_{1hr}	=	pressure determined by extrapolating the radial flow semi-log line to a Δt of one hour, psi
m	=	slope of the radial flow semi-log line, psi/cycle
k	=	permeability of the formation, md
ϕ	=	porosity of the injection interval, fraction
μ	=	viscosity of the fluid the pressure transient is traveling through, centipoise
c_t	=	total compressibility of the formation plus fluid, psi^{-1}
r_w	=	radius of the wellbore, feet
3.23	=	constant

The final flowing pressure was 2342.86 psia. The pressure determined by extrapolating the radial flow semi-log line to a Δt of one hour, p_{1hr}, was 1921.42 psia. The porosity of the injection interval, ϕ, is 0.11 and the total compressibility, c_t, is 6.2 x 10^{-6} psi^{-1}. The wellbore radius, r_w, is 0.3646 feet. Using these values in addition to the previously determined parameters, m and k, results in a skin of 17.55:

$$s = 1.151 \left[\frac{2342.86 - 1921.42}{19.989} - \log\left(\frac{141.9}{(0.11)(1.34)(6.2 \, x \, 10^{-6})(0.3646)^2} \right) + 3.23 \right]$$

$$= 17.55$$

The change in pressure, Δp_{skin}, in the wellbore associated with the skin factor was determined to be 304.85 psi using the slope of the straight-line portion of the radial flow plot, the calculated skin factor, and the following equation:

$$\Delta p_{skin} = 0.869 \, ms$$

Where:

0.869	=	constant
m	=	slope from superposition plot of the well test, psi/cycle
s	=	skin factor calculated from the well test

Δp_{skin} = 0.869 (19.989) (17.55)

Δp_{skin} = 304.85 psi

The flow efficiency (E) was determined from the following equation:

$$E = \frac{p_{wf} - p^* - \Delta p_{skin}}{p_{wf} - p^*}$$

Where:

E = flow efficiency, fraction
p_{wf} = flowing pressure prior to shutting in the well for the falloff, 2342.86 psia
p^* = pressure extrapolated to an infinite shut-in time from the straight-line portion of the radial flow plot, 1899.64 psia
Δp_{skin} = pressure change due to skin damage, 304.85 psi

Substituting these values, the flow efficiency was calculated to be 0.31:

$$E = \frac{2342.86 - 1899.64 - 304.85}{2342.86 - 1899.64}$$

$$= 0.31$$

Table 5 presents a summary of calculated test data determined from the analysis.

Table 6 presents a summary of the results determined from the analysis.

6.0 BOTTOM-HOLE PRESSURE MEASUREMENT AND STATIC GRADIENT SURVEY

On September 9, 2023, a static gradient survey was performed while pulling the pressure gauges out of the well. Gradient stops were made at 4000 feet, 3000 feet, 2000 feet, 1000 feet 500 feet, and at the surface. The bottom-hole pressure and temperature, after approximately 23.3 hours of shut-in at 4080 feet, were 1897.64 psia (1897.64 psia = 1882.94 psig + 14.7 psi) and 73.52 °F, respectively. The data printout for the static gradient survey is presented as Appendix K. A tabulation of the survey results is provided as Table 6. The data are depicted graphically in Figure 9.

7.0 CONCLUSIONS

In conclusion, Republic Well No. 1-12 has mechanical integrity in accordance with 40 CFR 146.08 a (1) and in accordance with U.S. EPA Permit Number MI-168-1W-C010, and in accordance with the State of Michigan administrative rule R299.2393 (Michigan Permit Number #M-453) by demonstrating that:

- There is no significant leak in the casing, tubing or packer, as evidenced by an annulus pressure test conducted on August 11, 2023.
- The cement at the top of the injection interval has integrity and all injected fluids exited the injection tubing below the packer and moved out into the injection zone as demonstrated by the radioactive tracer log dated September 5, 2023.

With the submittal of this report, the ambient pressure monitoring and mechanical integrity testing conducted on Well 1-12 satisfies the United States Environmental Protection agency requirements which are included in the Class I UIC well permit number MI-163-1W-C0010

TABLES

TABLE 1

RADIOACTIVE TRACER SURVEY CHASE PASS SUMMARY

Chase Pass	Time Logged	Peak Slug Depth (ft KB)	Distance Traveled (ft)	Time Between Slugs (min)	Volume Between Slugs (gal)	Flow Rate (gpm)
1	13:43:53	3181.54				
2	13:48.37	3493.19	311.65	4.73	198.66	42
3	14:03:37	4119.84	626.65	15.00	630.00	42
4	14:27:28	4291.50	171.66	23.85	1001.70	42

TABLE 2
GENERAL TEST INFORMATION

PARAMETER	VALUE	SOURCE/JUSTIFICATION
Dates of test	September 7-9, 2023	
Time since reservoir pressure was last stabilized	24-48 hours (shut-in prior to buildup)	Republic plant records
Shut-in time prior to test	48 hours	Republic plant records
Stabilized pressure and temperature prior to test	N/A	
Cumulative injection into completed interval (gallons)	#1-12 .....57,775,895 #2-12 .....53,763,701 *Total: 111,539,596*	Republic plant records
Wellbore Radius (inches)	4.375	Figures 1 and 2
Completed Intervals (feet KB)	4,121 – 4,645 MD / 4,024 – 4,536 TVD	Figures 1 and 2
Type of Completion	Open-Hole	Figures 1 and 2
Depth to Fill (feet KB)	4,486	Tracer Survey conducted 09/05/23
Interval Thickness (feet)	133	No-Migration Petition Revision, Section VI (September 2002)
Average historical waste fluid viscosity	0.80	Estimated from Waste Stream Characteristics (30K TDS)
Formation fluid viscosity (cp)	1.34	No-Migration Petition Revision, Section VI (September 2002)
Porosity	11%	No-Migration Petition Revision, Section VI (September 2002)
Total Compressibility (psi^{-1})	6.20×10^{-6}	No-Migration Petition Revision, Section VI (September 2002)
Formation volume factor	1	Assumed since the dominant fluid is water
Initial formation bottom-hole pressures	1,779.5 psia @ 3,950’ KB MD / 3,856’ KB TVD	No-Migration Petition Revision, Section VI (September 2002)
Initial formation bottom-hole temperature	86.4 ˚F @ 3,950’ KB MD / 3,856’ KB TVD	No-Migration Petition Revision, Section VI (September 2002)

TABLE 3
INJECTION PERIOD

PARAMETER	VALUE	SOURCE/JUSTIFICATION
Time of injection period (hours)	11.29 hours	Appendices 2 & 6 / Figure 3
Type of test fluid	Republic Storm Water	
Final Injection rate (gpm)	50.5	Appendices 2 & 6 / Figure 3
Pumps used for test	Facility Pump	
Distance from shut-in valve to wellhead	20 feet	Measured
Injection fluid viscosity (cp)	0.95	Estimated (based on Fresh Water @ 73 ˚F)
Injection fluid density (gm/cc)	1.00	Measured
Method and time viscosity tested	Not measured	
Final injection pressure	2,342.86 psia	Appendix H
Gauge temperature at shut-in	72.26 ˚F	Appendix H
Gauge type	Cal-Scan	Appendix D
Gauge model	Badger Tri Tool, SN 91874	Appendix D
Gauge sensitivity	Accuracy: (0.024% FS) Resolution: (0.0003% FS)	Appendix D
Gauge depth (feet KB)	4,080	Appendix B
Manufacturer's recommend gauge calibration frequency	Annual	Appendix D

TABLE 4
FALL-OFF PERIOD

PARAMETER	VALUE
Total shut-in time	23.29 hours
Final shut-in pressure	1,897.64 psia
Final shut-in temperature	73.52 ˚F

TABLE 5
CALCULATED TEST DATA

CALCULATED PARAMETER	VALUE
Time to Waste Front (hours)	1.18
Time of Radial Flow Regime (hours)	0.89 – 2.92
Time to End of Wellbore Storage (hours)	0.0103
Radial Flow (Horner) Time at End of Wellbore Storage	1,106
Slope of Straight-Line Portion of Radial Flow Plot (psi/cycle)	19.989
Injection Reservoir Transmissibility (md-ft/cp)	14,084.3
Permeability (md)	141.9
Skin Factor (dimensionless)	17.55
Pressure Loss @ 50.5 gpm Due to Skin Damage (psi)	304.85
Flow Efficiency (fraction)	0.31

TABLE 6
SUMMARY OF PANSYSTEM FALL-OFF ANALYSIS

SOURCE	PARAMETER	1-12 VALUE	UNITS
Log-Log and Derivative Information	Total Shut-in Time	23.29	hours
	Derivative Smoothing Factor	0.070	
	Radial Flow Period (elapsed)	0.97 – 2.92	hours
Information from Superposition Plot	Slope of Semi-Log Straight Line	19.989	psi/cycle
	Pressure at Infinite Shut-in Time	1899.64	psia
	Pressure at 1-hour from Shut-in (Extrapolation of Semi-Log Straight Line)	1921.42	psia
Semi-Log Analysis	Mobility Thickness	14,081	md-ft/cp
	Permeability Thickness	18,868.6	md-ft
	Permeability	141.9	md
	Formation Skin Damage	17.59	-

TABLE 7

STATIC PRESSURE GRADIENT SURVEY
WELL No. 1-12
September 9, 2023

Memory Gauge Serial No. 91874			
Depth (feet)	Pressure (psig)	Pressure Gradient (psi/ft)	Temperature (ºF)
0	145.30	-	62.23
1000	579.22	0.434	59.54
2000	1011.22	0.432	63.13
3000	1423.10	0.412	72.85
4000	1847.86	0.425	77.22
4080	1882.94	0.439	73.53

FIGURES

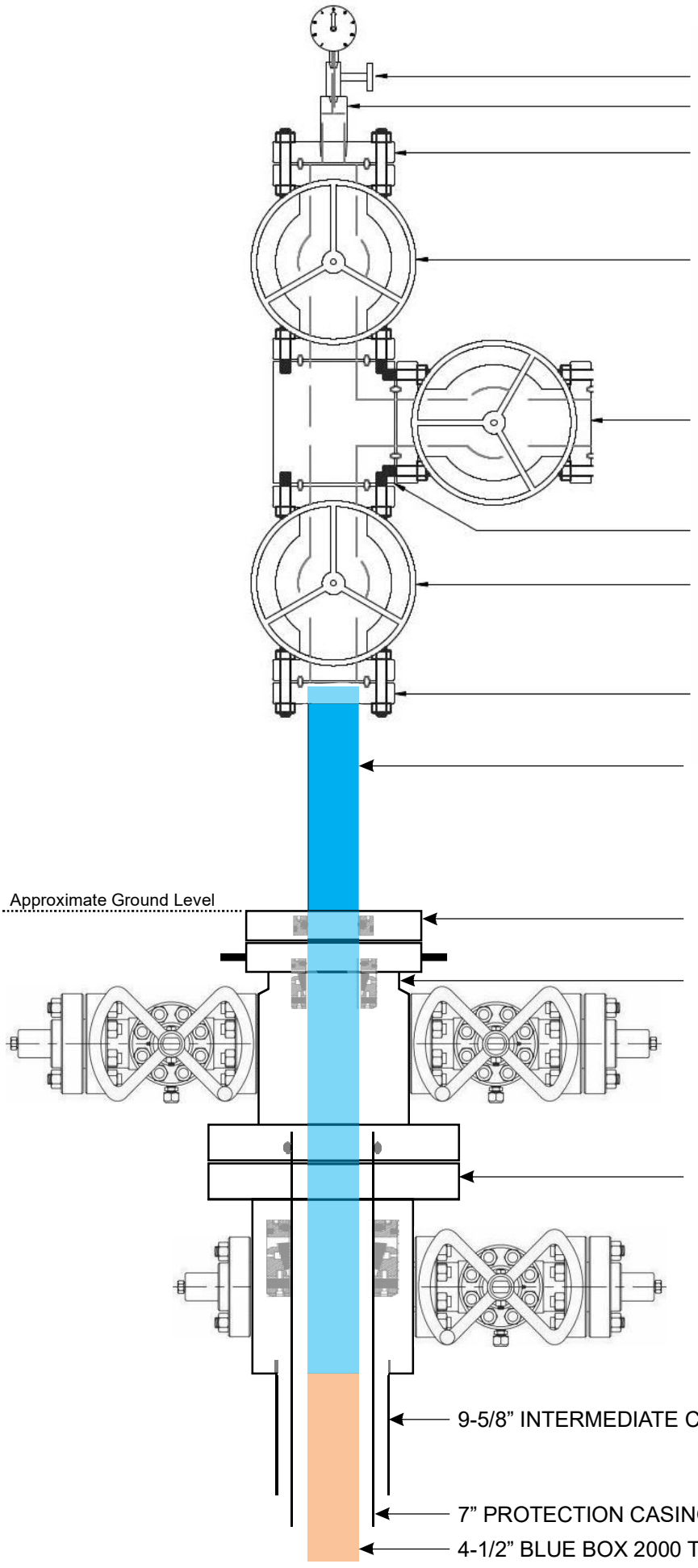


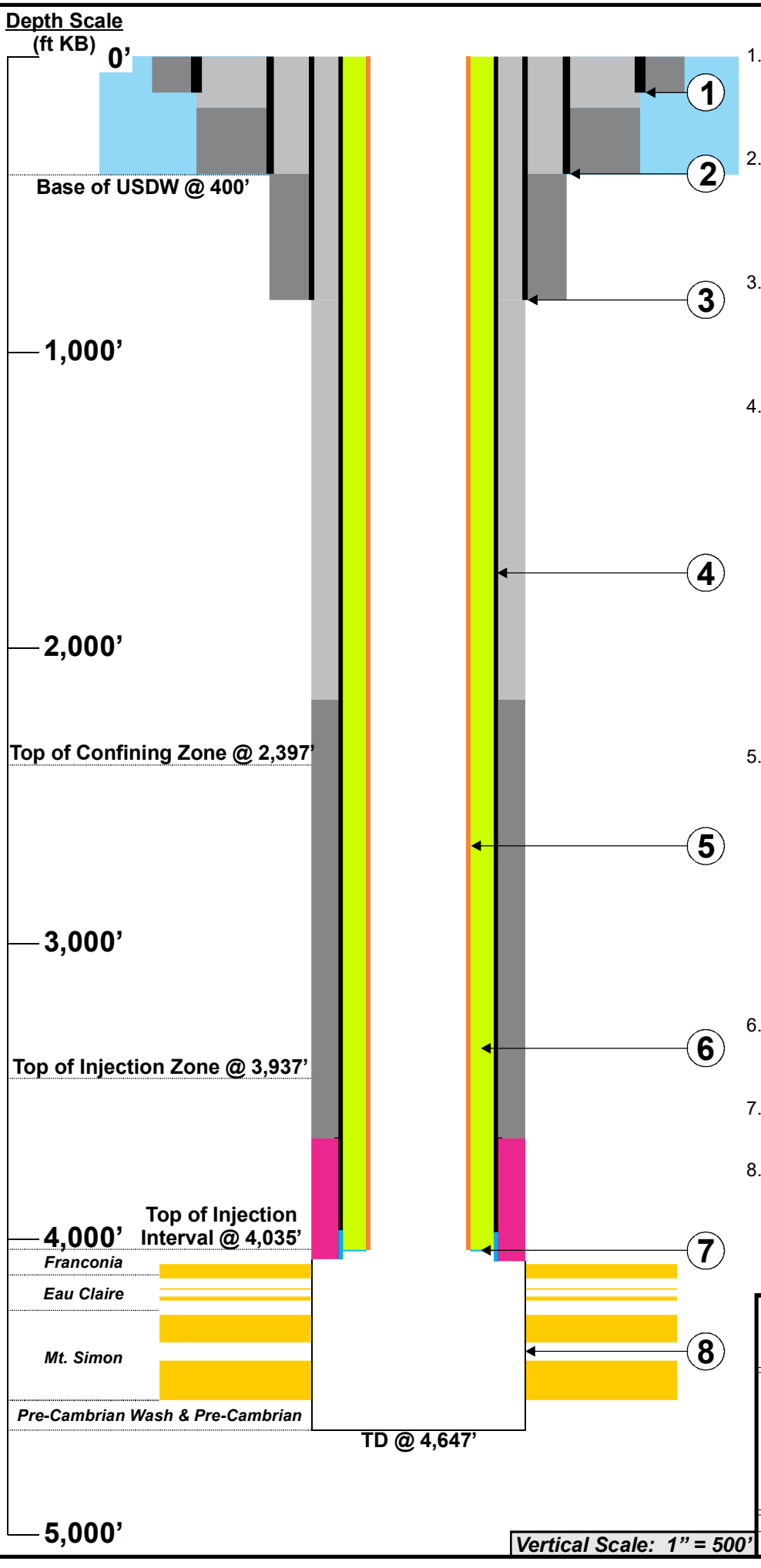
FIGURE 1

REPUBLIC INDUSTRIAL AND ENERGY SOLUTIONS, LLC

ROMULUS, MICHIGAN

WELLHEAD SKETCH
WELL #1-12

DATE 07/05/22	CHECKED BY		JOB NO. TBD
DRAWN BY SLK	APPROVED BY		DWG NO.



BELOW GROUND DETAILS

1. Conductor Casing: 20", H-40 set in a 24" borehole at 119'. Cemented with 200 sacks of Class A cement containing 3% $CaCl_2$ with 75% returns. Top 50' of annulus cemented with 50 sacks of Class A.
2. Surface Casing: 13-3/8", H-40 set in a 17-1/2" borehole at 405'. Cemented with 75 sacks of Lite lead cement with 3% $CaCl_2$ followed by 150 sacks of Class A tail cement with 3% $CaCl_2$. Top of annulus cemented with 175 sacks of Class A cement with 3% $CaCl_2$.
3. Intermediate Casing: 9-5/8", 36 lb/ft set in a 12-1/4" borehole at 824'. Cemented with 150 sacks of Lite lead with 3% $CaCl_2$ followed by 200 sacks of Class A tail with 3% $CaCl_2$. Approximately 10 bbl of cement circulated to the surface.
4. Protection Casing: 7", 26 lb/ft, K-55, LT&C set in an 8-3/4" borehole to 3,977' and 7", 1/4" wall, Hastelloy C-276, STL set in 8-3/4" borehole from 3,977' to 4,075' with 7" float collar and float shoe set from 4,075' to 4,080. Cement diverter tool set in 7" casing from 3,657' to 3,660'.
   Stage I (3,660' to 4,080'):
   686 gallons (16.3 bbl) of EPSEAL epoxy cement.
   Stage II (Surface to 3,660'):
   500 sacks of 50/50 Standard Pozmiz lead cement with 2% gel, 0.4% HALAD 344 and 3% salt followed by 450 sacks of Standard Class A tail cement containing 3% HALAD 322, 0.4% HALAD 344, 8.2% Microbond, and 2.14% salt.
5. Injection Tubing: 4-1/2", Blue Box 2000, fiberglass tubing to top of packer at 4,036' (4.78', 4-1/2" Hastelloy C-276 landing joint top positioned 1-1/2' above ground level with 4' of stretch. Landing Joint base = 16.28' KB:
   a) 3 Pup Joints (3.64' + 1.72' + 3.60' = 8.96'), 4-1/2", Blue Box FRP;
   b) 4-1/2", Blue Box FRP tubing (137 joints x 29.249'/joint = 4,007.08'
   c) Anchor Seal Assembly, 4.75" x 3.75", Hastelloy C-276, 1.64' long set in Model 12 Injection Packer PBR from 4,036.32' to 4,037.96'.
6. Annulus Fluid: 68.5 bbl (2,877 gallons) of 10 lb/gal brine water containing a corrosion inhibitor, a bactericide and an oxygen scavenger.
7. Injection Packer: Model 12, Hastelloy C-276 wetted parts set from 4,036.3' to 4,041.4'. Polished test bore = 3.50" at packer base.
8. Open Hole Completion: 8-3/4" borehole from 4,080' to 4,645' (TVD = 4,535' @ 4,645' MD).

Bottom-hole location: 211' south and 754' west of surface location (782.97, South 74° 21' 58.35" West)

WSP USA INC.
8212 Kelwood Ave.
Baton Rouge LA 70806
Tel: (225) 753-2561
Fax: (225) 925-2530

FIGURE 2

REPUBLIC INDUSTRIAL AND ENERGY SOLUTIONS, LLC

ROMULUS, MICHIGAN

WELL #1-12
BELOW GROUND SCHEMATIC

DATE 07/05/22	CHECKED BY		JOB NO. TBD
DRAWN BY SLK	APPROVED BY		DWG NO.

Annulus Pressure Test
Well 1-12
August 11, 2023

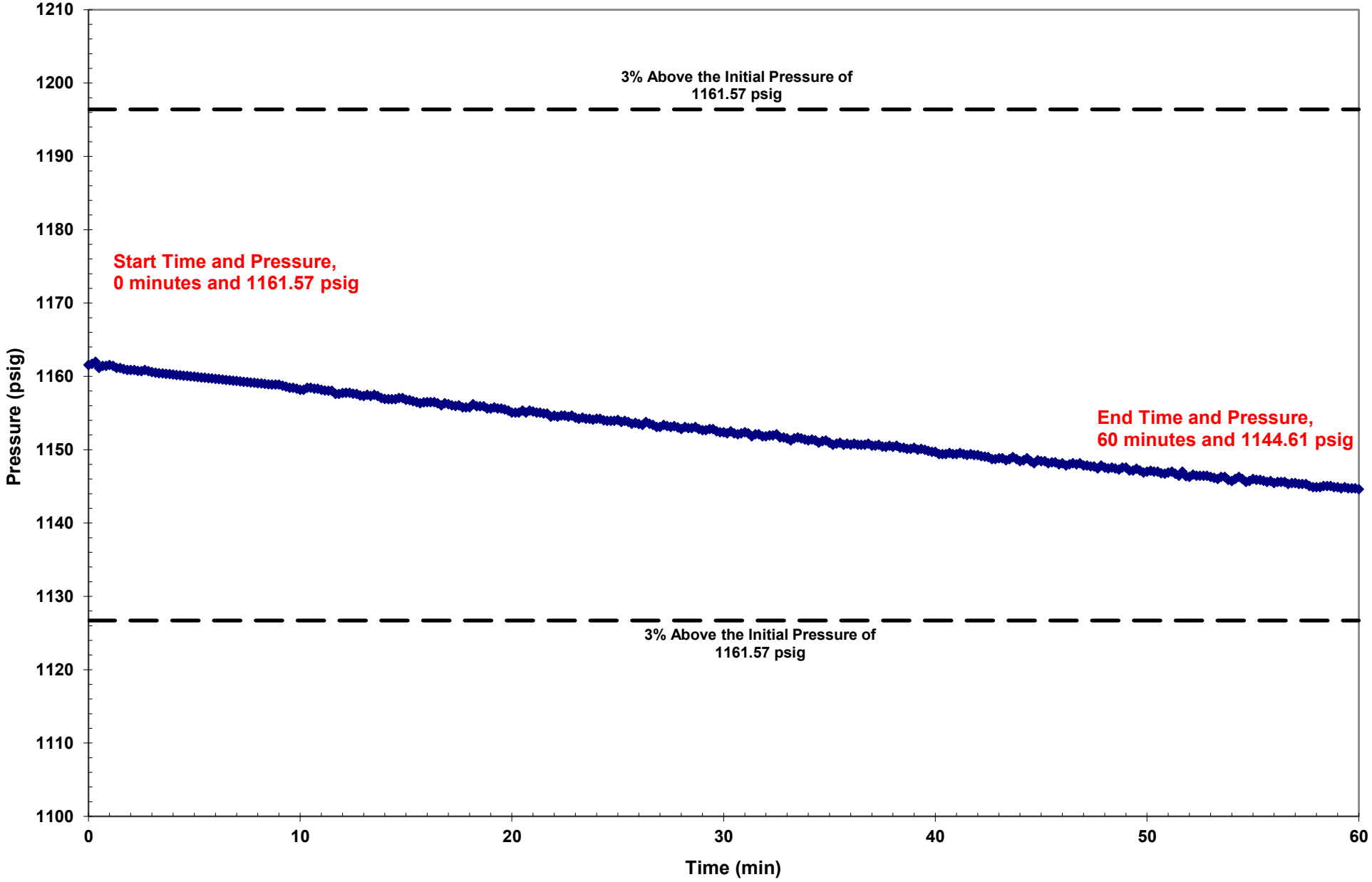


FIGURE 3

Figure 4: Well 1-12 2023 PFO Test Overview Plot

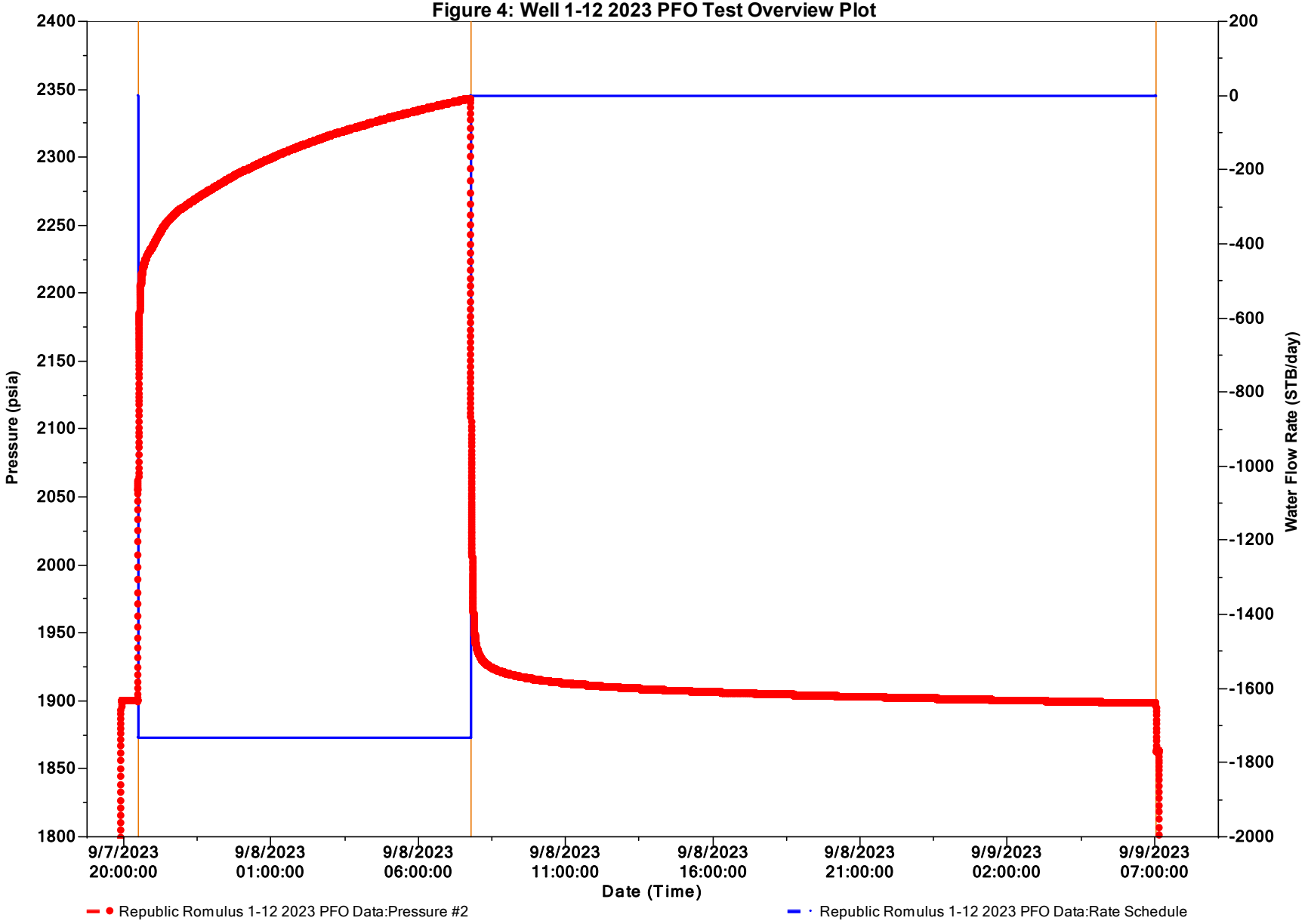


Figure 5: Well 1-12 2023 PFO Cartesian Plot

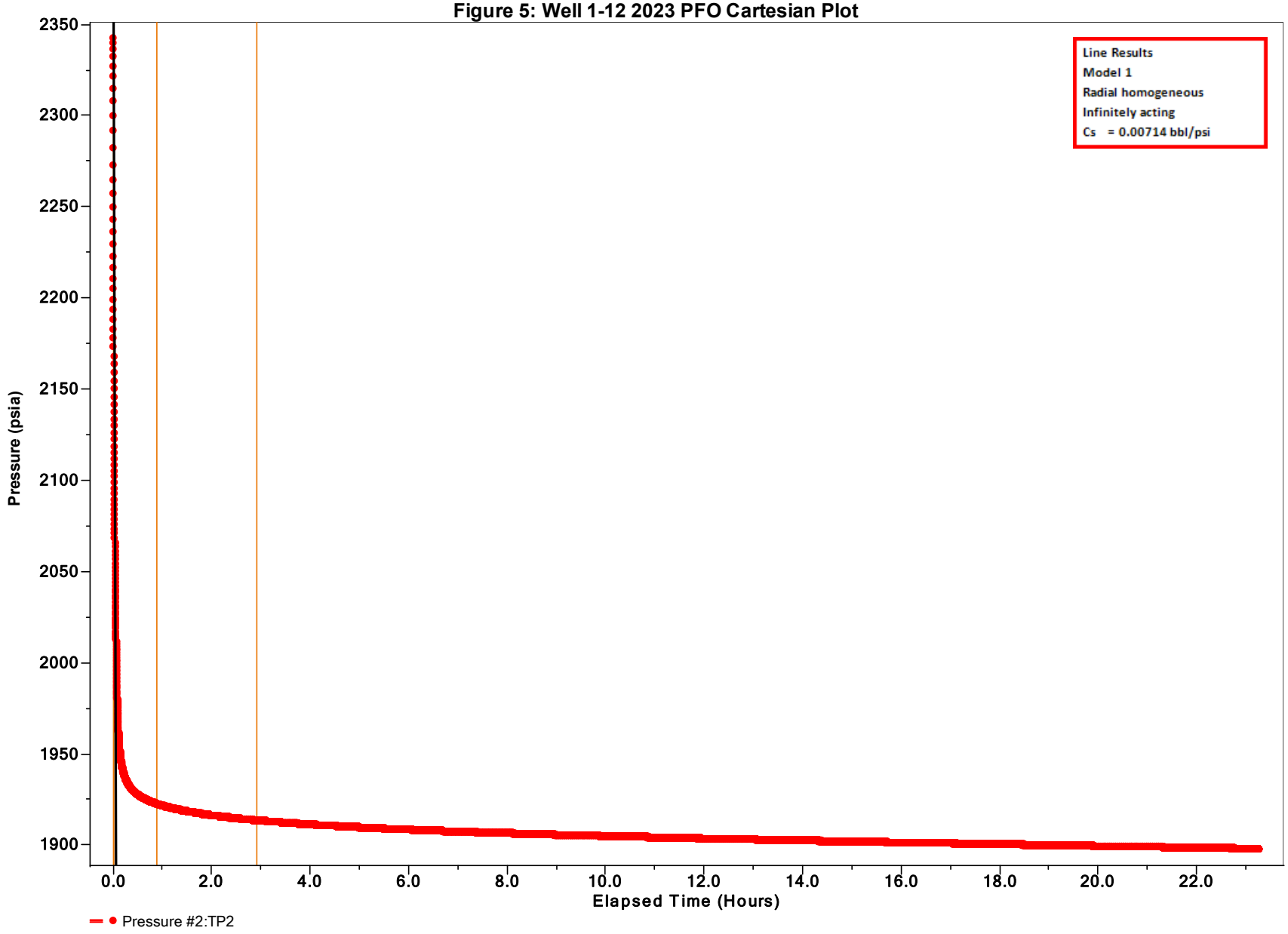


Figure 6: Well 1-12 2023 PFO Log-Log Plot

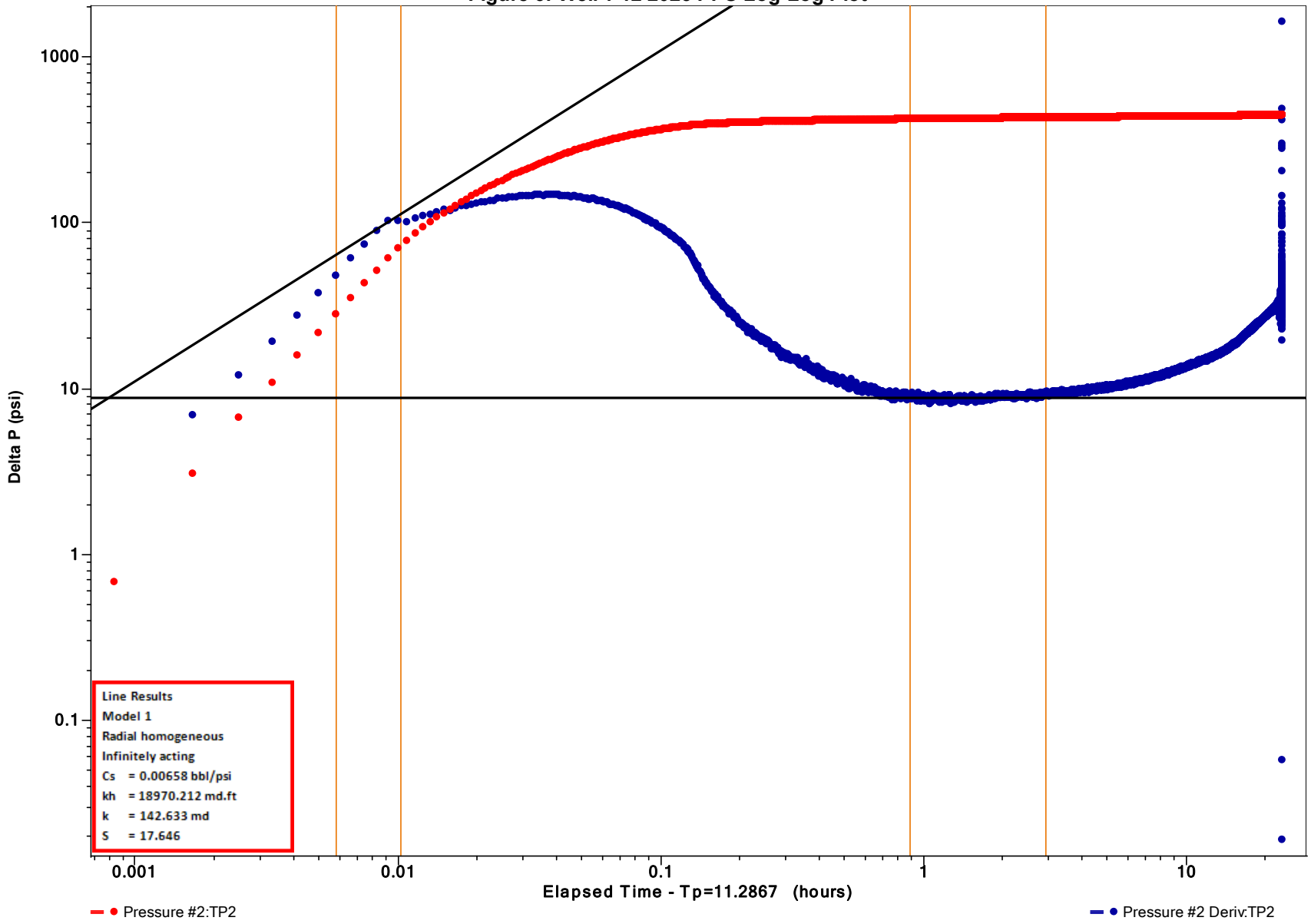


Figure 7: Well 1-12 2023 PFO Radial Flow Plot

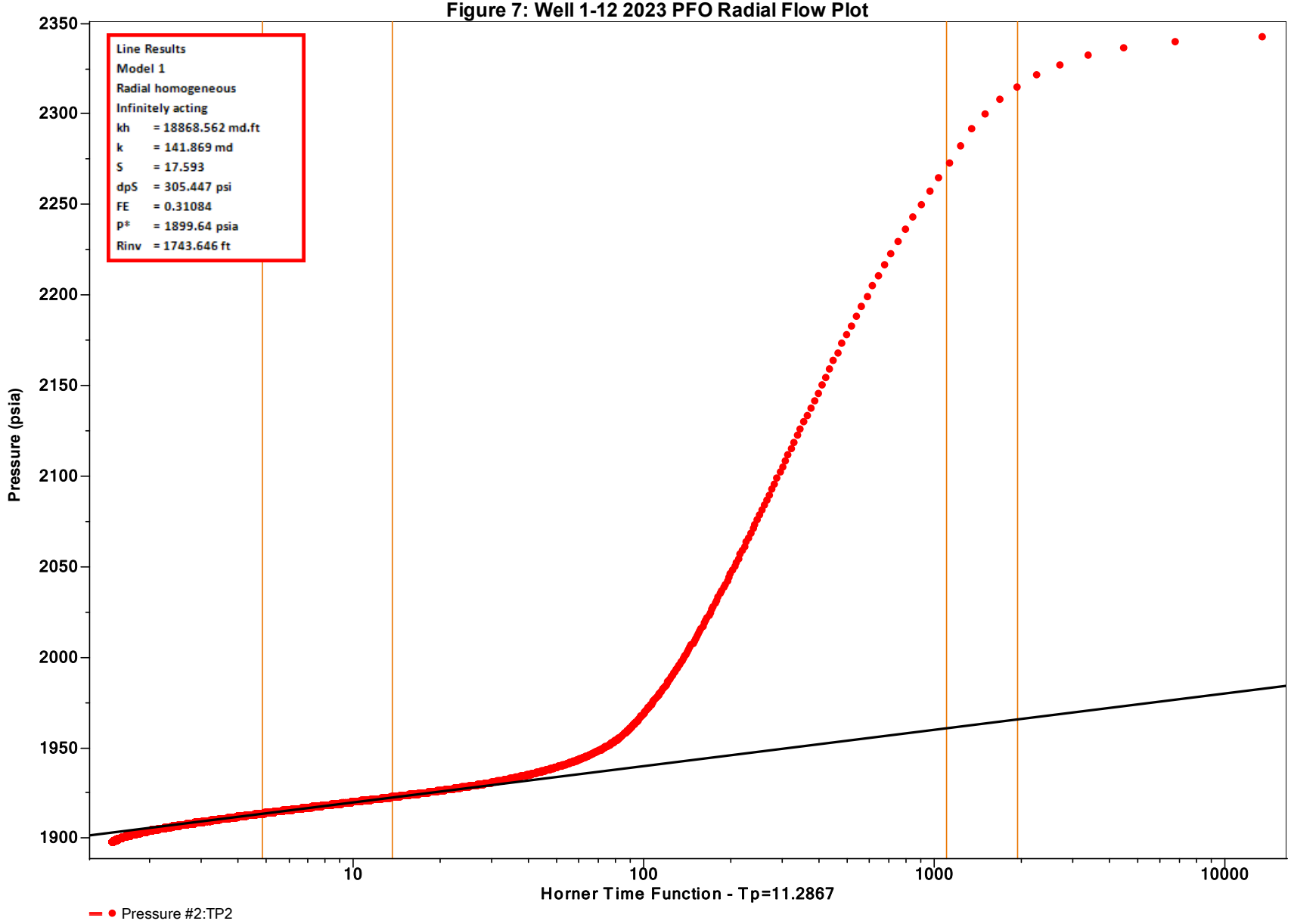
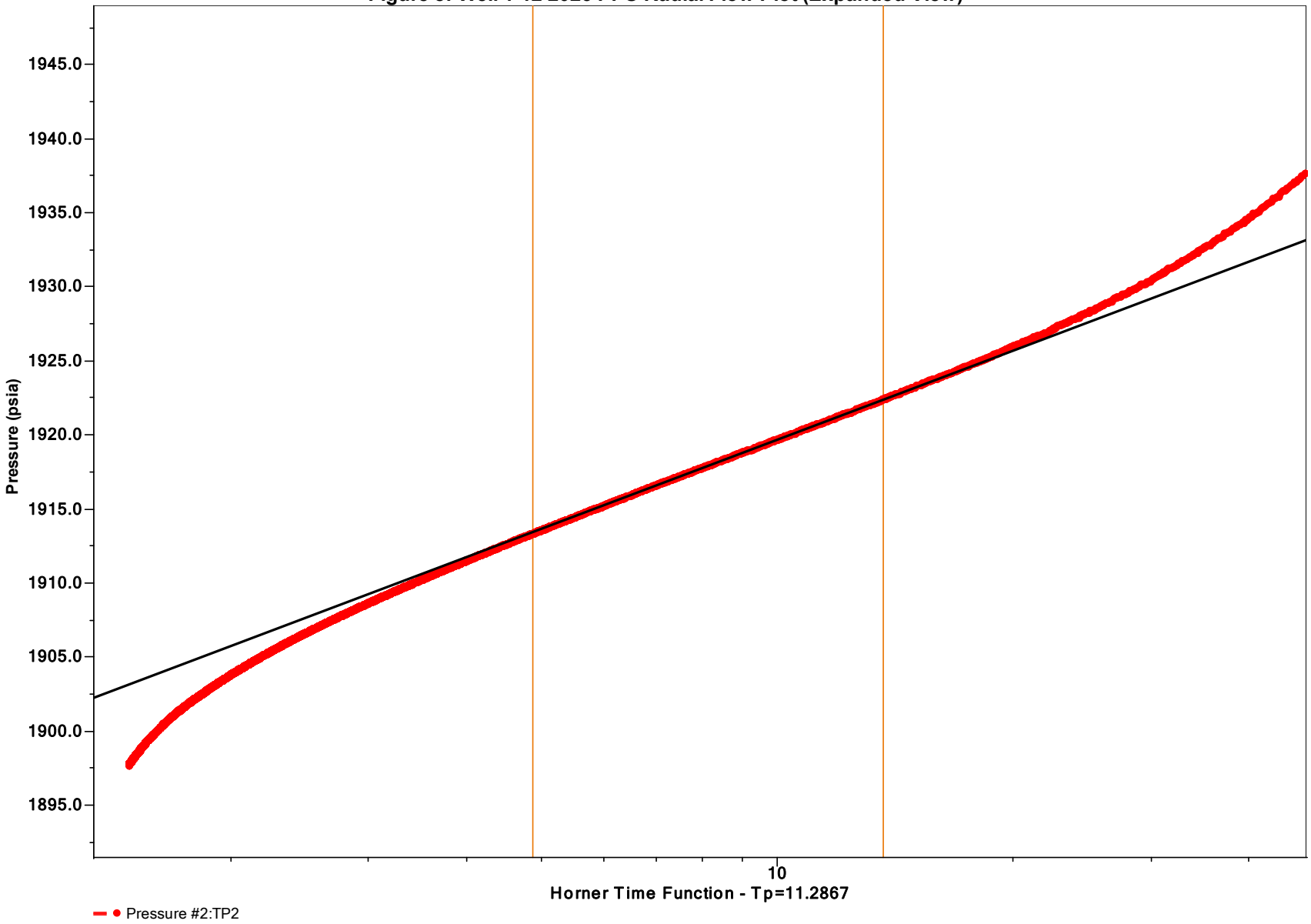


Figure 8: Well 1-12 2023 PFO Radial Flow Plot (Expanded View)



STATIC PRESSURE GRADIENT SURVEY
WELL No. 1-12
September 9, 2023

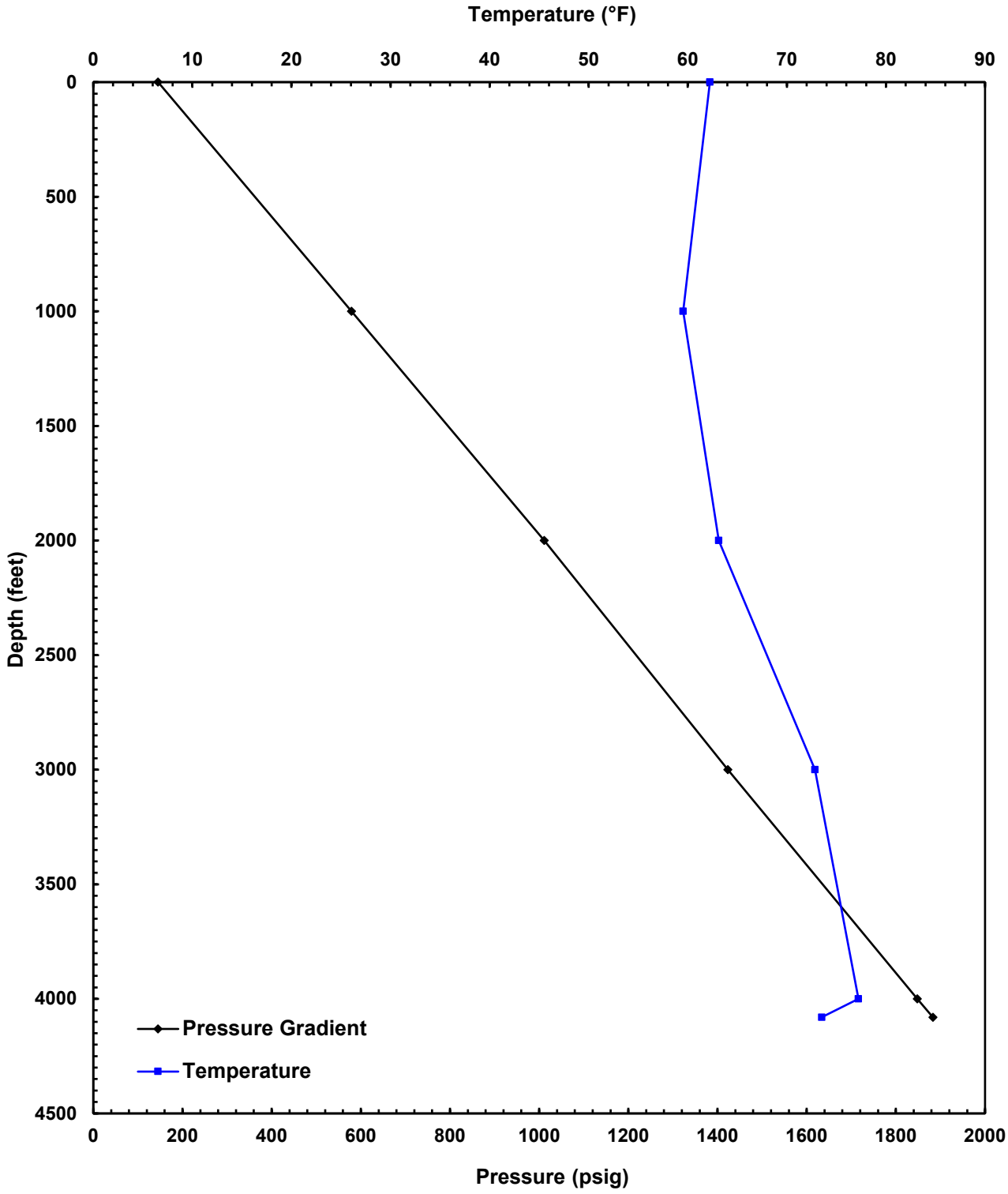


FIGURE 9

APPENDICES

APPENDIX A

REGULATORY CORRESPONDENCE

Tahtouh, Jeffry

From:	Kelly, Stephen L.
Sent:	Thursday, August 17, 2023 5:58 PM
To:	Tahtouh, Jeffry
Subject:	FW: Proposed Procedures for 2023 Annual Mechanical Integrity and Reservoir Monitoring in Republic Wells 1-12 and 2-12 (Romulus, Michigan Facility)
Attachments:	FOT.pdf; RTS.pdf

From: Chase, Felicia <chase.felicia@epa.gov>
Sent: Thursday, August 17, 2023 11:23 AM
To: Kelly, Stephen L. <STEVE.KELLY@wsp.com>; Fisher, Marc <Fisher.Marc@epa.gov>
Cc: Greenhagen.Andrew <Greenhagen.Andrew@epa.gov>; Monica Rakovan <monicarakovan@ensoaq.com>; joannemitock@ensoaq.com; Robinson, Valoria <robinson.valoria@epa.gov>
Subject: RE: Proposed Procedures for 2023 Annual Mechanical Integrity and Reservoir Monitoring in Republic Wells 1-12 and 2-12 (Romulus, Michigan Facility)

Good Morning Stephen,
Apologies for the delay and thank you for the reminder. EPA has reviewed the procedures you proposed on July 19, 2023 for temperature logs, radioactive tracer surveys, and fall-off tests in Republic Wells 1-12 and 2-12, Romulus (EPA UIC Permit #MI-163-1W-C010 and MI-163-1W-C011). Your proposed procedures are hereby approved unless you receive additional email correspondence in the next three business days from EPA approving the procedures with conditions or disapproving the procedures. EPA offers the following comments on the procedures:

1. All data must be submitted with the test reports
2. For fall-off testing: EPA typically recommends a pressure build-up period of longer than 10 hours since the most reliable fall-off data occurs during only half the build-up period. A longer build-up period lends itself to more reliable data. Also, EPA requests that the raw data from the fall-off tests be submitted digitally with a link to a file exchange site. It makes the process for our review and interpretation of the data easier.

A blank test information sheet is attached to this email – please complete and return it for each test when you submit your report. Please remember to submit the digital data either on CD, USB flash drive, or by email when you submit your report. If a test does not provide definitive information concerning the conditions which it is designed to ascertain, or approved procedures are not followed, you will be required to rerun the test.

I am copying our EPA Field Inspectors to check their availability to witness the SAPTs. Please coordinate with them.
MI-163-1W-C010 lat/ long location: 42.24351, -83.31682
MI-163-1W-C011 lat/ long location: 42.24371, -83.316903

Thank you for your patience and cooperation. Have a great day!
Best,
Felicia Chase
Geologist/ Environmental Scientist
Permits Branch, UIC Section
U.S. EPA, Region 5
77 West Jackson Blvd., WP-16J
Chicago , IL 60604

From: Kelly, Stephen L. <STEVE.KELLY@wsp.com>
Sent: Wednesday, August 2, 2023 9:14 AM
To: Fisher, Marc <Fisher.Marc@epa.gov>
Cc: Greenhagen, Andrew (he/him/his) <Greenhagen.Andrew@epa.gov>; Chase, Felicia <chase.felicia@epa.gov>
Subject: Proposed Procedures for 2023 Annual Mechanical Integrity and Reservoir Monitoring in Republic Wells 1-12 and 2-12 (Romulus, Michigan Facility)

Marc,

I'm checking on the status of the proposed procedures that Republic (Jason Rubin) submitted to EPA, Region 5 on July 19, 2023 for conducting Annual Fall-Off Tests, Annulus Pressure Tests and Radioactive Tracer Surveys in Republic Wells 1-12 and 2-12, Romulus (EPA UIC Permit #MI-163-1W-C010 and MI-163-1W-C011).

I will be scheduling the equipment to perform this work and wanted to see how soon we can start this work.

Steve Kelly
Senior Project Manager

Main: +1 225-753-2561
Direct: +1 225-508-3867
Mobile: +1 225-572-2511

Email: Steve.Kelly@wsp.com

WSP USA
8212 Kelwood Ave
Baton Rouge, LA 70806

wsp.com

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INTRODUCTION

The following procedures comply with the requirements of EPA, Region 5 for annual mechanical integrity tests on a Class I hazardous waste disposal well.

The following are the objectives of the 2023 Annual Mechanical Integrity Tests:

- Conduct a 1-Hour Annulus Pressure Test at a pressure of approximately 1,100 psi.
- Run a Radioactive Tracer Survey.
- Return well to normal service.
- Prepare a Mechanical Integrity Test Report and submit to the UIC groups of EPA, Region 5 and Michigan EGLE.

A. ANNULUS PRESSURE TEST PROCEDURE

1. Notify the EPA, Region 5 and the Michigan EGLE at least 48 hours prior to initiating the annual mechanical integrity tests on Well 1-12.
2. Shut-in Well 1-12 at least 36 hours prior to conducting an Annulus Pressure Test (APT).
3. Record the last date of injection into Well 1-12.
4. Install a certified digital pressure gauge to the annulus and have a Calibration Certificate available on site that demonstrates the pressure gauge was calibrated within the past 12 months.
5. Pressurize the annulus to approximately 1,100 psi.
6. Allow the annulus pressure to stabilize. If necessary, depressurize and bleed line to gauge to remove any trapped air and repressurize.
7. Isolate the annulus pressure on the well from the Well Annulus Monitoring System by closing the necessary valves.
8. Record the Initial Annulus Pressure to begin the 1-hour APT.
9. Continue recording the annulus pressure at 10-minute intervals for at least 60 minutes or as instructed by the regulatory agency inspector witnessing the test. A successful APT will not fluctuate more than 3% of the initial test pressure during the 1-hour test period.
10. Release the pressure from the annulus by bleeding the excess annulus fluid into the Well Annulus Monitoring System storage tank and note the change in the tank level. If requested, perform annual alarm testing.
11. Provide the regulatory agency inspector with a copy of the data recorded during the APT and the pressure gauge calibration certificate.

B. RADIOACTIVE TRACER SURVEY PROCEDURE

1. Republic will use its pump and fresh water to conduct the RAT Survey.
2. Run in the well with a dual gamma ray detector tool that has a collar locator and an ejector tool filled with $Iodine_{131}$ radioactive material positioned above the gamma ray detectors.
3. After correlating the log with previous logs run in the well, tag bottom and run a pre-survey base gamma ray log from the total depth reached to approximately 3,000 feet.
4. Run 5-minute statistical checks in the time drive logging mode at 3,955 feet and 3,802 feet.
5. Start injection into the well at approximately 42 gpm (1 bpm). This will provide a fluid velocity of 65 ft/min in the tubing and a maximum velocity of approximately 12 ft/min in the open hole completion interval.
6. Release a slug of radioactive material at 3,100 feet while continuing to inject into the well at 1 bpm.
7. Drop the tool string down and record a log through the radioactive slug as it travels downhole. Make at least two logging passes through the moving slug before it reaches the injection packer at 4,036 feet. (At an injection rate of 1 bpm, slug will take approximately 15 minutes to reach the packer after ejection.)
8. Continue logging the movement of the slug as it enters the open hole completion at a reduced velocity (maximum velocity = approximately 12 fpm at 1 bpm). Make additional logging passes through the slug until it has dissipated into the injection interval.
9. Pull the logging tool up to approximately 3,750 feet while continuing to inject at 1 bpm. Release a slug of $Iodine_{131}$ at 3,750 feet. Drop the tool downhole and position the bottom detector at approximately 4,050 feet and begin recording a time drive survey. (Slug will be traveling at approximately 65 ft/min and will take about 4.6 minutes to reach tool from the time it was ejected.)
10. Record a time drive survey for at least 30 minutes while continuing to inject at approximately 1 bpm.
11. Following the time drive survey, tag bottom with the tool and run a post-survey base gamma ray log from the total depth reached to 3,000 feet.
12. Pull out of the hole with the tool and rig down and move out the wireline unit, pump truck and associated equipment.
13. Return the well to normal operation.
14. Prepare a Mechanical Integrity Report and submit to the UIC groups of the EPA, Region 5 and the Michigan EGLE.

ATTACHMENTS

- Figure 1: Wellhead Sketch
- Figure 2: Below Ground Details

PREPARED BY Steve Kelly 07-10-2023

wsp	2023 ANNUAL RESERVOIR PRESSURE MONITORING (INJECTION – FALLOFF) TEST PROCEDURE	Project No. TBD
	Republic Services Romulus, MI Facility Well 1-12; API No. 21-163-M452	Date 07/10/23
		Page 1 of 1

INTRODUCTION

The following procedure complies with the requirements of EPA, Region 5 for an annual reservoir pressure monitoring (injection – falloff) test of a Class I hazardous waste disposal well.

The following are the objectives of the 2023 Annual Reservoir Pressure Monitoring (Injection – Falloff) Test:

- Initiate injection into Well 1-12 at a constant rate. Terminate injection into Well 2-12 prior to the injection test into Well 1-12.
- Position dual memory gauges in Well 1-12 with the bottom gauge located at 4,080 feet KB.
- Inject fresh water into Well 1-12 at a constant rate for approximately 10 hours.
- Terminate injection into Well 1-12 no sooner than 1 hour after positioning bottomhole gauges in well and record the pressure falloff for approximately 24 hours.
- Return well 1-12 to normal service.
- Prepare a Reservoir Pressure Monitoring (Injection – Falloff) Test Report and submit to the UIC groups of EPA, Region 5 and Michigan EGLE. Include the raw pressure data with the report and the pressure gauge calibration certificate.

RESERVOIR PRESSURE MONITORING (INJECTION – FALLOFF) TEST PROCEDURE

1. Rig up slickline unit with mast and lubricator. Run in the hole with calibrated tandem pressure gauges and position the bottom gague at 4,080 feet KB. Record the bottomhole shut-in pressure for approximately 1 hour.
2. With Well 2-12 shut-in, initiate injection into Well 1-12 at a constant rate (±5%) using fresh water and the facility pump. Record the injection data during the test.
3. After approximately 10 hours of constant injection with a constant fluid density, terminate injection and shut-in the wing-valve near the well.
4. Record the pressure falloff data for approximately 24 hours.
5. Remove the pressure gauges from the well taking 5-minute gradient stops at 1,000-foot intervals. Download the pressure and temperature data at the surface.
6. Rig down and move out the slickline unit.
7. Analyze the data using PanSystem software and prepare a final report and submit to the UIC groups of EPA, Region 5 and Michigan EGLE. Include the raw pressure data with the report and the calibration certificate for the pressure gauges.

ATTACHMENTS

Figure 1: Wellhead Sketch

Figure 2: Below Ground Details

PREPARED BY Steve Kelly 07-05-2022

Revision No. 0

INTRODUCTION

The following procedures comply with the requirements of EPA, Region 5 for annual mechanical integrity tests on a Class I hazardous waste disposal well.

The following are the objectives of the 2023 Annual Mechanical Integrity Tests:

- Conduct a 1-Hour Annulus Pressure Test at a pressure of approximately 1,100 psi.
- Run a Radioactive Tracer Survey.
- Return well to normal service.
- Prepare a Mechanical Integrity Test Report and submit to the UIC groups of EPA, Region 5 and Michigan EGLE.

A. ANNULUS PRESSURE TEST PROCEDURE

1. Notify the EPA, Region 5 and the Michigan EGLE at least 48 hours prior to initiating the annual mechanical integrity tests on Well 2-12.
2. Shut-in Well 2-12 at least 36 hours prior to conducting an Annulus Pressure Test (APT).
3. Record the last date of injection into Well 2-12.
4. Install a certified digital pressure gauge to the annulus and have a Calibration Certificate available on site that demonstrates the pressure gauge was calibrated within the past 12 months.
5. Pressurize the annulus to approximately 1,100 psi.
6. Allow the annulus pressure to stabilize. If necessary, depressurize and bleed line to gauge to remove any trapped air and repressurize.
7. Isolate the annulus pressure on the well from the Well Annulus Monitoring System by closing the necessary valves.
8. Record the Initial Annulus Pressure to begin the 1-hour APT.
9. Continue recording the annulus pressure at 10-minute intervals for at least 60 minutes or as instructed by the regulatory agency inspector witnessing the test. A successful APT will not fluctuate more than 3% of the initial test pressure during the 1-hour test period.
10. Release the pressure from the annulus by bleeding the excess annulus fluid into the Well Annulus Monitoring System storage tank and note the change in the tank level. If requested, perform annual alarm testing.
11. Provide the regulatory agency inspector with a copy of the data recorded during the APT and the pressure gauge calibration certificate.

B. RADIOACTIVE TRACER SURVEY PROCEDURE

1. Republic will use its pump and fresh water to conduct the RAT Survey.
2. Run in the well with a dual gamma ray detector tool that has a collar locator and an ejector tool filled with $Iodine_{131}$ radioactive material positioned above the gamma ray detectors.
3. After correlating the log with previous logs run in the well, tag bottom and run a pre-survey base gamma ray log from the total depth reached to approximately 3,000 feet.
4. Run 5-minute statistical checks in the time drive logging mode at 3,855 feet and 3,800 feet.
5. Start injection into the well at approximately 42 gpm (1 bpm). This will provide a fluid velocity of 65 ft/min in the tubing and a maximum velocity of approximately 12 ft/min in the open hole completion interval.
6. Release a slug of radioactive material at 3,100 feet while continuing to inject into the well at 1 bpm.
7. Drop the tool string down and record a log through the radioactive slug as it travels downhole. Make at least two logging passes through the moving slug before it reaches the injection packer at 3,930 feet. (At an injection rate of 1 bpm, slug will take approximately 15 minutes to reach the packer after ejection.)
8. Continue logging the movement of the slug as it enters the open hole completion at a reduced velocity (maximum velocity = approximately 12 fpm at 1 bpm). Make additional logging passes through the slug until it has dissipated into the injection interval.
9. Pull the logging tool up to approximately 3,750 feet while continuing to inject at 1 bpm. Release a slug of $Iodine_{131}$ at 3,750 feet. Drop the tool downhole and position the bottom detector at approximately 3,960 feet and begin recording a time drive survey. (Slug will be traveling at approximately 65 ft/min and will take about 4.6 minutes to reach tool from the time it was ejected.)
10. Record a time drive survey for at least 30 minutes while continuing to inject at approximately 1 bpm.
11. Following the time drive survey, tag bottom with the tool and run a post-survey base gamma ray log from the total depth reached to 3,000 feet.
12. Pull out of the hole with the tool and rig down and move out the wireline unit, pump truck and associated equipment.
13. Return the well to normal operation.
14. Prepare a Mechanical Integrity Report and submit to the UIC groups of the EPA, Region 5 and the Michigan EGLE.

ATTACHMENTS

- Figure 3: Wellhead Sketch
- Figure 4: Below Ground Details

PREPARED BY Steve Kelly 07-10-2023

wsp	2023 ANNUAL RESERVOIR PRESSURE MONITORING (INJECTION – FALLOFF) TEST PROCEDURE	Project No. TBD
	Republic Services Romulus, MI Facility Well 2-12; API No. 21-163-M453	Date 07/10/23
		Page 1 of 1

INTRODUCTION

The following procedure complies with the requirements of EPA, Region 5 for an annual reservoir pressure monitoring (injection – falloff) test of a Class I hazardous waste disposal well.

The following are the objectives of the 2023 Annual Reservoir Pressure Monitoring (Injection – Falloff) Test:

- Initiate injection into Well 2-12 at a constant rate. Terminate injection into Well 1-12 prior to the injection test into Well 2-12.
- Position dual memory gauges in Well 2-12 with the bottom gauge located at 3,975 feet KB.
- Inject fresh water into Well 2-12 at a constant rate for approximately 10 hours.
- Terminate injection into Well 2-12 no sooner than 1 hour after positioning bottomhole gauges in well and record the pressure falloff for approximately 24 hours.
- Return well 2-12 to normal service.
- Prepare a Reservoir Pressure Monitoring (Injection – Falloff) Test Report and submit to the UIC groups of EPA, Region 5 and Michigan EGLE. Include the raw pressure data with the report and the pressure gauge calibration certificate.

RESERVOIR PRESSURE MONITORING (INJECTION – FALLOFF) TEST PROCEDURE

1. Rig up slickline unit with mast and lubricator. Run in the hole with calibrated tandem pressure gauges and position the bottom gague at 3,975 feet KB. Record the bottomhole shut-in pressure for approximately 1 hour.
2. With Well 1-12 shut-in, initiate injection into Well 2-12 at a constant rate (±5%) using fresh water and the facility pump. Record the injection data during the test.
3. After approximately 10 hours of constant injection with a constant fluid density, terminate injection and shut-in the wing-valve near the well.
4. Record the pressure falloff data for approximately 24 hours.
5. Remove the pressure gauges from the well taking 5-minute gradient stops at 1,000-foot intervals. Download the pressure and temperature data at the surface.
6. Rig down and move out the slickline unit.
7. Analyze the data using PanSystem software and prepare a final report and submit to the UIC groups of EPA, Region 5 and Michigan EGLE. Include the raw pressure data with the report and the calibration certificate for the pressure gauges.

ATTACHMENTS

Figure 3: Wellhead Sketch

Figure 4: Below Ground Details

PREPARED BY Steve Kelly 07-05-2022

Revision No. 0

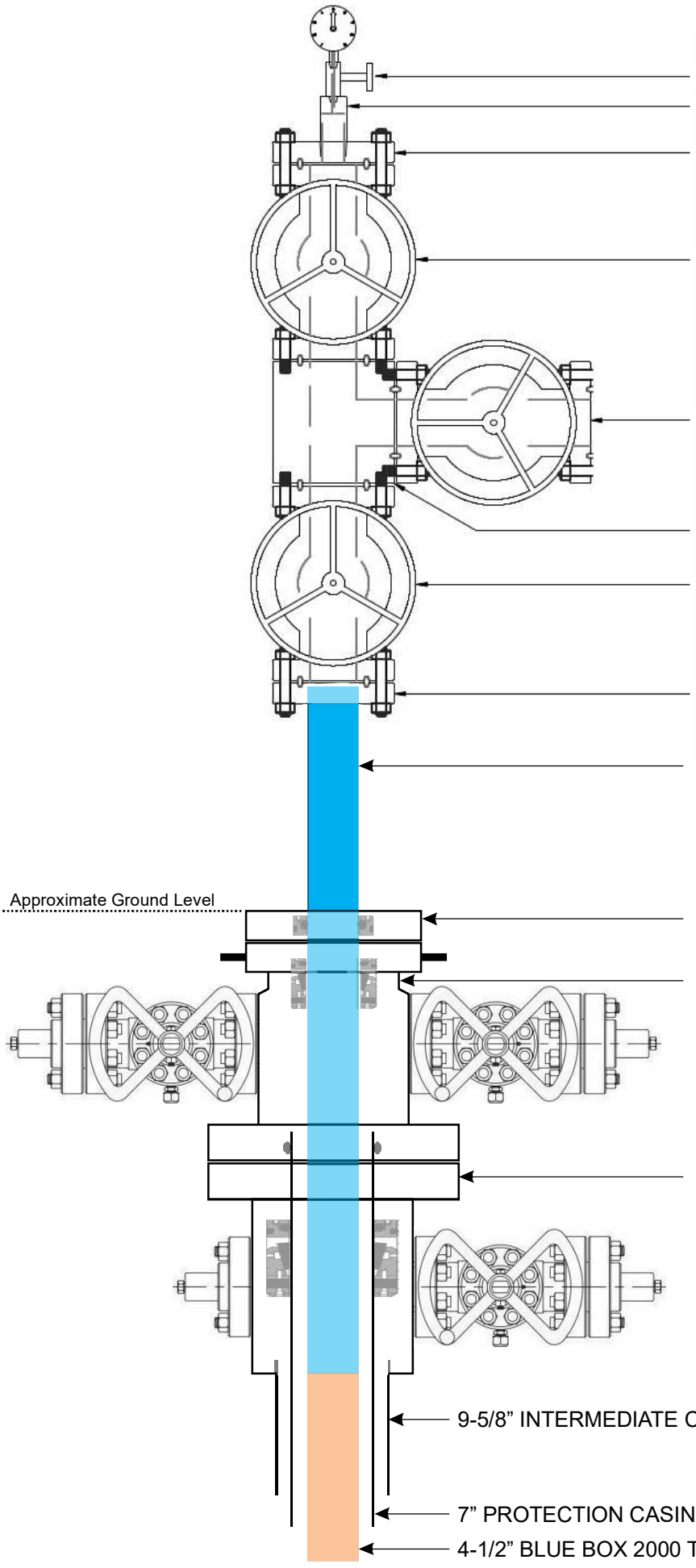


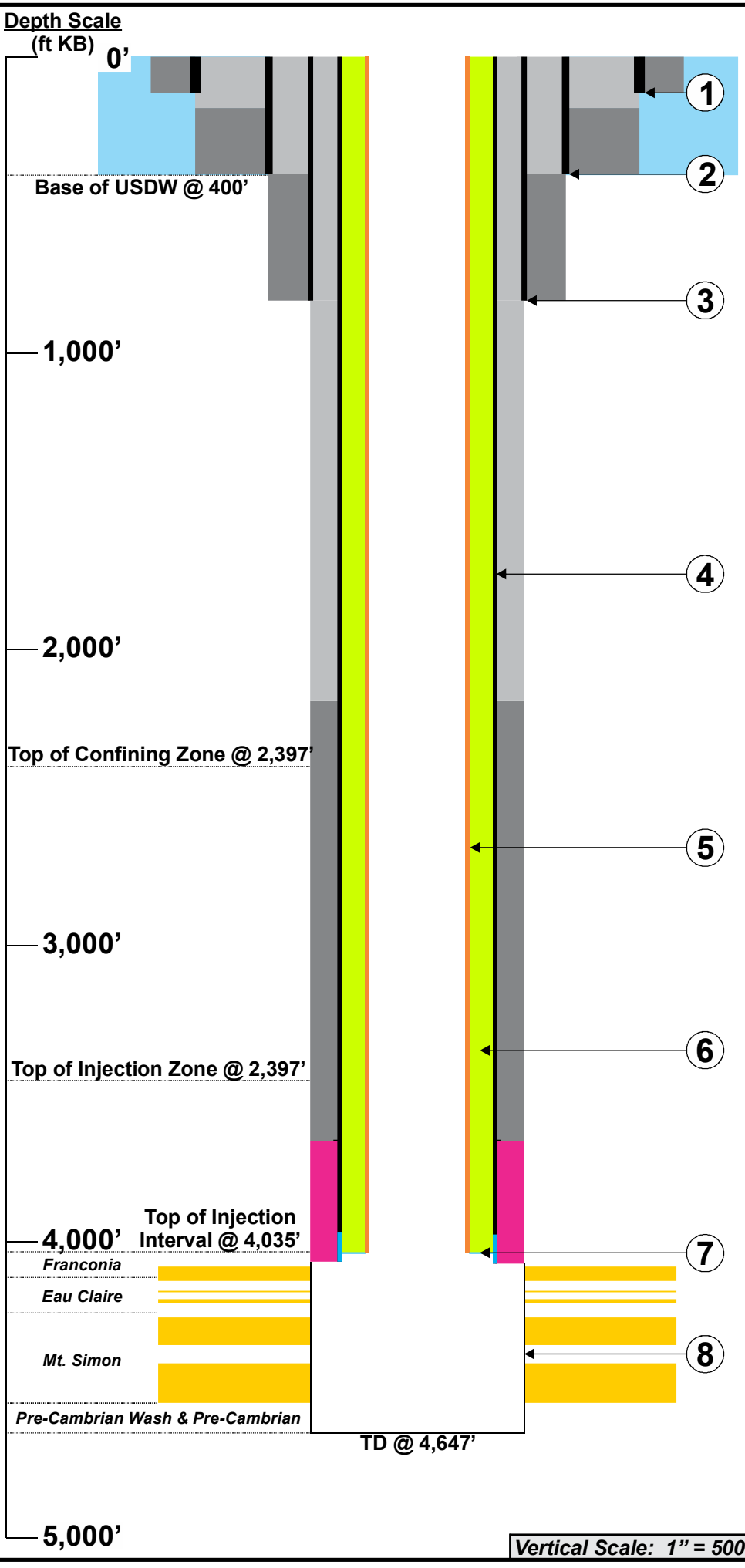
FIGURE 1

REPUBLIC INDUSTRIAL AND ENERGY SOLUTIONS, LLC

ROMULUS, MICHIGAN

WELLHEAD SKETCH
WELL #1-12

DATE 04/30/20	CHECKED BY		JOB NO. 192128A
DRAWN BY SLK	APPROVED BY		DWG NO.



BELOW GROUND DETAILS

1. Conductor Casing: 20", H-40 set in a 24" borehole at 119'. Cemented with 200 sacks of Class A cement containing 3% $CaCl_2$ with 75% returns. Top 50' of annulus cemented with 50 sacks of Class A.
2. Surface Casing: 13-3/8", H-40 set in a 17-1/2" borehole at 405'. Cemented with 75 sacks of Lite lead cement with 3% $CaCl_2$ followed by 150 sacks of Class A tail cement with 3% $CaCl_2$. Top of annulus cemented with 175 sacks of Class A cement with 3% $CaCl_2$.
3. Intermediate Casing: 9-5/8", 36 lb/ft set in a 12-1/4" borehole at 824'. Cemented with 150 sacks of Lite lead with 3% $CaCl_2$ followed by 200 sacks of Class A tail with 3% $CaCl_2$. Approximately 10 bbl of cement circulated to the surface.
4. Protection Casing: 7", 26 lb/ft, K-55, LT&C set in an 8-3/4" borehole to 3,977' and 7", 1/4" wall, Hastelloy C-276, STL set in 8-3/4" borehole from 3,977' to 4,075' with 7" float collar and float shoe set from 4,075' to 4,080. Cement diverter tool set in 7" casing from 3,657' to 3,660'.
   Stage I (3,660' to 4,080'):
   686 gallons (16.3 bbl) of EPSEAL epoxy cement.
   Stage II (Surface to 3,660'):
   500 sacks of 50/50 Standard Pozmiz lead cement with 2% gel, 0.4% HALAD 344 and 3% salt followed by 450 sacks of Standard Class A tail cement containing 3% HALAD 322, 0.4% HALAD 344, 8.2% Microbond, and 2.14% salt.
5. Injection Tubing: 4-1/2", Blue Box 2000, fiberglass tubing to top of packer at 4,036' (4.78', 4-1/2" Hastelloy C-276 landing joint top positioned 1-1/2' above ground level with 4' of stretch. Landing Joint base = 16.28' KB:
   a) 3 Pup Joints (3.64' + 1.72' + 3.60' = 8.96'), 4-1/2", Blue Box FRP;
   b) 4-1/2", Blue Box FRP tubing (137 joints x 29.249'/joint = 4,007.08'
   c) Anchor Seal Assembly, 4.75" x 3.75", Hastelloy C-276, 1.64' long set in Model 12 Injection Packer PBR from 4,036.32' to 4,037.96'.
6. Annulus Fluid: 68.5 bbl (2,877 gallons) of 10 lb/gal brine water containing a corrosion inhibitor, a bactericide and an oxygen scavenger.
7. Injection Packer: Model 12, Hastelloy C-276 wetted parts set from 4,036.3' to 4,041.4'. Polished test bore = 3.50" at packer base.
8. Open Hole Completion: 8-3/4" borehole from 4,080' to 4,645' (TVD = 4,535' @ 4,645' MD).

Bottom-hole location: 211' south and 754' west of surface location (782.97, South 74° 21' 58.35" West)

WSP USA INC.
8212 Kelwood Ave.
Baton Rouge LA 70806
Tel: (225) 753-2561
Fax: (225) 925-2530

FIGURE 2

REPUBLIC INDUSTRIAL AND ENERGY SOLUTIONS, LLC

ROMULUS, MICHIGAN

WELL #1-12
BELOW GROUND SCHEMATIC

DATE 04/30/20	CHECKED BY		JOB NO. 1921128A
DRAWN BY SLK	APPROVED BY		DWG NO.

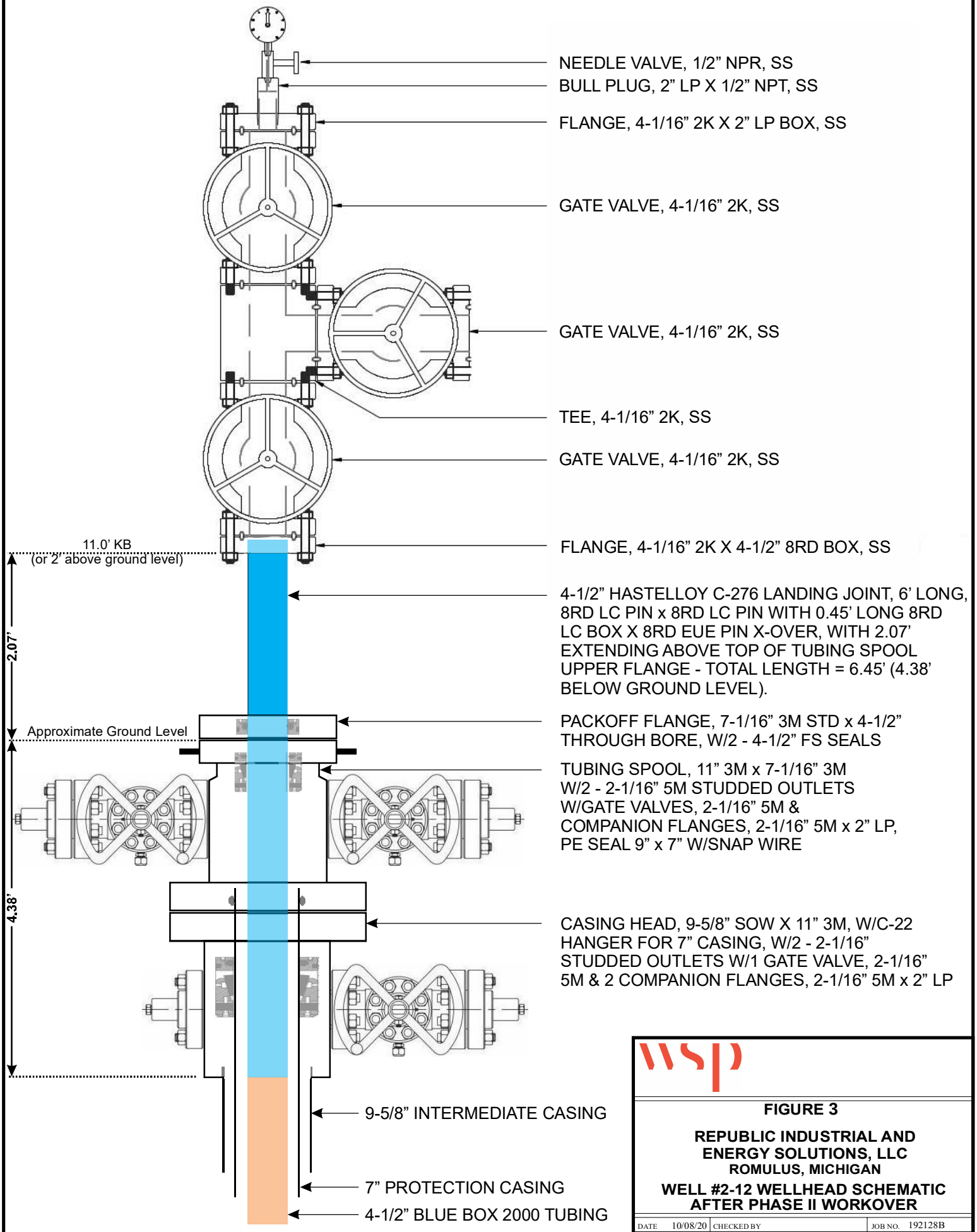
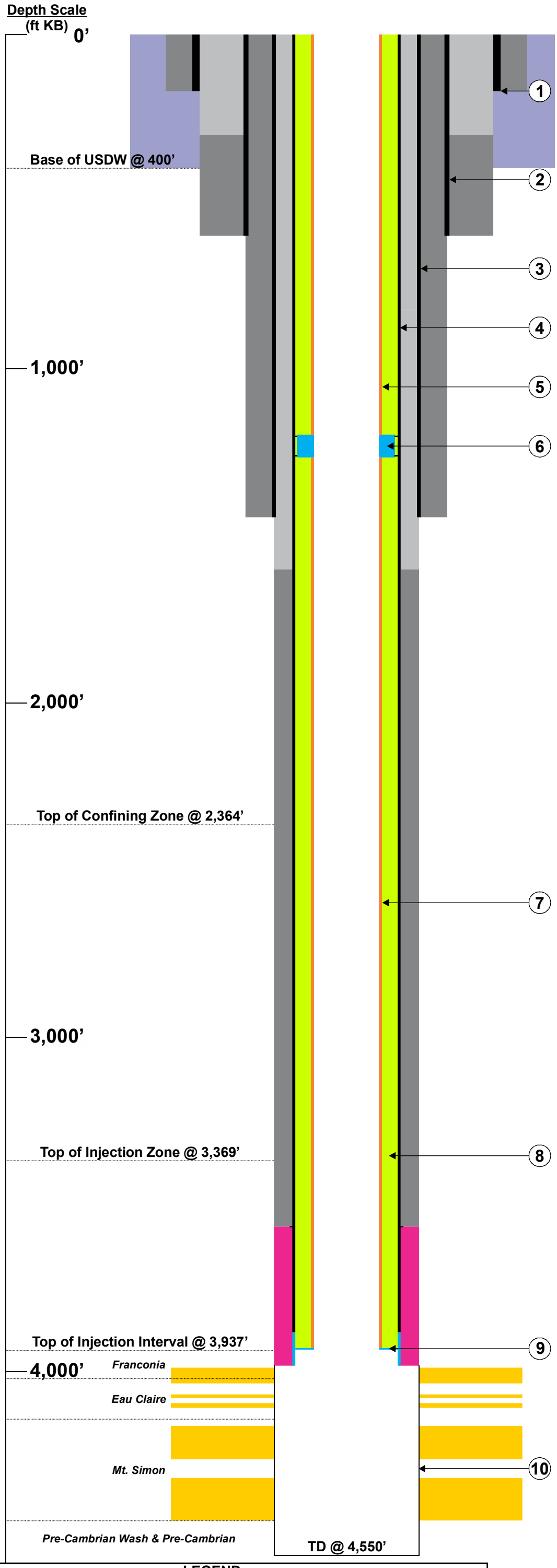


FIGURE 3

REPUBLIC INDUSTRIAL AND ENERGY SOLUTIONS, LLC
ROMULUS, MICHIGAN

WELL #2-12 WELLHEAD SCHEMATIC AFTER PHASE II WORKOVER

DATE 10/08/20	CHECKED BY	JOB NO. 192128B
DRAWN BY SLK	APPROVED BY	DWG NO.



BELOW GROUND DETAILS

1. Conductor Casing: 16", 60 lb/ft set in a 20" borehole at 169'. Cemented with 300 sacks of Class A cement containing 3% $CaCl_2$ with 75% returns.
2. Surface Casing: 13-3/8", 48 lb/ft, H-40, ST&C set in a 17-1/2" borehole at 602'. Cemented with 350 sacks of 65/35 Pozalin with 3% $CaCl_2$ followed by 200 sacks of Class A tail cement with 3% $CaCl_2$. Top-out with 50 sacks of Class A cement with 3% $CaCl_2$.
3. Intermediate Casing: 9-5/8", 36 lb/ft set in a 12-1/4" borehole at 1,444'. Cemented with 725 sacks of Class A with 3% $CaCl_2$. 33 bbl of cement circulated to the surface.
4. Protection Casing: 7", 26 lb/ft, K-55, LT&C set in an 8-3/4" borehole to 3,882' and 7", 1/4" wall, Hastelloy C-276, STL set in 8-3/4" borehole from 3,882' to 3,979.4' with 7" float collar and float shoe set from 3,979.4' to 3,982. Top 10' of Hastelloy coated with Teflon for galvanic corrosion inhibition. Cement diverter tool set in 7" casing from 3,565.5.' to 3,568'.
   Stage I (3,568' to 3,982'):
   686 gallons (16.3 bbl) of 12.5 lb/gal EPSEAL epoxy cement.
   Stage II (Surface to 3,568'):
   310 sacks of 50/50 of Poz followed by 340 sacks of 50/50 Poz with microbond followed by 450 sacks of Standard cement with microbond. 44 bbl circulated to surface.
5. Upper Injection Tubing: 4-1/2", Blue Box 2000, fiberglass tubing to top of straddle packer at 1,199':
   a) 6', 4-1/2" Hastelloy C-276 landing joint top positioned ~2' above ground level with 1' of stretch. (Landing Joint base = 15.38' KB);
   b) 2 Pup Joints (5.71' + 9.73'), 4-1/2", Blue Box FRP from 15' to 31';
   c) 4-1/2", Blue Box FRP tubing (40 joints) from 31' to 1,199';
   d) Anchor Seal Assembly, 4.75" x 3.75", Hastelloy C-276, 1.64' long set in Model 12 Injection Packer PBR from 1,199' to 1,200.5'.
6. Straddle Packer: Model 12, Hastelloy C-276 wetted parts set from 1,199' to 1,268'. Upper Element at 1,204' and Lower Element at 1,265'.
7. Lower Injection Tubing: 4-1/2", Blue Box 2000, fiberglass tubing set from 1,268' to 3,930' with 2' of stretch as follows:
   a) 4-1/2", Blue Box FRP tubing (91 joints) from 1,268' to 3,930'.
   b) Anchor Seal Assembly, 4.75" x 3.75", Hastelloy C-276, 1.64' long set in Model 12 Injection Packer PBR from 3,930.0' to 3,931.5'.
8. Annulus Fluid: 66 bbl (2,772 gallons) of 9.7 lb/gal brine water containing a corrosion inhibitor, a bactericide and an oxygen scavenger.
9. Injection Packer: Model 12, Hastelloy C-276 wetted parts set from 3,930' to 3,935'.
10. Open Hole Completion: 8-3/4" borehole from 3,975' to 4,550'.

LEGEND

- USDW
- Receptive Interval
- Annulus Fluid
- Fiberglass
- Carbon Steel
- Hastelloy C-276
- Standard Cement
- Lightweight Cement
- Epoxy Cement

Vertical Scale: 1" = 300'

WSP USA INC.
8212 Kelwood Ave.
Baton Rouge LA 70806
Tel: (225) 753-2561
Fax: (225) 925-2530

FIGURE 4

REPUBLIC INDUSTRIAL AND ENERGY SOLUTIONS, LLC

ROMULUS, MICHIGAN

WELL #2-12 BELOW GROUND DETAILS AFTER PHASE II WORKOVER

DATE 10/08/20	CHECKED BY	JOB NO. 192128B
DRAWN BY SLK	APPROVED BY	DWG NO.

APPENDIX B

CHRONOLOGY OF FIELD ACTIVITIES

16200 Park Row., Suite 200
Houston, Texas 77084
(281) 589-5900

FIELD ACTIVITY REPORT

Company:	**Republic Industrial and Energy Solutions**	Project No:	**192128AP**
Well:	**EDS 1-12 and EDS 2-12**	Date:	**9/5/2023**
City	**Romulus**	FAR Report No.:	**1**
County/Parrish:	**Wayne County**	WSP Rep.:	**Jeffry Tahtouh**
State:	**MI**		
Work Performed:	__ New Well __Workover _X_ Wireline Consulting __ Other		

Breakdown of Operations

From	To	Hrs	
6:30	6:45	0.25	Arrive on location, held safety meeting, discussed job, and got the notice to proceed
6:45	7:30	0.75	Rig-up Wireline unit on Well 2-12 for Radioactive Tracer Tool (RAT) AP = 1094 psi IP = 252 psi Rate= 0 gpm
7:30	8:00	0.50	Run in hole with RAT
8:00			Tagged TD @ 4296' NOTE: Tagged 38' higher compared to last year due to fill
8:00	10:45	2.75	**Perform Radioactive Tracer Survey on Well 2-12**
8:00	8:30		Run Pre base log (4296'- 3000'). Rate= 0 gpm, AP= 1082 psi IP= 64 psi.
8:35	8:45		Run 5 min stat checks at 3800' and 3855'
8:50	9:40		Initiate Injection at 42 gpm Run chase-down sequence 4 sec slug released at 3100', Rate=42 gpm, AP= 1176 psi IP= 445 psi. Four passes.
9:41	10:18		Maintain Injection at 42 gpm Run time-drive survey 30 minute time drive, Eject 4 sec slug at 3750', Run downhole to 3960' and start time drive when slug passed 3960' (9:46) Rate=42 gpm, AP= 1231 psi IP= 485 psi.
10:20			Cease Injection
10:22	10:45		Run Post base log (4296'- 3000'). Rate= 0 gpm, AP= 1145 psi IP= 272 psi.
10:45	11:30	0.75	Pull out of the hole. Rig down. **Move to Well 1-12**
11:30	12:15	0.75	Rig-up Wireline unit on Well 1-12 for Radioactive Tracer Tool (RAT) AP = 994 psi IP = 185 psi Rate= 0 gpm
12:15	12:45	0.50	Run in hole with RAT
12:45			Tagged TD @ 4486' NOTE: Tagged 30' higher compared to last year due to fill
12:45	15:45	3.00	**Perform Radioactive Tracer Survey on Well 1-12**
12:47	13:17		Run Pre base log (4486'- 3000'). Rate= 0 gpm, AP= 994 psi IP= 185 psi.
13:23	13:35		Run 5 min stat checks at 3802' and 3955'
13:36	14:35		Initiate Injection at 42 gpm Run chase-down sequence 4 sec slug released at 3100', Rate=42 gpm, AP= 1025 psi IP= 420 psi. Four passes.
14:39	15:13		Maintain Injection at 42 gpm Run time-drive survey 30 minute time drive, Eject 4 sec slug at 3750', Run downhole to 4050' and start time drive when slug passed 4050' (14:42) Rate=42 gpm, AP= 1080 psi IP= 487 psi.
15:15			Cease Injection
15:18	15:49		Run Post base log (4486'- 3000'). Rate= 0 gpm, AP= 995 psi IP= 285 psi.
15:45	17:00	1.25	Pull out of the hole. Rig down and move out Michigan Wireline.
17:00			Secure wells and leave location
Total		**10.50**	

Safety Topics

Working in Republic Romulus facility, working at heights, pinch points, radioactive material, heavy lifting

16200 Park Row., Suite 200
Houston, Texas 77084
(281) 589-5900

FIELD ACTIVITY REPORT

Company:	**Republic Industrial and Energy Solutions**	Project No:	**192128AP**
Well:	**EDS 1-12 and EDS 2-12**	Date:	**9/6/2023**
City	**Romulus**	FAR Report No.:	**2**
County/Parrish:	**Wayne County**	WSP Rep.:	**Jeffry Tahtouh**
State:	**MI**		
Work Performed:	__ New Well __Workover _X_ Wireline Consulting __ Other		

Breakdown of Operations

From	To	Hrs	
7:00	7:15	0.25	Arrive on location, held safety meeting, discussed job, and got the notice to proceed
7:15	8:00	0.75	Rig up with Impact's slickline unit on Well 2-12
8:00	8:15	0.25	Ran Slickline unit with bottom hole pressure/temperature gauges downhole at Well 2-12 AP = 1050 psi IP = 200 psi Rate= 0 gpm
8:15	8:45	0.50	Set gauges @ 3975', let stabilize prior to injection
8:45	19:45	11.00	Well 2-12 pressure buildup phase at a constant rate of 50 gpm
8:46			Initiate Injection AP = 1160 psi IP = 450 psi Rate= 50 gpm
19:45	19:50		Well 2-12 pressure falloff phase Shut-in well and close wing valve @ 19:51 AP = 1253 psi IP = 356 psi Rate= 0 gpm
19:50			Secure wells and leave location
Total		**12.75**	

Safety Topics

Working in Republic Romulus facility, working at heights, pinch points, chemical exposure, heavy lifting

16200 Park Row., Suite 200
Houston, Texas 77084
(281) 589-5900

FIELD ACTIVITY REPORT

Company:	**Republic Industrial and Energy Solutions**	Project No:	**192128AP**
Well:	**EDS 1-12 and EDS 2-12**	Date:	**9/7/2023**
City	**Romulus**	FAR Report No.:	**3**
County/Parrish:	**Wayne County**	WSP Rep.:	**Jeffry Tahtouh**
State:	**MI**		
Work Performed:	__ New Well __Workover _X_ Wireline Consulting __ Other		

Breakdown of Operations

From	To	Hrs	
18:00	18:15	0.25	Arrive on location, held JSA, and obtained permit
18:15	18:30	0.25	End PFO Test @ 6:20 for **Well 2-12** IP = 179 psi AP = 1024 psi Rate = 0 GPM
18:30	19:00	0.50	Run Static Gradient Survey
18:26	18:31		5-min Stop @ 3000'
18:35	18:40		5-min Stop @ 2000'
18:43	18:48		5-min Stop @ 1000'
18:53	18:58		5-min gradient stop @ Surface (in lubricator)
19:00	19:30	0.50	Rig down from **Well 2-12.** Download data from the bottom hole pressure gauges. Move to 1-12 to run gauges downhole for pressure falloff.
19:30	20:00	0.50	Rig up on **Well 1-12** Ran Slickline unit with bottom hole pressure/temperature gauges downhole at Well 1-12 Rate= 0 gpm AP = 807 psi IP = 151 psi
20:00	20:30	0.50	Set gauges @ 4080', let stabilize prior to injection
20:30			Initiate Injection on **Well 1-12** for the pressure buildup Rate= 50 gpm, AP= 923 psi IP= 415 psi
20:30	20:45	0.25	Secure well and leave location
20:45			Rate= 50 gpm, AP= 955 psi IP= 472 psi
Total		**2.75**	

Safety Topics

Working in Republic Romulus facility, ppe, pinch points, and fall protection

16200 Park Row., Suite 200
Houston, Texas 77084
(281) 589-5900

FIELD ACTIVITY REPORT

Company:	**Republic Industrial and Energy Solutions**	Project No:	**192128AP**
Well:	**EDS 1-12 and EDS 2-12**	Date:	**9/9/2023**
City	**Romulus**	FAR Report No.:	**4**
County/Parrish:	**Wayne County**	WSP Rep.:	**Jeffry Tahtouh**
State:	**MI**		
Work Performed:	__ New Well __Workover _X_ Wireline Consulting __ Other		

Breakdown of Operations

From	To	Hrs	
6:45	7:00	0.25	Arrive on location, held JSA, and got the notice to proceed
7:00	8:00	1.00	End PFO Test @ 07:03 for **Well 1-12** IP = 145 psi AP = 805 psi Rate = 0 GPM Run Static Gradient Survey
7:04	7:09		5-min Stop @ 4000'
7:14	7:19		5-min Stop @ 3000'
7:24	7:29		5-min Stop @ 2000'
7:32	7:37		5-min Stop @ 1000'
7:43	7:48		5-min gradient stop @ Surface (in lubricator)
8:00	8:30	0.50	Rig down from **Well 1-12.** Download data from the bottom hole pressure gauges.
8:30			Secure well and leave location
Total		**1.75**	

Safety Topics

Working in Republic Romulus facility, ppe, pinch points, and fall protection

APPENDIX C

ANNULUS PRESSURE TEST DATA

APPENDIX C
WELL 1-12 ANNULUS PRESSURE DATA
August 11, 2023

Time	Time (min)	Pressure (psig)	
15:53:10	0.00	1161.57	START
15:53:40	0.50	1161.14	
15:54:10	1.00	1161.57	
15:54:40	1.50	1161.14	
15:55:10	2.00	1160.86	
15:55:40	2.50	1160.72	
15:56:10	3.00	1160.58	
15:56:40	3.50	1160.40	
15:57:10	4.00	1160.25	
15:57:40	4.50	1160.10	
15:58:10	5.00	1159.95	
15:58:40	5.50	1159.81	
15:59:10	6.00	1159.66	
15:59:40	6.50	1159.51	
16:00:10	7.00	1159.36	
16:00:40	7.50	1159.22	
16:01:10	8.00	1159.07	
16:01:40	8.50	1158.92	
16:02:10	9.00	1158.88	
16:02:40	9.50	1158.46	
16:03:10	10.00	1158.17	
16:03:40	10.50	1158.46	
16:04:10	11.00	1158.17	
16:04:40	11.50	1158.03	
16:05:10	12.00	1157.74	
16:05:40	12.50	1157.65	
16:06:10	13.00	1157.33	
16:06:40	13.50	1157.47	
16:07:10	14.00	1156.93	
16:07:40	14.50	1156.90	
16:08:10	15.00	1156.80	
16:08:40	15.50	1156.48	

Time	Time (min)	Pressure (psig)	
16:09:10	16.00	1156.48	
16:09:40	16.50	1156.34	
16:10:10	17.00	1156.20	
16:10:40	17.50	1156.05	
16:11:10	18.00	1155.77	
16:11:40	18.50	1155.91	
16:12:10	19.00	1155.63	
16:12:40	19.50	1155.63	
16:13:10	20.00	1155.07	
16:13:40	20.50	1155.35	
16:14:10	21.00	1155.21	
16:14:40	21.50	1154.92	
16:15:10	22.00	1154.64	
16:15:40	22.50	1154.64	
16:16:10	23.00	1154.37	
16:16:40	23.50	1154.22	
16:17:10	24.00	1154.22	
16:17:40	24.50	1153.93	
16:18:10	25.00	1154.08	
16:18:40	25.50	1153.79	
16:19:10	26.00	1153.51	
16:19:40	26.50	1153.52	
16:20:10	27.00	1153.09	
16:20:40	27.50	1153.09	
16:21:10	28.00	1152.80	
16:21:40	28.50	1152.95	
16:22:10	29.00	1152.66	
16:22:40	29.50	1152.80	
16:23:10	30.00	1152.38	
16:23:40	30.50	1152.24	
16:24:10	31.00	1152.38	
16:24:40	31.50	1152.10	

APPENDIX C, Continued
WELL 1-12 ANNULUS PRESSURE DATA
August 11, 2023

Time	Time (min)	Pressure (psig)	
16:25:10	32.00	1151.81	
16:25:40	32.50	1152.10	
16:26:10	33.00	1151.55	
16:26:40	33.50	1151.67	
16:27:10	34.00	1151.25	
16:27:40	34.50	1150.97	
16:28:10	35.00	1150.97	
16:28:40	35.50	1150.97	
16:29:10	36.00	1150.68	
16:29:40	36.50	1150.68	
16:30:10	37.00	1150.54	
16:30:40	37.50	1150.42	
16:31:10	38.00	1150.40	
16:31:40	38.50	1150.26	
16:32:10	39.00	1150.26	
16:32:40	39.50	1149.98	
16:33:10	40.00	1149.69	
16:33:40	40.50	1149.41	
16:34:10	41.00	1149.41	
16:34:40	41.50	1149.27	
16:35:10	42.00	1149.27	
16:35:40	42.50	1149.00	
16:36:10	43.00	1148.85	
16:36:40	43.50	1148.71	
16:37:10	44.00	1148.42	
16:37:40	44.50	1148.42	
16:38:10	45.00	1148.42	
16:38:40	45.50	1148.28	
16:39:10	46.00	1148.14	

Time	Time (min)	Pressure (psig)	
16:39:40	46.50	1148.14	
16:40:10	47.00	1147.86	
16:40:40	47.50	1147.72	
16:41:10	48.00	1147.57	
16:41:40	48.50	1147.43	
16:42:10	49.00	1147.57	
16:42:40	49.50	1147.42	
16:43:10	50.00	1147.01	
16:43:40	50.50	1147.01	
16:44:10	51.00	1146.87	
16:44:40	51.50	1146.44	
16:45:10	52.00	1146.30	
16:45:40	52.50	1146.44	
16:46:10	53.00	1146.30	
16:46:40	53.50	1146.30	
16:47:10	54.00	1145.74	
16:47:40	54.50	1146.02	
16:48:10	55.00	1146.02	
16:48:40	55.50	1145.77	
16:49:10	56.00	1145.45	
16:49:40	56.50	1145.60	
16:50:10	57.00	1145.45	
16:50:40	57.50	1145.31	
16:51:10	58.00	1144.89	
16:51:40	58.50	1145.03	
16:52:10	59.00	1144.89	
16:52:40	59.50	1144.75	
16:53:10	60.00	1144.61	END

APPENDIX D

CALIBRATION CERTIFICATES

July 24, 2023

Jason Rubin
Republic Industrial and Energy Solutions
10613 W. Sam Houston Parkway N.
Houston, TX 77064

Re: Calibration Performed at Republic Industrial and Energy Solutions.
Job No. REPS238555-1

Dear Jason,

Please find enclosed (10) ten calibration forms for the Republic Industrial and Energy Solutions location dated July 14, 2023. If you have any questions, please feel free to call our office at 734-424-1200.

Sincerely,

Brian Davis
Project Manager

BD/re

Team UIS
2290 Bishop Circle East
Dexter, MI 48130
Phone: (734) 424-1200 - Fax: (734) 424-0031
teamuis.com

Table of Contents
Job #REPS238555-1

Customer Republic Services
User Republic Services
Plant 28470 Citrin Drive

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER	**Republic Services**	CERTIFICATE #	**REPS238555-1, 1**
Address	**28470 Citrin Drive; Romulus MI US 48174**	JOB #	**REPS238555-1**
USER	**Republic Services; 28470 Citrin Drive; Romulus MI US 48174**	PAGE	**1**
OWNER REPRESENTATIVE	**John Frost**	TELEPHONE	**734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 51 %RH

Equip Location: Plant Sub/Parent: Well 1 Position/Child: Annulus Pressure PRI

NAMEPLATE

Item Tested	Pressure Transmitter		
Manufacturer	Yokogawa	Model Number	EJA530
Serial Number	91V719511	Tag Number	PIT3838
Operating Range	cal 0-1000 psig (Span of Meter 0-7200 psi)	Procedure/Method	Fluke 754:75x_umeng0000 rev Jul 2011

As Found - Within Spec As Left - Within Spec

INPUT psig OUTPUT mA / psig

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	4.00	☐	4.00	☐	-2	2
2		250	4.55	☐	4.55	☐	248	252
3		500	5.11	☐	5.11	☐	498	502
4		750	5.66	☐	5.66	☐	748	752
5		1000	6.21	☐	6.21	☐	998	1002
6		Hart Address	1	☐	1	☐		
7				☐		☐		

Communicator: Hart-OEM Specific **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:
Hart Address 1
switched with datalogger due to transmitter dropping out during operation serial 5613698

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 2**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **2**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 51 %RH

Equip Location: Plant Sub/Parent: Well 1 Position/Child: Annulus Pressure SEC

NAMEPLATE

Item Tested: Pressure Transmitter

Manufacturer: Yokogawa Model Number: EJA530E

Serial Number: 91V927584 Tag Number: PIT3838

Operating Range: cal 0-1000 psig HART Procedure/Method: Fluke 754:75x_umeng0000 rev Jul 2011

As Found - Within Spec As Left - Within Spec

INPUT psig OUTPUT psig

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	1	☐	1	☐	-2	2
2		250	248	☐	248	☐	248	252
3		500	498	☐	498	☐	498	502
4		750	749	☐	749	☐	748	752
5		1000	998	☐	998	☐	998	1002
6		Hart Address	1	☐	1	☐		
7				☐		☐		

Communicator: Hart-OEM Specific **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:
Hart Address 1
switched with datalogger due to transmitter dropping out during operation serial 5613698

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 3**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **3**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 80 °F Humidity: 57 %RH

Equip Location: Plant Sub/Parent: Well 1 Position/Child: Well Flow

NAMEPLATE

Item Tested: Clamp-on Flowmeter

Manufacturer: Keyence Model Number: FD-R80

Serial Number: #G38220528 Tag Number: NA

Operating Range: 0-400 GPM Procedure/Method: Fluke 754:75x_umeng0000 rev Jul 2011

		INPUT Diag	OUTPUT Diag			
Line	%	Applied	As Found	OOT	As Left	OOT
1	GPM	KEYENCE	27.5	☐	27.5	☐
2	GPM	GREYLINE TFFM 6.1	27.3	☐	27.3	☐
3				☐		☐

Communicator: **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026
2	Grey Line	TTFM	SHOP-2518	5/18/2023	5/31/2026

Comments:
3" hastalloy schedule 40, 3.50 OD, wall thickness 0.216", 0.46" spacing at 1 pass, use other for pipe material.

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 4**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **4**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 51 %RH

Equip Location: Plant Sub/Parent: Well 1 Position/Child: Well Pressure Logger

NAMEPLATE

Item Tested Pressure Transmitter

Manufacturer Yokogawa Model Number EJA53

Serial Number 91V631757-926 Tag Number PIT3938

Operating Range cal 0-1000 psig Procedure/Method Fluke 754:75x_umeng0000 rev Jul 2011

INPUT psig OUTPUT psig

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	1	☐	1	☐	-2	2
2		250	248	☐	248	☐	248	252
3		500	498	☐	498	☐	498	502
4		750	748	☐	748	☐	748	752
5		1000	998	☐	998	☐	998	1002
6				☐		☐		

Communicator: HART **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 5**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **5**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 51 %RH

Equip Location: Plant Sub/Parent: Well 1 Position/Child: Well Pressure Primary

NAMEPLATE

Item Tested: Pressure Transmitter

Manufacturer: Yokogawa Model Number: EJA53

Serial Number: 91V926590-938 Tag Number: PIT3938

Operating Range: cal 0-1000 psig (Meter Span 0-7200 psi) Procedure/Method: Fluke 754:75x_umeng0000 rev Jul 2011

As Found - Within Spec As Left - Within Spec

INPUT psig OUTPUT mA/ PSIG

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	4.00	☐	4.00	☐	-2	2
2		250	4.55	☐	4.55	☐	248	252
3		500	5.11	☐	5.11	☐	498	502
4		750	5.66	☐	5.66	☐	748	752
5		1000	6.22	☐	6.22	☐	998	1002
6				☐		☐		

Communicator: HART **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 6**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **6**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 51 %RH

Equip Location: Plant Sub/Parent: Well 2 Position/Child: Annulus Pressure Primary

NAMEPLATE

Item Tested: Pressure Transmitter

Manufacturer: Yokogaw Model Number: EJA530E-JDS7N-012EL/FU1/D1/JH05

Serial Number: 91V927606 Tag Number: PIT3938

Operating Range: cal 0-1000 psig Procedure/Method: Fluke 754:75x_umeng0000 rev Jul 2011

As Found - Within Spec As Left - Within Spec

INPUT psig OUTPUT mA / psig

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	3.99	☐	3.99	☐	-2	+2
2		250	4.55	☐	4.55	☐	248	252
3		500	5.10	☐	5.10	☐	498	502
4		750	5.66	☐	5.66	☐	748	752
5		1000	6.22	☐	6.22	☐	998	1002
6		Hart Address	4	☐	4	☐		
7				☐		☐		

Communicator: Hart-OEM Specific **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:
no mA output; unit comm with Hart to PLC

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 7**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **7**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 51 %RH

Equip Location: Plant Sub/Parent: Well 2 Position/Child: Annulus Pressure SEC

NAMEPLATE

Item Tested Pressure Transmitter

Manufacturer Yokogawa Model Number EJA530E-JDS7N-012EL/FU1/D1/JH05

Serial Number 91V926611 Tag Number PIT

Operating Range cal 0-1000 psig Procedure/Method Fluke 754:75x_umeng0000 rev Jul 2011

As Found - Within Spec As Left - Within Spec

INPUT psig OUTPUT psig

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	1	☐	1	☐	-2	+2
2		250	249	☐	250	☐	248	252
3		500	499	☐	500	☐	498	502
4		750	748	☐	750	☐	748	752
5		1000	998	☐	1000	☐	998	1002
6		Hart Address	2	☐	2	☐		
7				☐		☐		

Communicator: Hart-OEM Specific **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:
no mA output; unit comm with Hart

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 8**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **8**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 80 °F Humidity: 55 %RH

Equip Location: Plant Sub/Parent: Well 2 Position/Child: Well Flow

NAMEPLATE

Item Tested Clamp-on Flowmeter

Manufacturer Keyence Model Number FD-R80

Serial Number G3822052? Tag Number FIT3832

Operating Range 0-400 GPM Procedure/Method Fluke 754:75x_umeng0000 rev Jul 2011

INPUT GPM OUTPUT GPM

Line	%	Applied	As Found	OOT	As Left	OOT
1	GPM	KEYENCE	30.4	☐	30.4	☐
2	GPM	GREYLINE TFFM 6.1	30.0	☐	30.0	☐
3				☐		☐

Communicator: **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026
2	Grey Line	TTFM	SHOP-2518	5/18/2023	5/31/2026

Comments:
3" hastalloy schedule 40, 3.50 OD, wall thickness 0.216", 0.46" spacing at 1 pass, use other for pipe material.

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 9**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **9**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 83 °F Humidity: 52 %RH

Equip Location: Plant Sub/Parent: Well 2 Position/Child: Well Pressure Primary

NAMEPLATE

Item Tested: Pressure Transmitter

Manufacturer: Yokogaw Model Number: EJA530E-JDS7N-012EL/FU1/D1/JH05

Serial Number: 91W312670 Tag Number: PIT3935

Operating Range: cal 0-1000 psig Procedure/Method: Fluke 754:75x_umeng0000 rev Jul 2011

INPUT psig OUTPUT mA

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	4.00	☐	4.00	☐	-2	+2
2		250	4.55	☐	4.55	☐	248	252
3		500	5.10	☐	5.10	☐	498	502
4		750	5.66	☐	5.66	☐	748	752
5		1000	6.22	☐	6.22	☐	998	1002
6		Hart Address	5	☐	5	☐		
7				☐		☐		

Communicator: **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026
2	Fluke	754	JW-2395	10/27/2022	10/31/2023
3	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024

Comments:
no mA output; unit comm with Hart to PLC

Deficiencies:
mA found in tolerance. Display is not correct but doesn't impact anything to their SCADA.

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

CALIBRATION CERTIFICATE

UIS SCADA
2290 Bishop Circle E.
Dexter, MI 48130
734-424-1200

CUSTOMER **Republic Services** CERTIFICATE # **REPS238555-1, 10**

Address **28470 Citrin Drive; Romulus MI US 48174** JOB # **REPS238555-1**

USER **Republic Services; 28470 Citrin Drive; Romulus MI US 48174** PAGE **10**

OWNER REPRESENTATIVE **John Frost** TELEPHONE **734-946-1000**

Service Date: 7/14/2023 Temp: 86 °F Humidity: 45 %RH

Equip Location: Plant Sub/Parent: Well 2 Position/Child: Well Pressure SEC (logger)

NAMEPLATE

Item Tested Pressure Transmitter

Manufacturer Yokogawa Model Number EJA530E-JDS7N-012EL/FU1/D1/JH05

Serial Number 91W405865 Tag Number PIT

Operating Range cal 0-1000 psig Procedure/Method Fluke 754:75x_umeng0000 rev Jul 2011

As Found - Within Spec As Left - Within Spec

INPUT psig OUTPUT psig

Line	%	Applied	As Found	OOT	As Left	OOT	Lo Spec	Hi Spec
1		0	1	☐	1	☐	-2	+2
2		250	248	☐	248	☐	248	252
3		500	498	☐	498	☐	498	502
4		750	748	☐	748	☐	748	752
5		1000	998	☐	998	☐	998	1002
6		Hart Address	1	☐	1	☐		
7				☐		☐		

Communicator: Hart-OEM Specific **Totalizer As Found** NA **Totalizer As Left** NA Gal

#	Manufacturer	Model	Serial / ID Number	Calibration Date	Calibration Due
1	Fluke	754	JW-2395	10/27/2022	10/31/2023
2	Fluke	700RG31 10Kpsi	SHOP-2526	3/20/2023	3/31/2024
3	Extech	RH300(ambient)	CMC-1772	1/11/2021	1/11/2026

Comments:
no mA output; unit comm with Hart to PLC

Deficiencies:

Date of Issue: 7/24/2023 **Tech 1:** **C. McCraw** **Tech 2:** **NA** ISO-81523D-ISO Cert 2015; Rev Oct 2022

Comment Summary
Job #REPS238555-1

Customer Republic Services

User Republic Services

Plant: 28470 Citrin Drive
Substation: Well 1
Position: Annulus Pressure PRI
Equipment: ISO-81235D1-ISO CERT 2015

Page: 1
Date: 7/14/2023

Comments: Hart Address 1
switched with datalogger due to transmitter dropping out during operation serial 5613698

Plant: 28470 Citrin Drive
Substation: Well 1
Position: Annulus Pressure SEC
Equipment: ISO-81235D1-ISO CERT 2015

Page: 2
Date: 7/14/2023

Comments: Hart Address 1
switched with datalogger due to transmitter dropping out during operation serial 5613698

Plant: 28470 Citrin Drive
Substation: Well 1
Position: Well Flow
Equipment: ISO-81235D1-ISO CERT 2015

Page: 3
Date: 7/14/2023

Comments: 3" hastalloy schedule 40, 3.50 OD, wall thickness 0.216", 0.46" spacing at 1 pass, use other for pipe material.

Plant: 28470 Citrin Drive
Substation: Well 2
Position: Annulus Pressure Primary
Equipment: ISO-81235D1-ISO CERT 2015 (4)

Page: 6
Date: 7/14/2023

Comments: no mA output; unit comm with Hart to PLC

Plant: 28470 Citrin Drive
Substation: Well 2
Position: Annulus Pressure SEC
Equipment: ISO-81235D1-ISO CERT 2015 (5)

Page: 7
Date: 7/14/2023

Comments: no mA output; unit comm with Hart

Comment Summary
Job #REPS238555-1

Plant: 28470 Citrin Drive
Substation: Well 2
Position: Well Flow
Equipment: ISO-81235D1-ISO CERT 2015 (2)

Page: 8
Date: 7/14/2023

Comments: 3" hastalloy schedule 40, 3.50 OD, wall thickness 0.216", 0.46" spacing at 1 pass, use other for pipe material.

Plant: 28470 Citrin Drive
Substation: Well 2
Position: Well Pressure Primary
Equipment: ISO-81235D1-ISO CERT 2015 (5)

Page: 9
Date: 7/14/2023

Comments: no mA output; unit comm with Hart to PLC

Plant: 28470 Citrin Drive
Substation: Well 2
Position: Well Pressure SEC (logger)
Equipment: ISO-81235D1-ISO CERT 2015 (6)

Page: 10
Date: 7/14/2023

Comments: no mA output; unit comm with Hart to PLC

Deficiency Summary
Job #REPS238555-1

Customer Republic Services

User Republic Services

Plant: 28470 Citrin Drive

Substation: Well 2

Position: Well Pressure Primary

Equipment: ISO-81235D1-ISO CERT 2015 (5)

Page: 9

Date: 7/14/2023

Deficiencies: mA found in tolerance. Display is not correct but doesn't impact anything to their SCADA.

Edmonton, Alberta, Canada
T6E 5P5
Phone: (780) 944-1377 Fax: (780) 944 - 1406

Calibration Certificate

Model : Badger Low Temp

Serial Number : 91873 Top

Range : 10,000.00 psi

Last Cal. Date : 21-April-2023

Specifications

Calibration Pressure Range:		0.00	10,000.00	psi
Calibration Temperature Range:		0.00	150.00	°C
Pressure:	Accuracy	±	2.4000 psi (0.024 %FS)	
	Resolution	±	0.0300 psi (0.0003 %FS)	
Temperature:	Accuracy	±	0.40 °C	
	Resolution	±	0.001 °C	

Calibration Summary

Pressure: Accuracy (maximum error)	0.70	psi
Temperature: Accuracy (maximum error)	0.27	°C

Traceability Statement

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

Calibrated with Cal-Scan DWG # 6

Calibrated by:

Ryan Kryzanowski

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

Calibration Certificate

Model : Badger Low Temp
Serial Number : 91874 Bottom

Range : 10,000.00 psi
Last Cal. Date : 21-April-2023

Specifications

Calibration Pressure Range:		0.00	10,000.00	psi
Calibration Temperature Range:		0.00	150.00	°C
Pressure:	Accuracy	±	2.4000 psi (0.024 %FS)	
	Resolution	±	0.0300 psi (0.0003 %FS)	
Temperature:	Accuracy	±	0.40 °C	
	Resolution	±	0.001 °C	

Calibration Summary

Pressure: Accuracy (maximum error)	1.22	psi
Temperature: Accuracy (maximum error)	0.16	°C

Traceability Statement

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

Calibrated with Cal-Scan DWG # 6

Calibrated by:

Ryan Kryzanowski

APPENDIX E

EPA STANDARD ANNULAR PRESSURE TEST FORM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
STANDARD ANNULAR PRESSURE TEST

Operator: Republic Industrial and Energy Solutions, LLC
Address: 28470 Citrin Drive Romulus, MI 48174
State Permit No.: M-452
USEPA Permit No.: MI-163-1W-C010
Date of Test: 08/11/2023
Well Name: Well #1-12
Well Type: Waste Disposal (Class 1)

LOCATION INFORMATION: SW Quarter of the NW Quarter of the SE Quarter of Section 12; Range 9E; Township 3S; County Wayne;
Company Representative: Mike Alderman; Field Inspector: JoAnne Mitock;
Type of Pressure Gauge: ____ inch face; 7200 psi full scale; 0.1 psi increments;

New Gauge? Yes ☐ No ☒ If no, date of calibration 07-14-2023 Calibration certification submitted? Yes ☐ No ☐

TEST RESULTS	
Readings must be taken at least every 10 minutes for a minimum of 30 minutes for Class II, III and V wells and 60 minutes for Class I wells. For Class II wells, annulus pressue should be at least 300 psig. For Class I wells, annulus pressure should be the greater of 300 psig or 100 psi above maximum permitted injection pressure. Original chart recordings must be submitted with this form.	5-year or annual test on time? Yes ☒ No ☐ 2-year test for TA'd wells on time? Yes ☐ No ☐ After rework? Yes ☐ No ☒ Newly permitted well? Yes ☐ No ☒

.

Time	Pressure (in psig) Annulus	Tubing
1553	1,161.57	154.59
1603	1,158.17	154.03
1613	1,155.07	153.04
1623	1,152.24	152.05
1633	1,149.55	151.48
1643	1,146.73	150.78
1653	1,144.47	150.21

Casing size: 7"
Tubing size: 4-1/2"
Packer type: Model 12, Hastelloy
Packer set @: 4040'
Top of Permitted Injection Zone: 3973
Is packer 100 ft or less above top of Injection Zone ? Yes ☒ No ☐
If not, please submit a justification.
Fluid return (gal.): ____
Comments:

Test Pressures: Max. Allowable Pressure Change: Initial test pressure x 0.03: 34.83 psi
Test Period Pressure change: 17.1 psi

Test Passed ☐ Test Failed ☐

If failed test, well must be shut in, no injection can occur, and USEPA must be contacted within 24 hours. Corrective action needs to occur, the well retested, and written authorization received before injection can recommence.

I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))

Mike Alderman — Printed Name of Company Representative
Signature of Company Representative
8-11-23 — Date

* Shutoff alarms tested, and passed

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF INSPECTION

EPA Regional Office USEPA Region V WU-16J Chicago, IL 60604	Environmental Solutions AQ P.O. Box 6052 Oxford, OH 45056	Firm to be inspected Republic Industrial & Energy Solutions, LLC
Date 8/11/23 Time 5:00 PM	Notice of inspection is hereby given according to Section 1445 (b) of the Safe Drinking Water Act (42 U.S.C §300f et seg.).	

Reason For Inspection MIT (SAPT) Pt. 1 Well 1-12
Automatic Emergency Shutoff Well 2-12
& Alarm System
For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable permit or rule. Test

Section 1445 (b) of the SDWA(42 U.S.C §300j-4(b) is quoted on the reverse of this form

Receipt of this Notice of Inspection is hereby acknowledged.

Firm Representative	Date	Inspector
Richard Wallace	8/11/23	John Anter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
STANDARD ANNULAR PRESSURE TEST

Operator	Republic Industrial & Energy Solutions, LLC	State Permit Number	00452
Address	28470 Citrin Drive	EPA Permit Number	MI-163-1W-C010 ~~0010~~
	Romulus, MI 48174	Date of Test	8/11/23
Well Name & Number	Well 1-12	Well Type	IW

Quarter	Quarter	Quarter	Section	Township	Range	Township Name	County	State
SW	NW	SE	12	3S	9E	Georgetown	Wayne	MI

GPS file number	Latitude	Longitude	Elevation
	42.243516	-83.316826	

Company Representative	Mike Alderman	Field Inspector	JoAnne Mitock

GAUGE CERTIFICATION

Type Pressure Gauge Yokogawa EJA530 3 inch face 7200 psi full scale 6.1 psi increments
New Gauge? Yes ☐ No ☑ If no, date of calibration 7/14/23 Calibration certification submitted? Yes ☑ No ☐

TEST RESULTS

Time	3:53	4:03	4:13	4:23	4:33	4:43	4:53
Annulus	1162	1158	1155	1152	1150	1147	1144
Tubing	155	154	153	152	151	151	150

WELL STATUS

5 Year	☐	TD#_____
2 Year TA	☐	TD#_____
Rework after failure	☐	TD#_____
New Permit	☐	TD#_____
Enforcement Action	☐	TD#_____
Annual Class 1	☑	TD#_____

WELL CONFIGURATION

Casing Size	7
Tubing Size	4 1/2
Packer Type	Model 12, Hastelley
Packer set @	4050
Fluid Return (gal)	NA - pressure tank

Test Pressures: Max. Allowable Pressure Change: Initial test pressure x .03 34 psi
Test Pressure change 18 psi

Test Passed ☑ Test Failed ☐ : ***If failed test, well must shut in, no injection can occur, and USEPA must be contacted within 24 hours. Corrective action needs to occur, the well retested, and written authorization received before injection can recommence.***

COMMENT:
well shut in for test. Also witnessed Automatic Shutoff & Alarm System Test.
Emma Atkinson (EGLE) witnessing

Signature of Company Representative	Date
Michael Alderman	8/11/23
Signature of UIC Field Inspector	Date
JoAnne Mitock	8/11/23

APPENDIX F

EPA RADIOACTIVE TRACER SURVEY FORM

BACKGROUND INFORMATION FOR REVIEW OF RADIOACTIVE TRACER SURVEYS FOR CEMENT INTEGRITY

Facility Name: Republic Industrial and Energy Solutions, LLC			Operator: Republic Industrial and Energy Solutions, LLC		
Well Name: #1-12			USEPA Permit Numbe: MI-163-1W-C0010	Witness: Jeffry Tahtouh	
State: Michigan	Test Date: September 5,2023		Logging Company: Michigan Wireline	Depth Reference: Kelly Bushing ✔ Ground Level ☐	

Well and Operational Information

Long StringCsg Material: K-55, LT&C	Long String Casing OD, ins: 7.0	Casing weight, #/ft: 26	Casing ID, ins.: 6.276	Long String Casing Length, ft: 4075	
Tubing Material: Blue Box 2000	Tubing OD, ins: 4.5	Tubing weight, #/ft: 4	Tubing ID, ins.: 3.98	Tubing Length, ft: 4032	
Tail Pipe Material: N/A	Tail Pipe OD, ins: N/A	Tail Pipe, weight#/ft.: N/A	Tail Pipe ID, ins.: N/A	Tail Pipe Length, ft: N/A	Tail Pipe Depth: N/A
	OpenHole diameter, in: 8.75	TD, ft: 4647	PBTD, ft: 4647	Top of Open Interval, ft	
Packer Model	Packer Type: Delta-P Model 12	Top of Packer, ft: 4032	Bottom of Packer, ft	4035	

Geological Information

Lowermost USDW Name: Sylvania	Fms in Confining Zone: Utica Shale and Trenton Limestone	Fms in Injection Zone: Franconia, Eau Claire, Mt. Simon
Base of USDW, ft: 400	Depth to top of Confinement Zone: 2397	Injection Zone Top, ft: 3937

TOOL INFORMATION

Ejector, ft above BDET: 6.15'	TDET, ft above BDET: 8.73'	MDET, ft above BDET: n/a			

CALIBRATION INFORMATION

Depth BDET, ft: 3802'	Depth TDET, ft: 3793.3'	BDET CPSPI	Lithology (Warm/Cool): Cool	Maximum Reading, LD: 4 CPS	Minimum Reading, LD: 0 CPS
Depth BDET, ft: 3955'	Depth TDET, ft: 3946.3'	BDET CPSPI	Lithology (Warm/Cool): Warm	Maximum Reading, LD: 16.2 CPS	Minimum Reading, LD: 3.8 CPS

FIRST SLUG TRACKING SEQUENCE

Flow Rate, gpm: 42	Velocity in tubing, fps: 1.06	Depth of deflection on 1st pass, ft: 3181.5	Deflection on 1st pass, LD: 213 cps	Deflection/Backgroun: 2 cps	Passes Through Slug: 4
Slug Split? yes or no: No	Depth of Split, ft: N/A	Moved up, yes or no: No	Minimum Slug Depth, ft: 3100	Distance above shoe, ft: 975	Maximum Slug Depth, ft: 4291.5

FIRST STATIONARY TEST

Depth of BDET, ft: 4050	Depth of TDET, ft: 4041.3	BDET to open interval, ft: 25	Time at station, mins: 32	Injection Rate, gpm: 42	Log Divisions per Minute: 12
Depth at Injection, ft: 3750		BDET above end of tubing or casing, ft: 25	Reached BDET up, LD	Reach UDET up, LD	Velocity Up, ft/min
2nd Setting Depth, ft	Time of reset	Slug already passed BDET?	Reached BDET up, LD	Slug arrival time	
3rd Setting Depth	Time of reset	Slug already passed BDET?	Reached BDET up, LD	Slug arrival time	
4th setting depth, ft	Time of reset	Slug already passed BDET?	Reached BDET up, LD	Slug arrival time	Upper Limit of Movement, ft

REMEMBER

1. Please fill in the above cells.
2. Inject at highest practicable rate during the stationary test to maximize pressure difference that is the driving force for upward movement of fluid (if it occurs), but at low enough velocity during slug tracking so the slug can be followed effectively.
3. Leave the scaling at the same level for all phases. 40 counts per second per inch is usually effective. We need to be able to see evidence of variation due to lithology.

4. Use big slugs. The height of the deflection caused by the slug should be at least 50 times the difference of the high and low levels measured during logging the initial log.

5. If you record times of arrival, that should be the arrival of the leading edge.

6. The purpose is to determine the shallowest depth at which tracer material leaves the well.

7. When slug tracking, logging through the slug while the last part of the slug is leaving the deeper of the tailpipe or casing is the best way to identify a split. If there is a split, always follow the upper portion to determine the limit of its upward movement.

8. When running the stationary test, set the tool with the bottom detector five feet above the end of the deeper of the tail pipe or casing. If the slug reaches it, move it up in steps to find the shallowest extent of movement.

9. The stationary test must be run long enough to be able to detect upward motion of 2 ft/min.
10. Superimpose the traces of the initial and final base logs.

11. Please submit both the merged and unmerged slug chase records.

12. The test report must explain any anomalies in the results.

13. Please submit the digital logging data on a CD.

14. Submit an up-to-date well schematic.

APPENDIX G

RAW PRESSURE AND TEMPERATURE DATA (ABRIDGED)

APPENDIX G
Pressure/Time Data Recorded During the Pressure Transient Test

Start Time: 09/07/23 20:28
Location: Romulus, MI
Recorder Serial No: 91874
Calibration Date: APR 21/23
Pressure Range: 10006.0 psig

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/07/23	20:28:20	1884.709	73.393	09/07/23	21:42:20	2241.918	69.733	09/07/23	22:56:20	2260.675	71.442
09/07/23	20:29:20	1884.714	73.399	09/07/23	21:43:20	2242.333	69.794	09/07/23	22:57:20	2260.870	71.454
09/07/23	20:30:20	1992.474	73.410	09/07/23	21:44:20	2242.757	69.856	09/07/23	22:58:20	2261.095	71.461
09/07/23	20:31:20	2052.542	73.550	09/07/23	21:45:20	2243.138	69.913	09/07/23	22:59:20	2261.326	71.471
09/07/23	20:32:20	2128.674	74.102	09/07/23	21:46:20	2243.492	69.957	09/07/23	23:00:20	2261.475	71.482
09/07/23	20:33:20	2163.014	75.506	09/07/23	21:47:20	2243.896	70.005	09/07/23	23:01:20	2261.677	71.490
09/07/23	20:34:20	2178.379	76.711	09/07/23	21:48:20	2244.240	70.050	09/07/23	23:02:20	2261.916	71.502
09/07/23	20:35:20	2186.726	77.419	09/07/23	21:49:20	2244.611	70.091	09/07/23	23:03:20	2262.135	71.513
09/07/23	20:36:20	2191.797	77.792	09/07/23	21:50:20	2244.908	70.134	09/07/23	23:04:20	2262.314	71.518
09/07/23	20:37:20	2195.176	77.906	09/07/23	21:51:20	2245.241	70.176	09/07/23	23:05:20	2262.571	71.533
09/07/23	20:38:20	2198.045	77.764	09/07/23	21:52:20	2245.493	70.214	09/07/23	23:06:20	2262.734	71.533
09/07/23	20:39:20	2200.347	77.467	09/07/23	21:53:20	2245.810	70.251	09/07/23	23:07:20	2262.962	71.551
09/07/23	20:40:20	2202.509	77.085	09/07/23	21:54:20	2245.999	70.287	09/07/23	23:08:20	2263.195	71.558
09/07/23	20:41:20	2204.243	76.675	09/07/23	21:55:20	2246.197	70.316	09/07/23	23:09:20	2263.448	71.570
09/07/23	20:42:20	2205.663	76.298	09/07/23	21:56:20	2246.464	70.352	09/07/23	23:10:20	2263.688	71.577
09/07/23	20:43:20	2206.921	75.955	09/07/23	21:57:20	2246.678	70.383	09/07/23	23:11:20	2263.836	71.580
09/07/23	20:44:20	2207.972	75.627	09/07/23	21:58:20	2246.925	70.414	09/07/23	23:12:20	2264.012	71.589
09/07/23	20:45:20	2208.978	75.253	09/07/23	21:59:20	2247.178	70.451	09/07/23	23:13:20	2264.303	71.604
09/07/23	20:46:20	2210.010	74.782	09/07/23	22:00:20	2247.378	70.476	09/07/23	23:14:20	2264.490	71.609
09/07/23	20:47:20	2210.842	74.216	09/07/23	22:01:20	2247.599	70.506	09/07/23	23:15:20	2264.711	71.612
09/07/23	20:48:20	2211.791	73.573	09/07/23	22:02:20	2247.846	70.534	09/07/23	23:16:20	2264.914	71.628
09/07/23	20:49:20	2212.704	72.912	09/07/23	22:03:20	2248.083	70.559	09/07/23	23:17:20	2265.059	71.639
09/07/23	20:50:20	2213.336	72.270	09/07/23	22:04:20	2248.334	70.584	09/07/23	23:18:20	2265.262	71.643
09/07/23	20:51:20	2214.011	71.691	09/07/23	22:05:20	2248.610	70.614	09/07/23	23:19:20	2265.463	71.649
09/07/23	20:52:20	2214.757	71.146	09/07/23	22:06:20	2248.828	70.639	09/07/23	23:20:20	2265.625	71.662
09/07/23	20:53:20	2215.245	70.617	09/07/23	22:07:20	2249.105	70.662	09/07/23	23:21:20	2265.813	71.666
09/07/23	20:54:20	2215.780	70.105	09/07/23	22:08:20	2249.368	70.684	09/07/23	23:22:20	2266.029	71.674
09/07/23	20:55:20	2216.371	69.616	09/07/23	22:09:20	2249.562	70.714	09/07/23	23:23:20	2266.258	71.681
09/07/23	20:56:20	2217.037	69.138	09/07/23	22:10:20	2249.832	70.733	09/07/23	23:24:20	2266.571	71.689
09/07/23	20:57:20	2217.523	68.715	09/07/23	22:11:20	2250.105	70.757	09/07/23	23:25:20	2266.880	71.696
09/07/23	20:58:20	2217.910	68.360	09/07/23	22:12:20	2250.309	70.779	09/07/23	23:26:20	2267.077	71.698
09/07/23	20:59:20	2218.500	68.053	09/07/23	22:13:20	2250.584	70.795	09/07/23	23:27:20	2267.330	71.714
09/07/23	21:00:20	2219.122	67.790	09/07/23	22:14:20	2250.793	70.819	09/07/23	23:28:20	2267.542	71.720
09/07/23	21:01:20	2219.781	67.546	09/07/23	22:15:20	2251.153	70.841	09/07/23	23:29:20	2267.763	71.720
09/07/23	21:02:20	2220.650	67.300	09/07/23	22:16:20	2251.360	70.862	09/07/23	23:30:20	2268.037	71.738
09/07/23	21:03:20	2221.520	67.063	09/07/23	22:17:20	2251.565	70.881	09/07/23	23:31:20	2268.250	71.734
09/07/23	21:04:20	2222.199	66.848	09/07/23	22:18:20	2251.823	70.901	09/07/23	23:32:20	2268.438	71.740
09/07/23	21:05:20	2222.880	66.663	09/07/23	22:19:20	2252.082	70.919	09/07/23	23:33:20	2268.659	71.748
09/07/23	21:06:20	2223.487	66.499	09/07/23	22:20:20	2252.277	70.935	09/07/23	23:34:20	2268.835	71.754
09/07/23	21:07:20	2224.091	66.334	09/07/23	22:21:20	2252.547	70.958	09/07/23	23:35:20	2269.079	71.762
09/07/23	21:08:20	2224.752	66.159	09/07/23	22:22:20	2252.817	70.971	09/07/23	23:36:20	2269.240	71.766
09/07/23	21:09:20	2225.383	65.965	09/07/23	22:23:20	2253.040	70.992	09/07/23	23:37:20	2269.467	71.774
09/07/23	21:10:20	2225.933	65.769	09/07/23	22:24:20	2253.260	71.011	09/07/23	23:38:20	2269.664	71.783
09/07/23	21:11:20	2226.693	65.582	09/07/23	22:25:20	2253.458	71.028	09/07/23	23:39:20	2269.869	71.789
09/07/23	21:12:20	2227.349	65.404	09/07/23	22:26:20	2253.714	71.047	09/07/23	23:40:20	2270.056	71.794
09/07/23	21:13:20	2228.083	65.258	09/07/23	22:27:20	2253.991	71.057	09/07/23	23:41:20	2270.271	71.803
09/07/23	21:14:20	2228.733	65.115	09/07/23	22:28:20	2254.249	71.073	09/07/23	23:42:20	2270.470	71.807
09/07/23	21:15:20	2229.419	64.981	09/07/23	22:29:20	2254.547	71.093	09/07/23	23:43:20	2270.670	71.810
09/07/23	21:16:20	2230.088	64.843	09/07/23	22:30:20	2254.787	71.113	09/07/23	23:44:20	2270.844	71.815
09/07/23	21:17:20	2230.625	64.693	09/07/23	22:31:20	2254.975	71.122	09/07/23	23:45:20	2271.139	71.826
09/07/23	21:18:20	2231.271	64.537	09/07/23	22:32:20	2255.166	71.138	09/07/23	23:46:20	2271.301	71.833
09/07/23	21:19:20	2231.892	64.378	09/07/23	22:33:20	2255.430	71.154	09/07/23	23:47:20	2271.557	71.839
09/07/23	21:20:20	2232.493	64.247	09/07/23	22:34:20	2255.658	71.174	09/07/23	23:48:20	2271.733	71.845
09/07/23	21:21:20	2233.016	64.136	09/07/23	22:35:20	2255.872	71.182	09/07/23	23:49:20	2271.899	71.850
09/07/23	21:22:20	2233.523	64.058	09/07/23	22:36:20	2256.115	71.198	09/07/23	23:50:20	2272.144	71.856
09/07/23	21:23:20	2234.017	64.104	09/07/23	22:37:20	2256.323	71.211	09/07/23	23:51:20	2272.400	71.864
09/07/23	21:24:20	2234.651	64.402	09/07/23	22:38:20	2256.584	71.222	09/07/23	23:52:20	2272.587	71.865
09/07/23	21:25:20	2235.168	64.923	09/07/23	22:39:20	2256.759	71.239	09/07/23	23:53:20	2272.786	71.873
09/07/23	21:26:20	2235.589	65.569	09/07/23	22:40:20	2256.977	71.250	09/07/23	23:54:20	2273.025	71.875
09/07/23	21:27:20	2236.143	66.228	09/07/23	22:41:20	2257.316	71.267	09/07/23	23:55:20	2273.209	71.884
09/07/23	21:28:20	2236.438	66.839	09/07/23	22:42:20	2257.512	71.283	09/07/23	23:56:20	2273.422	71.888
09/07/23	21:29:20	2236.827	67.375	09/07/23	22:43:20	2257.707	71.293	09/07/23	23:57:20	2273.567	71.894
09/07/23	21:30:20	2237.185	67.818	09/07/23	22:44:20	2257.928	71.306	09/07/23	23:58:20	2273.760	71.904
09/07/23	21:31:20	2237.630	68.185	09/07/23	22:45:20	2258.138	71.313	09/07/23	23:59:20	2273.963	71.901
09/07/23	21:32:20	2238.019	68.483	09/07/23	22:46:20	2258.379	71.325	09/08/23	00:00:20	2274.154	71.912
09/07/23	21:33:20	2238.357	68.718	09/07/23	22:47:20	2258.641	71.343	09/08/23	00:01:20	2274.376	71.916
09/07/23	21:34:20	2238.755	68.918	09/07/23	22:48:20	2258.842	71.352	09/08/23	00:02:20	2274.519	71.917
09/07/23	21:35:20	2239.091	69.080	09/07/23	22:49:20	2259.062	71.365	09/08/23	00:03:20	2274.744	71.922
09/07/23	21:36:20	2239.475	69.212	09/07/23	22:50:20	2259.293	71.378	09/08/23	00:04:20	2274.884	71.925
09/07/23	21:37:20	2239.831	69.323	09/07/23	22:51:20	2259.516	71.382	09/08/23	00:05:20	2275.011	71.931
09/07/23	21:38:20	2240.264	69.427	09/07/23	22:52:20	2259.790	71.397	09/08/23	00:06:20	2275.085	71.933
09/07/23	21:39:20	2240.659	69.516	09/07/23	22:53:20	2259.977	71.401	09/08/23	00:07:20	2275.150	71.933
09/07/23	21:40:20	2241.074	69.596	09/07/23	22:54:20	2260.230	71.419	09/08/23	00:08:20	2275.257	71.943
09/07/23	21:41:20	2241.510	69.671	09/07/23	22:55:20	2260.474	71.433	09/08/23	00:09:20	2275.417	71.951

APPENDIX G, Continued
Pressure/Time Data Recorded During the Pressure Transient Test

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/08/23	00:10:20	2275.583	71.952	09/08/23	01:31:20	2288.773	72.142	09/08/23	02:52:20	2299.730	72.195
09/08/23	00:11:20	2275.736	71.953	09/08/23	01:32:20	2288.967	72.142	09/08/23	02:53:20	2299.835	72.194
09/08/23	00:12:20	2275.854	71.963	09/08/23	01:33:20	2289.080	72.140	09/08/23	02:54:20	2300.001	72.196
09/08/23	00:13:20	2276.089	71.962	09/08/23	01:34:20	2289.277	72.141	09/08/23	02:55:20	2300.156	72.192
09/08/23	00:14:20	2276.240	71.963	09/08/23	01:35:20	2289.441	72.144	09/08/23	02:56:20	2300.259	72.195
09/08/23	00:15:20	2276.384	71.974	09/08/23	01:36:20	2289.612	72.151	09/08/23	02:57:20	2300.433	72.198
09/08/23	00:16:20	2276.536	71.974	09/08/23	01:37:20	2289.711	72.153	09/08/23	02:58:20	2300.492	72.196
09/08/23	00:17:20	2276.764	71.980	09/08/23	01:38:20	2289.810	72.152	09/08/23	02:59:20	2300.611	72.194
09/08/23	00:18:20	2276.913	71.987	09/08/23	01:39:20	2289.920	72.150	09/08/23	03:00:20	2300.695	72.191
09/08/23	00:19:20	2277.029	71.986	09/08/23	01:40:20	2290.024	72.154	09/08/23	03:01:20	2300.796	72.195
09/08/23	00:20:20	2277.240	71.993	09/08/23	01:41:20	2290.233	72.154	09/08/23	03:02:20	2300.941	72.198
09/08/23	00:21:20	2277.478	72.002	09/08/23	01:42:20	2290.381	72.160	09/08/23	03:03:20	2301.097	72.194
09/08/23	00:22:20	2277.716	72.002	09/08/23	01:43:20	2290.503	72.160	09/08/23	03:04:20	2301.188	72.193
09/08/23	00:23:20	2277.877	72.005	09/08/23	01:44:20	2290.676	72.159	09/08/23	03:05:20	2301.322	72.194
09/08/23	00:24:20	2278.065	72.003	09/08/23	01:45:20	2290.794	72.159	09/08/23	03:06:20	2301.442	72.196
09/08/23	00:25:20	2278.251	72.011	09/08/23	01:46:20	2290.948	72.163	09/08/23	03:07:20	2301.598	72.197
09/08/23	00:26:20	2278.409	72.015	09/08/23	01:47:20	2291.093	72.162	09/08/23	03:08:20	2301.687	72.195
09/08/23	00:27:20	2278.591	72.015	09/08/23	01:48:20	2291.230	72.162	09/08/23	03:09:20	2301.809	72.201
09/08/23	00:28:20	2278.751	72.021	09/08/23	01:49:20	2291.340	72.162	09/08/23	03:10:20	2301.926	72.200
09/08/23	00:29:20	2278.875	72.029	09/08/23	01:50:20	2291.520	72.167	09/08/23	03:11:20	2302.041	72.191
09/08/23	00:30:20	2279.045	72.024	09/08/23	01:51:20	2291.667	72.167	09/08/23	03:12:20	2302.173	72.201
09/08/23	00:31:20	2279.195	72.032	09/08/23	01:52:20	2291.819	72.170	09/08/23	03:13:20	2302.287	72.201
09/08/23	00:32:20	2279.385	72.037	09/08/23	01:53:20	2291.966	72.166	09/08/23	03:14:20	2302.377	72.202
09/08/23	00:33:20	2279.564	72.043	09/08/23	01:54:20	2292.153	72.172	09/08/23	03:15:20	2302.475	72.199
09/08/23	00:34:20	2279.759	72.038	09/08/23	01:55:20	2292.285	72.174	09/08/23	03:16:20	2302.650	72.197
09/08/23	00:35:20	2279.925	72.046	09/08/23	01:56:20	2292.441	72.176	09/08/23	03:17:20	2302.716	72.198
09/08/23	00:36:20	2280.110	72.054	09/08/23	01:57:20	2292.547	72.173	09/08/23	03:18:20	2302.827	72.195
09/08/23	00:37:20	2280.218	72.052	09/08/23	01:58:20	2292.662	72.174	09/08/23	03:19:20	2302.980	72.200
09/08/23	00:38:20	2280.364	72.051	09/08/23	01:59:20	2292.798	72.175	09/08/23	03:20:20	2303.102	72.197
09/08/23	00:39:20	2280.563	72.053	09/08/23	02:00:20	2292.975	72.179	09/08/23	03:21:20	2303.212	72.200
09/08/23	00:40:20	2280.731	72.059	09/08/23	02:01:20	2293.120	72.180	09/08/23	03:22:20	2303.323	72.195
09/08/23	00:41:20	2280.903	72.066	09/08/23	02:02:20	2293.259	72.175	09/08/23	03:23:20	2303.449	72.199
09/08/23	00:42:20	2281.080	72.071	09/08/23	02:03:20	2293.404	72.181	09/08/23	03:24:20	2303.540	72.200
09/08/23	00:43:20	2281.190	72.065	09/08/23	02:04:20	2293.557	72.176	09/08/23	03:25:20	2303.646	72.202
09/08/23	00:44:20	2281.387	72.074	09/08/23	02:05:20	2293.713	72.179	09/08/23	03:26:20	2303.742	72.200
09/08/23	00:45:20	2281.535	72.079	09/08/23	02:06:20	2293.878	72.185	09/08/23	03:27:20	2303.838	72.202
09/08/23	00:46:20	2281.750	72.082	09/08/23	02:07:20	2293.968	72.181	09/08/23	03:28:20	2303.979	72.203
09/08/23	00:47:20	2281.862	72.076	09/08/23	02:08:20	2294.068	72.185	09/08/23	03:29:20	2304.098	72.200
09/08/23	00:48:20	2282.104	72.082	09/08/23	02:09:20	2294.153	72.177	09/08/23	03:30:20	2304.184	72.194
09/08/23	00:49:20	2282.250	72.084	09/08/23	02:10:20	2294.272	72.178	09/08/23	03:31:20	2304.296	72.205
09/08/23	00:50:20	2282.444	72.089	09/08/23	02:11:20	2294.398	72.180	09/08/23	03:32:20	2304.385	72.202
09/08/23	00:51:20	2282.574	72.090	09/08/23	02:12:20	2294.541	72.180	09/08/23	03:33:20	2304.469	72.206
09/08/23	00:52:20	2282.712	72.094	09/08/23	02:13:20	2294.624	72.181	09/08/23	03:34:20	2304.537	72.202
09/08/23	00:53:20	2282.880	72.097	09/08/23	02:14:20	2294.739	72.181	09/08/23	03:35:20	2304.620	72.198
09/08/23	00:54:20	2282.998	72.093	09/08/23	02:15:20	2294.855	72.173	09/08/23	03:36:20	2304.740	72.197
09/08/23	00:55:20	2283.171	72.095	09/08/23	02:16:20	2295.001	72.175	09/08/23	03:37:20	2304.845	72.203
09/08/23	00:56:20	2283.344	72.098	09/08/23	02:17:20	2295.155	72.181	09/08/23	03:38:20	2304.955	72.204
09/08/23	00:57:20	2283.493	72.094	09/08/23	02:18:20	2295.293	72.176	09/08/23	03:39:20	2305.057	72.207
09/08/23	00:58:20	2283.621	72.098	09/08/23	02:19:20	2295.453	72.175	09/08/23	03:40:20	2305.202	72.202
09/08/23	00:59:20	2283.749	72.096	09/08/23	02:20:20	2295.571	72.173	09/08/23	03:41:20	2305.286	72.203
09/08/23	01:00:20	2283.872	72.097	09/08/23	02:21:20	2295.705	72.179	09/08/23	03:42:20	2305.466	72.209
09/08/23	01:01:20	2284.095	72.100	09/08/23	02:22:20	2295.825	72.181	09/08/23	03:43:20	2305.596	72.210
09/08/23	01:02:20	2284.231	72.096	09/08/23	02:23:20	2295.933	72.176	09/08/23	03:44:20	2305.668	72.203
09/08/23	01:03:20	2284.421	72.098	09/08/23	02:24:20	2296.074	72.180	09/08/23	03:45:20	2305.769	72.209
09/08/23	01:04:20	2284.523	72.100	09/08/23	02:25:20	2296.194	72.177	09/08/23	03:46:20	2305.879	72.208
09/08/23	01:05:20	2284.683	72.102	09/08/23	02:26:20	2296.302	72.176	09/08/23	03:47:20	2305.968	72.210
09/08/23	01:06:20	2284.879	72.101	09/08/23	02:27:20	2296.436	72.177	09/08/23	03:48:20	2306.103	72.212
09/08/23	01:07:20	2285.059	72.104	09/08/23	02:28:20	2296.606	72.180	09/08/23	03:49:20	2306.220	72.213
09/08/23	01:08:20	2285.203	72.103	09/08/23	02:29:20	2296.750	72.180	09/08/23	03:50:20	2306.301	72.214
09/08/23	01:09:20	2285.475	72.107	09/08/23	02:30:20	2296.890	72.179	09/08/23	03:51:20	2306.383	72.215
09/08/23	01:10:20	2285.579	72.109	09/08/23	02:31:20	2297.020	72.182	09/08/23	03:52:20	2306.465	72.214
09/08/23	01:11:20	2285.721	72.112	09/08/23	02:32:20	2297.105	72.182	09/08/23	03:53:20	2306.602	72.210
09/08/23	01:12:20	2285.862	72.110	09/08/23	02:33:20	2297.256	72.184	09/08/23	03:54:20	2306.717	72.214
09/08/23	01:13:20	2286.085	72.113	09/08/23	02:34:20	2297.386	72.182	09/08/23	03:55:20	2306.846	72.217
09/08/23	01:14:20	2286.175	72.110	09/08/23	02:35:20	2297.535	72.185	09/08/23	03:56:20	2306.930	72.214
09/08/23	01:15:20	2286.337	72.117	09/08/23	02:36:20	2297.701	72.192	09/08/23	03:57:20	2307.050	72.220
09/08/23	01:16:20	2286.575	72.115	09/08/23	02:37:20	2297.821	72.182	09/08/23	03:58:20	2307.141	72.222
09/08/23	01:17:20	2286.743	72.116	09/08/23	02:38:20	2297.928	72.185	09/08/23	03:59:20	2307.221	72.220
09/08/23	01:18:20	2286.901	72.118	09/08/23	02:39:20	2298.092	72.183	09/08/23	04:00:20	2307.329	72.221
09/08/23	01:19:20	2287.031	72.125	09/08/23	02:40:20	2298.179	72.183	09/08/23	04:01:20	2307.443	72.222
09/08/23	01:20:20	2287.171	72.118	09/08/23	02:41:20	2298.281	72.184	09/08/23	04:02:20	2307.526	72.222
09/08/23	01:21:20	2287.345	72.122	09/08/23	02:42:20	2298.414	72.187	09/08/23	04:03:20	2307.640	72.221
09/08/23	01:22:20	2287.558	72.130	09/08/23	02:43:20	2298.531	72.186	09/08/23	04:04:20	2307.765	72.226
09/08/23	01:23:20	2287.595	72.118	09/08/23	02:44:20	2298.665	72.182	09/08/23	04:05:20	2307.852	72.221
09/08/23	01:24:20	2287.726	72.131	09/08/23	02:45:20	2298.792	72.189	09/08/23	04:06:20	2307.952	72.224
09/08/23	01:25:20	2287.876	72.130	09/08/23	02:46:20	2298.931	72.186	09/08/23	04:07:20	2308.039	72.225
09/08/23	01:26:20	2288.054	72.130	09/08/23	02:47:20	2299.104	72.184	09/08/23	04:08:20	2308.147	72.221
09/08/23	01:27:20	2288.198	72.134	09/08/23	02:48:20	2299.211	72.194	09/08/23	04:09:20	2308.236	72.224
09/08/23	01:28:20	2288.371	72.136	09/08/23	02:49:20	2299.326	72.193	09/08/23	04:10:20	2308.346	72.226
09/08/23	01:29:20	2288.545	72.139	09/08/23	02:50:20	2299.459	72.187	09/08/23	04:11:20	2308.462	72.221
09/08/23	01:30:20	2288.654	72.144	09/08/23	02:51:20	2299.602	72.192	09/08/23	04:12:20	2308.602	72.227

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/08/23	04:13:20	2308.688	72.229	09/08/23	05:34:20	2316.896	72.239	09/08/23	06:55:20	2323.999	72.237
09/08/23	04:14:20	2308.808	72.225	09/08/23	05:35:20	2316.964	72.233	09/08/23	06:56:20	2324.082	72.236
09/08/23	04:15:20	2308.899	72.228	09/08/23	05:36:20	2317.060	72.244	09/08/23	06:57:20	2324.164	72.237
09/08/23	04:16:20	2309.062	72.228	09/08/23	05:37:20	2317.121	72.242	09/08/23	06:58:20	2324.248	72.235
09/08/23	04:17:20	2309.153	72.227	09/08/23	05:38:20	2317.214	72.242	09/08/23	06:59:20	2324.390	72.239
09/08/23	04:18:20	2309.333	72.226	09/08/23	05:39:20	2317.306	72.238	09/08/23	07:00:20	2324.437	72.231
09/08/23	04:19:20	2309.421	72.227	09/08/23	05:40:20	2317.401	72.241	09/08/23	07:01:20	2324.518	72.234
09/08/23	04:20:20	2309.572	72.231	09/08/23	05:41:20	2317.500	72.243	09/08/23	07:02:20	2324.611	72.237
09/08/23	04:21:20	2309.695	72.227	09/08/23	05:42:20	2317.605	72.239	09/08/23	07:03:20	2324.675	72.232
09/08/23	04:22:20	2309.791	72.232	09/08/23	05:43:20	2317.696	72.240	09/08/23	07:04:20	2324.754	72.235
09/08/23	04:23:20	2309.905	72.229	09/08/23	05:44:20	2317.781	72.242	09/08/23	07:05:20	2324.818	72.232
09/08/23	04:24:20	2310.023	72.229	09/08/23	05:45:20	2317.860	72.239	09/08/23	07:06:20	2324.907	72.233
09/08/23	04:25:20	2310.102	72.227	09/08/23	05:46:20	2317.963	72.241	09/08/23	07:07:20	2324.985	72.232
09/08/23	04:26:20	2310.178	72.228	09/08/23	05:47:20	2318.050	72.241	09/08/23	07:08:20	2325.063	72.235
09/08/23	04:27:20	2310.285	72.226	09/08/23	05:48:20	2318.130	72.241	09/08/23	07:09:20	2325.136	72.236
09/08/23	04:28:20	2310.391	72.230	09/08/23	05:49:20	2318.210	72.246	09/08/23	07:10:20	2325.198	72.235
09/08/23	04:29:20	2310.503	72.227	09/08/23	05:50:20	2318.254	72.241	09/08/23	07:11:20	2325.278	72.233
09/08/23	04:30:20	2310.605	72.227	09/08/23	05:51:20	2318.354	72.247	09/08/23	07:12:20	2325.372	72.236
09/08/23	04:31:20	2310.791	72.232	09/08/23	05:52:20	2318.449	72.245	09/08/23	07:13:20	2325.447	72.232
09/08/23	04:32:20	2310.860	72.229	09/08/23	05:53:20	2318.545	72.242	09/08/23	07:14:20	2325.538	72.237
09/08/23	04:33:20	2310.953	72.230	09/08/23	05:54:20	2318.657	72.251	09/08/23	07:15:20	2325.603	72.234
09/08/23	04:34:20	2311.043	72.231	09/08/23	05:55:20	2318.714	72.241	09/08/23	07:16:20	2325.679	72.230
09/08/23	04:35:20	2311.126	72.229	09/08/23	05:56:20	2318.814	72.244	09/08/23	07:17:20	2325.753	72.229
09/08/23	04:36:20	2311.222	72.226	09/08/23	05:57:20	2318.896	72.244	09/08/23	07:18:20	2325.849	72.227
09/08/23	04:37:20	2311.344	72.232	09/08/23	05:58:20	2319.013	72.248	09/08/23	07:19:20	2325.919	72.228
09/08/23	04:38:20	2311.437	72.235	09/08/23	05:59:20	2319.085	72.244	09/08/23	07:20:20	2325.998	72.231
09/08/23	04:39:20	2311.507	72.228	09/08/23	06:00:20	2319.206	72.246	09/08/23	07:21:20	2326.105	72.234
09/08/23	04:40:20	2311.608	72.233	09/08/23	06:01:20	2319.286	72.244	09/08/23	07:22:20	2326.194	72.232
09/08/23	04:41:20	2311.752	72.231	09/08/23	06:02:20	2319.374	72.248	09/08/23	07:23:20	2326.282	72.233
09/08/23	04:42:20	2311.837	72.232	09/08/23	06:03:20	2319.467	72.248	09/08/23	07:24:20	2326.353	72.228
09/08/23	04:43:20	2311.937	72.231	09/08/23	06:04:20	2319.534	72.244	09/08/23	07:25:20	2326.430	72.227
09/08/23	04:44:20	2312.016	72.225	09/08/23	06:05:20	2319.614	72.241	09/08/23	07:26:20	2326.505	72.228
09/08/23	04:45:20	2312.156	72.234	09/08/23	06:06:20	2319.735	72.249	09/08/23	07:27:20	2326.589	72.227
09/08/23	04:46:20	2312.218	72.224	09/08/23	06:07:20	2319.798	72.244	09/08/23	07:28:20	2326.681	72.232
09/08/23	04:47:20	2312.328	72.231	09/08/23	06:08:20	2319.871	72.241	09/08/23	07:29:20	2326.741	72.226
09/08/23	04:48:20	2312.418	72.225	09/08/23	06:09:20	2319.961	72.239	09/08/23	07:30:20	2326.837	72.230
09/08/23	04:49:20	2312.561	72.225	09/08/23	06:10:20	2320.076	72.244	09/08/23	07:31:20	2326.920	72.232
09/08/23	04:50:20	2312.651	72.228	09/08/23	06:11:20	2320.140	72.237	09/08/23	07:32:20	2326.991	72.224
09/08/23	04:51:20	2312.765	72.234	09/08/23	06:12:20	2320.244	72.243	09/08/23	07:33:20	2327.080	72.232
09/08/23	04:52:20	2312.838	72.227	09/08/23	06:13:20	2320.353	72.243	09/08/23	07:34:20	2327.145	72.229
09/08/23	04:53:20	2312.934	72.227	09/08/23	06:14:20	2320.427	72.242	09/08/23	07:35:20	2327.216	72.221
09/08/23	04:54:20	2313.038	72.228	09/08/23	06:15:20	2320.532	72.244	09/08/23	07:36:20	2327.325	72.229
09/08/23	04:55:20	2313.154	72.228	09/08/23	06:16:20	2320.661	72.248	09/08/23	07:37:20	2327.404	72.229
09/08/23	04:56:20	2313.244	72.230	09/08/23	06:17:20	2320.735	72.241	09/08/23	07:38:20	2327.513	72.233
09/08/23	04:57:20	2313.329	72.225	09/08/23	06:18:20	2320.841	72.245	09/08/23	07:39:20	2327.569	72.226
09/08/23	04:58:20	2313.448	72.226	09/08/23	06:19:20	2320.912	72.240	09/08/23	07:40:20	2327.656	72.226
09/08/23	04:59:20	2313.556	72.226	09/08/23	06:20:20	2320.996	72.242	09/08/23	07:41:20	2327.729	72.226
09/08/23	05:00:20	2313.677	72.226	09/08/23	06:21:20	2321.085	72.239	09/08/23	07:42:20	2327.782	72.221
09/08/23	05:01:20	2313.788	72.233	09/08/23	06:22:20	2321.168	72.238	09/08/23	07:43:20	2327.875	72.227
09/08/23	05:02:20	2313.869	72.230	09/08/23	06:23:20	2321.257	72.238	09/08/23	07:44:20	2327.967	72.228
09/08/23	05:03:20	2313.983	72.236	09/08/23	06:24:20	2321.333	72.241	09/08/23	07:45:20	2328.042	72.223
09/08/23	05:04:20	2314.080	72.231	09/08/23	06:25:20	2321.425	72.244	09/08/23	07:46:20	2328.131	72.222
09/08/23	05:05:20	2314.164	72.228	09/08/23	06:26:20	2321.504	72.241	09/08/23	07:47:20	2249.979	72.215
09/08/23	05:06:20	2314.299	72.232	09/08/23	06:27:20	2321.607	72.244	09/08/23	07:48:20	2135.133	72.204
09/08/23	05:07:20	2314.387	72.228	09/08/23	06:28:20	2321.688	72.243	09/08/23	07:49:20	2066.328	72.190
09/08/23	05:08:20	2314.476	72.234	09/08/23	06:29:20	2321.776	72.245	09/08/23	07:50:20	2021.613	72.183
09/08/23	05:09:20	2314.543	72.232	09/08/23	06:30:20	2321.917	72.244	09/08/23	07:51:20	1991.563	72.180
09/08/23	05:10:20	2314.621	72.230	09/08/23	06:31:20	2321.963	72.237	09/08/23	07:52:20	1970.671	72.176
09/08/23	05:11:20	2314.708	72.234	09/08/23	06:32:20	2322.055	72.241	09/08/23	07:53:20	1955.802	72.181
09/08/23	05:12:20	2314.830	72.229	09/08/23	06:33:20	2322.139	72.242	09/08/23	07:54:20	1945.091	72.175
09/08/23	05:13:20	2314.917	72.229	09/08/23	06:34:20	2322.261	72.240	09/08/23	07:55:20	1938.178	72.178
09/08/23	05:14:20	2315.038	72.235	09/08/23	06:35:20	2322.341	72.240	09/08/23	07:56:20	1933.726	72.177
09/08/23	05:15:20	2315.120	72.232	09/08/23	06:36:20	2322.424	72.239	09/08/23	07:57:20	1930.472	72.174
09/08/23	05:16:20	2315.234	72.230	09/08/23	06:37:20	2322.519	72.241	09/08/23	07:58:20	1928.005	72.178
09/08/23	05:17:20	2315.324	72.232	09/08/23	06:38:20	2322.613	72.236	09/08/23	07:59:20	1925.982	72.179
09/08/23	05:18:20	2315.405	72.232	09/08/23	06:39:20	2322.706	72.239	09/08/23	08:00:20	1924.245	72.184
09/08/23	05:19:20	2315.502	72.234	09/08/23	06:40:20	2322.797	72.241	09/08/23	08:01:20	1922.915	72.184
09/08/23	05:20:20	2315.599	72.237	09/08/23	06:41:20	2322.879	72.241	09/08/23	08:02:20	1921.728	72.192
09/08/23	05:21:20	2315.658	72.230	09/08/23	06:42:20	2322.991	72.240	09/08/23	08:03:20	1920.562	72.193
09/08/23	05:22:20	2315.761	72.239	09/08/23	06:43:20	2323.079	72.236	09/08/23	08:04:20	1919.599	72.196
09/08/23	05:23:20	2315.834	72.238	09/08/23	06:44:20	2323.169	72.241	09/08/23	08:05:20	1918.834	72.197
09/08/23	05:24:20	2315.920	72.239	09/08/23	06:45:20	2323.233	72.236	09/08/23	08:06:20	1918.048	72.203
09/08/23	05:25:20	2315.989	72.232	09/08/23	06:46:20	2323.319	72.242	09/08/23	08:07:20	1917.253	72.202
09/08/23	05:26:20	2316.087	72.236	09/08/23	06:47:20	2323.377	72.238	09/08/23	08:08:20	1916.685	72.207
09/08/23	05:27:20	2316.232	72.238	09/08/23	06:48:20	2323.433	72.237	09/08/23	08:09:20	1916.130	72.211
09/08/23	05:28:20	2316.313	72.232	09/08/23	06:49:20	2323.518	72.239	09/08/23	08:10:20	1915.510	72.215
09/08/23	05:29:20	2316.440	72.235	09/08/23	06:50:20	2323.603	72.238	09/08/23	08:11:20	1915.077	72.214
09/08/23	05:30:20	2316.522	72.234	09/08/23	06:51:20	2323.670	72.236	09/08/23	08:12:20	1914.613	72.222
09/08/23	05:31:20	2316.633	72.243	09/08/23	06:52:20	2323.744	72.235	09/08/23	08:13:20	1914.146	72.221
09/08/23	05:32:20	2316.709	72.238	09/08/23	06:53:20	2323.817	72.235	09/08/23	08:14:20	1913.768	72.221
09/08/23	05:33:20	2316.818	72.238	09/08/23	06:54:20	2323.909	72.235	09/08/23	08:15:20	1913.375	72.225

APPENDIX G, Continued
Pressure/Time Data Recorded During the Pressure Transient Test

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/08/23	08:16:20	1913.030	72.229	09/08/23	09:37:20	1902.004	72.507	09/08/23	10:58:20	1897.911	72.652
09/08/23	08:17:20	1912.701	72.230	09/08/23	09:38:20	1901.925	72.510	09/08/23	10:59:20	1897.873	72.655
09/08/23	08:18:20	1912.329	72.237	09/08/23	09:39:20	1901.866	72.517	09/08/23	11:00:20	1897.823	72.655
09/08/23	08:19:20	1911.998	72.239	09/08/23	09:40:20	1901.797	72.519	09/08/23	11:01:20	1897.796	72.654
09/08/23	08:20:20	1911.734	72.234	09/08/23	09:41:20	1901.732	72.521	09/08/23	11:02:20	1897.768	72.654
09/08/23	08:21:20	1911.410	72.239	09/08/23	09:42:20	1901.667	72.522	09/08/23	11:03:20	1897.717	72.653
09/08/23	08:22:20	1911.221	72.240	09/08/23	09:43:20	1901.600	72.525	09/08/23	11:04:20	1897.684	72.656
09/08/23	08:23:20	1910.945	72.246	09/08/23	09:44:20	1901.529	72.526	09/08/23	11:05:20	1897.647	72.658
09/08/23	08:24:20	1910.687	72.247	09/08/23	09:45:20	1901.468	72.528	09/08/23	11:06:20	1897.604	72.661
09/08/23	08:25:20	1910.433	72.251	09/08/23	09:46:20	1901.411	72.530	09/08/23	11:07:20	1897.593	72.668
09/08/23	08:26:20	1910.218	72.251	09/08/23	09:47:20	1901.340	72.529	09/08/23	11:08:20	1897.542	72.661
09/08/23	08:27:20	1909.978	72.262	09/08/23	09:48:20	1901.247	72.533	09/08/23	11:09:20	1897.515	72.666
09/08/23	08:28:20	1909.762	72.262	09/08/23	09:49:20	1901.173	72.529	09/08/23	11:10:20	1897.493	72.669
09/08/23	08:29:20	1909.546	72.275	09/08/23	09:50:20	1901.135	72.534	09/08/23	11:11:20	1897.435	72.671
09/08/23	08:30:20	1909.368	72.277	09/08/23	09:51:20	1901.078	72.536	09/08/23	11:12:20	1897.393	72.667
09/08/23	08:31:20	1909.174	72.281	09/08/23	09:52:20	1901.004	72.534	09/08/23	11:13:20	1897.336	72.660
09/08/23	08:32:20	1908.996	72.288	09/08/23	09:53:20	1900.961	72.542	09/08/23	11:14:20	1897.314	72.666
09/08/23	08:33:20	1908.815	72.298	09/08/23	09:54:20	1900.911	72.543	09/08/23	11:15:20	1897.280	72.673
09/08/23	08:34:20	1908.606	72.304	09/08/23	09:55:20	1900.853	72.545	09/08/23	11:16:20	1897.255	72.673
09/08/23	08:35:20	1908.434	72.311	09/08/23	09:56:20	1900.799	72.546	09/08/23	11:17:20	1897.220	72.673
09/08/23	08:36:20	1908.258	72.313	09/08/23	09:57:20	1900.733	72.544	09/08/23	11:18:20	1897.179	72.673
09/08/23	08:37:20	1908.056	72.317	09/08/23	09:58:20	1900.676	72.553	09/08/23	11:19:20	1897.150	72.677
09/08/23	08:38:20	1907.926	72.322	09/08/23	09:59:20	1900.631	72.556	09/08/23	11:20:20	1897.136	72.683
09/08/23	08:39:20	1907.790	72.331	09/08/23	10:00:20	1900.569	72.558	09/08/23	11:21:20	1897.112	72.683
09/08/23	08:40:20	1907.618	72.331	09/08/23	10:01:20	1900.514	72.561	09/08/23	11:22:20	1897.057	72.682
09/08/23	08:41:20	1907.445	72.335	09/08/23	10:02:20	1900.443	72.556	09/08/23	11:23:20	1897.021	72.679
09/08/23	08:42:20	1907.333	72.336	09/08/23	10:03:20	1900.388	72.563	09/08/23	11:24:20	1896.998	72.683
09/08/23	08:43:20	1907.198	72.347	09/08/23	10:04:20	1900.348	72.568	09/08/23	11:25:20	1896.948	72.683
09/08/23	08:44:20	1907.040	72.354	09/08/23	10:05:20	1900.279	72.563	09/08/23	11:26:20	1896.922	72.688
09/08/23	08:45:20	1906.859	72.352	09/08/23	10:06:20	1900.243	72.569	09/08/23	11:27:20	1896.886	72.684
09/08/23	08:46:20	1906.743	72.356	09/08/23	10:07:20	1900.206	72.571	09/08/23	11:28:20	1896.840	72.682
09/08/23	08:47:20	1906.647	72.366	09/08/23	10:08:20	1900.137	72.569	09/08/23	11:29:20	1896.820	72.689
09/08/23	08:48:20	1906.531	72.367	09/08/23	10:09:20	1900.094	72.574	09/08/23	11:30:20	1896.792	72.690
09/08/23	08:49:20	1906.357	72.368	09/08/23	10:10:20	1900.015	72.571	09/08/23	11:31:20	1896.766	72.691
09/08/23	08:50:20	1906.271	72.377	09/08/23	10:11:20	1899.969	72.574	09/08/23	11:32:20	1896.744	72.695
09/08/23	08:51:20	1906.098	72.374	09/08/23	10:12:20	1899.918	72.578	09/08/23	11:33:20	1896.677	72.688
09/08/23	08:52:20	1906.009	72.385	09/08/23	10:13:20	1899.882	72.582	09/08/23	11:34:20	1896.668	72.696
09/08/23	08:53:20	1905.878	72.382	09/08/23	10:14:20	1899.827	72.581	09/08/23	11:35:20	1896.635	72.692
09/08/23	08:54:20	1905.725	72.386	09/08/23	10:15:20	1899.735	72.577	09/08/23	11:36:20	1896.602	72.697
09/08/23	08:55:20	1905.653	72.390	09/08/23	10:16:20	1899.720	72.587	09/08/23	11:37:20	1896.574	72.698
09/08/23	08:56:20	1905.541	72.396	09/08/23	10:17:20	1899.664	72.585	09/08/23	11:38:20	1896.557	72.704
09/08/23	08:57:20	1905.433	72.404	09/08/23	10:18:20	1899.610	72.587	09/08/23	11:39:20	1896.488	72.690
09/08/23	08:58:20	1905.280	72.400	09/08/23	10:19:20	1899.571	72.596	09/08/23	11:40:20	1896.486	72.701
09/08/23	08:59:20	1905.199	72.409	09/08/23	10:20:20	1899.534	72.593	09/08/23	11:41:20	1896.454	72.702
09/08/23	09:00:20	1905.113	72.411	09/08/23	10:21:20	1899.467	72.592	09/08/23	11:42:20	1896.439	72.707
09/08/23	09:01:20	1904.987	72.411	09/08/23	10:22:20	1899.432	72.598	09/08/23	11:43:20	1896.404	72.702
09/08/23	09:02:20	1904.893	72.422	09/08/23	10:23:20	1899.382	72.598	09/08/23	11:44:20	1896.375	72.704
09/08/23	09:03:20	1904.789	72.421	09/08/23	10:24:20	1899.334	72.598	09/08/23	11:45:20	1896.328	72.708
09/08/23	09:04:20	1904.680	72.423	09/08/23	10:25:20	1899.299	72.604	09/08/23	11:46:20	1896.307	72.710
09/08/23	09:05:20	1904.569	72.426	09/08/23	10:26:20	1899.241	72.604	09/08/23	11:47:20	1896.287	72.712
09/08/23	09:06:20	1904.500	72.428	09/08/23	10:27:20	1899.195	72.603	09/08/23	11:48:20	1896.247	72.708
09/08/23	09:07:20	1904.388	72.435	09/08/23	10:28:20	1899.181	72.613	09/08/23	11:49:20	1896.207	72.714
09/08/23	09:08:20	1904.234	72.426	09/08/23	10:29:20	1899.116	72.610	09/08/23	11:50:20	1896.192	72.713
09/08/23	09:09:20	1904.202	72.436	09/08/23	10:30:20	1899.079	72.613	09/08/23	11:51:20	1896.151	72.711
09/08/23	09:10:20	1904.133	72.446	09/08/23	10:31:20	1899.024	72.616	09/08/23	11:52:20	1896.129	72.716
09/08/23	09:11:20	1904.028	72.443	09/08/23	10:32:20	1898.973	72.619	09/08/23	11:53:20	1896.075	72.712
09/08/23	09:12:20	1903.943	72.447	09/08/23	10:33:20	1898.915	72.618	09/08/23	11:54:20	1896.062	72.719
09/08/23	09:13:20	1903.863	72.446	09/08/23	10:34:20	1898.883	72.622	09/08/23	11:55:20	1896.023	72.716
09/08/23	09:14:20	1903.726	72.452	09/08/23	10:35:20	1898.841	72.625	09/08/23	11:56:20	1896.012	72.718
09/08/23	09:15:20	1903.651	72.451	09/08/23	10:36:20	1898.787	72.619	09/08/23	11:57:20	1895.968	72.715
09/08/23	09:16:20	1903.594	72.459	09/08/23	10:37:20	1898.748	72.618	09/08/23	11:58:20	1895.954	72.721
09/08/23	09:17:20	1903.490	72.461	09/08/23	10:38:20	1898.716	72.622	09/08/23	11:59:20	1895.935	72.725
09/08/23	09:18:20	1903.427	72.464	09/08/23	10:39:20	1898.696	72.631	09/08/23	12:00:20	1895.905	72.723
09/08/23	09:19:20	1903.327	72.465	09/08/23	10:40:20	1898.626	72.624	09/08/23	12:01:20	1895.870	72.725
09/08/23	09:20:20	1903.235	72.466	09/08/23	10:41:20	1898.589	72.629	09/08/23	12:02:20	1895.854	72.729
09/08/23	09:21:20	1903.161	72.469	09/08/23	10:42:20	1898.544	72.629	09/08/23	12:03:20	1895.809	72.728
09/08/23	09:22:20	1903.094	72.472	09/08/23	10:43:20	1898.498	72.628	09/08/23	12:04:20	1895.794	72.731
09/08/23	09:23:20	1903.005	72.471	09/08/23	10:44:20	1898.464	72.632	09/08/23	12:05:20	1895.762	72.734
09/08/23	09:24:20	1902.937	72.476	09/08/23	10:45:20	1898.401	72.631	09/08/23	12:06:20	1895.728	72.730
09/08/23	09:25:20	1902.878	72.482	09/08/23	10:46:20	1898.372	72.632	09/08/23	12:07:20	1895.681	72.732
09/08/23	09:26:20	1902.781	72.489	09/08/23	10:47:20	1898.348	72.634	09/08/23	12:08:20	1895.671	72.731
09/08/23	09:27:20	1902.698	72.490	09/08/23	10:48:20	1898.318	72.639	09/08/23	12:09:20	1895.660	72.735
09/08/23	09:28:20	1902.630	72.487	09/08/23	10:49:20	1898.246	72.640	09/08/23	12:10:20	1895.624	72.736
09/08/23	09:29:20	1902.559	72.493	09/08/23	10:50:20	1898.213	72.640	09/08/23	12:11:20	1895.592	72.736
09/08/23	09:30:20	1902.474	72.497	09/08/23	10:51:20	1898.187	72.639	09/08/23	12:12:20	1895.569	72.742
09/08/23	09:31:20	1902.395	72.496	09/08/23	10:52:20	1898.162	72.644	09/08/23	12:13:20	1895.521	72.737
09/08/23	09:32:20	1902.345	72.505	09/08/23	10:53:20	1898.118	72.645	09/08/23	12:14:20	1895.508	72.741
09/08/23	09:33:20	1902.272	72.502	09/08/23	10:54:20	1898.074	72.650	09/08/23	12:15:20	1895.498	72.745
09/08/23	09:34:20	1902.199	72.502	09/08/23	10:55:20	1898.036	72.652	09/08/23	12:16:20	1895.469	72.745
09/08/23	09:35:20	1902.136	72.508	09/08/23	10:56:20	1897.983	72.648	09/08/23	12:17:20	1895.462	72.749
09/08/23	09:36:20	1902.055	72.503	09/08/23	10:57:20	1897.947	72.650	09/08/23	12:18:20	1895.409	72.745

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/08/23	12:19:20	1895.385	72.748	09/08/23	13:40:20	1893.564	72.883	09/08/23	15:01:20	1892.140	73.003
09/08/23	12:20:20	1895.354	72.751	09/08/23	13:41:20	1893.558	72.889	09/08/23	15:02:20	1892.133	73.008
09/08/23	12:21:20	1895.333	72.748	09/08/23	13:42:20	1893.541	72.894	09/08/23	15:03:20	1892.099	73.008
09/08/23	12:22:20	1895.324	72.751	09/08/23	13:43:20	1893.491	72.890	09/08/23	15:04:20	1892.089	73.012
09/08/23	12:23:20	1895.260	72.745	09/08/23	13:44:20	1893.475	72.892	09/08/23	15:05:20	1892.064	73.012
09/08/23	12:24:20	1895.260	72.753	09/08/23	13:45:20	1893.452	72.898	09/08/23	15:06:20	1892.047	73.012
09/08/23	12:25:20	1895.224	72.752	09/08/23	13:46:20	1893.442	72.901	09/08/23	15:07:20	1892.048	73.018
09/08/23	12:26:20	1895.211	72.751	09/08/23	13:47:20	1893.425	72.906	09/08/23	15:08:20	1892.029	73.018
09/08/23	12:27:20	1895.184	72.759	09/08/23	13:48:20	1893.407	72.903	09/08/23	15:09:20	1891.984	73.013
09/08/23	12:28:20	1895.154	72.755	09/08/23	13:49:20	1893.394	72.903	09/08/23	15:10:20	1891.984	73.016
09/08/23	12:29:20	1895.137	72.757	09/08/23	13:50:20	1893.376	72.906	09/08/23	15:11:20	1891.970	73.018
09/08/23	12:30:20	1895.100	72.760	09/08/23	13:51:20	1893.347	72.905	09/08/23	15:12:20	1891.950	73.014
09/08/23	12:31:20	1895.072	72.759	09/08/23	13:52:20	1893.342	72.914	09/08/23	15:13:20	1891.944	73.017
09/08/23	12:32:20	1895.050	72.756	09/08/23	13:53:20	1893.300	72.910	09/08/23	15:14:20	1891.930	73.022
09/08/23	12:33:20	1895.026	72.760	09/08/23	13:54:20	1893.303	72.922	09/08/23	15:15:20	1891.919	73.024
09/08/23	12:34:20	1894.997	72.760	09/08/23	13:55:20	1893.269	72.920	09/08/23	15:16:20	1891.888	73.023
09/08/23	12:35:20	1894.995	72.768	09/08/23	13:56:20	1893.250	72.929	09/08/23	15:17:20	1891.890	73.029
09/08/23	12:36:20	1894.958	72.762	09/08/23	13:57:20	1893.237	72.922	09/08/23	15:18:20	1891.853	73.022
09/08/23	12:37:20	1894.938	72.766	09/08/23	13:58:20	1893.223	72.928	09/08/23	15:19:20	1891.848	73.028
09/08/23	12:38:20	1894.904	72.764	09/08/23	13:59:20	1893.198	72.930	09/08/23	15:20:20	1891.831	73.030
09/08/23	12:39:20	1894.888	72.768	09/08/23	14:00:20	1893.176	72.929	09/08/23	15:21:20	1891.820	73.032
09/08/23	12:40:20	1894.840	72.766	09/08/23	14:01:20	1893.165	72.933	09/08/23	15:22:20	1891.812	73.038
09/08/23	12:41:20	1894.835	72.769	09/08/23	14:02:20	1893.143	72.936	09/08/23	15:23:20	1891.777	73.032
09/08/23	12:42:20	1894.834	72.780	09/08/23	14:03:20	1893.127	72.933	09/08/23	15:24:20	1891.773	73.042
09/08/23	12:43:20	1894.785	72.769	09/08/23	14:04:20	1893.108	72.937	09/08/23	15:25:20	1891.751	73.040
09/08/23	12:44:20	1894.761	72.773	09/08/23	14:05:20	1893.098	72.943	09/08/23	15:26:20	1891.745	73.042
09/08/23	12:45:20	1894.740	72.774	09/08/23	14:06:20	1893.057	72.936	09/08/23	15:27:20	1891.718	73.047
09/08/23	12:46:20	1894.726	72.775	09/08/23	14:07:20	1893.059	72.937	09/08/23	15:28:20	1891.702	73.050
09/08/23	12:47:20	1894.691	72.778	09/08/23	14:08:20	1893.049	72.941	09/08/23	15:29:20	1891.717	73.052
09/08/23	12:48:20	1894.678	72.777	09/08/23	14:09:20	1893.035	72.946	09/08/23	15:30:20	1891.674	73.052
09/08/23	12:49:20	1894.671	72.783	09/08/23	14:10:20	1893.003	72.948	09/08/23	15:31:20	1891.677	73.048
09/08/23	12:50:20	1894.633	72.777	09/08/23	14:11:20	1892.983	72.943	09/08/23	15:32:20	1891.651	73.053
09/08/23	12:51:20	1894.608	72.782	09/08/23	14:12:20	1892.957	72.942	09/08/23	15:33:20	1891.641	73.052
09/08/23	12:52:20	1894.583	72.780	09/08/23	14:13:20	1892.947	72.948	09/08/23	15:34:20	1891.642	73.054
09/08/23	12:53:20	1894.570	72.787	09/08/23	14:14:20	1892.915	72.943	09/08/23	15:35:20	1891.613	73.056
09/08/23	12:54:20	1894.527	72.785	09/08/23	14:15:20	1892.911	72.949	09/08/23	15:36:20	1891.612	73.055
09/08/23	12:55:20	1894.520	72.789	09/08/23	14:16:20	1892.870	72.940	09/08/23	15:37:20	1891.577	73.060
09/08/23	12:56:20	1894.491	72.787	09/08/23	14:17:20	1892.884	72.949	09/08/23	15:38:20	1891.552	73.059
09/08/23	12:57:20	1894.468	72.786	09/08/23	14:18:20	1892.863	72.951	09/08/23	15:39:20	1891.544	73.063
09/08/23	12:58:20	1894.446	72.788	09/08/23	14:19:20	1892.815	72.942	09/08/23	15:40:20	1891.538	73.073
09/08/23	12:59:20	1894.419	72.789	09/08/23	14:20:20	1892.797	72.943	09/08/23	15:41:20	1891.522	73.073
09/08/23	13:00:20	1894.394	72.789	09/08/23	14:21:20	1892.809	72.951	09/08/23	15:42:20	1891.495	73.074
09/08/23	13:01:20	1894.369	72.790	09/08/23	14:22:20	1892.799	72.953	09/08/23	15:43:20	1891.491	73.079
09/08/23	13:02:20	1894.350	72.789	09/08/23	14:23:20	1892.755	72.949	09/08/23	15:44:20	1891.483	73.081
09/08/23	13:03:20	1894.351	72.797	09/08/23	14:24:20	1892.773	72.953	09/08/23	15:45:20	1891.469	73.087
09/08/23	13:04:20	1894.311	72.795	09/08/23	14:25:20	1892.736	72.951	09/08/23	15:46:20	1891.443	73.087
09/08/23	13:05:20	1894.283	72.794	09/08/23	14:26:20	1892.717	72.951	09/08/23	15:47:20	1891.443	73.090
09/08/23	13:06:20	1894.262	72.790	09/08/23	14:27:20	1892.675	72.945	09/08/23	15:48:20	1891.415	73.093
09/08/23	13:07:20	1894.286	72.804	09/08/23	14:28:20	1892.690	72.954	09/08/23	15:49:20	1891.415	73.098
09/08/23	13:08:20	1894.203	72.795	09/08/23	14:29:20	1892.672	72.955	09/08/23	15:50:20	1891.406	73.103
09/08/23	13:09:20	1894.180	72.795	09/08/23	14:30:20	1892.628	72.947	09/08/23	15:51:20	1891.376	73.102
09/08/23	13:10:20	1894.190	72.803	09/08/23	14:31:20	1892.632	72.957	09/08/23	15:52:20	1891.363	73.105
09/08/23	13:11:20	1894.178	72.803	09/08/23	14:32:20	1892.599	72.955	09/08/23	15:53:20	1891.347	73.111
09/08/23	13:12:20	1894.148	72.804	09/08/23	14:33:20	1892.595	72.960	09/08/23	15:54:20	1891.344	73.117
09/08/23	13:13:20	1894.125	72.805	09/08/23	14:34:20	1892.579	72.961	09/08/23	15:55:20	1891.321	73.119
09/08/23	13:14:20	1894.088	72.803	09/08/23	14:35:20	1892.571	72.966	09/08/23	15:56:20	1891.313	73.119
09/08/23	13:15:20	1894.074	72.806	09/08/23	14:36:20	1892.544	72.967	09/08/23	15:57:20	1891.291	73.117
09/08/23	13:16:20	1894.045	72.804	09/08/23	14:37:20	1892.528	72.970	09/08/23	15:58:20	1891.267	73.115
09/08/23	13:17:20	1894.017	72.808	09/08/23	14:38:20	1892.513	72.971	09/08/23	15:59:20	1891.257	73.123
09/08/23	13:18:20	1894.020	72.813	09/08/23	14:39:20	1892.514	72.975	09/08/23	16:00:20	1891.240	73.120
09/08/23	13:19:20	1893.997	72.814	09/08/23	14:40:20	1892.477	72.975	09/08/23	16:01:20	1891.226	73.122
09/08/23	13:20:20	1893.969	72.810	09/08/23	14:41:20	1892.447	72.976	09/08/23	16:02:20	1891.214	73.126
09/08/23	13:21:20	1893.965	72.824	09/08/23	14:42:20	1892.446	72.981	09/08/23	16:03:20	1891.210	73.129
09/08/23	13:22:20	1893.928	72.824	09/08/23	14:43:20	1892.412	72.981	09/08/23	16:04:20	1891.195	73.136
09/08/23	13:23:20	1893.899	72.829	09/08/23	14:44:20	1892.383	72.979	09/08/23	16:05:20	1891.185	73.131
09/08/23	13:24:20	1893.898	72.834	09/08/23	14:45:20	1892.402	72.989	09/08/23	16:06:20	1891.173	73.133
09/08/23	13:25:20	1893.870	72.838	09/08/23	14:46:20	1892.393	72.993	09/08/23	16:07:20	1891.149	73.131
09/08/23	13:26:20	1893.844	72.835	09/08/23	14:47:20	1892.363	72.995	09/08/23	16:08:20	1891.127	73.133
09/08/23	13:27:20	1893.804	72.838	09/08/23	14:48:20	1892.355	73.000	09/08/23	16:09:20	1891.121	73.135
09/08/23	13:28:20	1893.813	72.851	09/08/23	14:49:20	1892.327	72.995	09/08/23	16:10:20	1891.108	73.137
09/08/23	13:29:20	1893.783	72.850	09/08/23	14:50:20	1892.312	72.994	09/08/23	16:11:20	1891.093	73.130
09/08/23	13:30:20	1893.760	72.850	09/08/23	14:51:20	1892.304	72.999	09/08/23	16:12:20	1891.091	73.137
09/08/23	13:31:20	1893.760	72.859	09/08/23	14:52:20	1892.273	72.995	09/08/23	16:13:20	1891.066	73.136
09/08/23	13:32:20	1893.725	72.862	09/08/23	14:53:20	1892.263	73.001	09/08/23	16:14:20	1891.055	73.133
09/08/23	13:33:20	1893.707	72.863	09/08/23	14:54:20	1892.253	73.004	09/08/23	16:15:20	1891.043	73.137
09/08/23	13:34:20	1893.677	72.863	09/08/23	14:55:20	1892.223	72.999	09/08/23	16:16:20	1891.037	73.134
09/08/23	13:35:20	1893.668	72.871	09/08/23	14:56:20	1892.214	73.001	09/08/23	16:17:20	1891.010	73.130
09/08/23	13:36:20	1893.656	72.875	09/08/23	14:57:20	1892.190	73.001	09/08/23	16:18:20	1890.999	73.128
09/08/23	13:37:20	1893.639	72.876	09/08/23	14:58:20	1892.177	72.999	09/08/23	16:19:20	1891.005	73.143
09/08/23	13:38:20	1893.609	72.879	09/08/23	14:59:20	1892.157	73.001	09/08/23	16:20:20	1890.976	73.140
09/08/23	13:39:20	1893.595	72.886	09/08/23	15:00:20	1892.170	73.009	09/08/23	16:21:20	1890.966	73.143

APPENDIX G, Continued
Pressure/Time Data Recorded During the Pressure Transient Test

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/08/23	16:22:20	1890.937	73.135	09/08/23	17:43:20	1889.934	73.210	09/08/23	19:04:20	1889.010	73.256
09/08/23	16:23:20	1890.935	73.136	09/08/23	17:44:20	1889.911	73.208	09/08/23	19:05:20	1888.998	73.254
09/08/23	16:24:20	1890.909	73.135	09/08/23	17:45:20	1889.890	73.208	09/08/23	19:06:20	1888.999	73.256
09/08/23	16:25:20	1890.904	73.139	09/08/23	17:46:20	1889.870	73.207	09/08/23	19:07:20	1888.972	73.253
09/08/23	16:26:20	1890.899	73.142	09/08/23	17:47:20	1889.865	73.208	09/08/23	19:08:20	1888.969	73.254
09/08/23	16:27:20	1890.881	73.143	09/08/23	17:48:20	1889.846	73.212	09/08/23	19:09:20	1888.952	73.257
09/08/23	16:28:20	1890.877	73.145	09/08/23	17:49:20	1889.853	73.219	09/08/23	19:10:20	1888.961	73.263
09/08/23	16:29:20	1890.847	73.139	09/08/23	17:50:20	1889.823	73.213	09/08/23	19:11:20	1888.942	73.260
09/08/23	16:30:20	1890.850	73.144	09/08/23	17:51:20	1889.810	73.211	09/08/23	19:12:20	1888.935	73.262
09/08/23	16:31:20	1890.818	73.144	09/08/23	17:52:20	1889.799	73.206	09/08/23	19:13:20	1888.903	73.257
09/08/23	16:32:20	1890.807	73.143	09/08/23	17:53:20	1889.787	73.211	09/08/23	19:14:20	1888.897	73.258
09/08/23	16:33:20	1890.794	73.141	09/08/23	17:54:20	1889.766	73.208	09/08/23	19:15:20	1888.878	73.257
09/08/23	16:34:20	1890.783	73.140	09/08/23	17:55:20	1889.763	73.208	09/08/23	19:16:20	1888.881	73.258
09/08/23	16:35:20	1890.772	73.140	09/08/23	17:56:20	1889.754	73.211	09/08/23	19:17:20	1888.894	73.260
09/08/23	16:36:20	1890.759	73.136	09/08/23	17:57:20	1889.756	73.212	09/08/23	19:18:20	1888.870	73.261
09/08/23	16:37:20	1890.744	73.140	09/08/23	17:58:20	1889.744	73.214	09/08/23	19:19:20	1888.845	73.259
09/08/23	16:38:20	1890.729	73.141	09/08/23	17:59:20	1889.742	73.213	09/08/23	19:20:20	1888.826	73.259
09/08/23	16:39:20	1890.722	73.136	09/08/23	18:00:20	1889.730	73.217	09/08/23	19:21:20	1888.817	73.254
09/08/23	16:40:20	1890.707	73.135	09/08/23	18:01:20	1889.696	73.214	09/08/23	19:22:20	1888.806	73.254
09/08/23	16:41:20	1890.713	73.139	09/08/23	18:02:20	1889.700	73.218	09/08/23	19:23:20	1888.801	73.252
09/08/23	16:42:20	1890.672	73.132	09/08/23	18:03:20	1889.665	73.215	09/08/23	19:24:20	1888.789	73.247
09/08/23	16:43:20	1890.667	73.135	09/08/23	18:04:20	1889.651	73.216	09/08/23	19:25:20	1888.792	73.252
09/08/23	16:44:20	1890.653	73.134	09/08/23	18:05:20	1889.651	73.218	09/08/23	19:26:20	1888.757	73.247
09/08/23	16:45:20	1890.637	73.133	09/08/23	18:06:20	1889.619	73.216	09/08/23	19:27:20	1888.740	73.250
09/08/23	16:46:20	1890.610	73.134	09/08/23	18:07:20	1889.626	73.218	09/08/23	19:28:20	1888.751	73.253
09/08/23	16:47:20	1890.616	73.141	09/08/23	18:08:20	1889.633	73.223	09/08/23	19:29:20	1888.718	73.246
09/08/23	16:48:20	1890.607	73.143	09/08/23	18:09:20	1889.624	73.224	09/08/23	19:30:20	1888.727	73.248
09/08/23	16:49:20	1890.609	73.145	09/08/23	18:10:20	1889.606	73.216	09/08/23	19:31:20	1888.716	73.249
09/08/23	16:50:20	1890.588	73.143	09/08/23	18:11:20	1889.590	73.222	09/08/23	19:32:20	1888.702	73.250
09/08/23	16:51:20	1890.573	73.148	09/08/23	18:12:20	1889.573	73.218	09/08/23	19:33:20	1888.690	73.248
09/08/23	16:52:20	1890.535	73.147	09/08/23	18:13:20	1889.566	73.224	09/08/23	19:34:20	1888.685	73.251
09/08/23	16:53:20	1890.536	73.155	09/08/23	18:14:20	1889.557	73.229	09/08/23	19:35:20	1888.677	73.242
09/08/23	16:54:20	1890.520	73.151	09/08/23	18:15:20	1889.540	73.228	09/08/23	19:36:20	1888.668	73.249
09/08/23	16:55:20	1890.505	73.152	09/08/23	18:16:20	1889.528	73.236	09/08/23	19:37:20	1888.670	73.255
09/08/23	16:56:20	1890.504	73.160	09/08/23	18:17:20	1889.530	73.242	09/08/23	19:38:20	1888.644	73.251
09/08/23	16:57:20	1890.490	73.160	09/08/23	18:18:20	1889.511	73.239	09/08/23	19:39:20	1888.611	73.251
09/08/23	16:58:20	1890.471	73.157	09/08/23	18:19:20	1889.490	73.240	09/08/23	19:40:20	1888.623	73.253
09/08/23	16:59:20	1890.468	73.159	09/08/23	18:20:20	1889.506	73.249	09/08/23	19:41:20	1888.626	73.258
09/08/23	17:00:20	1890.427	73.161	09/08/23	18:21:20	1889.491	73.248	09/08/23	19:42:20	1888.615	73.258
09/08/23	17:01:20	1890.434	73.171	09/08/23	18:22:20	1889.465	73.251	09/08/23	19:43:20	1888.604	73.259
09/08/23	17:02:20	1890.422	73.169	09/08/23	18:23:20	1889.460	73.256	09/08/23	19:44:20	1888.573	73.259
09/08/23	17:03:20	1890.384	73.167	09/08/23	18:24:20	1889.435	73.250	09/08/23	19:45:20	1888.564	73.264
09/08/23	17:04:20	1890.384	73.170	09/08/23	18:25:20	1889.444	73.260	09/08/23	19:46:20	1888.562	73.267
09/08/23	17:05:20	1890.405	73.178	09/08/23	18:26:20	1889.416	73.258	09/08/23	19:47:20	1888.547	73.270
09/08/23	17:06:20	1890.379	73.172	09/08/23	18:27:20	1889.412	73.258	09/08/23	19:48:20	1888.539	73.270
09/08/23	17:07:20	1890.384	73.179	09/08/23	18:28:20	1889.390	73.254	09/08/23	19:49:20	1888.535	73.275
09/08/23	17:08:20	1890.361	73.175	09/08/23	18:29:20	1889.377	73.252	09/08/23	19:50:20	1888.526	73.280
09/08/23	17:09:20	1890.331	73.177	09/08/23	18:30:20	1889.396	73.258	09/08/23	19:51:20	1888.528	73.282
09/08/23	17:10:20	1890.311	73.174	09/08/23	18:31:20	1889.354	73.252	09/08/23	19:52:20	1888.521	73.281
09/08/23	17:11:20	1890.290	73.170	09/08/23	18:32:20	1889.353	73.250	09/08/23	19:53:20	1888.494	73.282
09/08/23	17:12:20	1890.282	73.174	09/08/23	18:33:20	1889.356	73.255	09/08/23	19:54:20	1888.482	73.286
09/08/23	17:13:20	1890.271	73.176	09/08/23	18:34:20	1889.323	73.250	09/08/23	19:55:20	1888.484	73.288
09/08/23	17:14:20	1890.277	73.181	09/08/23	18:35:20	1889.314	73.249	09/08/23	19:56:20	1888.465	73.284
09/08/23	17:15:20	1890.255	73.182	09/08/23	18:36:20	1889.307	73.255	09/08/23	19:57:20	1888.467	73.288
09/08/23	17:16:20	1890.247	73.180	09/08/23	18:37:20	1889.299	73.253	09/08/23	19:58:20	1888.440	73.285
09/08/23	17:17:20	1890.220	73.177	09/08/23	18:38:20	1889.292	73.257	09/08/23	19:59:20	1888.438	73.291
09/08/23	17:18:20	1890.215	73.186	09/08/23	18:39:20	1889.304	73.261	09/08/23	20:00:20	1888.423	73.290
09/08/23	17:19:20	1890.186	73.184	09/08/23	18:40:20	1889.260	73.254	09/08/23	20:01:20	1888.401	73.289
09/08/23	17:20:20	1890.193	73.183	09/08/23	18:41:20	1889.253	73.260	09/08/23	20:02:20	1888.401	73.293
09/08/23	17:21:20	1890.176	73.183	09/08/23	18:42:20	1889.233	73.262	09/08/23	20:03:20	1888.392	73.291
09/08/23	17:22:20	1890.167	73.181	09/08/23	18:43:20	1889.240	73.265	09/08/23	20:04:20	1888.389	73.290
09/08/23	17:23:20	1890.161	73.187	09/08/23	18:44:20	1889.224	73.261	09/08/23	20:05:20	1888.365	73.294
09/08/23	17:24:20	1890.137	73.182	09/08/23	18:45:20	1889.216	73.262	09/08/23	20:06:20	1888.369	73.292
09/08/23	17:25:20	1890.122	73.183	09/08/23	18:46:20	1889.178	73.256	09/08/23	20:07:20	1888.360	73.295
09/08/23	17:26:20	1890.129	73.190	09/08/23	18:47:20	1889.186	73.258	09/08/23	20:08:20	1888.349	73.295
09/08/23	17:27:20	1890.103	73.190	09/08/23	18:48:20	1889.188	73.264	09/08/23	20:09:20	1888.324	73.294
09/08/23	17:28:20	1890.096	73.195	09/08/23	18:49:20	1889.171	73.260	09/08/23	20:10:20	1888.331	73.298
09/08/23	17:29:20	1890.064	73.193	09/08/23	18:50:20	1889.165	73.261	09/08/23	20:11:20	1888.319	73.297
09/08/23	17:30:20	1890.074	73.196	09/08/23	18:51:20	1889.158	73.261	09/08/23	20:12:20	1888.317	73.299
09/08/23	17:31:20	1890.060	73.195	09/08/23	18:52:20	1889.127	73.257	09/08/23	20:13:20	1888.317	73.301
09/08/23	17:32:20	1890.048	73.195	09/08/23	18:53:20	1889.119	73.255	09/08/23	20:14:20	1888.300	73.297
09/08/23	17:33:20	1890.068	73.200	09/08/23	18:54:20	1889.111	73.253	09/08/23	20:15:20	1888.265	73.293
09/08/23	17:34:20	1890.037	73.194	09/08/23	18:55:20	1889.099	73.250	09/08/23	20:16:20	1888.268	73.298
09/08/23	17:35:20	1890.007	73.197	09/08/23	18:56:20	1889.089	73.256	09/08/23	20:17:20	1888.260	73.298
09/08/23	17:36:20	1889.969	73.193	09/08/23	18:57:20	1889.088	73.258	09/08/23	20:18:20	1888.257	73.296
09/08/23	17:37:20	1889.992	73.203	09/08/23	18:58:20	1889.080	73.263	09/08/23	20:19:20	1888.243	73.295
09/08/23	17:38:20	1889.989	73.201	09/08/23	18:59:20	1889.075	73.255	09/08/23	20:20:20	1888.236	73.294
09/08/23	17:39:20	1889.978	73.202	09/08/23	19:00:20	1889.058	73.253	09/08/23	20:21:20	1888.228	73.298
09/08/23	17:40:20	1889.946	73.200	09/08/23	19:01:20	1889.038	73.253	09/08/23	20:22:20	1888.217	73.293
09/08/23	17:41:20	1889.926	73.199	09/08/23	19:02:20	1889.024	73.251	09/08/23	20:23:20	1888.214	73.295
09/08/23	17:42:20	1889.929	73.202	09/08/23	19:03:20	1889.026	73.257	09/08/23	20:24:20	1888.193	73.293

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/08/23	20:25:20	1888.196	73.296	09/08/23	21:46:20	1887.440	73.354	09/08/23	23:07:20	1886.764	73.378
09/08/23	20:26:20	1888.187	73.293	09/08/23	21:47:20	1887.436	73.352	09/08/23	23:08:20	1886.743	73.378
09/08/23	20:27:20	1888.166	73.294	09/08/23	21:48:20	1887.449	73.352	09/08/23	23:09:20	1886.740	73.384
09/08/23	20:28:20	1888.142	73.291	09/08/23	21:49:20	1887.444	73.346	09/08/23	23:10:20	1886.714	73.378
09/08/23	20:29:20	1888.150	73.296	09/08/23	21:50:20	1887.413	73.345	09/08/23	23:11:20	1886.725	73.382
09/08/23	20:30:20	1888.156	73.297	09/08/23	21:51:20	1887.409	73.342	09/08/23	23:12:20	1886.702	73.378
09/08/23	20:31:20	1888.115	73.290	09/08/23	21:52:20	1887.394	73.341	09/08/23	23:13:20	1886.713	73.381
09/08/23	20:32:20	1888.106	73.289	09/08/23	21:53:20	1887.391	73.341	09/08/23	23:14:20	1886.705	73.377
09/08/23	20:33:20	1888.105	73.293	09/08/23	21:54:20	1887.383	73.345	09/08/23	23:15:20	1886.696	73.386
09/08/23	20:34:20	1888.108	73.292	09/08/23	21:55:20	1887.374	73.337	09/08/23	23:16:20	1886.676	73.381
09/08/23	20:35:20	1888.097	73.287	09/08/23	21:56:20	1887.350	73.337	09/08/23	23:17:20	1886.674	73.384
09/08/23	20:36:20	1888.086	73.289	09/08/23	21:57:20	1887.364	73.338	09/08/23	23:18:20	1886.660	73.384
09/08/23	20:37:20	1888.089	73.291	09/08/23	21:58:20	1887.346	73.340	09/08/23	23:19:20	1886.657	73.376
09/08/23	20:38:20	1888.066	73.288	09/08/23	21:59:20	1887.333	73.336	09/08/23	23:20:20	1886.656	73.384
09/08/23	20:39:20	1888.047	73.288	09/08/23	22:00:20	1887.318	73.336	09/08/23	23:21:20	1886.661	73.383
09/08/23	20:40:20	1888.036	73.293	09/08/23	22:01:20	1887.315	73.337	09/08/23	23:22:20	1886.640	73.383
09/08/23	20:41:20	1888.051	73.299	09/08/23	22:02:20	1887.328	73.339	09/08/23	23:23:20	1886.626	73.379
09/08/23	20:42:20	1888.022	73.292	09/08/23	22:03:20	1887.314	73.343	09/08/23	23:24:20	1886.620	73.380
09/08/23	20:43:20	1888.022	73.294	09/08/23	22:04:20	1887.300	73.344	09/08/23	23:25:20	1886.615	73.377
09/08/23	20:44:20	1887.996	73.293	09/08/23	22:05:20	1887.292	73.346	09/08/23	23:26:20	1886.607	73.379
09/08/23	20:45:20	1887.990	73.290	09/08/23	22:06:20	1887.269	73.343	09/08/23	23:27:20	1886.588	73.376
09/08/23	20:46:20	1888.000	73.296	09/08/23	22:07:20	1887.260	73.350	09/08/23	23:28:20	1886.580	73.378
09/08/23	20:47:20	1887.972	73.290	09/08/23	22:08:20	1887.256	73.350	09/08/23	23:29:20	1886.583	73.381
09/08/23	20:48:20	1887.949	73.287	09/08/23	22:09:20	1887.238	73.340	09/08/23	23:30:20	1886.561	73.381
09/08/23	20:49:20	1887.962	73.293	09/08/23	22:10:20	1887.230	73.341	09/08/23	23:31:20	1886.552	73.378
09/08/23	20:50:20	1887.938	73.289	09/08/23	22:11:20	1887.233	73.347	09/08/23	23:32:20	1886.529	73.379
09/08/23	20:51:20	1887.944	73.297	09/08/23	22:12:20	1887.229	73.351	09/08/23	23:33:20	1886.539	73.380
09/08/23	20:52:20	1887.921	73.291	09/08/23	22:13:20	1887.208	73.347	09/08/23	23:34:20	1886.532	73.380
09/08/23	20:53:20	1887.908	73.288	09/08/23	22:14:20	1887.217	73.353	09/08/23	23:35:20	1886.505	73.379
09/08/23	20:54:20	1887.922	73.297	09/08/23	22:15:20	1887.212	73.352	09/08/23	23:36:20	1886.526	73.392
09/08/23	20:55:20	1887.887	73.294	09/08/23	22:16:20	1887.186	73.355	09/08/23	23:37:20	1886.505	73.390
09/08/23	20:56:20	1887.875	73.295	09/08/23	22:17:20	1887.183	73.354	09/08/23	23:38:20	1886.505	73.390
09/08/23	20:57:20	1887.866	73.293	09/08/23	22:18:20	1887.177	73.350	09/08/23	23:39:20	1886.471	73.386
09/08/23	20:58:20	1887.869	73.300	09/08/23	22:19:20	1887.170	73.352	09/08/23	23:40:20	1886.493	73.394
09/08/23	20:59:20	1887.865	73.304	09/08/23	22:20:20	1887.160	73.348	09/08/23	23:41:20	1886.473	73.392
09/08/23	21:00:20	1887.827	73.298	09/08/23	22:21:20	1887.152	73.355	09/08/23	23:42:20	1886.475	73.395
09/08/23	21:01:20	1887.838	73.301	09/08/23	22:22:20	1887.132	73.351	09/08/23	23:43:20	1886.459	73.393
09/08/23	21:02:20	1887.817	73.300	09/08/23	22:23:20	1887.102	73.354	09/08/23	23:44:20	1886.449	73.394
09/08/23	21:03:20	1887.811	73.305	09/08/23	22:24:20	1887.136	73.356	09/08/23	23:45:20	1886.432	73.394
09/08/23	21:04:20	1887.827	73.307	09/08/23	22:25:20	1887.115	73.356	09/08/23	23:46:20	1886.443	73.404
09/08/23	21:05:20	1887.798	73.305	09/08/23	22:26:20	1887.095	73.353	09/08/23	23:47:20	1886.424	73.396
09/08/23	21:06:20	1887.809	73.315	09/08/23	22:27:20	1887.083	73.351	09/08/23	23:48:20	1886.427	73.401
09/08/23	21:07:20	1887.762	73.309	09/08/23	22:28:20	1887.088	73.353	09/08/23	23:49:20	1886.401	73.398
09/08/23	21:08:20	1887.763	73.314	09/08/23	22:29:20	1887.073	73.352	09/08/23	23:50:20	1886.408	73.403
09/08/23	21:09:20	1887.755	73.316	09/08/23	22:30:20	1887.058	73.353	09/08/23	23:51:20	1886.400	73.406
09/08/23	21:10:20	1887.750	73.316	09/08/23	22:31:20	1887.059	73.352	09/08/23	23:52:20	1886.383	73.401
09/08/23	21:11:20	1887.762	73.325	09/08/23	22:32:20	1887.041	73.349	09/08/23	23:53:20	1886.362	73.401
09/08/23	21:12:20	1887.747	73.325	09/08/23	22:33:20	1887.024	73.347	09/08/23	23:54:20	1886.348	73.402
09/08/23	21:13:20	1887.717	73.321	09/08/23	22:34:20	1887.033	73.349	09/08/23	23:55:20	1886.387	73.408
09/08/23	21:14:20	1887.717	73.326	09/08/23	22:35:20	1887.029	73.348	09/08/23	23:56:20	1886.365	73.414
09/08/23	21:15:20	1887.713	73.328	09/08/23	22:36:20	1887.010	73.348	09/08/23	23:57:20	1886.329	73.408
09/08/23	21:16:20	1887.705	73.332	09/08/23	22:37:20	1887.018	73.357	09/08/23	23:58:20	1886.330	73.413
09/08/23	21:17:20	1887.690	73.327	09/08/23	22:38:20	1886.992	73.351	09/08/23	23:59:20	1886.339	73.410
09/08/23	21:18:20	1887.697	73.332	09/08/23	22:39:20	1886.991	73.349	09/09/23	00:00:20	1886.329	73.417
09/08/23	21:19:20	1887.690	73.331	09/08/23	22:40:20	1886.978	73.355	09/09/23	00:01:20	1886.309	73.413
09/08/23	21:20:20	1887.679	73.330	09/08/23	22:41:20	1886.982	73.357	09/09/23	00:02:20	1886.296	73.413
09/08/23	21:21:20	1887.663	73.330	09/08/23	22:42:20	1886.952	73.353	09/09/23	00:03:20	1886.285	73.415
09/08/23	21:22:20	1887.649	73.331	09/08/23	22:43:20	1886.969	73.361	09/09/23	00:04:20	1886.277	73.413
09/08/23	21:23:20	1887.643	73.332	09/08/23	22:44:20	1886.940	73.360	09/09/23	00:05:20	1886.271	73.423
09/08/23	21:24:20	1887.638	73.336	09/08/23	22:45:20	1886.947	73.367	09/09/23	00:06:20	1886.266	73.419
09/08/23	21:25:20	1887.636	73.336	09/08/23	22:46:20	1886.914	73.358	09/09/23	00:07:20	1886.255	73.422
09/08/23	21:26:20	1887.602	73.332	09/08/23	22:47:20	1886.928	73.366	09/09/23	00:08:20	1886.250	73.425
09/08/23	21:27:20	1887.595	73.332	09/08/23	22:48:20	1886.917	73.363	09/09/23	00:09:20	1886.246	73.423
09/08/23	21:28:20	1887.611	73.339	09/08/23	22:49:20	1886.932	73.373	09/09/23	00:10:20	1886.243	73.427
09/08/23	21:29:20	1887.585	73.340	09/08/23	22:50:20	1886.907	73.366	09/09/23	00:11:20	1886.234	73.427
09/08/23	21:30:20	1887.597	73.342	09/08/23	22:51:20	1886.890	73.367	09/09/23	00:12:20	1886.218	73.420
09/08/23	21:31:20	1887.588	73.343	09/08/23	22:52:20	1886.875	73.366	09/09/23	00:13:20	1886.229	73.423
09/08/23	21:32:20	1887.595	73.343	09/08/23	22:53:20	1886.871	73.370	09/09/23	00:14:20	1886.206	73.424
09/08/23	21:33:20	1887.560	73.340	09/08/23	22:54:20	1886.856	73.368	09/09/23	00:15:20	1886.210	73.427
09/08/23	21:34:20	1887.553	73.344	09/08/23	22:55:20	1886.859	73.370	09/09/23	00:16:20	1886.173	73.418
09/08/23	21:35:20	1887.551	73.347	09/08/23	22:56:20	1886.843	73.368	09/09/23	00:17:20	1886.178	73.422
09/08/23	21:36:20	1887.531	73.343	09/08/23	22:57:20	1886.858	73.371	09/09/23	00:18:20	1886.180	73.425
09/08/23	21:37:20	1887.536	73.351	09/08/23	22:58:20	1886.841	73.370	09/09/23	00:19:20	1886.180	73.423
09/08/23	21:38:20	1887.510	73.347	09/08/23	22:59:20	1886.830	73.377	09/09/23	00:20:20	1886.153	73.418
09/08/23	21:39:20	1887.512	73.351	09/08/23	23:00:20	1886.831	73.375	09/09/23	00:21:20	1886.144	73.416
09/08/23	21:40:20	1887.497	73.352	09/08/23	23:01:20	1886.808	73.370	09/09/23	00:22:20	1886.136	73.420
09/08/23	21:41:20	1887.485	73.352	09/08/23	23:02:20	1886.818	73.377	09/09/23	00:23:20	1886.139	73.425
09/08/23	21:42:20	1887.484	73.358	09/08/23	23:03:20	1886.778	73.370	09/09/23	00:24:20	1886.115	73.418
09/08/23	21:43:20	1887.463	73.351	09/08/23	23:04:20	1886.769	73.377	09/09/23	00:25:20	1886.104	73.420
09/08/23	21:44:20	1887.456	73.354	09/08/23	23:05:20	1886.783	73.383	09/09/23	00:26:20	1886.107	73.418
09/08/23	21:45:20	1887.431	73.353	09/08/23	23:06:20	1886.756	73.378	09/09/23	00:27:20	1886.115	73.419

APPENDIX G, Continued
Pressure/Time Data Recorded During the Pressure Transient Test

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/09/23	00:28:20	1886.109	73.424	09/09/23	01:49:20	1885.423	73.423	09/09/23	03:10:20	1884.790	73.447
09/09/23	00:29:20	1886.092	73.422	09/09/23	01:50:20	1885.419	73.426	09/09/23	03:11:20	1884.763	73.444
09/09/23	00:30:20	1886.082	73.425	09/09/23	01:51:20	1885.410	73.428	09/09/23	03:12:20	1884.766	73.448
09/09/23	00:31:20	1886.063	73.422	09/09/23	01:52:20	1885.386	73.423	09/09/23	03:13:20	1884.757	73.448
09/09/23	00:32:20	1886.066	73.427	09/09/23	01:53:20	1885.381	73.421	09/09/23	03:14:20	1884.757	73.448
09/09/23	00:33:20	1886.050	73.425	09/09/23	01:54:20	1885.395	73.428	09/09/23	03:15:20	1884.745	73.447
09/09/23	00:34:20	1886.035	73.426	09/09/23	01:55:20	1885.385	73.435	09/09/23	03:16:20	1884.741	73.448
09/09/23	00:35:20	1886.025	73.423	09/09/23	01:56:20	1885.377	73.438	09/09/23	03:17:20	1884.721	73.447
09/09/23	00:36:20	1886.016	73.423	09/09/23	01:57:20	1885.366	73.437	09/09/23	03:18:20	1884.720	73.452
09/09/23	00:37:20	1886.029	73.426	09/09/23	01:58:20	1885.351	73.438	09/09/23	03:19:20	1884.725	73.450
09/09/23	00:38:20	1886.016	73.419	09/09/23	01:59:20	1885.340	73.435	09/09/23	03:20:20	1884.705	73.449
09/09/23	00:39:20	1886.001	73.420	09/09/23	02:00:20	1885.350	73.435	09/09/23	03:21:20	1884.693	73.448
09/09/23	00:40:20	1886.024	73.423	09/09/23	02:01:20	1885.331	73.438	09/09/23	03:22:20	1884.679	73.448
09/09/23	00:41:20	1885.976	73.423	09/09/23	02:02:20	1885.325	73.442	09/09/23	03:23:20	1884.675	73.446
09/09/23	00:42:20	1885.959	73.419	09/09/23	02:03:20	1885.305	73.443	09/09/23	03:24:20	1884.677	73.449
09/09/23	00:43:20	1885.970	73.419	09/09/23	02:04:20	1885.325	73.455	09/09/23	03:25:20	1884.662	73.447
09/09/23	00:44:20	1885.963	73.419	09/09/23	02:05:20	1885.317	73.457	09/09/23	03:26:20	1884.652	73.452
09/09/23	00:45:20	1885.955	73.423	09/09/23	02:06:20	1885.297	73.459	09/09/23	03:27:20	1884.636	73.454
09/09/23	00:46:20	1885.931	73.414	09/09/23	02:07:20	1885.297	73.464	09/09/23	03:28:20	1884.641	73.453
09/09/23	00:47:20	1885.938	73.416	09/09/23	02:08:20	1885.258	73.461	09/09/23	03:29:20	1884.617	73.453
09/09/23	00:48:20	1885.924	73.419	09/09/23	02:09:20	1885.268	73.466	09/09/23	03:30:20	1884.626	73.459
09/09/23	00:49:20	1885.928	73.419	09/09/23	02:10:20	1885.265	73.461	09/09/23	03:31:20	1884.607	73.454
09/09/23	00:50:20	1885.902	73.412	09/09/23	02:11:20	1885.251	73.467	09/09/23	03:32:20	1884.592	73.455
09/09/23	00:51:20	1885.889	73.412	09/09/23	02:12:20	1885.255	73.475	09/09/23	03:33:20	1884.589	73.453
09/09/23	00:52:20	1885.896	73.415	09/09/23	02:13:20	1885.242	73.472	09/09/23	03:34:20	1884.583	73.456
09/09/23	00:53:20	1885.900	73.413	09/09/23	02:14:20	1885.236	73.471	09/09/23	03:35:20	1884.590	73.457
09/09/23	00:54:20	1885.898	73.418	09/09/23	02:15:20	1885.219	73.469	09/09/23	03:36:20	1884.571	73.456
09/09/23	00:55:20	1885.865	73.414	09/09/23	02:16:20	1885.237	73.477	09/09/23	03:37:20	1884.589	73.461
09/09/23	00:56:20	1885.869	73.414	09/09/23	02:17:20	1885.209	73.474	09/09/23	03:38:20	1884.563	73.454
09/09/23	00:57:20	1885.840	73.412	09/09/23	02:18:20	1885.209	73.476	09/09/23	03:39:20	1884.555	73.458
09/09/23	00:58:20	1885.860	73.417	09/09/23	02:19:20	1885.181	73.472	09/09/23	03:40:20	1884.549	73.455
09/09/23	00:59:20	1885.849	73.412	09/09/23	02:20:20	1885.193	73.472	09/09/23	03:41:20	1884.554	73.459
09/09/23	01:00:20	1885.822	73.411	09/09/23	02:21:20	1885.180	73.470	09/09/23	03:42:20	1884.517	73.452
09/09/23	01:01:20	1885.818	73.412	09/09/23	02:22:20	1885.159	73.468	09/09/23	03:43:20	1884.512	73.452
09/09/23	01:02:20	1885.824	73.418	09/09/23	02:23:20	1885.150	73.468	09/09/23	03:44:20	1884.503	73.446
09/09/23	01:03:20	1885.811	73.419	09/09/23	02:24:20	1885.156	73.470	09/09/23	03:45:20	1884.504	73.448
09/09/23	01:04:20	1885.790	73.413	09/09/23	02:25:20	1885.168	73.472	09/09/23	03:46:20	1884.485	73.447
09/09/23	01:05:20	1885.790	73.417	09/09/23	02:26:20	1885.144	73.469	09/09/23	03:47:20	1884.507	73.455
09/09/23	01:06:20	1885.786	73.415	09/09/23	02:27:20	1885.133	73.473	09/09/23	03:48:20	1884.498	73.449
09/09/23	01:07:20	1885.769	73.415	09/09/23	02:28:20	1885.117	73.477	09/09/23	03:49:20	1884.495	73.457
09/09/23	01:08:20	1885.769	73.417	09/09/23	02:29:20	1885.122	73.474	09/09/23	03:50:20	1884.485	73.458
09/09/23	01:09:20	1885.767	73.419	09/09/23	02:30:20	1885.102	73.475	09/09/23	03:51:20	1884.462	73.455
09/09/23	01:10:20	1885.739	73.416	09/09/23	02:31:20	1885.096	73.478	09/09/23	03:52:20	1884.448	73.456
09/09/23	01:11:20	1885.743	73.419	09/09/23	02:32:20	1885.079	73.476	09/09/23	03:53:20	1884.429	73.451
09/09/23	01:12:20	1885.737	73.422	09/09/23	02:33:20	1885.065	73.475	09/09/23	03:54:20	1884.422	73.454
09/09/23	01:13:20	1885.725	73.426	09/09/23	02:34:20	1885.075	73.478	09/09/23	03:55:20	1884.416	73.451
09/09/23	01:14:20	1885.727	73.423	09/09/23	02:35:20	1885.071	73.482	09/09/23	03:56:20	1884.434	73.459
09/09/23	01:15:20	1885.724	73.420	09/09/23	02:36:20	1885.069	73.486	09/09/23	03:57:20	1884.417	73.466
09/09/23	01:16:20	1885.717	73.421	09/09/23	02:37:20	1885.048	73.475	09/09/23	03:58:20	1884.398	73.461
09/09/23	01:17:20	1885.720	73.427	09/09/23	02:38:20	1885.029	73.472	09/09/23	03:59:20	1884.391	73.461
09/09/23	01:18:20	1885.689	73.426	09/09/23	02:39:20	1885.024	73.475	09/09/23	04:00:20	1884.377	73.461
09/09/23	01:19:20	1885.666	73.422	09/09/23	02:40:20	1885.032	73.477	09/09/23	04:01:20	1884.386	73.467
09/09/23	01:20:20	1885.656	73.421	09/09/23	02:41:20	1885.018	73.475	09/09/23	04:02:20	1884.360	73.466
09/09/23	01:21:20	1885.690	73.431	09/09/23	02:42:20	1884.996	73.472	09/09/23	04:03:20	1884.342	73.458
09/09/23	01:22:20	1885.670	73.427	09/09/23	02:43:20	1884.982	73.473	09/09/23	04:04:20	1884.354	73.468
09/09/23	01:23:20	1885.641	73.429	09/09/23	02:44:20	1884.981	73.478	09/09/23	04:05:20	1884.347	73.471
09/09/23	01:24:20	1885.628	73.426	09/09/23	02:45:20	1884.971	73.475	09/09/23	04:06:20	1884.323	73.466
09/09/23	01:25:20	1885.617	73.429	09/09/23	02:46:20	1884.970	73.475	09/09/23	04:07:20	1884.340	73.471
09/09/23	01:26:20	1885.621	73.438	09/09/23	02:47:20	1884.953	73.473	09/09/23	04:08:20	1884.332	73.480
09/09/23	01:27:20	1885.610	73.431	09/09/23	02:48:20	1884.988	73.479	09/09/23	04:09:20	1884.318	73.483
09/09/23	01:28:20	1885.609	73.436	09/09/23	02:49:20	1884.972	73.476	09/09/23	04:10:20	1884.288	73.481
09/09/23	01:29:20	1885.608	73.439	09/09/23	02:50:20	1884.927	73.467	09/09/23	04:11:20	1884.295	73.486
09/09/23	01:30:20	1885.592	73.436	09/09/23	02:51:20	1884.930	73.467	09/09/23	04:12:20	1884.299	73.491
09/09/23	01:31:20	1885.584	73.440	09/09/23	02:52:20	1884.903	73.464	09/09/23	04:13:20	1884.281	73.490
09/09/23	01:32:20	1885.571	73.437	09/09/23	02:53:20	1884.907	73.465	09/09/23	04:14:20	1884.271	73.493
09/09/23	01:33:20	1885.562	73.437	09/09/23	02:54:20	1884.916	73.466	09/09/23	04:15:20	1884.255	73.493
09/09/23	01:34:20	1885.546	73.433	09/09/23	02:55:20	1884.897	73.459	09/09/23	04:16:20	1884.253	73.501
09/09/23	01:35:20	1885.553	73.437	09/09/23	02:56:20	1884.885	73.459	09/09/23	04:17:20	1884.244	73.501
09/09/23	01:36:20	1885.536	73.429	09/09/23	02:57:20	1884.878	73.454	09/09/23	04:18:20	1884.225	73.498
09/09/23	01:37:20	1885.523	73.431	09/09/23	02:58:20	1884.882	73.460	09/09/23	04:19:20	1884.221	73.496
09/09/23	01:38:20	1885.519	73.436	09/09/23	02:59:20	1884.871	73.457	09/09/23	04:20:20	1884.226	73.504
09/09/23	01:39:20	1885.511	73.438	09/09/23	03:00:20	1884.870	73.460	09/09/23	04:21:20	1884.222	73.500
09/09/23	01:40:20	1885.501	73.434	09/09/23	03:01:20	1884.841	73.451	09/09/23	04:22:20	1884.226	73.498
09/09/23	01:41:20	1885.488	73.437	09/09/23	03:02:20	1884.848	73.454	09/09/23	04:23:20	1884.203	73.499
09/09/23	01:42:20	1885.471	73.435	09/09/23	03:03:20	1884.842	73.455	09/09/23	04:24:20	1884.189	73.500
09/09/23	01:43:20	1885.486	73.432	09/09/23	03:04:20	1884.838	73.455	09/09/23	04:25:20	1884.190	73.501
09/09/23	01:44:20	1885.481	73.432	09/09/23	03:05:20	1884.829	73.453	09/09/23	04:26:20	1884.187	73.499
09/09/23	01:45:20	1885.461	73.432	09/09/23	03:06:20	1884.798	73.450	09/09/23	04:27:20	1884.165	73.497
09/09/23	01:46:20	1885.460	73.433	09/09/23	03:07:20	1884.810	73.455	09/09/23	04:28:20	1884.159	73.496
09/09/23	01:47:20	1885.459	73.430	09/09/23	03:08:20	1884.800	73.446	09/09/23	04:29:20	1884.161	73.497
09/09/23	01:48:20	1885.438	73.426	09/09/23	03:09:20	1884.797	73.449	09/09/23	04:30:20	1884.141	73.493

Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F	Date	Time	Pressure psig	Temp °F
09/09/23	04:31:20	1884.143	73.498	09/09/23	05:52:20	1883.484	73.498				
09/09/23	04:32:20	1884.144	73.497	09/09/23	05:53:20	1883.474	73.497				
09/09/23	04:33:20	1884.133	73.495	09/09/23	05:54:20	1883.484	73.498				
09/09/23	04:34:20	1884.124	73.495	09/09/23	05:55:20	1883.465	73.505				
09/09/23	04:35:20	1884.104	73.489	09/09/23	05:56:20	1883.453	73.500				
09/09/23	04:36:20	1884.105	73.492	09/09/23	05:57:20	1883.456	73.498				
09/09/23	04:37:20	1884.093	73.492	09/09/23	05:58:20	1883.454	73.495				
09/09/23	04:38:20	1884.096	73.491	09/09/23	05:59:20	1883.457	73.496				
09/09/23	04:39:20	1884.074	73.487	09/09/23	06:00:20	1883.426	73.488				
09/09/23	04:40:20	1884.068	73.486	09/09/23	06:01:20	1883.420	73.486				
09/09/23	04:41:20	1884.055	73.490	09/09/23	06:02:20	1883.402	73.478				
09/09/23	04:42:20	1884.057	73.489	09/09/23	06:03:20	1883.408	73.478				
09/09/23	04:43:20	1884.041	73.489	09/09/23	06:04:20	1883.399	73.478				
09/09/23	04:44:20	1884.046	73.489	09/09/23	06:05:20	1883.379	73.477				
09/09/23	04:45:20	1884.027	73.486	09/09/23	06:06:20	1883.374	73.480				
09/09/23	04:46:20	1884.016	73.487	09/09/23	06:07:20	1883.404	73.489				
09/09/23	04:47:20	1884.004	73.485	09/09/23	06:08:20	1883.379	73.484				
09/09/23	04:48:20	1883.998	73.486	09/09/23	06:09:20	1883.373	73.483				
09/09/23	04:49:20	1884.014	73.491	09/09/23	06:10:20	1883.357	73.487				
09/09/23	04:50:20	1884.011	73.496	09/09/23	06:11:20	1883.343	73.493				
09/09/23	04:51:20	1883.987	73.494	09/09/23	06:12:20	1883.339	73.493				
09/09/23	04:52:20	1883.969	73.492	09/09/23	06:13:20	1883.314	73.493				
09/09/23	04:53:20	1883.959	73.494	09/09/23	06:14:20	1883.318	73.497				
09/09/23	04:54:20	1883.946	73.492	09/09/23	06:15:20	1883.296	73.498				
09/09/23	04:55:20	1883.946	73.492	09/09/23	06:16:20	1883.330	73.511				
09/09/23	04:56:20	1883.936	73.493	09/09/23	06:17:20	1883.305	73.505				
09/09/23	04:57:20	1883.922	73.494	09/09/23	06:18:20	1883.308	73.510				
09/09/23	04:58:20	1883.930	73.498	09/09/23	06:19:20	1883.297	73.512				
09/09/23	04:59:20	1883.923	73.496	09/09/23	06:20:20	1883.273	73.513				
09/09/23	05:00:20	1883.914	73.498	09/09/23	06:21:20	1883.276	73.514				
09/09/23	05:01:20	1883.874	73.486	09/09/23	06:22:20	1883.260	73.512				
09/09/23	05:02:20	1883.901	73.496	09/09/23	06:23:20	1883.264	73.519				
09/09/23	05:03:20	1883.895	73.497	09/09/23	06:24:20	1883.235	73.517				
09/09/23	05:04:20	1883.889	73.497	09/09/23	06:25:20	1883.230	73.521				
09/09/23	05:05:20	1883.875	73.501	09/09/23	06:26:20	1883.232	73.518				
09/09/23	05:06:20	1883.870	73.500	09/09/23	06:27:20	1883.227	73.523				
09/09/23	05:07:20	1883.856	73.501	09/09/23	06:28:20	1883.214	73.521				
09/09/23	05:08:20	1883.842	73.499	09/09/23	06:29:20	1883.196	73.527				
09/09/23	05:09:20	1883.845	73.504	09/09/23	06:30:20	1883.187	73.522				
09/09/23	05:10:20	1883.828	73.508	09/09/23	06:31:20	1883.200	73.529				
09/09/23	05:11:20	1883.821	73.509	09/09/23	06:32:20	1883.183	73.522				
09/09/23	05:12:20	1883.801	73.505	09/09/23	06:33:20	1883.194	73.528				
09/09/23	05:13:20	1883.806	73.506	09/09/23	06:34:20	1883.159	73.522				
09/09/23	05:14:20	1883.801	73.509	09/09/23	06:35:20	1883.156	73.520				
09/09/23	05:15:20	1883.786	73.510	09/09/23	06:36:20	1883.141	73.521				
09/09/23	05:16:20	1883.775	73.509	09/09/23	06:37:20	1883.136	73.522				
09/09/23	05:17:20	1883.774	73.513	09/09/23	06:38:20	1883.126	73.523				
09/09/23	05:18:20	1883.759	73.511	09/09/23	06:39:20	1883.118	73.527				
09/09/23	05:19:20	1883.753	73.506	09/09/23	06:40:20	1883.124	73.526				
09/09/23	05:20:20	1883.768	73.511	09/09/23	06:41:20	1883.132	73.531				
09/09/23	05:21:20	1883.761	73.511	09/09/23	06:42:20	1883.120	73.523				
09/09/23	05:22:20	1883.738	73.503	09/09/23	06:43:20	1883.121	73.532				
09/09/23	05:23:20	1883.734	73.509	09/09/23	06:44:20	1883.091	73.528				
09/09/23	05:24:20	1883.726	73.507	09/09/23	06:45:20	1883.086	73.524				
09/09/23	05:25:20	1883.696	73.504	09/09/23	06:46:20	1883.070	73.524				
09/09/23	05:26:20	1883.706	73.509	09/09/23	06:47:20	1883.079	73.528				
09/09/23	05:27:20	1883.694	73.505	09/09/23	06:48:20	1883.062	73.526				
09/09/23	05:28:20	1883.686	73.502	09/09/23	06:49:20	1883.038	73.526				
09/09/23	05:29:20	1883.695	73.504	09/09/23	06:50:20	1883.038	73.528				
09/09/23	05:30:20	1883.659	73.499	09/09/23	06:51:20	1883.042	73.528				
09/09/23	05:31:20	1883.657	73.502	09/09/23	06:52:20	1883.051	73.535				
09/09/23	05:32:20	1883.640	73.498	09/09/23	06:53:20	1883.035	73.532				
09/09/23	05:33:20	1883.646	73.497	09/09/23	06:54:20	1883.018	73.526				
09/09/23	05:34:20	1883.649	73.496	09/09/23	06:55:20	1883.000	73.524				
09/09/23	05:35:20	1883.633	73.498	09/09/23	06:56:20	1882.990	73.526				
09/09/23	05:36:20	1883.614	73.496	09/09/23	06:57:20	1883.003	73.527				
09/09/23	05:37:20	1883.613	73.497	09/09/23	06:58:20	1882.998	73.526				
09/09/23	05:38:20	1883.620	73.502	09/09/23	06:59:20	1882.990	73.523				
09/09/23	05:39:20	1883.582	73.490	09/09/23	07:00:20	1882.975	73.522				
09/09/23	05:40:20	1883.576	73.493	09/09/23	07:01:20	1882.980	73.529				
09/09/23	05:41:20	1883.579	73.491	09/09/23	07:02:20	1882.967	73.527				
09/09/23	05:42:20	1883.566	73.496	09/09/23	07:03:20	1882.944	73.528				
09/09/23	05:43:20	1883.561	73.494								
09/09/23	05:44:20	1883.575	73.500								
09/09/23	05:45:20	1883.551	73.493								
09/09/23	05:46:20	1883.563	73.500								
09/09/23	05:47:20	1883.533	73.494								
09/09/23	05:48:20	1883.523	73.497								
09/09/23	05:49:20	1883.515	73.495								
09/09/23	05:50:20	1883.503	73.497								
09/09/23	05:51:20	1883.504	73.494								

APPENDIX H

PANSYSTEM© ANALYSIS OF FALLOFF TEST

Well Test Analysis Report

File: Republic Romulus 1-12 2023 PFO Analysis.panx

Date: 26-September-2023

Report Details :

Company	Republic Energy & Industrial Solutions, LLC
Location	Romulus Facility
Well	1-12
Test	Reservoir Pressure Falloff
Date	September 7-9, 2023
Injection Interval	4121 - 4645 ft RKB (MD)
Interval Completion	Open-Hole
Gauge Type	Badger Tri Tool
Gauge Serial Number	91874
Gauge Depth	4080 ft RKB
WSP Analyst	TG
WSP Project Number	192128AP

Table of Contents

Input Data

Reservoir Configuration

Fluid type	Water
Well orientation	Vertical/Slant
Number of wells	1
Number of layers	1

Layer Parameters

Parameter	Layer 1
Formation thickness (ft)	133
Average formation porosity	0.11
Water saturation	0
Gas saturation	0
Formation compressibility (psi-1)	0.0000e+000
Total system compressibility (psi-1)	6.2000e-006
Layer pressure (psia)	0
Temperature (deg F)	0

Well Parameters

Parameter	Well 1-12
Well radius (ft)	0.3646
Distance from observation to active well (ft)	0
Wellbore storage coefficient (bbl/psi)	0
Storage Amplitude (psi)	0
Storage Time Constant (hr)	0
Second Wellbore Storage (bbl/psi)	0
Time Change for Second Storage (hr)	0
Well offset - x direction (ft)	0
Well offset - y direction (ft)	0

Fluid Parameters

Parameter	Layer 1
Oil gravity (API)	0
Gas gravity (sp grav)	0
Gas-oil ratio (produced) (scf/STB)	0
Water cut	0
Water salinity (ppm)	0
Check Pressure (psia)	0
Check Temperature (deg F)	0
Gas-oil ratio (solution) (scf/STB)	0
Bubble-point pressure (psia)	0
Oil density (lb/ft3)	0
Oil viscosity (cp)	0
Oil formation volume factor (RB/STB)	0
Gas density (lb/ft3)	0
Gas viscosity (cp)	0
Gas formation volume factor (ft3/scf)	0
Water density (lb/ft3)	0
Water viscosity (cp)	1.34
Water formation volume factor (RB/STB)	1
Oil compressibility (psi-1)	0.0000e+000
Initial Gas compressibility (psi-1)	0.0000e+000
Water compressibility (psi-1)	0.0000e+000

Correlations

Correlation Parameters	Layer 1
Cf Correlation	Hall Correlation
Young's modulus (E) (psi)	0
Poisson's Ratio (v)	0

Layer Boundaries

Boundary Parameter	Layer 1
Boundary Type	Infinitely acting

Rate Change Data

DateTime (hh:mm:ss)	Pressure (psia)	Rate (STB/day)
9/7/2023 8:29:29 PM	1899.4	0
9/8/2023 7:46:41 AM	2342.859	-1731.43
9/9/2023 7:03:56 AM	1897.641	0

Model Data

Layer 1 Model Data

Model Parameter	Model Data
Model Name	Model 1
Model Type	Radial homogeneous
Permeability (md)	0
Skin factor	0

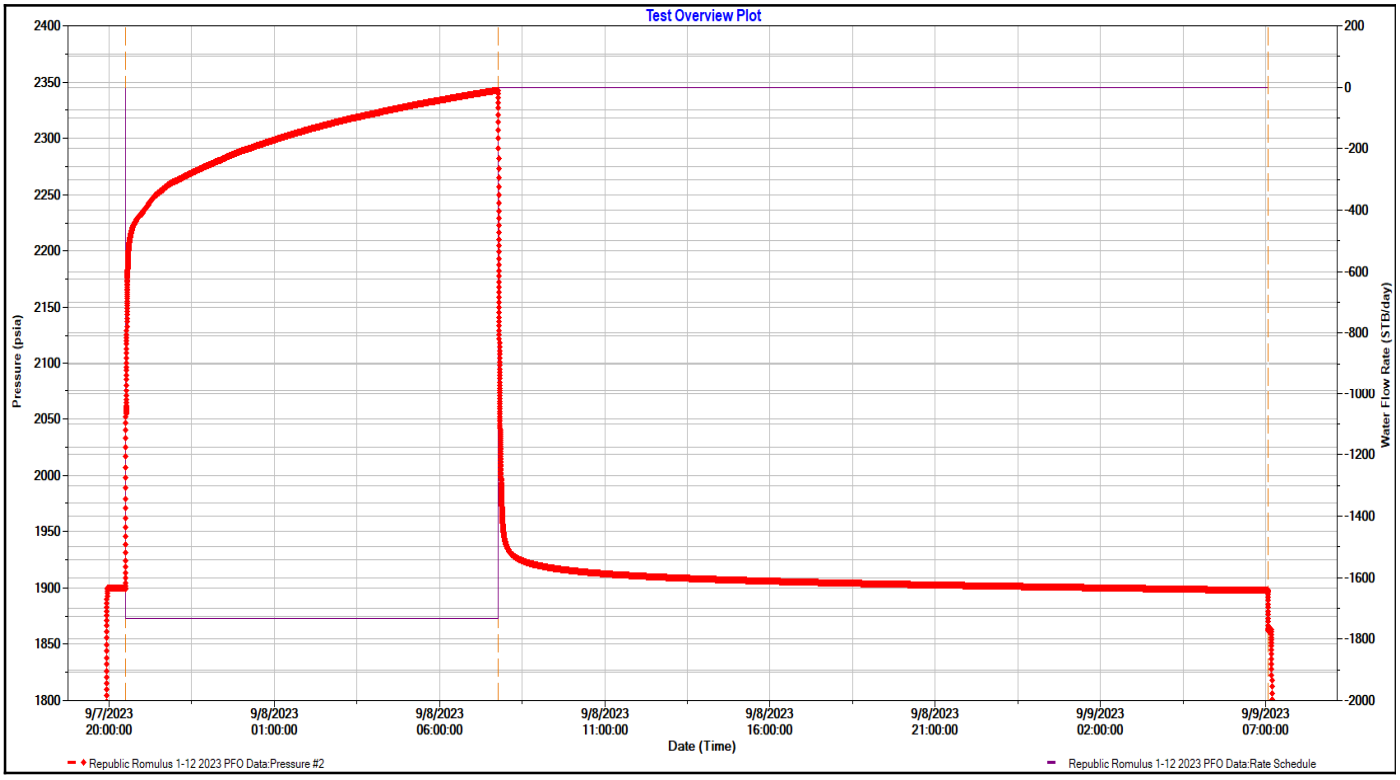
Analysis

Model - Layer 1 : Model 1

Model Detail

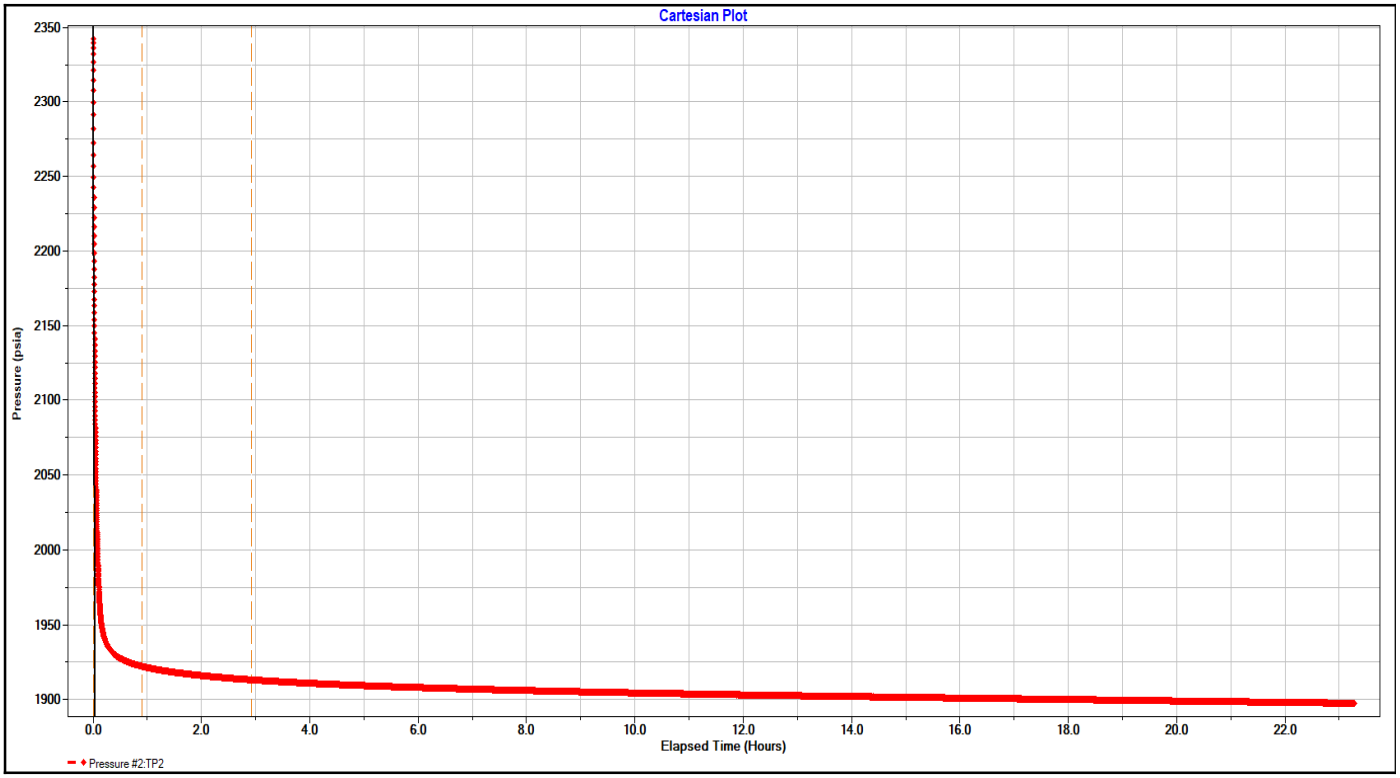
Model Parameter	Model Data
Model Name	Model 1
Model Type	Radial homogeneous
Layer	Layer 1
WellBore Storage Model	Classic Wellbore Storage

Test Overview Plot



Test Overview Plot

Cartesian Plot:TP2



Cartesian Plot

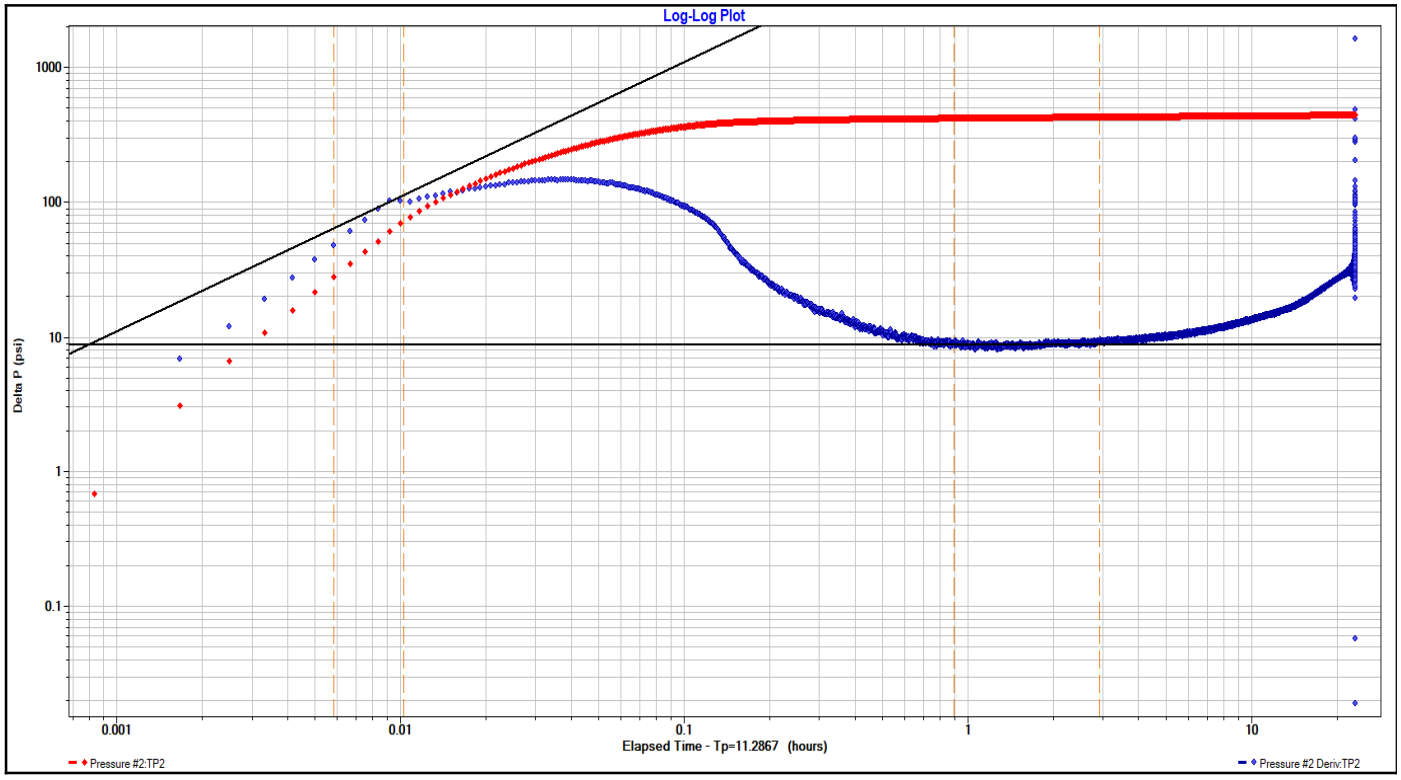
Line Results

Line Result Parameter	Value
Wellbore storage coefficient (bbl/psi)	0.00713565

Line Details

Details	Value
Line type	Wellbore storage
Slope	-10110.206
Intercept	2374.734
Coefficient of Determination	0.997

Log-Log Plot:TP2



Log-Log Plot

Line Results

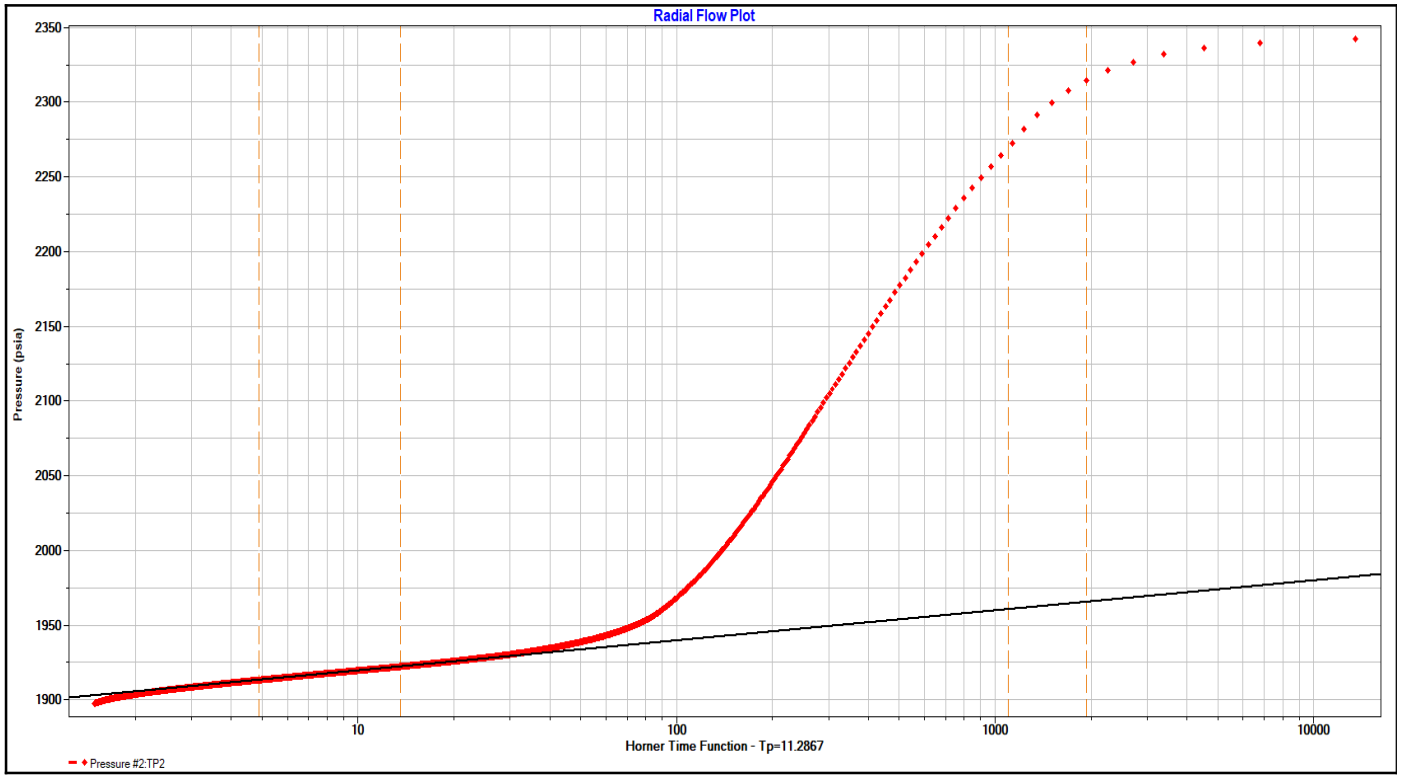
Line Result Parameter	Value
Wellbore storage coefficient (bbl/psi)	0.00658419
Permeability (md)	142.633
Permeability-thickness (md.ft)	18970.2
Skin factor	17.6459

Line Details

Details	Value
Line type	Wellbore storage
Slope	1
Intercept	10956.983
Coefficient of Determination	Not Used

Details	Value
Line type	Radial flow
Slope	0
Intercept	8.635
Coefficient of Determination	Not Used

Radial Flow Plot:TP2



Radial Flow Plot

Line Results

Line Result Parameter	Value
Permeability (md)	141.869
Permeability-thickness (md.ft)	18868.6
Extrapolated pressure (psia)	1899.64
Radius of investigation (ft)	1743.65
Flow efficiency	0.310843
dP skin (constant rate) (psi)	305.447
Skin factor	17.5926

Line Details

Details	Value
Line type	Radial flow
Slope	19.989
Intercept	1899.64
Coefficient of Determination	1
Extrapolated pressure (psia)	1899.64
Pressure at dt = 1 hour (psia)	1921.417

APPENDIX I

PRESSURE TEST REPORT DATA

Pressure Test Report

COMPANY INFORMATION

Company Name	Republic Services
Representative	Jeffry Tahtouh with WSP USA, Inc.
Phone	713-503-7704
Fax	
Address	Republic Services 28470 Citrin Drive Romulus, MI 48174
E-Mail Address	
Service Company	Impact Completions, LLC

WELL INFORMATION

Well Name	EGT No1-12
Well Location	Romulus, Michigan
Field and Pool	
Status (Oil, Gas, Water, Injection)	Waste Water Disposal
Perforated Intervals	
Mid-point of Perforated Intervals (MPP)	
Drilling Rig Number	
Elevations	
Kelly Bushing (KB)	13 feet above ground level
Casing Flange (CF)	
KB-CF	
Ground Level	
Plug Back Total Depth	
Total Depth	
Production Casing	
Production Tubing	

TEST INFORMATION

Type of Test	Injection/Fall-Off
Date(s) of Test	September 07, 2023 thru September 09, 2023
Dead-weight Gauge Tubing Pressure	
Dead-weight Gauge Casing Pressure	
Shut-in Date (Duration)	September 08, 2023 at 07:46:41
Date / Time on Bottom	September 07, 2023 at 19:56:30
Date / Time off Bottom	September 09, 2023 at 07:03:53
Probe Serial Number	91874
Probe Offset from End of Tool String	
Run Depth at Probe Pressure Port	

PRESSURE TEST RESULTS

Maximum Recorded Probe Pressure	2328.2 psig
Maximum Recorded Probe Temperature	78.3 deg F
Final Buildup Pressure	
Gradient Survey Information	
Extrapolated Pressure to MPP	
Final Gradient at Depth	
Job Number	

PROBE INFORMATION

Probe Serial Number	91874
Model	Badger Low Temp
Pressure	
Calibrated Pressure Range	0.00 - 10,000.00
Accuracy	2.4000 psi (0.024 %FS)
Resolution	0.0300 psi (0.0003 %FS)
Temperature	
Calibrated Temperature Range	0.00 - 150.0 deg C
Accuracy	0.40 deg C (0.40 %FS)
Resolution	0.001 deg C (0.001%FS)
Calibration File Used for Reports	April 21, 2023

PROGRAMMING DETAILS

Step	Sample Mode	Period	Duration	Comment

Program Start Time
Program End Time
Total Samples Taken
Usage for this Test
Generic Data File Name

COMMENTS

Reported By Tim Auker

Zeroed bottom gauge in reference to Kelly Bushing Measurements.

We used measured depths and not true vertical depths.

Top Gauge: 91873 (two feet above bottom gauge)
Bottom Gauge: 91874

The bottom gauge (91874) was used for this report.

Well was static. R.I.H. with tandem electronic memory gauges. Hang bottom gauge at 4080 feet for injection/fall-off test. P.O.O.H. with gauges making gradient stops.

Pressure vs. Depth

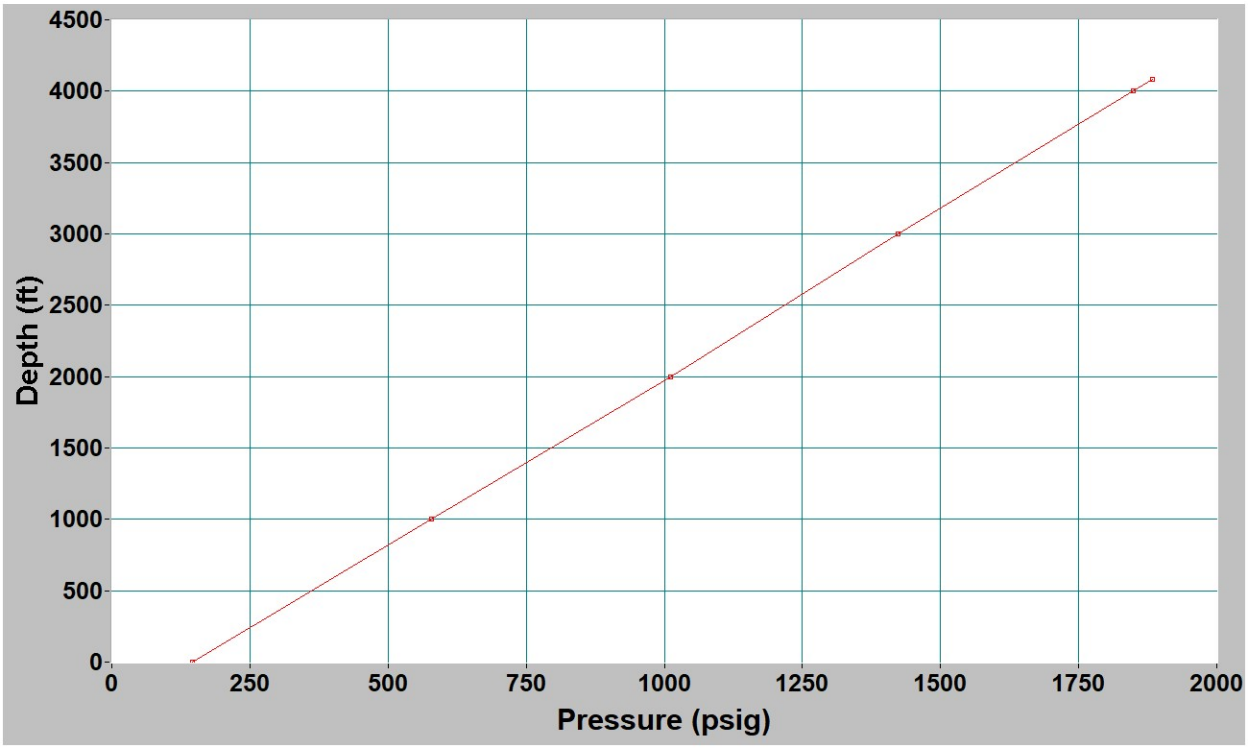
Probe Serial Number 91874

		(ft)	(psig)	(psi/ft)	(deg F)	(deg F/ft)
06:55	07:00	4080.000	1882.981	-	73.524	-
07:04	07:09	4000.000	1848.035	0.4368	77.860	-0.0542
07:14	07:19	3000.000	1423.099	0.4249	72.849	0.0050
07:24	07:29	2000.000	1011.217	0.4119	63.127	0.0097
07:32	07:37	1000.000	579.237	0.4320	59.256	0.0039
07:43	07:49	0.000	145.300	0.4339	62.233	-0.0030

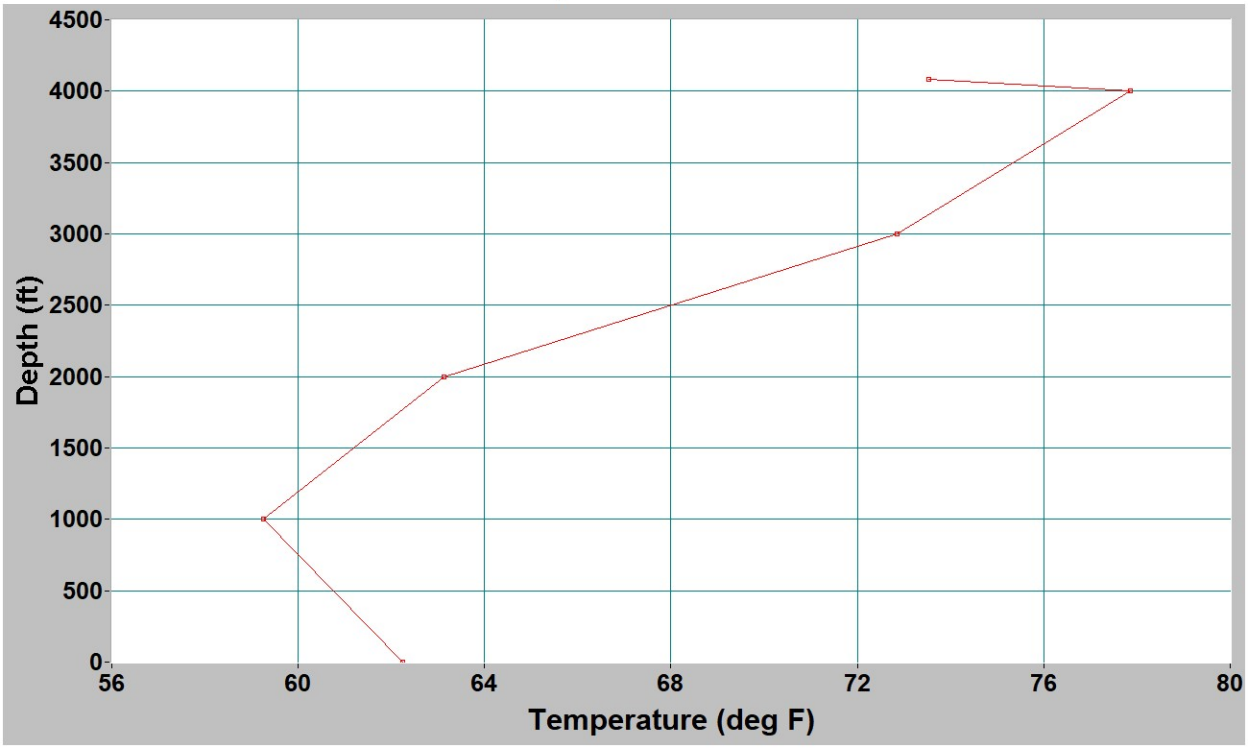
Extrapolated to MPP:

(ft)	(psig)	(deg F)
0.000		

P.O.O.H. Pressure Gradients

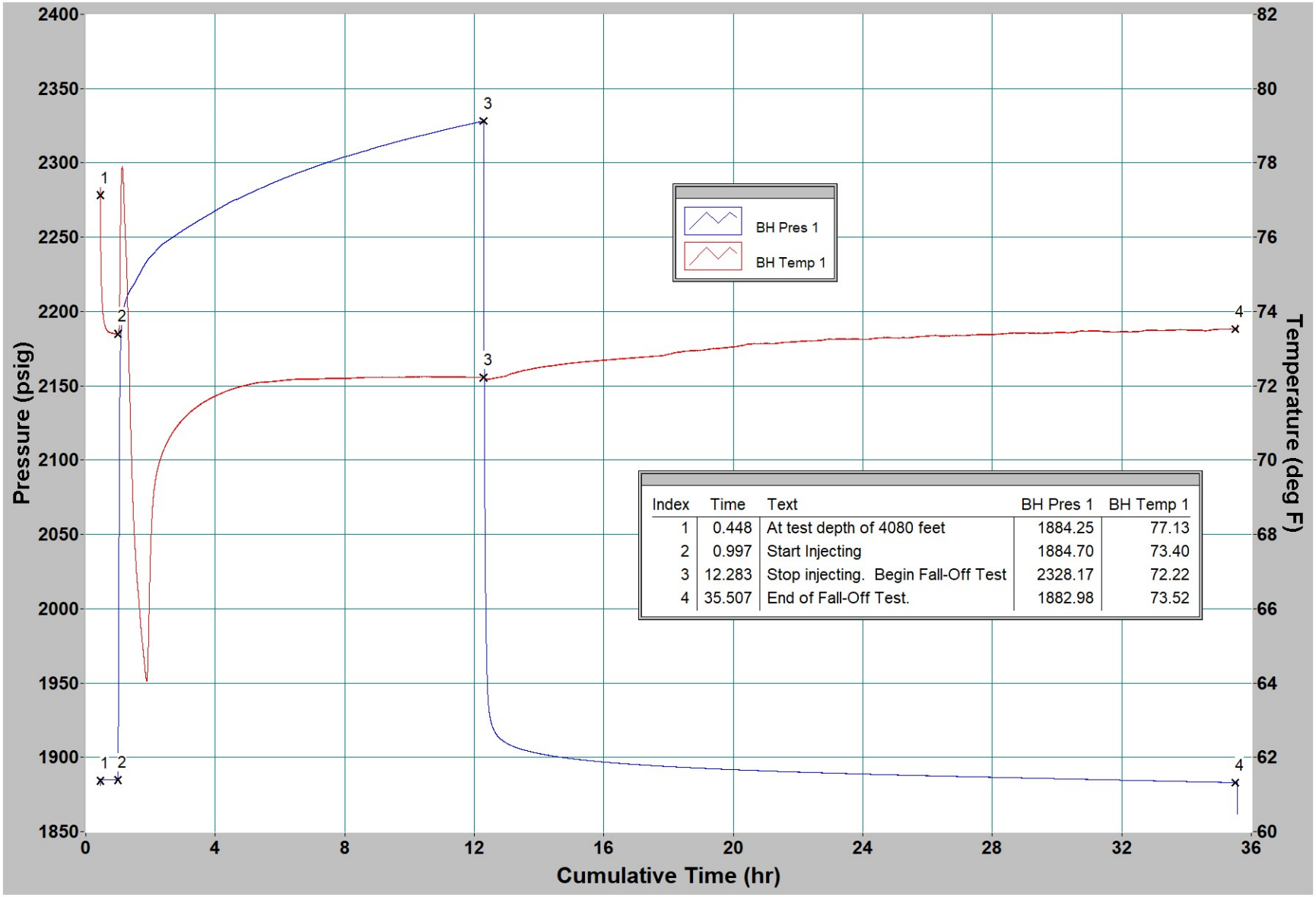


P.O.O.H. Temperature Gradients



Company Name	Republic Services
Well Name	EGT No1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	September 07, 2023 thru September 09, 2023

Fall-Off Test



Index	Time	Text	BH Pres 1	BH Temp 1
1	0.448	At test depth of 4080 feet	1884.25	77.13
2	0.997	Start Injecting	1884.70	73.40
3	12.283	Stop injecting. Begin Fall-Off Test	2328.17	72.22
4	35.507	End of Fall-Off Test.	1882.98	73.52

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
Gauges on surface				
2023/09/07	19:29:41	0.0000	1.934	73.605
2023/09/07	19:36:05	0.1067	1.672	73.490
Gauges in lubricator				
2023/09/07	19:39:17	0.1600	1.663	73.499
R.I.H. with gauges				
2023/09/07	19:40:38	0.1825	147.059	72.666
2023/09/07	19:42:05	0.2067	263.995	71.096
2023/09/07	19:48:05	0.3067	998.546	61.246
2023/09/07	19:54:05	0.4067	1639.707	73.692
At test depth of 4080 feet				
2023/09/07	19:56:32	0.4475	1884.249	77.130
2023/09/07	20:00:05	0.5067	1885.041	74.233
2023/09/07	20:06:05	0.6067	1884.874	73.571
2023/09/07	20:12:05	0.7067	1884.865	73.450
2023/09/07	20:18:05	0.8067	1884.819	73.413
2023/09/07	20:24:05	0.9067	1884.767	73.404
Start Injecting				
2023/09/07	20:29:29	0.9967	1884.703	73.396
2023/09/07	20:30:05	1.0067	1947.504	73.404
2023/09/07	20:36:05	1.1067	2190.780	77.720
2023/09/07	20:42:05	1.2067	2205.220	76.390
2023/09/07	20:48:05	1.3067	2211.539	73.740
2023/09/07	20:54:05	1.4067	2215.671	70.232
2023/09/07	21:00:05	1.5067	2218.978	67.851
2023/09/07	21:06:05	1.6067	2223.363	66.542
2023/09/07	21:12:05	1.7067	2227.247	65.446
2023/09/07	21:18:05	1.8067	2231.096	64.571
2023/09/07	21:24:05	1.9067	2234.501	64.301
2023/09/07	21:30:05	2.0067	2237.154	67.717
2023/09/07	21:36:05	2.1067	2239.362	69.174
2023/09/07	21:42:05	2.2067	2241.839	69.721
2023/09/07	21:48:05	2.3067	2244.162	70.041
2023/09/07	21:54:05	2.4067	2245.931	70.279
2023/09/07	22:00:05	2.5067	2247.335	70.470
2023/09/07	22:06:05	2.6067	2248.796	70.635
2023/09/07	22:12:05	2.7067	2250.262	70.776
2023/09/07	22:18:05	2.8067	2251.751	70.896
2023/09/07	22:24:05	2.9067	2253.218	71.004
2023/09/07	22:30:05	3.0067	2254.748	71.107
2023/09/07	22:36:05	3.1067	2256.028	71.197
2023/09/07	22:42:05	3.2067	2257.420	71.265
2023/09/07	22:48:05	3.3067	2258.808	71.348
2023/09/07	22:54:05	3.4067	2260.216	71.422
2023/09/07	23:00:05	3.5067	2261.422	71.483
2023/09/07	23:06:05	3.6067	2262.700	71.539
2023/09/07	23:12:05	3.7067	2263.995	71.593
2023/09/07	23:18:05	3.8067	2265.252	71.645
2023/09/07	23:24:05	3.9067	2266.545	71.688
2023/09/07	23:30:05	4.0067	2267.927	71.722

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2023/09/07	23:36:05	4.1067	2269.180	71.762
2023/09/07	23:42:05	4.2067	2270.379	71.807
2023/09/07	23:48:05	4.3067	2271.678	71.845
2023/09/07	23:54:05	4.4067	2273.020	71.879
2023/09/08	00:00:05	4.5067	2274.074	71.908
2023/09/08	00:06:05	4.6067	2275.079	71.933
2023/09/08	00:12:05	4.7067	2275.840	71.967
2023/09/08	00:18:05	4.8067	2276.862	71.985
2023/09/08	00:24:05	4.9067	2278.023	72.005
2023/09/08	00:30:05	5.0067	2279.036	72.028
2023/09/08	00:36:05	5.1067	2280.041	72.050
2023/09/08	00:42:05	5.2067	2281.011	72.068
2023/09/08	00:48:05	5.3067	2282.042	72.082
2023/09/08	00:54:05	5.4067	2282.961	72.090
2023/09/08	01:00:05	5.5067	2283.854	72.100
2023/09/08	01:06:05	5.6067	2284.817	72.099
2023/09/08	01:12:05	5.7067	2285.831	72.109
2023/09/08	01:18:05	5.8067	2286.882	72.118
2023/09/08	01:24:05	5.9067	2287.700	72.131
2023/09/08	01:30:05	6.0067	2288.612	72.136
2023/09/08	01:36:05	6.1067	2289.555	72.149
2023/09/08	01:42:05	6.2067	2290.357	72.160
2023/09/08	01:48:05	6.3067	2291.194	72.162
2023/09/08	01:54:05	6.4067	2292.069	72.169
2023/09/08	02:00:05	6.5067	2292.936	72.181
2023/09/08	02:06:05	6.6067	2293.804	72.180
2023/09/08	02:12:05	6.7067	2294.511	72.176
2023/09/08	02:18:05	6.8067	2295.279	72.178
2023/09/08	02:24:05	6.9067	2296.061	72.183
2023/09/08	02:30:05	7.0067	2296.813	72.180
2023/09/08	02:36:05	7.1067	2297.631	72.185
2023/09/08	02:42:05	7.2067	2298.357	72.187
2023/09/08	02:48:05	7.3067	2299.184	72.194
2023/09/08	02:54:05	7.4067	2299.972	72.196
2023/09/08	03:00:05	7.5067	2300.684	72.196
2023/09/08	03:06:05	7.6067	2301.412	72.192
2023/09/08	03:12:05	7.7067	2302.147	72.199
2023/09/08	03:18:05	7.8067	2302.765	72.194
2023/09/08	03:24:05	7.9067	2303.519	72.201
2023/09/08	03:30:05	8.0067	2304.194	72.205
2023/09/08	03:36:05	8.1067	2304.727	72.212
2023/09/08	03:42:05	8.2067	2305.364	72.203
2023/09/08	03:48:05	8.3067	2306.081	72.210
2023/09/08	03:54:05	8.4067	2306.702	72.217
2023/09/08	04:00:05	8.5067	2307.309	72.221
2023/09/08	04:06:05	8.6067	2307.935	72.225
2023/09/08	04:12:05	8.7067	2308.548	72.228
2023/09/08	04:18:05	8.8067	2309.312	72.226
2023/09/08	04:24:05	8.9067	2309.987	72.228
2023/09/08	04:30:05	9.0067	2310.573	72.225

Company Name Republic Services
Well Name EGT No1-12
Type of Test Injection/Fall-Off
Date(s) of Test September 07, 2023 thru September 09, 2023

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2023/09/08	04:36:05	9.1067	2311.201	72.232
2023/09/08	04:42:05	9.2067	2311.804	72.228
2023/09/08	04:48:05	9.3067	2312.412	72.234
2023/09/08	04:54:05	9.4067	2313.017	72.228
2023/09/08	05:00:05	9.5067	2313.639	72.232
2023/09/08	05:06:05	9.6067	2314.267	72.230
2023/09/08	05:12:05	9.7067	2314.792	72.237
2023/09/08	05:18:05	9.8067	2315.384	72.232
2023/09/08	05:24:05	9.9067	2315.876	72.232
2023/09/08	05:30:05	10.0067	2316.504	72.235
2023/09/08	05:36:05	10.1067	2317.045	72.244
2023/09/08	05:42:05	10.2067	2317.593	72.241
2023/09/08	05:48:05	10.3067	2318.115	72.243
2023/09/08	05:54:05	10.4067	2318.627	72.248
2023/09/08	06:00:05	10.5067	2319.144	72.243
2023/09/08	06:06:05	10.6067	2319.703	72.246
2023/09/08	06:12:05	10.7067	2320.215	72.237
2023/09/08	06:18:05	10.8067	2320.819	72.244
2023/09/08	06:24:05	10.9067	2321.314	72.243
2023/09/08	06:30:05	11.0067	2321.891	72.243
2023/09/08	06:36:05	11.1067	2322.400	72.239
2023/09/08	06:42:05	11.2067	2322.938	72.237
2023/09/08	06:48:05	11.3067	2323.412	72.234
2023/09/08	06:54:05	11.4067	2323.889	72.237
2023/09/08	07:00:05	11.5067	2324.431	72.235
2023/09/08	07:06:05	11.6067	2324.895	72.235
2023/09/08	07:12:05	11.7067	2325.339	72.234
2023/09/08	07:18:05	11.8067	2325.807	72.232
2023/09/08	07:24:05	11.9067	2326.349	72.235
2023/09/08	07:30:05	12.0067	2326.786	72.221
2023/09/08	07:36:05	12.1067	2327.300	72.226
2023/09/08	07:42:05	12.2067	2327.770	72.223
Stop injecting. Begin Fall-Off Test				
2023/09/08	07:46:41	12.2833	2328.168	72.223
2023/09/08	07:48:05	12.3067	2158.103	72.205
2023/09/08	07:54:05	12.4067	1947.573	72.180
2023/09/08	08:00:05	12.5067	1924.753	72.189
2023/09/08	08:06:05	12.6067	1918.230	72.203
2023/09/08	08:12:05	12.7067	1914.721	72.221
2023/09/08	08:18:05	12.8067	1912.437	72.235
2023/09/08	08:24:05	12.9067	1910.745	72.244
2023/09/08	08:30:05	13.0067	1909.371	72.271
2023/09/08	08:36:05	13.1067	1908.332	72.315
2023/09/08	08:42:05	13.2067	1907.365	72.342
2023/09/08	08:48:05	13.3067	1906.549	72.367
2023/09/08	08:54:05	13.4067	1905.829	72.394
2023/09/08	09:00:05	13.5067	1905.125	72.408
2023/09/08	09:06:05	13.6067	1904.518	72.428
2023/09/08	09:12:05	13.7067	1903.970	72.446
2023/09/08	09:18:05	13.8067	1903.436	72.460

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2023/09/08	09:24:05	13.9067	1902.941	72.471
2023/09/08	09:30:05	14.0067	1902.506	72.502
2023/09/08	09:36:05	14.1067	1902.076	72.507
2023/09/08	09:42:05	14.2067	1901.683	72.520
2023/09/08	09:48:05	14.3067	1901.274	72.527
2023/09/08	09:54:05	14.4067	1900.911	72.540
2023/09/08	10:00:05	14.5067	1900.573	72.556
2023/09/08	10:06:05	14.6067	1900.240	72.568
2023/09/08	10:12:05	14.7067	1899.938	72.579
2023/09/08	10:18:05	14.8067	1899.637	72.592
2023/09/08	10:24:05	14.9067	1899.336	72.594
2023/09/08	10:30:05	15.0067	1899.091	72.612
2023/09/08	10:36:05	15.1067	1898.799	72.621
2023/09/08	10:42:05	15.2067	1898.555	72.630
2023/09/08	10:48:05	15.3067	1898.305	72.635
2023/09/08	10:54:05	15.4067	1898.083	72.649
2023/09/08	11:00:05	15.5067	1897.837	72.657
2023/09/08	11:06:05	15.6067	1897.592	72.657
2023/09/08	11:12:05	15.7067	1897.418	72.673
2023/09/08	11:18:05	15.8067	1897.213	72.678
2023/09/08	11:24:05	15.9067	1896.998	72.682
2023/09/08	11:30:05	16.0067	1896.808	72.691
2023/09/08	11:36:05	16.1067	1896.617	72.698
2023/09/08	11:42:05	16.2067	1896.435	72.700
2023/09/08	11:48:05	16.3067	1896.253	72.707
2023/09/08	11:54:05	16.4067	1896.052	72.711
2023/09/08	12:00:05	16.5067	1895.912	72.723
2023/09/08	12:06:05	16.6067	1895.732	72.730
2023/09/08	12:12:05	16.7067	1895.566	72.739
2023/09/08	12:18:05	16.8067	1895.424	72.748
2023/09/08	12:24:05	16.9067	1895.275	72.754
2023/09/08	12:30:05	17.0067	1895.117	72.759
2023/09/08	12:36:05	17.1067	1894.956	72.761
2023/09/08	12:42:05	17.2067	1894.810	72.770
2023/09/08	12:48:05	17.3067	1894.677	72.777
2023/09/08	12:54:05	17.4067	1894.522	72.779
2023/09/08	13:00:05	17.5067	1894.407	72.793
2023/09/08	13:06:05	17.6067	1894.288	72.797
2023/09/08	13:12:05	17.7067	1894.155	72.801
2023/09/08	13:18:05	17.8067	1894.005	72.806
2023/09/08	13:24:05	17.9067	1893.885	72.828
2023/09/08	13:30:05	18.0067	1893.773	72.855
2023/09/08	13:36:05	18.1067	1893.656	72.873
2023/09/08	13:42:05	18.2067	1893.538	72.885
2023/09/08	13:48:05	18.3067	1893.422	72.907
2023/09/08	13:54:05	18.4067	1893.306	72.916
2023/09/08	14:00:05	18.5067	1893.178	72.928
2023/09/08	14:06:05	18.6067	1893.078	72.939
2023/09/08	14:12:05	18.7067	1892.971	72.945
2023/09/08	14:18:05	18.8067	1892.858	72.948

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2023/09/08	14:24:05	18.9067	1892.758	72.954
2023/09/08	14:30:05	19.0067	1892.660	72.957
2023/09/08	14:36:05	19.1067	1892.573	72.972
2023/09/08	14:42:05	19.2067	1892.447	72.979
2023/09/08	14:48:05	19.3067	1892.351	72.999
2023/09/08	14:54:05	19.4067	1892.239	72.995
2023/09/08	15:00:05	19.5067	1892.172	73.006
2023/09/08	15:06:05	19.6067	1892.055	73.013
2023/09/08	15:12:05	19.7067	1891.977	73.020
2023/09/08	15:18:05	19.8067	1891.873	73.029
2023/09/08	15:24:05	19.9067	1891.768	73.036
2023/09/08	15:30:05	20.0067	1891.680	73.053
2023/09/08	15:36:05	20.1067	1891.612	73.062
2023/09/08	15:42:05	20.2067	1891.516	73.080
2023/09/08	15:48:05	20.3067	1891.403	73.085
2023/09/08	15:54:05	20.4067	1891.344	73.117
2023/09/08	16:00:05	20.5067	1891.259	73.125
2023/09/08	16:06:05	20.6067	1891.172	73.132
2023/09/08	16:12:05	20.7067	1891.085	73.137
2023/09/08	16:18:05	20.8067	1891.003	73.134
2023/09/08	16:24:05	20.9067	1890.907	73.137
2023/09/08	16:30:05	21.0067	1890.835	73.137
2023/09/08	16:36:05	21.1067	1890.769	73.139
2023/09/08	16:42:05	21.2067	1890.692	73.135
2023/09/08	16:48:05	21.3067	1890.612	73.137
2023/09/08	16:54:05	21.4067	1890.533	73.150
2023/09/08	17:00:05	21.5067	1890.432	73.159
2023/09/08	17:06:05	21.6067	1890.399	73.179
2023/09/08	17:12:05	21.7067	1890.297	73.175
2023/09/08	17:18:05	21.8067	1890.214	73.186
2023/09/08	17:24:05	21.9067	1890.148	73.186
2023/09/08	17:30:05	22.0067	1890.090	73.197
2023/09/08	17:36:05	22.1067	1890.000	73.200
2023/09/08	17:42:05	22.2067	1889.935	73.200
2023/09/08	17:48:05	22.3067	1889.876	73.215
2023/09/08	17:54:05	22.4067	1889.774	73.209
2023/09/08	18:00:05	22.5067	1889.707	73.209
2023/09/08	18:06:05	22.6067	1889.635	73.218
2023/09/08	18:12:05	22.7067	1889.590	73.222
2023/09/08	18:18:05	22.8067	1889.509	73.240
2023/09/08	18:24:05	22.9067	1889.438	73.252
2023/09/08	18:30:05	23.0067	1889.382	73.252
2023/09/08	18:36:05	23.1067	1889.303	73.252
2023/09/08	18:42:05	23.2067	1889.224	73.258
2023/09/08	18:48:05	23.3067	1889.184	73.265
2023/09/08	18:54:05	23.4067	1889.133	73.260
2023/09/08	19:00:05	23.5067	1889.042	73.251
2023/09/08	19:06:05	23.6067	1888.998	73.256
2023/09/08	19:12:05	23.7067	1888.938	73.263
2023/09/08	19:18:05	23.8067	1888.874	73.260

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2023/09/08	19:24:05	23.9067	1888.795	73.249
2023/09/08	19:30:05	24.0067	1888.718	73.245
2023/09/08	19:36:05	24.1067	1888.660	73.242
2023/09/08	19:42:05	24.2067	1888.594	73.254
2023/09/08	19:48:05	24.3067	1888.541	73.270
2023/09/08	19:54:05	24.4067	1888.475	73.281
2023/09/08	20:00:05	24.5067	1888.432	73.292
2023/09/08	20:06:05	24.6067	1888.369	73.294
2023/09/08	20:12:05	24.7067	1888.297	73.292
2023/09/08	20:18:05	24.8067	1888.268	73.301
2023/09/08	20:24:05	24.9067	1888.199	73.297
2023/09/08	20:30:05	25.0067	1888.150	73.292
2023/09/08	20:36:05	25.1067	1888.074	73.285
2023/09/08	20:42:05	25.2067	1888.033	73.292
2023/09/08	20:48:05	25.3067	1887.963	73.292
2023/09/08	20:54:05	25.4067	1887.906	73.290
2023/09/08	21:00:05	25.5067	1887.845	73.301
2023/09/08	21:06:05	25.6067	1887.803	73.306
2023/09/08	21:12:05	25.7067	1887.747	73.324
2023/09/08	21:18:05	25.8067	1887.691	73.330
2023/09/08	21:24:05	25.9067	1887.640	73.333
2023/09/08	21:30:05	26.0067	1887.574	73.333
2023/09/08	21:36:05	26.1067	1887.534	73.344
2023/09/08	21:42:05	26.2067	1887.488	73.359
2023/09/08	21:48:05	26.3067	1887.417	73.344
2023/09/08	21:54:05	26.4067	1887.372	73.342
2023/09/08	22:00:05	26.5067	1887.326	73.337
2023/09/08	22:06:05	26.6067	1887.293	73.350
2023/09/08	22:12:05	26.7067	1887.221	73.344
2023/09/08	22:18:05	26.8067	1887.201	73.357
2023/09/08	22:24:05	26.9067	1887.120	73.353
2023/09/08	22:30:05	27.0067	1887.066	73.357
2023/09/08	22:36:05	27.1067	1887.039	73.353
2023/09/08	22:42:05	27.2067	1886.968	73.357
2023/09/08	22:48:05	27.3067	1886.909	73.359
2023/09/08	22:54:05	27.4067	1886.865	73.371
2023/09/08	23:00:05	27.5067	1886.802	73.366
2023/09/08	23:06:05	27.6067	1886.774	73.378
2023/09/08	23:12:05	27.7067	1886.735	73.386
2023/09/08	23:18:05	27.8067	1886.658	73.380
2023/09/08	23:24:05	27.9067	1886.616	73.380
2023/09/08	23:30:05	28.0067	1886.574	73.382
2023/09/08	23:36:05	28.1067	1886.523	73.389
2023/09/08	23:42:05	28.2067	1886.472	73.395
2023/09/08	23:48:05	28.3067	1886.430	73.402
2023/09/08	23:54:05	28.4067	1886.354	73.405
2023/09/09	00:00:05	28.5067	1886.331	73.416
2023/09/09	00:06:05	28.6067	1886.271	73.420
2023/09/09	00:12:05	28.7067	1886.234	73.423
2023/09/09	00:18:05	28.8067	1886.178	73.425

Company Name Republic Services
Well Name EGT No1-12
Type of Test Injection/Fall-Off
Date(s) of Test September 07, 2023 thru September 09, 2023

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2023/09/09	00:24:05	28.9067	1886.129	73.422
2023/09/09	00:30:05	29.0067	1886.091	73.427
2023/09/09	00:36:05	29.1067	1886.022	73.425
2023/09/09	00:42:05	29.2067	1885.970	73.422
2023/09/09	00:48:05	29.3067	1885.920	73.411
2023/09/09	00:54:05	29.4067	1885.900	73.420
2023/09/09	01:00:05	29.5067	1885.831	73.413
2023/09/09	01:06:05	29.6067	1885.802	73.422
2023/09/09	01:12:05	29.7067	1885.742	73.420
2023/09/09	01:18:05	29.8067	1885.680	73.423
2023/09/09	01:24:05	29.9067	1885.646	73.431
2023/09/09	01:30:05	30.0067	1885.590	73.431
2023/09/09	01:36:05	30.1067	1885.536	73.432
2023/09/09	01:42:05	30.2067	1885.475	73.436
2023/09/09	01:48:05	30.3067	1885.438	73.425
2023/09/09	01:54:05	30.4067	1885.399	73.431
2023/09/09	02:00:05	30.5067	1885.335	73.432
2023/09/09	02:06:05	30.6067	1885.304	73.459
2023/09/09	02:12:05	30.7067	1885.240	73.467
2023/09/09	02:18:05	30.8067	1885.198	73.470
2023/09/09	02:24:05	30.9067	1885.150	73.470
2023/09/09	02:30:05	31.0067	1885.119	73.479
2023/09/09	02:36:05	31.1067	1885.062	73.477
2023/09/09	02:42:05	31.2067	1885.024	73.481
2023/09/09	02:48:05	31.3067	1884.964	73.472
2023/09/09	02:54:05	31.4067	1884.910	73.463
2023/09/09	03:00:05	31.5067	1884.856	73.458
2023/09/09	03:06:05	31.6067	1884.801	73.450
2023/09/09	03:12:05	31.7067	1884.750	73.443
2023/09/09	03:18:05	31.8067	1884.725	73.454
2023/09/09	03:24:05	31.9067	1884.682	73.452
2023/09/09	03:30:05	32.0067	1884.606	73.450
2023/09/09	03:36:05	32.1067	1884.575	73.456
2023/09/09	03:42:05	32.2067	1884.522	73.456
2023/09/09	03:48:05	32.3067	1884.498	73.450
2023/09/09	03:54:05	32.4067	1884.435	73.458
2023/09/09	04:00:05	32.5067	1884.395	73.465
2023/09/09	04:06:05	32.6067	1884.333	73.465
2023/09/09	04:12:05	32.7067	1884.296	73.490
2023/09/09	04:18:05	32.8067	1884.236	73.497
2023/09/09	04:24:05	32.9067	1884.189	73.501
2023/09/09	04:30:05	33.0067	1884.151	73.495
2023/09/09	04:36:05	33.1067	1884.094	73.490
2023/09/09	04:42:05	33.2067	1884.060	73.488
2023/09/09	04:48:05	33.3067	1883.994	73.485
2023/09/09	04:54:05	33.4067	1883.958	73.497
2023/09/09	05:00:05	33.5067	1883.906	73.494
2023/09/09	05:06:05	33.6067	1883.860	73.497
2023/09/09	05:12:05	33.7067	1883.810	73.512
2023/09/09	05:18:05	33.8067	1883.772	73.512
2023/09/09	05:24:05	33.9067	1883.748	73.513
2023/09/09	05:30:05	34.0067	1883.669	73.501
2023/09/09	05:36:05	34.1067	1883.621	73.497
2023/09/09	05:42:05	34.2067	1883.567	73.492
2023/09/09	05:48:05	34.3067	1883.527	73.495
2023/09/09	05:54:05	34.4067	1883.488	73.497
2023/09/09	06:00:05	34.5067	1883.428	73.488
2023/09/09	06:06:05	34.6067	1883.387	73.483
2023/09/09	06:12:05	34.7067	1883.338	73.492
2023/09/09	06:18:05	34.8067	1883.308	73.508
2023/09/09	06:24:05	34.9067	1883.240	73.513
2023/09/09	06:30:05	35.0067	1883.206	73.524
2023/09/09	06:36:05	35.1067	1883.154	73.528
2023/09/09	06:42:05	35.2067	1883.123	73.526
2023/09/09	06:48:05	35.3067	1883.066	73.526
2023/09/09	06:54:05	35.4067	1883.023	73.528
POOH Gradient: 4080.000 ft				
2023/09/09	07:00:02	35.5058	1882.981	73.524
End of Fall-Off Test.				
2023/09/09	07:00:05	35.5067	1882.981	73.522
Prepare to P.O.O.H. with gauges				
2023/09/09	07:00:08	35.5075	1882.987	73.526
P.O.O.H. making gradient stops				
2023/09/09	07:03:53	35.5700	1882.963	73.539
Stop at 4000 feet				
2023/09/09	07:04:38	35.5825	1848.179	74.210
2023/09/09	07:06:05	35.6067	1847.517	76.600
POOH Gradient: 4000.000 ft				
2023/09/09	07:09:35	35.6650	1848.035	77.860
2023/09/09	07:12:05	35.7067	1690.427	78.292
Stop at 3000 feet				
2023/09/09	07:14:56	35.7542	1423.203	74.455
2023/09/09	07:18:05	35.8067	1423.123	73.069
POOH Gradient: 3000.000 ft				
2023/09/09	07:19:59	35.8383	1423.099	72.849
2023/09/09	07:24:05	35.9067	1018.476	65.277
Stop at 2000 feet				
2023/09/09	07:24:32	35.9142	1011.575	64.441
POOH Gradient: 2000.000 ft				
2023/09/09	07:29:29	35.9967	1011.217	63.127
2023/09/09	07:30:05	36.0067	995.349	63.082
Stop at 1000 feet				
2023/09/09	07:32:50	36.0525	579.141	60.332
2023/09/09	07:36:05	36.1067	579.267	59.353
POOH Gradient: 1000.000 ft				
2023/09/09	07:37:59	36.1383	579.237	59.256
2023/09/09	07:42:05	36.2067	178.819	58.316
Stop in lubricator				
2023/09/09	07:43:50	36.2358	145.145	62.296
2023/09/09	07:48:05	36.3067	145.291	62.265

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
POOH Gradient: 0.000 ft				
2023/09/09	07:48:50	36.3192	145.300	62.233
Bleed-Off Lubricator				
2023/09/09	07:52:47	36.3850	145.752	62.152
2023/09/09	07:54:05	36.4067	1.464	62.098
2023/09/09	08:00:05	36.5067	1.487	62.112
2023/09/09	08:06:05	36.6067	1.467	62.062
2023/09/09	08:12:05	36.7067	1.554	62.218
2023/09/09	08:18:05	36.8067	1.477	62.503
2023/09/09	08:24:05	36.9067	1.509	62.739

APPENDIX J

EPA PRESSURE FALLOFF TEST FORM

BACKGROUND INFORMATION FOR ANALYSIS OF PRESSURE FALL-OFF TEST

FACILITY NAME		OPERATOR	
Republic Industrial and Energy Solutions, LLC		Republic Industrial and Energy Solutions, LLC	
WELL NAME		USEPA PERMIT NUMBER	STATE PERMIT NUMBER
#1-12		MI-163-1W-C0010	M-452
TEST START DATE	TEST END DATE	Depth Reference:	
September 8, 2023	September 9, 2023	Kelly Bushing □ ✔	Ground Level □ ✔

GEOLOGICAL DATA

POROSITY, decimal	NET PERMEABLE THICKNESS, ft.	VISCOSITY, cp.	COMPRESSIBILITY, per psi
0.11	133	1.34	6.20E-006

WELL AND OPERATION DATA

LONGSTRING CASING DIAMETER, ins	FINAL PRETEST FLOW RATE, gpm	INJECTATE TEMPERATURE, deg.F	KB ELEVATION, ft
7	50	65.5	626.6
OPEN HOLE DIAMTER, ins	PRETEST FLOW TIME, hrs. **SEE BELOW**	SPECIFIC GRAVITY OF TEST FLUID	TEST DEPTH FOR COMPARISON, ft
8.75	11.3	1	
GAUGE DEPTH, ft		CUMULATIVE VOLUME INJECTED SINCE LAST PRESSURE EQUALIZATION,	
12		4041.3	

TEST DATA

GAUGE CALIBRATION DATE			
April 21,2023			
FLOW RATE, gpm	PRESSURE AT BEGINNING OF FALL-OFF, p	PRESSURE AT END OF FALL-OFF, ps	TO SUPPORT FULL COLUMN, psi
50	Jeffry Tahtouh	4647	0 CPS
TEST LENGTH, hrs.	INITIAL GRADIENT, psi/ft.	FINAL GRADIENT, psi/ft.	FINAL FLUID LEVEL, ft.
23.3		0.439	0

REMEMBER

"Pre-test flow time" is the time since the reservoir was last in equilibrium. This may be the time since the well was last shut-in but only if the well was shut-in long enough for the pressure in the reservoir to approach equilibrium pressure.

1. Please fill in the above cells.
2. Injection of normal injectate at normal rate is preferred.
3. Submit an up-to-date well schematic.
4. The well should be shut-in as quickly as possible.
5. Data should be collected at the maximum rate for at least the first five minutes; between five and thirty minutes at no less than one reading every 30 seconds. After thirty minutes, the operator can reduce frequency as required.
6. The pressure gauge should have been calibrated no more than a year prior to the test. Submit a copy of the calibration certificate for the gauge used for pressure measurements with your report.
7. The report on the test must explain any anomalies shown in the results.
8. Submit digital logging data on a CD in .las or .asc format.

APPENDIX K

STATIC PRESSURE GRADIENT SURVEY (ABRIDGED)

Static Pressure Gradient Survey Data

Well Name: Well 1-12
Operating Company: Republic Industrial and Energy Solutions, LLC
Well Location: Romulus, MI
Wireline Company: J.O. Well Service & Testing, Inc.
Downhole Data Recorder: MRO 2 Serial No. 91874

Job Number: 192128AP
WSP Rep.: Jeffry Tahtouh
Data Start: 9/9/23 07:03:05
Data End: 9/9/23 07:48:50
Data Interval (secs): 15

Date/Time	Pressure, psig	Temperature, °F	Date/Time	Pressure, psig	Temperature, °F	Date/Time	Pressure, psig	Temperature, °F
9/9/23 07:03:05	1882.966	73.532	9/9/23 07:19:20	1423.082	72.909	9/9/23 07:35:35	579.255	59.400
9/9/23 07:03:20	1882.944	73.528	9/9/23 07:19:35	1423.129	72.884	9/9/23 07:35:50	579.277	59.373
9/9/23 07:03:35	1882.967	73.534	9/9/23 07:19:50	1423.115	72.866	9/9/23 07:36:05	579.267	59.352
9/9/23 07:03:50	1882.951	73.531	9/9/23 07:20:05	1423.093	72.839	9/9/23 07:36:20	579.262	59.339
9/9/23 07:04:05	1879.436	73.532	9/9/23 07:20:20	1423.076	72.817	9/9/23 07:36:35	579.257	59.326
9/9/23 07:04:20	1864.807	73.586	9/9/23 07:20:35	1423.095	72.794	9/9/23 07:36:50	579.256	59.312
9/9/23 07:04:35	1849.586	74.061	9/9/23 07:20:50	1410.007	72.791	9/9/23 07:37:05	579.246	59.297
9/9/23 07:04:50	1847.720	74.825	9/9/23 07:21:05	1381.767	72.664	9/9/23 07:37:20	579.246	59.291
9/9/23 07:05:05	1847.421	75.422	9/9/23 07:21:20	1354.266	72.369	9/9/23 07:37:35	579.244	59.271
9/9/23 07:05:20	1847.417	75.844	9/9/23 07:21:35	1325.178	71.915	9/9/23 07:37:50	579.249	59.265
9/9/23 07:05:35	1847.437	76.165	9/9/23 07:21:50	1293.849	71.357	9/9/23 07:38:05	579.245	59.254
9/9/23 07:05:50	1847.485	76.406	9/9/23 07:22:05	1262.489	70.727	9/9/23 07:38:20	579.258	59.243
9/9/23 07:06:05	1847.517	76.600	9/9/23 07:22:20	1233.027	70.080	9/9/23 07:38:35	565.961	59.234
9/9/23 07:06:20	1847.705	76.777	9/9/23 07:22:35	1203.347	69.431	9/9/23 07:38:50	542.479	59.173
9/9/23 07:06:35	1847.753	76.924	9/9/23 07:22:50	1173.290	68.772	9/9/23 07:39:05	511.376	59.131
9/9/23 07:06:50	1847.776	77.052	9/9/23 07:23:05	1141.807	68.055	9/9/23 07:39:20	478.822	59.139
9/9/23 07:07:05	1847.906	77.160	9/9/23 07:23:20	1109.243	67.362	9/9/23 07:39:35	445.796	59.041
9/9/23 07:07:20	1847.901	77.265	9/9/23 07:23:35	1076.064	66.614	9/9/23 07:39:50	413.761	58.891
9/9/23 07:07:35	1847.883	77.356	9/9/23 07:23:50	1043.027	65.899	9/9/23 07:40:05	382.731	58.687
9/9/23 07:07:50	1847.884	77.438	9/9/23 07:24:05	1018.476	65.276	9/9/23 07:40:20	351.652	58.437
9/9/23 07:08:05	1847.947	77.514	9/9/23 07:24:20	1011.022	64.750	9/9/23 07:40:35	320.303	58.129
9/9/23 07:08:20	1847.939	77.585	9/9/23 07:24:35	1011.498	64.374	9/9/23 07:40:50	288.031	57.941
9/9/23 07:08:35	1848.002	77.648	9/9/23 07:24:50	1011.459	64.108	9/9/23 07:41:05	256.863	57.933
9/9/23 07:08:50	1848.061	77.713	9/9/23 07:25:05	1011.405	63.920	9/9/23 07:41:20	234.592	57.892
9/9/23 07:09:05	1848.021	77.763	9/9/23 07:25:20	1011.488	63.782	9/9/23 07:41:35	213.123	57.870
9/9/23 07:09:20	1847.990	77.812	9/9/23 07:25:35	1011.373	63.676	9/9/23 07:41:50	192.059	57.978
9/9/23 07:09:35	1848.035	77.860	9/9/23 07:25:50	1011.377	63.590	9/9/23 07:42:05	178.819	58.316
9/9/23 07:09:50	1848.032	77.903	9/9/23 07:26:05	1011.316	63.523	9/9/23 07:42:20	167.853	58.956
9/9/23 07:10:05	1848.002	77.942	9/9/23 07:26:20	1011.270	63.468	9/9/23 07:42:35	159.903	59.642
9/9/23 07:10:20	1848.044	77.983	9/9/23 07:26:35	1011.264	63.426	9/9/23 07:42:50	153.759	60.349
9/9/23 07:10:35	1843.908	78.013	9/9/23 07:26:50	1011.243	63.389	9/9/23 07:43:05	149.352	61.153
9/9/23 07:10:50	1830.444	78.099	9/9/23 07:27:05	1011.241	63.344	9/9/23 07:43:20	146.251	61.820
9/9/23 07:11:05	1808.126	78.221	9/9/23 07:27:20	1011.238	63.315	9/9/23 07:43:35	145.168	62.166
9/9/23 07:11:20	1779.559	78.306	9/9/23 07:27:35	1011.239	63.292	9/9/23 07:43:50	145.145	62.296
9/9/23 07:11:35	1750.744	78.328	9/9/23 07:27:50	1011.226	63.265	9/9/23 07:44:05	145.147	62.358
9/9/23 07:11:50	1720.881	78.340	9/9/23 07:28:05	1011.220	63.240	9/9/23 07:44:20	145.166	62.386
9/9/23 07:12:05	1690.427	78.292	9/9/23 07:28:20	1011.211	63.216	9/9/23 07:44:35	145.183	62.396
9/9/23 07:12:20	1667.328	78.137	9/9/23 07:28:35	1011.205	63.195	9/9/23 07:44:50	145.199	62.399
9/9/23 07:12:35	1643.836	77.884	9/9/23 07:28:50	1011.206	63.175	9/9/23 07:45:05	145.219	62.392
9/9/23 07:12:50	1619.055	77.576	9/9/23 07:29:05	1011.241	63.161	9/9/23 07:45:20	145.238	62.385
9/9/23 07:13:05	1592.293	77.231	9/9/23 07:29:20	1011.222	63.142	9/9/23 07:45:35	145.245	62.370
9/9/23 07:13:20	1563.301	76.858	9/9/23 07:29:35	1011.223	63.126	9/9/23 07:45:50	145.264	62.362
9/9/23 07:13:35	1534.594	76.475	9/9/23 07:29:50	1011.219	63.107	9/9/23 07:46:05	145.264	62.361
9/9/23 07:13:50	1505.354	76.095	9/9/23 07:30:05	995.349	63.082	9/9/23 07:46:20	145.270	62.341
9/9/23 07:14:05	1475.459	75.750	9/9/23 07:30:20	962.328	63.022	9/9/23 07:46:35	145.281	62.331
9/9/23 07:14:20	1450.877	75.388	9/9/23 07:30:35	926.267	62.967	9/9/23 07:46:50	145.276	62.321
9/9/23 07:14:35	1430.306	75.020	9/9/23 07:30:50	887.496	62.806	9/9/23 07:47:05	145.279	62.306
9/9/23 07:14:50	1423.363	74.612	9/9/23 07:31:05	846.999	62.558	9/9/23 07:47:20	145.282	62.290
9/9/23 07:15:05	1423.356	74.263	9/9/23 07:31:20	805.136	62.276	9/9/23 07:47:35	145.281	62.288
9/9/23 07:15:20	1423.330	74.008	9/9/23 07:31:35	763.229	62.016	9/9/23 07:47:50	145.279	62.269
9/9/23 07:15:35	1423.413	73.823	9/9/23 07:31:50	721.603	61.818	9/9/23 07:48:05	145.291	62.265
9/9/23 07:15:50	1423.322	73.681	9/9/23 07:32:05	678.895	61.495	9/9/23 07:48:20	145.298	62.251
9/9/23 07:16:05	1423.289	73.566	9/9/23 07:32:20	635.093	61.104	9/9/23 07:48:35	145.305	62.244
9/9/23 07:16:20	1423.271	73.466	9/9/23 07:32:35	595.676	60.696	9/9/23 07:48:50	145.300	62.233
9/9/23 07:16:35	1423.185	73.389	9/9/23 07:32:50	579.141	60.333			
9/9/23 07:16:50	1423.216	73.321	9/9/23 07:33:05	579.120	60.060			
9/9/23 07:17:05	1423.219	73.258	9/9/23 07:33:20	579.228	59.878			
9/9/23 07:17:20	1423.161	73.200	9/9/23 07:33:35	579.192	59.752			
9/9/23 07:17:35	1423.237	73.155	9/9/23 07:33:50	579.186	59.665			
9/9/23 07:17:50	1423.164	73.111	9/9/23 07:34:05	579.253	59.602			
9/9/23 07:18:05	1423.123	73.070	9/9/23 07:34:20	579.224	59.541			
9/9/23 07:18:20	1423.193	73.032	9/9/23 07:34:35	579.213	59.500			
9/9/23 07:18:35	1423.140	72.996	9/9/23 07:34:50	579.258	59.465			
9/9/23 07:18:50	1423.132	72.972	9/9/23 07:35:05	579.254	59.435			
9/9/23 07:19:05	1423.097	72.940	9/9/23 07:35:20	579.256	59.415			

EXHIBITS

michigan wireline services

NUCLEAR TRACER LOG

Company	REPUBLIC SERVICES
Well	EDS #1-12
Field	ROMULUS STORAGE
County	WAYNE
State	MICHIGAN

Location: API 21-163-M452

1670' FSL & 2372' FEL

SEC 12 TWP 3S RGE 9E

Other Services

Permanent Datum	GROUND LEVEL	Elevation	626'
Log Measured From	KELLY BUSHING		
Drilling Measured From	KELLY BUSHING		

Elevation

K.B. 639'
D.F. 638'
G.L. 626'

Date	9/05/2023
Run Number	ONE
Depth Driller	4645'
Depth Logger	4486'
Bottom Logged Interval	4486'
Top Log Interval	3000'
Packer Depth	
Type Fluid	FRESH WATER
Fluid Level	N/A
Max. Recorded Temp.	N/A
Estimated Cement Top	N/A
Time Well Ready	12:00 PM
Time Logger on Bottom	12:47 PM
Equipment Number	#117
Location	MT. PLEASANT
Recorded By	J.PIFER
Witnessed By	JEFFRY TAHTOUH

Tubing Liner Record			
SIZE	Weight	From	To
4 1/2"	F.G	SURFACE	4041'

Casing Record			
SIZE	Weight	From	To
20"	94#	SURFACE	119'
13 3/8"	48#	SURFACE	396'
9 5/8"	36#	SURFACE	824'
7"	26#	SURFACE	4080'

<<< Fold Here >>>

Comments

THIS LOG IS CORRELATED TO MICHIGAN WIRELINE
NUCLEAR TRACER LOG DATED
08/17/2022

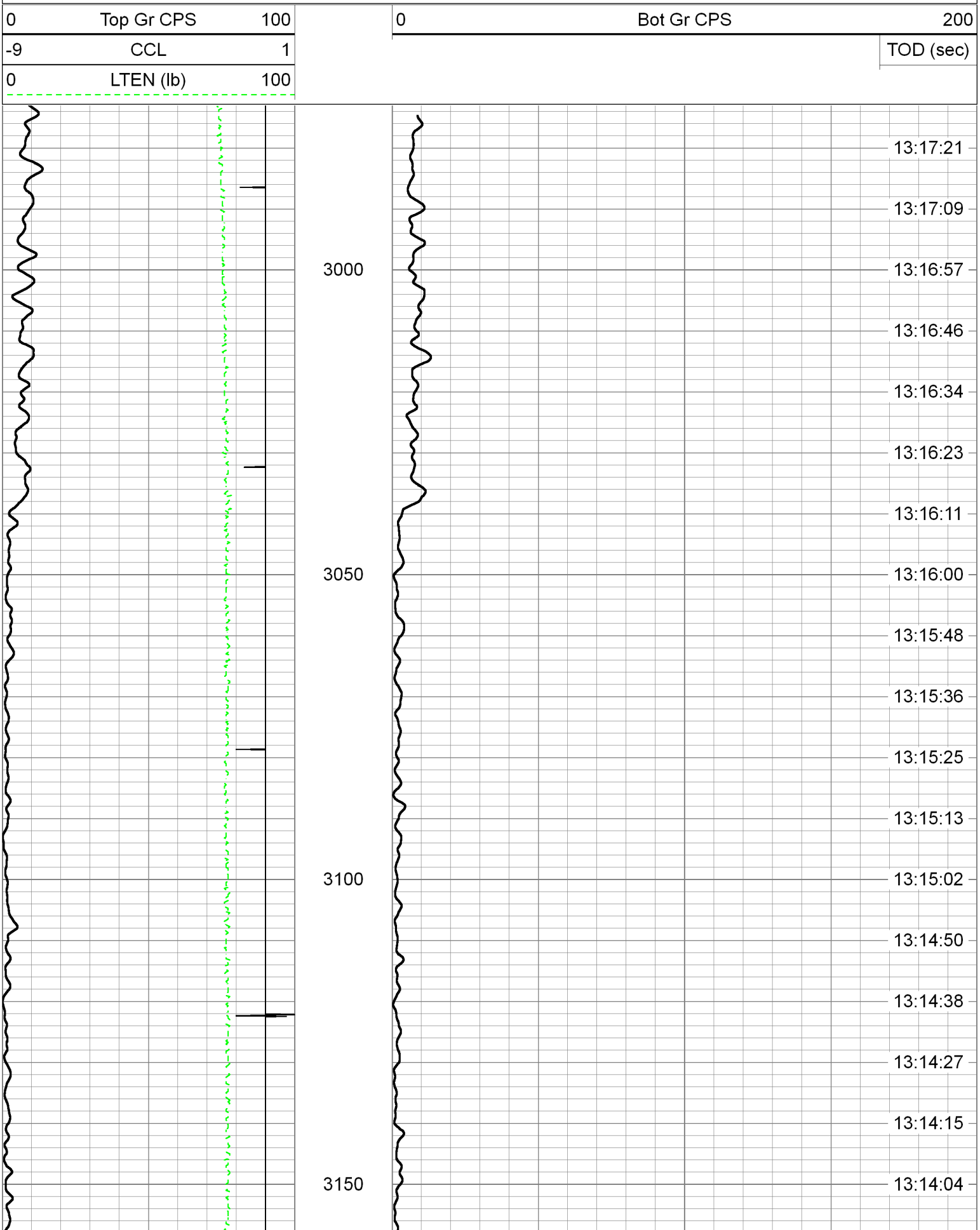
2" COLLAR
BOWEN
4 SECOND EJECTION.

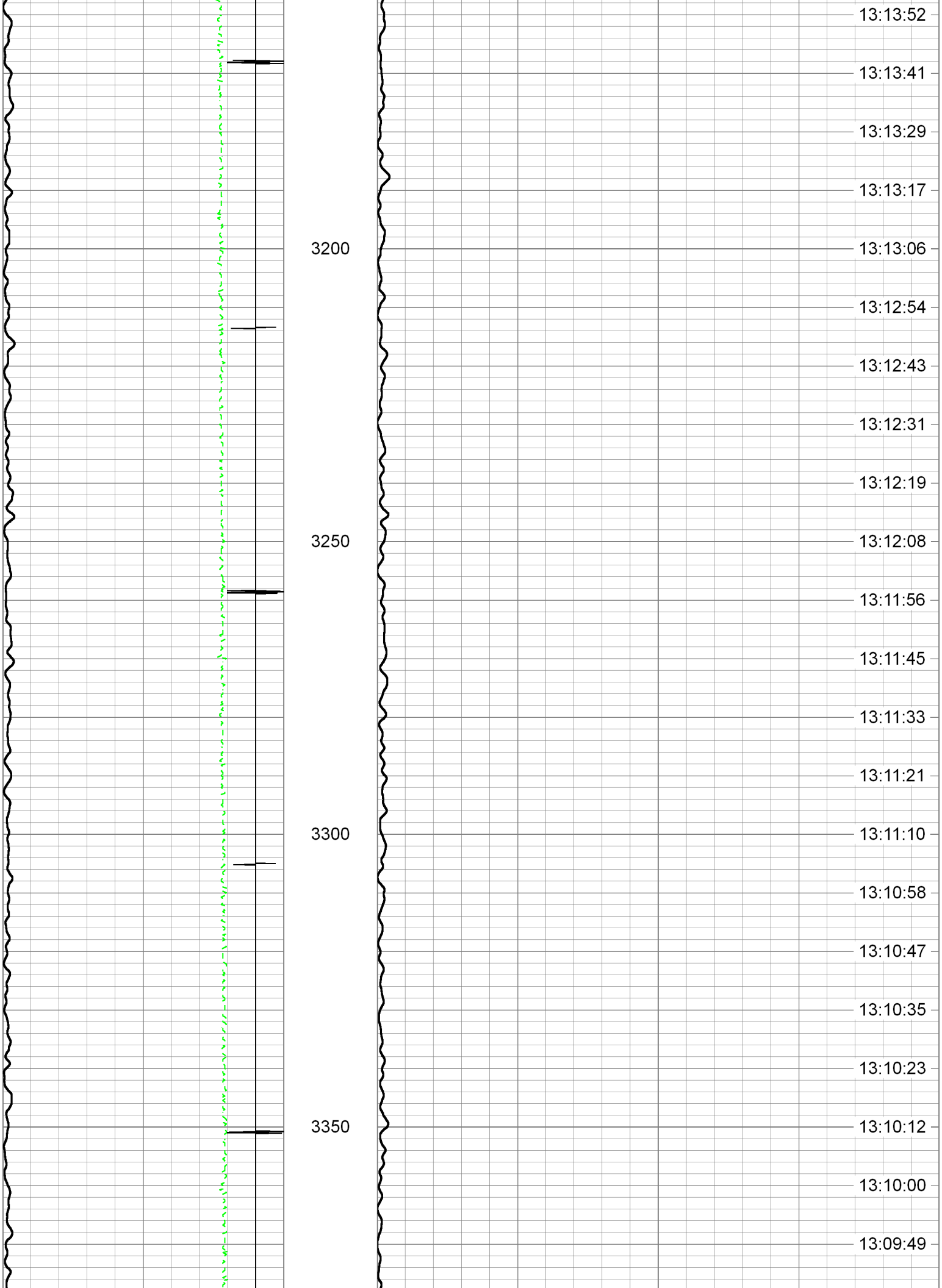
THANK YOU FOR USING MICHIGAN WIRELINE

BASE PASS

michigan wireline services

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	BASE
Presentation Format	tracermwl
Dataset Creation	Tue Sep 05 12:46:59 2023
Charted by	Depth in Feet scaled 1:240

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13:11:33
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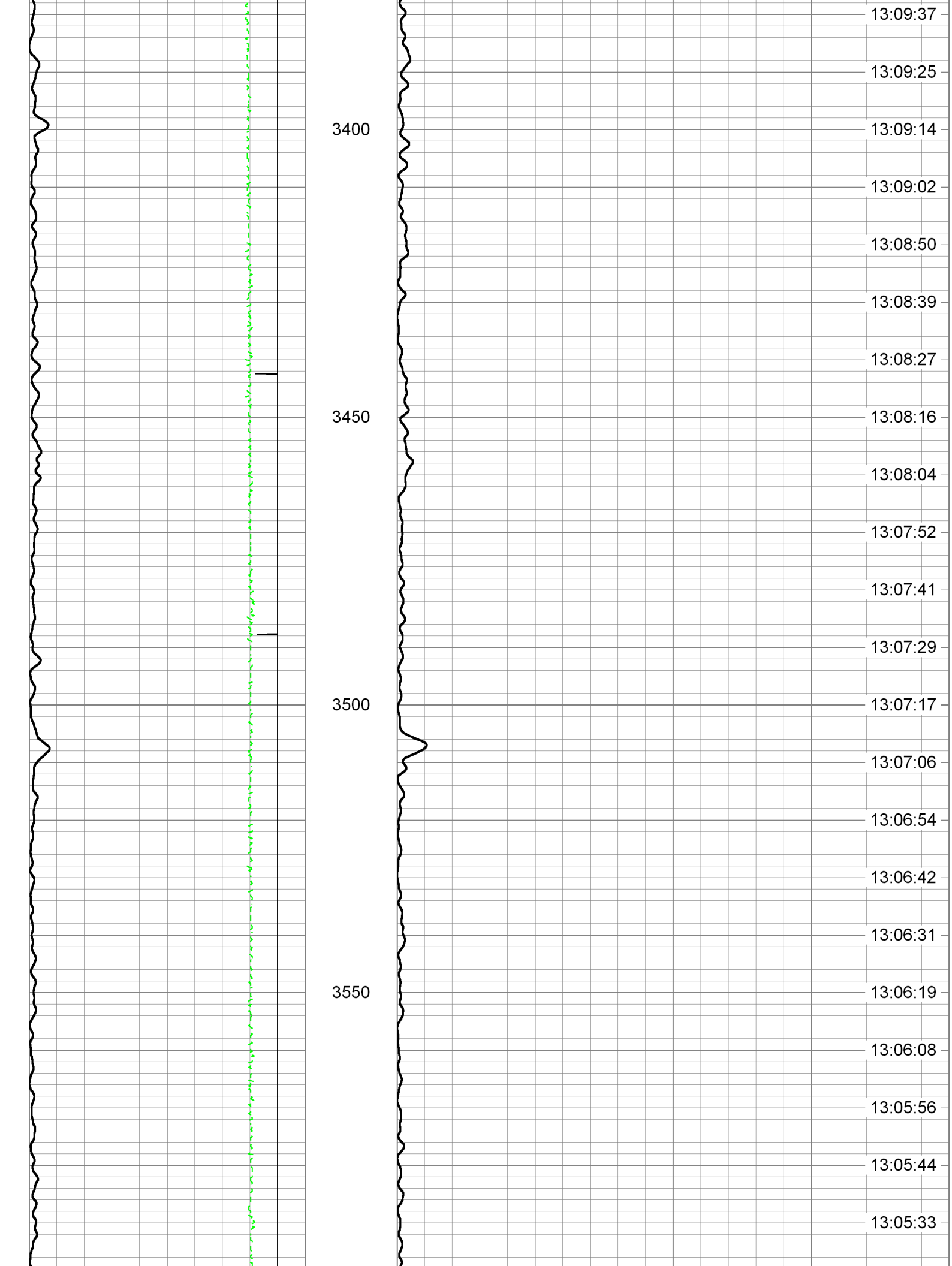
13:10:12
13:10:00
13:09:49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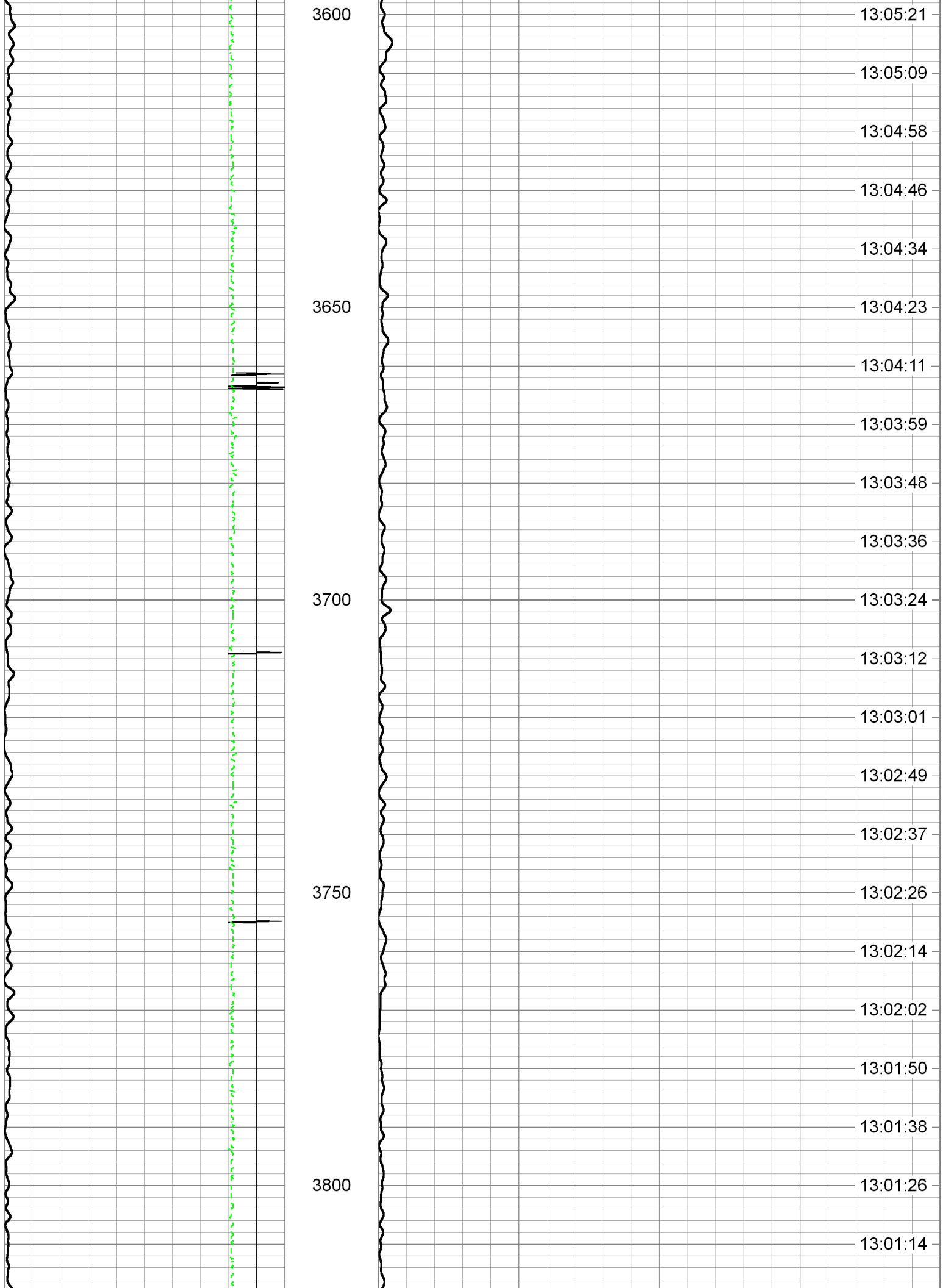
13:06:08
13:05:56
13:05:44
13:05:33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13:04:11
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13:03:48
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13:03:24
13:03:12
13:03:01
13:02:49
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13:02:26
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13:02:02
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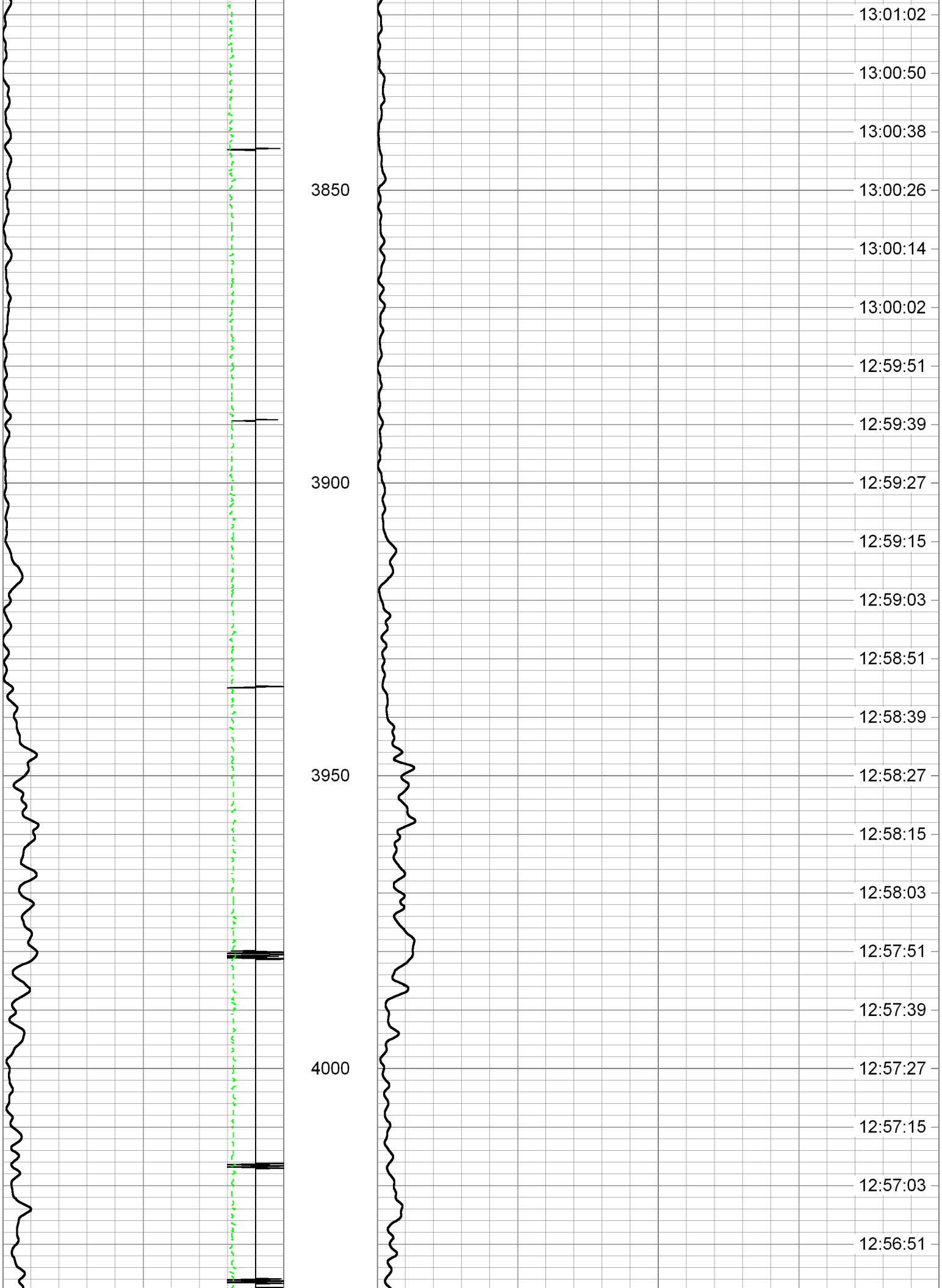
13:01:14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3900
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4000
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13:00:50
13:00:38
13:00:26
13:00:14
13:00:02
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12:59:39
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12:59:15
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12:58:39
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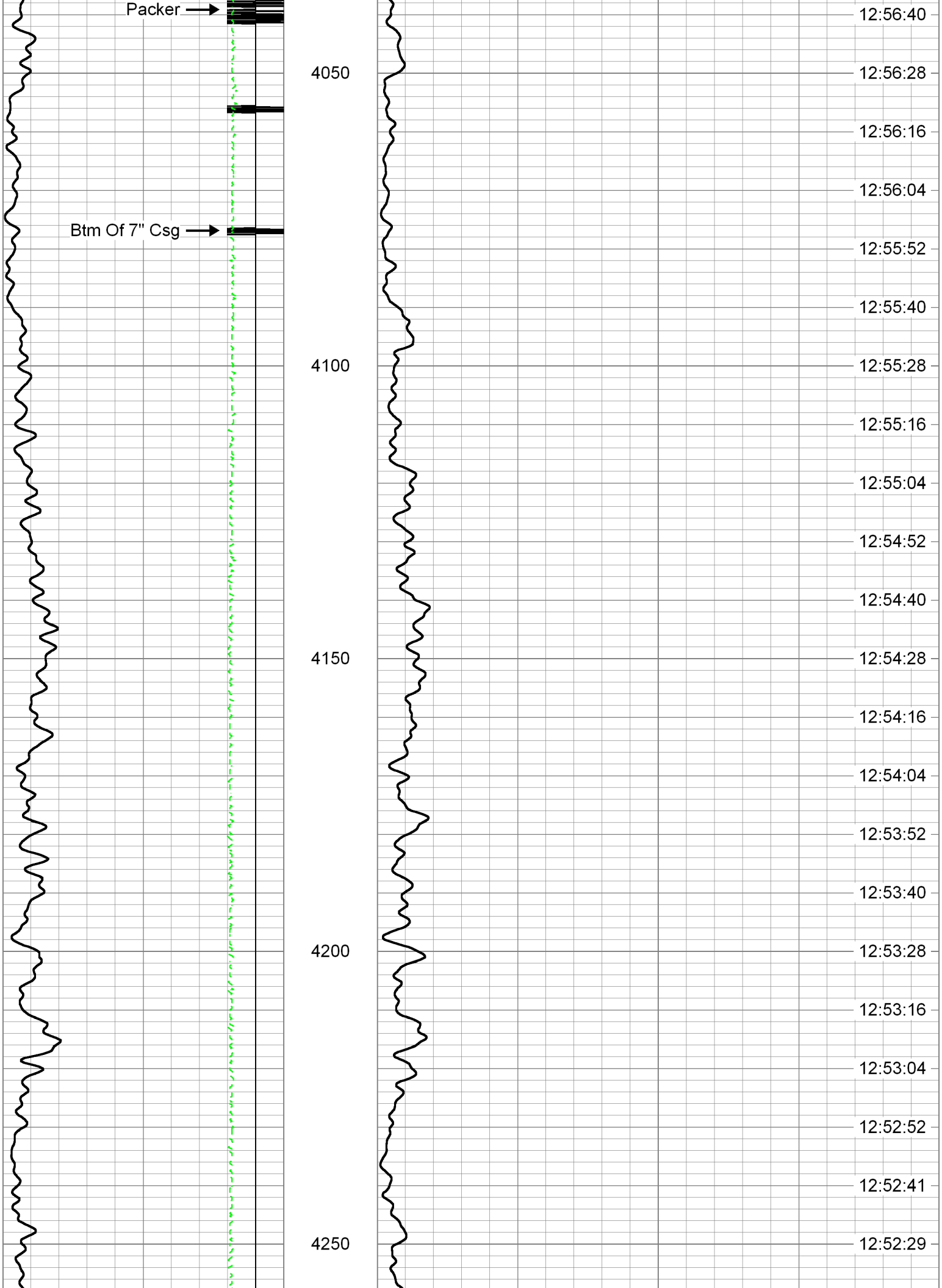
12:57:03
12:56:51


Packer
Btm Of 7" Csg
4050
4100
4150
4200
4250
12:56:40
12:56:28
12:56:16
12:56:04
12:55:52
12:55:40
12:55:28
12:55:16
12:55:04
12:54:52
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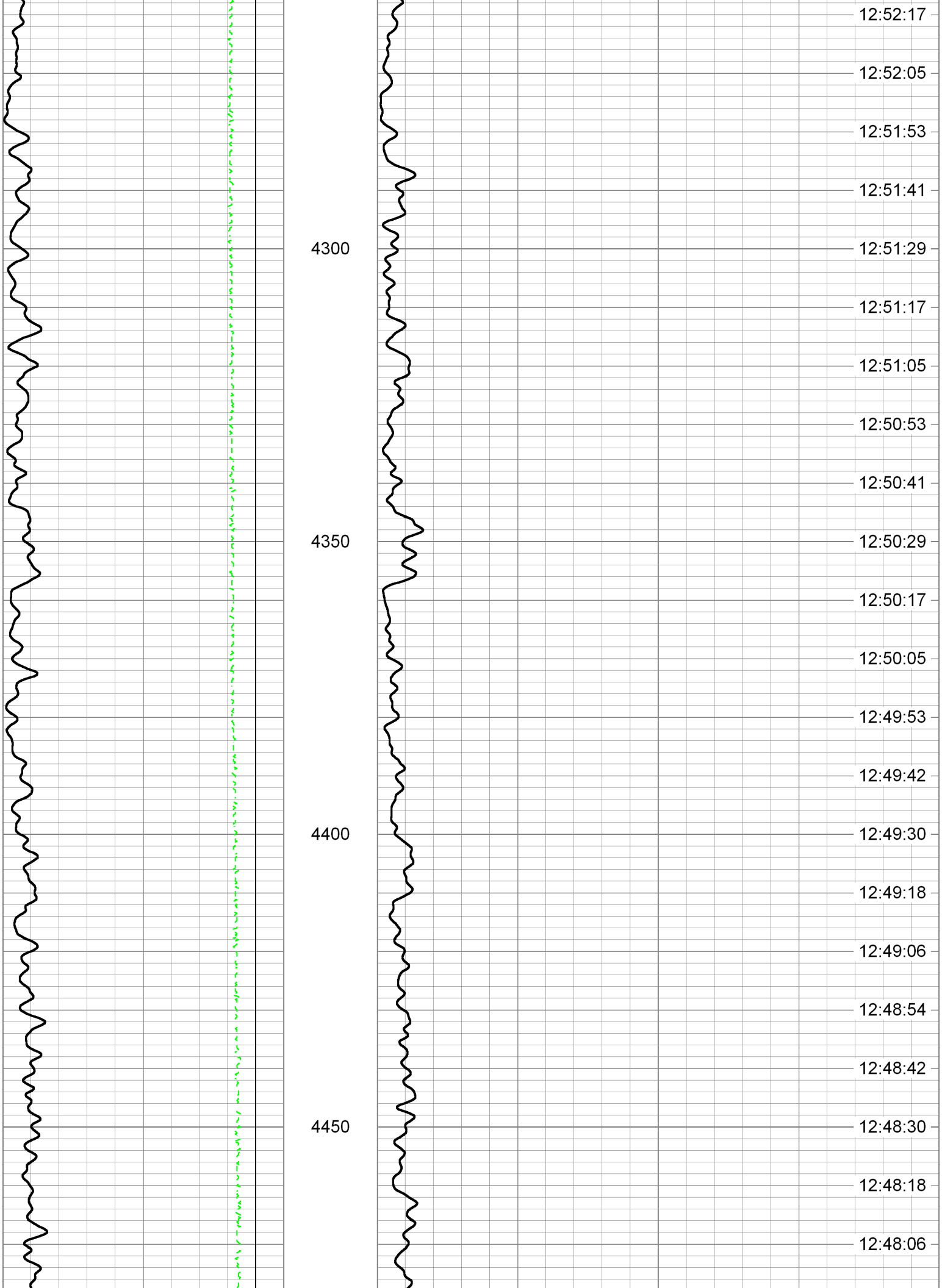
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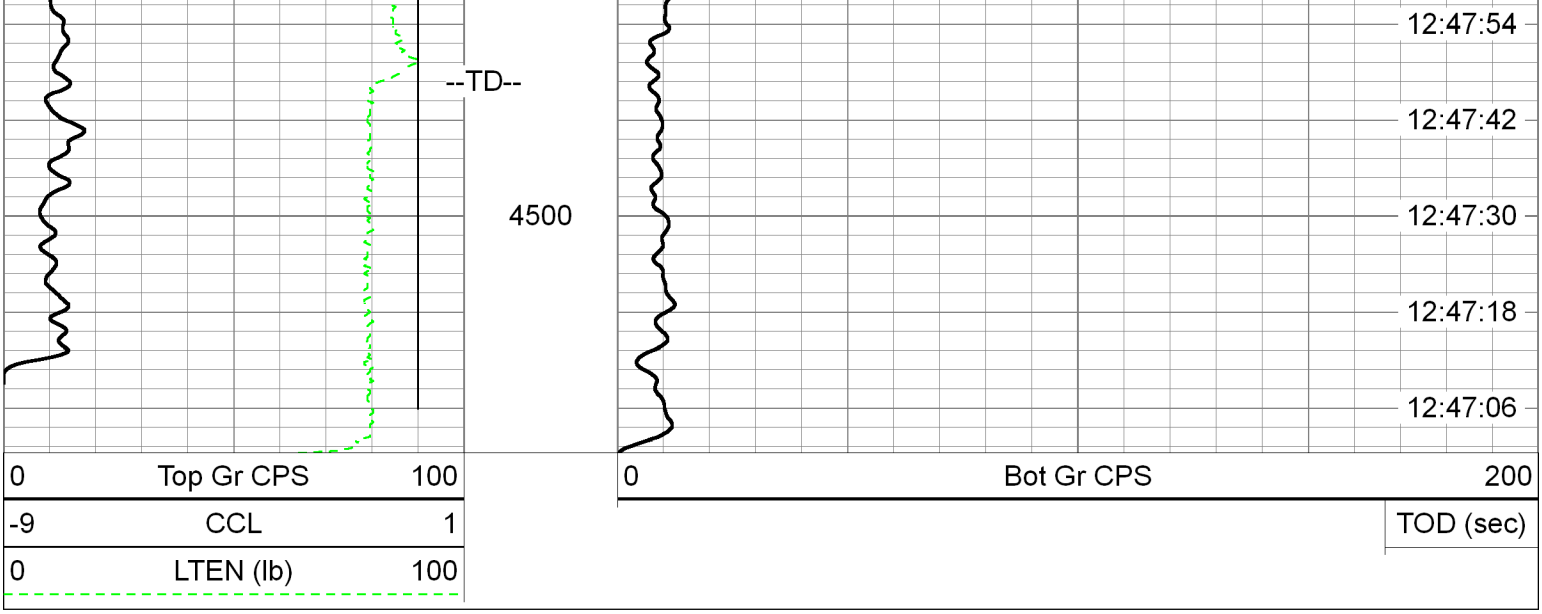
12:48:06



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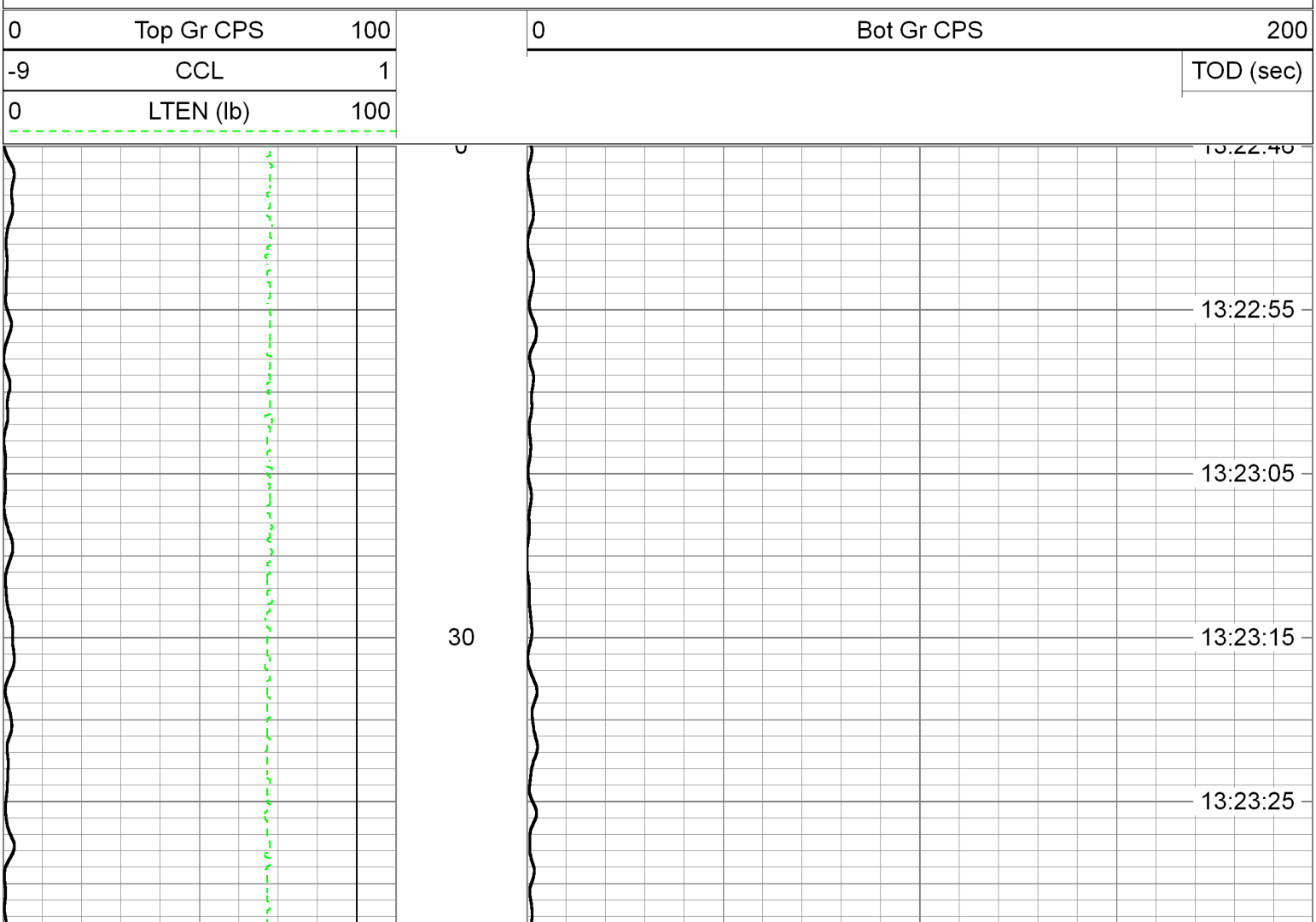
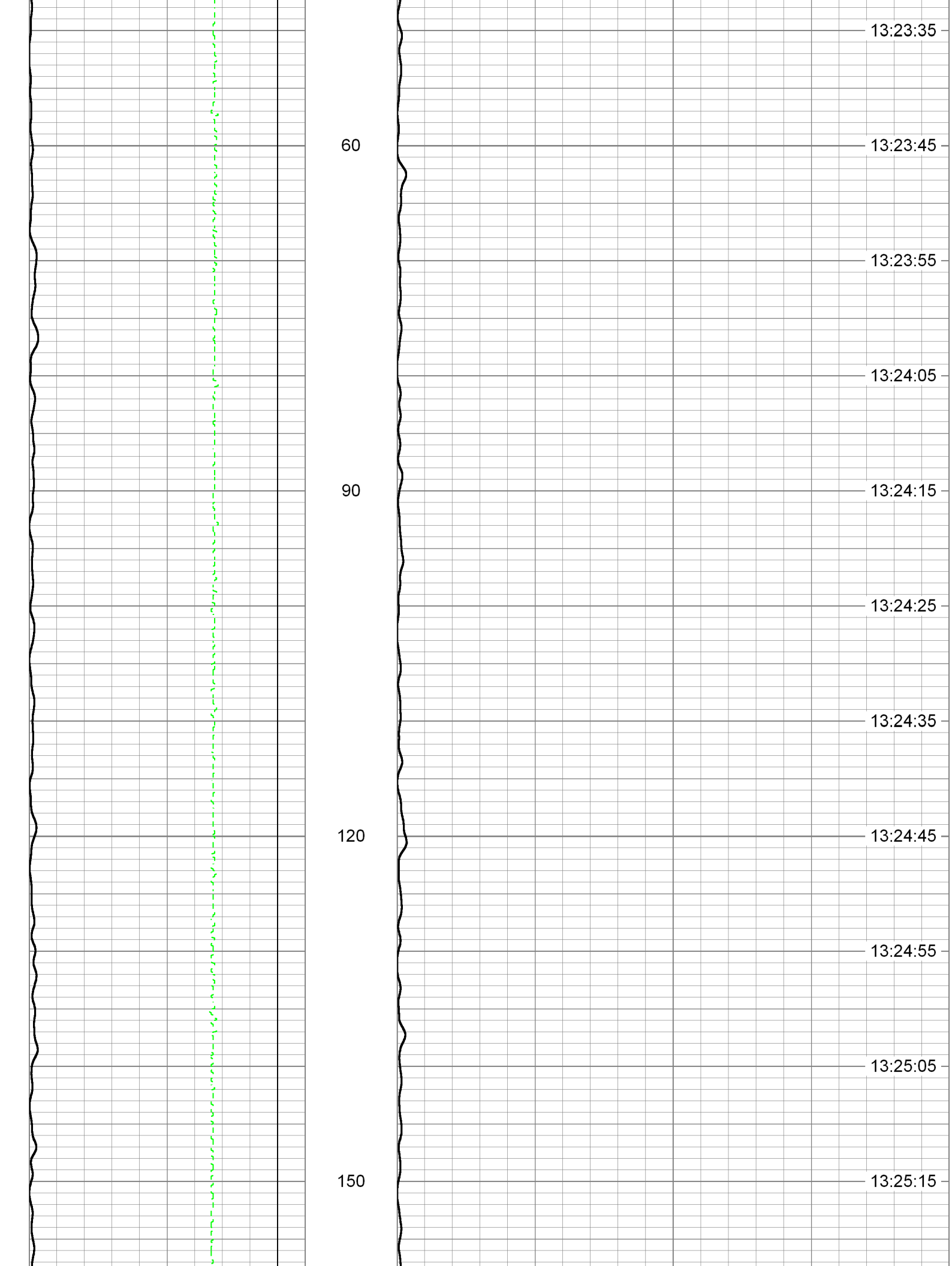
5 MINUTE STAT CHECK 3802'

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	3802_5MIN
Presentation Format	tracer_time_10
Dataset Creation	Tue Sep 05 13:22:46 2023
Charted by	Time scaled 360/hour




60
90
120
150
13:23:35
13:23:45
13:23:55
13:24:05
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13:24:25
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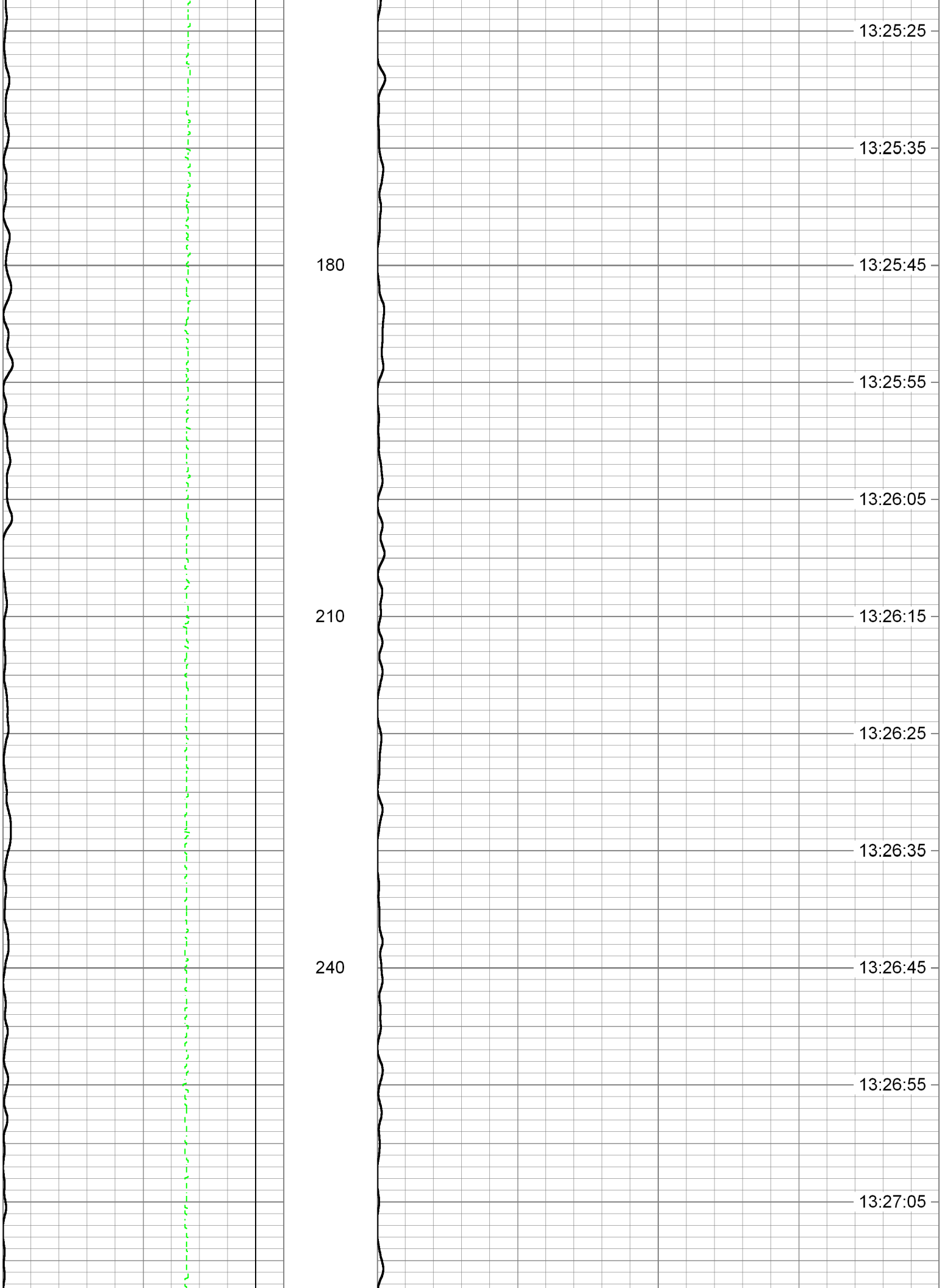
13:24:45
13:24:55
13:25:05
13:25:15


13:25:25
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180
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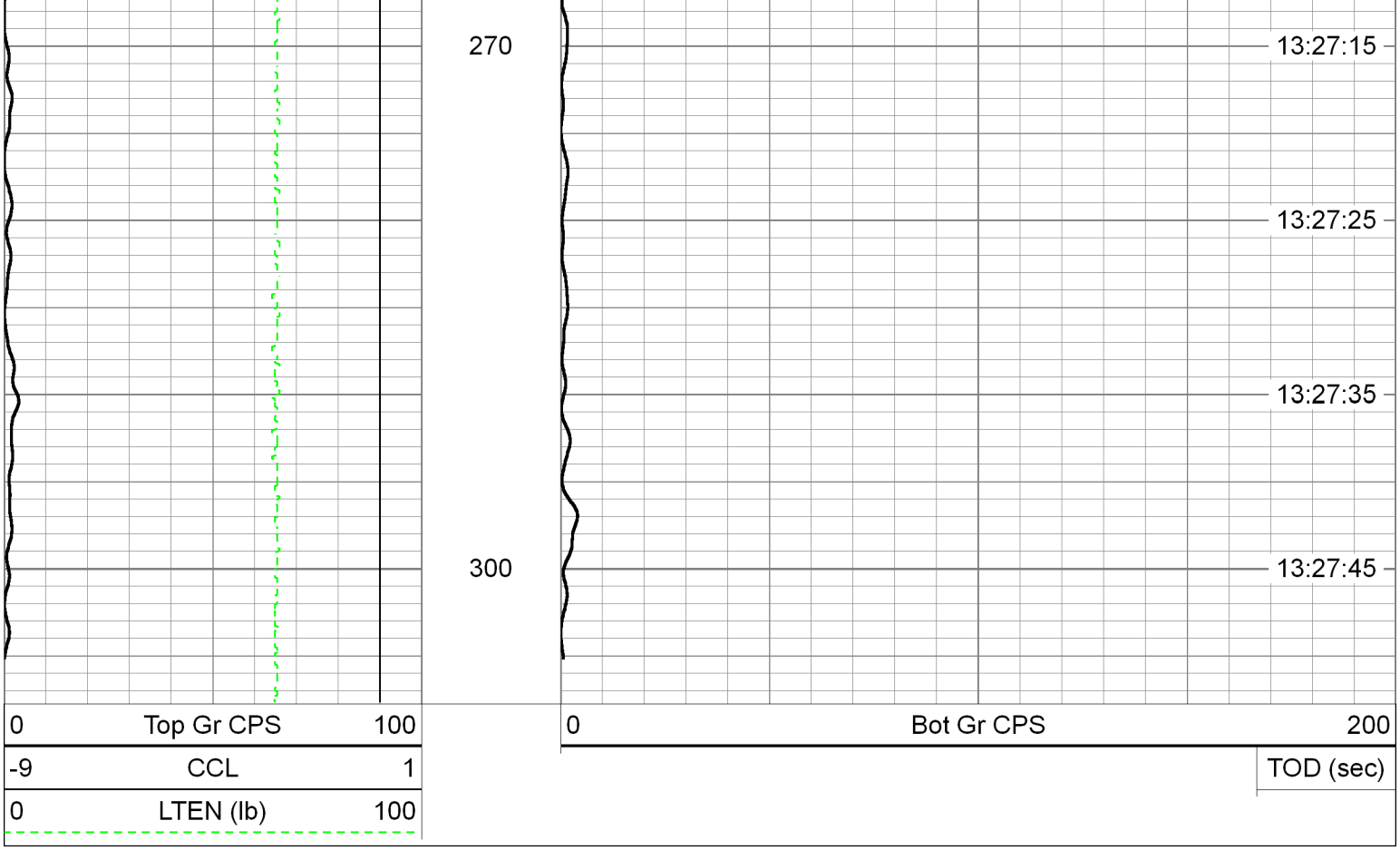
240
13:26:45
13:26:55
13:27:05



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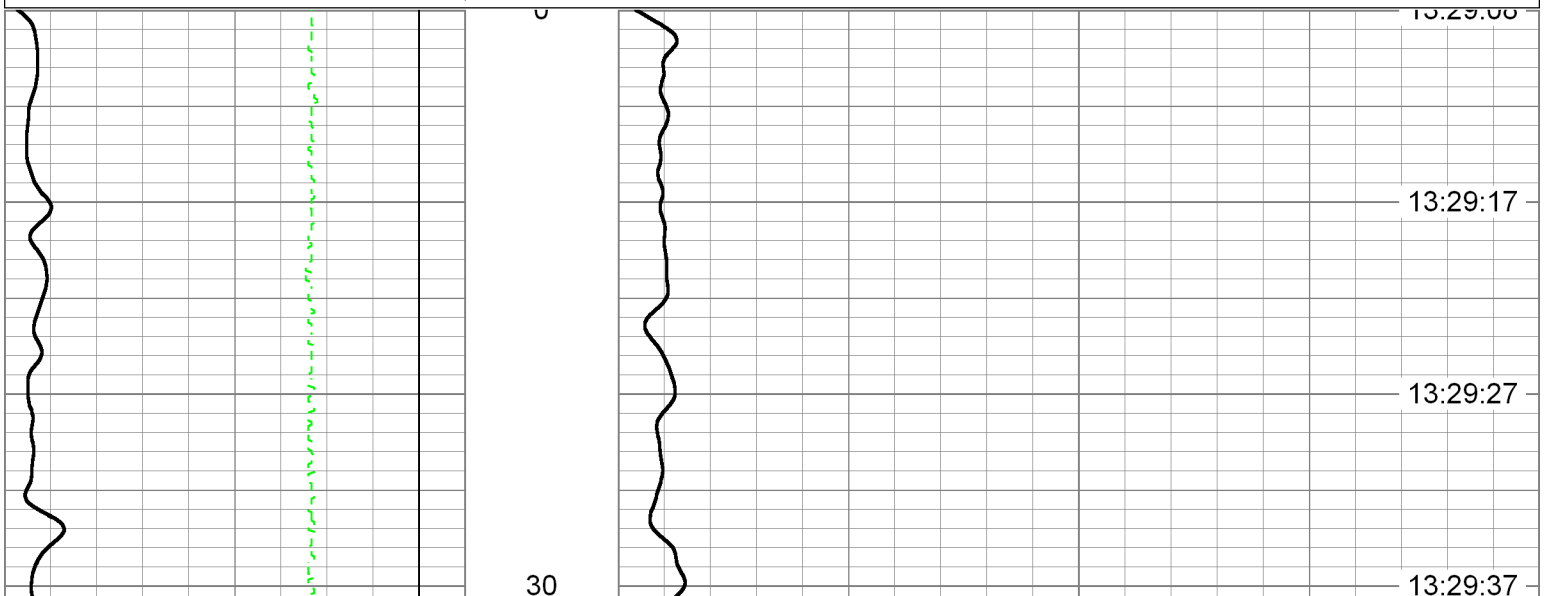
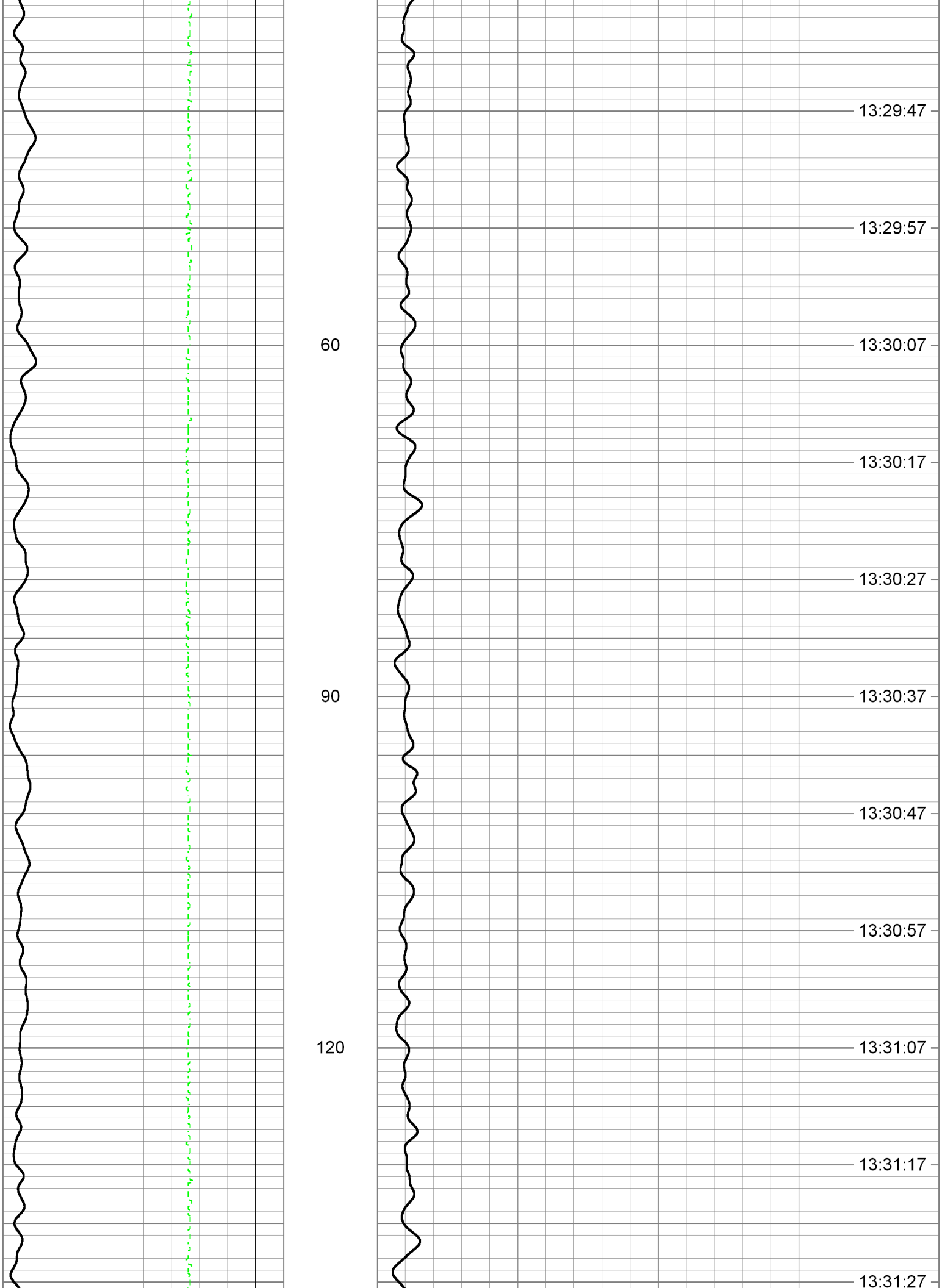
5 MINUTE STAT CHECK 3955'

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	3955_5MIN
Presentation Format	tracer_time_10
Dataset Creation	Tue Sep 05 13:29:08 2023
Charted by	Time scaled 360/hour

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60
13:30:07
13:30:17
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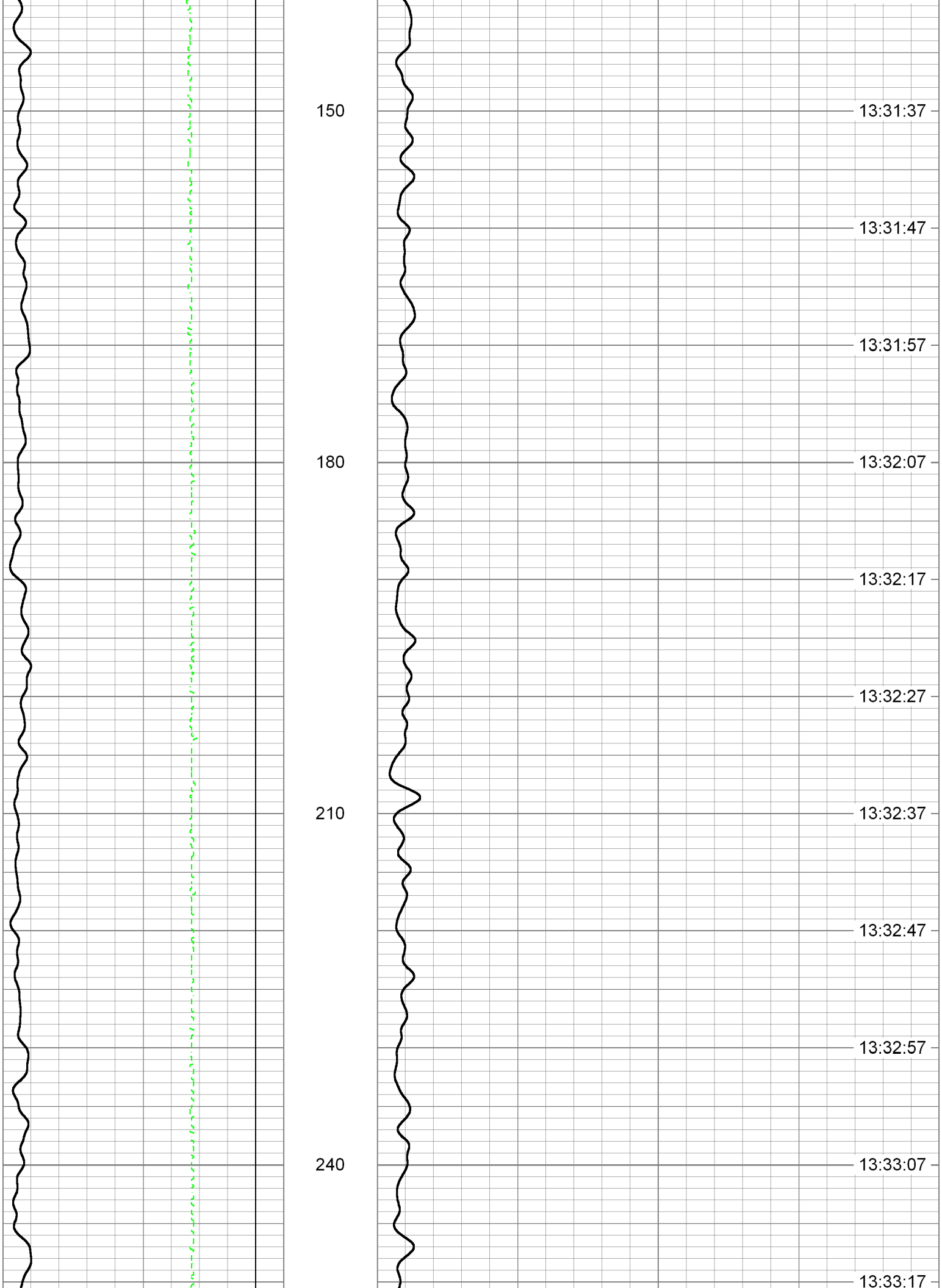
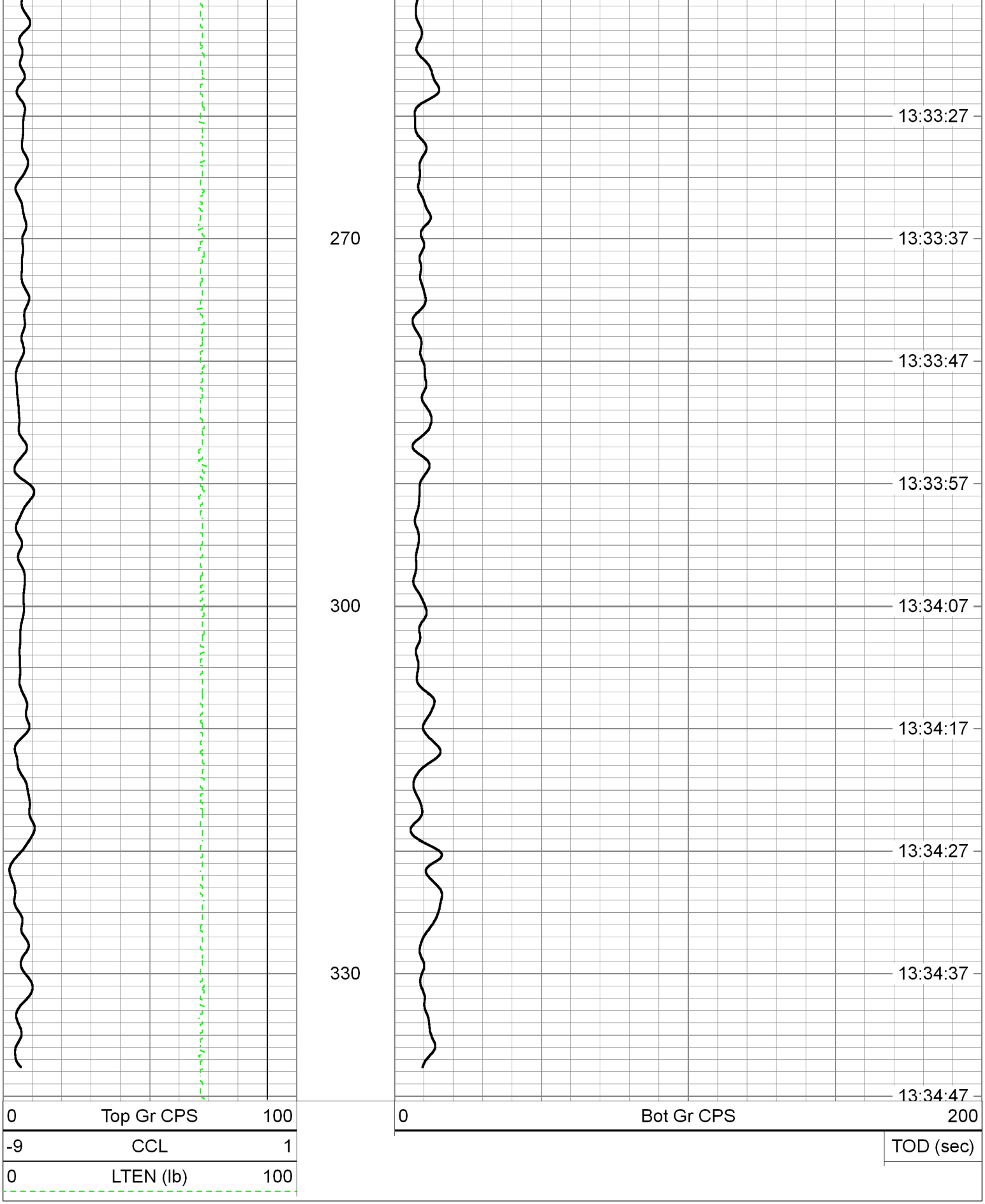
90
13:30:37
13:30:47
13:30:57
120
13:31:07
13:31:17
13:31:27


150
180
210
240
13:31:37
13:31:47
13:31:57
13:32:07
13:32:17
13:32:27
13:32:37
13:32:47
13:32:57
13:33:07
13:33:17



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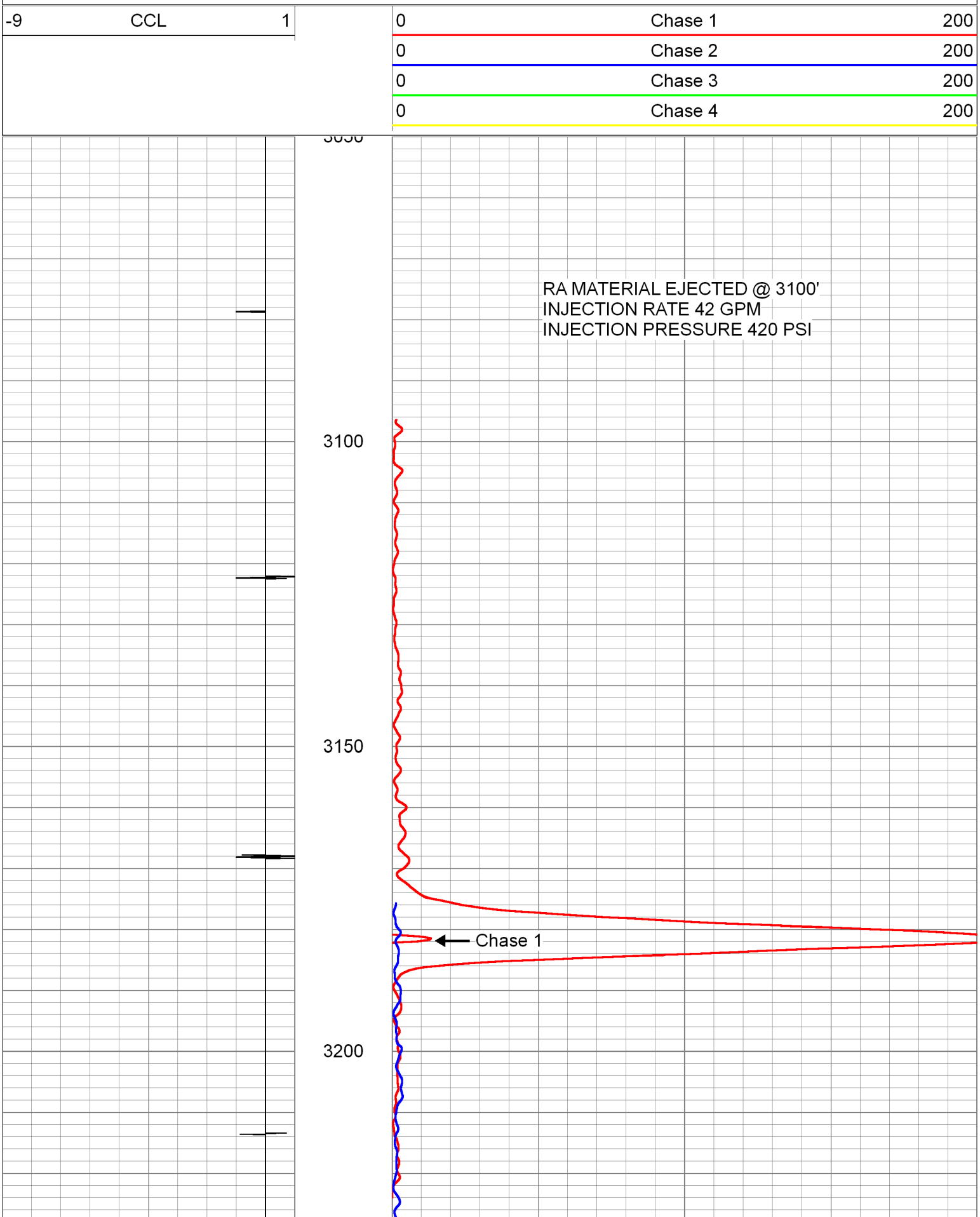
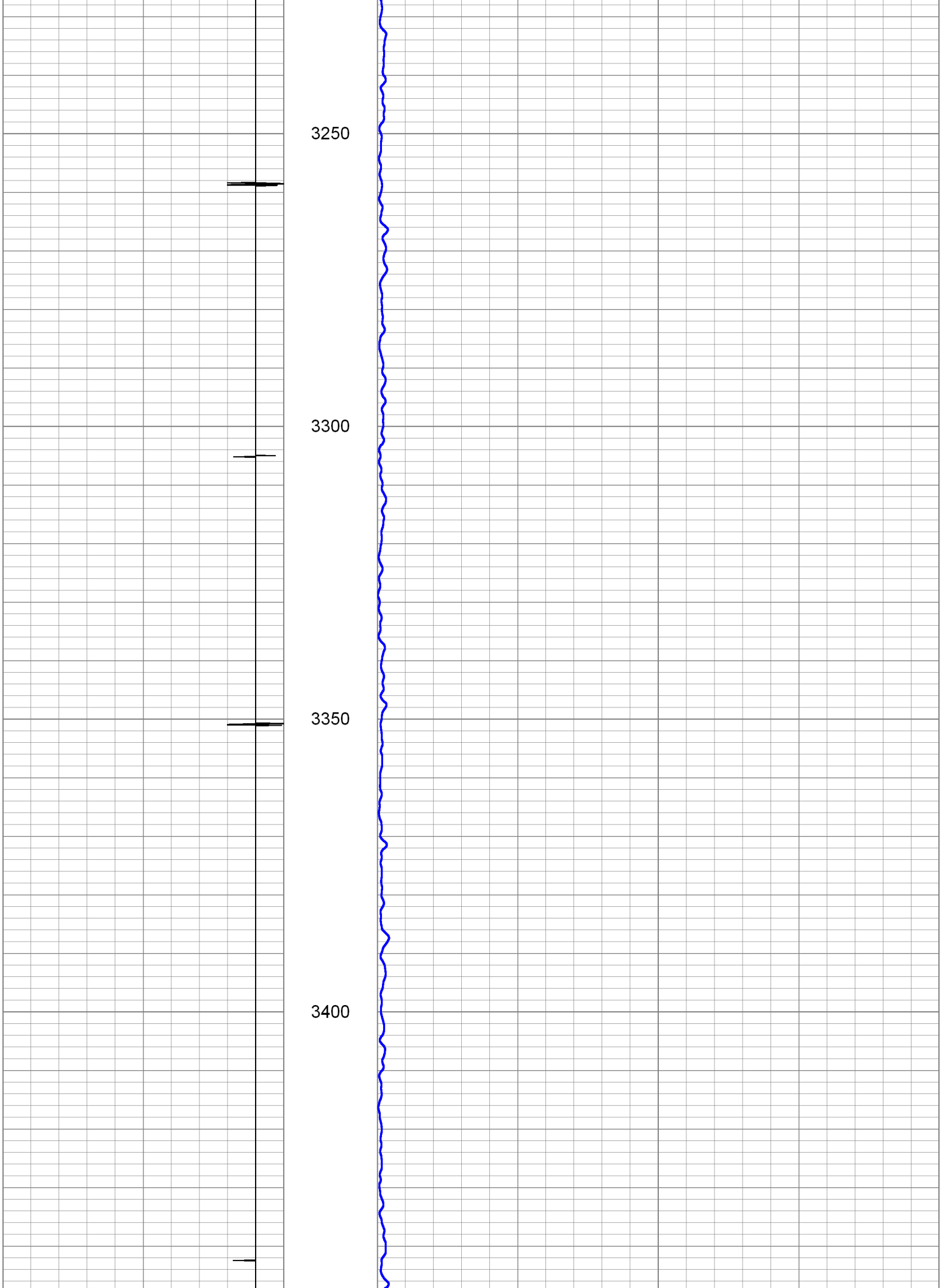
CHASE MERGED PASSES

RA MATERIAL EECTED @ 3100'
INJECTION 42 GPM 420 PSI

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	CHASE
Presentation Format	tracer_chase
Dataset Creation	Tue Sep 05 14:40:27 2023
Charted by	Depth in Feet scaled 1:240

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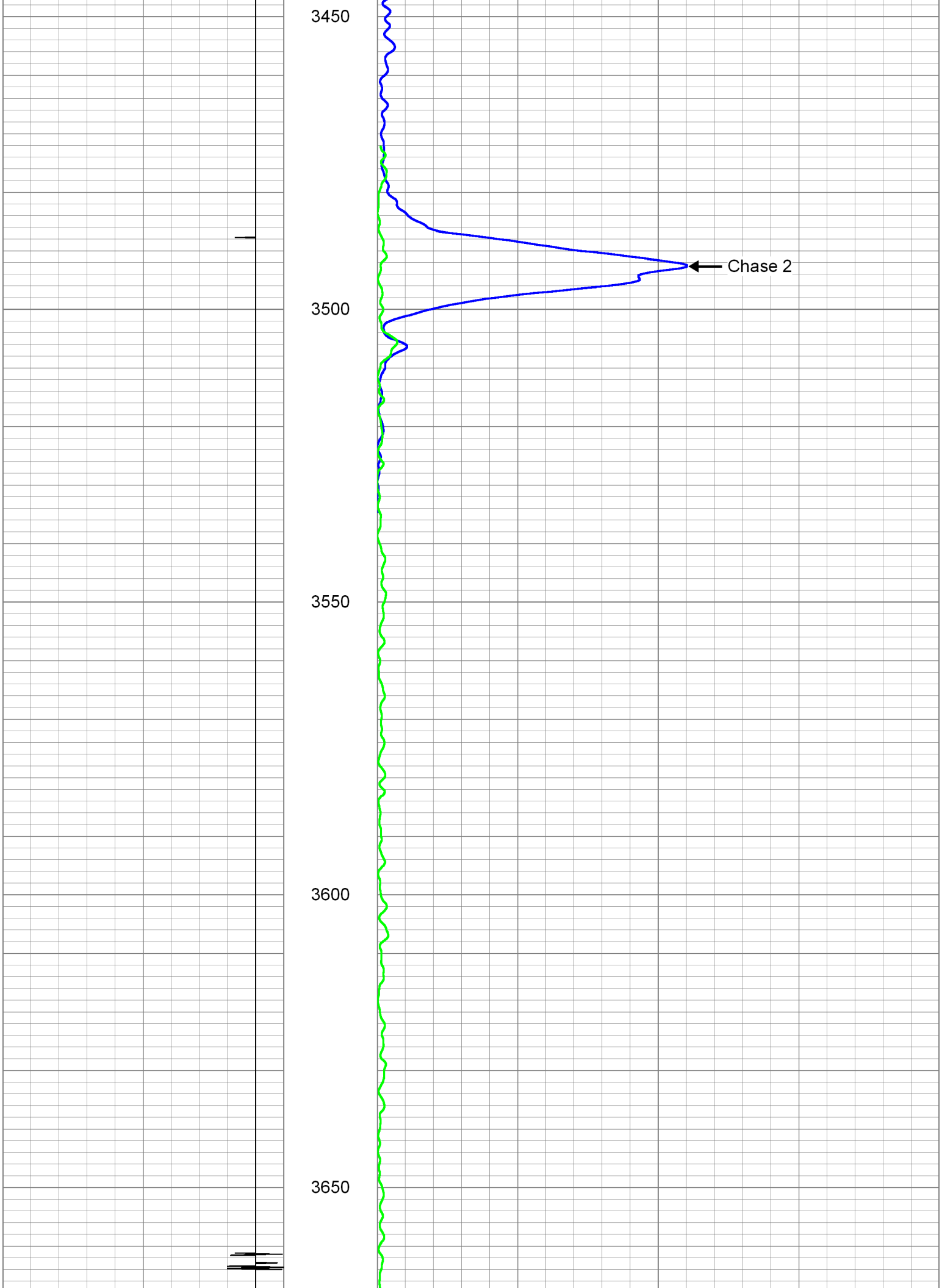
3300
3350
3400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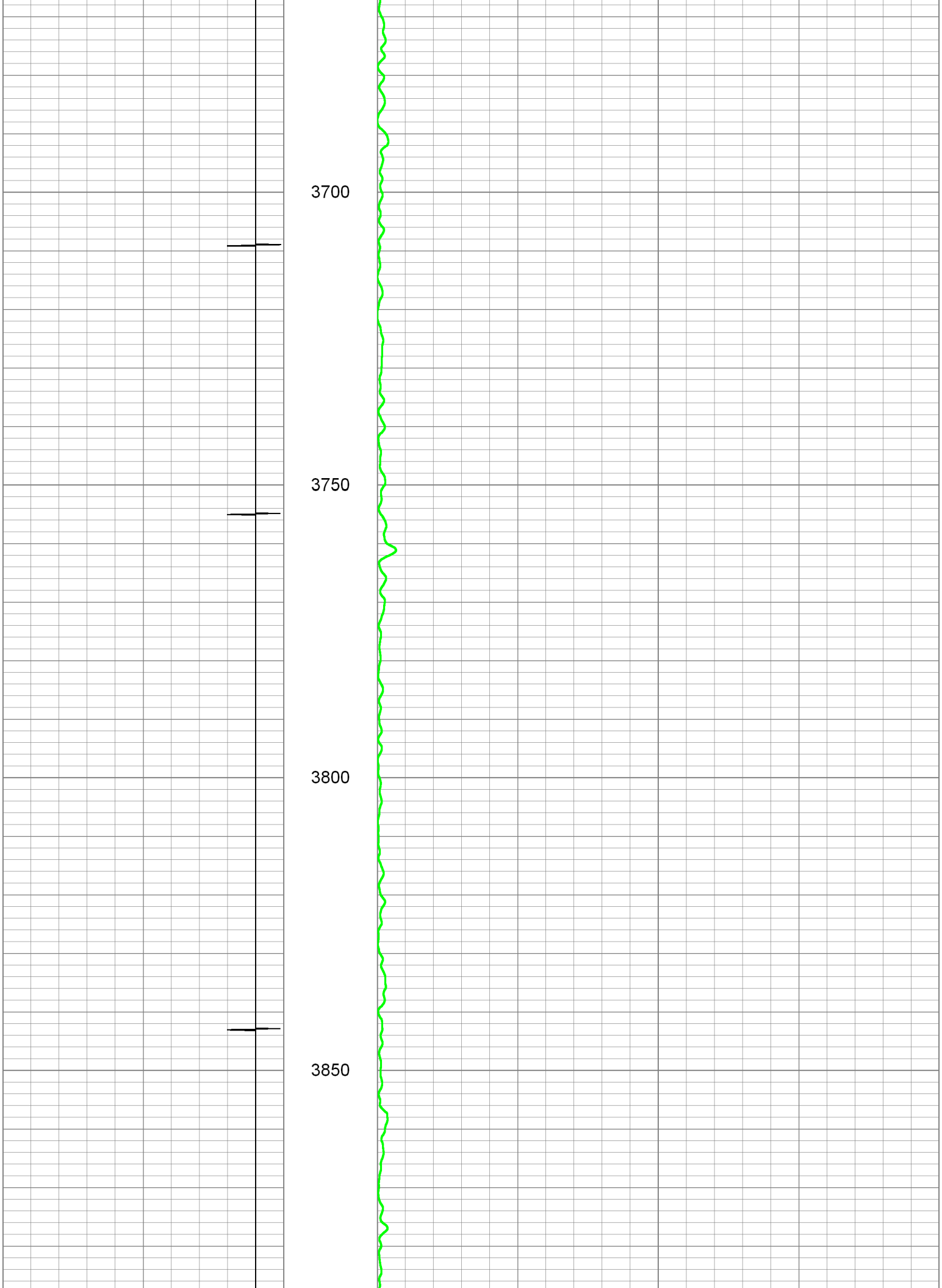
3600
3650
Chase 2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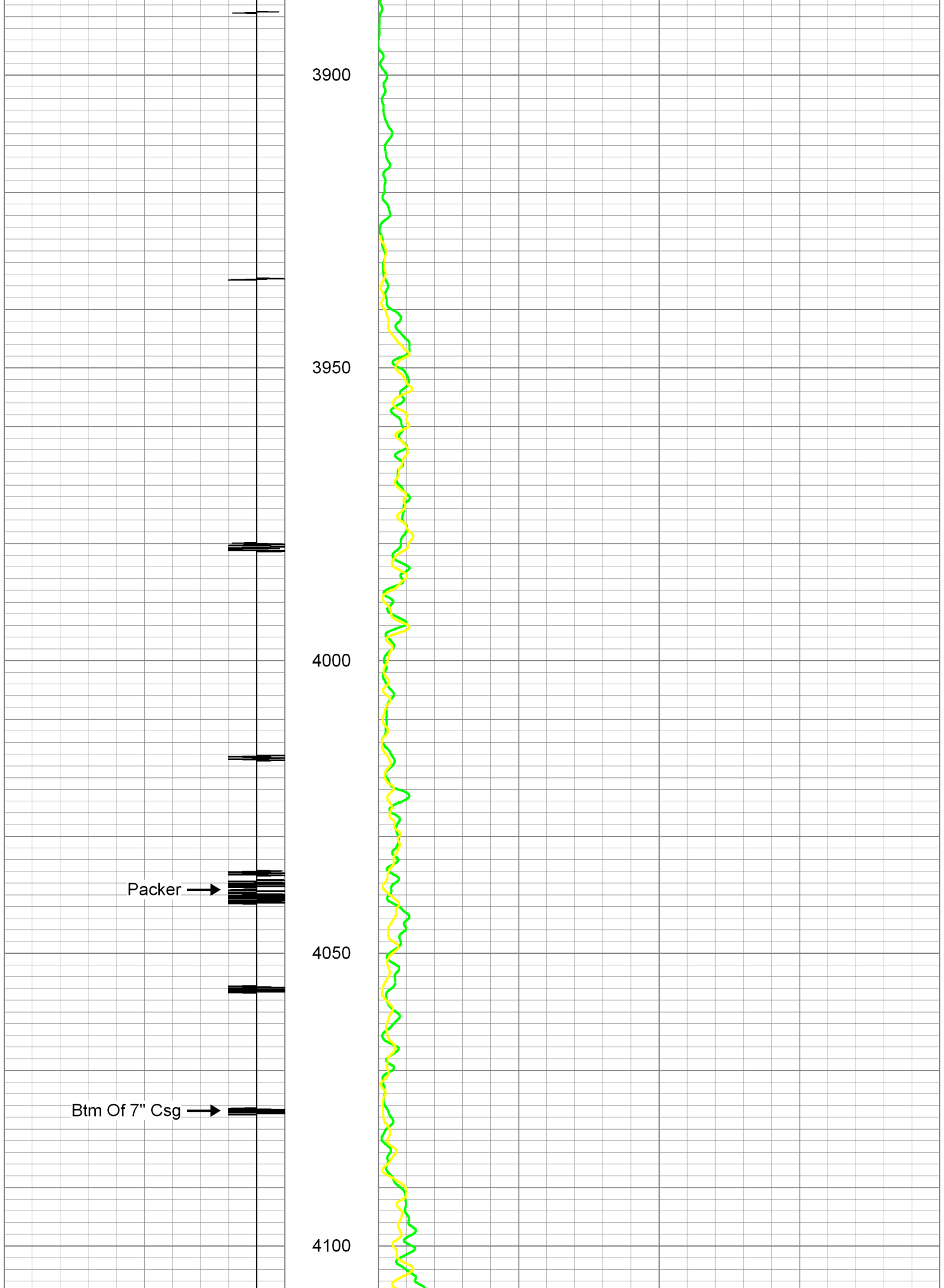
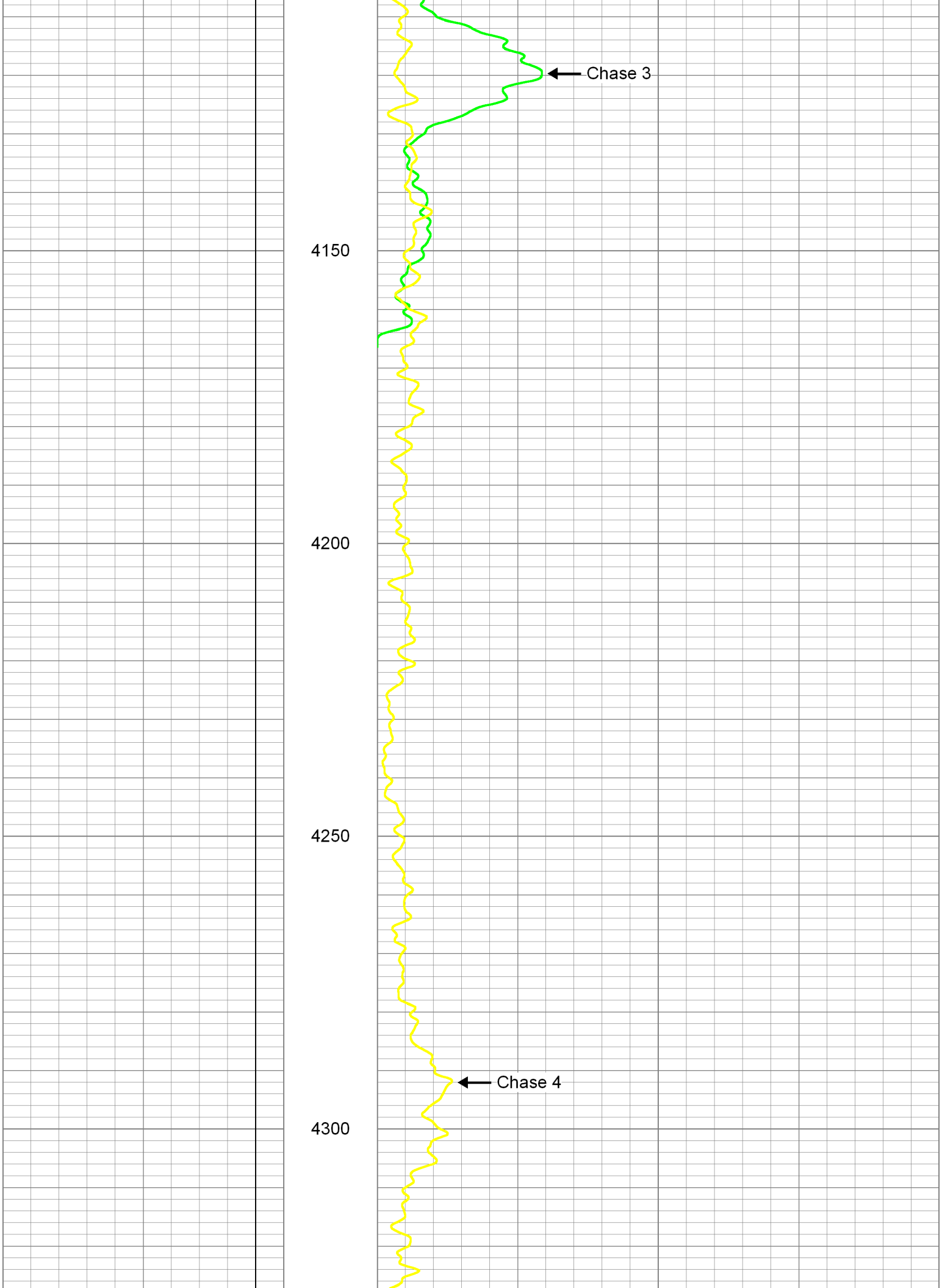

3900
3950
4000
Packer
4050
Btm Of 7" Csg
4100


Chase 3
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Chase 4
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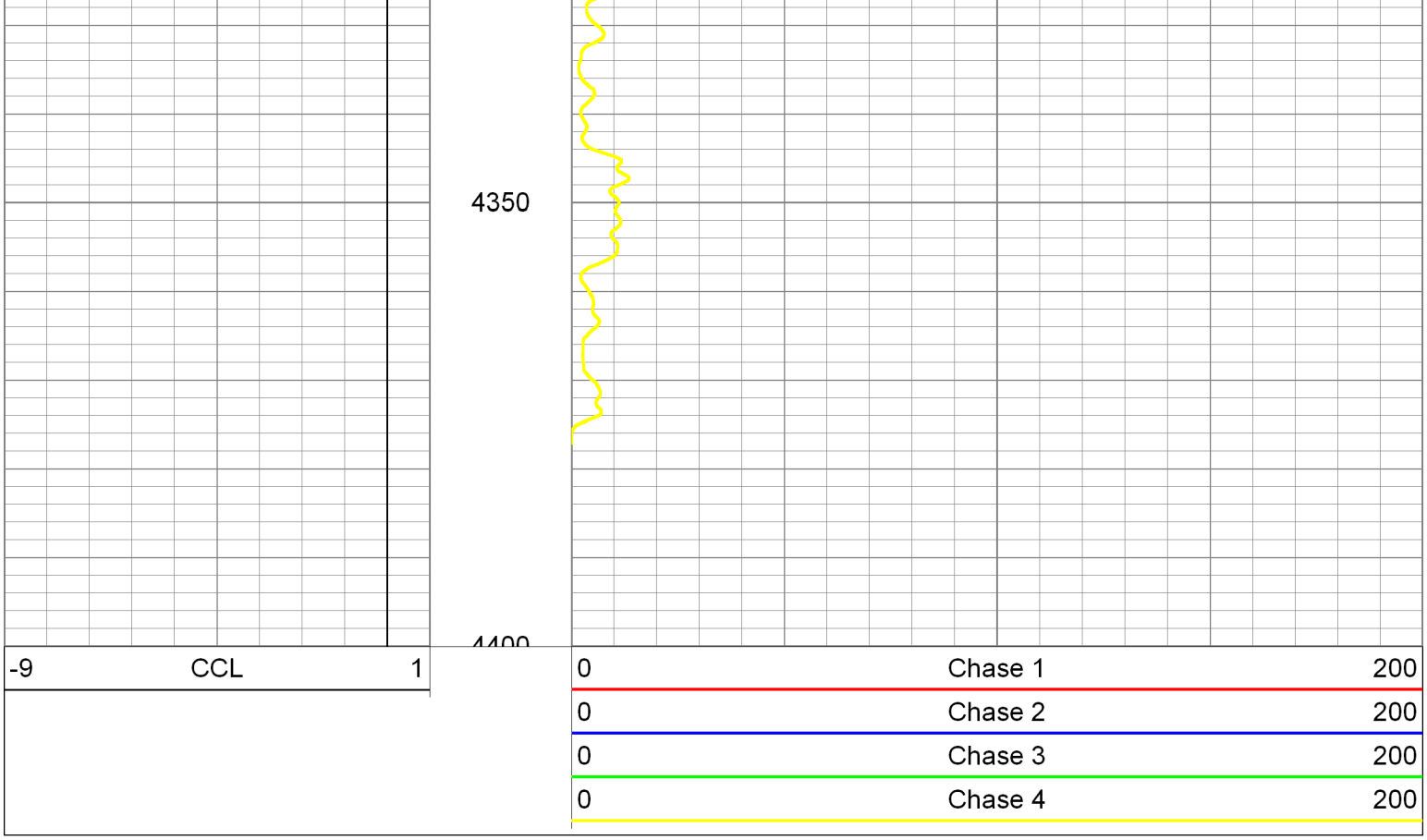

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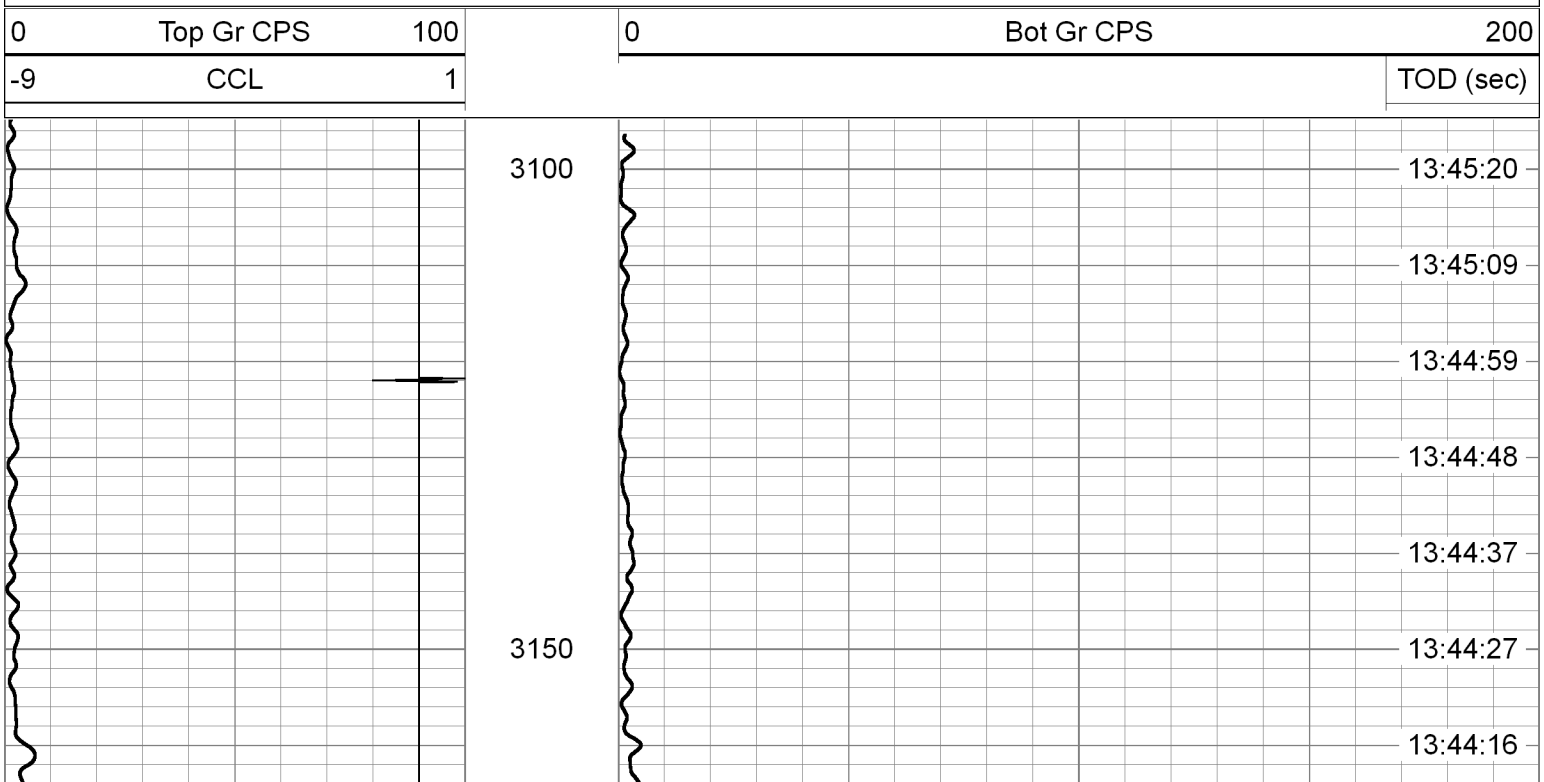
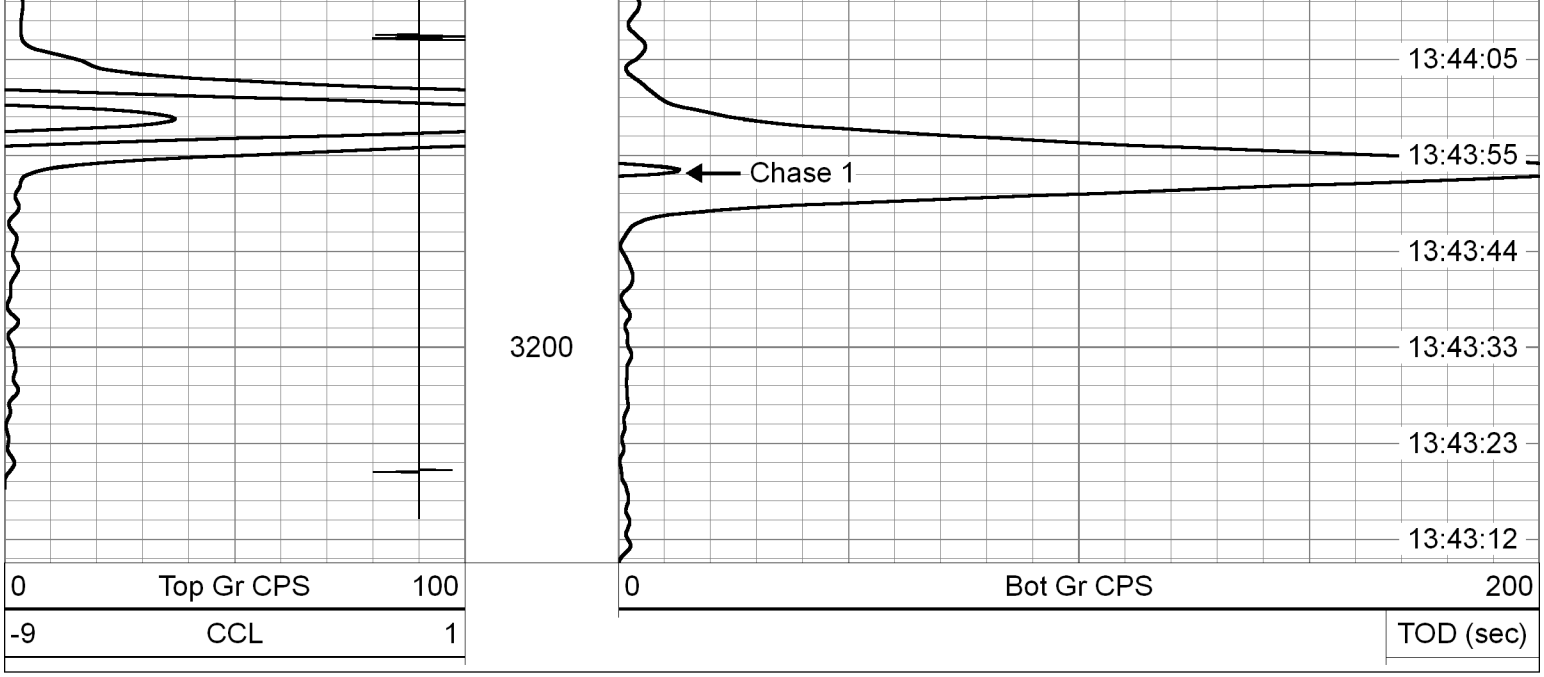
CHASE 1

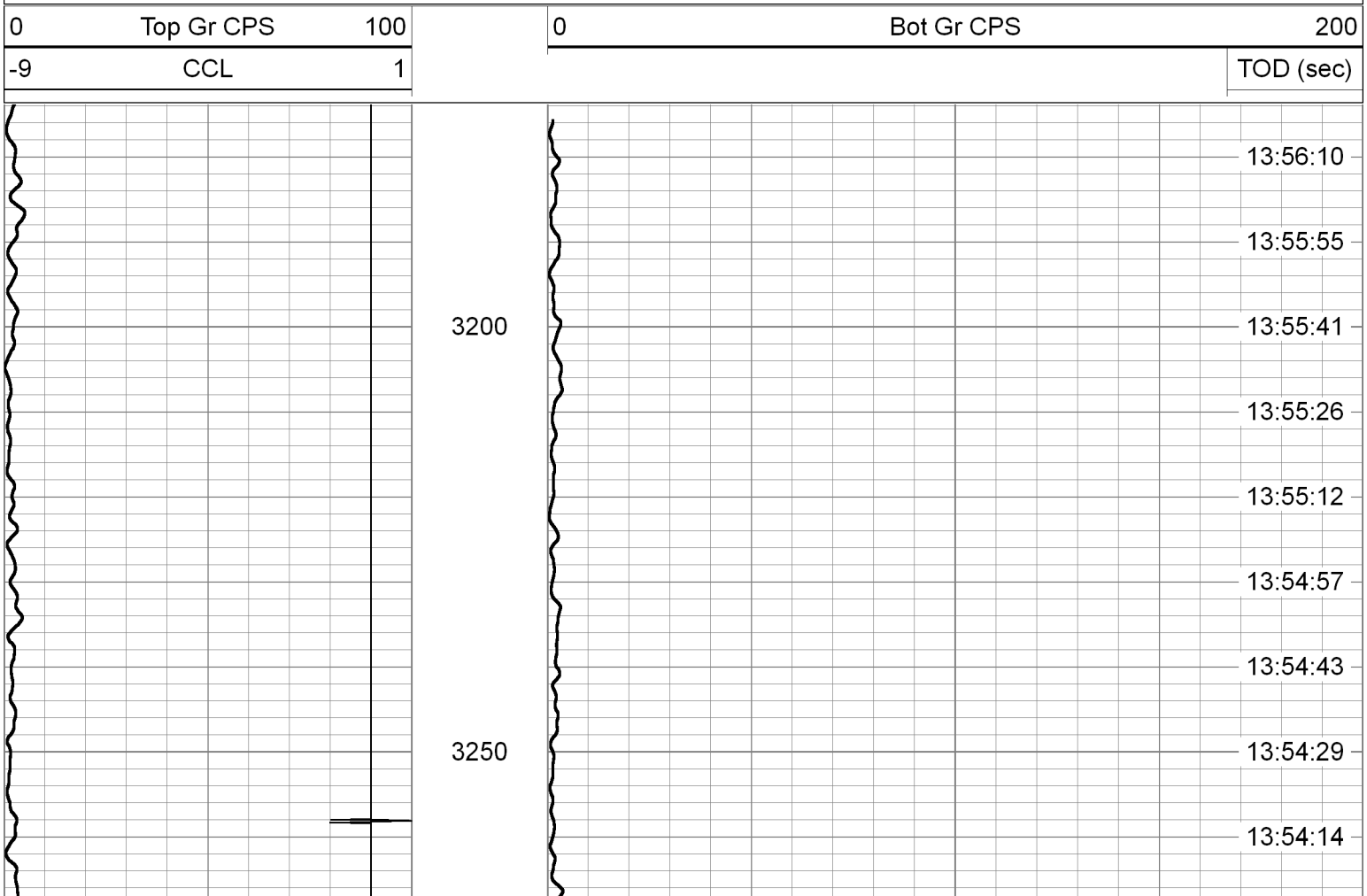
Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	CHASE1
Presentation Format	tracermwl
Dataset Creation	Tue Sep 05 13:43:09 2023
Charted by	Depth in Feet scaled 1:240

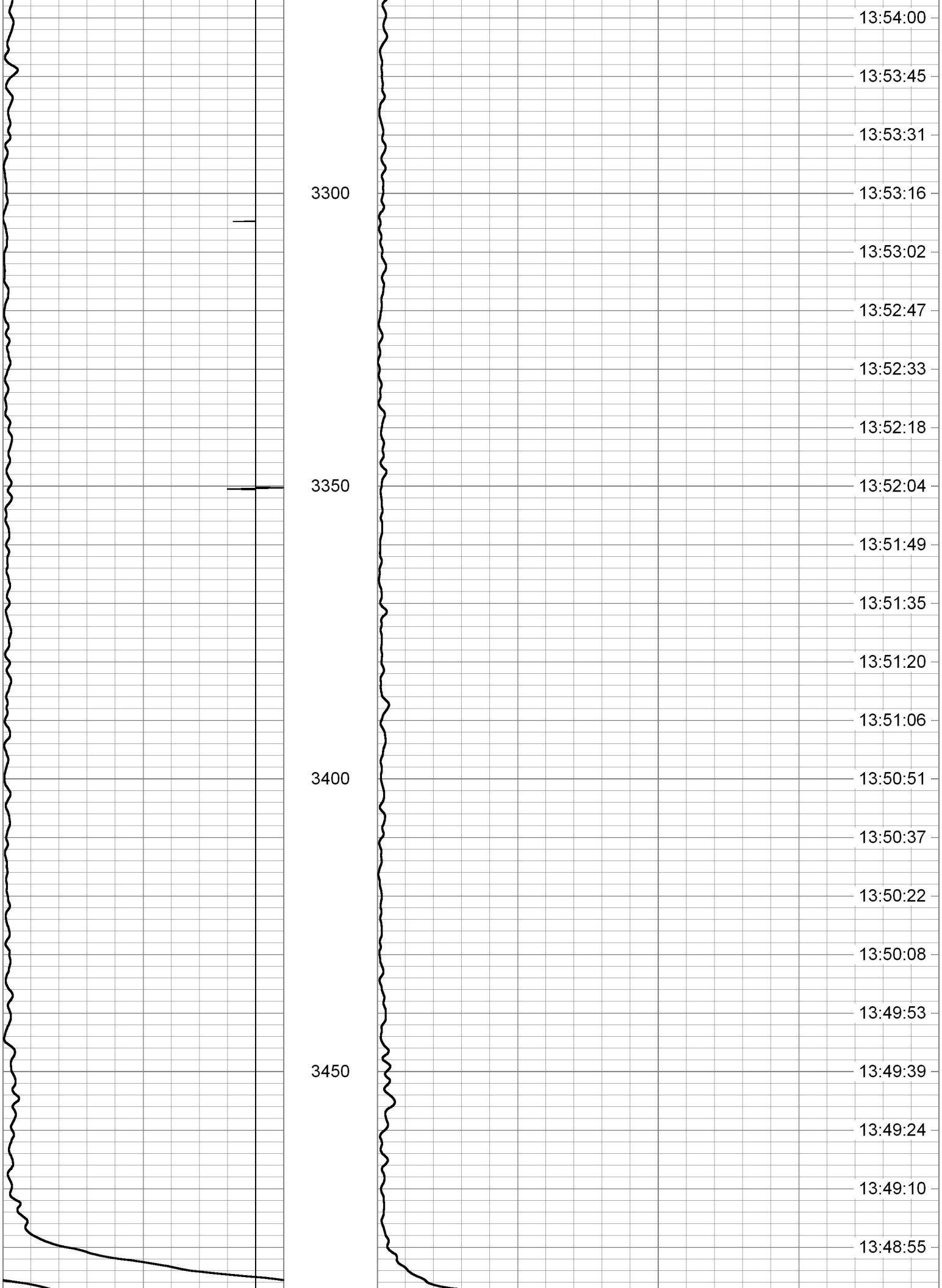




CHASE 2

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	CHASE2
Presentation Format	tracermwl
Dataset Creation	Tue Sep 05 13:47:36 2023
Charted by	Depth in Feet scaled 1:240

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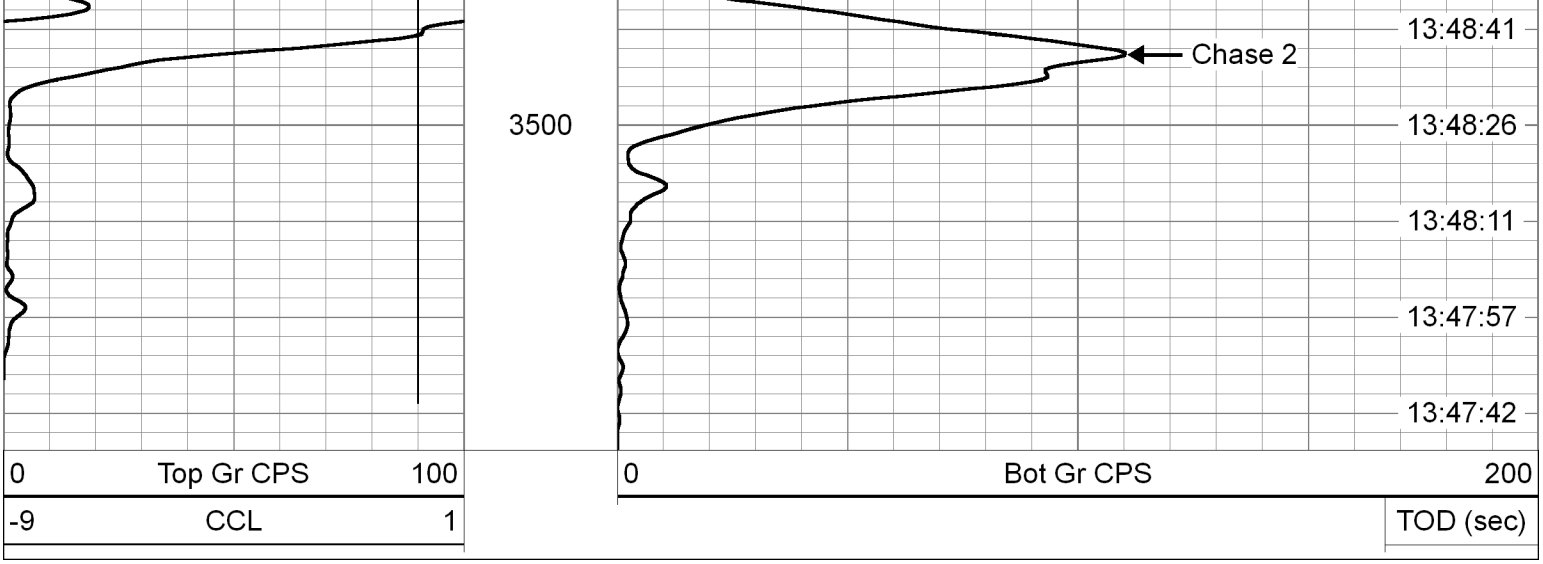

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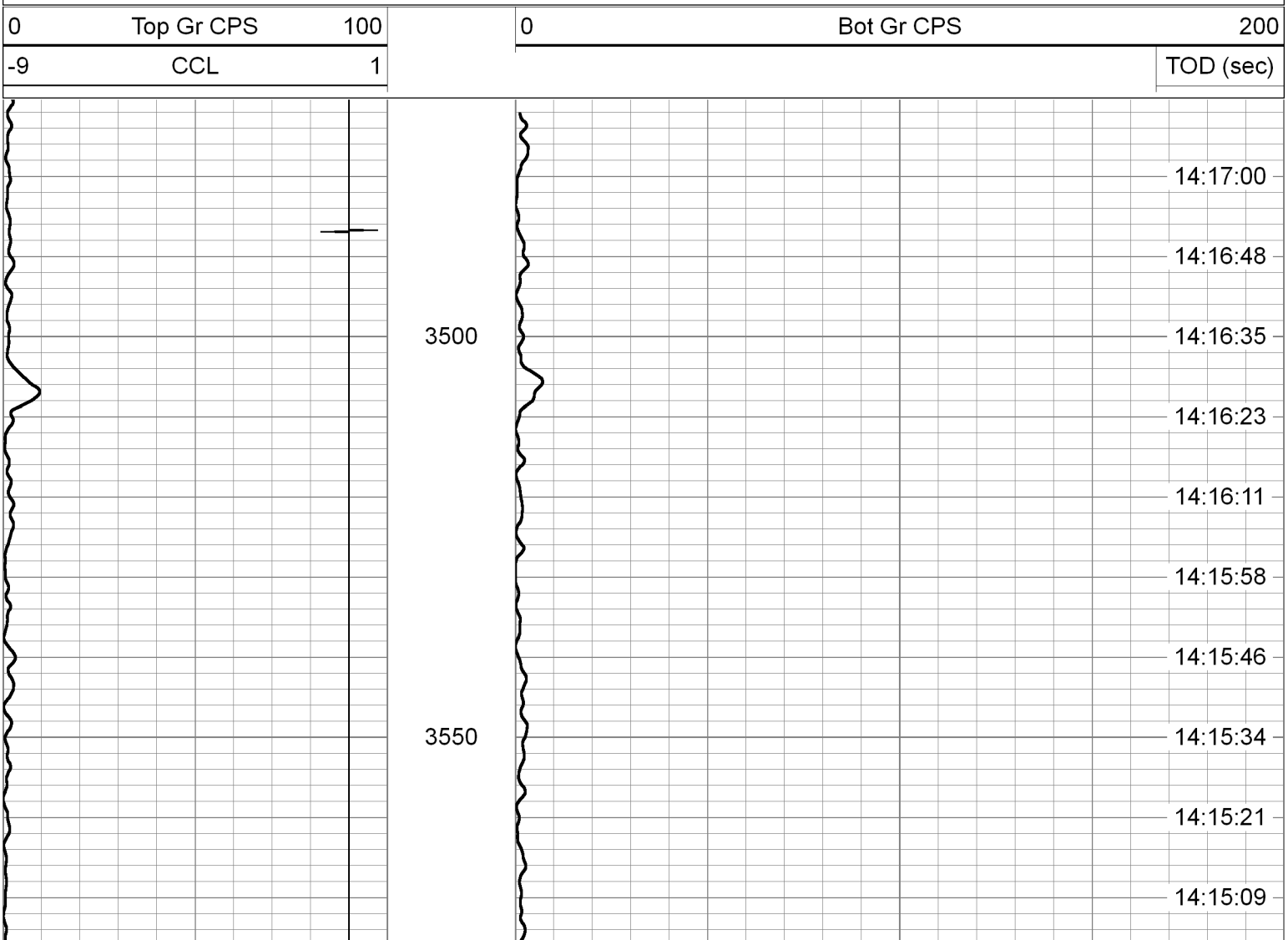
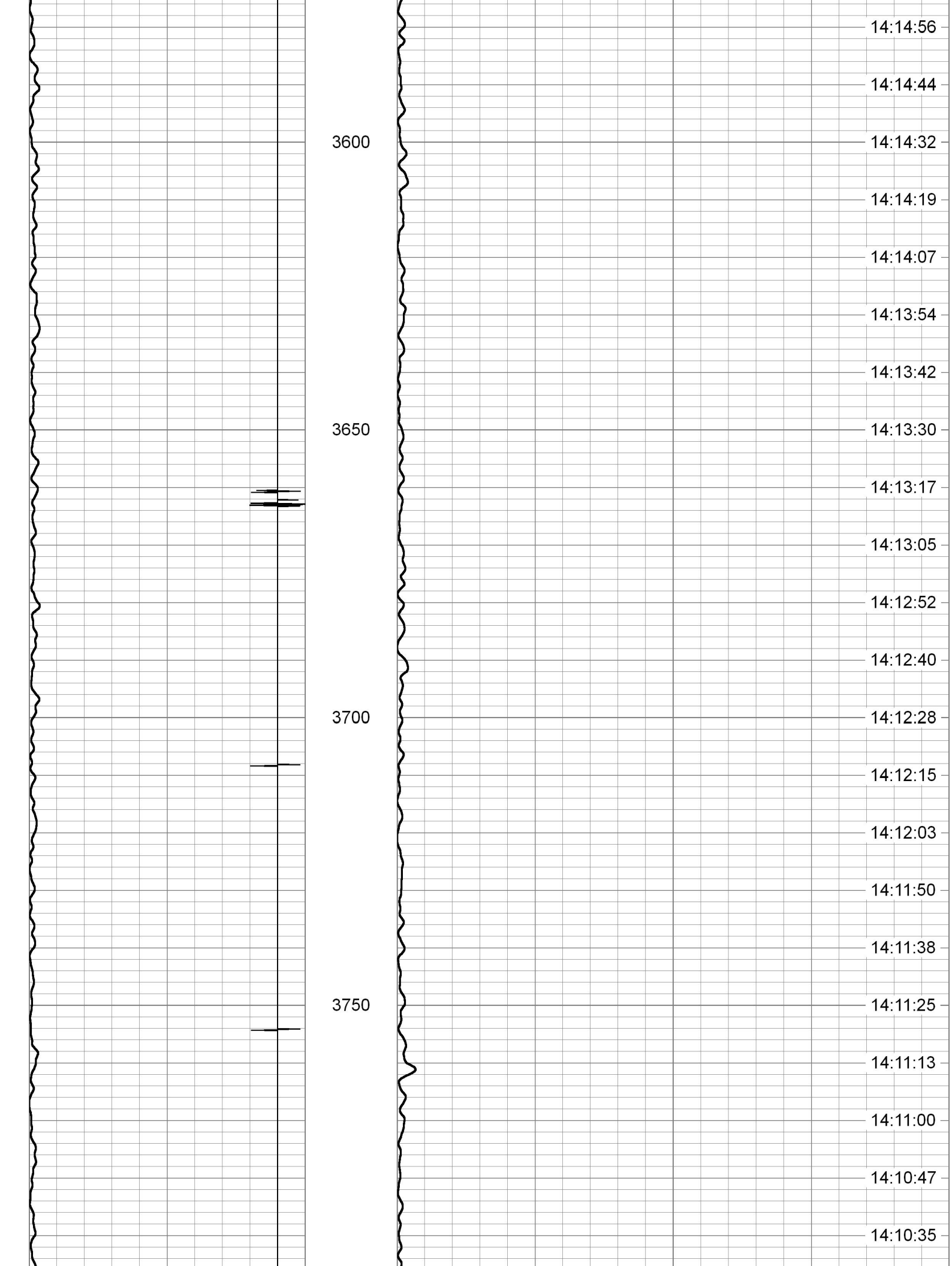
CHASE 3

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	CHASE3
Presentation Format	tracermwl
Dataset Creation	Tue Sep 05 14:02:39 2023
Charted by	Depth in Feet scaled 1:240

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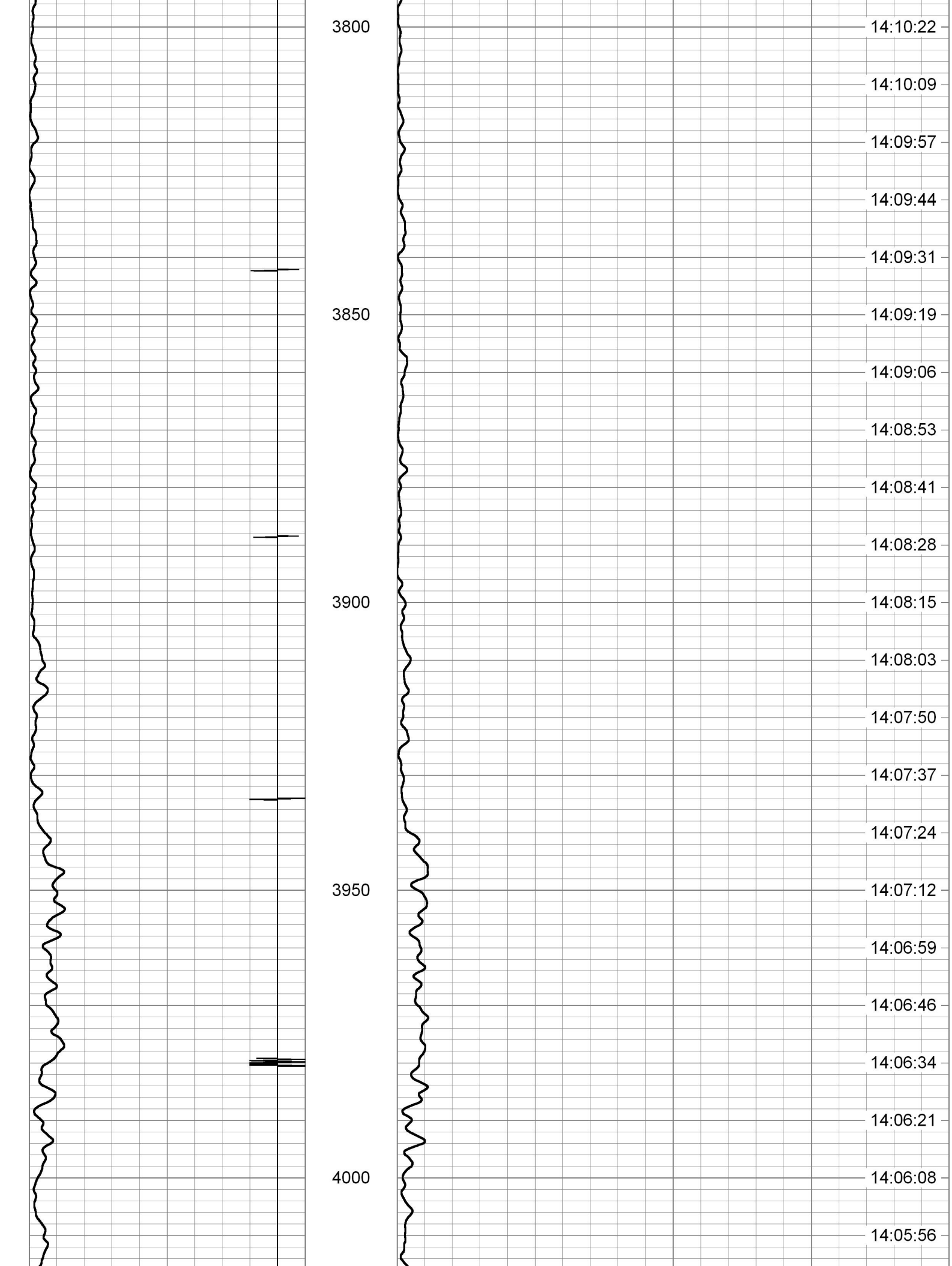
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4000
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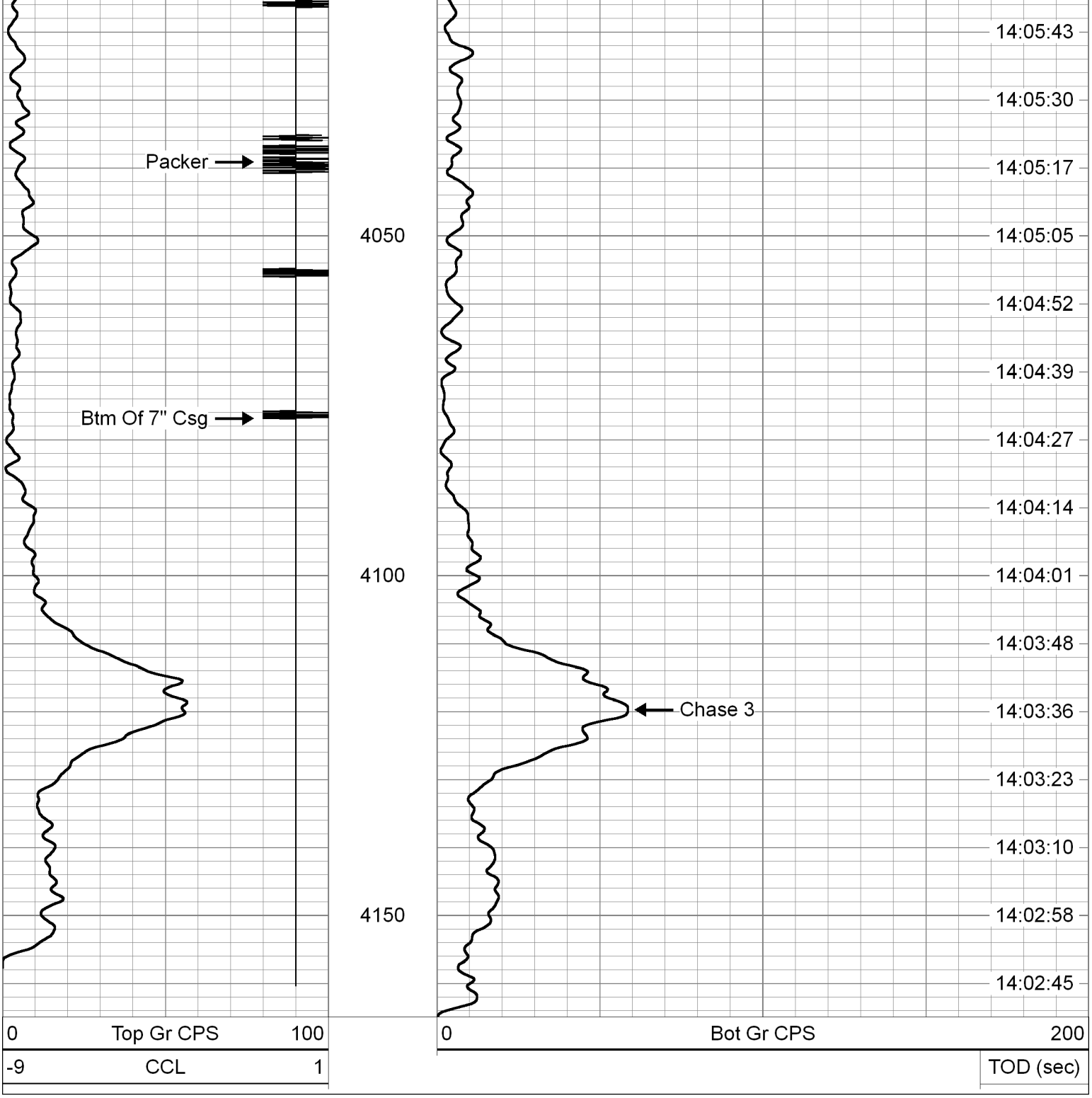
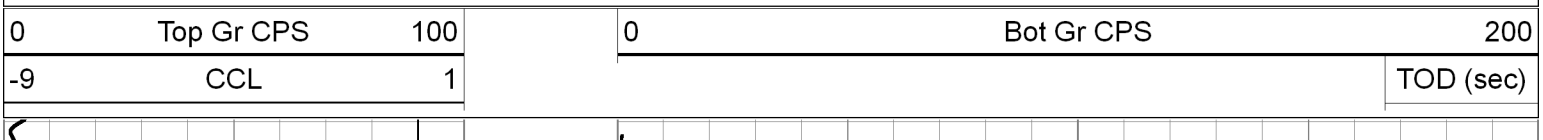
14:06:08
14:05:56

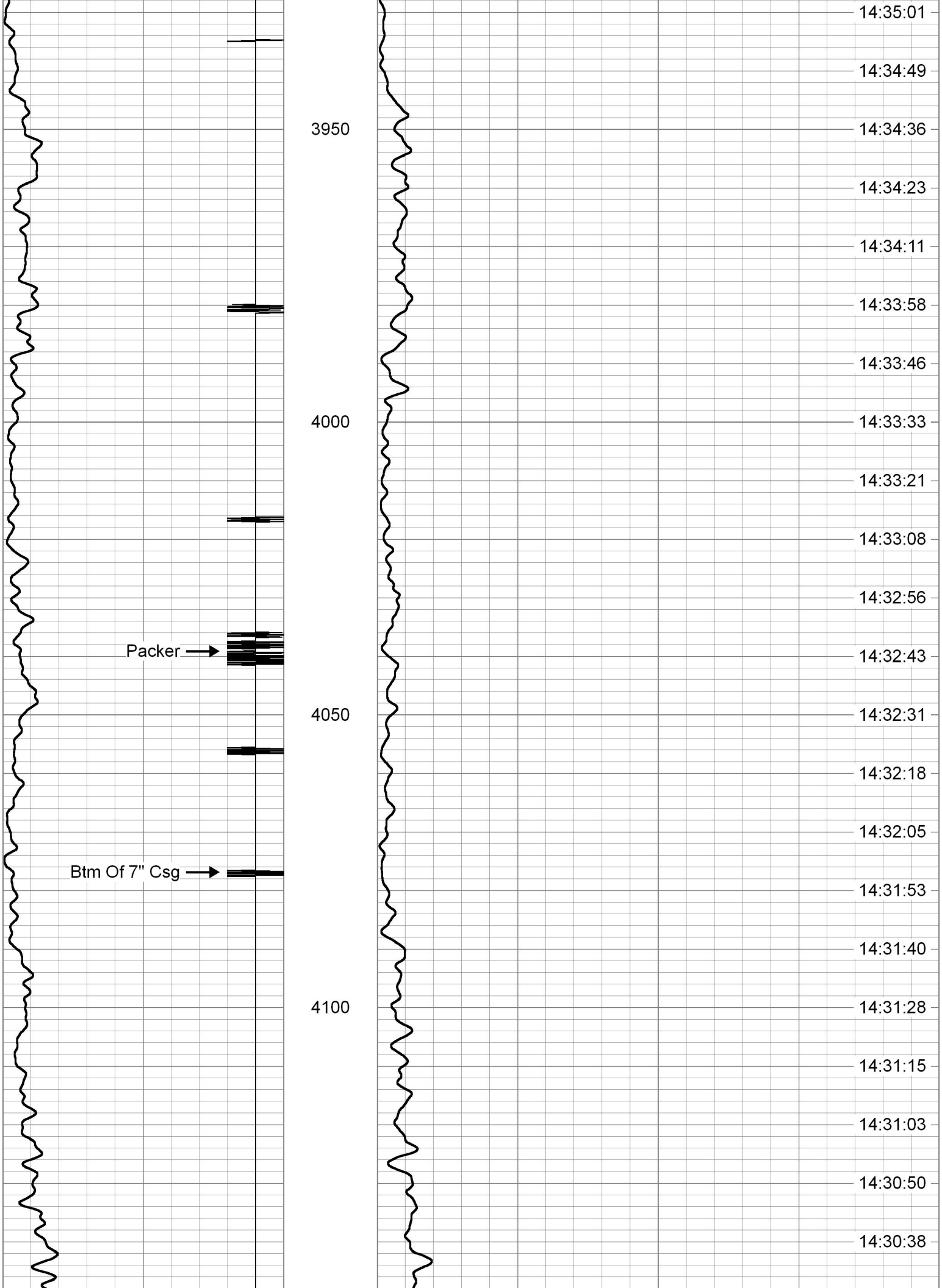


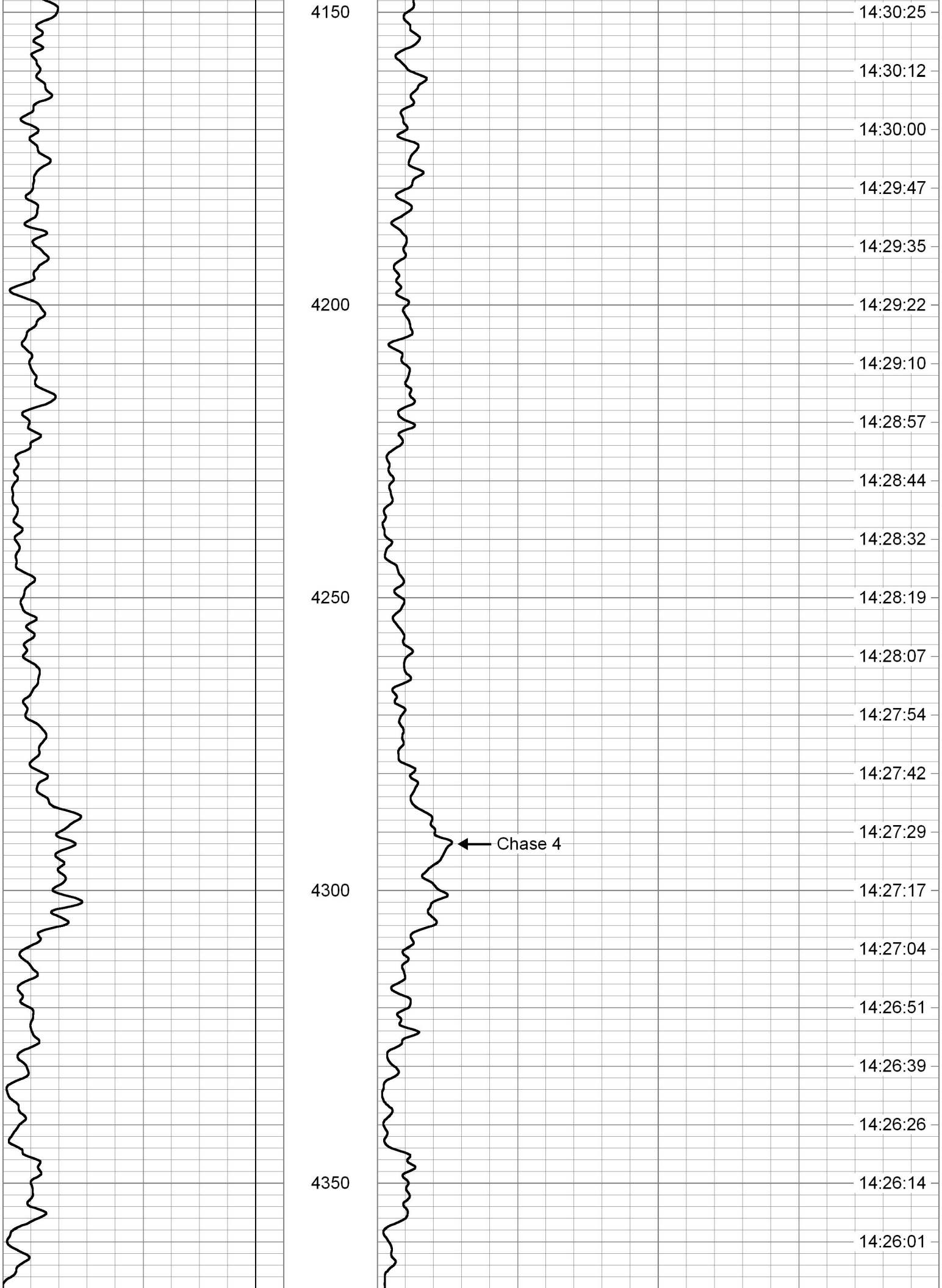
michigan wireline services

CHASE 4

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	CHASE4
Presentation Format	tracermwl
Dataset Creation	Tue Sep 05 14:25:38 2023
Charted by	Depth in Feet scaled 1:240




3950
4000
4050
4100
Packer
Btm Of 7" Csg
14:35:01
14:34:49
14:34:36
14:34:23
14:34:11
14:33:58
14:33:46
14:33:33
14:33:21
14:33:08
14:32:56
14:32:43
14:32:31
14:32:18
14:32:05
14:31:53
14:31:40
14:31:28
14:31:15
14:31:03
14:30:50
14:30:38


4150
4200
4250
4300
4350
14:30:25
14:30:12
14:30:00
14:29:47
14:29:35
14:29:22
14:29:10
14:28:57
14:28:44
14:28:32
14:28:19
14:28:07
14:27:54
14:27:42
14:27:29
14:27:17
14:27:04
14:26:51
14:26:39
14:26:26
14:26:14
14:26:01
Chase 4

0	Top Gr CPS	100	0	Bot Gr CPS	200
-9	CCL	1			TOD (sec)

14:25:47

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TIME DRIVE SURVEY

RA MATERIAL EJECTED @ 3750'
INJECTION 42 GPM 487 PSI

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	30MIN
Presentation Format	tracer_time_60
Dataset Creation	Tue Sep 05 14:38:57 2023
Charted by	Time scaled 60/hour

0	Top Gr CPS	100	0	Bot Gr CPS	200
-9	CCL	1			TOD (sec)
0	LTEN (lb)	100			

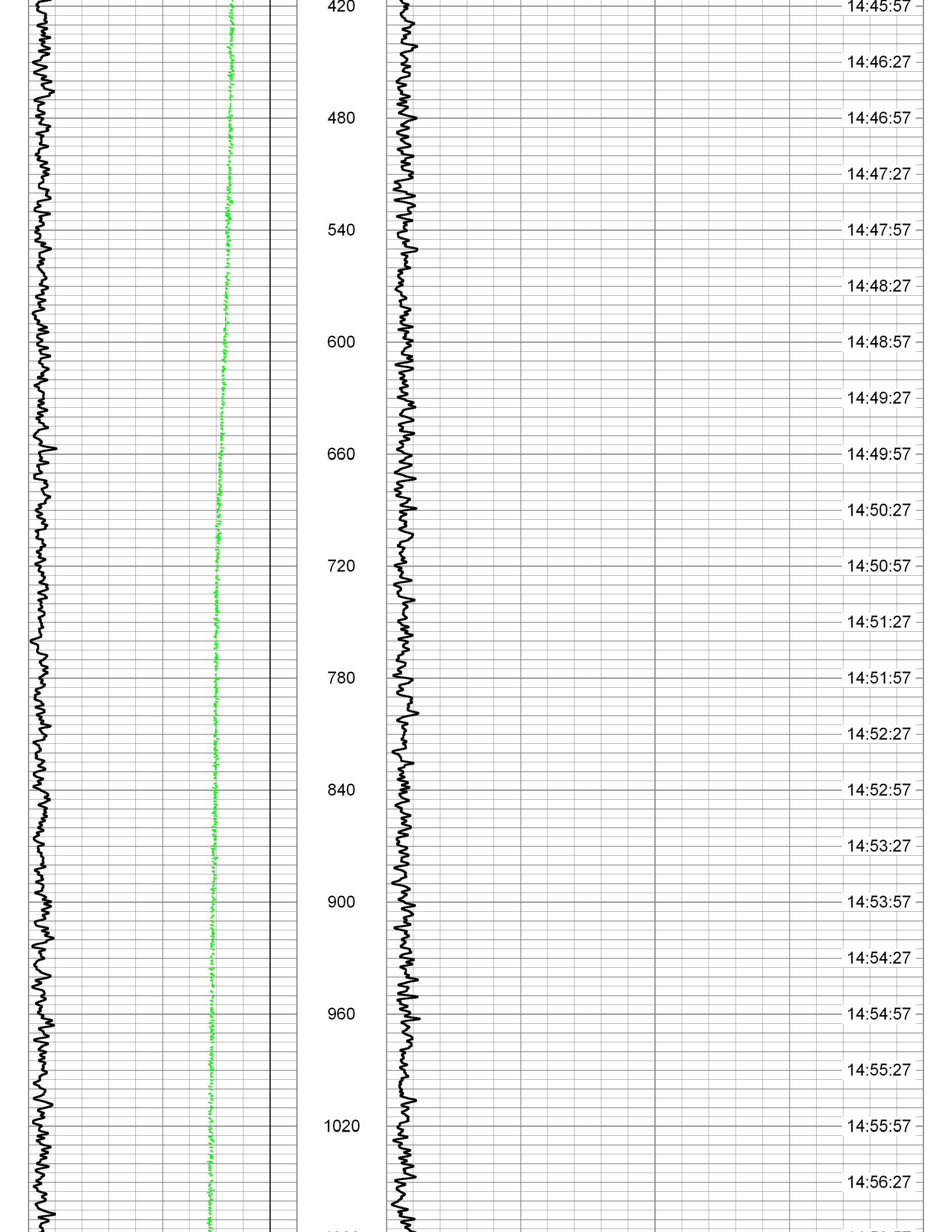
RA MATERIAL EJECTED @ 3750'
INJECTION RATE 42 GPM
INJECTION PRESSURE 487 PSI
LOWER TOOL POSITION
BOTTOM DETECTOR 4050'

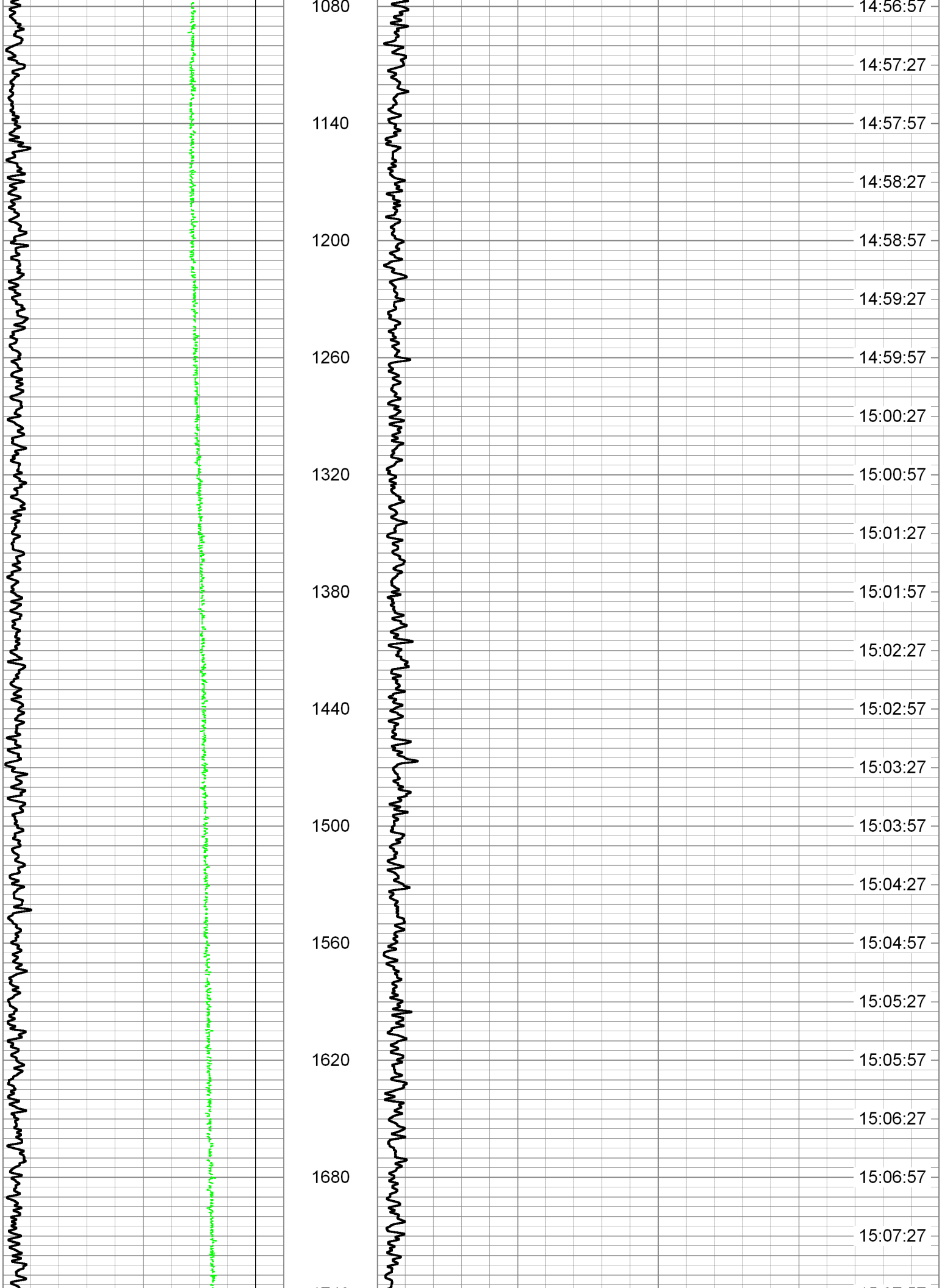
TIME DRIVE LOGGING STARTED
WAIT FOR MATERIAL TO PASS TOOL

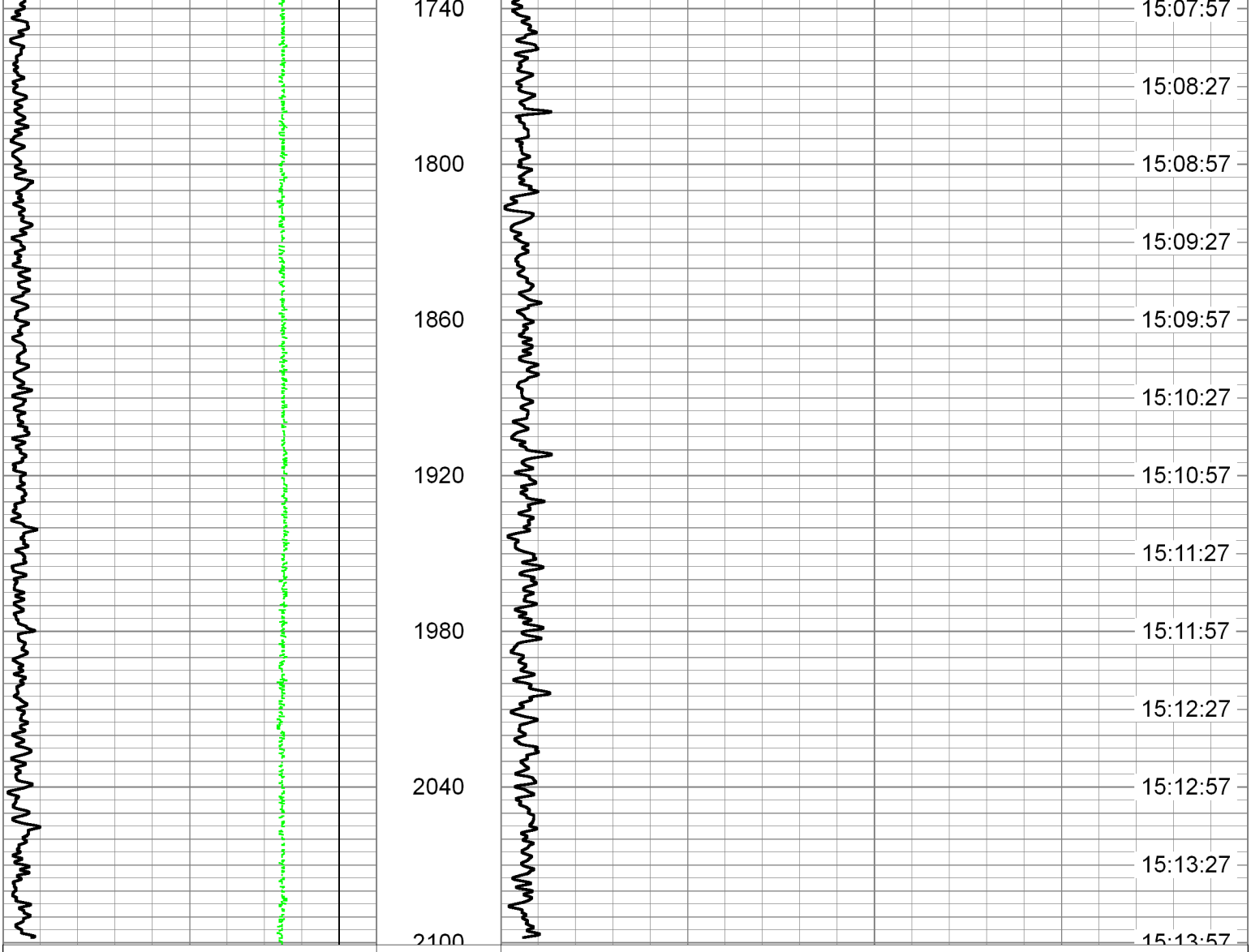
RA MATERIAL PASSING TOOL

60
120
240
300
360

14:39:27
14:39:57
14:40:27
14:40:57
14:41:27
14:41:57
14:42:27
14:42:57
14:43:27
14:43:57
14:44:27
14:44:57
14:45:27


420
480
540
600
660
720
780
840
900
960
1020
14:45:57
14:46:27
14:46:57
14:47:27
14:47:57
14:48:27
14:48:57
14:49:27
14:49:57
14:50:27
14:50:57
14:51:27
14:51:57
14:52:27
14:52:57
14:53:27
14:53:57
14:54:27
14:54:57
14:55:27
14:55:57
14:56:27


1080
1140
1200
1260
1320
1380
1440
1500
1560
1620
1680
14:56:57
14:57:27
14:57:57
14:58:27
14:58:57
14:59:27
14:59:57
15:00:27
15:00:57
15:01:27
15:01:57
15:02:27
15:02:57
15:03:27
15:03:57
15:04:27
15:04:57
15:05:27
15:05:57
15:06:27
15:06:57
15:07:27



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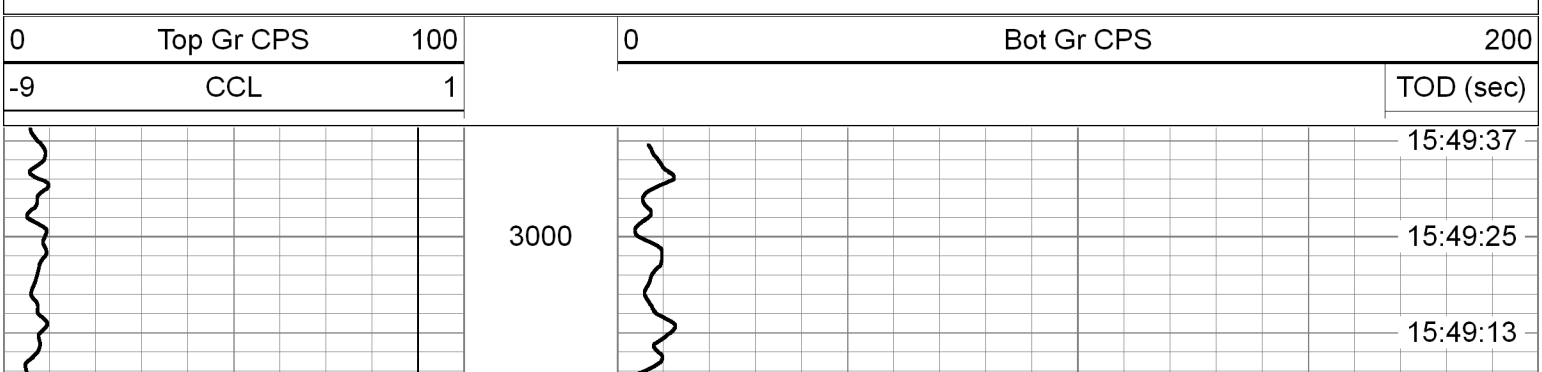
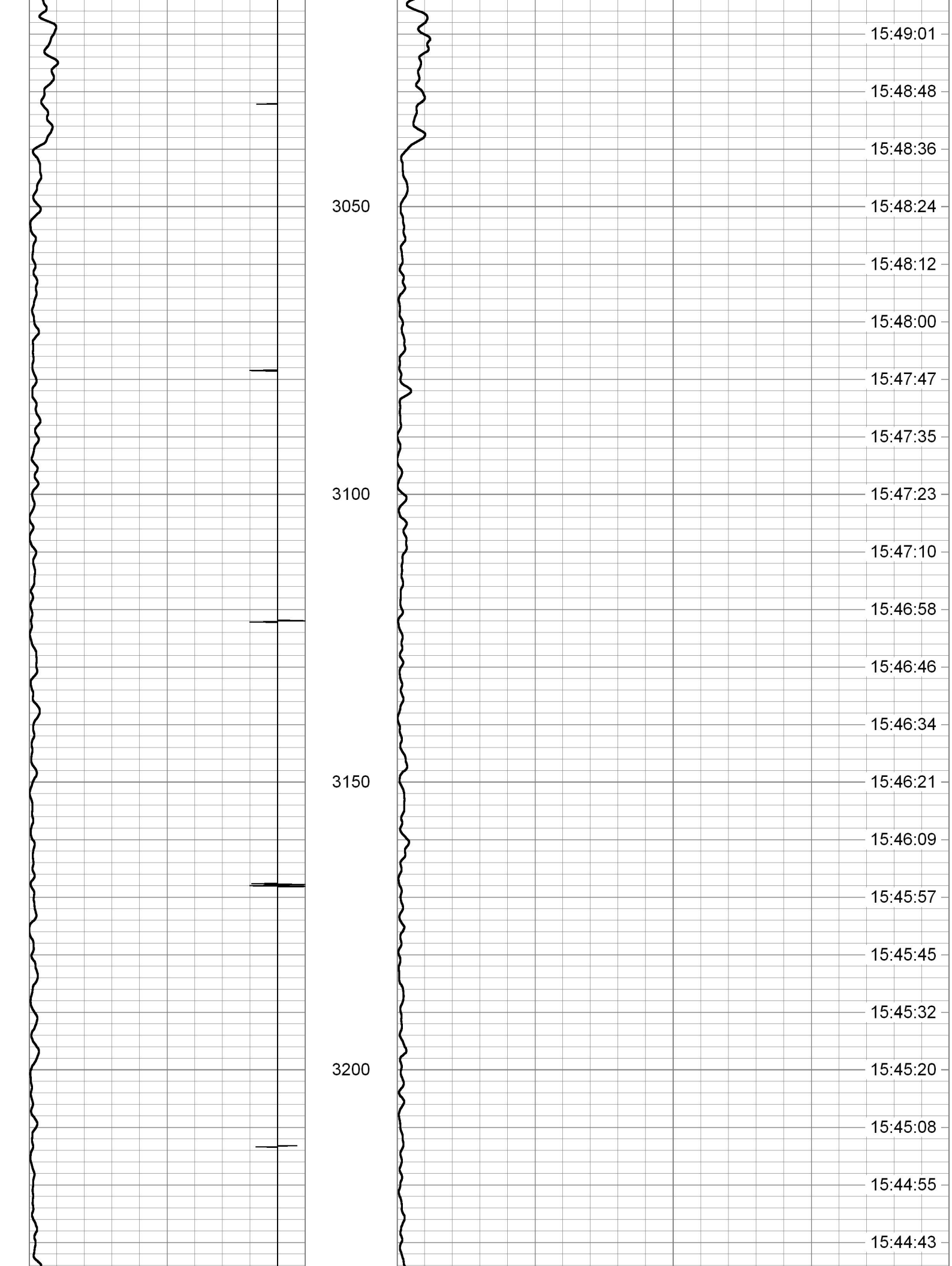
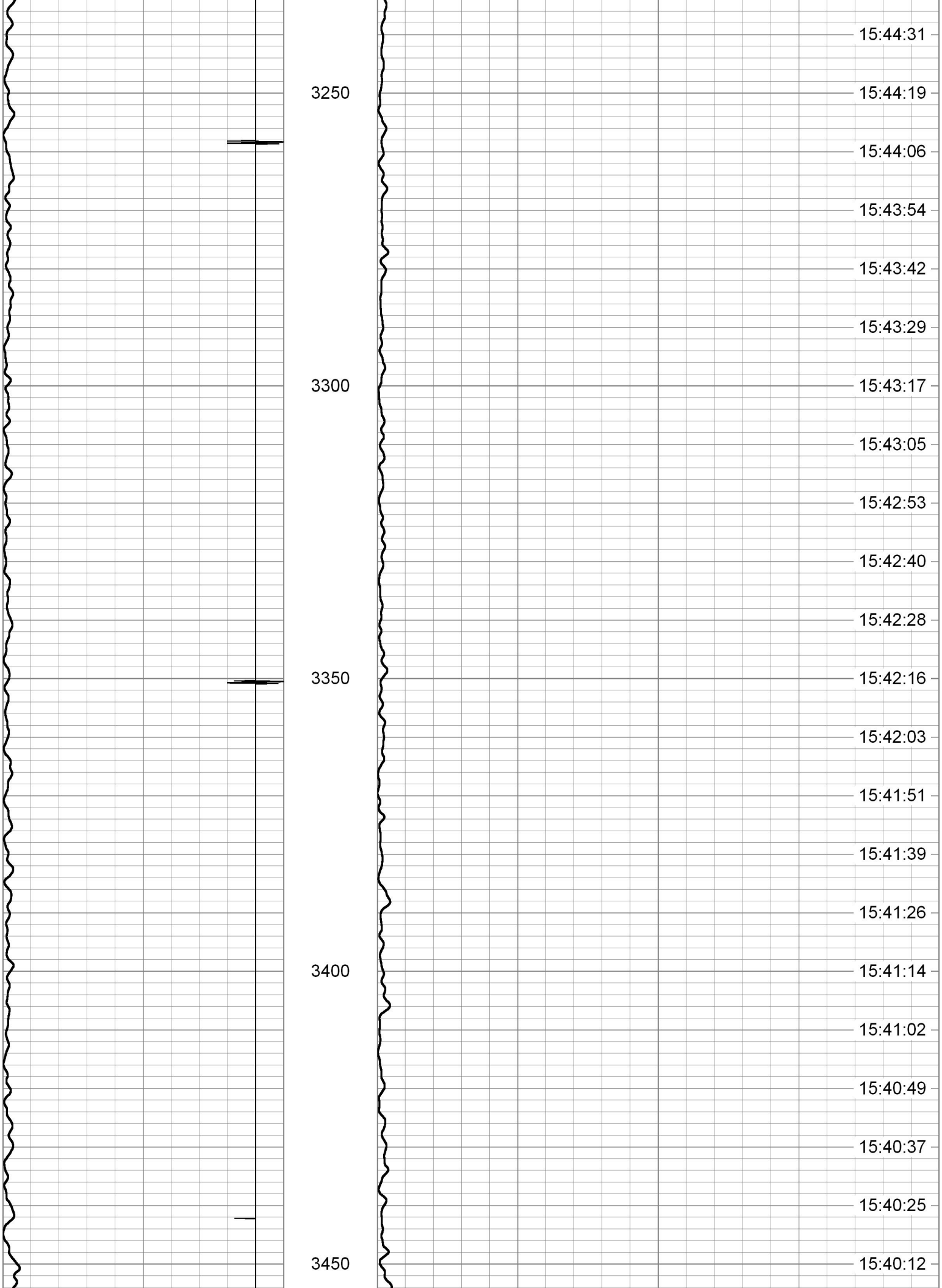
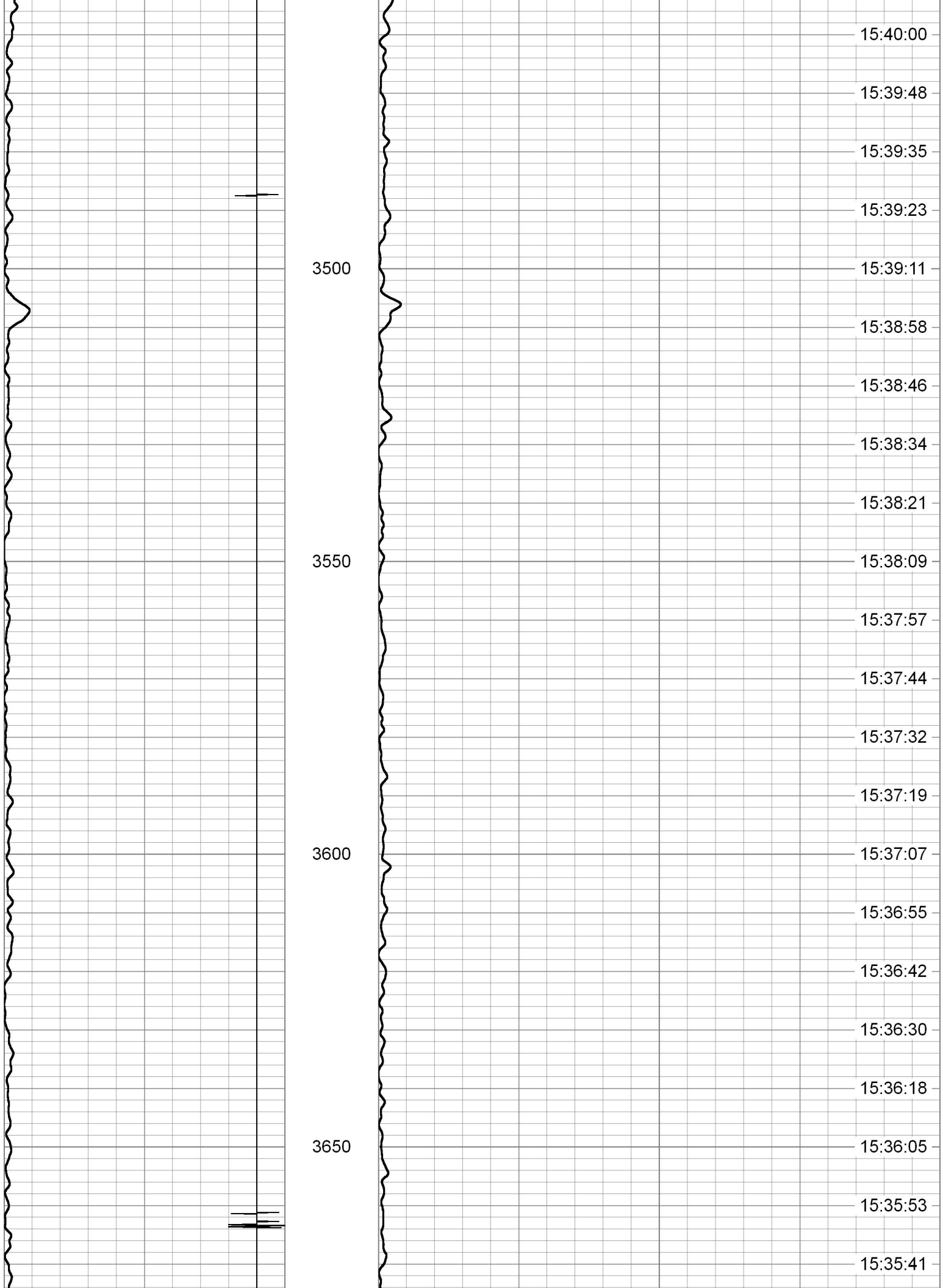
FINAL PASS

Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	FINAL
Presentation Format	tracermwl
Dataset Creation	Tue Sep 05 15:18:11 2023
Charted by	Depth in Feet scaled 1:240




3050
3100
3150
3200
15:49:01
15:48:48
15:48:36
15:48:24
15:48:12
15:48:00
15:47:47
15:47:35
15:47:23
15:47:10
15:46:58
15:46:46
15:46:34
15:46:21
15:46:09
15:45:57
15:45:45
15:45:32
15:45:20
15:45:08
15:44:55
15:44:43


3250
3300
3350
3400
3450
15:44:31
15:44:19
15:44:06
15:43:54
15:43:42
15:43:29
15:43:17
15:43:05
15:42:53
15:42:40
15:42:28
15:42:16
15:42:03
15:41:51
15:41:39
15:41:26
15:41:14
15:41:02
15:40:49
15:40:37
15:40:25
15:40:12


3500
3550
3600
3650
15:40:00
15:39:48
15:39:35
15:39:23
15:39:11
15:38:58
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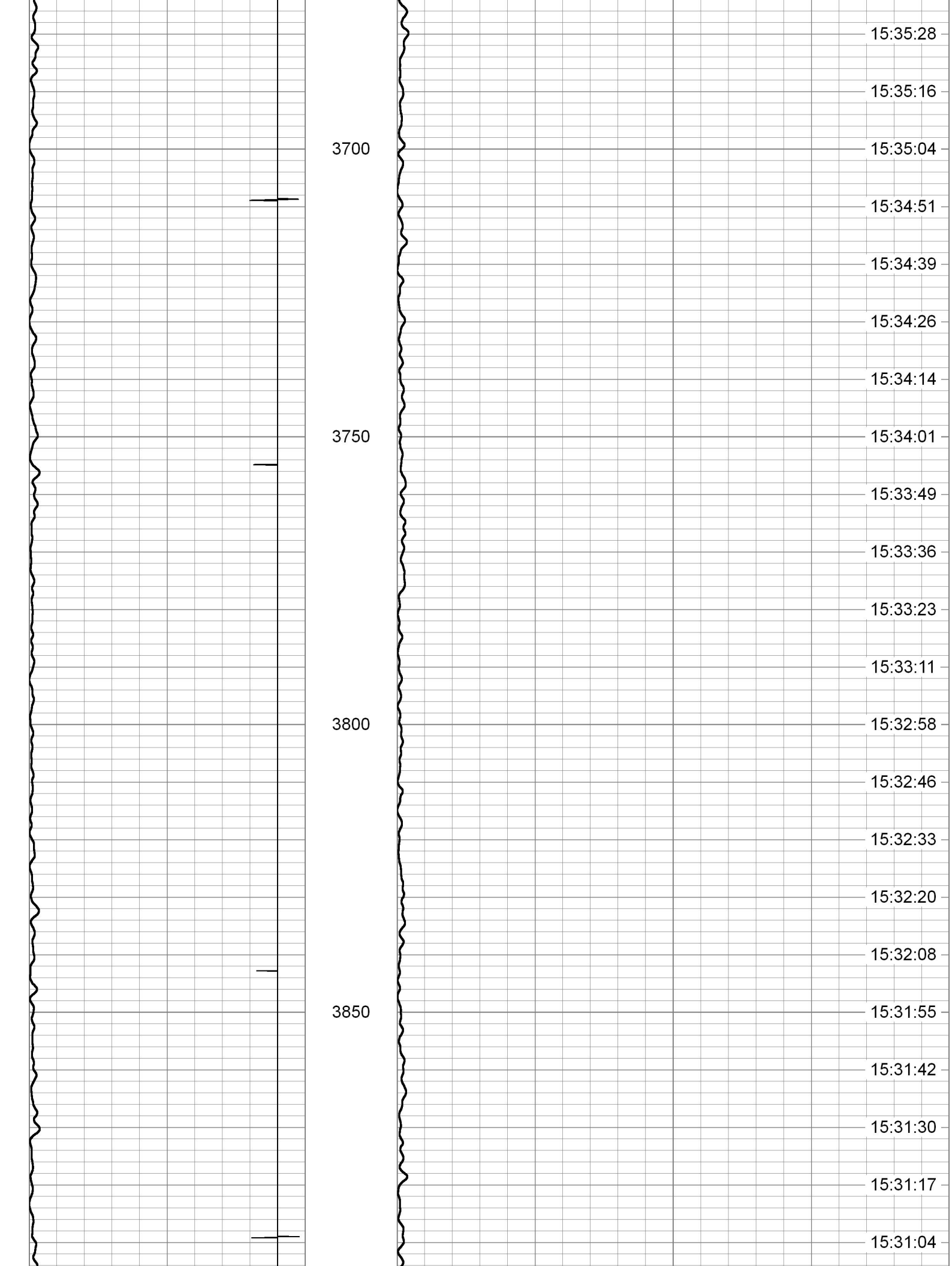
15:38:34
15:38:21
15:38:09
15:37:57
15:37:44
15:37:32
15:37:19
15:37:07
15:36:55
15:36:42
15:36:30
15:36:18
15:36:05
15:35:53
15:35:41


3700
3750
3800
3850
15:35:28
15:35:16
15:35:04
15:34:51
15:34:39
15:34:26
15:34:14
15:34:01
15:33:49
15:33:36
15:33:23
15:33:11
15:32:58
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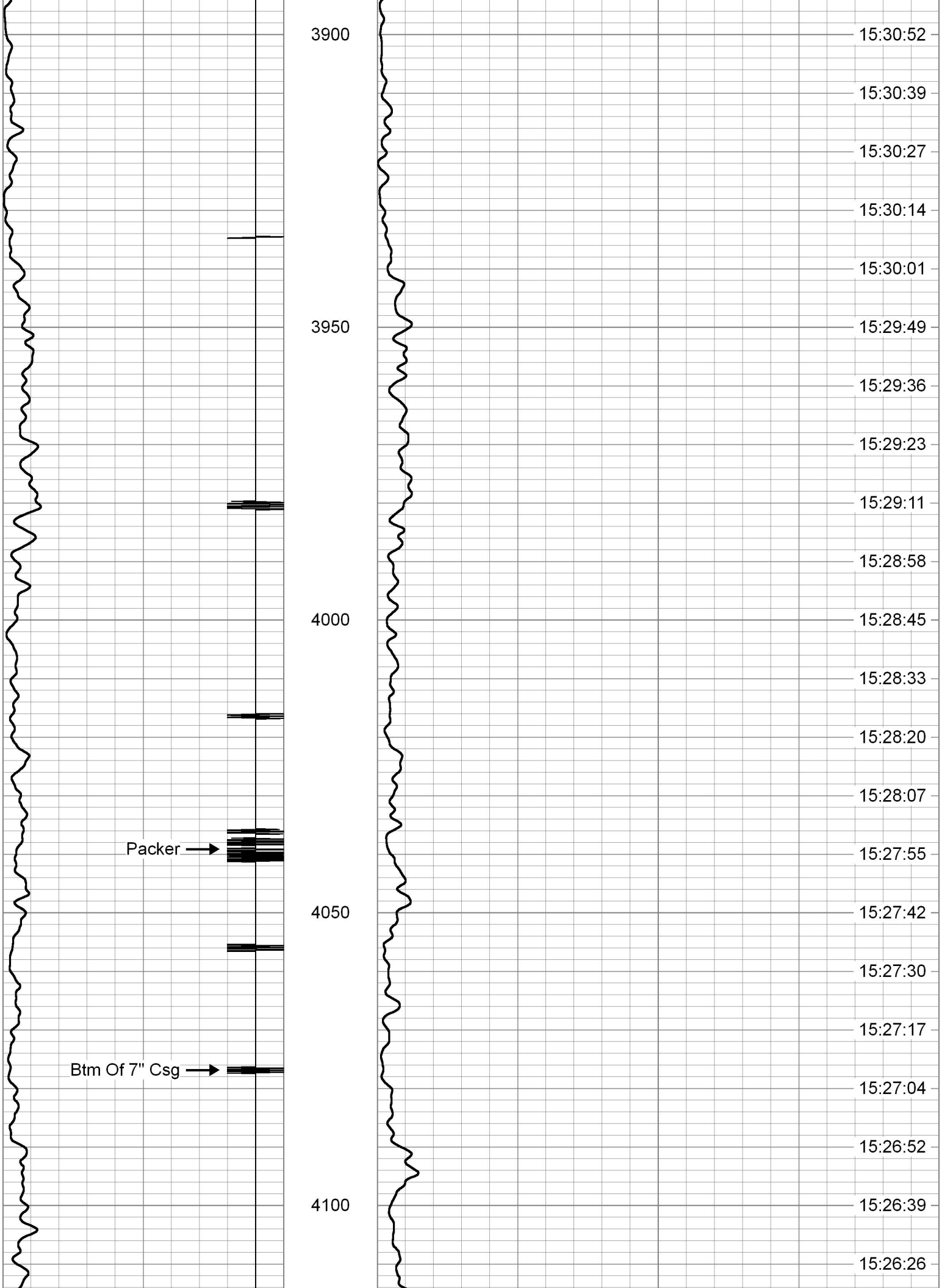
15:31:42
15:31:30
15:31:17
15:31:04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3950
4000
4050
4100
15:30:52
15:30:39
15:30:27
15:30:14
15:30:01
15:29:49
15:29:36
15:29:23
15:29:11
15:28:58
15:28:45
15:28:33
15:28:20
15:28:07
15:27:55
15:27:42
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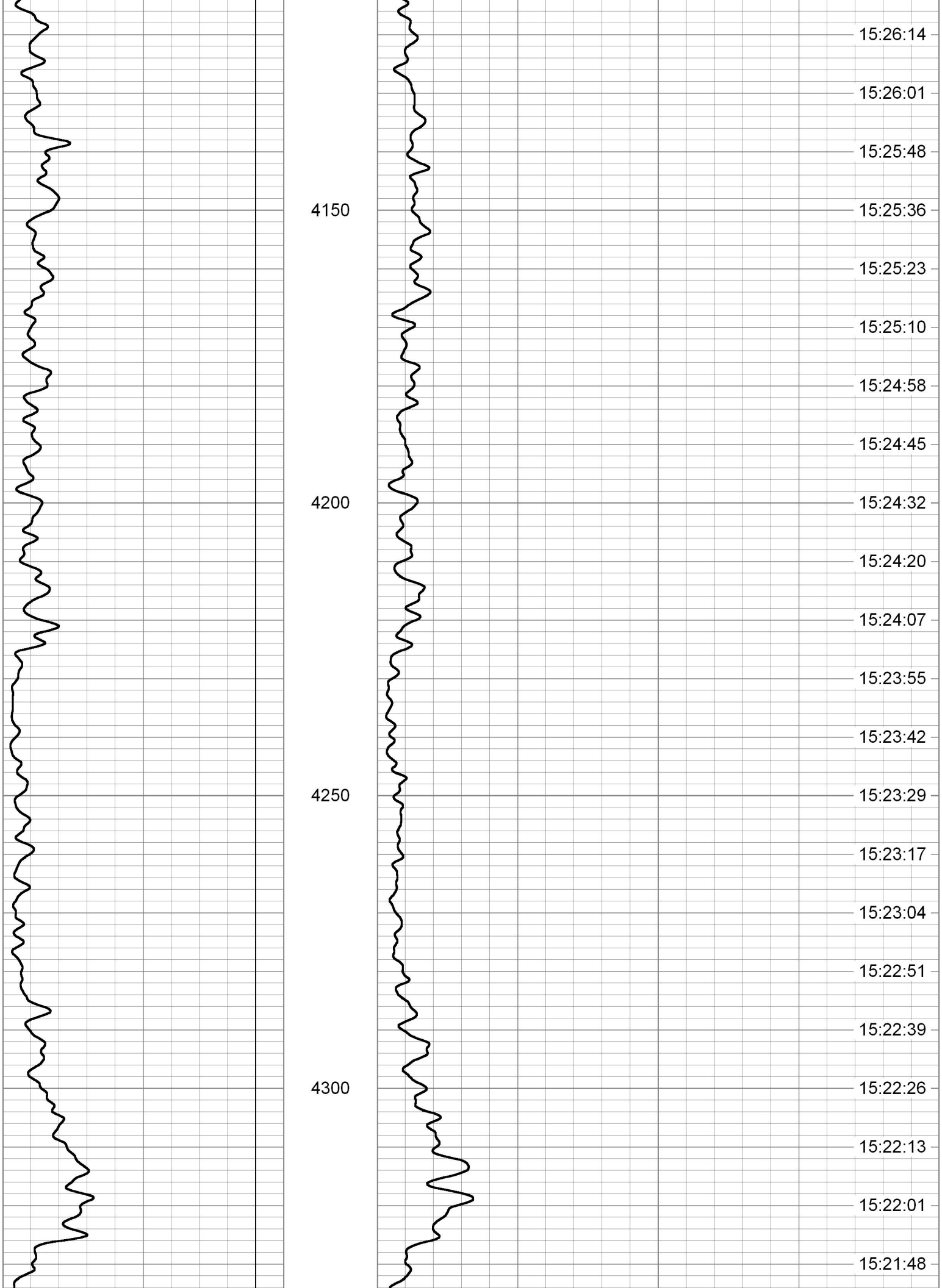
15:26:39
15:26:26
Packer
Btm Of 7" Csg


4150
4200
4250
4300
15:26:14
15:26:01
15:25:48
15:25:36
15:25:23
15:25:10
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15:24:32
15:24:20
15:24:07
15:23:55
15:23:42
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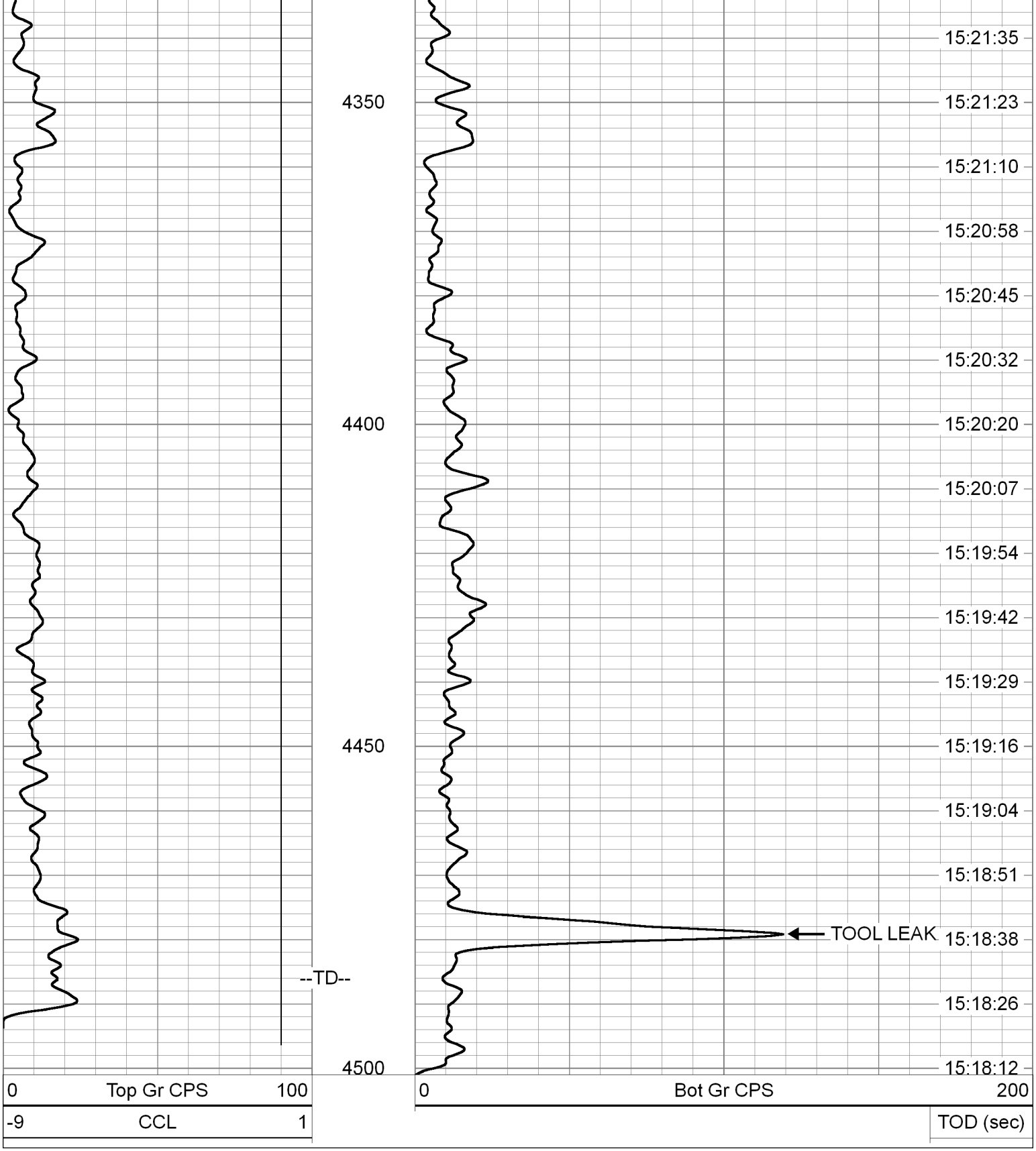
15:22:26
15:22:13
15:22:01
15:21:48



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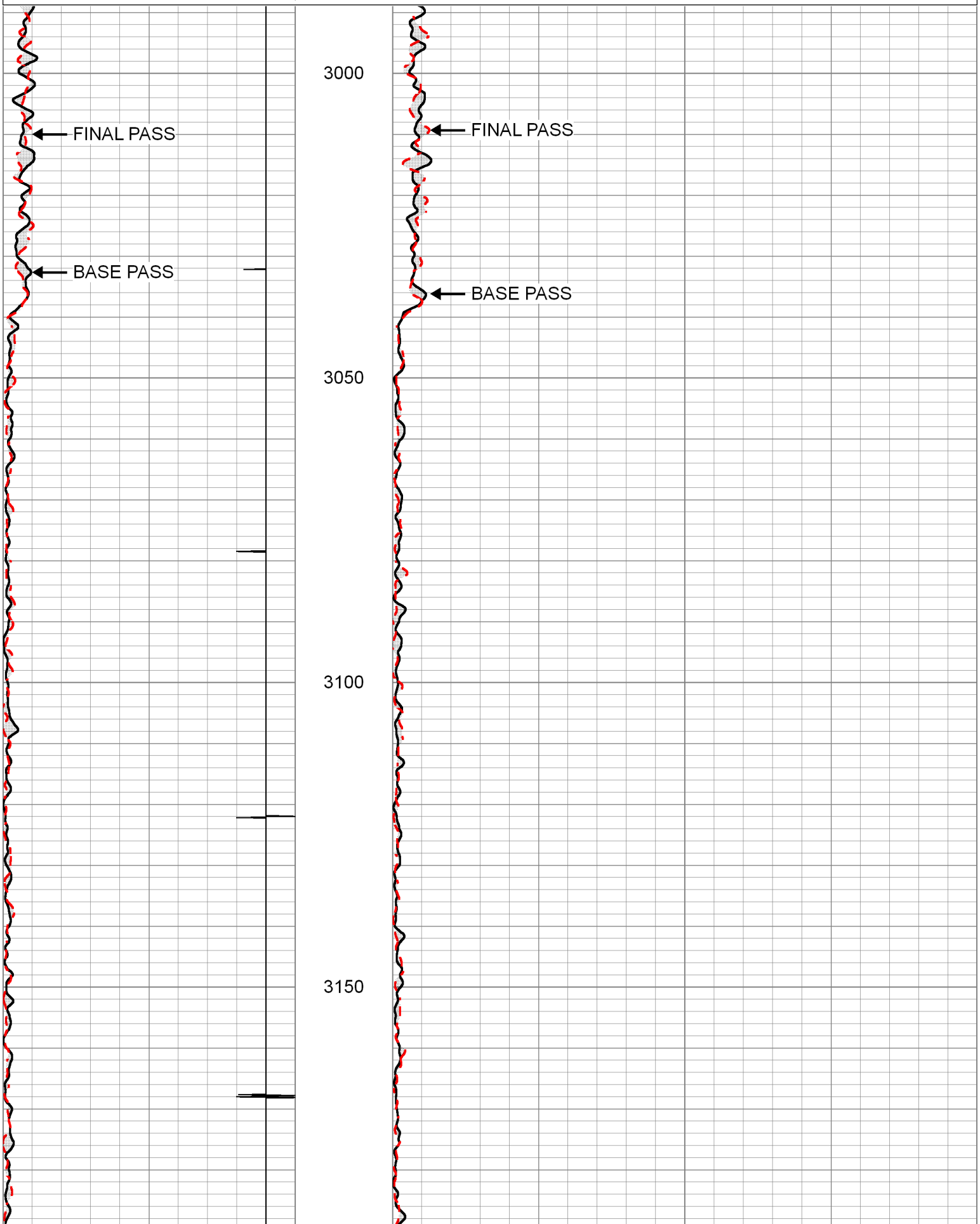
BASE VS FINAL

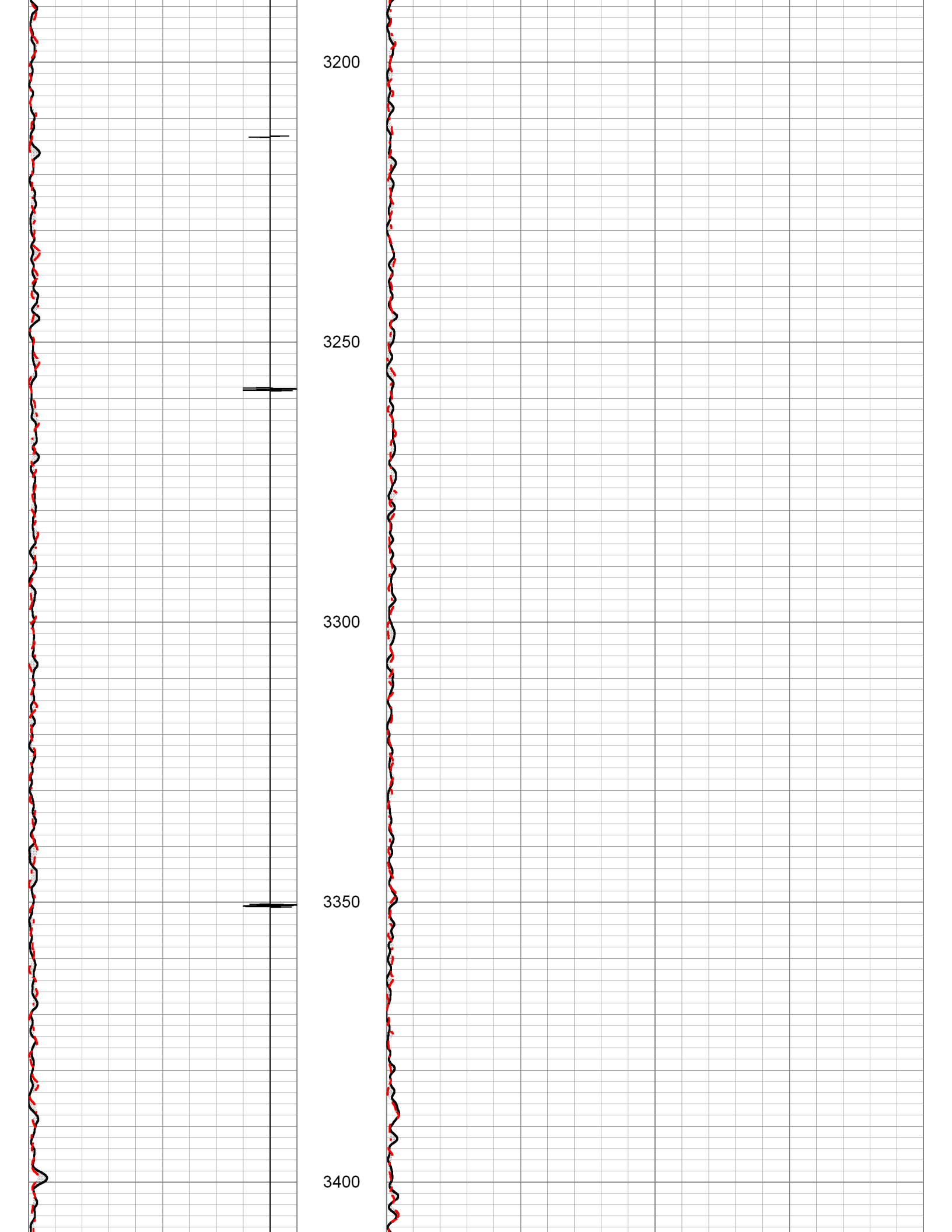
Database File	z:\enviromental geotech technologies\romulus storage\egt #1-12\2023\republic1_12_2023.db
Dataset Pathname	FINAL_BASE
Presentation Format	tracer_final_vs_base
Dataset Creation	Tue Sep 05 15:50:39 2023
Charted by	Depth in Feet scaled 1:240

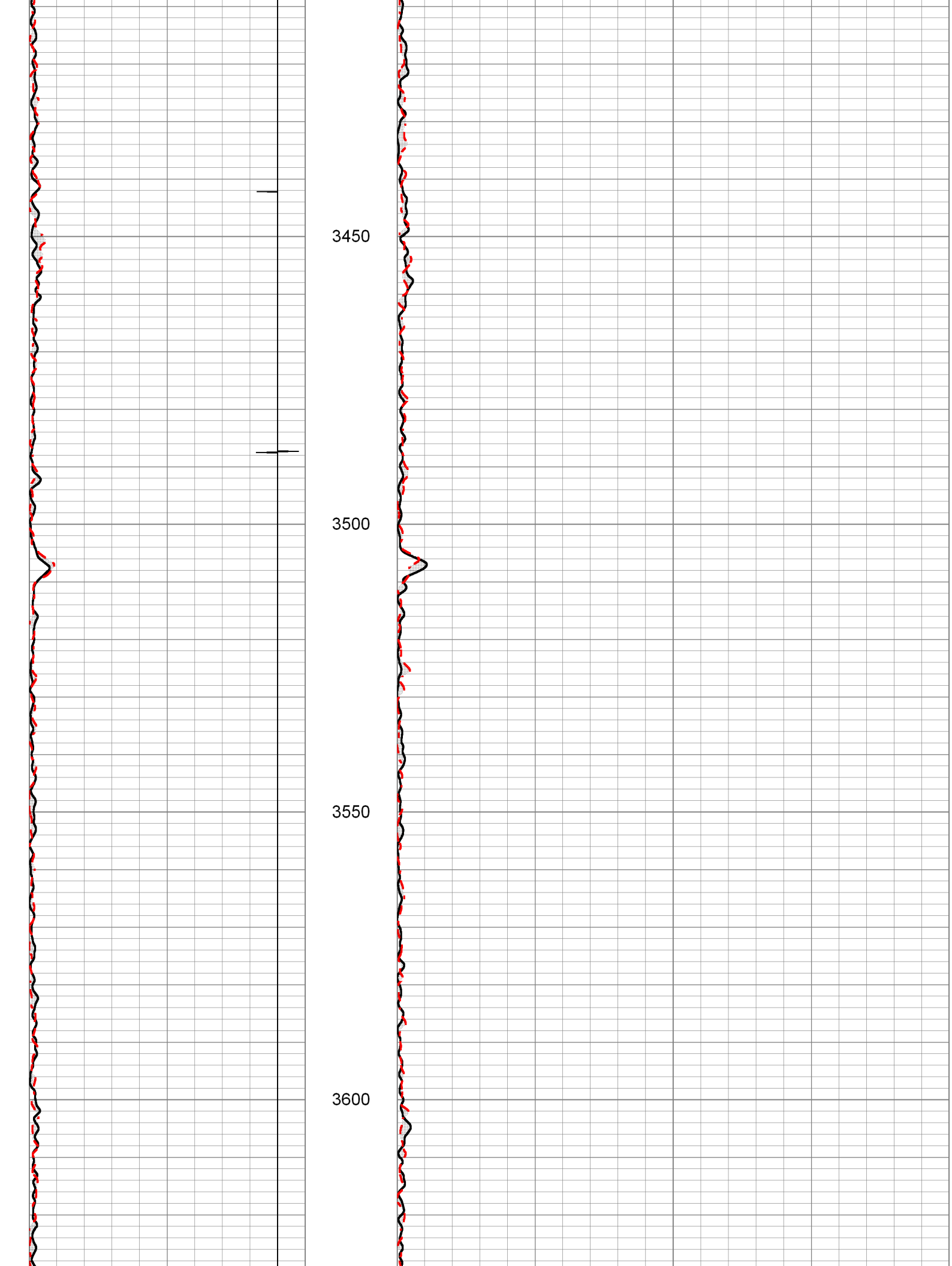
Charted by: Depth in Feet scaled 1:240

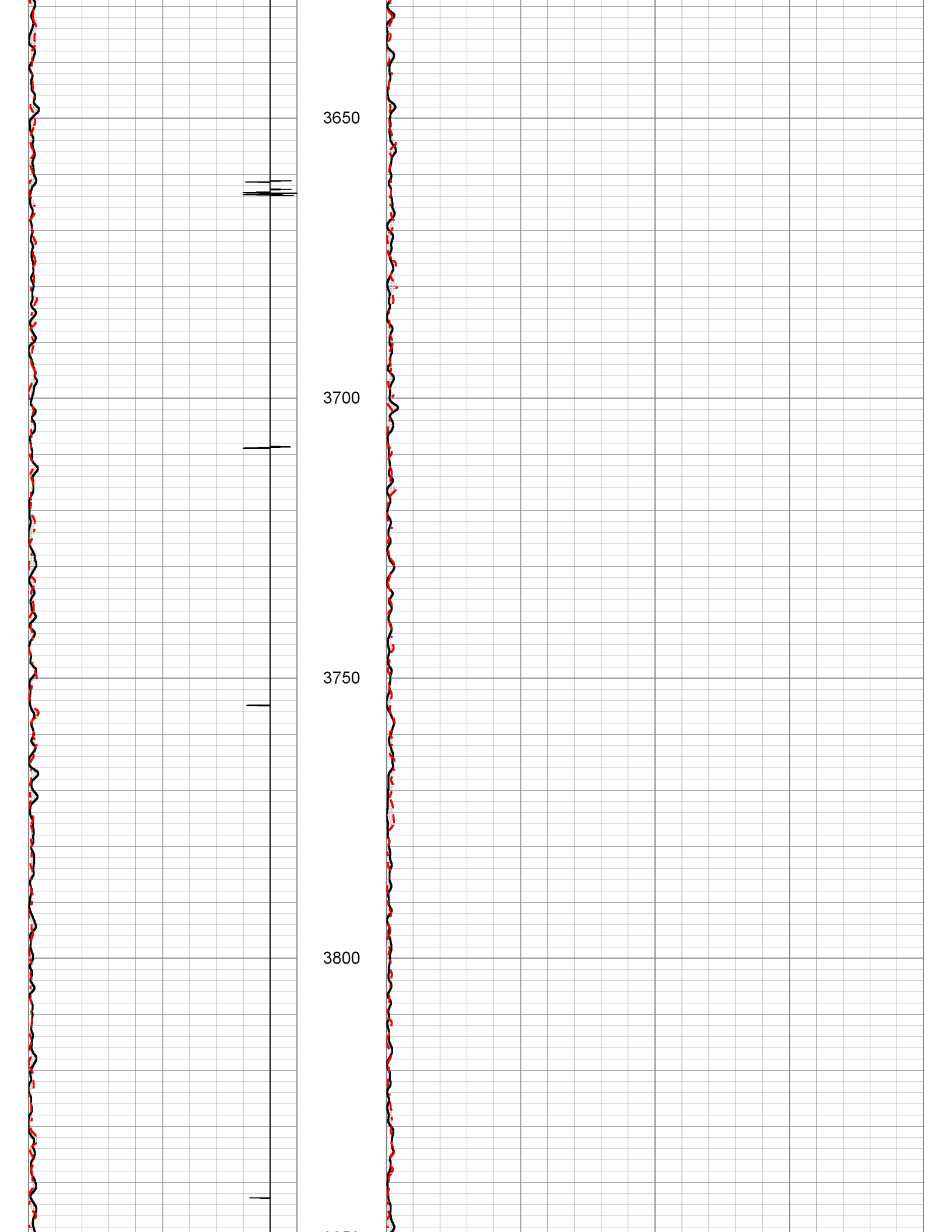
0	BASE PASS Top Gr CPS	100
0	FINAL PASS Top Gr CPS	100
-9	CCL	1

0	BASE PASS Bot Gr CPS	200
0	FINAL PASS Bot Gr CPS	200




3200
3250
3300
3350
3400


3450
3500
3550
3600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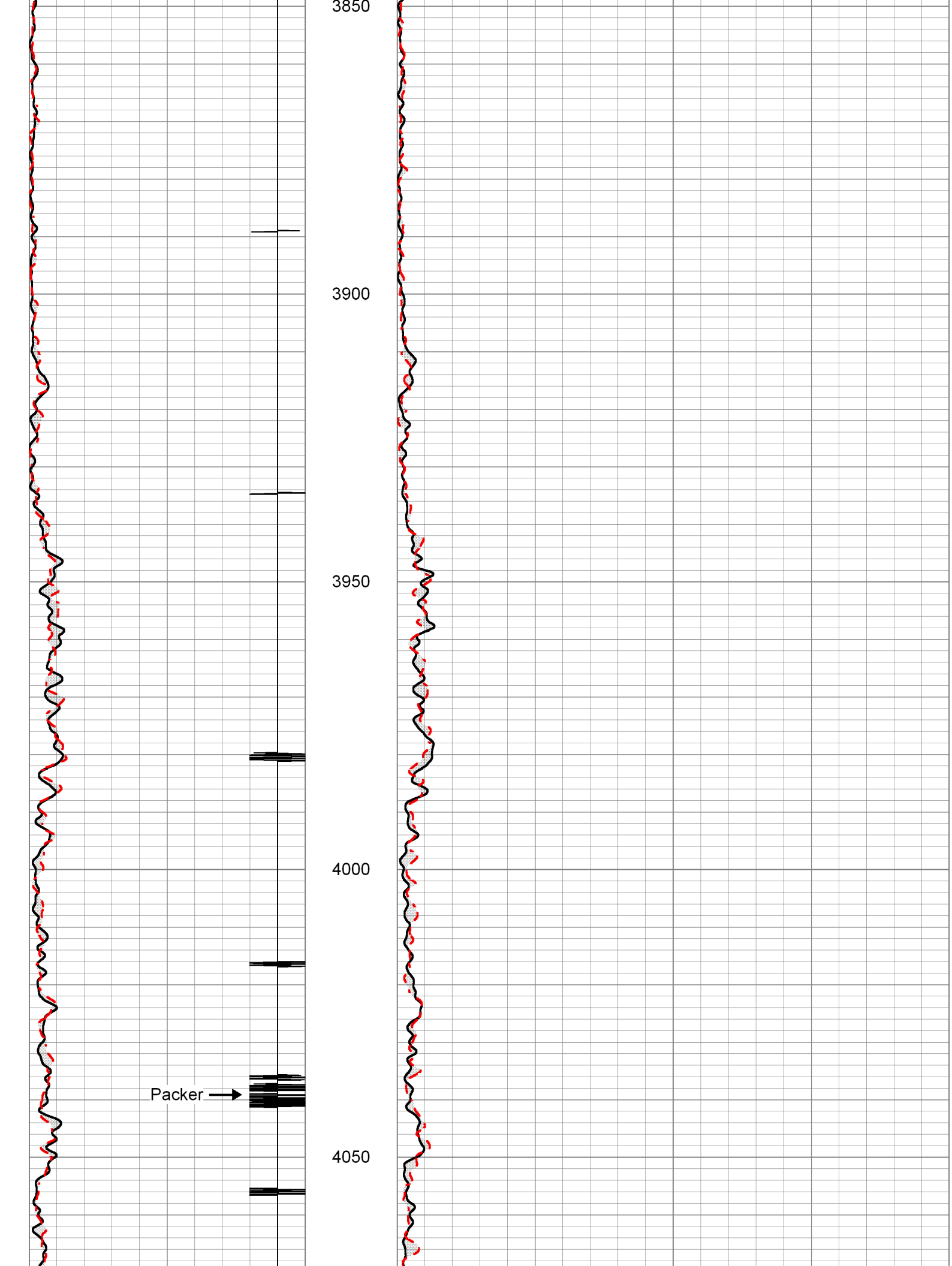
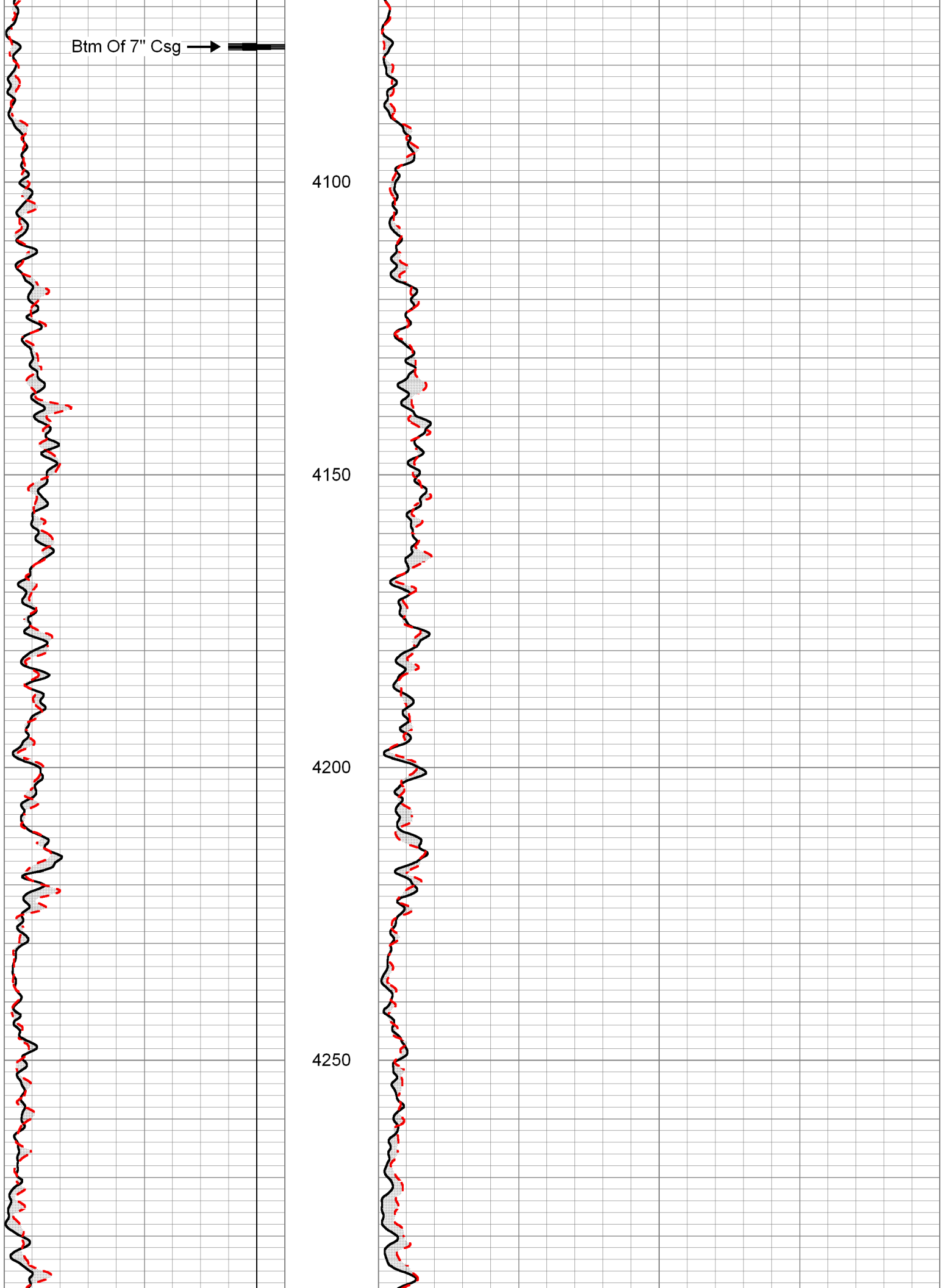
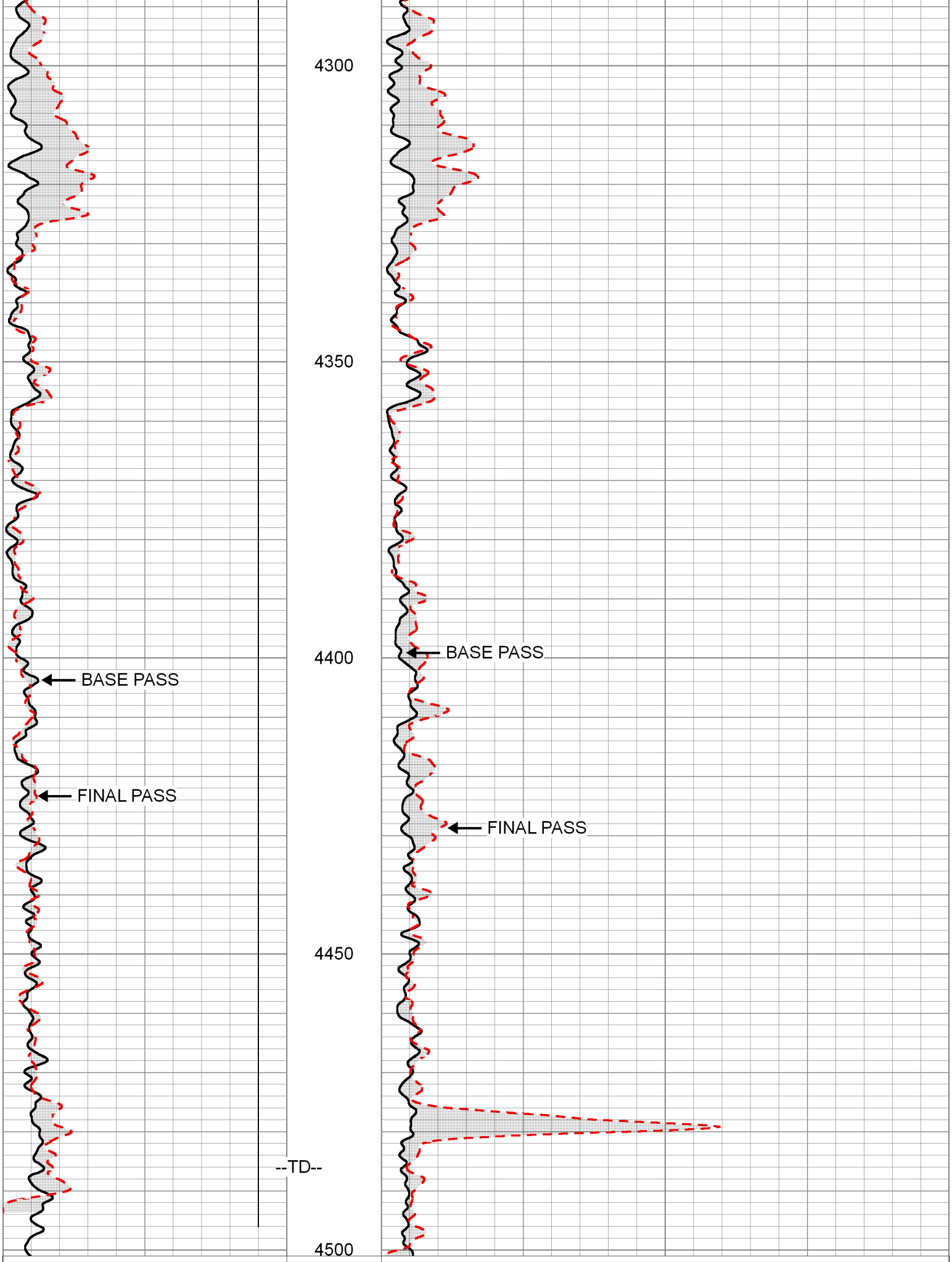

3850
3900
3950
4000
Packer
4050


Btm Of 7" Csg
4100
4150
4200
4250


4300
4350
4400
4450
4500
BASE PASS
FINAL PASS
--TD--
BASE PASS
FINAL PASS
0 BASE PASS Top Gr CPS 100
0 BASE PASS Bot Gr CPS 200
0 FINAL PASS Top Gr CPS 100
0 FINAL PASS Bot Gr CPS 200

-9	CCL	1

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			TREJCT-COMPROBE_MID (0004) Comprobe Ejector DO NOT EXCEED 100ma	0.08	1.38	25.00
DET$2	9.73					
			TRDET-COMPROBE_MID_NO_BAR_SHORT (0006) Comprobe Middle Ejector no spacer bar	13.15	1.38	10.00
CCL	4.50					
DET$1	1.00					
LOCTIM	0.00					

Dataset:	republic1_12_2023.db: field/well/run1/FINAL_BASE
Total length:	13.23 ft
Total weight:	35.00 lb
O.D.:	1.38 in

ATTACHMENTS

ATTACHMENT 1

RAW PRESSURE AND TEMPERATURE DATA FROM FALLOFF AND STATIC PRESSURE GRADIENT (09-07-23 - 09-09-23)

ATTACHMENT 2

WELL 1-12 RAT SURVEY – 4 CHASE PASSES (09-05-23).LAS

ATTACHMENT 3

WELL 1-12 RAT SURVEY - TIME-DRIVE (09-05-23).LAS

ATTACHMENT 4

WELL 1-12 RAT SURVEY - BASE_FINAL PASSES (09-05-23).LAS