Company Name: Buckeye Oil Producing
JM Bennett #2H
Calhoun, West Virginia (NAD 27)
Rig: Waco #1
Created By: Jerry Arsenault
Date: 08/29/2014

JM Bennett #2H
Calhoun, West Virginia (NAD 27)
Q140857 & RM-140808
Design #2 (NAD 27)

PROJECT DETAILS: Calhoun, West Virginia (NAD 27)	
Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	West Virginia South 4702
System Datum:	Mean Sea Level

Buckeye Oil Producing

Calhoun, West Virginia (NAD 27)

Design #2 (NAD 27)

The APPALACHIAN DIRECTIONAL COMPANY

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WV Department of
Environmental Protection
06/05/2015

WELL DETAILS: JM Bennett #2H

Ground Level: 1005.0

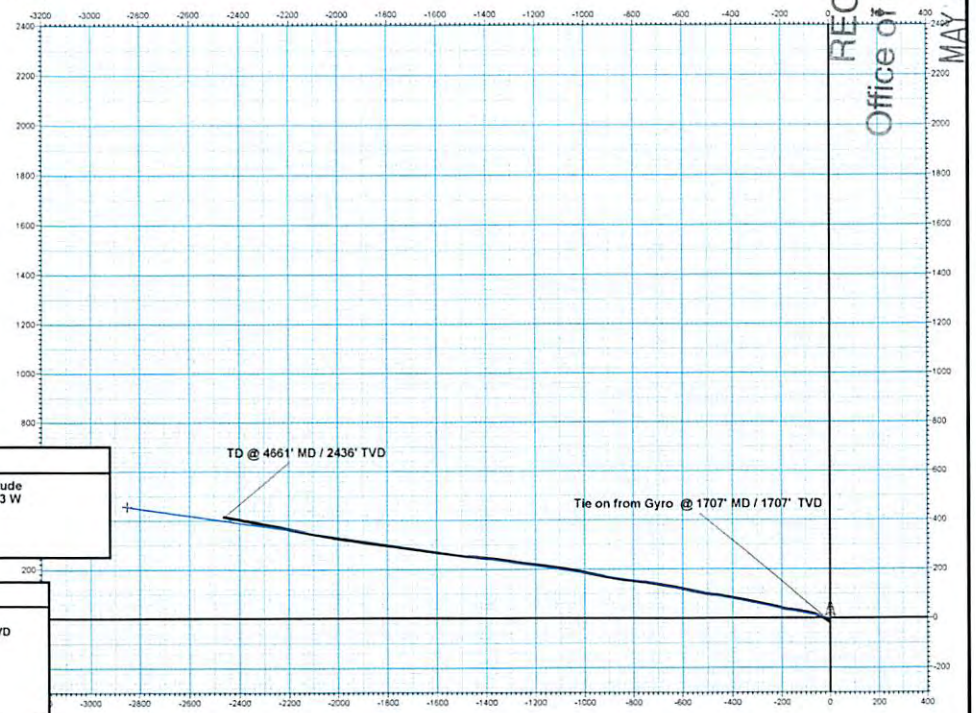
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	724001.00	1967837.00	38° 59' 17.387 N	81° 6' 47.315 W	

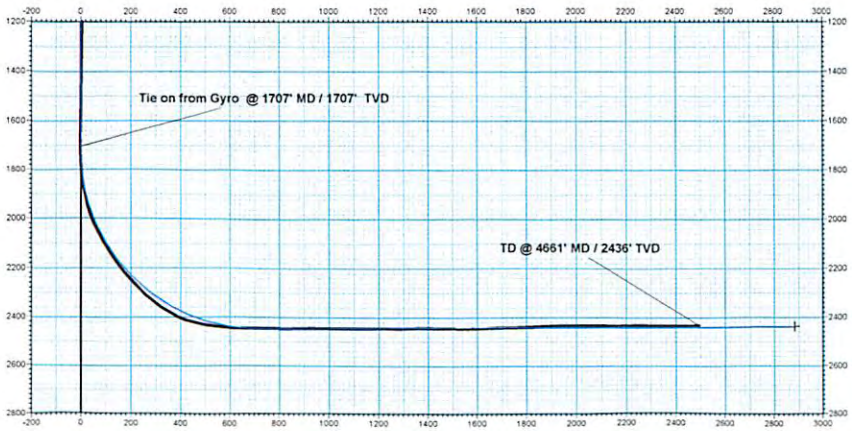
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL JM Bennett #2H (NAD 27 - plan hits target center	2439.0	455.0	-2849.0	724456.00	1964988.00	38° 59' 21.848 N	81° 7' 23.403 W

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
1706.8	1707.0	0.72	139.00	-15.9	-1.1	-1.3	21.6	Tie on from Gyro @ 1707' MD / 1707' TVD
2435.7	4661.0	90.50	280.40	412.1	-2462.1	2495.8	2524.8	TD @ 4661' MD / 2436' TVD





Vertical Section at 279.07° (200 usft/in)

Azimuths to Grid North

Magnetic North: -8.12°

Magnetic Field
Strength: 52153.3snT
Dip Angle: 66.60°
Date: 8/28/2014
Model: IGRF2010

Buckeye Oil Producing

Calhoun, West Virginia (NAD 27)
JM Bennett
JM Bennett #2H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

29 August, 2014

Survey Report

Company:	Buckeye Oil Producing	**Local Co-ordinate Reference:**	Well JM Bennett #2H
Project:	Calhoun, West Virginia (NAD 27)	**TVD Reference:**	WELL @ 1012.0usft (Waco #1)
Site:	JM Bennett	**MD Reference:**	WELL @ 1012.0usft (Waco #1)
Well:	JM Bennett #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Project Calhoun, West Virginia (NAD 27)

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia South 4702		

Site JM Bennett

Site Position:		**Northing:**	724,063.00 usft	**Latitude:**	38° 59' 17.999 N
From:	Map	**Easting:**	1,967,824.00 usft	**Longitude:**	81° 6' 47.481 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.07 °

Well JM Bennett #2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	724,001.00 usft	**Latitude:**	38° 59' 17.387 N
	+E/-W	0.0 usft	**Easting:**	1,967,837.00 usft	**Longitude:**	81° 6' 47.315 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	1,005.0 usft

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	8/28/2014	-8.19	66.60	52,153

Design Wellbore #1

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.0	0.0	0.0	278.30

Survey Program **Date** 8/29/2014

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
100.0	1,707.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
1,729.0	4,661.0	ADC MWD (Wellbore #1)	MWD default	MWD - Standard

Survey

Measured Depth (usft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Vertical Section (usft)**	**Dogleg Rate (°/100usft)**	**Build Rate (°/100usft)**	**Turn Rate (°/100usft)**
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.26	259.76	100.0	0.0	-0.2	0.2	0.26	0.26	0.00
200.0	0.29	242.26	200.0	-0.2	-0.7	0.6	0.03	0.03	-17.50
300.0	0.92	236.28	300.0	-0.8	-1.6	1.4	0.63	0.63	-5.98
400.0	1.15	235.85	400.0	-1.8	-3.1	2.8	0.23	0.23	-0.43
500.0	1.14	212.35	500.0	-3.2	-4.4	3.9	0.47	-0.01	-23.50
600.0	0.92	198.99	599.9	-4.8	-5.2	4.5	0.32	-0.22	-13.36
700.0	0.49	247.15	699.9	-5.7	-5.9	5.0	0.70	-0.43	48.16
800.0	0.44	242.95	799.9	-6.0	-6.6	5.7	0.04	-0.05	-4.20
900.0	0.24	194.89	899.9	-6.4	-7.0	6.0	0.33	-0.20	-48.06

Survey Report

Company:	Buckeye Oil Producing	**Local Co-ordinate Reference:**	Well JM Bennett #2H
Project:	Calhoun, West Virginia (NAD 27)	**TVD Reference:**	WELL @ 1012.0usft (Waco #1)
Site:	JM Bennett	**MD Reference:**	WELL @ 1012.0usft (Waco #1)
Well:	JM Bennett #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	0.22	178.69	999.9	-6.8	-7.1	6.0	0.07	-0.02	-16.20
1,100.0	0.64	129.42	1,099.9	-7.4	-6.6	5.5	0.52	0.42	-49.27
1,200.0	0.93	130.42	1,199.9	-8.2	-5.6	4.3	0.29	0.29	1.00
1,300.0	1.05	144.11	1,299.9	-9.5	-4.4	3.0	0.26	0.12	13.69
1,400.0	1.20	151.63	1,399.9	-11.2	-3.4	1.7	0.21	0.15	7.52
1,500.0	1.14	150.77	1,499.9	-13.0	-2.4	0.5	0.06	-0.06	-0.86
1,600.0	0.92	165.73	1,599.8	-14.6	-1.7	-0.4	0.35	-0.22	14.96
1,700.0	0.71	139.32	1,699.8	-15.9	-1.1	-1.2	0.42	-0.21	-26.41
1,707.0	0.72	139.00	1,706.8	-15.9	-1.1	-1.3	0.15	0.14	-4.57
Tie on from Gyro @ 1707' MD / 1707' TVD									
1,729.0	0.49	252.99	1,728.8	-16.1	-1.1	-1.3	4.65	-1.05	518.14
1,761.0	2.30	287.80	1,760.8	-15.9	-1.8	-0.5	5.99	5.66	108.78
1,792.0	4.60	293.80	1,791.8	-15.2	-3.5	1.3	7.50	7.42	19.35
1,824.0	6.81	294.59	1,823.6	-13.9	-6.4	4.4	6.91	6.91	2.47
1,855.0	8.71	300.10	1,854.3	-12.0	-10.1	8.3	6.58	6.13	17.77
1,888.0	10.69	304.28	1,886.8	-9.0	-14.8	13.4	6.36	6.00	12.67
1,918.0	12.81	305.78	1,916.2	-5.5	-19.8	18.8	7.14	7.07	5.00
1,950.0	14.89	304.28	1,947.3	-1.1	-26.1	25.7	6.60	6.50	-4.69
1,982.0	18.52	298.69	1,977.9	3.7	-33.9	34.1	12.39	11.34	-17.47
2,013.0	22.58	292.47	2,007.0	8.3	-43.8	44.5	14.85	13.10	-20.06
2,044.0	25.90	288.77	2,035.2	12.8	-55.7	56.9	11.77	10.71	-11.94
2,076.0	28.19	286.17	2,063.7	17.1	-69.6	71.3	8.05	7.16	-8.13
2,107.0	29.78	283.40	2,090.8	21.0	-84.1	86.2	6.71	5.13	-8.94
2,139.0	31.42	280.88	2,118.4	24.4	-100.0	102.5	6.51	5.13	-7.88
2,171.0	33.01	278.59	2,145.5	27.2	-116.8	119.5	6.26	4.97	-7.16
2,203.0	34.69	277.58	2,172.0	29.8	-134.5	137.4	5.54	5.25	-3.16
2,235.0	37.21	277.89	2,197.9	32.3	-153.1	156.1	7.90	7.88	0.97
2,266.0	39.99	279.21	2,222.2	35.2	-172.2	175.5	9.35	8.97	4.26
2,298.0	41.80	280.71	2,246.3	38.8	-192.8	196.4	6.43	5.66	4.69
2,330.0	43.31	282.91	2,269.9	43.2	-214.0	218.0	6.62	4.72	6.88
2,362.0	45.29	282.69	2,292.8	48.2	-235.8	240.3	6.21	6.19	-0.69
2,393.0	47.81	281.81	2,314.1	52.9	-257.8	262.7	8.39	8.13	-2.84
2,425.0	50.42	282.29	2,335.1	58.0	-281.5	286.9	8.23	8.16	1.50
2,457.0	54.09	283.18	2,354.7	63.6	-306.1	312.1	11.68	11.47	2.78
2,489.0	57.89	281.90	2,372.6	69.3	-332.0	338.6	12.08	11.88	-4.00
2,521.0	61.51	281.28	2,388.7	74.9	-359.1	366.1	11.44	11.31	-1.94
2,553.0	66.11	280.97	2,402.8	80.4	-387.3	394.8	14.40	14.38	-0.97
2,585.0	70.88	279.69	2,414.6	85.7	-416.5	424.5	15.36	14.91	-4.00
2,617.0	75.61	277.80	2,423.8	90.4	-446.8	455.2	15.83	14.78	-5.91
2,649.0	79.01	278.50	2,430.8	94.8	-477.7	486.4	10.84	10.63	2.19
2,681.0	81.31	280.49	2,436.3	100.0	-508.8	517.9	9.44	7.19	6.22
2,713.0	83.78	282.38	2,440.4	106.3	-539.9	[illegible]	[illegible]	[illegible]	5.91
2,743.0	84.00	281.90	2,443.6	112.6	-569.1	579.4	1.75	0.73	-1.60

Survey Report

Company:	Buckeye Oil Producing	**Local Co-ordinate Reference:**	Well JM Bennett #2H
Project:	Calhoun, West Virginia (NAD 27)	**TVD Reference:**	WELL @ 1012.0usft (Waco #1)
Site:	JM Bennett	**MD Reference:**	WELL @ 1012.0usft (Waco #1)
Well:	JM Bennett #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,776.0	86.70	281.50	2,446.3	119.3	-601.3	612.2	8.27	8.18	-1.21
2,807.0	90.19	281.37	2,447.1	125.4	-631.6	643.1	11.27	11.26	-0.42
2,840.0	89.70	279.70	2,447.2	131.4	-664.1	676.1	5.27	-1.48	-5.06
2,871.0	90.50	279.00	2,447.1	136.5	-694.7	707.1	3.43	2.58	-2.26
2,902.0	89.90	279.30	2,447.0	141.4	-725.3	738.1	2.16	-1.94	0.97
2,934.0	89.20	278.20	2,447.3	146.3	-756.9	770.1	4.07	-2.19	-3.44
2,966.0	89.40	276.70	2,447.6	150.4	-788.6	802.1	4.73	0.63	-4.69
2,998.0	89.90	275.40	2,447.8	153.8	-820.4	834.0	4.35	1.56	-4.06
3,029.0	91.10	278.70	2,447.6	157.6	-851.2	865.0	11.33	3.87	10.65
3,061.0	92.10	279.30	2,446.7	162.6	-882.8	897.0	3.64	3.13	1.88
3,093.0	89.60	281.70	2,446.2	168.4	-914.2	929.0	10.83	-7.81	7.50
3,125.0	89.00	281.90	2,446.6	175.0	-945.6	960.9	1.98	-1.88	0.63
3,157.0	89.60	280.90	2,447.0	181.3	-976.9	992.9	3.64	1.88	-3.13
3,189.0	90.40	280.50	2,447.0	187.2	-1,008.4	1,024.8	2.80	2.50	-1.25
3,221.0	90.30	280.30	2,446.8	193.0	-1,039.9	1,056.8	0.70	-0.31	-0.63
3,253.0	89.50	279.30	2,446.8	198.5	-1,071.4	1,088.8	4.00	-2.50	-3.13
3,284.0	89.90	278.70	2,447.0	203.3	-1,102.0	1,119.8	2.33	1.29	-1.94
3,316.0	90.10	277.90	2,447.0	207.9	-1,133.7	1,151.8	2.58	0.63	-2.50
3,348.0	90.00	277.40	2,447.0	212.2	-1,165.4	1,183.8	1.59	-0.31	-1.56
3,380.0	89.30	276.80	2,447.2	216.1	-1,197.1	1,215.8	2.88	-2.19	-1.88
3,411.0	89.40	277.10	2,447.5	219.9	-1,227.9	1,246.8	1.02	0.32	0.97
3,443.0	90.20	278.70	2,447.6	224.3	-1,259.6	1,278.8	5.59	2.50	5.00
3,475.0	90.90	278.70	2,447.3	229.1	-1,291.2	1,310.8	2.19	2.19	0.00
3,507.0	91.30	278.40	2,446.7	233.9	-1,322.9	1,342.8	1.56	1.25	-0.94
3,539.0	91.70	277.80	2,445.9	238.4	-1,354.5	1,374.8	2.25	1.25	-1.88
3,571.0	88.70	276.10	2,445.8	242.3	-1,386.3	1,406.8	10.78	-9.38	-5.31
3,600.0	88.60	275.80	2,446.5	245.3	-1,415.1	1,435.7	1.09	-0.34	-1.03
3,631.0	88.80	275.60	2,447.2	248.4	-1,446.0	1,466.7	0.91	0.65	-0.65
3,662.0	89.60	275.50	2,447.6	251.4	-1,476.8	1,497.6	2.60	2.58	-0.32
3,694.0	88.90	277.20	2,448.0	254.9	-1,508.6	1,529.6	5.74	-2.19	5.31
3,726.0	90.50	277.90	2,448.2	259.1	-1,540.3	1,561.6	5.46	5.00	2.19
3,758.0	91.50	277.40	2,447.6	263.4	-1,572.1	1,593.6	3.49	3.13	-1.56
3,790.0	92.20	277.20	2,446.6	267.4	-1,603.8	1,625.6	2.27	2.19	-0.63
3,821.0	92.30	276.40	2,445.4	271.1	-1,634.5	1,656.5	2.60	0.32	-2.58
3,851.0	90.40	278.40	2,444.7	274.9	-1,664.3	1,686.5	9.19	-6.33	6.67
3,883.0	90.40	278.70	2,444.4	279.7	-1,695.9	1,718.5	0.94	0.00	0.94
3,914.0	90.70	278.00	2,444.1	284.2	-1,726.6	1,749.5	[illegible]	0.97	-2.26
3,946.0	91.40	277.30	2,443.6	288.5	-1,758.3	1,781.5	3.09	2.19	-2.19
3,977.0	92.30	277.30	2,442.6	292.4	-1,789.0	1,812.5	2.90	2.90	0.00
4,009.0	93.20	276.70	2,441.0	296.3	-1,820.8	1,844.5	3.38	2.81	-1.88
4,041.0	92.00	277.90	2,439.6	300.4	-1,852.5	1,876.4	5.30	-3.75	3.75
4,073.0	92.30	279.30	2,438.4	305.1	-1,884.1	1,908.4	[illegible]	[illegible]	4.38
4,105.0	92.80	278.50	2,436.9	310.1	-1,915.7	1,940.4	2.85	-1.56	-2.50

Survey Report

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Site:	JM Bennett	**MD Reference:**	WELL @ 1012.0usft (Waco #1)
Well:	JM Bennett #2H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM Compass

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,137.0	89.30	278.60	2,436.4	314.8	-1,947.3	1,972.4	10.94	-10.94	0.31
4,168.0	89.00	279.20	2,436.8	319.6	-1,977.9	2,003.3	2.16	-0.97	1.94
4,200.0	90.40	279.60	2,437.0	324.9	-2,009.5	2,035.3	4.55	4.38	1.25
4,232.0	91.00	280.50	2,436.6	330.5	-2,041.0	2,067.3	3.38	1.88	2.81
4,264.0	88.70	280.70	2,436.7	336.3	-2,072.4	2,099.3	7.21	-7.19	0.63
4,296.0	88.90	280.70	2,437.3	342.3	-2,103.9	2,131.3	0.63	0.63	0.00
4,328.0	90.50	281.30	2,437.5	348.4	-2,135.3	2,163.2	5.34	5.00	1.88
4,360.0	92.00	282.20	2,436.8	354.9	-2,166.6	2,195.2	5.47	4.69	2.81
4,392.0	90.20	281.40	2,436.2	361.4	-2,197.9	2,227.1	6.16	-5.63	-2.50
4,423.0	90.70	281.40	2,436.0	367.6	-2,228.3	2,258.0	1.61	1.61	0.00
4,455.0	88.40	280.10	2,436.2	373.5	-2,259.8	2,290.0	8.26	-7.19	-4.06
4,487.0	90.00	281.80	2,436.7	379.6	-2,291.2	2,322.0	7.29	5.00	5.31
4,518.0	91.40	281.80	2,436.3	386.0	-2,321.5	2,352.9	4.52	4.52	0.00
4,550.0	89.40	280.30	2,436.1	392.1	-2,352.9	2,384.9	7.81	-6.25	-4.69
4,582.0	89.90	280.50	2,436.2	397.9	-2,384.4	2,416.8	1.68	1.56	0.63
4,613.0	90.50	280.40	2,436.1	403.5	-2,414.9	2,447.8	1.96	1.94	-0.32
4,661.0	90.50	280.40	2,435.7	412.1	-2,462.1	2,495.8	0.00	0.00	0.00

TD @ 4661' MD / 2436' TVD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,707.0	1,706.8	-15.9	-1.1	Tie on from Gyro @ 1707' MD / 1707' TVD
4,661.0	2,435.7	412.1	-2,462.1	TD @ 4661' MD / 2436' TVD

Checked By: _____ Approved By: _____ Date: _____

RECEIVED
Office of Oil and Gas

MAY 04 2015

WV Department of
Environmental Protection

06/05/2015

06/05/2015

APPALACHIAN DIRECTIONAL CO

AM-140808

2":100' - MD

8/21/2014 8:43:39 AM

Oper. Company:	BUCKEYE OIL PRODUCTION	**API/UWI:**	47-13-4743
Country:	U.S.A.	**Field:**	BEREA
State / Province:	WV.	**Well:**	BENNETT #2H
County / Parish:	CALHOUN	**Rig:**	WACO #1
Started:	08/16/2014 02:00 PM	**Ended:**	08/21/2014 08:00 AM

Personnel

Day Hand:	J. JAMES
Night Hand:	L. PENNISI
Comp. Emp:	

Location

Latitude:	38° 59' 17.315" N
Longitude:	81° 6' 47.304" W
Elev. GL:	1002'
Elev. DF:	7'
Elev. KB:	1009'

Hole Data

Size	From	To
12 1/4	0	336
8 7/8	366	1667
6 1/4	1667	4661

Casing Data

Size	From	To
9 5/8	0	336
7	0	1667
4 1/2	0	4661

Bit Sizes

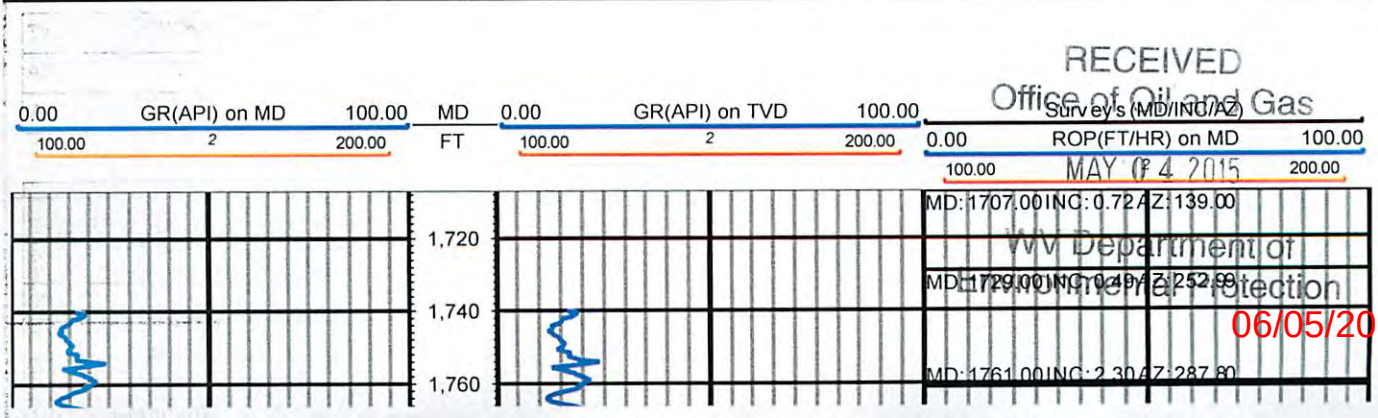
Size	From	To
12 1/4	0	336
8 7/8	336	1667
6 1/4	1667	4661

Mud Data

Type	Weight	Density	Viscosity	Rm	Rmf	Rmc	From	To
AIR							1750	1955
WBM	8.5						1955	4661

Tool Run Data

Serial Number	Gamma Offset	Resist. Offset	Start Time	Start Depth	End Time	End Depth
138	40	0	8/16/2014 1:09:12 PM	1740	8/18/2014 4:09:12 PM	1955
005	31	0	8/17/2015 1:11:38 PM	1955	8/21/2014 8:00:38 AM	4629



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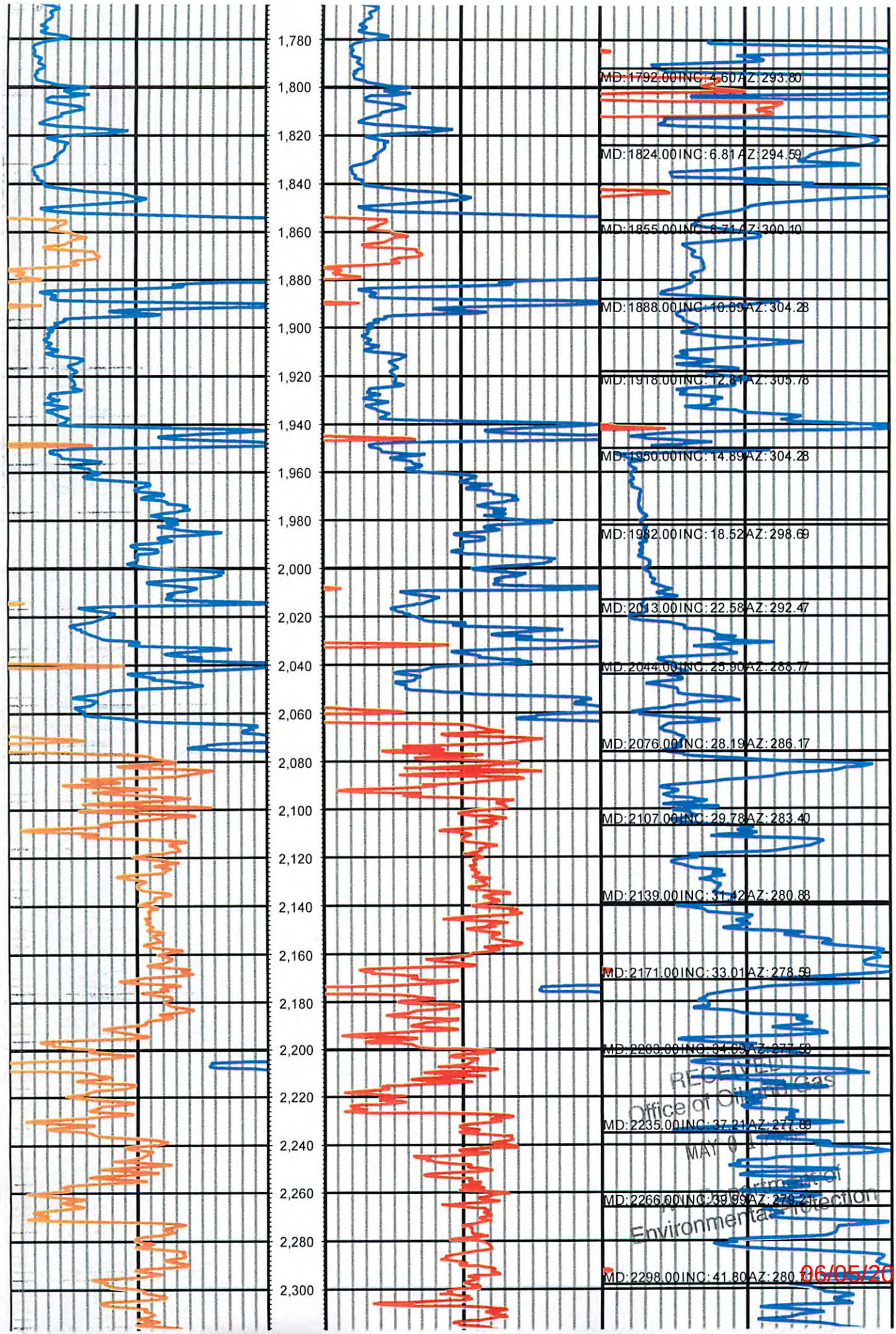

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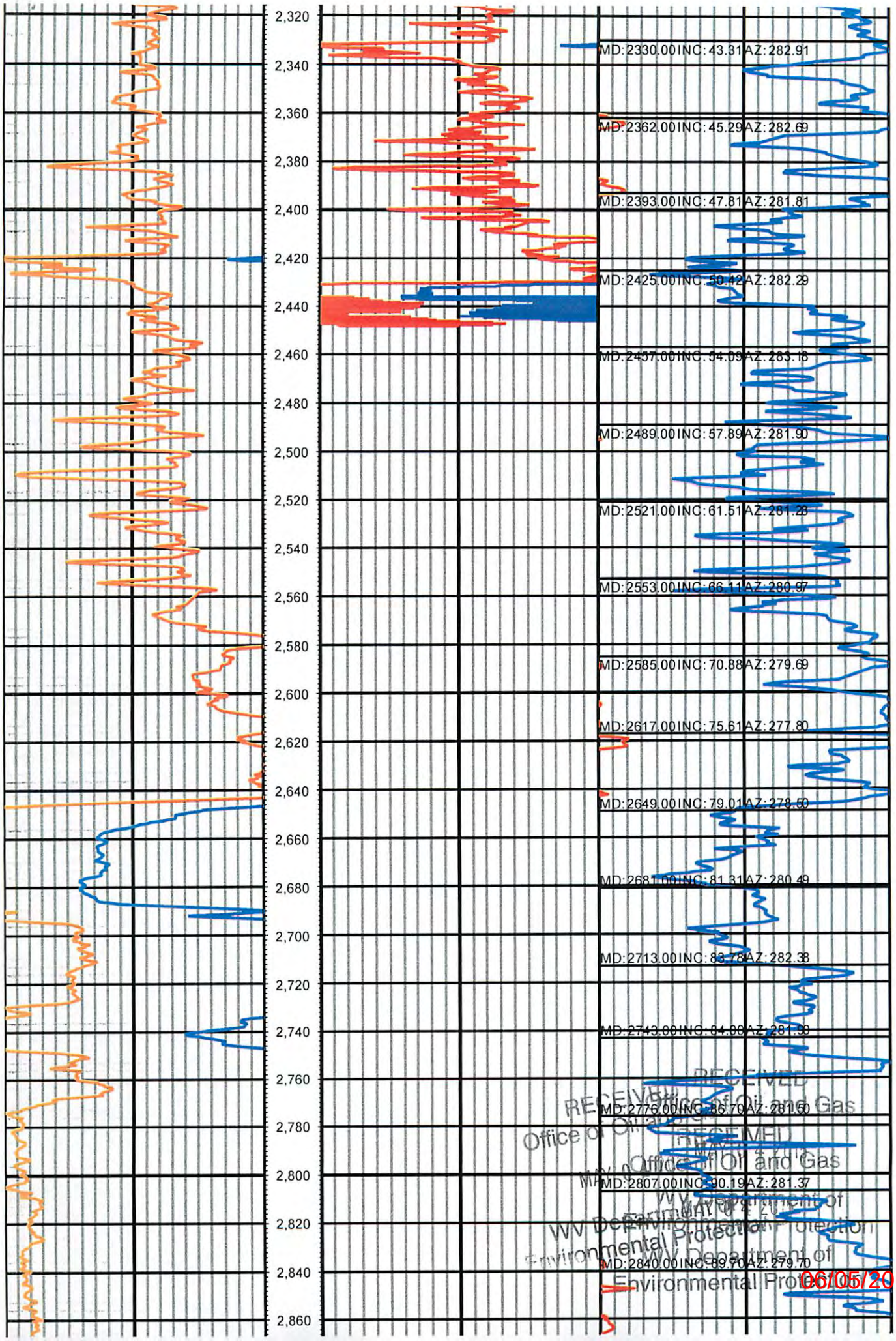

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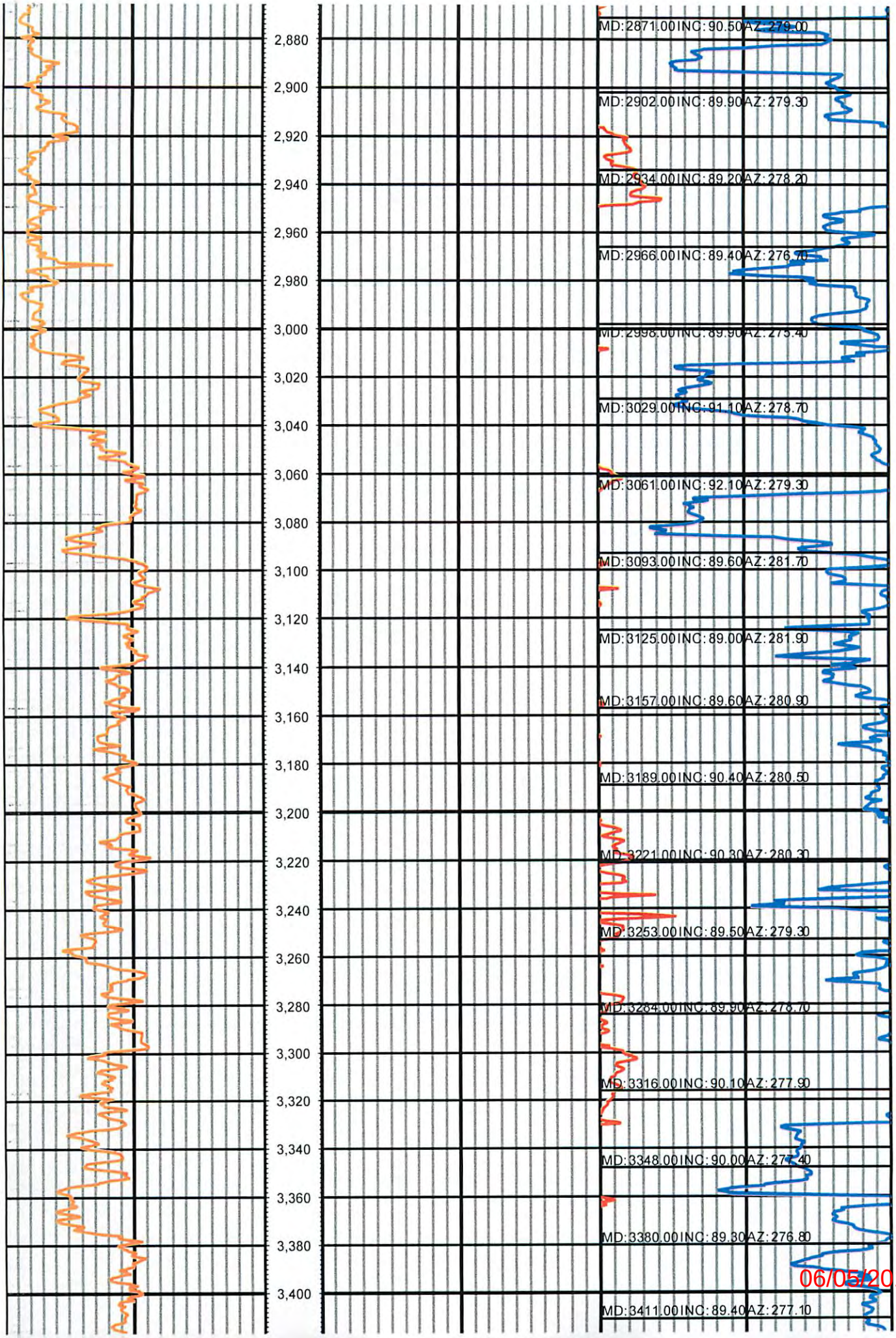
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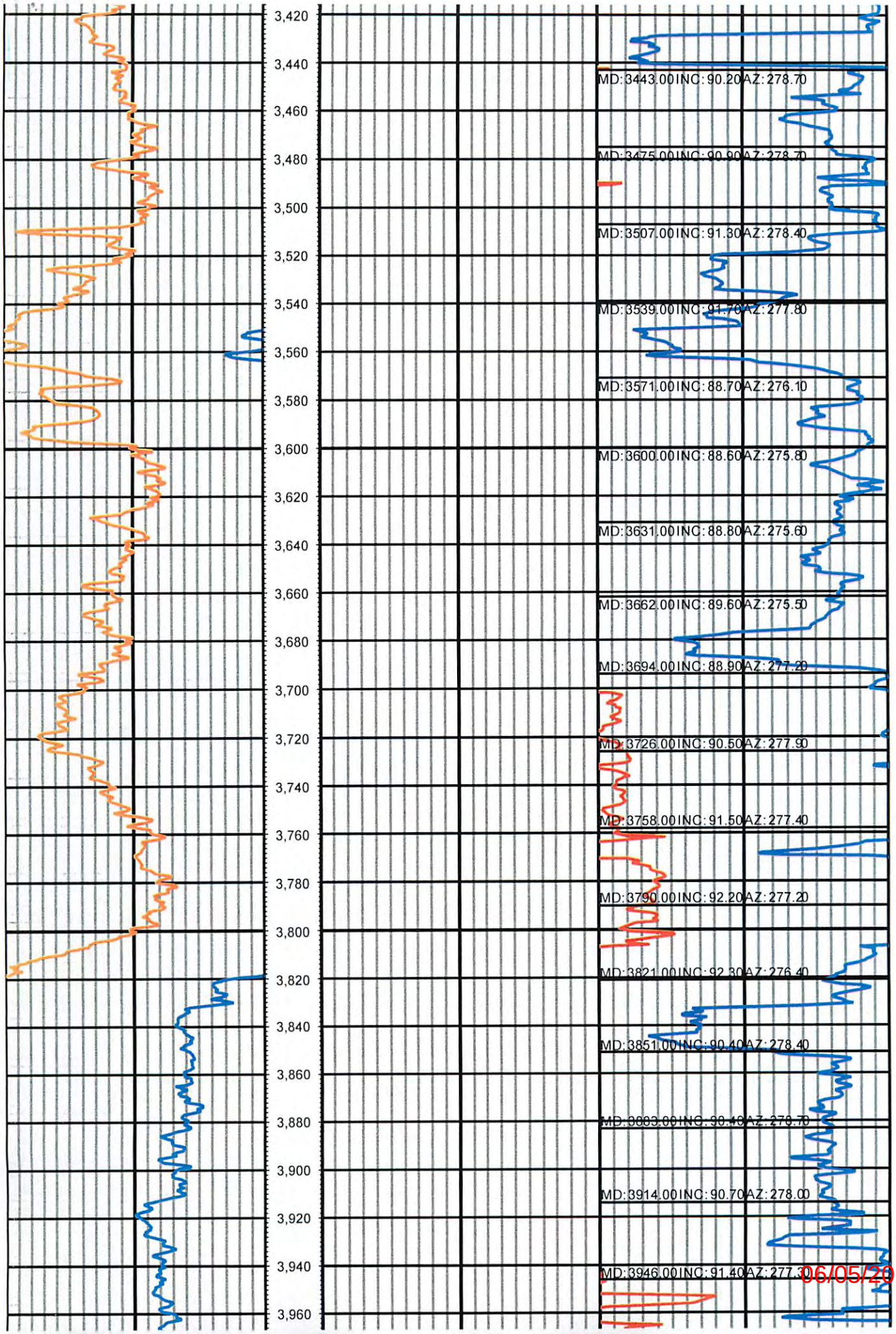
06/05/2015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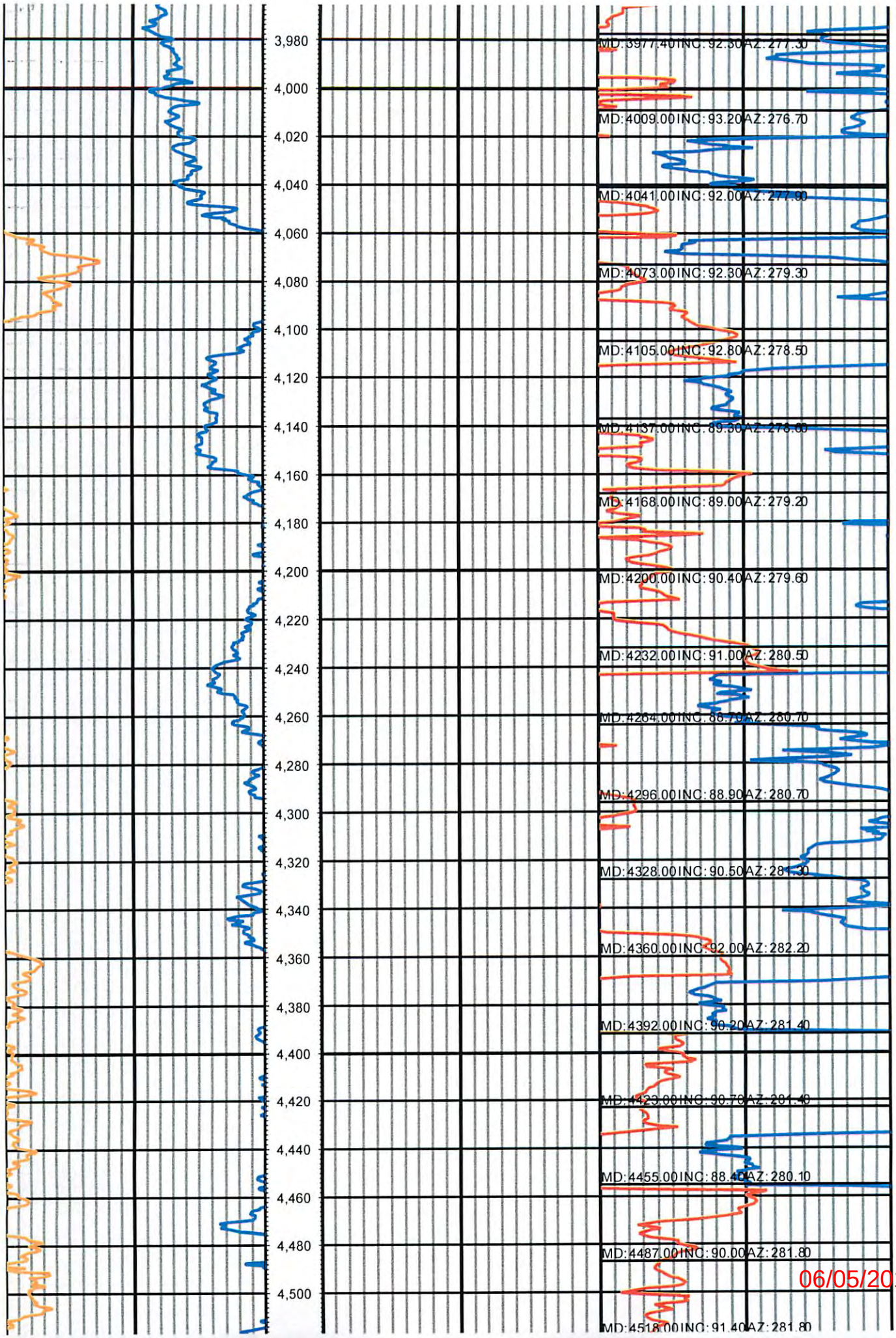
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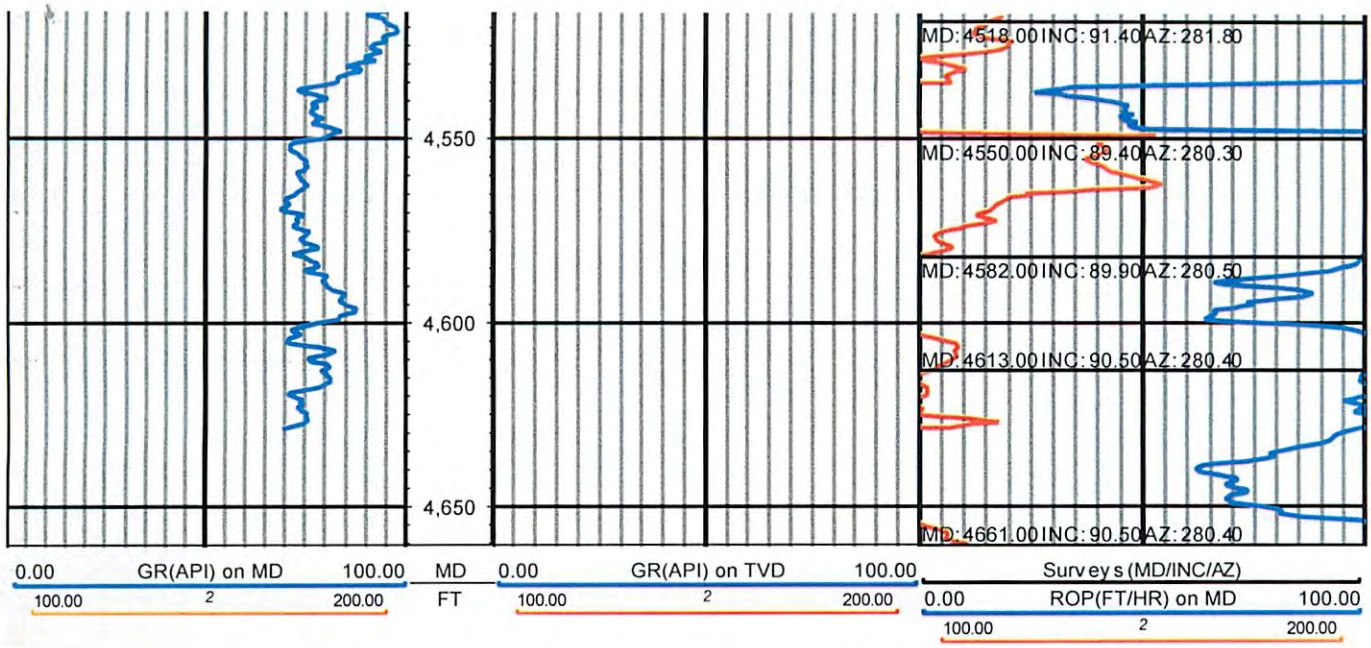
06/05/2015

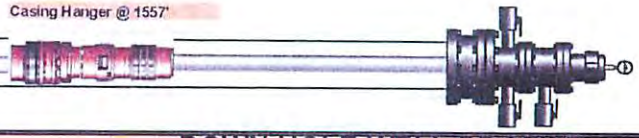


06/05/2015

Peak Completion Technologies

End of 7.0" csg @ 1665'

Casing Hanger @ 1557'



KOP 1725'

BOC 2728'

Predator II OH Packer
Set @ 2942'

Strata Port
3.65" ID @ 3032'
Open @ 1860 psi
Use 3.750" ball

Predator II OH Packer
Set @ 3123'

Strata Port
3.53" ID @ 3255'
Open @ 1860 psi
Use 3.625" ball

Predator II OH Packer
Set @ 3345'

Strata Port
3.40" ID @ 3435'
Open @ 1860 psi
Use 3.50" ball

Predator II OH Packer
Set @ 3526'

Strata Port
3.28" ID @ 3658'
Open @ 1860 psi
Use 3.375" ball

Predator II OH Packer
Set @ 3749'

Strata Port
3.15" ID @ 3839'
Open @ 1860 psi
Use 3.250" ball

Predator II OH Packer
Set @ 3929'

Strata Port
3.03" ID @ 4061'
Open @ 1860 psi
Use 3.125" ball

Predator II OH Packer
Set @ 4152'

Strata Port
2.90" ID @ 4242'
Open @ 1860 psi
Use 3.000" ball

Predator II OH Packer
Set @ 4333'

Strata Port
2.53" ID @ 4464'
Open @ 1860 psi
Use 2.625" ball

Predator II OH Packer
Set @ 4555'

Floated Pump Out
Plug @ 4598'
Open @ 4624 psi
Use 1.25" Ball

DOWN HOLE WELL PROFILE

WELL NAME	Bennett #2	DATE	8/22/14
SUPERVISOR	Mark Lytle	TOOL HAND	David McCauley
PHONE #	330-466-2853	PHONE #	304-472-5555
RIG #	WACO 1	FIELD TICKET #	39593

ELEVATIONS

	GL ELEV	KB ELEV		RIG KBD	TVD
				7	1164.00
CASING / OPEN HOLE LAYOUT		OD (IN)	LANDED DEPTH	WEIGHT (LB/FT)	TOP OF (FTKB)
CASING DESCRIPTION		7	1665.00	20	0
WINDOW DESCRIPTION		6 1/4			1,725.00
OPEN HOLE DESCRIPTION		6 1/4	4660.00	JUNCTION @	1725.00

DESCRIPTION

Liner Placement Schematic

DOWNHOLE DESCRIPTION FROM BOTTOM UP

BOTTOM @	DESCRIPTION		LENGTH	ID	OD
4597.65	4 1/2" Floated Pump Out Plug		0.85	.750"	5.000
4596.80	1 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 1	41.75	4.000	4.500
4555.05	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
4551.05	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
4547.95	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 2-3	83.50	4.000	4.500
4464.45	7 x 4 1/2 Strata-Port Frac Sleeve w/ 2.531 ID Seat (Open with 2.625" Ball)		3.55	2.531	5.688
4460.90	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
4457.80	3 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 4-6	125.25	4.000	4.500
4332.55	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
4328.55	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
4325.45	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 7-8	83.50	4.000	4.500
4241.95	7 x 4 1/2 Strata-Port Frac Sleeve w/ 2.906 ID Seat (Open with 3.000" Ball)		3.55	2.906	5.688
4238.40	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
4235.30	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 9-10	83.50	4.000	4.500
4151.80	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
4147.80	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
4144.70	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 11-12	83.50	4.000	4.500
4061.20	7 x 4 1/2 Strata-Port Frac Sleeve w/ 3.031 ID Seat (Open with 3.125" Ball)		3.55	3.031	5.688
4057.65	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
4054.55	3 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 13-15	125.25	4.000	4.500
3929.30	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
3925.30	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3922.20	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 16-17	83.50	4.000	4.500
3838.70	7 x 4 1/2 Strata-Port Frac Sleeve w/ 3.153 ID Seat (Open with 3.250" Ball)		3.55	3.153	5.688
3835.15	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3832.05	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 18-19	83.50	4.000	4.500
3748.55	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
3744.55	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3741.45	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 20-21	83.50	4.000	4.500
3657.95	7 x 4 1/2 Strata-Port Frac Sleeve w/ 3.281 ID Seat (Open with 3.375" Ball)		3.55	3.281	5.688
3654.40	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3651.30	3 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 22-24	125.25	4.000	4.500
3526.05	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
3522.05	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3518.95	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 25-26	83.50	4.000	4.500
3435.45	7 x 4 1/2 Strata-Port Frac Sleeve w/ 3.406 ID Seat (Open with 3.500" Ball)		3.55	3.406	5.688
3431.90	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3428.80	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 27-28	83.50	4.000	4.500
3345.30	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
3341.30	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3338.20	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 29-30	83.50	4.000	4.500
3254.70	7 x 4 1/2 Strata-Port Frac Sleeve w/ 3.531 ID Seat (Open with 3.625" Ball)		3.55	3.531	5.688
3251.15	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3248.05	3 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 31-33	125.25	4.000	4.500
3122.80	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
3118.80	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3115.70	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt # 34-35	83.50	4.000	4.500
3032.20	7 x 4 1/2 Strata-Port Frac Sleeve w/ 3.656 ID Seat (Open with 3.750" Ball)		3.55	3.656	5.688
3028.65	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
3025.55	2 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 36-37	83.50	4.000	4.500
2942.05	7 x 4 1/2 Predator II Open Hole Isolation Packer		4.00	3.995	5.688
2938.05	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
2934.95	33 Joints 4 1/2", 11.6#, N-80 Liner with LTC Threads	Jt# 38-70	1377.75	4.000	4.500
1557.20	7 x 4 1/2 Peak SMP-X Liner Hanger System SN 50150970		9.35	3.995	6.000
1547.85	4 1/2" P-110 Liner Sub with LTC Threads		3.10	4.000	4.500
1544.75	37 Joints 4 1/2", 11.6#, P-110 Liner with LTC Threads	Jt# 92- 107	1544.75	4.000	4.500
0.00	Landed Casing At ground level		0.00	0.000	0.000

WEIGHT OF STRING	28304	TOTAL STRING LENGTH	4597.65	
PUSH / PULL TEST		STICK-UP OFF RIG FLOOR	GL	
TOP OF OPEN HOLE PACKER	2942.00	TUBING BOTTOM	4597.65	

Total Drilled Depth
4660'

*** CONFIDENTIAL ***

06/05/2015

900' x .1

683 # back

1500' = 650 #

~~2447~~
~~1500~~
947

~~30~~
3'

a530 - 1500

06/05/2015