



Jay-Bee Oil & Gas

Pleasants County

P4 Pad

P4S4

Wellbore #1

Design: Wellbore #1

QES Survey Report

01 December, 2018

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WV Department of
Environmental Protection



06/18/2021



Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P4S4
Project:	Pleasants County	TVD Reference:	Well @ 977.8usft (20.6' RKB)
Site:	P4 Pad	MD Reference:	Well @ 977.8usft (20.6' RKB)
Well:	P4S4	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Pleasants County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Northern Zone		

Site	P4 Pad				
Site Position:		Northing:	341,266.74 usft	Latitude:	39° 25' 34.766 N
From:	Lat/Long	Easting:	1,525,094.26 usft	Longitude:	81° 4' 11.201 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.00 °

Well	P4S4					
Well Position	+N/-S	0.0 usft	Northing:	341,255.05 usft	Latitude:	39° 25' 34.658 N
	+E/-W	0.0 usft	Easting:	1,525,138.12 usft	Longitude:	81° 4' 10.639 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	957.2 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/30/2018	-8.42	66.60	51,864.13578646

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	153.13	

Survey Program	Date	12/1/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
30.0	390.0	Gyros (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro	
421.0	16,639.0	QES MWD Surveys (Wellbore #1)	OWSG MWD - Standard	OWSG MWD - Standard	

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
30.0	0.24	135.83	30.0	0.0	0.0	0.1	0.80	0.80	0.00
60.0	0.73	139.99	60.0	-0.2	0.2	0.3	1.64	1.63	13.87
90.0	0.76	134.97	90.0	-0.5	0.5	0.7	0.24	0.10	-16.73
120.0	0.80	118.88	120.0	-0.8	0.8	1.0	0.74	0.13	-53.63
150.0	0.59	96.65	150.0	-0.9	1.1	1.3	1.13	0.00	-74.10
168.0	0.60	89.51	168.0	-0.9	1.3	1.4	0.42	0.06	-39.67
180.0	0.52	130.67	180.0	-0.9	1.4	1.5	3.34	-0.67	343.00
210.0	0.72	147.06	210.0	-1.2	1.6	1.8	0.88	0.87	54.63
231.0	1.26	166.81	231.0	-1.5	1.8	2.1	3.01	2.57	94.05

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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)	
240.0	0.73	141.84	240.0	-1.7	1.8	2.3	7.48	-5.89	-277.44	
270.0	0.59	133.02	270.0	-1.9	2.0	2.6	0.58	-0.47	-29.40	
300.0	0.54	141.67	300.0	-2.1	2.2	2.9	0.33	-0.17	28.83	
323.0	0.45	94.68	323.0	-2.2	2.4	3.1	1.75	-0.39	-204.30	
330.0	0.62	140.57	330.0	-2.2	2.5	3.1	6.36	2.43	655.57	
360.0	0.55	155.54	360.0	-2.5	2.6	3.4	0.56	-0.23	49.90	
Gyro Tie In @ 390.0' MD / 390.0' TVD										
390.0	0.92	198.80	390.0	-2.9	2.6	3.7	2.14	1.23	144.20	
421.0	0.47	135.67	421.0	-3.2	2.6	4.0	2.65	-1.45	-203.65	
516.0	0.32	319.94	516.0	-3.3	2.7	4.1	0.83	-0.16	-184.98	
610.0	0.92	318.80	610.0	-2.5	2.0	3.2	0.64	0.64	-3.34	
704.0	1.22	323.03	703.9	-1.2	0.9	1.4	0.34	0.32	6.63	
799.0	1.26	322.52	798.9	0.5	-0.3	-0.6	0.04	0.04	-0.54	
894.0	0.97	341.37	893.9	2.1	-1.2	-2.4	0.49	-0.31	19.84	
988.0	1.42	341.26	987.9	3.9	-1.9	-4.3	0.48	0.48	-0.12	
1,083.0	4.52	327.76	1,082.8	8.2	-4.2	-9.2	3.32	3.26	-14.21	
1,178.0	7.17	325.28	1,177.2	16.2	-9.6	-18.8	2.80	2.79	-2.61	
1,273.0	10.19	330.44	1,271.2	28.4	-17.1	-33.1	3.28	3.18	5.43	
1,367.0	12.26	332.44	1,363.3	44.5	-25.9	-51.4	2.24	2.20	2.13	
1,462.0	13.19	332.92	1,456.0	63.1	-35.5	-72.3	0.99	0.98	0.51	
1,557.0	10.49	328.19	1,549.0	80.1	-45.0	-91.8	3.02	-2.84	-4.98	
1,651.0	11.53	331.84	1,641.3	95.7	-53.9	-109.7	1.33	1.11	3.88	
1,746.0	13.05	337.99	1,734.1	114.0	-62.4	-129.9	2.11	1.60	6.47	
1,841.0	15.71	342.28	1,826.1	136.2	-70.3	-153.3	3.01	2.80	4.52	
1,936.0	16.92	343.93	1,917.3	161.7	-78.1	-179.5	1.36	1.27	1.74	
2,030.0	16.15	341.14	2,007.4	187.2	-86.1	-205.9	1.18	-0.82	-2.97	
2,094.0	14.05	335.61	2,069.2	202.7	-92.2	-222.5	3.98	-3.28	-8.64	
2,217.0	11.87	328.11	2,189.0	227.1	-105.0	-250.0	2.24	-1.77	-6.10	
2,311.0	15.66	332.37	2,280.3	246.5	-116.0	-272.3	4.17	4.03	4.53	
2,405.0	16.55	332.19	2,370.6	269.6	-128.1	-298.4	0.95	0.95	-0.19	
2,500.0	16.58	331.87	2,461.7	293.5	-140.9	-325.5	0.10	0.03	-0.34	
2,595.0	16.89	332.48	2,552.7	317.7	-153.6	-352.9	0.38	0.33	0.64	
2,690.0	16.99	330.79	2,643.6	342.1	-166.8	-380.5	0.53	0.11	-1.78	
2,784.0	16.45	329.76	2,733.6	365.6	-180.2	-407.5	0.66	0.57	-1.10	
2,879.0	15.83	327.33	2,824.8	388.1	-193.9	-433.8	0.97	0.86	-2.56	
2,974.0	15.44	325.99	2,916.3	409.5	-208.0	-459.3	0.56	-0.41	-1.41	
3,069.0	14.90	327.57	3,008.0	430.3	-221.6	-484.0	0.72	-0.57	1.66	
3,163.0	14.41	330.93	3,099.0	450.7	-233.8	-507.7	1.04	-0.52	3.57	
3,258.0	14.94	335.03	3,190.9	472.1	-244.7	-531.8	1.23	0.88	1.72	
3,352.0	15.98	336.65	3,281.5	495.0	-255.0	-556.8	1.20	0.77	1.72	
3,448.0	14.32	334.31	3,374.1	517.8	-265.3	-581.8	1.84	-1.73	-2.44	
3,542.0	14.88	334.98	3,465.1	539.2	-275.5	-605.5	0.62	0.60	0.71	
3,637.0	15.43	335.12	3,556.8	561.8	-286.0	-630.4	0.58	0.58	0.15	

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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)	
3,732.0	16.29	335.17	3,648.2	585.3	-296.9	-656.3	0.91	0.91	0.05	
3,826.0	16.34	333.90	3,738.4	609.2	-308.2	-682.7	0.38	0.05	-1.35	
3,920.0	16.11	332.27	3,828.6	632.6	-320.1	-709.0	0.54	-0.24	-1.73	
4,015.0	16.07	333.34	3,919.9	656.0	-332.1	-735.3	0.31	-0.04	1.13	
4,114.0	15.70	333.64	4,015.1	680.2	-344.2	-762.4	0.38	-0.37	0.30	
4,209.0	15.70	332.98	4,106.6	703.2	-355.8	-788.1	0.19	0.00	-0.69	
4,303.0	15.82	335.57	4,197.0	726.2	-366.9	-813.6	0.76	0.13	2.76	
4,398.0	15.58	334.73	4,288.5	749.5	-377.7	-839.3	0.35	-0.25	-0.88	
4,493.0	12.53	331.91	4,380.7	770.2	-388.0	-862.4	3.29	-3.21	-2.97	
4,588.0	10.37	326.79	4,473.8	786.4	-397.5	-881.2	2.51	-2.27	-5.39	
4,683.0	7.94	320.99	4,567.5	798.7	-406.3	-896.1	2.73	-2.56	-6.11	
4,778.0	5.59	321.42	4,661.9	807.4	-413.3	-907.0	2.47	-2.47	0.45	
4,872.0	3.15	341.35	4,755.6	813.4	-417.0	-914.1	3.02	-2.60	21.20	
4,967.0	0.60	41.77	4,850.5	816.3	-417.5	-916.8	3.05	-2.68	63.60	
5,062.0	0.13	40.51	4,945.5	816.7	-417.1	-917.1	0.49	-0.49	-1.33	
5,179.0	0.40	347.20	5,062.5	817.2	-417.1	-917.5	0.29	0.23	-45.56	
5,274.0	0.60	342.70	5,157.5	818.0	-417.3	-918.3	0.21	0.21	-4.74	
5,321.0	3.90	141.80	5,204.5	817.0	-416.4	-917.0	9.50	7.02	338.51	
5,368.0	9.60	142.10	5,251.2	812.6	-413.0	-911.6	12.13	12.13	0.64	
5,415.0	11.70	142.80	5,297.3	805.7	-407.7	-903.0	4.48	4.47	1.49	
5,463.0	13.80	143.80	5,344.2	797.2	-401.4	-892.6	4.40	4.38	2.08	
5,510.0	17.50	149.40	5,389.4	786.6	-394.5	-880.0	8.49	7.87	11.91	
5,558.0	21.70	152.40	5,434.6	772.6	-386.7	-863.9	8.99	8.75	6.25	
5,605.0	25.80	152.30	5,477.6	755.8	-377.9	-845.0	8.72	8.72	-0.21	
5,653.0	29.80	154.20	5,520.1	735.8	-367.9	-822.6	8.53	8.33	3.96	
5,700.0	33.50	154.10	5,560.1	713.6	-357.1	-798.0	7.87	7.87	-0.21	
5,747.0	37.50	152.70	5,598.3	689.2	-344.9	-770.7	8.68	8.51	-2.98	
5,794.0	41.70	152.70	5,634.6	662.6	-331.2	-740.7	8.94	8.94	0.00	
5,842.0	46.10	153.50	5,669.1	632.9	-316.1	-707.5	9.24	9.17	1.67	
5,889.0	49.40	153.40	5,700.7	601.8	-300.6	-672.7	7.02	7.02	-0.21	
5,937.0	52.40	153.20	5,731.0	568.5	-283.8	-635.4	6.26	6.25	-0.42	
5,984.0	54.00	152.50	5,759.1	535.0	-266.7	-597.8	3.61	3.40	-1.49	
6,031.0	57.40	153.90	5,785.8	500.4	-249.2	-559.0	7.64	7.23	2.98	
6,078.0	62.00	155.10	5,809.3	463.8	-231.7	-518.4	10.03			
6,126.0	66.90	156.10	5,830.0	424.3	-213.8	-475.2	10.38			
6,173.0	72.50	157.30	5,846.3	383.9	-196.4	-431.2	12.15			
6,221.0	76.00	157.60	5,859.4	341.2	-178.7	-385.1	7.32			
6,268.0	79.50	157.40	5,869.3	298.8	-161.1	-339.3	7.46			
6,315.0	81.80	156.10	5,877.0	256.2	-142.8	-293.1	5.60			
6,362.0	86.60	154.20	5,881.7	213.8	-123.2	-246.3	10.98			
6,410.0	87.60	154.20	5,884.1	170.6	-102.3	-198.4	2.08			
6,505.0	90.90	155.00	5,885.4	84.8	-61.6	-103.5	3.57			
6,599.0	89.10	150.30	5,885.4	1.3	-18.4	-9.5	5.35			

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 10/21 Oil and Gas
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6,694.0	89.10	149.80	5,886.9	-81.0	29.0	85.3	0.53	0.00	-0.53	
6,789.0	89.90	151.70	5,887.7	-163.8	75.4	180.3	2.17	0.84	2.00	
6,884.0	87.40	150.70	5,889.9	-247.1	121.2	275.2	2.83	-2.63	-1.05	
6,979.0	87.20	152.40	5,894.4	-330.5	166.4	370.0	1.80	-0.21	1.79	
7,074.0	88.80	152.30	5,897.7	-414.6	210.5	464.9	1.69	1.68	-0.11	
7,168.0	88.60	151.70	5,899.9	-497.6	254.6	558.9	0.67	-0.21	-0.64	
7,263.0	89.50	153.10	5,901.4	-581.7	298.6	653.9	1.75	0.95	1.47	
7,358.0	89.60	152.00	5,902.2	-666.0	342.4	748.9	1.16	0.11	-1.16	
7,453.0	88.50	152.70	5,903.8	-750.2	386.5	843.8	1.37	-1.16	0.74	
7,547.0	88.30	152.60	5,906.4	-833.6	429.6	937.8	0.24	-0.21	-0.11	
7,642.0	88.20	153.90	5,909.3	-918.4	472.4	1,032.8	1.37	-0.11	1.37	
7,737.0	88.10	153.10	5,912.4	-1,003.4	514.7	1,127.7	0.85	-0.11	-0.84	
7,832.0	88.20	152.90	5,915.4	-1,088.0	557.8	1,222.7	0.24	0.11	-0.21	
7,926.0	87.80	153.10	5,918.7	-1,171.7	600.5	1,316.6	0.48	-0.43	0.21	
8,021.0	87.30	152.30	5,922.8	-1,256.0	644.0	1,411.5	0.99	-0.53	-0.84	
8,116.0	90.70	158.50	5,924.4	-1,342.4	683.5	1,506.4	7.44	3.58	6.53	
8,210.0	90.00	157.90	5,923.9	-1,429.6	718.4	1,600.0	0.98	-0.74	-0.64	
8,305.0	90.30	155.90	5,923.6	-1,517.0	755.7	1,694.8	2.13	0.32	-2.11	
8,400.0	89.60	153.80	5,923.7	-1,603.0	796.1	1,789.7	2.33	-0.74	-2.21	
8,496.0	89.60	153.50	5,924.4	-1,689.0	838.7	1,885.7	0.31	0.00	-0.31	
8,589.0	88.70	152.30	5,925.7	-1,771.8	881.0	1,978.7	1.61	-0.97	-1.29	
8,684.0	89.70	155.00	5,927.1	-1,856.9	923.2	2,073.7	3.03	1.05	2.84	
8,779.0	89.50	153.90	5,927.7	-1,942.6	964.2	2,168.7	1.18	-0.21	-1.16	
8,873.0	88.80	153.20	5,929.1	-2,026.8	1,006.0	2,262.6	1.05	-0.74	-0.74	
8,968.0	89.10	152.30	5,930.9	-2,111.2	1,049.5	2,357.6	1.00	0.32	-0.95	
9,063.0	89.10	152.50	5,932.4	-2,195.4	1,093.5	2,452.6	0.21	0.00	0.21	
9,158.0	89.10	152.40	5,933.8	-2,279.6	1,137.5	2,547.6	0.11	0.00	-0.11	
9,253.0	88.80	152.20	5,935.6	-2,363.7	1,181.6	2,642.6	0.38	-0.32	-0.21	
9,348.0	89.60	151.50	5,936.9	-2,447.5	1,226.4	2,737.5	1.12	0.84	-0.74	
9,443.0	89.10	150.80	5,938.0	-2,530.7	1,272.3	2,832.5	0.91	-0.53	-0.74	
9,538.0	88.70	150.10	5,939.8	-2,613.3	1,319.1	2,927.3	0.85	-0.42	-0.74	
9,632.0	89.60	153.00	5,941.2	-2,695.9	1,363.9	3,021.3	3.23	0.96	3.09	
9,727.0	89.40	152.60	5,942.0	-2,780.4	1,407.3	3,116.3	0.47	-0.21	-0.42	
9,821.0	89.20	152.50	5,943.2	-2,863.8	1,450.6	3,210.3	0.24	-0.21	-0.11	
9,916.0	89.20	152.30	5,944.5	-2,948.0	1,494.6	3,305.3	0.21	0.00	-0.21	
10,011.0	88.50	151.90	5,946.4	-3,031.9	1,539.1	3,400.2	0.85	-0.74	-0.42	
10,106.0	89.10	153.60	5,948.4	-3,116.4	1,582.6	3,495.2	1.90	0.11	1.79	
10,201.0	89.10	153.70	5,949.9	-3,201.5	1,624.7	3,590.2	0.11	0.74	0.11	
10,295.0	89.80	154.10	5,950.8	-3,285.9	1,666.1	3,684.2	0.86	0.74	0.43	
10,390.0	89.60	154.60	5,951.3	-3,371.5	1,707.2	3,779.1	0.57	0.53	0.53	
10,485.0	89.50	154.10	5,952.1	-3,457.2	1,748.3	3,874.1	0.54	-0.11	-0.53	
10,580.0	89.60	153.20	5,952.8	-3,542.3	1,790.5	3,969.1	0.95	0.00	0.00	
10,674.0	89.60	153.50	5,953.5	-3,626.3	1,832.7	4,063.1	0.32	0.00	0.32	
10,769.0	90.20	153.10	5,953.6	-3,711.2	1,875.3	4,158.1	0.76	0.63	-0.42	

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Survey Report



Company:	Jay-Bee Oil & Gas	Local Co-ordinate Reference:	Well P4S4
Project:	Pleasants County	TVD Reference:	Well @ 977.8usft (20.6' RKB)
Site:	P4 Pad	MD Reference:	Well @ 977.8usft (20.6' RKB)
Well:	P4S4	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buird Rate (°/100usft)	Turn Rate (°/100usft)	
10,863.0	90.30	152.50	5,953.2	-3,794.8	1,918.3	4,252.1	0.65	0.11	-0.64	
10,958.0	88.90	152.70	5,953.9	-3,879.1	1,962.0	4,347.1	1.49	-1.47	0.21	
11,053.0	88.40	152.60	5,956.1	-3,963.5	2,005.7	4,442.1	0.54	-0.53	-0.11	
11,147.0	88.60	154.30	5,958.6	-4,047.5	2,047.7	4,536.0	1.82	0.21	1.81	
11,241.0	89.00	154.20	5,960.5	-4,132.2	2,088.5	4,630.0	0.44	0.43	-0.11	
11,336.0	88.30	154.00	5,962.8	-4,217.6	2,130.0	4,724.9	0.77	-0.74	-0.21	
11,431.0	89.90	153.20	5,964.3	-4,302.7	2,172.2	4,819.9	1.88	1.68	-0.84	
11,525.0	89.80	153.20	5,964.5	-4,386.6	2,214.6	4,913.9	0.11	-0.11	0.00	
11,619.0	89.50	153.60	5,965.1	-4,470.7	2,256.7	5,007.9	0.53	-0.32	0.43	
11,714.0	89.30	153.20	5,966.1	-4,555.6	2,299.2	5,102.9	0.47	-0.21	-0.42	
11,809.0	89.20	152.80	5,967.3	-4,640.2	2,342.3	5,197.9	0.43	-0.11	-0.42	
11,903.0	89.00	150.60	5,968.8	-4,723.0	2,386.9	5,291.9	2.35	-0.21	-2.34	
11,998.0	88.60	152.40	5,970.8	-4,806.4	2,432.2	5,386.8	1.94	-0.42	1.89	
12,093.0	89.70	153.50	5,972.2	-4,891.0	2,475.4	5,481.8	1.64	1.16	1.16	
12,188.0	89.70	153.20	5,972.7	-4,975.9	2,518.0	5,576.8	0.32	0.00	-0.32	
12,282.0	89.60	151.40	5,973.3	-5,059.2	2,561.7	5,670.8	1.92	-0.11	-1.91	
12,377.0	89.30	153.00	5,974.2	-5,143.2	2,606.0	5,765.7	1.71	-0.32	1.68	
12,472.0	89.10	151.70	5,975.5	-5,227.3	2,650.1	5,860.7	1.38	-0.21	-1.37	
12,567.0	90.10	154.00	5,976.2	-5,311.9	2,693.4	5,955.7	2.64	1.05	2.42	
12,662.0	89.60	153.20	5,976.4	-5,397.0	2,735.7	6,050.7	0.99	-0.53	-0.84	
12,757.0	89.10	152.40	5,977.5	-5,481.4	2,779.1	6,145.7	0.99	-0.53	-0.84	
12,851.0	88.80	151.50	5,979.2	-5,564.4	2,823.3	6,239.7	1.01	-0.32	-0.96	
12,946.0	88.90	154.40	5,981.1	-5,649.0	2,866.5	6,334.6	3.05	0.11	3.05	
13,041.0	88.50	154.60	5,983.3	-5,734.7	2,907.4	6,429.6	0.47	-0.42	0.21	
13,135.0	89.70	154.00	5,984.8	-5,819.4	2,948.1	6,523.5	1.43	1.28	-0.64	
13,230.0	89.10	153.90	5,985.8	-5,904.7	2,989.9	6,618.5	0.64	-0.63	-0.11	
13,325.0	90.50	156.10	5,986.1	-5,990.8	3,030.0	6,713.5	2.74	1.47	2.32	
13,419.0	91.40	154.40	5,984.5	-6,076.2	3,069.3	6,807.4	2.05	0.96	-1.81	
13,514.0	89.20	152.90	5,984.0	-6,161.3	3,111.5	6,902.4	2.80	-2.32	-1.58	
13,608.0	88.70	151.00	5,985.8	-6,244.2	3,155.7	6,996.3	2.09	-0.53	-2.02	
13,703.0	89.90	152.50	5,986.9	-6,327.9	3,200.7	7,091.3	2.02	1.26	1.58	
13,797.0	89.80	151.90	5,987.2	-6,411.0	3,244.5	7,185.3	0.65	-0.11	-0.64	
13,892.0	90.80	152.10	5,986.7	-6,494.9	3,289.1	7,280.3	1.07	1.05	0.21	
13,987.0	91.20	151.50	5,985.0	-6,578.6	3,334.0	7,375.2	0.76	0.42	-0.63	
14,082.0	90.50	153.50	5,983.6	-6,662.9	3,377.8	7,470.2	2.23	-0.74	2.11	
14,177.0	91.30	153.00	5,982.1	-6,747.7	3,420.6	7,565.2	0.99	0.84	-0.53	
14,271.0	90.00	152.80	5,981.0	-6,831.4	3,463.4	7,659.2	1.40	-1.38	-0.21	
14,366.0	89.10	153.40	5,981.8	-6,916.1	3,506.4	7,754.2	1.14	-0.53	0.63	
14,461.0	89.10	151.20	5,983.3	-7,000.2	3,550.5	7,849.1	2.32	0.00	-2.32	
14,555.0	89.50	153.60	5,984.4	-7,083.5	3,594.1	7,943.1	2.59	0.43	2.56	
14,650.0	89.80	153.00	5,985.0	-7,168.4	3,636.8	8,038.1	0.71	0.32	-0.63	
14,744.0	89.90	154.00	5,985.3	-7,252.5	3,678.7	8,132.1	1.07	0.11	1.06	
14,839.0	89.20	153.40	5,986.0	-7,337.6	3,720.8	8,227.1	0.97	-0.74	-0.63	

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Site:	P4 Pad	MD Reference:	Well @ 977.8usft (20.6' RKB)
Well:	P4S4	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)	
14,934.0	88.50	153.40	5,987.9	-7,422.6	3,763.3	8,322.1	0.74	-0.74	0.00	
15,029.0	89.40	152.80	5,989.6	-7,507.3	3,806.3	8,417.1	1.14	0.95	-0.63	
15,124.0	89.90	152.50	5,990.2	-7,591.7	3,849.9	8,512.1	0.61	0.53	-0.32	
15,218.0	88.40	151.50	5,991.6	-7,674.6	3,894.1	8,606.0	1.92	-1.60	-1.06	
15,313.0	89.20	153.10	5,993.6	-7,758.7	3,938.2	8,701.0	1.88	0.84	1.68	
15,407.0	91.30	153.90	5,993.2	-7,842.8	3,980.2	8,795.0	2.39	2.23	0.85	
15,502.0	91.60	153.30	5,990.8	-7,927.9	4,022.4	8,890.0	0.71	0.32	-0.63	
15,597.0	90.80	154.10	5,988.8	-8,013.1	4,064.5	8,984.9	1.19	-0.84	0.84	
15,692.0	88.60	154.40	5,989.3	-8,098.6	4,105.7	9,079.9	2.34	-2.32	0.32	
15,786.0	89.50	153.90	5,990.9	-8,183.2	4,146.7	9,173.9	1.10	0.98	-0.53	
15,881.0	90.30	153.20	5,991.0	-8,268.3	4,189.0	9,268.9	1.12	0.84	-0.74	
15,976.0	90.30	152.70	5,990.5	-8,352.9	4,232.2	9,363.9	0.53	0.00	-0.53	
16,071.0	88.50	150.50	5,991.5	-8,436.4	4,277.4	9,458.8	2.99	-1.89	-2.32	
16,166.0	90.20	153.30	5,992.6	-8,520.2	4,322.1	9,553.8	3.45	1.79	2.95	
16,260.0	89.90	152.90	5,992.5	-8,604.0	4,364.7	9,647.8	0.53	-0.32	-0.43	
16,355.0	89.70	154.50	5,992.9	-8,689.2	4,406.8	9,742.8	1.70	-0.21	1.68	
16,449.0	89.40	153.80	5,993.6	-8,773.8	4,447.7	9,836.8	0.81	-0.32	-0.74	
16,544.0	91.60	154.10	5,992.8	-8,859.1	4,489.5	9,931.7	2.34	2.32	0.32	
TD @ 16639.0' MD / 5990.3' TVD										
16,639.0	91.40	152.80	5,990.3	-8,944.1	4,531.9	10,026.7	1.38	-0.21	-1.37	

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
390.0	390.0	-2.9	2.6	Gyro Tie In @ 390.0' MD / 390.0' TVD
16,639.0	5,990.3	-8,944.1	4,531.9	TD @ 16639.0' MD / 5990.3' TVD