

85-10034



Noble Energy PENS1JHS Gyro+MWD 0' MD to TD @ 15180' MD Final Survey



Received Office of Oil & Gas NOV 21 2014

Report (Def Survey)

Report Date: January 20, 2014 - 09:54 AM
Client: Noble Energy
Field: WV Ritchie County (NAD27)
Survey Name: Noble Energy PENS1 Pad/PENS1JHS PENS1JHS
Well: PENS1JHS
Original Borehole: Unknown / Unknown
UWI / AP#:

Table with columns: Comments, MD, Incl, Azim Grid, TVD, TVDSS, VSEC, NS, EW, DLS, BR, TR, Northing, Easting, Latitude, Longitude, Directional, Difficulty Index. Contains survey data points from 0.00 to 6940.00 MD.

12/05/2014

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Comments	MD (m)	Incl (°)	Azim Grid (°)	TYD (m)	TYDSS (m)	VSEC (m)	NS (m)	EW (m)	DL8 (m100m)	BR (m100m)	TR (m100m)	Northing (MUS)	Easting (MUS)	Latitude (N/S ° ° ' '')	Longitude (E/W ° ° ' '')	Directional Difficulty Index
	6087.00	70.03	334.72	6350.74	5212.83	465.70	843.29	412.45	6.30	4.55	-5.34	306845.70	1578142.56	N 30 20 14.50 W	80 50 29.55	5.34
	7035.00	81.86	331.22	6358.71	5220.80	512.74	885.44	300.94	9.90	5.90	-7.29	306527.81	1578121.07	N 30 20 14.91 W	80 50 29.55	5.37
	7082.00	84.11	327.86	6364.45	5226.54	558.29	925.80	-387.23	8.91	4.78	-7.57	306558.00	1578027.36	N 30 20 15.30 W	80 50 30.14	5.40
	7131.00	85.58	324.60	6368.69	5233.01	608.10	966.12	340.02	7.30	3.82	-8.24	306806.53	1578070.16	N 30 20 15.70 W	80 50 30.49	5.43
	7178.00	88.58	320.82	6370.92	5233.01	654.06	1003.46	311.50	6.73	5.49	-8.04	306845.58	1578041.72	N 30 20 16.00 W	80 50 30.86	5.46
	7228.00	89.09	320.01	6371.66	5233.75	702.74	1040.45	281.01	2.90	2.35	-1.89	306882.85	1578011.14	N 30 20 16.43 W	80 50 31.26	5.48
	7321.00	90.17	319.55	6371.77	5233.64	757.22	1112.90	219.86	0.70	0.51	-0.48	306875.38	1577949.80	N 30 20 17.13 W	80 50 32.08	5.52
	7417.00	90.10	319.84	6371.55	5233.64	892.67	1186.20	157.56	0.31	-0.07	0.30	306828.50	1577887.71	N 30 20 17.85 W	80 50 32.86	5.55
	7512.00	90.93	319.28	6370.69	5232.78	987.10	1258.50	95.95	1.05	-0.87	-0.59	306800.89	1577826.09	N 30 20 18.56 W	80 50 33.66	5.58
	7608.00	90.78	317.70	6369.28	5231.37	1082.30	1330.37	32.33	1.68	-1.18	-1.65	306772.78	1577762.48	N 30 20 19.25 W	80 50 34.49	5.61
	7704.00	90.76	316.87	6368.00	5230.06	1177.23	1400.90	-32.78	0.86	0.00	-0.86	309043.29	1577707.37	N 30 20 19.94 W	80 50 35.33	5.64
	7796.00	90.24	317.22	6367.18	5229.27	1271.12	1470.43	-87.52	0.66	-0.55	0.37	309112.81	1577632.64	N 30 20 20.61 W	80 50 36.17	5.67
	7895.00	90.24	316.39	6366.77	5228.86	1365.83	1540.41	-163.23	0.86	-0.86	-0.86	309182.79	1577566.93	N 30 20 21.29 W	80 50 37.02	5.70
	7990.00	90.14	315.38	6366.46	5228.55	1456.51	1608.62	-229.36	1.07	-1.11	-1.06	309250.59	1577500.80	N 30 20 21.98 W	80 50 37.85	5.73
	8086.00	89.66	315.43	6366.83	5228.72	1553.93	1676.98	-296.76	0.50	-0.50	0.05	309319.35	1577433.41	N 30 20 22.66 W	80 50 38.75	5.75
	8182.00	89.83	315.14	6367.05	5229.14	1648.31	1745.20	-364.30	0.35	0.18	-0.30	309387.56	1577365.87	N 30 20 23.28 W	80 50 39.62	5.78
	8277.00	89.55	315.20	6367.57	5229.68	1741.68	1812.57	-431.27	0.30	-0.29	0.06	309454.93	1577298.00	N 30 20 23.94 W	80 50 40.49	5.80
	8372.00	89.66	315.06	6368.22	5230.31	1835.03	1879.91	-498.28	0.17	0.12	-0.13	309522.27	1577231.89	N 30 20 24.56 W	80 50 41.35	5.82
	8468.00	90.14	315.02	6368.30	5230.49	1929.35	1947.85	-566.10	0.10	-0.03	0.38	309590.20	1577164.07	N 30 20 25.25 W	80 50 42.23	5.84
	8563.00	90.07	315.27	6368.22	5230.31	2022.70	2015.19	-633.11	0.27	-0.07	0.26	309657.51	1577097.07	N 30 20 25.91 W	80 50 43.10	5.86
	8659.00	90.07	316.23	6368.10	5230.19	2117.23	2083.96	-700.10	1.00	0.00	1.00	309726.31	1577030.09	N 30 20 26.58 W	80 50 43.97	5.89
	8756.00	90.03	317.16	6368.01	5230.10	2212.01	2153.82	-765.94	0.97	-0.14	0.97	309796.16	1576964.25	N 30 20 27.26 W	80 50 44.82	5.91
	8850.00	90.14	317.28	6367.87	5229.96	2305.95	2223.54	-830.46	0.17	0.13	0.13	309865.89	1576898.73	N 30 20 27.93 W	80 50 45.65	5.93
	8946.00	90.24	317.64	6367.55	5229.54	2403.33	2294.28	-895.37	0.39	0.30	0.38	309936.82	1576834.82	N 30 20 28.62 W	80 50 46.50	5.95
	9041.00	89.83	319.08	6367.50	5229.50	2495.12	2365.27	-958.49	1.58	-0.43	1.52	310007.61	1576771.71	N 30 20 29.31 W	80 50 47.31	5.97
	9137.00	89.97	321.09	6367.66	5229.75	2580.64	2438.90	-1020.08	2.10	0.15	2.09	310082.23	1576710.11	N 30 20 30.03 W	80 50 48.11	5.99
	9233.00	90.31	323.44	6367.43	5229.52	2668.45	2514.81	-1078.83	2.47	0.35	2.45	310157.14	1576651.37	N 30 20 30.77 W	80 50 48.98	6.01
	9329.00	90.34	326.87	6368.09	5229.98	2761.43	2592.77	-1133.10	3.81	0.03	3.61	310235.02	1576597.10	N 30 20 31.53 W	80 50 49.58	6.03
	9424.00	90.69	327.66	6368.03	5229.12	2872.30	2673.52	-1185.01	0.90	0.38	0.82	310315.84	1576545.19	N 30 20 32.32 W	80 50 50.26	6.05
	9520.00	90.55	327.86	6364.90	5227.08	2973.33	2754.71	-1236.22	0.25	-0.15	0.21	310397.03	1576493.99	N 30 20 33.12 W	80 50 50.93	6.07
	9615.00	90.03	325.92	6363.76	5225.85	3068.30	2834.29	-1286.11	2.08	0.40	-2.04	310476.50	1576442.10	N 30 20 33.89 W	80 50 51.61	6.09
	9711.00	90.82	323.75	6362.30	5224.39	3164.27	2912.74	-1343.39	2.28	-2.28	-2.28	310555.05	1576389.74	N 30 20 34.68 W	80 50 52.33	6.11
	9806.00	90.75	323.10	6360.99	5223.08	3259.18	2988.03	-1399.96	0.89	-0.07	-0.68	310631.33	1576330.22	N 30 20 35.41 W	80 50 53.07	6.12
	9902.00	90.07	322.71	6360.31	5222.40	3355.05	3065.60	-1457.89	0.82	-0.71	-0.41	310707.90	1576272.33	N 30 20 36.15 W	80 50 53.82	6.14
	9998.00	90.10	322.37	6360.17	5222.20	3448.90	3140.21	-1515.06	0.36	-0.36	-0.36	310782.51	1576215.18	N 30 20 36.88 W	80 50 54.56	6.15
	10092.00	90.17	322.35	6359.94	5222.03	3544.72	3218.23	-1573.69	0.08	0.07	-0.02	310858.62	1576158.54	N 30 20 37.62 W	80 50 55.32	6.17
	10187.00	90.27	322.64	6359.72	5221.81	3640.54	3291.40	-1633.78	0.13	-0.10	-0.11	310933.69	1576106.44	N 30 20 38.35 W	80 50 56.08	6.18
	10283.00	90.24	322.84	6359.41	5221.50	3735.39	3367.60	-1690.16	0.64	0.18	0.67	311009.89	1576050.07	N 30 20 39.10 W	80 50 56.84	6.20
	10379.00	90.24	323.29	6358.98	5221.07	3831.26	3444.34	-1747.85	0.47	-0.03	0.47	311086.62	1575992.38	N 30 20 39.85 W	80 50 57.59	6.21
	10474.00	90.21	322.50	6358.61	5220.70	3926.17	3520.30	-1804.90	0.41	-0.03	-0.41	311162.58	1575935.34	N 30 20 40.58 W	80 50 58.33	6.22
	10570.00	90.45	321.72	6358.05	5220.14	4021.99	3596.27	-1863.50	1.25	0.25	-1.23	311238.54	1575878.65	N 30 20 41.33 W	80 50 59.00	6.24
	10665.00	90.14	320.64	6357.57	5219.68	4116.67	3670.28	-1923.14	1.18	-0.33	-1.14	311312.55	1575820.71	N 30 20 42.05 W	80 50 59.67	6.25
	10761.00	90.31	319.33	6357.19	5219.28	4212.17	3743.80	-1984.87	1.38	0.18	-1.38	311386.07	1575765.38	N 30 20 42.77 W	81 0 1.67	6.27
	10856.00	90.27	318.56	6356.71	5218.80	4306.49	3815.44	-2047.28	0.81	-0.04	-0.81	311457.70	1575708.90	N 30 20 43.47 W	81 0 0.48	6.28
	10952.00	90.10	318.31	6356.40	5218.49	4401.70	3887.27	-2110.95	0.31	-0.18	-0.26	311529.53	1575650.19	N 30 20 44.18 W	81 0 2.30	6.30
	11048.00	90.00	318.21	6356.31	5218.40	4498.86	3958.90	-2174.86	0.15	-0.10	-0.10	311601.16	1575595.39	N 30 20 44.86 W	81 0 3.13	6.31
	11143.00	90.14	318.31	6356.20	5218.29	4591.04	4028.78	-2238.11	0.18	0.15	0.11	311672.04	1575542.15	N 30 20 45.55 W	81 0 3.95	6.32
	11239.00	90.10	318.16	6356.00	5218.09	4686.20	4101.39	-2302.05	0.16	-0.04	-0.16	311743.84	1575488.21	N 30 20 46.25 W	81 0 4.78	6.33
	11335.00	90.07	318.29	6355.85	5217.94	4781.36	4172.98	-2366.01	0.14	-0.03	0.14	311815.23	1575434.21	N 30 20 46.95 W	81 0 5.61	6.34
	11431.00	90.21	318.20	6355.62	5217.71	4876.53	4244.60	-2429.94	0.17	0.15	-0.09	311886.64	1575380.33	N 30 20 47.64 W	81 0 6.44	6.35
	11526.00	90.03	318.23	6355.42	5217.51	4970.69	4315.44	-2493.24	0.19	-0.19	0.03	311957.68	1575327.03	N 30 20 48.33 W	81 0 7.26	6.37
	11622.00	90.24	318.27	6355.19	5217.28	5065.86	4387.08	-2557.17	0.22	0.22	0.04	312029.29	1575273.11	N 30 20 49.03 W	81 0 8.09	6.38
	11717.00	90.72	319.20	6354.40	5216.49	5160.13	4456.46	-2619.82	1.10	0.51	0.88	312100.70	1575219.46	N 30 20 49.73 W	81 0 8.90	6.39
	11813.00	90.72	318.95	6353.19	5215.28	5255.46	4525.99	-2683.70	0.26	0.10	0.26	312172.62	1575167.58	N 30 20 50.43 W	81 0 9.72	6.40
	11908.00	90.48	318.76	6352.20	5214.20	5349.75	4602.53	-2745.20	0.32	-0.25	-0.20	312244.75	1575115.13	N 30 20 51.13 W	81 0 10.53	6.41
	12004.00	90.52	319.70	6351.36	5213.45	5445.12	4675.28	-2807.83	1.07	0.04	1.07	312317.50	1575062.45	N 30 20 51.84 W	81 0 11.34	6.42
	12099.00	90.52	320.80	6350.50	5212.59	5539.69	4748.41	-2869.48	1.16	0.00	1.16	312390.63	1575009.82	N 30 20 52.55 W	81 0 12.13	6.44
	12195.00	90.66	321.64	6349.60	5211.69	5634.04	4821.60	-2929.87	0.16	-0.03	0.16	312465.19	1574957.46	N 30 20 53.28 W	81 0 12.91	6.45
	12291.00	90.55	321.15	6348.68	5210.77	5731.01	4897.67	-2989.21	0.11	0.00	0.11	312539.89	1574905.08	N 30 20 54.00 W	81 0 13.70	6.46
	12386.00	90.58	321.36	6347.74	5209.83	5825.70	4971.77	-3048.66	0.22	0.03	0.22	312613.97	1574852.69	N 30 20 54.73 W	81 0 14.47	6.47
	12482.00	90.58	321.30	6346.77	5208.86	5921.41	5046.78	-310								

