

51-01710



**Scientific Drilling**  
Northeast District

**Company:** Chevron  
**Field:** Marcellus  
**Well:** Francis 2H  
**County:** Marshall  
**State:** WV  
**Rig:** Nabors X7

**Date:** 7/22/2015  
**North Ref:** TRUE  
**Grid corr:** 0.76°  
**VS Azi:** 345.09°  
**RKB-GL:** 32'  
**Surveyor:** D. Kilby / R. Mayercheck / A. Langford

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft
0	0	0	0	0	0	0	0
100	0.16	87.78	100	-0.03	0.01	0.14	0.16
125	0.28	79.79	125	-0.04	0.02	0.23	0.49
150	0.21	112.37	150	-0.08	0.01	0.34	0.61
175	0.17	73.69	175	-0.1	0	0.41	0.53
200	0.15	58.23	200	-0.09	0.03	0.48	0.19
225	0.19	41.09	225	-0.06	0.08	0.53	0.26
250	0.25	41.43	250	-0.01	0.15	0.6	0.24
275	0.3	9.37	275	0.08	0.26	0.64	0.64
300	0.21	38.71	300	0.17	0.36	0.68	0.62
325	0.18	48.92	325	0.21	0.42	0.74	0.18
350	0.15	82.53	350	0.23	0.45	0.8	0.4
375	0.1	103.08	375	0.21	0.45	0.86	0.27
400	0.13	44.51	400	0.22	0.46	0.9	0.46
425	0.16	47.87	425	0.25	0.51	0.94	0.12
450	0.27	82.45	450	0.26	0.54	1.03	0.66
475	0.12	64.24	475	0.25	0.56	1.11	0.64
500	0.15	80.54	500	0.26	0.57	1.17	0.19
525	0.08	16.61	525	0.27	0.6	1.2	0.54
550	0.09	63.55	550	0.29	0.62	1.23	0.27
575	0.16	24.5	575	0.32	0.66	1.26	0.43
600	0.25	4.17	600	0.4	0.75	1.28	0.46
625	0.32	11.68	625	0.51	0.87	1.29	0.32
650	0.42	32.2	650	0.63	1.02	1.36	0.66
750	0.44	48.18	749.99	1.06	1.58	1.84	0.12
850	0.88	34.33	849.99	1.73	2.47	2.56	0.46
935	1.09	29	934.97	2.74	3.72	3.32	0.27
950	1.05	29.82	949.97	2.94	3.96	3.46	0.29
1050	1.44	29.64	1049.95	4.49	5.85	4.53	0.39
1123	2.56	54.01	1122.9	5.73	7.61	6.31	1.89
1221	3.22	52.61	1220.78	7.57	10.56	10.26	0.67
1315	3.73	46.21	1314.61	10.05	14.28	14.56	0.68
1410	4.2	38.17	1409.38	13.63	19.15	18.94	0.77
1503	4.4	30.34	1502.12	18.19	24.91	22.85	0.67
1597	5.06	44.02	1595.8	22.88	31.01	27.56	1.38
1692	5.93	50.34	1690.36	27.09	37.15	34.24	1.11
1786	6.22	45.58	1783.84	31.63	43.82	41.62	0.62
1881	6.16	40.11	1878.28	37.09	51.32	48.58	0.62
1976	4.5	46.43	1972.87	41.8	57.78	54.56	1.85
2070	4.01	52.74	2066.61	44.82	62.32	59.85	0.72
2165	3.26	58.24	2161.42	46.87	65.75	64.8	0.87
2259	2.67	56.56	2255.29	48.34	68.37	68.9	0.63
2353	2.52	55.82	2349.2	49.72	70.74	72.44	0.16
2448	2.39	43.33	2444.11	51.45	73.35	75.53	0.58
2543	2.33	31.22	2539.03	53.83	76.44	77.89	0.53
2637	2.45	22.12	2632.95	56.76	79.94	79.64	0.42
2776	2.43	13.45	2771.82	61.72	85.56	81.44	0.27
2870	1.74	22.91	2865.76	64.6	88.81	82.46	0.81
2965	1.15	74.38	2960.73	65.76	90.4	83.94	1.44
3059	1.09	74.39	3054.71	65.78	90.89	85.71	0.06
3154	0.89	73.26	3149.7	65.81	91.35	87.28	0.22
3248	0.87	73.42	3243.69	65.86	91.76	88.67	0.01
3343	0.52	43.16	3338.68	66.11	92.28	89.66	0.52
3437	0.28	34.11	3432.68	66.48	92.78	90.08	0.27
3531	0.27	12.6	3526.68	66.83	93.19	90.25	0.11
3626	0.47	1.57	3621.68	67.4	93.79	90.31	0.22
3721	0.29	10.63	3716.67	67.98	94.41	90.37	0.2
3815	0.69	341.44	3810.67	68.76	95.18	90.23	0.49
3910	0.33	331.39	3905.67	69.6	95.97	89.91	0.39
4005	0.57	345.26	4000.66	70.34	96.67	89.66	0.28
4099	0.23	226.71	4094.66	70.72	96.99	89.41	0.75
4194	1.08	202.63	4189.66	69.92	96.04	88.93	0.93
4288	0.63	217.38	4283.65	68.9	94.81	88.27	0.53
4383	0.37	222.48	4378.64	68.42	94.16	87.75	0.28
4478	0.4	260.73	4473.64	68.28	93.88	87.21	0.27

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4572	0.33	296	4567.64	68.5	93.95	86.64	0.25
4667	0.36	292.94	4662.64	68.86	94.19	86.11	0.04
4761	0.57	285.44	4756.63	69.28	94.43	85.38	0.23
4790	0.54	305.13	4785.63	69.46	94.55	85.13	0.66
4884	0.7	332.79	4879.63	70.36	95.31	84.51	0.36
4979	8.08	62.87	4974.31	72.35	98.88	90.19	8.54
5073	16.91	59.77	5065.99	77.37	108.8	107.92	9.42
5168	23.4	62.95	5155.13	84.99	124.35	136.69	6.92
5263	29.93	61.06	5239.98	94.72	144.42	174.27	6.94
5358	39.62	56.8	5317.94	110.01	172.55	220.47	10.5
5452	47.92	61.08	5385.77	127.9	205.9	276.19	9.38
5547	55.75	62.1	5444.42	145.29	241.38	341.86	8.28
5641	54.48	62.53	5498.18	162.34	277.2	410.14	1.4
5736	53.34	61.93	5554.13	179.42	312.97	478.07	1.3
5831	55.64	60.98	5609.31	197.66	349.92	545.99	2.54
5926	55.15	61.71	5663.27	216.23	387.41	614.61	0.81
6020	54.26	61.31	5717.57	234.24	424.01	682.04	1.01
6114	53.67	59.29	5772.87	253.63	461.66	748.07	1.85
6209	53.39	58.66	5829.34	274.84	501.03	813.54	0.61
6303	54.85	56.92	5884.44	297.5	541.63	877.96	2.16
6398	54.58	57.47	5939.32	321.32	583.65	943.14	0.55
6492	55.09	56.66	5993.45	345.1	625.43	1007.64	0.89
6587	54.88	56.91	6047.96	369.54	668.05	1072.73	0.31
6634	54.33	57.12	6075.18	381.43	688.91	1104.87	1.24
6682	56.59	53.24	6102.4	394.91	711.5	1137.3	8.17
6729	60.27	46.68	6127.02	411.94	737.27	1167.9	14.22
6776	62.71	42.02	6149.46	433.06	766.8	1196.75	10.13
6823	64.33	38.39	6170.42	457.12	798.93	1223.89	7.73
6871	62.27	38.6	6191.99	482.68	832.49	1250.58	4.32
6918	60.94	35.84	6214.34	508.05	865.4	1275.59	5.9
6966	61.14	31.46	6237.59	535.84	900.35	1298.85	7.99
7013	60.64	26.29	6260.47	565.47	936.29	1318.67	9.66
7061	58.72	20.02	6284.72	598.05	974.34	1334.97	11.97
7108	58.68	15.09	6309.15	631.92	1012.62	1347.08	8.96
7155	59.1	11.45	6333.44	667.38	1051.77	1356.31	6.7
7202	59.14	10.99	6357.56	703.59	1091.34	1364.16	0.85
7250	60.19	7.78	6381.81	741.35	1132.21	1370.91	6.17
7297	63.88	3.35	6403.85	780.23	1173.5	1374.9	11.44
7344	67.37	359.52	6423.25	821.3	1216.28	1375.95	10.5
7391	72.36	355.62	6439.43	864.37	1260.35	1374.06	13.17
7439	73.83	355	6453.38	909.56	1306.12	1370.3	3.3
7486	74.64	351.51	6466.16	954.33	1351.03	1364.99	7.35
7533	75.54	348.89	6478.25	999.56	1395.78	1357.26	5.72
7580	75.9	343.94	6489.85	1045.08	1440.04	1346.56	10.24
7628	77.24	341.85	6501	1091.73	1484.65	1332.83	5.07
7675	78.85	337.83	6510.74	1137.5	1527.8	1316.98	9.04
7723	81.25	331.73	6519.04	1183.99	1570.55	1296.84	13.49
7770	82.75	325.84	6525.59	1228.64	1610.33	1272.73	12.81
7818	84.15	323.03	6531.07	1273.25	1649.11	1244.99	6.52
7865	90.66	322.15	6533.19	1316.6	1686.36	1216.48	13.97
7913	91.45	321.8	6532.31	1360.74	1724.19	1186.91	1.8
7960	89.6	320.39	6531.88	1403.67	1760.76	1157.4	4.94
8007	89.78	319.86	6532.13	1446.28	1796.83	1127.27	1.18
8102	91.36	321.09	6531.18	1532.64	1870.1	1066.82	2.11
8197	85.3	319.16	6533.95	1618.69	1942.94	1005.97	6.7
8291	88.11	319.51	6539.36	1703.2	2014.12	944.82	3.02
8386	89.16	319.86	6541.62	1788.99	2086.53	883.38	1.17
8481	89.52	319.69	6542.71	1874.86	2159.06	822.03	0.41
8576	90.04	319.25	6543.07	1960.52	2231.26	760.29	0.72
8670	92.51	321.71	6540.98	2045.94	2303.74	700.5	0.72
8765	92.07	321	6537.19	2132.84	2377.88	641.22	0.87
8860	90.92	320.39	6534.71	2219.32	2451.37	581.07	1.37
8955	91.28	319.77	6532.89	2305.4	2524.22	520.12	0.75
9050	89.08	321.44	6532.6	2391.85	2597.63	459.84	2.91
9144	89.52	321.97	6533.75	2478.13	2671.4	401.59	0.73
9239	89.52	322.15	6534.56	2565.55	2746.32	343.18	0.19
9333	90.04	321.53	6534.92	2651.91	2820.23	285.1	0.86
9427	90.75	322.41	6534.27	2738.36	2894.27	227.2	1.2
9522	91.54	323.29	6532.37	2826.28	2969.97	169.84	1.24
9617	89.87	321.53	6531.21	2913.92	3045.24	111.9	2.55
9711	90.4	321.27	6530.99	3000	3118.7	53.25	0.63
9805	91.01	321.36	6529.84	3086.01	3192.07	-5.5	0.66
9900	89.78	321	6529.18	3172.85	3266.08	-65.05	1.35
9995	90.04	320.83	6529.33	3259.52	3339.82	-124.94	0.33
10090	90.57	320.83	6528.82	3346.13	3413.47	-184.94	0.56
10184	91.36	321.97	6527.23	3432.2	3486.92	-243.58	1.48
10279	91.71	322.06	6524.68	3519.56	3561.77	-302.03	0.38
10374	92.24	322.24	6521.4	3607	3636.74	-360.29	0.59
10468	90.57	322.32	6519.09	3693.62	3711.07	-417.78	1.78
10563	91.19	323.2	6517.63	3781.48	3786.69	-475.26	1.13
10658	91.54	321.18	6515.37	3868.96	3861.72	-533.47	2.16

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10753	88.9	318.72	6515.01	3954.95	3934.43	-594.59	3.8
10847	87.65	319.16	6517.68	4039.29	4005.28	-656.31	1.22
10942	88.11	319.16	6521.03	4124.68	4077.1	-718.4	0.28
11037	86.79	318.81	6525.25	4209.9	4148.71	-780.68	1.44
11131	90.48	318.72	6527.49	4294.11	4219.36	-842.62	3.93
11226	92.42	318.37	6525.09	4379.06	4290.54	-905.49	2.07
11320	92.33	318.46	6521.19	4462.98	4360.78	-967.83	0.13
11415	93.12	318.98	6516.67	4548	4432.09	-1030.43	1
11509	91.63	320.39	6512.78	4632.83	4503.7	-1091.19	2.18
11604	92.15	320.57	6509.64	4719.15	4576.94	-1151.62	0.59
11698	88.81	319.69	6508.85	4804.36	4649.07	-1211.87	3.68
11793	90.04	323.82	6509.8	4891.56	4723.65	-1270.66	4.54
11873	90.04	323.82	6509.74	4966.11	4788.23	-1317.89	0.01

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