



Survey Report

Service Company: Stryker Energy Directional Services

Location: 21 miles NE of Orla, TX

Well: Cyclone Federal SWD #1

Rig: McVay Rig #2

API or UWI:

Job Number: M201043

State: NM

Operating Company: Permian Oilfield Partners

County: Lea

Magnetic Declination: 6.36

Country: USA

Proposed Azimuth: 0.00

Comment

North Reference: GRID

Latitude: 32.148193

Longitude: -103.637982

Tie-In Data

MD	Inclination	Azimuth	TVD	NS	EW
4820.00	1.30	118.70	4819.80	6.21	13.67

Survey Data

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
4921.00	0.90	100.60	4920.78	5.51	15.45	70.36	16.41	5.51	0.52
5108.00	0.70	103.40	5107.76	4.98	18.01	74.55	18.69	4.98	0.11
5296.00	0.70	130.50	5295.75	3.97	20.00	78.78	20.39	3.97	0.17
5486.00	0.80	99.30	5485.73	3.00	22.19	82.30	22.39	3.00	0.22
5674.00	0.70	100.00	5673.72	2.59	24.62	84.00	24.75	2.59	0.05
5863.00	0.60	74.20	5862.71	2.66	26.71	84.32	26.84	2.66	0.16
6051.00	0.10	136.40	6050.70	2.81	27.77	84.23	27.91	2.81	0.30
6240.00	0.20	316.30	6239.70	2.92	27.65	83.96	27.81	2.92	0.16
6427.00	0.20	35.00	6426.70	3.43	27.61	82.92	27.83	3.43	0.14
6614.00	0.50	349.40	6613.70	4.50	27.65	80.76	28.01	4.50	0.21
6802.00	0.90	309.80	6801.68	6.25	26.37	76.67	27.10	6.25	0.32
6991.00	0.90	306.80	6990.66	8.09	24.04	71.40	25.36	8.09	0.02
7149.00	0.90	299.10	7148.64	9.43	21.96	66.75	23.90	9.43	0.08
7336.00	0.80	299.70	7335.62	10.80	19.54	61.08	22.33	10.80	0.05
7525.00	0.70	297.30	7524.60	11.98	17.37	55.41	21.10	11.98	0.06
7712.00	0.70	283.00	7711.59	12.76	15.24	50.07	19.88	12.76	0.09

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
7897.00	0.70	267.70	7896.58	12.97	13.01	45.10	18.37	12.97	0.10
8083.00	1.00	258.10	8082.56	12.59	10.29	39.26	16.26	12.59	0.18
8271.00	1.20	249.00	8270.52	11.54	6.85	30.67	13.42	11.54	0.14
8457.00	1.20	244.30	8456.48	10.00	3.27	18.11	10.52	10.00	0.05
8644.00	1.50	241.70	8643.43	7.99	-0.65	355.37	8.02	7.99	0.16
8830.00	1.60	237.00	8829.36	5.42	-4.97	317.51	7.36	5.42	0.09
9016.00	0.70	271.20	9015.32	4.03	-8.28	295.97	9.21	4.03	0.59
9202.00	0.80	237.80	9201.31	3.37	-10.52	287.75	11.04	3.37	0.24
9295.00	1.00	237.50	9294.30	2.58	-11.75	282.40	12.03	2.58	0.22
9388.00	1.40	238.70	9387.28	1.56	-13.41	276.63	13.50	1.56	0.43
9482.00	1.20	252.90	9481.25	0.67	-15.33	272.51	15.34	0.67	0.40
9575.00	0.90	274.40	9574.24	0.44	-16.99	271.49	16.99	0.44	0.53
9668.00	0.40	301.80	9667.23	0.67	-17.99	272.13	18.00	0.67	0.62
9761.00	0.20	144.20	9760.23	0.71	-18.17	272.23	18.19	0.71	0.63
9854.00	0.70	155.80	9853.23	0.06	-17.84	270.19	17.84	0.06	0.54
9947.00	1.00	174.50	9946.22	-1.27	-17.53	265.86	17.58	-1.27	0.44
10040.00	1.20	205.20	10039.20	-2.96	-17.87	260.60	18.11	-2.96	0.66
10224.00	1.10	224.20	10223.16	-5.97	-19.92	253.33	20.80	-5.97	0.21
10318.00	0.60	146.50	10317.16	-7.02	-20.28	250.90	21.46	-7.02	1.21
10411.00	0.90	122.70	10410.15	-7.82	-19.40	248.03	20.92	-7.82	0.46
10503.00	1.10	121.20	10502.13	-8.67	-18.03	244.32	20.01	-8.67	0.22
10596.00	1.30	118.20	10595.11	-9.63	-16.34	239.48	18.97	-9.63	0.23
10690.00	1.40	121.10	10689.09	-10.73	-14.42	233.34	17.97	-10.73	0.13
10783.00	1.60	125.50	10782.06	-12.07	-12.39	225.74	17.30	-12.07	0.25
10875.00	1.70	129.40	10874.02	-13.68	-10.29	216.93	17.12	-13.68	0.16
10968.00	1.50	144.80	10966.98	-15.55	-8.52	208.71	17.73	-15.55	0.51
11061.00	1.60	145.80	11059.95	-17.62	-7.09	201.91	18.99	-17.62	0.11
11153.00	1.50	158.80	11151.91	-19.81	-5.93	196.67	20.68	-19.81	0.40
11246.00	1.50	170.30	11244.88	-22.14	-5.28	193.42	22.76	-22.14	0.32
11339.00	1.40	184.10	11337.85	-24.47	-5.16	191.91	25.01	-24.47	0.39
11432.00	1.10	175.00	11430.83	-26.50	-5.16	191.03	27.00	-26.50	0.39
11525.00	1.00	196.00	11523.82	-28.17	-5.31	190.68	28.66	-28.17	0.42
11618.00	1.40	209.70	11616.80	-29.93	-6.10	191.51	30.55	-29.93	0.53
11804.00	1.80	204.80	11802.72	-34.56	-8.45	193.74	35.58	-34.56	0.23
11897.00	1.80	201.70	11895.68	-37.24	-9.60	194.46	38.46	-37.24	0.10
11990.00	1.90	212.00	11988.63	-39.91	-10.96	195.35	41.38	-39.91	0.37
12083.00	1.90	204.20	12081.58	-42.62	-12.41	196.23	44.39	-42.62	0.28

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
12176.00	1.50	199.80	12174.54	-45.17	-13.45	196.58	47.13	-45.17	0.45
12323.00	1.50	203.90	12321.49	-48.74	-14.88	196.98	50.96	-48.74	0.07
12416.00	1.20	100.40	12414.47	-50.03	-14.42	196.08	52.07	-50.03	2.29
12510.00	1.40	119.50	12508.45	-50.77	-12.45	193.78	52.28	-50.77	0.50
12604.00	1.30	148.10	12602.42	-52.24	-10.89	191.77	53.37	-52.24	0.72
12699.00	1.00	159.20	12697.40	-53.93	-10.02	190.53	54.86	-53.93	0.39
12792.00	1.40	187.90	12790.38	-55.82	-9.89	190.05	56.69	-55.82	0.76
12885.00	1.50	168.00	12883.35	-58.13	-9.79	189.56	58.95	-58.13	0.55
12979.00	1.80	162.30	12977.31	-60.74	-9.09	188.51	61.42	-60.74	0.36
13072.00	1.50	170.30	13070.28	-63.33	-8.44	187.59	63.89	-63.33	0.41
13165.00	1.20	179.40	13163.25	-65.51	-8.23	187.16	66.02	-65.51	0.40
13260.00	1.30	115.70	13258.23	-66.97	-7.24	186.17	67.36	-66.97	1.39
13354.00	1.80	109.00	13352.20	-67.91	-4.89	184.12	68.09	-67.91	0.56
13448.00	1.50	125.00	13446.16	-69.10	-2.48	182.06	69.14	-69.10	0.58
13542.00	1.30	131.80	13540.13	-70.52	-0.68	180.55	70.52	-70.52	0.28
13636.00	1.10	138.90	13634.11	-71.91	0.71	179.44	71.91	-71.91	0.26
13730.00	1.10	142.60	13728.09	-73.30	1.85	178.56	73.33	-73.30	0.08
13826.00	0.80	140.50	13824.08	-74.55	2.83	177.82	74.61	-74.55	0.31
13920.00	0.80	136.70	13918.07	-75.54	3.70	177.19	75.63	-75.54	0.06
14015.00	0.80	147.00	14013.06	-76.58	4.52	176.62	76.71	-76.58	0.15
14110.00	0.60	142.20	14108.05	-77.52	5.18	176.17	77.70	-77.52	0.22
14205.00	0.60	147.60	14203.05	-78.34	5.76	175.80	78.55	-78.34	0.06
14299.00	0.50	152.30	14297.04	-79.12	6.21	175.51	79.36	-79.12	0.12
14393.00	0.50	157.90	14391.04	-79.86	6.56	175.31	80.13	-79.86	0.05
14488.00	0.60	160.30	14486.04	-80.71	6.88	175.13	81.00	-80.71	0.11
14583.00	0.60	164.10	14581.03	-81.66	7.18	174.97	81.97	-81.66	0.04
14678.00	0.60	168.00	14676.03	-82.62	7.42	174.87	82.96	-82.62	0.04
14777.00	0.70	184.50	14775.02	-83.73	7.48	174.89	84.07	-83.73	0.21
14872.00	0.70	187.00	14870.01	-84.89	7.37	175.04	85.21	-84.89	0.03
14966.00	1.00	178.80	14964.00	-86.28	7.31	175.15	86.59	-86.28	0.34
15060.00	1.00	190.10	15057.99	-87.91	7.19	175.33	88.20	-87.91	0.21
15155.00	1.00	165.40	15152.97	-89.52	7.25	175.37	89.82	-89.52	0.45
15249.00	1.50	165.30	15246.95	-91.51	7.77	175.15	91.84	-91.51	0.53
15343.00	1.50	171.70	15340.92	-93.92	8.26	174.97	94.28	-93.92	0.18
15437.00	1.50	177.80	15434.89	-96.36	8.48	174.97	96.73	-96.36	0.17
15531.00	1.70	177.80	15528.85	-98.98	8.58	175.04	99.36	-98.98	0.21
15626.00	2.20	170.90	15623.80	-102.19	8.93	175.01	102.58	-102.19	0.58

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
15719.00	2.50	159.70	15716.72	-105.86	9.91	174.65	106.32	-105.86	0.59
15814.00	4.00	148.10	15811.56	-110.61	12.38	173.61	111.31	-110.61	1.72
15908.00	4.30	141.60	15905.32	-116.16	16.30	172.01	117.30	-116.16	0.59
16000.00	3.30	140.50	15997.11	-120.91	20.13	170.55	122.57	-120.91	1.09
16094.00	3.30	141.40	16090.96	-125.11	23.54	169.34	127.30	-125.11	0.06
16186.00	2.90	160.90	16182.83	-129.38	25.95	168.66	131.95	-129.38	1.22
16280.00	2.30	158.90	16276.73	-133.38	27.41	168.39	136.17	-133.38	0.65
16374.00	2.00	161.40	16370.66	-136.70	28.61	168.18	139.66	-136.70	0.33
16468.00	2.10	201.70	16464.61	-139.85	28.50	168.48	142.73	-139.85	1.51
16560.00	2.40	200.30	16556.54	-143.23	27.21	169.24	145.79	-143.23	0.33
16654.00	2.30	196.60	16650.46	-146.88	25.99	169.97	149.16	-146.88	0.19
16748.00	2.40	197.20	16744.38	-150.57	24.87	170.62	152.61	-150.57	0.11
16842.00	2.50	197.10	16838.29	-154.41	23.68	171.28	156.21	-154.41	0.11
16936.00	2.50	201.10	16932.20	-158.28	22.34	171.97	159.85	-158.28	0.19
17031.00	2.50	203.50	17027.11	-162.11	20.77	172.70	163.44	-162.11	0.11
17125.00	2.60	209.70	17121.02	-165.84	18.89	173.50	166.92	-165.84	0.31
17221.00	2.70	206.70	17216.92	-169.76	16.80	174.35	170.58	-169.76	0.18
17395.00	3.70	204.50	17390.64	-178.53	12.63	175.95	178.97	-178.53	0.58
17489.00	3.80	197.70	17484.44	-184.25	10.42	176.76	184.55	-184.25	0.48
17583.00	4.40	203.10	17578.20	-190.54	8.06	177.58	190.71	-190.54	0.76
17770.00	4.80	204.90	17764.60	-204.23	1.95	179.45	204.24	-204.23	0.23
17863.00	5.00	197.10	17857.26	-211.64	-0.88	180.24	211.64	-211.64	0.75
17956.00	4.70	198.10	17949.93	-219.13	-3.25	180.85	219.15	-219.13	0.34
18049.00	4.40	190.10	18042.63	-226.26	-5.06	181.28	226.32	-226.26	0.75
18143.00	3.90	186.00	18136.39	-232.99	-6.03	181.48	233.07	-232.99	0.62
18237.00	3.30	175.20	18230.20	-238.87	-6.13	181.47	238.95	-238.87	0.96
18330.00	3.80	174.40	18323.02	-244.60	-5.61	181.31	244.67	-244.60	0.54
18424.00	4.30	165.80	18416.79	-251.12	-4.44	181.01	251.16	-251.12	0.84
18518.00	3.10	155.00	18510.59	-256.84	-2.50	180.56	256.85	-256.84	1.47