

DRILTECH MWD SURVEY REPORT



Company: EOG Resources, Inc
 Well: Hawk 35 Fed #9H
 Location: Lea County NM
 Rig: H&P 415

Job Number: 2015-056-EODT-NM
 Vertical Section Plane: 357.98
 WELL API #: 30-025-42412
 Tie Into: Surface

RECEIVED
 AUG 21 2015
 HOBBS OCCD
 Calculation Method Minimum Curvature

Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')
								N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)		
Tie In	Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	MWD	198.00	1.40	99.80	198	197.98	-0.50	0.41 S	2.38 E	2.42	99.80	0.71	0.71
2	MWD	359.00	1.80	86.20	161	358.92	-0.82	0.58 S	6.84 E	6.87	94.83	0.34	0.25
3	MWD	450.00	1.90	89.40	91	449.87	-0.81	0.47 S	9.78 E	9.79	92.74	0.16	0.11
4	MWD	542.00	0.50	119.80	92	541.85	-1.06	0.65 S	11.65 E	11.67	93.20	1.62	-1.52
5	MWD	634.00	2.10	248.00	92	633.83	-1.85	1.48 S	10.44 E	10.54	98.09	2.65	1.74
6	MWD	726.00	2.60	227.60	92	725.75	-3.78	3.52 S	7.33 E	8.14	115.65	1.05	0.54
7	MWD	820.00	2.50	208.40	94	819.66	-6.93	6.76 S	4.78 E	8.28	144.72	0.91	-0.11
8	MWD	914.00	2.30	188.70	94	913.58	-10.55	10.43 S	3.52 E	11.01	161.33	0.90	-0.21
9	MWD	1009.00	1.40	158.50	95	1008.53	-13.52	13.39 S	3.66 E	13.89	164.71	1.37	-0.95
10	MWD	1103.00	0.90	125.40	94	1102.51	-15.05	14.89 S	4.68 E	15.61	162.54	0.86	-0.53
11	MWD	1197.00	0.50	85.20	94	1196.51	-15.48	15.28 S	5.69 E	16.31	159.57	0.65	-0.43
12	MWD	1252.00	0.70	82.90	55	1251.50	-15.43	15.22 S	6.27 E	16.46	157.62	0.37	0.36
13	MWD	1363.00	1.20	87.80	111	1362.49	-15.37	15.09 S	8.10 E	17.13	151.78	0.46	0.45
14	MWD	1552.00	1.20	88.70	189	1551.45	-15.39	14.97 S	12.06 E	19.22	141.16	0.01	0.00
15	MWD	1646.00	0.70	323.70	94	1645.44	-14.93	14.49 S	12.70 E	19.27	138.76	1.81	-0.53
16	MWD	1741.00	2.80	297.50	95	1740.39	-13.30	12.95 S	10.30 E	16.55	141.50	2.31	2.21
17	MWD	1835.00	3.50	297.90	94	1834.25	-10.74	10.55 S	5.73 E	12.00	151.50	0.75	0.74
18	MWD	2024.00	3.20	301.60	189	2022.93	-4.94	5.08 S	3.86 W	6.38	217.25	0.20	-0.16
19	MWD	2118.00	3.00	299.50	94	2116.79	-2.20	2.50 S	8.24 W	8.61	253.14	0.24	-0.21
20	MWD	2212.00	3.00	300.00	94	2210.66	0.39	0.06 S	12.51 W	12.51	269.75	0.03	0.00
21	MWD	2307.00	2.60	305.30	95	2305.55	3.01	2.43 N	16.42 W	16.60	278.43	0.50	-0.42
22	MWD	2401.00	2.60	301.70	94	2399.45	5.49	4.79 N	19.98 W	20.54	283.47	0.17	0.00
23	MWD	2496.00	3.00	303.70	95	2494.34	8.13	7.30 N	23.88 W	24.97	286.99	0.43	0.42
24	MWD	2590.00	3.00	311.60	94	2588.21	11.27	10.29 N	27.76 W	29.61	290.34	0.44	0.00
25	MWD	2684.00	2.80	315.30	94	2682.09	14.65	13.56 N	31.22 W	34.04	293.48	0.29	-0.21
26	MWD	2779.00	2.60	314.70	95	2776.98	17.93	16.72 N	34.38 W	38.23	295.94	0.21	-0.21
27	MWD	2967.00	2.60	319.80	188	2964.79	24.38	22.98 N	40.17 W	46.28	299.78	0.12	0.00
28	MWD	3062.00	2.50	322.10	95	3059.69	27.76	26.26 N	42.83 W	50.24	301.52	0.15	-0.11
29	MWD	3156.00	1.80	321.30	94	3153.63	30.60	29.03 N	45.01 W	53.56	302.82	0.75	-0.74
30	MWD	3250.00	2.30	300.70	94	3247.57	32.80	31.15 N	47.56 W	56.85	303.22	0.94	0.53
31	MWD	3345.00	1.90	284.90	95	3342.51	34.29	32.52 N	50.72 W	60.25	302.67	0.74	-0.42
32	MWD	3439.00	1.20	266.60	94	3436.47	34.72	32.87 N	53.21 W	62.54	301.71	0.90	-0.74
33	MWD	3534.00	1.40	275.90	95	3531.45	34.86	32.93 N	55.35 W	64.41	300.75	0.31	0.21
34	MWD	3628.00	1.40	283.30	94	3625.42	35.32	33.31 N	57.61 W	66.55	300.04	0.19	0.00

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Tie Into: Surface

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Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates			Closure		Dogleg Severity (d/100')	Build Rate (d/100')
								N/S (ft)	E/W (ft)		Distance (ft)	Angle (deg)		
35	MWD	3723.00	0.90	285.60	95	3720.40	35.85	33.78 N	59.46 W		68.39	299.60	0.53	-0.53
36	MWD	3817.00	0.50	298.60	94	3814.39	36.28	34.17 N	60.53 W		69.51	299.45	0.46	-0.43
37	MWD	3911.00	0.70	314.90	94	3908.39	36.91	34.77 N	61.30 W		70.48	299.57	0.28	0.21
38	MWD	4005.00	0.70	326.50	94	4002.38	37.82	35.66 N	62.02 W		71.54	299.90	0.15	0.00
39	MWD	4100.00	0.70	326.50	95	4097.37	38.81	36.63 N	62.66 W		72.58	300.31	0.00	0.00
40	MWD	4194.00	0.70	330.20	94	4191.37	39.81	37.60 N	63.27 W		73.60	300.73	0.05	0.00
41	MWD	4289.00	0.50	319.30	95	4286.36	40.65	38.42 N	63.82 W		74.50	301.05	0.24	-0.21
42	MWD	4383.00	0.90	266.20	94	4380.35	40.94	38.68 N	64.83 W		75.49	300.82	0.77	0.43
43	MWD	4478.00	0.40	240.90	95	4475.35	40.77	38.47 N	65.86 W		76.28	300.29	0.59	-0.53
44	MWD	4572.00	0.70	129.10	94	4569.35	40.24	37.95 N	65.70 W		75.88	300.01	0.99	0.32
45	MWD	4666.00	1.10	142.00	94	4663.33	39.13	36.88 N	64.70 W		74.47	299.68	0.47	0.43
46	MWD	4760.00	1.10	127.00	94	4757.32	37.84	35.62 N	63.43 W		72.75	299.32	0.31	0.00
47	MWD	4949.00	2.80	127.00	189	4946.20	33.79	31.75 N	58.29 W		66.38	298.58	0.90	0.90
48	MWD	5044.00	2.80	123.10	95	5041.09	30.99	29.09 N	54.49 W		61.77	298.09	0.20	0.00
49	MWD	5075.00	2.80	127.20	31	5072.05	30.08	28.22 N	53.26 W		60.27	297.92	0.65	0.00
50	MWD	5207.00	2.30	124.70	132	5203.92	26.46	24.76 N	48.51 W		54.46	297.04	0.39	-0.38
51	MWD	5301.00	1.40	167.20	94	5297.87	24.20	22.57 N	46.71 W		51.87	295.79	1.68	-0.96
52	MWD	5395.00	2.30	219.80	94	5391.83	21.67	20.00 N	47.66 W		51.68	292.76	1.94	0.96
53	MWD	5489.00	2.30	215.70	94	5485.75	18.77	17.02 N	49.97 W		52.78	288.81	0.18	0.00
54	MWD	5584.00	2.50	236.10	95	5580.67	16.17	14.31 N	52.80 W		54.70	285.17	0.92	0.21
55	MWD	5678.00	3.00	244.20	94	5674.56	14.09	12.10 N	56.71 W		57.99	282.04	0.67	0.53
56	MWD	5773.00	2.60	243.00	95	5769.45	12.18	10.04 N	60.87 W		61.69	279.37	0.43	-0.42
57	MWD	5867.00	2.50	246.50	94	5863.36	10.53	8.25 N	64.65 W		65.18	277.28	0.20	-0.11
58	MWD	5962.00	2.50	248.20	95	5958.27	9.07	6.66 N	68.48 W		68.80	275.55	0.08	0.00
59	MWD	6056.00	2.50	241.90	94	6052.18	7.47	4.93 N	72.19 W		72.36	273.91	0.29	0.00
60	MWD	6150.00	2.30	243.50	94	6146.09	5.79	3.12 N	75.68 W		75.75	272.36	0.22	-0.21
61	MWD	6245.00	2.50	240.50	95	6241.01	4.04	1.25 N	79.19 W		79.20	270.91	0.25	0.21
62	MWD	6339.00	2.30	236.10	94	6334.93	2.10	0.81 S	82.54 W		82.55	269.44	0.29	-0.21
63	MWD	6433.00	2.50	236.50	94	6428.85	0.04	2.99 S	85.82 W		85.87	268.00	0.21	0.21
64	MWD	6527.00	2.10	237.20	94	6522.77	-1.92	5.06 S	88.98 W		89.12	266.75	0.43	-0.43
65	MWD	6622.00	2.30	243.00	95	6617.70	-3.61	6.86 S	92.14 W		92.39	265.74	0.31	0.21
66	MWD	6717.00	2.30	240.90	95	6712.62	-5.29	8.66 S	95.50 W		95.89	264.82	0.09	0.00
67	MWD	6811.00	2.30	242.10	94	6806.55	-6.97	10.46 S	98.82 W		99.37	263.96	0.05	0.00
68	MWD	6905.00	2.30	235.90	94	6900.47	-8.79	12.40 S	102.05 W		102.80	263.07	0.26	0.00
69	MWD	6999.00	1.90	239.40	94	6994.41	-10.54	14.25 S	104.95 W		105.91	262.27	0.45	-0.43
70	MWD	7094.00	1.90	241.60	95	7089.36	-11.99	15.80 S	107.69 W		108.84	261.65	0.08	0.00
71	MWD	7188.00	1.80	239.10	94	7183.31	-13.40	17.30 S	110.33 W		111.68	261.09	0.14	-0.11
72	MWD	7283.00	1.90	230.00	95	7278.26	-15.09	19.08 S	112.81 W		114.42	260.40	0.33	0.11



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								N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)				
73	MWD	7377.00	1.60	227.80	94	7372.21	-16.89	20.96	S	114.98	W	116.87	259.67	0.33	-0.32
74	MWD	7471.00	1.80	229.20	94	7466.17	-18.67	22.81	S	117.07	W	119.27	258.98	0.22	0.21
75	MWD	7566.00	1.60	226.80	95	7561.13	-20.47	24.69	S	119.17	W	121.70	258.30	0.22	-0.21
76	MWD	7660.00	1.60	220.50	94	7655.09	-22.30	26.58	S	120.97	W	123.86	257.61	0.19	0.00
77	MWD	7754.00	1.90	216.10	94	7749.05	-24.50	28.84	S	122.75	W	126.09	256.78	0.35	0.32
78	MWD	7943.00	1.60	212.40	189	7937.96	-29.14	33.60	S	126.01	W	130.41	255.07	0.17	-0.16
79	MWD	8037.00	1.80	209.60	94	8031.92	-31.48	35.99	S	127.44	W	132.42	254.23	0.23	0.21
80	MWD	8131.00	1.60	213.40	94	8125.88	-33.81	38.37	S	128.89	W	134.48	253.42	0.24	-0.21
81	MWD	8226.00	1.80	208.90	95	8220.84	-36.17	40.79	S	130.34	W	136.57	252.62	0.25	0.21
82	MWD	8320.00	1.80	203.90	94	8314.79	-38.76	43.43	S	131.65	W	138.63	251.74	0.17	0.00
83	MWD	8415.00	1.60	202.70	95	8409.75	-41.31	46.02	S	132.77	W	140.52	250.88	0.21	-0.21
84	MWD	8509.00	1.60	201.50	94	8503.71	-43.70	48.45	S	133.76	W	142.26	250.09	0.04	0.00
85	MWD	8603.00	1.20	215.20	94	8597.68	-45.69	50.47	S	134.80	W	143.94	249.47	0.55	-0.43
86	MWD	8697.00	1.20	213.80	94	8691.66	-47.27	52.09	S	135.92	W	145.56	249.03	0.03	0.00
87	MWD	8766.00	1.20	215.50	69	8760.65	-48.43	53.28	S	136.74	W	146.76	248.71	0.05	0.00
88	MWD	8801.00	1.10	216.80	35	8795.64	-48.98	53.85	S	137.15	W	147.35	248.56	0.30	-0.29
89	MWD	8848.00	1.80	350.80	47	8842.63	-48.60	53.48	S	137.54	W	147.58	248.75	5.71	1.49
90	MWD	8895.00	7.90	4.80	47	8889.44	-44.66	49.53	S	137.39	W	146.05	250.17	13.13	12.98
91	MWD	8942.00	13.00	9.00	47	8935.65	-36.26	41.09	S	136.29	W	142.35	253.22	10.96	10.85
92	MWD	8989.00	18.70	11.00	47	8980.84	-23.72	28.46	S	134.03	W	137.01	258.01	12.18	12.13
93	MWD	9036.00	20.80	16.20	47	9025.08	-8.45	13.05	S	130.26	W	130.91	264.28	5.82	4.47
94	MWD	9083.00	23.60	13.80	47	9068.59	8.54	4.11	N	125.69	W	125.75	271.87	6.26	5.96
95	MWD	9130.00	25.70	12.70	47	9111.31	27.45	23.19	N	121.20	W	123.40	280.83	4.57	4.47
96	MWD	9178.00	28.20	13.10	48	9154.09	48.46	44.39	N	116.34	W	124.52	290.88	5.22	5.21
97	MWD	9225.00	30.80	9.40	47	9195.00	70.99	67.08	N	111.86	W	130.43	300.95	6.75	5.53
98	MWD	9272.00	33.60	11.50	47	9234.77	95.43	91.71	N	107.30	W	141.15	310.52	6.41	5.96
99	MWD	9319.00	36.80	9.00	47	9273.17	121.90	118.36	N	102.50	W	156.58	319.11	7.47	6.81
100	MWD	9366.00	41.30	8.30	47	9309.66	150.99	147.63	N	98.06	W	177.23	326.41	9.62	9.57
101	MWD	9413.00	46.60	9.40	47	9343.49	183.01	179.84	N	93.03	W	202.48	332.65	11.39	11.28
102	MWD	9461.00	53.00	12.20	48	9374.46	218.72	215.82	N	86.12	W	232.37	338.25	14.06	13.33
103	MWD	9508.00	62.30	12.60	47	9399.58	257.14	254.56	N	77.60	W	266.12	343.05	19.80	19.79
104	MWD	9555.00	71.60	9.90	47	9417.96	299.18	296.93	N	69.21	W	304.89	346.88	20.48	19.79
105	MWD	9587.00	77.40	6.00	32	9426.51	329.54	327.45	N	64.96	W	333.83	348.78	21.59	18.13
106	MWD	9618.00	82.90	2.20	31	9431.82	359.89	357.90	N	62.78	W	363.37	350.05	21.46	17.74
107	MWD	9684.00	89.60	356.40	66	9436.13	425.67	423.69	N	63.60	W	428.43	351.46	13.41	10.15
108	MWD	9778.00	90.40	356.60	94	9436.13	519.63	517.51	N	69.34	W	522.14	352.37	0.88	0.85
109	MWD	9872.00	90.10	354.80	94	9435.72	613.55	611.24	N	76.39	W	616.00	352.88	1.94	-0.32
110	MWD	9967.00	90.60	354.80	95	9435.14	708.41	705.85	N	85.00	W	710.95	353.13	0.53	0.53

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111	MWD	10061.00	91.10	355.30	94	9433.75	802.27	799.49 N	93.11 W	804.89	353.36	0.75	0.53
112	MWD	10155.00	90.60	354.30	94	9432.35	896.12	893.09 N	101.62 W	898.85	353.51	1.19	-0.53
113	MWD	10249.00	90.80	354.30	94	9431.21	989.92	986.62 N	110.96 W	992.84	353.58	0.21	0.21
114	MWD	10343.00	89.90	353.40	94	9430.63	1083.67	1080.07 N	121.03 W	1086.83	353.61	1.35	-0.96
115	MWD	10437.00	89.90	353.20	94	9430.80	1177.35	1173.43 N	132.00 W	1180.83	353.58	0.21	0.00
116	MWD	10531.00	89.90	352.70	94	9430.96	1270.99	1266.72 N	143.53 W	1274.83	353.54	0.53	0.00
117	MWD	10626.00	89.90	353.70	95	9431.13	1365.66	1361.05 N	154.78 W	1369.82	353.51	1.05	0.00
118	MWD	10720.00	91.00	355.00	94	9430.39	1459.46	1454.59 N	164.04 W	1463.81	353.57	1.81	1.17
119	MWD	10814.00	91.70	356.20	94	9428.17	1553.36	1548.28 N	171.25 W	1557.72	353.69	1.48	0.74
120	MWD	10908.00	89.70	356.90	94	9427.02	1647.31	1642.10 N	176.90 W	1651.60	353.85	2.25	-2.13
121	MWD	11003.00	89.00	356.70	95	9428.10	1742.29	1736.94 N	182.20 W	1746.47	354.01	0.77	-0.74
122	MWD	11097.00	89.90	357.60	94	9429.00	1836.27	1830.82 N	186.88 W	1840.33	354.17	1.35	0.96
123	MWD	11191.00	91.00	359.90	94	9428.27	1930.25	1924.79 N	188.93 W	1934.04	354.39	2.71	1.17
124	MWD	11286.00	91.00	0.40	95	9426.61	2025.17	2019.77 N	188.68 W	2028.57	354.66	0.53	0.00
125	MWD	11380.00	91.30	359.70	94	9424.72	2119.09	2113.75 N	188.60 W	2122.15	354.90	0.81	0.32
126	MWD	11475.00	91.00	0.10	95	9422.82	2214.01	2208.73 N	188.76 W	2216.78	355.12	0.53	-0.32
127	MWD	11569.00	91.70	0.20	94	9420.60	2307.92	2302.71 N	188.52 W	2310.41	355.32	0.75	0.74
128	MWD	11663.00	90.10	359.40	94	9419.12	2401.86	2396.69 N	188.85 W	2404.12	355.49	1.90	-1.70
129	MWD	11758.00	89.70	359.40	95	9419.29	2496.83	2491.69 N	189.84 W	2498.91	355.64	0.42	-0.42
130	MWD	11852.00	89.60	359.50	94	9419.86	2590.80	2585.68 N	190.74 W	2592.70	355.78	0.15	-0.11
131	MWD	11946.00	89.20	359.20	94	9420.85	2684.76	2679.67 N	191.81 W	2686.52	355.91	0.53	-0.43
132	MWD	12041.00	89.60	0.60	95	9421.84	2779.70	2774.66 N	191.97 W	2781.29	356.04	1.53	0.42
133	MWD	12135.00	89.70	1.30	94	9422.42	2873.57	2868.64 N	190.42 W	2874.96	356.20	0.75	0.11
134	MWD	12229.00	91.30	0.40	94	9421.60	2967.45	2962.63 N	189.02 W	2968.65	356.35	1.95	1.70
135	MWD	12323.00	91.50	359.90	94	9419.30	3061.35	3056.60 N	188.78 W	3062.42	356.47	0.57	0.21
136	MWD	12418.00	91.50	0.80	95	9416.81	3156.24	3151.56 N	188.20 W	3157.18	356.58	0.95	0.00
137	MWD	12512.00	89.90	0.60	94	9415.67	3250.12	3245.55 N	187.05 W	3250.93	356.70	1.72	-1.70
138	MWD	12607.00	89.60	0.40	95	9416.08	3345.03	3340.54 N	186.22 W	3345.73	356.81	0.38	-0.32
139	MWD	12701.00	91.00	0.10	94	9415.59	3438.95	3434.54 N	185.81 W	3439.56	356.90	1.52	1.49
140	MWD	12795.00	92.20	0.40	94	9412.96	3532.84	3528.50 N	185.40 W	3533.36	356.99	1.32	1.28
141	MWD	12890.00	91.00	359.50	95	9410.31	3627.74	3623.46 N	185.48 W	3628.20	357.07	1.58	-1.26
142	MWD	12984.00	91.00	359.00	94	9408.67	3721.71	3717.43 N	186.71 W	3722.12	357.12	0.53	0.00
143	MWD	13079.00	89.90	359.90	95	9407.92	3816.67	3812.42 N	187.62 W	3817.04	357.18	1.50	-1.16
144	MWD	13173.00	89.90	359.40	94	9408.09	3910.63	3906.42 N	188.20 W	3910.95	357.24	0.53	0.00
145	MWD	13268.00	89.70	358.30	95	9408.42	4005.62	4001.40 N	190.10 W	4005.91	357.28	1.18	-0.21
146	MWD	13362.00	89.60	358.10	94	9408.99	4099.61	4095.35 N	193.06 W	4099.90	357.30	0.24	-0.11
147	MWD	13456.00	88.90	358.80	94	9410.22	4193.60	4189.31 N	195.60 W	4193.87	357.33	1.05	-0.74
148	MWD	13551.00	88.90	0.90	95	9412.05	4288.53	4284.29 N	195.85 W	4288.76	357.38	2.21	0.00

