

30-015-39671

EOG Resources

Eddy County, NM (Nad27)
Sand Tank 17 Fed Com
Sand Tank 17 Fed Com 5H
Wellbore #1

Survey: Phoenix MWD Surveys

EOG Resources

14 February, 2012



Phoenix Technology Services
EOG Resources



Company:	EOG Resources	Local Co-ordinate Reference:	Well Sand Tank 17 Fed Com 5H
Project:	Eddy County, NM (Nad27)	TVD Reference:	WELL @ 3498.00usft (Original Well Elev + 30' KB)
Site:	Sand Tank 17 Fed Com	MD Reference:	WELL @ 3498.00usft (Original Well Elev + 30' KB)
Well:	Sand Tank 17 Fed Com 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Project:	Eddy County, NM (Nad27)	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Sand Tank 17 Fed Com		
Site Position:		Northing:	635,014.40 usft
From:	Map	Easting:	604,776.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 44' 43.0283 N
		Longitude:	103° 59' 33.1962 W
		Grid Convergence:	0.18 "

Well:	Sand Tank 17 Fed Com 5H		
Well Position:	+N/-S 0.00 usft	Northing:	633,834.40 usft
	+E/-W 0.00 usft	Easting:	604,740.20 usft
Position Uncertainty:	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 44' 31.3529 N
		Longitude:	103° 59' 33.6657 W
		Ground Level:	3,468.00 usft

Wellbore:	Wellbore #1		
Magnetics:	Model Name	Sample Date	Declination (°)
	IGRF2010_14	01/16/12	7.75
			Dip Angle (°)
			60.58
			Field Strength (nT)
			48,822

Design:	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			90.44

Survey Program:	Date		
	02/14/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
418.00	12,535.00	Phoenix MWD Surveys (Wellbore #1)	MWD
			Description
			MWD - Standard

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Design: Wellbore #1

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MD Reference: WELL @ 3498.00usft (Original Well Elev + 30' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0 00	0 00	0 00	-3,498 00	0 00	0 00	0 00	0 00	0 00	633,834.40	604,740 20	
418 00	0 20	273 90	-3,080 00	418 00	0 05	-0 73	-0 73	0 05	633,834 45	604,739 47	
First Phoenix MWD Survey											
602 00	0 40	167 00	-2,896 00	602 00	-0 55	-0 90	-0 90	0 27	633,833 85	604,739 30	
786 00	0 70	144 90	-2,712 01	785 99	-2 10	-0 11	-0 10	0 20	633,832 30	604,740 09	
969 00	0 80	144.90	-2,529.03	968 97	-4 06	1 26	1 30	0 05	633,830 34	604,741 46	
1,152 00	1 30	118 10	-2,346 06	1,151 94	-6 08	3 83	3 88	0 38	633,828 32	604,744 03	
1,336 00	0 70	90 60	-2,162.08	1,335 92	-7 08	6 80	6 85	0 41	633,827 32	604,747 00	
1,520 00	0 80	43 50	-1,978 10	1,519.90	-6 16	8 80	8 85	0 33	633,828 24	604,749 00	
1,710 00	0 80	18 50	-1,788 12	1,709.88	-3 94	10 14	10 17	0 18	633,830 46	604,750 34	
1,901 00	1 00	13 10	-1,597 14	1,900.86	-1 05	10 94	10 95	0 11	633,833 35	604,751 14	
2,092 00	1 40	6 20	-1,406 18	2,091 82	2 89	11 57	11 55	0 22	633,837 29	604,751 77	
2,282 00	1.00	305 00	-1,216 22	2,281.78	6 15	10 46	10 41	0 67	633,840 55	604,750 66	
2,474 00	0 40	277 60	-1,024 23	2,473 77	7.20	8 42	8 37	0 35	633,841.60	604,748 62	
2,664 00	0 50	288 30	-834 24	2,663 76	7 55	6 98	6 92	0 07	633,841 95	604,747 18	
2,856 00	0 70	309 20	-642 25	2,855 75	8 55	5 27	5 21	0 15	633,842.95	604,745 47	
3,047 00	0 90	306 30	-451 27	3,046 73	10 18	3 16	3 08	0 11	633,844.58	604,743 36	
3,238 00	0 20	282 20	-260 28	3,237 72	11 14	1 63	1 54	0 38	633,845.54	604,741 83	
3,320 00	0 20	194 20	-178 28	3,319 72	11 03	1 45	1 37	0 34	633,845 43	604,741 65	
3,464.00	0 30	228 00	-34 28	3,463 72	10 53	1 11	1.03	0 12	633,844 93	604,741 31	
3,655 00	0 40	283 00	156 72	3,654 72	10 35	0 09	0 01	0 18	633,844 75	604,740 29	
3,846 00	0 30	251 80	347 71	3,845 71	10 34	-1 04	-1 11	0 11	633,844 74	604,739 16	
4,036 00	0 40	299 20	537 71	4,035 71	10 51	-2 09	-2 17	0 16	633,844 91	604,738 11	
4,227 00	1 60	302 40	728 68	4,226 68	12 26	-4 92	-5 01	0 63	633,846 66	604,735 28	
4,418 00	0 30	171 00	919 66	4,417 66	13 20	-7 09	-7 20	0 95	633,847.60	604,733 11	
4,610 00	0 70	194 70	1,111 65	4,609 65	11 57	-7 31	-7 40	0 23	633,845.97	604,732 89	
4,800 00	0 70	229 40	1,301 64	4,799 64	9 69	-8 49	-8 56	0 22	633,844 09	604,731 71	

Phoenix Technology Services
EOG Resources



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Project: Eddy County, NM (Nad27)
Site: Sand Tank 17 Fed Com
Well: Sand Tank 17 Fed Com 5H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Sand Tank 17 Fed Com 5H
TVD Reference: WELL @ 3498.00usft (Original Well Elev + 30' KB)
MD Reference: WELL @ 3498.00usft (Original Well Elev + 30' KB)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,991.00	0 00	41 80	1,492.63	4,990.63	8 93	-9 37	-9 44	0 37	633,843 33	604,730 83
5,181 00	1 10	297 90	1,682 62	5,180.62	9 79	-10 99	-11.06	0 58	633,844 19	604,729 21
5,372 00	0 20	140 20	1,873.61	5,371.61	10 39	-12 39	-12 47	0 67	633,844 79	604,727 81
5,563 00	0 30	27 80	2,064 61	5,562 61	10 57	-11 95	-12 03	0 22	633,844.97	604,728.25
5,753 00	0 30	75 90	2,254 61	5,752 61	11 13	-11 23	-11 32	0 13	633,845 53	604,728 97
5,944 00	0 30	57 80	2,445 60	5,943 60	11 52	-10 32	-10 41	0 05	633,845 92	604,729 88
6,135 00	0.40	336 70	2,636 60	6,134 60	12 40	-10 16	-10 26	0 24	633,846 80	604,730.04
6,326.00	0 20	57 10	2,827.60	6,325 60	13 19	-10.15	-10 25	0 22	633,847 59	604,730 05
6,517.00	0 50	16 30	3,018 59	6,516 59	14.18	-9.63	-9.74	0 19	633,848 58	604,730.57
6,708 00	1 00	300.80	3,209 58	6,707.58	15 83	-10 83	-10 95	0 52	633,850 23	604,729.37
6,888 00	0.70	154 30	3,389 57	6,887 57	15 64	-11 70	-11 82	0 91	633,850 04	604,728 50
7,079 00	0 80	159 70	3,580 56	7,078 56	13 34	-10 74	-10.84	0 06	633,847 74	604,729 46
7,270 00	0 80	161 90	3,771 54	7,269 54	10 82	-9 86	-9 94	0 02	633,845 22	604,730 34
7,461 00	0 60	177.00	3,962 52	7,460 52	8 56	-9 39	-9 46	0 14	633,842 96	604,730.81
7,580 00	0 70	172 80	4,081.52	7,579 52	7 21	-9.27	-9 32	0 09	633,841 61	604,730.93
7,656 00	2 70	101 30	4,157.48	7,655 48	6.40	-7.46	-7 50	3 38	633,840 80	604,732 74
7,688 00	7 00	92 60	4,189 36	7,687 36	6 17	-4 77	-4 81	13 59	633,840 57	604,735 43
7,720 00	11 60	89 20	4,220 93	7,718 93	6 12	0 40	0 35	14 47	633,840 52	604,740.60
7,752 00	15 70	87 50	4,252 02	7,750 02	6 36	7 95	7 90	12 87	633,840 76	604,748 15
7,784 00	20 70	87 90	4,282 41	7,780 41	6 75	17 93	17 88	15 63	633,841 15	604,758 13
7,815 00	25 20	90 10	4,310 95	7,808 95	6 94	30 01	29 96	14 78	633,841 34	604,770 21
7,847 00	29 40	93 00	4,339 38	7,837 38	6.52	44.67	44 62	13 76	633,840 92	604,784 87
7,879.00	33 30	96.10	4,366 71	7,864 71	5 17	61 26	61 22	13 18	633,839 57	604,801 46
7,911 00	37 40	95 60	4,392.80	7,890 80	3 29	79 67	79 65	12 84	633,837 69	604,819 87
7,943.00	41 00	95 50	4,417 60	7,915 60	1 34	99.80	99 79	11 25	633,835 74	604,840 00
7,975 00	44 40	94 90	4,441 11	7,939 11	-0 63	121 41	121 41	10 70	633,833 77	604,861 61
8,007 00	47 70	94 20	4,463 32	7,961 32	-2 45	144 37	144 39	10 43	633,831 95	604,884 57

Phoenix Technology Services
EOG Resources



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Well:	Sand Tank 17 Fed Com 5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,038.00	50.60	93.80	93.80	4,483.59	7,981.59	-4.08	167.76	167.79	9.41	633,830.32	604,907.96
8,070.00	53.80	93.30	93.30	4,503.20	8,001.20	-5.65	193.00	193.03	10.08	633,828.75	604,933.20
8,102.00	57.30	92.20	92.20	4,521.30	8,019.30	-6.91	219.35	219.39	11.30	633,827.49	604,959.55
8,134.00	60.20	91.80	91.80	4,537.90	8,035.90	-7.86	246.69	246.74	9.13	633,826.54	604,986.89
8,165.00	62.70	91.40	91.40	4,552.71	8,050.71	-8.62	273.90	273.96	8.14	633,825.78	605,014.10
8,197.00	65.10	91.30	91.30	4,566.79	8,064.79	-9.30	302.63	302.69	7.51	633,825.10	605,042.83
8,229.00	67.70	91.50	91.50	4,579.60	8,077.60	-10.01	331.94	332.01	8.15	633,824.39	605,072.14
8,260.00	70.80	91.20	91.20	4,590.58	8,088.58	-10.70	360.92	360.99	10.04	633,823.70	605,101.12
8,293.00	73.00	90.70	90.70	4,600.83	8,098.83	-11.22	392.28	392.36	6.82	633,823.18	605,132.48
8,325.00	75.20	89.70	89.70	4,609.60	8,107.60	-11.32	423.05	423.13	7.50	633,823.08	605,163.25
8,357.00	78.50	88.90	88.90	4,616.88	8,114.88	-10.94	454.21	454.28	10.60	633,823.46	605,194.41
8,389.00	82.40	88.50	88.50	4,622.19	8,120.19	-10.22	485.75	485.81	12.25	633,824.18	605,225.95
8,420.00	83.60	88.90	88.90	4,625.97	8,123.97	-9.52	516.51	516.57	4.08	633,824.88	605,256.71
8,452.00	83.60	88.60	88.60	4,629.53	8,127.53	-8.83	548.30	548.36	0.93	633,825.57	605,288.50
8,516.00	85.00	90.30	90.30	4,635.89	8,133.89	-8.22	611.98	612.03	3.43	633,826.18	605,352.18
8,548.00	85.00	90.30	90.30	4,638.68	8,136.68	-8.39	643.86	643.90	0.00	633,826.01	605,384.06
8,643.00	88.10	89.40	89.40	4,644.40	8,142.40	-8.14	738.67	738.71	3.40	633,826.26	605,478.87
8,739.00	87.80	89.60	89.60	4,647.83	8,145.83	-7.30	834.61	834.64	0.38	633,827.10	605,574.81
8,835.00	88.70	89.90	89.90	4,650.76	8,148.76	-6.88	930.56	930.59	0.99	633,827.52	605,670.76
8,930.00	89.00	91.80	91.80	4,652.67	8,150.67	-8.29	1,025.53	1,025.56	2.02	633,826.11	605,765.73
9,026.00	88.00	91.70	91.70	4,655.18	8,153.18	-11.22	1,121.45	1,121.50	1.05	633,823.18	605,861.65
9,122.00	88.00	91.30	91.30	4,658.53	8,156.53	-13.73	1,217.36	1,217.43	0.42	633,820.67	605,957.56
9,217.00	87.70	91.10	91.10	4,662.09	8,160.09	-15.72	1,312.27	1,312.35	0.38	633,818.68	606,052.47
9,312.00	88.30	91.00	91.00	4,665.41	8,163.41	-17.46	1,407.19	1,407.29	0.64	633,816.94	606,147.39
9,408.00	88.70	90.70	90.70	4,667.92	8,165.92	-18.89	1,503.15	1,503.25	0.52	633,815.51	606,243.35
9,504.00	89.10	90.20	90.20	4,669.77	8,167.77	-19.64	1,599.13	1,599.23	0.67	633,814.76	606,339.33
9,599.00	89.20	89.80	89.80	4,671.18	8,169.18	-19.64	1,694.12	1,694.22	0.43	633,814.76	606,434.32

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Design:	Wellbore #1	Database:	GCR DB v5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
9,695.00	89.20	91.70	4,672.52	8,170.52	-20.90	1,790.10	1,790.20	1.98	633,813.50	606,530.30	
9,790.00	88.70	91.10	4,674.26	8,172.26	-23.22	1,885.05	1,885.17	0.82	633,811.18	606,625.25	
9,886.00	88.20	91.40	4,676.85	8,174.85	-25.31	1,980.99	1,981.13	0.61	633,809.09	606,721.19	
9,981.00	87.60	91.10	4,680.33	8,178.33	-27.38	2,075.91	2,076.06	0.71	633,807.02	606,816.11	
10,077.00	87.00	90.60	4,684.86	8,182.86	-28.80	2,171.79	2,171.95	0.81	633,805.60	606,911.99	
10,172.00	86.50	90.70	4,690.24	8,188.24	-29.88	2,266.63	2,266.79	0.54	633,804.52	607,006.83	
10,267.00	88.40	90.80	4,694.47	8,192.47	-31.12	2,361.52	2,361.69	2.00	633,803.28	607,101.72	
10,362.00	87.70	90.20	4,697.70	8,195.70	-31.95	2,456.46	2,456.64	0.97	633,802.45	607,196.66	
10,458.00	87.60	90.20	4,701.64	8,199.64	-32.28	2,552.38	2,552.55	0.10	633,802.12	607,292.58	
10,553.00	86.90	90.40	4,706.20	8,204.20	-32.78	2,647.27	2,647.44	0.77	633,801.62	607,387.47	
10,649.00	88.80	90.20	4,709.80	8,207.80	-33.28	2,743.20	2,743.37	1.99	633,801.12	607,483.40	
10,744.00	88.40	90.30	4,712.12	8,210.12	-33.70	2,838.17	2,838.34	0.43	633,800.70	607,578.37	
10,840.00	87.70	89.80	4,715.39	8,213.39	-33.78	2,934.11	2,934.28	0.90	633,800.62	607,674.31	
10,935.00	87.40	90.50	4,719.45	8,217.45	-34.03	3,029.02	3,029.20	0.80	633,800.37	607,769.22	
11,031.00	90.50	91.50	4,721.21	8,219.21	-35.71	3,124.98	3,125.16	3.39	633,798.69	607,865.18	
11,126.00	90.40	91.60	4,720.46	8,218.46	-38.28	3,219.94	3,220.14	0.15	633,796.12	607,960.14	
11,222.00	89.50	90.60	4,720.54	8,218.54	-40.12	3,315.92	3,316.13	1.40	633,794.28	608,056.12	
11,317.00	89.10	90.70	4,721.70	8,219.70	-41.20	3,410.91	3,411.12	0.43	633,793.20	608,151.11	
11,412.00	88.90	90.40	4,723.36	8,221.36	-42.11	3,505.89	3,506.11	0.38	633,792.29	608,246.09	
11,508.00	88.70	90.00	4,725.37	8,223.37	-42.44	3,601.87	3,602.09	0.47	633,791.96	608,342.07	
11,603.00	87.90	89.60	4,728.19	8,226.19	-42.11	3,696.82	3,697.04	0.94	633,792.29	608,437.02	
11,699.00	88.50	89.50	4,731.21	8,229.21	-41.36	3,792.77	3,792.98	0.63	633,793.04	608,532.97	
11,795.00	87.80	89.00	4,734.30	8,232.30	-40.10	3,888.71	3,888.91	0.90	633,794.30	608,628.91	
11,890.00	88.00	91.30	4,737.79	8,235.79	-40.35	3,983.64	3,983.84	2.43	633,794.05	608,723.84	
11,986.00	88.40	91.60	4,740.80	8,238.80	-42.78	4,079.57	4,079.77	0.52	633,791.62	608,819.77	
12,081.00	87.70	92.00	4,744.03	8,242.03	-45.76	4,174.46	4,174.69	0.85	633,788.64	608,914.66	
12,177.00	88.40	91.60	4,747.30	8,245.30	-48.77	4,270.36	4,270.61	0.84	633,785.63	609,010.56	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

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12,272.00	89.40	89.10	4,749.13	8,247.13	-49.35	4,365.33	4,365.58	2.83	633,785.05	609,105.53
12,368.00	88.90	89.80	4,750.55	8,248.55	-48.43	4,461.32	4,461.56	0.90	633,785.97	609,201.52
12,463.00	88.40	89.40	4,752.79	8,250.79	-47.77	4,556.29	4,556.52	0.67	633,786.63	609,296.49
Last Phoenix MWD Survey										
12,535.00	88.40	89.40	4,754.80	8,252.80	-47.02	4,628.25	4,628.48	0.00	633,787.38	609,368.45
Projection to TD										

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
418.00	418.00	0.05	-0.73	First Phoenix MWD Survey
12,463.00	8,250.79	-47.77	4,556.29	Last Phoenix MWD Survey
12,535.00	8,252.80	-47.02	4,628.25	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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