



30-015-39169

EOG Resources

Eddy County, NM (NAD27 NME)
Sand Tank "17" Federal Com #4H
Sand Tank "17" Federal Com #4H

OH

Design: Actual

Standard Survey Report

09 February, 2012



Scientific Drilling
Directional Drilling Operations

Company:	EOG Resources	Local Co-ordinate Reference:	Well Sand Tank "17" Federal Com #4H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3500 90usft (Precision #523)
Site:	Sand Tank "17" Federal Com #4H	MD Reference:	RF @ 3500 90usft (Precision #523)
Well:	Sand Tank "17" Federal Com #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM.5000 1 Single User Db.

Project:	Eddy County, NM (NAD27 NME), USA		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Sand Tank "17" Federal Com #4H					
Site Position:		Northing:	635,014 40 usft	Latitude:	32° 44' 43 028 N
From:	Map	Easting:	604,776 50 usft	Longitude:	103° 59' 33 196 W
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.18 °

Well	Sand Tank "17" Federal Com #4H					
Well Position	+N/-S	0 00 usft	Northing:	635,014 40 usft	Latitude:	32° 44' 43 028 N
	+E/-W	0 00 usft	Easting:	604,776.50 usft	Longitude:	103° 59' 33 196 W
Position Uncertainty		0 00 usft	Wellhead Elevation:	usft	Ground Level:	3,482 90 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	01/15/12	7 75	60 58	48,825

Design:	Actual				
Audit Notes:					
Version:	1 0	Phase:	ACTUAL	Tie On Depth:	0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0 00	0 00	0 00	88 70	

Survey Program		Date	02/09/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
3,419 00	12,501 00	MWD (OH)	MWD	MWD - Standard ISCWSA	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,315 00	0.30	206 60	3,314 69	23 09	-14 63	-14 10	0 00	0 00	0 00
3,419 00	0.40	220 40	3,418 69	22 57	-14 99	-14 47	0 13	0 10	13 27
3,514 00	0.50	236 60	3,513 69	22 09	-15.55	-15 04	0.17	0 11	17 05
3,610 00	0.70	240 30	3,609 68	21.57	-16 41	-15 91	0 21	0 21	3 85
3,706 00	0.50	245 10	3,705 67	21 10	-17 30	-16.81	0 21	-0 21	5 00
3,801 00	0.40	238 70	3,800 67	20 75	-17 96	-17 48	0 12	-0 11	-6 74
3,897 00	0.70	218 30	3,896 67	20 12	-18 61	-18 15	0 37	0 31	-21 25
3,992 00	0.90	223 00	3,991 66	19.12	-19 47	-19 04	0 22	0 21	4 95
4,088 00	1 10	249 40	4,087 64	18 24	-20.85	-20 43	0 52	0 21	27 50
4,183 00	1 30	263 20	4,182 62	17 80	-22 77	-22 37	0 37	0.21	14 53

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Site:	Sand Tank "17" Federal Com #4H	MD Reference:	RF @ 3500 90usft (Precision #523)
Well:	Sand Tank "17" Federal Com #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,279.00	0.40	313.50	4,278.61	17.90	-24.10	-23.69	1.13	-0.94	52.40
4,375.00	0.40	310.40	4,374.61	18.34	-24.60	-24.18	0.02	0.00	-3.23
4,470.00	0.40	293.80	4,469.61	18.69	-25.15	-24.72	0.12	0.00	-17.47
4,565.00	0.40	280.90	4,564.61	18.89	-25.78	-25.35	0.09	0.00	-13.58
4,661.00	0.90	137.20	4,660.60	18.40	-25.60	-25.18	1.30	0.52	-149.69
4,756.00	0.70	135.30	4,755.59	17.44	-24.68	-24.28	0.21	-0.21	-2.00
4,851.00	0.50	144.20	4,850.59	16.69	-24.03	-23.65	0.23	-0.21	9.37
4,947.00	0.50	153.50	4,946.58	15.98	-23.60	-23.23	0.08	0.00	9.69
5,042.00	0.30	168.00	5,041.58	15.36	-23.36	-23.01	0.23	-0.21	15.26
5,138.00	0.20	311.90	5,137.58	15.23	-23.44	-23.09	0.50	-0.10	149.90
5,233.00	0.09	318.00	5,232.58	15.39	-23.61	-23.26	0.12	-0.12	6.42
5,329.00	0.20	331.50	5,328.58	15.60	-23.74	-23.38	0.12	0.11	14.06
5,424.00	0.30	178.00	5,423.58	15.50	-23.81	-23.45	0.51	0.11	-161.58
5,519.00	0.40	201.80	5,518.58	14.94	-23.93	-23.58	0.18	0.11	25.05
5,615.00	0.30	157.30	5,614.58	14.40	-23.95	-23.62	0.29	-0.10	-46.35
5,711.00	1.20	133.40	5,710.57	13.47	-23.13	-22.81	0.97	0.94	-24.90
5,806.00	1.20	134.80	5,805.55	12.09	-21.70	-21.42	0.03	0.00	1.47
5,901.00	1.60	133.20	5,900.52	10.48	-20.02	-19.78	0.42	0.42	-1.68
5,997.00	1.50	131.90	5,996.48	8.72	-18.11	-17.91	0.11	-0.10	-1.35
6,093.00	1.40	136.70	6,092.45	7.03	-16.37	-16.21	0.16	-0.10	5.00
6,188.00	1.20	129.00	6,187.43	5.56	-14.80	-14.67	0.28	-0.21	-8.11
6,284.00	1.20	137.60	6,283.41	4.19	-13.34	-13.25	0.19	0.00	8.96
6,379.00	1.30	136.70	6,378.38	2.67	-11.93	-11.87	0.11	0.11	-0.95
6,475.00	2.20	136.80	6,474.34	0.53	-9.93	-9.91	0.94	0.94	0.10
6,570.00	1.20	119.50	6,569.30	-1.29	-7.81	-7.84	1.17	-1.05	-18.21
6,665.00	0.62	98.97	6,664.28	-1.86	-6.44	-6.48	0.69	-0.61	-21.61
6,761.00	0.62	359.20	6,760.28	-1.42	-5.93	-5.96	0.99	0.00	-103.93
6,856.00	0.62	31.70	6,855.28	-0.47	-5.67	-5.68	0.37	0.00	34.21
6,952.00	0.79	85.90	6,951.27	0.02	-4.74	-4.74	0.69	0.18	56.46
7,048.00	0.90	68.00	7,047.26	0.35	-3.38	-3.37	0.30	0.11	-18.65
7,143.00	0.60	48.60	7,142.25	0.96	-2.31	-2.29	0.41	-0.32	-20.42
7,237.00	0.70	57.80	7,236.24	1.59	-1.46	-1.42	0.15	0.11	9.79
7,333.00	0.53	48.98	7,332.24	2.19	-0.63	-0.58	0.20	-0.18	-9.19
7,428.00	0.53	45.27	7,427.24	2.79	0.02	0.08	0.04	0.00	-3.91
7,523.00	0.62	65.31	7,522.23	3.32	0.80	0.87	0.23	0.09	21.09
7,568.00	0.26	46.91	7,567.23	3.49	1.09	1.17	0.85	-0.80	-40.89
7,637.00	1.93	85.88	7,636.21	3.68	2.36	2.45	2.52	2.42	56.48
7,669.00	6.46	81.29	7,668.12	3.99	4.68	4.77	14.18	14.16	-14.34
7,700.00	11.87	78.32	7,698.71	4.90	9.53	9.64	17.51	17.45	-9.58
7,732.00	16.88	81.48	7,729.70	6.25	17.36	17.49	15.84	15.66	9.88
7,764.00	21.02	85.26	7,759.96	7.42	27.67	27.84	13.49	12.94	11.81
7,796.00	23.65	88.43	7,789.56	8.07	39.81	39.98	9.04	8.22	9.91
7,828.00	27.44	90.71	7,818.43	8.15	53.61	53.78	12.23	11.84	7.13
7,860.00	30.78	90.18	7,846.38	8.04	69.17	69.34	10.47	10.44	-1.66

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Well: Sand Tank "17" Federal Com #4H
Wellbore: OH
Design: Actual

Local Co-ordinate Reference: Well Sand Tank "17" Federal Com #4H
TVD Reference: RF @ 3500.90usft (Precision #523)
MD Reference: RF @ 3500.90usft (Precision #523)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,892.00	32.80	89.22	7,873.58	8.13	86.03	86.19	6.51	6.31	-3.00
7,923.00	34.91	87.63	7,899.32	8.61	103.29	103.46	7.38	6.81	-5.13
7,955.00	37.37	86.49	7,925.16	9.58	122.13	122.32	7.97	7.69	-3.56
7,987.00	42.12	86.05	7,949.76	10.92	142.54	142.75	14.87	14.84	-1.38
8,018.00	45.20	87.02	7,972.19	12.20	163.90	164.14	10.17	9.94	3.13
8,050.00	46.78	88.34	7,994.42	13.13	186.90	187.15	5.76	4.94	4.13
8,082.00	48.54	89.83	8,015.97	13.51	210.55	210.80	6.49	5.50	4.66
8,114.00	51.88	91.50	8,036.45	13.21	235.13	235.37	11.18	10.44	5.22
8,146.00	55.31	92.20	8,055.44	12.38	260.86	261.08	10.86	10.72	2.19
8,177.00	58.74	92.38	8,072.31	11.34	286.85	287.03	11.08	11.06	0.58
8,209.00	62.08	92.38	8,088.11	10.18	314.65	314.79	10.44	10.44	0.00
8,241.00	65.42	92.47	8,102.26	8.97	343.32	343.43	10.44	10.44	0.28
8,272.00	68.76	92.12	8,114.32	7.83	371.84	371.92	10.82	10.77	-1.13
8,304.00	72.28	91.85	8,124.99	6.78	401.99	402.04	11.03	11.00	-0.84
8,336.00	75.97	91.50	8,133.75	5.88	432.75	432.77	11.58	11.53	-1.09
8,368.00	79.28	90.90	8,140.60	5.23	463.99	463.99	10.50	10.34	-1.88
8,400.00	82.92	90.01	8,145.55	4.98	495.60	495.59	11.70	11.38	-2.78
8,431.00	86.26	89.83	8,148.48	5.02	526.46	526.44	10.79	10.77	-0.58
8,464.00	88.55	89.48	8,149.97	5.22	559.42	559.40	7.02	6.94	-1.06
8,495.00	88.64	89.48	8,150.73	5.50	590.41	590.39	0.29	0.29	0.00
8,527.00	90.13	88.86	8,151.07	5.97	622.41	622.38	5.04	4.66	-1.94
8,622.00	90.13	88.78	8,150.86	7.92	717.39	717.38	0.08	0.00	-0.08
8,717.00	89.96	88.51	8,150.78	10.17	812.36	812.38	0.34	-0.18	-0.28
8,813.00	89.78	88.69	8,151.00	12.51	908.33	908.38	0.27	-0.19	0.19
8,909.00	89.33	89.30	8,151.75	14.20	1,004.31	1,004.38	0.79	-0.47	0.64
9,003.00	89.09	89.39	8,153.04	15.27	1,098.30	1,098.36	0.27	-0.26	0.10
9,099.00	89.78	87.81	8,153.99	17.62	1,194.26	1,194.35	1.80	0.72	-1.65
9,195.00	89.08	87.55	8,154.94	21.50	1,290.18	1,290.33	0.78	-0.73	-0.27
9,290.00	89.96	87.37	8,155.74	25.71	1,385.08	1,385.31	0.95	0.93	-0.19
9,386.00	89.78	87.19	8,155.96	30.27	1,480.97	1,481.28	0.27	-0.19	-0.19
9,481.00	89.78	87.19	8,156.32	34.93	1,575.85	1,576.24	0.00	0.00	0.00
9,577.00	89.60	87.19	8,156.84	39.63	1,671.74	1,672.21	0.19	-0.19	0.00
9,672.00	88.99	87.55	8,158.01	43.99	1,766.63	1,767.17	0.75	-0.64	0.38
9,768.00	90.48	87.63	8,158.45	48.03	1,862.54	1,863.15	1.55	1.55	0.08
9,862.00	90.75	87.81	8,157.45	51.77	1,956.46	1,957.13	0.35	0.29	0.19
9,958.00	90.75	87.28	8,156.19	55.88	2,052.36	2,053.10	0.55	0.00	-0.55
10,052.00	89.60	88.43	8,155.90	59.40	2,146.30	2,147.09	1.73	-1.22	1.22
10,148.00	89.43	88.16	8,156.71	62.25	2,242.25	2,243.08	0.33	-0.18	-0.28
10,243.00	88.64	88.69	8,158.31	64.86	2,337.20	2,338.07	1.00	-0.83	0.56
10,338.00	88.46	88.34	8,160.72	67.33	2,432.14	2,433.04	0.41	-0.19	-0.37
10,434.00	89.78	88.86	8,162.19	69.67	2,528.09	2,529.02	1.48	1.38	0.54
10,529.00	89.60	87.99	8,162.71	72.28	2,623.06	2,624.02	0.94	-0.19	-0.92
10,624.00	89.25	89.22	8,163.66	74.59	2,718.02	2,719.01	1.35	-0.37	1.29

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Project: Eddy County, NM (NAD27 NME)
Site: Sand Tank "17" Federal Com #4H
Well: Sand Tank "17" Federal Com #4H
Wellbore: OH
Design: Actual

Local Co-ordinate Reference: Well Sand Tank "17" Federal Com #4H
TVD Reference: RF @ 3500 90usft (Precision #523)
MD Reference: RF @ 3500 90usft (Precision #523)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM-5000 1 Single User Db

Survey

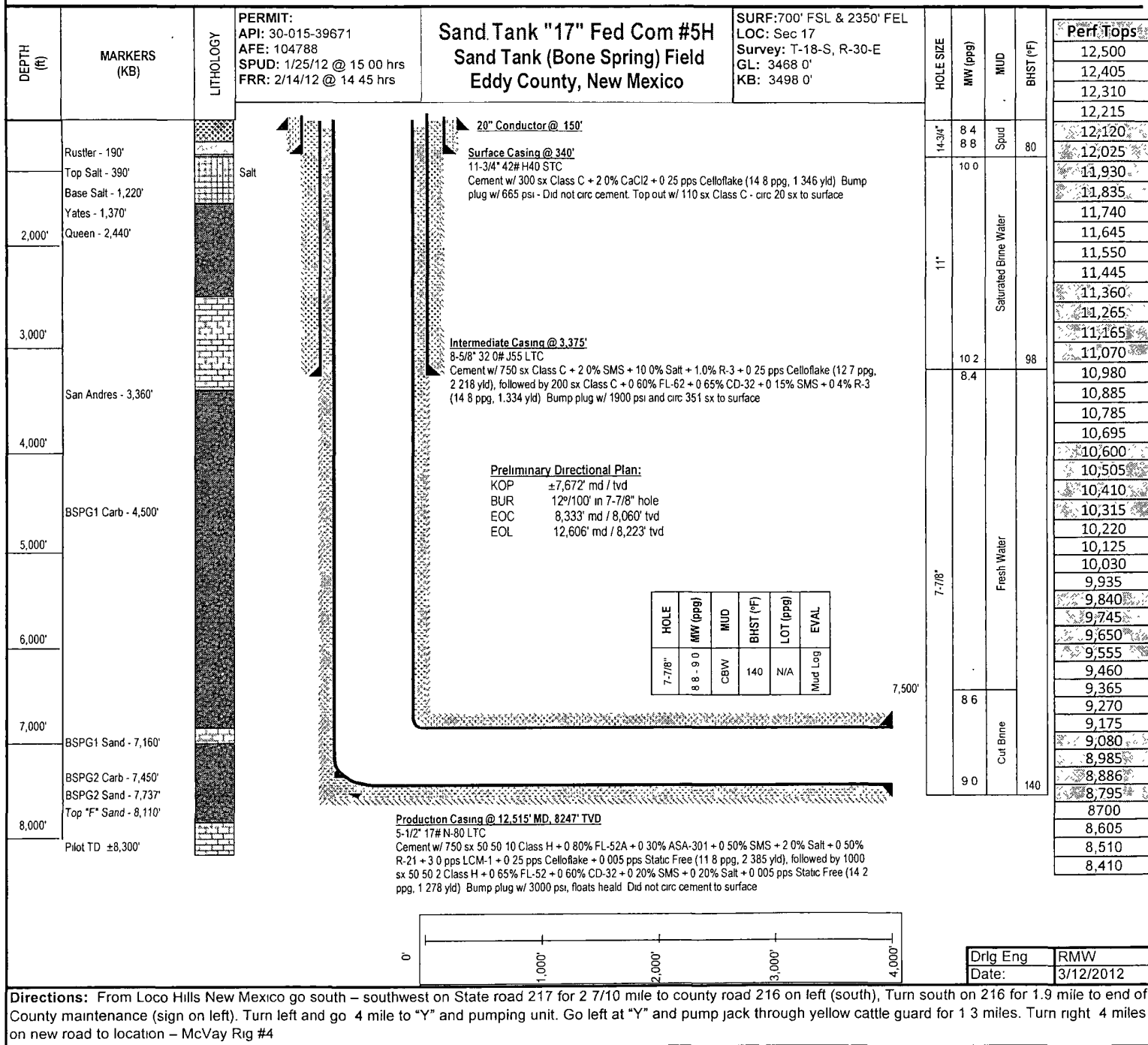
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,719.00	89.08	88.69	8,165.04	76.33	2,812.99	2,814.00	0.59	-0.18	-0.56
10,814.00	88.72	88.16	8,166.87	78.94	2,907.94	2,908.98	0.67	-0.38	-0.56
10,909.00	88.20	90.01	8,169.42	80.45	3,002.89	3,003.94	2.02	-0.55	1.95
11,005.00	89.08	90.18	8,171.70	80.30	3,098.86	3,099.89	0.93	0.92	0.18
11,100.00	89.25	90.10	8,173.08	80.06	3,193.85	3,194.85	0.20	0.18	-0.08
11,195.00	87.23	90.27	8,176.00	79.76	3,288.80	3,289.76	2.13	-2.13	0.18
11,291.00	85.74	90.45	8,181.89	79.15	3,384.62	3,385.54	1.56	-1.55	0.19
11,387.00	85.03	90.10	8,189.61	78.70	3,480.30	3,481.19	0.82	-0.74	-0.36
11,482.00	87.93	89.39	8,195.44	79.12	3,575.11	3,575.99	3.14	3.05	-0.75
11,578.00	88.11	89.22	8,198.76	80.28	3,671.05	3,671.92	0.26	0.19	-0.18
11,674.00	87.58	88.95	8,202.37	81.81	3,766.97	3,767.85	0.62	-0.55	-0.28
11,770.00	87.23	88.60	8,206.72	83.86	3,862.85	3,863.75	0.52	-0.36	-0.36
11,866.00	89.16	87.63	8,209.74	87.02	3,958.74	3,959.70	2.25	2.01	-1.01
11,962.00	87.05	88.51	8,212.92	90.25	4,054.63	4,055.63	2.38	-2.20	0.92
12,058.00	85.82	88.95	8,218.88	92.38	4,150.42	4,151.44	1.36	-1.28	0.46
12,154.00	85.38	88.78	8,226.25	94.27	4,246.11	4,247.16	0.49	-0.46	-0.18
12,250.00	85.03	87.72	8,234.27	97.19	4,341.73	4,342.82	1.16	-0.36	-1.10
12,346.00	84.77	88.43	8,242.81	100.41	4,437.30	4,438.43	0.78	-0.27	0.74
12,442.00	84.59	88.78	8,251.71	102.73	4,532.86	4,534.02	0.41	-0.19	0.36
Last MWD Survey									
12,501.00	84.59	88.78	8,257.27	103.98	4,591.58	4,592.76	0.00	0.00	0.00
Projection to Bit									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,442.00	8,251.71	102.73	4,532.86	Last MWD Survey
12,501.00	8,257.27	103.98	4,591.58	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____

COMPLETION WELLSKETCH



Stage Number	Cluster Top	Cluster Bottom	Plug Depth	Perf Length
1	12,480	12,483	12,490	285
1	12,386	12,389	12,490	
1	12,292	12,295	12,490	
1	12,198	12,201	12,490	
2	12,104	12,107	12,148	290
2	12,010	12,013	12,148	
2	11,916	11,919	12,148	
2	11,817	11,820	12,148	
3	11,728	11,731	11,772	285
3	11,634	11,637	11,772	
3	11,540	11,543	11,772	
3	11,446	11,449	11,772	
4	11,352	11,355	11,396	285
4	11,258	11,261	11,396	
4	11,164	11,167	11,396	
4	11,070	11,073	11,396	
5	10,966	10,969	11,022	275
5	10,885	10,888	11,022	
5	10,788	10,801	11,022	
5	10,694	10,697	11,022	
6	10,600	10,603	10,644	285
6	10,502	10,505	10,644	
6	10,412	10,415	10,644	
6	10,318	10,321	10,644	
7	10,224	10,227	10,268	285
7	10,135	10,138	10,268	
7	10,036	10,039	10,268	
7	9,942	9,945	10,268	
8	9,756	9,759	9,892	193
8	9,660	9,663	9,892	
8	9,656	9,659	9,892	
8	9,566	9,569	9,892	
9	9,472	9,475	9,516	285
9	9,379	9,382	9,516	
9	9,280	9,283	9,516	
9	9,190	9,193	9,516	
10	9,096	9,099	9,140	285
10	9,002	9,005	9,140	
10	8,902	8,905	9,140	
10	8,814	8,817	9,140	
11	8720	8723	8,764	285
11	8,626	8,629	8,764	
11	8,538	8,541	8,764	
11	8,438	8,441	8,764	

EOG Resources

**Eddy County, NM (Nad27)
Sand Tank 17 Fed Com
Sand Tank 17 Fed Com 4H
Wellbore #1**

Survey: Phoenix MWD Surveys

EOG Resources

23 January, 2012



**PHOENIX
TECHNOLOGY SERVICES**

Phoenix Technology Services
EOG Resources



Company:	EOG Resources	Local Co-ordinate Reference:	Well Sand Tank 17 Fed Com 4H
Project:	Eddy County, NM (Nad27)	TVD Reference:	WELL @ 3501.90usft (Original Well Elev + 19' KB)
Site:	Sand Tank 17 Fed Com	MD Reference:	WELL @ 3501.90usft (Original Well Elev + 19' KB)
Well:	Sand Tank 17 Fed Com 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Project	Eddy County, NM (Nad27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
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 4H		
Well Position	+N/-S	0.00 usft	Latitude:
	+E/-W	0.00 usft	Longitude:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
			Ground Level:
			3,482.90 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010_14	01/04/12	7.75
			(°)
			60.58
			(nT)
			48,828

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			88.70

Survey Program	Date	01/23/12		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.00	3,370.00	Phoenix MWD Surveys (Wellbore #1)	MWD	MWD - Standard

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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	-3,501.90	0.00	0.00	0.00	0.00	0.00	635,014.40	604,776.50
0.42	0.00	108.38	-3,501.48	0.42	0.00	0.00	0.00	0.00	635,014.40	604,776.50
Belco Pet Co. Fed 17 Com #1										
100.00	0.18	108.38	-3,401.90	100.00	-0.05	0.15	0.15	0.18	635,014.35	604,776.65
182.00	0.64	84.86	-3,319.90	182.00	-0.05	0.73	0.73	0.59	635,014.35	604,777.23
Tie On From Gyro @ 182' MD										
328.00	0.40	314.50	-3,173.91	327.99	0.38	1.18	1.18	0.65	635,014.78	604,777.68
First Phoenix MWD Survey										
514.00	0.40	311.30	-2,987.91	513.99	1.26	0.23	0.25	0.01	635,015.66	604,776.73
881.00	0.50	314.40	-2,620.92	880.98	3.23	-1.88	-1.81	0.03	635,017.63	604,774.62
1,062.00	0.80	24.30	-2,439.93	1,061.97	4.93	-1.93	-1.81	0.43	635,019.33	604,774.57
1,299.00	1.80	55.10	-2,202.99	1,298.91	8.57	1.81	2.00	0.50	635,022.97	604,778.31
1,427.00	0.60	0.40	-2,075.02	1,426.88	10.39	3.46	3.70	1.20	635,024.79	604,779.96
1,614.00	1.00	317.60	-1,888.04	1,613.86	12.58	2.37	2.65	0.37	635,026.98	604,778.87
1,805.00	1.50	316.80	-1,697.08	1,804.82	15.63	-0.47	-0.11	0.26	635,030.03	604,776.03
1,997.00	0.30	298.00	-1,505.11	1,996.79	17.70	-2.63	-2.23	0.64	635,032.10	604,773.87
2,188.00	0.30	334.40	-1,314.11	2,187.79	18.38	-3.29	-2.87	0.10	635,032.78	604,773.21
2,378.00	1.00	294.10	-1,124.13	2,377.77	19.51	-5.02	-4.57	0.42	635,033.91	604,771.48
2,570.00	0.60	297.10	-932.14	2,569.76	20.65	-7.44	-6.97	0.21	635,035.05	604,769.06
2,761.00	1.00	293.70	-741.16	2,760.74	21.78	-9.86	-9.36	0.21	635,036.18	604,766.64
2,951.00	1.10	296.80	-551.20	2,950.70	23.27	-13.00	-12.47	0.06	635,037.67	604,763.50
3,142.00	0.20	160.40	-360.21	3,141.69	23.78	-14.53	-13.99	0.66	635,038.18	604,761.97
3,315.00	0.30	206.60	-187.21	3,314.69	23.09	-14.63	-14.10	0.13	635,037.49	604,761.87
Last Phoenix MWD Survey										
3,370.00	0.30	206.60	-132.21	3,369.69	22.83	-14.76	-14.24	0.00	635,037.23	604,761.74
Projection To TD - BHL Sand Tank 17 Fed Com 4H - UP Sand Tank 17 Fed Com 4H										

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Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
182.00	182.00	-0.05	0.73	Tie On From Gyro @ 182' MD
328.00	327.99	0.38	1.18	First Phoenix MWD Survey
3,315.00	3,314.69	23.09	-14.63	Last Phoenix MWD Survey
3,370.00	3,369.69	22.83	-14.76	Projection To TD

Checked By _____	Approved By: _____	Date: _____
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Stage Number	Number of clusters	Total Shots	Acid type descr.	Acid Volume	Acid Flush Volume	BBL Load	Frac fld type descr.	Fracture Volume	Fracture Flush Volume	Total BBLs	Total Load	16/35 Sand	20/40 Sand	20/40 RCS	Total Numbers - All Prop
1	4	48	7 1/2 % HCL	96	697	793	X-LINK	3,232	313	3,545	4,338				248,400
2	4	48	7 1/2 % HCL	96	319	415	X-LINK	3,953	296	4,249	4,664				243,520
3	4	48	7 1/2 % HCL	96	271	367	X-LINK	3,277	284	3,561	3,928	For amounts per stage see Additive Schedule			241,420
4	4	48	7 1/2 % HCL	107	506	613	X-LINK	3,178	273	3,451	4,064				238,540
5	4	48	7 1/2 % HCL	84	263	347	X-LINK	3,104	267	3,371	3,718				242,860
6	4	48	7 1/2 % HCL	96	244	340	X-LINK	3,065	259	3,324	3,664				240,560
7	4	48	7 1/2 % HCL	96	264	360	X-LINK	3,171	251	3,422	3,782				246,720
8	4	48	7 1/2 % HCL	96	244	340	X-LINK	3,066	239	3,305	3,645				253,080
9	4	48	7 1/2 % HCL	96	308	344	X-LINK	3,482	217	3,699	4,043				238,880
10	4	48	7 1/2 % HCL	96	212	460	X-LINK	3,726	224	3,950	4,410				246,440
11	4	48	7 1/2 % HCL	80	231	311	X-LINK	3,066	215	3,284	3,595				243,820
	Total Clusters	Total Shots		Total Acid	Total Flush	Total Acid BBLs		Total Frac Vol	Total Frac Flush	Total Frac BBLs	Total Load	16/35 Sand	20/40 Sand	20/40 RCS	Total Prop
	44	528	7 1/2 % HCL	1,039	3,559	4,690	X-LINK	36,320	2,838	39,161	43,851	1,946,220	199,240	538,780	2,684,240