

# EOG Resources, Inc

Ellis Co. (NAD-27)

Sec 32-T19N-R24W

Meininger 32 #2H/ Job #9747355/ Cactus 127

Wellbore #1

Design: Wellbore #1

## Sperry Drilling Services Combo Report With Grid North & True North

03 December, 2012

TD Date : 3rd Oct, 2012

Well Coordinates: 395,231.00 N, 1,472,198.00 E (36° 04' 20.78" N, 099° 47' 09.73" W)

Ground Level: 2,313.00 ft

Local Coordinate Origin:

Centered on Well Meininger 32 #2H/ Job #9747355/ Cactus 127

Viewing Datum:

WELL @ 2338.00ft (Original Well Elev)

TVDs to System:

N

North Reference:

Grid

Unit System:

API US New

Version: 2003.21 Build: 46

SCANNED

HALLIBURTON

**HALLIBURTON****Design Report for Meininger 32 #2H/ Job #9747355/ Cactus 127 - Wellbore #1**

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
0.00	0.00	0.00	-1.06	-2,338.00	0.00	0.00 N	0.00 E	395,231.00	1,472,198.00	0.00	0.00	
200.00	0.27	156.42	155.36	-2,138.00	200.00	0.43 S	0.19 E	395,230.57	1,472,198.19	0.14	-0.44	
400.00	0.16	340.26	339.20	-1,938.00	400.00	0.60 S	0.28 E	395,230.40	1,472,198.28	0.21	-0.61	
600.00	1.09	356.26	355.20	-1,738.02	599.98	1.56 N	0.06 E	395,232.56	1,472,198.06	0.47	1.56	
800.00	0.81	18.12	17.06	-1,538.04	799.96	4.80 N	0.38 E	395,235.80	1,472,198.38	0.23	4.78	
1,000.00	0.76	41.28	40.22	-1,338.06	999.94	7.14 N	1.69 E	395,238.14	1,472,199.69	0.16	7.06	
1,200.00	0.51	23.81	22.75	-1,138.07	1,199.93	8.95 N	2.93 E	395,239.95	1,472,200.93	0.16	8.81	
1,400.00	0.33	333.24	332.18	-938.08	1,399.92	10.28 N	3.03 E	395,241.28	1,472,201.03	0.20	10.13	
1,600.00	0.25	354.65	353.59	-738.08	1,599.92	11.23 N	2.73 E	395,242.23	1,472,200.73	0.07	11.09	
1,800.00	0.24	315.89	314.83	-538.08	1,799.92	11.97 N	2.40 E	395,242.97	1,472,200.40	0.08	11.84	
2,000.00	0.23	232.04	230.98	-338.08	1,999.92	12.02 N	1.79 E	395,243.02	1,472,199.79	0.16	11.93	
2,200.00	0.48	191.20	190.14	-138.09	2,199.91	10.95 N	1.31 E	395,241.95	1,472,199.31	0.17	10.88	
2,400.00	0.54	188.60	187.54	61.91	2,399.91	9.20 N	1.01 E	395,240.20	1,472,199.01	0.03	9.14	
2,600.00	0.60	190.05	188.99	261.90	2,599.90	7.23 N	0.68 E	395,238.23	1,472,198.68	0.03	7.20	
2,800.00	0.51	186.12	185.06	461.89	2,799.89	5.32 N	0.40 E	395,236.32	1,472,198.40	0.05	5.29	
3,000.00	0.33	170.78	169.72	661.88	2,999.88	3.86 N	0.40 E	395,234.86	1,472,198.40	0.11	3.84	
3,200.00	0.27	154.56	153.50	861.88	3,199.88	2.87 N	0.70 E	395,233.87	1,472,198.70	0.05	2.84	
3,400.00	0.22	135.41	134.35	1,061.88	3,399.88	2.17 N	1.17 E	395,233.17	1,472,199.17	0.05	2.12	
3,600.00	0.09	117.79	116.73	1,261.88	3,599.88	1.83 N	1.58 E	395,232.83	1,472,199.58	0.07	1.75	
3,800.00	0.33	38.07	37.01	1,461.87	3,799.87	2.21 N	2.07 E	395,233.21	1,472,200.07	0.16	2.11	
4,000.00	0.35	37.02	35.96	1,661.87	3,999.87	3.15 N	2.79 E	395,234.15	1,472,200.79	0.01	3.02	
4,200.00	2.75	73.12	72.06	1,861.78	4,199.78	5.03 N	7.75 E	395,236.03	1,472,205.75	1.24	4.67	
4,400.00	1.91	78.14	77.08	2,061.62	4,399.62	7.11 N	15.61 E	395,238.11	1,472,213.61	0.43	6.39	
4,600.00	1.15	89.22	88.16	2,261.55	4,599.55	7.82 N	20.88 E	395,238.82	1,472,218.88	0.41	6.86	
4,800.00	0.77	87.94	86.88	2,461.52	4,799.52	7.89 N	24.23 E	395,238.89	1,472,222.23	0.19	6.78	
5,000.00	0.44	82.68	81.62	2,661.51	4,999.51	8.04 N	26.33 E	395,239.04	1,472,224.33	0.17	6.83	
5,200.00	0.19	24.20	23.14	2,861.50	5,199.50	8.44 N	27.23 E	395,239.44	1,472,225.23	0.19	7.19	
5,400.00	0.35	21.59	20.53	3,061.50	5,399.50	9.31 N	27.59 E	395,240.31	1,472,225.59	0.08	8.04	
5,600.00	0.44	46.68	45.62	3,261.50	5,599.50	10.41 N	28.37 E	395,241.41	1,472,226.37	0.10	9.10	
5,800.00	0.29	58.01	56.95	3,461.49	5,799.49	11.20 N	29.36 E	395,242.20	1,472,227.36	0.08	9.85	
6,000.00	0.75	51.35	50.29	3,661.48	5,999.48	12.29 N	30.81 E	395,243.29	1,472,228.81	0.23	10.87	
6,200.00	1.36	50.24	49.18	3,861.45	6,199.45	14.62 N	33.66 E	395,245.62	1,472,231.66	0.31	13.07	
6,400.00	1.34	22.99	21.93	4,061.39	6,399.39	18.29 N	36.40 E	395,249.29	1,472,234.40	0.32	16.61	
6,600.00	0.42	66.88	65.82	4,261.37	6,599.37	20.73 N	37.98 E	395,251.73	1,472,235.98	0.54	18.98	
6,800.00	1.05	20.96	19.90	4,461.35	6,799.35	22.73 N	39.31 E	395,253.73	1,472,237.31	0.41	20.91	
7,000.00	0.19	298.31	297.25	4,661.34	6,999.34	24.60 N	39.68 E	395,255.60	1,472,237.68	0.52	22.76	
7,200.00	0.29	271.75	270.69	4,861.34	7,199.34	24.77 N	38.88 E	395,255.77	1,472,236.88	0.07	22.97	

**HALLIBURTON****Design Report for Meininger 32 #2H/ Job #9747355/ Cactus 127 - Wellbore #1**

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
7,400.00	0.05	153.01	151.95	5,061.34	7,399.34	24.71 N	38.41 E	395,255.71	1,472,236.41	0.16	22.93	
7,600.00	0.23	28.50	27.44	5,261.34	7,599.34	24.99 N	38.64 E	395,255.99	1,472,236.64	0.13	23.20	
7,800.00	0.64	40.60	39.54	5,461.33	7,799.33	26.19 N	39.56 E	395,257.19	1,472,237.56	0.21	24.35	
8,000.00	0.70	31.77	30.71	5,661.32	7,999.32	28.07 N	40.93 E	395,259.07	1,472,238.93	0.06	26.18	
8,200.00	0.67	346.17	345.11	5,861.31	8,199.31	30.25 N	41.30 E	395,261.25	1,472,239.30	0.27	28.33	
8,400.00	0.45	351.17	350.11	6,061.30	8,399.30	32.16 N	40.90 E	395,263.16	1,472,238.90	0.11	30.26	
8,540.00	0.31	335.20	334.14	6,201.29	8,539.29	33.05 N	40.65 E	395,264.05	1,472,238.65	0.12	31.16	
8,634.00	0.42	313.19	312.13	6,295.29	8,633.29	33.51 N	40.30 E	395,264.51	1,472,238.30	0.19	31.64	Start MWD
8,666.00	0.89	331.83	330.77	6,327.29	8,665.29	33.81 N	40.09 E	395,264.81	1,472,238.09	1.59	31.95	
8,698.00	3.86	357.50	356.44	6,359.26	8,697.26	35.11 N	39.93 E	395,266.11	1,472,237.93	9.63	33.25	
8,730.00	7.69	355.99	354.93	6,391.09	8,729.09	38.32 N	39.73 E	395,269.32	1,472,237.73	11.98	36.47	
8,762.00	12.12	355.51	354.45	6,422.61	8,760.61	43.81 N	39.32 E	395,274.81	1,472,237.32	13.85	41.97	
8,793.00	16.46	355.02	353.96	6,452.64	8,790.64	51.43 N	38.68 E	395,282.43	1,472,236.68	14.01	49.61	
8,824.00	19.31	354.71	353.65	6,482.14	8,820.14	60.91 N	37.83 E	395,291.91	1,472,235.83	9.20	59.12	
8,856.00	22.63	353.56	352.50	6,512.02	8,850.02	72.30 N	36.65 E	395,303.30	1,472,234.65	10.45	70.55	
8,888.00	26.63	352.54	351.48	6,541.10	8,879.10	85.54 N	35.03 E	395,316.54	1,472,233.03	12.57	83.85	
8,919.00	31.33	352.46	351.40	6,568.21	8,906.21	100.42 N	33.07 E	395,331.42	1,472,231.07	15.16	98.81	
8,951.00	35.58	354.24	353.18	6,594.90	8,932.90	117.94 N	31.04 E	395,348.94	1,472,229.04	13.63	116.40	
8,983.00	39.57	356.48	355.42	6,620.26	8,958.26	137.39 N	29.48 E	395,368.39	1,472,227.48	13.18	135.90	
9,014.00	43.30	358.78	357.72	6,643.50	8,981.50	157.88 N	28.65 E	395,388.88	1,472,226.65	12.99	156.40	
9,046.00	47.76	359.72	358.66	6,665.91	9,003.91	180.70 N	28.35 E	395,411.70	1,472,226.35	14.09	179.22	
9,078.00	52.14	359.82	358.76	6,686.50	9,024.50	205.19 N	28.26 E	395,436.19	1,472,226.26	13.69	203.69	
9,109.00	55.80	0.74	-0.32	6,704.73	9,042.73	230.26 N	28.38 E	395,461.26	1,472,226.38	12.05	228.72	
9,141.00	59.94	359.99	358.93	6,721.74	9,059.74	257.35 N	28.55 E	395,488.35	1,472,226.55	13.09	255.78	
9,173.00	63.97	359.40	358.34	6,736.78	9,074.78	285.59 N	28.40 E	395,516.59	1,472,226.40	12.70	283.99	
9,205.00	67.20	358.72	357.66	6,750.01	9,088.01	314.72 N	27.92 E	395,545.72	1,472,225.92	10.28	313.11	
9,236.00	71.21	358.41	357.35	6,761.01	9,099.01	343.68 N	27.19 E	395,574.68	1,472,225.19	12.97	342.08	
9,267.00	75.17	357.87	356.81	6,769.98	9,107.98	373.34 N	26.23 E	395,604.34	1,472,224.23	12.88	371.75	
9,298.00	77.64	357.95	356.89	6,777.26	9,115.26	403.45 N	25.13 E	395,634.45	1,472,223.13	7.97	401.88	
9,318.00	79.04	358.66	357.60	6,781.31	9,119.31	423.02 N	24.55 E	395,654.02	1,472,222.55	7.82	421.46	
9,385.00	83.44	358.93	357.87	6,791.51	9,129.51	489.21 N	23.16 E	395,720.21	1,472,221.16	6.58	487.64	
9,416.00	86.85	358.83	357.77	6,794.13	9,132.13	520.09 N	22.56 E	395,751.09	1,472,220.56	11.00	518.52	
9,448.00	88.64	358.79	357.73	6,795.39	9,133.39	552.06 N	21.89 E	395,783.06	1,472,219.89	5.60	550.48	
9,479.00	90.68	358.94	357.88	6,795.57	9,133.57	583.05 N	21.28 E	395,814.05	1,472,219.28	6.60	581.47	
9,511.00	91.30	359.38	358.32	6,795.02	9,133.02	615.04 N	20.81 E	395,846.04	1,472,218.81	2.38	613.45	
9,542.00	91.42	358.78	357.72	6,794.28	9,132.28	646.03 N	20.31 E	395,877.03	1,472,218.31	1.97	644.43	
9,574.00	90.99	357.48	356.42	6,793.61	9,131.61	678.00 N	19.27 E	395,909.00	1,472,217.27	4.28	676.41	

**HALLIBURTON****Design Report for Meininger 32 #2H/ Job #9747355/ Cactus 127 - Wellbore #1**

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
9,637.00	91.36	356.88	355.82	6,792.32	9,130.32	740.91 N	16.17 E	395,971.91	1,472,214.17	1.12	739.40	
9,732.00	90.49	355.95	354.89	6,790.79	9,128.79	835.71 N	10.23 E	396,066.71	1,472,208.23	1.34	834.37	
9,827.00	89.81	355.39	354.33	6,790.54	9,128.54	930.44 N	3.06 E	396,161.44	1,472,201.06	0.93	929.33	
9,921.00	90.25	355.62	354.56	6,790.49	9,128.49	1,024.15 N	4.31 W	396,255.15	1,472,193.69	0.53	1,023.28	
10,016.00	90.37	356.18	355.12	6,789.97	9,127.97	1,118.91 N	11.10 W	396,349.90	1,472,186.90	0.60	1,118.24	
10,111.00	91.30	355.07	354.01	6,788.59	9,126.59	1,213.62 N	18.35 W	396,444.61	1,472,179.65	1.52	1,213.19	
10,206.00	91.79	354.16	353.10	6,786.03	9,124.03	1,308.16 N	27.26 W	396,539.16	1,472,170.74	1.09	1,308.04	
10,300.00	91.98	353.84	352.78	6,782.94	9,120.94	1,401.60 N	37.08 W	396,632.59	1,472,160.92	0.40	1,401.83	
10,395.00	92.10	354.26	353.20	6,779.55	9,117.55	1,496.02 N	46.92 W	396,727.02	1,472,151.08	0.46	1,496.61	
10,490.00	92.04	354.47	353.41	6,776.12	9,114.12	1,590.50 N	56.25 W	396,821.50	1,472,141.75	0.23	1,591.41	
10,584.00	91.17	354.24	353.18	6,773.49	9,111.49	1,684.01 N	65.49 W	396,915.01	1,472,132.51	0.96	1,685.24	
10,679.00	91.67	354.28	353.22	6,771.14	9,109.14	1,778.50 N	74.99 W	397,009.50	1,472,123.01	0.53	1,780.07	
10,774.00	90.56	355.17	354.11	6,769.29	9,107.29	1,873.08 N	83.72 W	397,104.08	1,472,114.28	1.50	1,874.95	
10,869.00	90.19	356.90	355.84	6,768.67	9,106.67	1,967.85 N	90.29 W	397,198.84	1,472,107.71	1.86	1,969.92	
10,964.00	90.49	357.45	356.39	6,768.10	9,106.10	2,062.73 N	94.97 W	397,293.73	1,472,103.03	0.66	2,064.91	
11,058.00	90.93	357.99	356.93	6,766.94	9,104.94	2,156.65 N	98.71 W	397,387.64	1,472,099.29	0.74	2,158.91	
11,153.00	92.41	359.27	358.21	6,764.17	9,102.17	2,251.58 N	100.98 W	397,482.57	1,472,097.02	2.06	2,253.84	
11,248.00	91.17	358.76	357.70	6,761.20	9,099.20	2,346.51 N	102.61 W	397,577.51	1,472,095.39	1.41	2,348.75	
11,343.00	91.54	358.26	357.20	6,758.95	9,096.95	2,441.45 N	105.08 W	397,672.45	1,472,092.92	0.65	2,443.71	
11,438.00	91.30	358.06	357.00	6,756.60	9,094.60	2,536.38 N	108.13 W	397,767.37	1,472,089.87	0.33	2,538.67	
11,533.00	92.16	358.19	357.13	6,753.73	9,091.73	2,631.28 N	111.24 W	397,862.28	1,472,086.76	0.92	2,633.62	
11,627.00	90.93	358.48	357.42	6,751.20	9,089.20	2,725.20 N	113.97 W	397,956.20	1,472,084.03	1.34	2,727.57	
11,722.00	90.12	357.51	356.45	6,750.33	9,088.33	2,820.14 N	117.29 W	398,051.14	1,472,080.71	1.33	2,822.55	
11,817.00	92.72	357.11	356.05	6,747.97	9,085.97	2,915.00 N	121.75 W	398,145.99	1,472,076.25	2.77	2,917.52	
11,911.00	93.15	356.84	355.78	6,743.16	9,081.16	3,008.74 N	126.70 W	398,239.74	1,472,071.30	0.54	3,011.39	
12,006.00	92.04	356.02	354.96	6,738.86	9,076.86	3,103.46 N	132.61 W	398,334.45	1,472,065.39	1.45	3,106.28	
12,101.00	92.29	356.09	355.03	6,735.27	9,073.27	3,198.17 N	139.14 W	398,429.16	1,472,058.86	0.27	3,201.19	
12,196.00	91.73	355.77	354.71	6,731.94	9,069.94	3,292.87 N	145.88 W	398,523.86	1,472,052.12	0.68	3,296.10	
12,290.00	92.16	356.59	355.53	6,728.75	9,066.75	3,386.61 N	152.14 W	398,617.60	1,472,045.86	0.98	3,390.02	
12,385.00	91.17	356.28	355.22	6,725.99	9,063.99	3,481.38 N	158.04 W	398,712.37	1,472,039.96	1.09	3,484.97	
12,480.00	91.24	356.18	355.12	6,723.99	9,061.99	3,576.15 N	164.29 W	398,807.15	1,472,033.71	0.13	3,579.93	
12,575.00	91.24	356.13	355.07	6,721.93	9,059.93	3,670.92 N	170.66 W	398,901.91	1,472,027.34	0.05	3,674.88	
12,670.00	91.42	355.95	354.89	6,719.73	9,057.73	3,765.67 N	177.22 W	398,996.66	1,472,020.78	0.27	3,769.83	
12,764.00	91.30	356.68	355.62	6,717.50	9,055.50	3,859.44 N	183.26 W	399,090.44	1,472,014.74	0.79	3,863.79	
12,859.00	91.11	356.70	355.64	6,715.50	9,053.50	3,954.26 N	188.74 W	399,185.26	1,472,009.26	0.20	3,958.76	
12,954.00	92.29	358.22	357.16	6,712.68	9,050.68	4,049.12 N	192.95 W	399,280.12	1,472,005.05	2.02	4,053.71	
13,049.00	90.68	357.84	356.78	6,710.22	9,048.22	4,144.03 N	196.21 W	399,375.02	1,472,001.79	1.74	4,148.67	

# HALLIBURTON

## Design Report for Meininger 32 #2H/ Job #9747355/ Cactus 127 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Map Coordinates (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing	Easting	Northing	Easting			
13,144.00	91.24	357.44	356.38	6,708.63	9,046.63	4,238.94 N	200.13 W	399,469.93	1,471,997.88	0.72	4,243.66	
13,239.00	91.73	358.60	357.54	6,706.17	9,044.17	4,333.85 N	203.41 W	399,564.84	1,471,994.59	1.33	4,338.62	
13,333.00	91.73	358.68	357.62	6,703.33	9,041.33	4,427.78 N	205.64 W	399,658.77	1,471,992.36	0.09	4,432.55	
13,428.00	91.17	358.79	357.73	6,700.92	9,038.92	4,522.72 N	207.73 W	399,753.72	1,471,990.27	0.60	4,527.49	
13,463.00	91.61	359.09	358.03	6,700.07	9,038.07	4,557.71 N	208.38 W	399,788.70	1,471,989.62	1.52	4,562.47	Last MWD
13,532.00	90.71	359.09	358.03	6,698.68	9,036.68	4,626.69 N	209.48 W	399,857.68	1,471,988.52	1.30	4,631.42	Projection to TD - PBHL - Meininger 32 #2H

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates (ft)		Comment
		+N/-S	+E/-W	
8,634.00	8,633.29	33.51	40.30	Start MWD
13,463.00	9,038.07	4,557.71	-208.38	Last MWD
13,532.00	9,036.68	4,626.69	-209.48	Projection to TD

### Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	357.38	Slot	0.00	0.00	0.00

### Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
200.00	8,540.00	Gyros	NS-Gyro-MS
8,634.00	13,532.00	MWD	MWD+SC

### Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
	( )	( )	( )	( )	( )	( )	( )		

**HALLIBURTON****Design Report for Meininger 32 #2H/ Job #9747355/ Cactus 127 - Wellbore #1**

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**Directional Difficulty Index**

Average Dogleg over Survey:	1.11 °/100ft	Maximum Dogleg over Survey:	15.16 °/100ft at 8,919.00 ft
Net Tortosity applicable to Plans:	0.43 °/100ft	Directional Difficulty Index:	6.017

**Audit Info**

**HALLIBURTON****North Reference Sheet for Sec 32-T19N-R24W - Meininger 32 #2H/ Job #9747355/ Cactus 127 - Wellbore #1**

All data is in Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to WELL @ 2338.00ft (Original Well Elev). Northing and Easting are relative to Meininger 32 #2H/ Job #9747355/ Cactus 127

Coordinate System is US State Plane 1927 (Exact solution), Oklahoma North 3501 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 98° 0' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:36° 46' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 0.99994678

Grid Coordinates of Well: 395,231.00 ft N, 1,472,198.00 ft E

Geographical Coordinates of Well: 36° 04' 20.78" N, 099° 47' 09.73" W

Grid Convergence at Surface is: -1.05°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,532.00ft the Bottom Hole Displacement is 4,631.42ft in the Direction of 357.41° (Grid).

Magnetic Convergence at surface is: -6.77° (15 August 2012, , BGGM2012)

