

Shell Exploration & Production Co. Inc.

Barber Co. (NAD-27)

Sec 12-T35S-R10W

Schrock 3510 #12-1H / Job # 8485875/ Nab 180

API #15-007-

Wellbore #1

Design: Wellbore #1

Sperry Drilling Services

Combo Report With Grid North & True North

28 February, 2012

Surface UWI : API #15-007-

Well Coordinates: 126,004.66 N, 2,040,221.23 E (37° 00' 45.49" N, 098° 21' 44.14" W)

Ground Level: 1,307.00 ft

Local Coordinate Origin:

Centered on Well Schrock 3510 #12-1H / Job # 8485875/ Nab 180

Viewing Datum:

Well @ 1329.00ft

TVDs to System:

N

North Reference:

True

Unit System:

API-US New

Version: 2003.21 Build: 43

HALLIBURTON

Design Report for Schrock 3510 #12-1H / Job # 8485875/ Nab 180 - 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	359.92	0.00	-1,329.00	0.00	0.00 N	0.00 E	126,004.66	2,040,221.23	0.00	0.00	
111.00	0.00	229.34	229.42	-1,218.00	111.00	0.00 N	0.00 E	126,004.66	2,040,221.23	0.00	0.00	First MWD Surveys
143.00	0.37	170.66	170.74	-1,186.00	143.00	0.10 S	0.02 E	126,004.56	2,040,221.25	1.16	0.03	
173.00	0.22	130.85	130.93	-1,156.00	173.00	0.24 S	0.08 E	126,004.42	2,040,221.31	0.82	0.03	
235.00	1.64	229.87	229.95	-1,094.01	234.99	0.88 S	0.51 W	126,003.78	2,040,220.72	2.72	0.83	
297.00	1.96	252.10	252.18	-1,032.04	296.96	1.78 S	2.20 W	126,002.88	2,040,219.03	1.23	2.74	
358.00	2.62	255.93	256.01	-971.09	357.91	2.44 S	4.55 W	126,002.22	2,040,216.69	1.11	5.15	
420.00	3.59	263.54	263.62	-909.18	419.82	2.99 S	7.85 W	126,001.65	2,040,213.38	1.70	8.39	
481.00	3.99	275.36	275.44	-848.31	480.69	3.01 S	11.86 W	126,001.64	2,040,209.37	1.44	12.06	
579.00	3.01	280.26	280.34	-750.50	578.50	2.22 S	17.79 W	126,002.41	2,040,203.44	1.04	17.16	
672.00	1.55	280.38	280.46	-657.57	671.43	1.55 S	21.43 W	126,003.07	2,040,199.80	1.57	20.21	
747.00	0.80	213.63	213.71	-582.59	746.41	1.80 S	22.72 W	126,002.82	2,040,198.52	1.92	21.49	
897.00	0.64	186.55	186.63	-432.60	896.40	3.51 S	23.39 W	126,001.12	2,040,197.84	0.25	22.80	
992.00	0.57	186.23	186.31	-337.60	991.40	4.50 S	23.51 W	126,000.12	2,040,197.73	0.07	23.31	
1,086.00	0.72	196.51	196.59	-243.61	1,085.39	5.54 S	23.73 W	125,999.09	2,040,197.51	0.20	23.93	
1,181.00	0.46	179.93	180.01	-148.61	1,180.39	6.49 S	23.90 W	125,998.14	2,040,197.34	0.32	24.47	
1,276.00	0.46	178.16	178.24	-53.62	1,275.38	7.25 S	23.89 W	125,997.37	2,040,197.35	0.01	24.77	
1,371.00	0.36	181.46	181.54	41.38	1,370.38	7.93 S	23.88 W	125,996.69	2,040,197.36	0.11	25.04	
1,466.00	0.41	178.46	178.54	136.38	1,465.38	8.57 S	23.88 W	125,996.06	2,040,197.36	0.06	25.30	
1,561.00	0.63	187.66	187.74	231.38	1,560.38	9.43 S	23.94 W	125,995.20	2,040,197.30	0.25	25.71	
1,656.00	0.53	197.14	197.22	326.37	1,655.37	10.36 S	24.14 W	125,994.26	2,040,197.10	0.15	26.27	
1,751.00	0.26	210.91	210.99	421.37	1,750.37	10.97 S	24.38 W	125,993.66	2,040,196.86	0.30	26.74	
1,846.00	0.44	212.61	212.69	516.37	1,845.37	11.46 S	24.69 W	125,993.16	2,040,196.55	0.19	27.22	
1,941.00	0.10	186.67	186.75	611.37	1,940.37	11.85 S	24.90 W	125,992.77	2,040,196.35	0.37	27.57	
2,035.00	0.13	3.69	3.77	705.36	2,034.36	11.82 S	24.90 W	125,992.80	2,040,196.35	0.24	27.56	
2,130.00	0.09	341.56	341.64	800.36	2,129.36	11.65 S	24.92 W	125,992.98	2,040,196.33	0.06	27.50	
2,225.00	0.06	75.17	75.25	895.36	2,224.36	11.56 S	24.89 W	125,993.06	2,040,196.35	0.12	27.44	
2,320.00	0.27	105.03	105.11	990.36	2,319.36	11.61 S	24.63 W	125,993.02	2,040,196.62	0.23	27.22	
2,415.00	0.22	66.23	66.31	1,085.36	2,414.36	11.59 S	24.25 W	125,993.03	2,040,197.00	0.18	26.87	
2,510.00	0.06	49.48	49.56	1,180.36	2,509.36	11.49 S	24.04 W	125,993.14	2,040,197.21	0.17	26.64	
2,605.00	0.25	24.79	24.87	1,275.36	2,604.36	11.27 S	23.92 W	125,993.36	2,040,197.33	0.21	26.43	
2,700.00	0.11	347.69	347.77	1,370.36	2,699.36	10.99 S	23.85 W	125,993.63	2,040,197.40	0.18	26.26	
2,795.00	0.19	341.89	341.97	1,465.36	2,794.36	10.75 S	23.92 W	125,993.87	2,040,197.33	0.09	26.22	
2,890.00	0.07	133.64	133.72	1,560.36	2,889.36	10.64 S	23.92 W	125,993.98	2,040,197.32	0.27	26.18	
2,984.00	0.31	326.77	326.85	1,654.36	2,983.36	10.47 S	24.02 W	125,994.16	2,040,197.22	0.40	26.20	
3,079.00	0.31	341.88	341.96	1,749.36	3,078.36	10.01 S	24.24 W	125,994.62	2,040,197.00	0.09	26.22	
3,174.00	0.38	29.10	29.18	1,844.36	3,173.36	9.49 S	24.17 W	125,995.13	2,040,197.08	0.30	25.94	

Design Report for Schrock 3510 #12-1H / Job # 8485875/ Nab 180 - Wellbore #1

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft) Easting (ft)		Map Coordinates Northing (ft) Easting (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
3,269.00	0.10	7.12	7.20	1,939.36	3,268.36	9.13 S	24.00 W	125,995.49	2,040,197.24	0.30	25.64	
3,364.00	0.37	12.10	12.18	2,034.36	3,363.36	8.75 S	23.93 W	125,995.87	2,040,197.31	0.28	25.42	
3,459.00	0.34	5.82	5.90	2,129.35	3,458.35	8.17 S	23.83 W	125,996.46	2,040,197.41	0.05	25.10	
3,552.00	0.64	44.95	45.03	2,222.35	3,551.35	7.53 S	23.44 W	125,997.10	2,040,197.80	0.47	24.48	
3,647.00	0.38	41.90	41.98	2,317.35	3,646.35	6.92 S	22.85 W	125,997.71	2,040,198.39	0.28	23.69	
3,742.00	0.42	26.76	26.84	2,412.35	3,741.35	6.37 S	22.48 W	125,998.25	2,040,198.75	0.12	23.13	
3,837.00	0.20	359.38	359.46	2,507.34	3,836.34	5.90 S	22.33 W	125,998.73	2,040,198.91	0.27	22.80	
3,932.00	0.47	94.51	94.59	2,602.34	3,931.34	5.76 S	21.94 W	125,998.86	2,040,199.30	0.55	22.39	
4,016.00	3.06	149.36	149.44	2,686.30	4,015.30	7.72 S	20.46 W	125,996.91	2,040,200.78	3.35	21.83	
4,047.00	7.39	171.32	171.40	2,717.16	4,046.16	10.41 S	19.74 W	125,994.22	2,040,201.51	15.14	22.27	
4,079.00	11.27	172.20	172.28	2,748.74	4,077.74	15.54 S	19.01 W	125,989.09	2,040,202.24	12.13	23.69	
4,111.00	13.35	173.80	173.88	2,780.00	4,109.00	22.31 S	18.20 W	125,982.32	2,040,203.07	6.59	25.70	
4,142.00	16.34	173.37	173.45	2,809.96	4,138.96	30.21 S	17.32 W	125,974.43	2,040,203.96	9.65	28.10	
4,174.00	20.11	175.10	175.18	2,840.35	4,169.35	40.16 S	16.34 W	125,964.47	2,040,204.95	11.90	31.26	
4,205.00	22.17	175.57	175.65	2,869.26	4,198.26	51.31 S	15.45 W	125,953.33	2,040,205.86	6.67	34.97	
4,237.00	25.41	177.50	177.58	2,898.54	4,227.54	64.19 S	14.70 W	125,940.45	2,040,206.62	10.41	39.52	
4,269.00	27.06	182.87	182.95	2,927.25	4,256.25	78.32 S	14.79 W	125,926.31	2,040,206.56	9.03	45.34	
4,300.00	29.41	186.62	186.70	2,954.56	4,283.56	92.93 S	16.04 W	125,911.71	2,040,205.33	9.50	52.42	
4,332.00	30.90	190.45	190.53	2,982.23	4,311.23	108.81 S	18.46 W	125,895.82	2,040,202.93	7.60	61.09	
4,363.00	31.26	191.65	191.73	3,008.78	4,337.78	124.51 S	21.55 W	125,880.12	2,040,199.87	2.31	70.29	
4,395.00	31.04	186.85	186.93	3,036.17	4,365.17	140.84 S	24.23 W	125,863.79	2,040,197.21	7.79	79.38	
4,427.00	31.39	186.67	186.75	3,063.54	4,392.54	157.30 S	26.21 W	125,847.32	2,040,195.26	1.13	87.87	
4,458.00	31.95	183.47	183.55	3,089.92	4,418.92	173.51 S	27.66 W	125,831.11	2,040,193.82	5.71	95.79	
4,490.00	34.79	184.03	184.11	3,116.64	4,445.64	191.07 S	28.84 W	125,813.55	2,040,192.67	8.93	104.01	
4,522.00	38.20	181.59	181.67	3,142.37	4,471.37	210.07 S	29.78 W	125,794.55	2,040,191.76	11.58	112.59	
4,553.00	40.72	181.92	182.00	3,166.30	4,495.30	229.76 S	30.42 W	125,774.86	2,040,191.15	8.16	121.17	
4,585.00	43.85	183.77	183.85	3,189.97	4,518.97	251.26 S	31.53 W	125,753.36	2,040,190.08	10.53	130.92	
4,616.00	45.85	181.71	181.79	3,211.95	4,540.95	273.09 S	32.59 W	125,731.52	2,040,189.04	7.97	140.77	
4,648.00	48.46	182.22	182.30	3,233.71	4,562.71	296.53 S	33.43 W	125,708.08	2,040,188.23	8.24	151.07	
4,679.00	50.79	181.81	181.89	3,253.79	4,582.79	320.13 S	34.30 W	125,684.48	2,040,187.41	7.58	161.44	
4,711.00	53.97	182.26	182.34	3,273.32	4,602.32	345.46 S	35.23 W	125,659.15	2,040,186.51	10.00	172.59	
4,743.00	55.80	183.01	183.09	3,291.72	4,620.72	371.60 S	36.47 W	125,633.00	2,040,185.30	6.03	184.35	
4,774.00	59.12	184.40	184.48	3,308.40	4,637.40	397.68 S	38.21 W	125,606.93	2,040,183.61	11.36	196.53	
4,806.00	59.94	184.87	184.95	3,324.62	4,653.62	425.16 S	40.47 W	125,579.44	2,040,181.39	2.86	209.77	
4,838.00	60.33	184.73	184.81	3,340.56	4,669.56	452.81 S	42.83 W	125,551.79	2,040,179.07	1.28	223.17	
4,901.00	60.76	184.58	184.66	3,371.54	4,700.54	507.48 S	47.36 W	125,497.11	2,040,174.62	0.71	249.52	
4,932.00	62.35	184.93	185.01	3,386.30	4,715.30	534.64 S	49.66 W	125,469.95	2,040,172.36	5.22	262.66	

Design Report for Schrock 3510 #12-1H / Job # 8485875/ Nab 180 - 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			
4,964.00	64.76	184.66	184.74	3,400.55	4,729.55	563.19 S	52.09 W	125,441.40	2,040,169.97	7.57	276.49	
4,995.00	67.03	184.62	184.70	3,413.21	4,742.21	591.39 S	54.42 W	125,413.20	2,040,167.68	7.32	290.08	
5,027.00	68.82	184.36	184.44	3,425.24	4,754.24	620.94 S	56.78 W	125,383.63	2,040,165.36	5.64	304.25	
5,045.25	69.86	184.63	184.72	3,431.68	4,760.68	637.97 S	58.15 W	125,366.61	2,040,164.03	5.89	312.41	Top of Miss 4773' TVD (1426' FSL, 828' FWL)
5,059.00	70.65	184.84	184.92	3,436.32	4,765.32	650.86 S	59.23 W	125,353.71	2,040,162.96	5.89	318.64	
5,090.00	73.03	183.30	183.38	3,445.98	4,774.98	680.24 S	61.36 W	125,324.33	2,040,160.87	9.01	332.53	
5,122.00	75.59	181.76	181.84	3,454.64	4,783.64	711.01 S	62.76 W	125,293.56	2,040,159.52	9.24	346.31	
5,154.00	76.55	181.24	181.32	3,462.34	4,791.34	742.06 S	63.62 W	125,262.51	2,040,158.71	3.39	359.71	
5,185.00	77.98	180.60	180.68	3,469.17	4,798.17	772.29 S	64.15 W	125,232.28	2,040,158.23	5.03	372.48	
5,217.00	80.60	180.92	181.00	3,475.12	4,804.12	803.72 S	64.61 W	125,200.84	2,040,157.81	8.25	385.68	
5,248.00	84.10	180.11	180.19	3,479.25	4,808.25	834.44 S	64.93 W	125,170.12	2,040,157.54	11.58	398.46	
5,280.00	86.62	180.55	180.63	3,481.84	4,810.84	866.33 S	65.15 W	125,138.23	2,040,157.36	7.99	411.63	
5,312.00	87.72	180.07	180.15	3,483.42	4,812.42	898.29 S	65.37 W	125,106.27	2,040,157.19	3.75	424.81	
5,385.00	90.46	182.27	182.35	3,484.57	4,813.57	971.26 S	66.96 W	125,033.31	2,040,155.70	4.81	455.92	
5,417.00	90.80	181.78	181.86	3,484.22	4,813.22	1,003.23 S	68.14 W	125,001.33	2,040,154.57	1.86	469.99	
5,448.00	90.99	181.49	181.57	3,483.74	4,812.74	1,034.21 S	69.07 W	124,970.35	2,040,153.69	1.12	483.43	
5,480.00	89.51	181.20	181.28	3,483.60	4,812.60	1,066.20 S	69.86 W	124,938.36	2,040,152.94	4.71	497.16	
5,512.00	88.15	181.51	181.59	3,484.25	4,813.25	1,098.19 S	70.66 W	124,906.37	2,040,152.19	4.36	510.89	
5,543.00	88.03	181.27	181.35	3,485.29	4,814.29	1,129.16 S	71.46 W	124,875.40	2,040,151.44	0.87	524.20	
5,638.00	88.58	182.17	182.25	3,488.10	4,817.10	1,224.07 S	74.44 W	124,780.49	2,040,148.60	1.11	565.50	
5,733.00	89.32	183.79	183.87	3,489.84	4,818.84	1,318.91 S	79.51 W	124,685.63	2,040,143.67	1.87	608.68	
5,828.00	90.83	183.33	183.41	3,489.71	4,818.71	1,413.72 S	85.54 W	124,590.82	2,040,137.78	1.66	652.72	
5,922.00	90.09	182.07	182.15	3,488.96	4,817.96	1,507.60 S	90.10 W	124,496.93	2,040,133.36	1.55	695.04	
6,018.00	90.06	181.96	182.04	3,488.83	4,817.83	1,603.54 S	93.61 W	124,400.99	2,040,129.99	0.12	737.24	
6,113.00	88.98	181.14	181.22	3,489.63	4,818.63	1,698.49 S	96.31 W	124,306.03	2,040,127.43	1.43	778.30	
6,207.00	89.48	179.96	180.04	3,490.89	4,819.89	1,792.48 S	97.35 W	124,212.04	2,040,126.53	1.36	817.44	
6,302.00	90.40	179.96	180.04	3,490.99	4,819.99	1,887.48 S	97.41 W	124,117.05	2,040,126.61	0.97	856.11	
6,397.00	91.60	179.71	179.79	3,489.33	4,818.33	1,982.46 S	97.27 W	124,022.06	2,040,126.89	1.29	894.59	
6,492.00	89.11	180.17	180.25	3,488.74	4,817.74	2,077.45 S	97.31 W	123,927.07	2,040,126.99	2.67	933.22	
6,587.00	89.11	180.84	180.92	3,490.22	4,819.22	2,172.43 S	98.28 W	123,832.09	2,040,126.16	0.71	972.71	
6,681.00	89.35	181.87	181.95	3,491.48	4,820.48	2,266.39 S	100.63 W	123,738.12	2,040,123.95	1.13	1,013.05	
6,764.00	90.28	180.95	181.03	3,491.75	4,820.75	2,349.36 S	102.79 W	123,655.15	2,040,121.91	1.58	1,048.74	
6,858.00	89.78	183.65	183.73	3,491.70	4,820.70	2,443.27 S	106.69 W	123,561.24	2,040,118.15	2.92	1,090.48	
6,953.00	90.83	182.55	182.63	3,491.20	4,820.20	2,538.12 S	111.96 W	123,466.38	2,040,113.02	1.60	1,133.84	
7,048.00	91.20	183.47	183.55	3,489.51	4,818.51	2,632.97 S	117.08 W	123,371.53	2,040,108.04	1.04	1,177.07	
7,143.00	90.28	183.93	184.01	3,488.29	4,817.29	2,727.75 S	123.34 W	123,276.73	2,040,101.92	1.08	1,221.31	

Design Report for Schrock 3510 #12-1H / Job # 8485875/ Nab 180 - 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			
7,238.00	88.52	185.67	185.75	3,489.28	4,818.28	2,822.40 S	131.42 W	123,182.08	2,040,093.98	2.61	1,267.16	
7,333.00	86.64	187.18	187.26	3,493.29	4,822.29	2,916.69 S	142.17 W	123,087.76	2,040,083.37	2.54	1,315.30	
7,427.00	87.50	186.07	186.15	3,498.10	4,827.10	3,009.93 S	153.13 W	122,994.52	2,040,072.54	1.49	1,363.21	
7,525.00	88.46	185.40	185.48	3,501.55	4,830.55	3,107.36 S	163.06 W	122,897.07	2,040,062.76	1.19	1,411.88	
7,618.00	87.53	186.35	186.43	3,504.81	4,833.81	3,199.80 S	172.70 W	122,804.61	2,040,053.26	1.43	1,458.25	
7,713.00	88.09	186.51	186.59	3,508.44	4,837.44	3,294.12 S	183.46 W	122,710.28	2,040,042.64	0.61	1,506.42	
7,808.00	88.68	186.84	186.92	3,511.11	4,840.11	3,388.42 S	194.63 W	122,615.96	2,040,031.60	0.71	1,554.95	
7,903.00	86.11	185.67	185.75	3,515.43	4,844.43	3,482.73 S	205.10 W	122,521.63	2,040,021.27	2.97	1,602.85	
7,998.00	86.45	182.69	182.77	3,521.60	4,850.60	3,577.26 S	212.14 W	122,427.10	2,040,014.37	3.15	1,647.70	
8,093.00	88.12	180.66	180.74	3,526.10	4,855.10	3,672.10 S	215.05 W	122,332.25	2,040,011.61	2.77	1,688.90	
8,188.00	90.68	181.39	181.47	3,527.09	4,856.09	3,767.07 S	216.88 W	122,237.28	2,040,009.92	2.80	1,729.17	
8,283.00	91.73	181.29	181.37	3,525.09	4,854.09	3,862.02 S	219.23 W	122,142.33	2,040,007.70	1.11	1,769.91	
8,377.00	90.00	182.32	182.40	3,523.67	4,852.67	3,955.95 S	222.33 W	122,048.39	2,040,004.75	2.14	1,810.91	
8,472.00	92.03	182.39	182.47	3,521.99	4,850.99	4,050.85 S	226.36 W	121,953.49	2,040,000.85	2.14	1,853.17	
8,567.00	89.54	183.11	183.19	3,520.69	4,849.69	4,145.71 S	231.05 W	121,858.62	2,039,996.30	2.73	1,896.01	
8,662.00	90.62	182.22	182.30	3,520.56	4,849.56	4,240.60 S	235.60 W	121,763.72	2,039,991.90	1.47	1,938.73	
8,757.00	89.72	183.33	183.41	3,520.28	4,849.28	4,335.48 S	240.33 W	121,668.84	2,039,987.30	1.50	1,981.61	
8,852.00	90.86	180.95	181.03	3,519.79	4,848.79	4,430.40 S	244.01 W	121,573.91	2,039,983.76	2.78	2,023.55	
8,946.00	89.60	180.88	180.96	3,519.42	4,848.42	4,524.38 S	245.64 W	121,479.93	2,039,982.27	1.34	2,063.24	
9,041.00	89.63	179.43	179.51	3,520.06	4,849.06	4,619.38 S	246.03 W	121,384.93	2,039,982.02	1.53	2,102.20	
9,136.00	89.82	178.72	178.80	3,520.51	4,849.51	4,714.37 S	244.63 W	121,289.95	2,039,983.56	0.77	2,139.53	
9,231.00	90.65	178.27	178.35	3,520.12	4,849.12	4,809.33 S	242.27 W	121,194.98	2,039,986.07	0.99	2,175.97	
9,277.00	91.23	178.34	178.42	3,519.37	4,848.37	4,855.31 S	240.97 W	121,149.01	2,039,987.43	1.27	2,193.47	Last MWD Survey
9,325.14	91.47	178.50	178.58	3,518.23	4,847.23	4,903.42 S	239.71 W	121,100.90	2,039,988.76	0.60	2,211.87	PBHL Schrock 3510 #12-1H / 335' FSL 600' FWL
9,331.00	91.50	178.52	178.60	3,518.08	4,847.08	4,909.28 S	239.57 W	121,095.05	2,039,988.91	0.60	2,214.12	Projection to TD

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
111.00	111.00	0.00	0.00	First MWD Surveys
9,277.00	4,848.37	-4,855.31	-240.97	Last MWD Survey
9,331.00	4,847.08	-4,909.28	-239.57	Projection to TD

Design Report for Schrock 3510 #12-1H / Job # 8485875/ Nab 180 - Wellbore #1

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	246.02	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
111.00	9,331.00	MWD	MWD+SC

Design Targets

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

Directional Difficulty Index

Average Dogleg over Survey:	1.98 °/100ft	Maximum Dogleg over Survey:	15.14 °/100ft at 4,047.00 ft
Net Tortousity applicable to Plans:	0.95 °/100ft	Directional Difficulty Index:	6.245

Audit Info

North Reference Sheet for Sec 12-T35S-R10W - Schrock 3510 #12-1H / Job # 8485875/ Nab 180 - Wellbore #1

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

Vertical Depths are relative to Well @ 1329.00ft. Northing and Easting are relative to Schrock 3510 #12-1H / Job # 8485875/ Nab 180

Coordinate System is US State Plane 1927 (Exact solution), Kansas South 1502 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 98° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:37° 16' 0.000 N°

False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 1.00005963

Grid Coordinates of Well: 126,004.66 ft N, 2,040,221.23 ft E

Geographical Coordinates of Well: 37° 00' 45.49" N, 098° 21' 44.14" W

Grid Convergence at Surface is: 0.08°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,331.00ft the Bottom Hole Displacement is 4,915.12ft in the Direction of 182.79° (True).

Magnetic Convergence at surface is: -4.90° (17 August 2011, , BGGM2011)

