

# Chevron USA

Piceance

SKR-598-35-AV

SKR-598-35-AV-12 - 12

598-35-44

Survey: 6in EM-MWD survey

Job No. 6in EM-MWD survey

## Sperry Drilling Services Standard Report

21 October, 2007

BH UWI : 598-35-44

Well Coordinates: 1,646,845.27 N, 2,195,754.58 E (39° 34' 28.92" N, 108° 21' 12.84" W)

Ground Level: 6,110.00 ft

Local Coordinate Origin:	Centered on Well SKR-598-35-AV-12 - Slot 12
Viewing Datum:	Elev: 6135 @ 6135.0ft (WBP)
TVDs to System:	N
North Reference:	Grid
Unit System:	API - US Survey Feet

Version: 2003.16 Build: 42

HALLIBURTON

## Design Report for SKR-598-35-AV-12 - 598-35-44

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
100.0	0.83	241.76	100.0	-0.3	-0.6	0.7	0.83
200.0	3.24	225.23	199.9	-2.7	-3.3	4.2	2.46
300.0	6.37	222.04	299.6	-8.8	-9.0	12.6	3.14
400.0	8.99	223.56	398.7	-18.6	-18.1	25.9	2.63
500.0	11.51	227.51	497.1	-31.0	-30.8	43.7	2.61
600.0	13.73	228.88	594.6	-45.5	-47.1	65.5	2.24
700.0	16.48	224.04	691.2	-63.5	-66.0	91.6	3.02
800.0	16.76	223.34	787.0	-84.2	-85.7	120.2	0.34
900.0	16.23	222.86	882.9	-104.9	-105.1	148.5	0.55
1,000.0	15.44	222.68	979.1	-125.0	-123.6	175.8	0.79
1,100.0	16.66	222.82	1,075.2	-145.3	-142.4	203.4	1.22
1,200.0	17.76	223.44	1,170.7	-166.9	-162.6	233.0	1.12
1,300.0	18.31	223.73	1,265.8	-189.3	-184.0	263.9	0.56
1,400.0	18.92	222.25	1,360.6	-212.6	-205.7	295.8	0.77
1,500.0	18.44	222.90	1,455.3	-236.2	-227.4	327.8	0.52
1,550.0	17.74	223.89	1,502.8	-247.5	-238.1	343.3	1.53
1,699.0	18.06	224.05	1,644.6	-280.5	-269.9	389.1	0.22
1,793.0	17.12	223.20	1,734.2	-301.0	-289.5	417.5	1.04
1,888.0	16.49	222.73	1,825.2	-321.1	-308.2	444.9	0.68
1,982.0	15.94	221.18	1,915.4	-340.6	-325.7	471.1	0.74
2,076.0	14.74	220.76	2,006.1	-359.4	-342.1	495.9	1.28
2,171.0	14.04	221.56	2,098.1	-377.2	-357.6	519.5	0.77
2,265.0	13.42	227.60	2,189.4	-393.1	-373.2	541.7	1.66
2,361.0	12.98	234.88	2,282.9	-406.8	-390.3	563.5	1.79
2,454.0	12.59	236.78	2,373.6	-418.3	-407.3	583.7	0.62
2,548.0	12.05	235.81	2,465.4	-429.5	-424.0	603.4	0.62
2,642.0	11.86	236.38	2,557.4	-440.3	-440.1	622.6	0.24
2,737.0	11.27	237.11	2,650.4	-450.8	-456.0	641.2	0.64
2,831.0	9.55	234.76	2,742.9	-460.3	-470.1	657.9	1.88
2,925.0	8.49	231.99	2,835.7	-469.0	-482.0	672.5	1.22
3,020.0	7.20	228.09	2,929.8	-477.3	-491.9	685.4	1.47
3,114.0	5.55	223.75	3,023.2	-484.6	-499.5	695.8	1.83
3,208.0	3.85	225.29	3,116.9	-490.1	-504.8	703.5	1.81
3,303.0	2.40	227.95	3,211.8	-493.6	-508.6	708.7	1.53
3,397.0	1.83	225.45	3,305.7	-496.0	-511.1	712.2	0.61
3,491.0	1.07	237.53	3,399.7	-497.5	-512.9	714.6	0.87
3,585.0	1.42	331.32	3,493.7	-497.0	-514.2	715.1	1.95
3,680.0	1.48	342.36	3,588.6	-494.8	-515.2	714.2	0.30
3,774.0	1.46	342.61	3,682.6	-492.5	-515.9	713.1	0.02
3,869.0	1.67	340.08	3,777.6	-490.0	-516.7	712.0	0.23
3,963.0	0.89	329.52	3,871.6	-488.1	-517.6	711.2	0.86
4,058.0	0.95	342.82	3,966.5	-486.7	-518.2	710.7	0.23
4,152.0	0.88	337.47	4,060.5	-485.3	-518.7	710.0	0.12
4,247.0	0.90	337.80	4,155.5	-483.9	-519.2	709.5	0.02
4,341.0	0.60	325.26	4,249.5	-482.9	-519.8	709.1	0.36
4,435.0	0.04	309.65	4,343.5	-482.4	-520.1	709.0	0.60
4,530.0	0.53	291.05	4,438.5	-482.3	-520.5	709.2	0.52
4,624.0	1.26	284.23	4,532.5	-481.8	-521.9	709.9	0.78
4,719.0	1.03	320.34	4,627.5	-480.9	-523.5	710.4	0.78

## Design Report for SKR-598-35-AV-12 - 598-35-44

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,813.0	0.64	326.92	4,721.5	-479.8	-524.3	710.2	0.43
4,907.0	0.81	333.39	4,815.5	-478.8	-524.9	709.9	0.20
5,002.0	1.06	351.26	4,910.4	-477.3	-525.3	709.2	0.40
5,096.0	0.42	354.23	5,004.4	-476.1	-525.5	708.5	0.68
5,190.0	0.60	326.91	5,098.4	-475.4	-525.8	708.1	0.32
5,284.0	1.36	343.76	5,192.4	-473.9	-526.4	707.5	0.86
5,379.0	1.35	342.61	5,287.4	-471.7	-527.0	706.5	0.03
5,473.0	1.62	324.05	5,381.4	-469.6	-528.2	705.8	0.58
5,567.0	1.85	336.57	5,475.3	-467.1	-529.5	705.0	0.47
5,662.0	2.39	345.47	5,570.3	-463.8	-530.6	703.4	0.66
5,756.0	1.87	20.73	5,664.2	-460.5	-530.6	701.1	1.47
5,851.0	2.36	25.67	5,759.1	-457.3	-529.2	697.8	0.55
5,945.0	1.97	3.88	5,853.1	-453.9	-528.2	694.8	0.96
6,039.0	1.22	314.85	5,947.0	-451.6	-528.8	693.6	1.58
6,134.0	3.08	253.66	6,042.0	-451.6	-532.0	695.8	2.85
6,228.0	4.26	249.71	6,135.8	-453.5	-537.7	701.2	1.28
6,323.0	4.64	243.01	6,230.5	-456.5	-544.4	708.1	0.68
6,417.0	5.07	244.43	6,324.1	-460.0	-551.6	715.7	0.47
6,511.0	5.24	248.65	6,417.8	-463.4	-559.3	723.5	0.44
6,606.0	5.16	252.21	6,512.4	-466.3	-567.4	731.3	0.35
6,700.0	5.49	251.31	6,606.0	-469.0	-575.7	739.1	0.36
6,794.0	5.28	250.47	6,699.6	-471.9	-584.1	747.1	0.24
6,888.0	5.55	249.24	6,793.1	-474.9	-592.4	755.2	0.31
6,982.0	5.05	248.45	6,886.7	-478.1	-600.5	763.1	0.54
7,076.0	4.62	254.15	6,980.4	-480.6	-608.0	770.2	0.69
7,171.0	4.93	257.16	7,075.1	-482.6	-615.6	777.1	0.42
7,203.0	4.58	254.87	7,107.0	-483.2	-618.2	779.3	1.24
7,261.0	4.58	254.87	7,164.8	-484.4	-622.7	783.4	0.00

Projection to TD

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
7,261.0	7,164.8	-484.4	-622.7	Projection to TD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	+E/-W (ft)	Start TVD (ft)
User	598-35-44B	225.33	Slot	0.0	0.0	0.0

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
100.0	1,550.0	8in Gyro Multi-shot	GYD_DP_MS
1,699.0	7,261.0	6in EM-MWD survey	MWD



## Design Report for SKR-598-35-AV-12 - 598-35-44

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,632.0	1,580.9	9 5/8"	9-5/8	12-1/4

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
598-35-44B	0.00	0.00	5,834.1	-523.4	-529.5	1,646,321.85	2,195,225.07	39° 34' 23.588 N	108° 21' 19.392 W
- actual wellpath misses by 68.8ft at 5923.6ft MD (5831.7 TVD, -454.7 N, -528.3 E)									
- Ellipse (radii L45.0 W80.0 on 0.00 azi)									
598-35-44	0.00	0.00	3,159.0	-523.4	-529.5	1,646,321.85	2,195,225.07	39° 34' 23.588 N	108° 21' 19.392 W
- actual wellpath misses by 38.9ft at 3252.2ft MD (3161.1 TVD, -492.0 N, -506.8 E)									
- Ellipse (radii L45.0 W80.0 on 0.00 azi)									

## North Reference Sheet for SKR-598-35-AV - SKR-598-35-AV-12 - 598-35-44

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

Vertical Depths are relative to Elev: 6135 @ 6135.0ft (WBP). Northing and Easting are relative to SKR-598-35-AV-12 - Slot 12

Coordinate System is US State Plane 1983, Colorado Central Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 105° 30' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 39° 45' 0.000 N°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99997002

Grid Coordinates of Well: 1,646,845.27 ft N, 2,195,754.58 ft E

Geographical Coordinates of Well: 39° 34' 28.92" N, 108° 21' 12.84" W

Grid Convergence at Surface is: -1.80°

Based upon Minimum Curvature type calculations, at a Measured Depth of 7,261.00ft

the Bottom Hole Displacement is 788.91ft in the Direction of 232.12° (Grid).

Magnetic Convergence at surface is: -13.00° (15 February 2006, , IGRF200510)

