

Chevron USA

Piceance

SKR-598-36-AV

SKR-598-36-AV-15 - slot 15

598-36-47

Design: Surveys

Job No. CA-MJ-0006046933

Sperry Drilling Services Standard Report

08 October, 2008

Well Coordinates: 1,645,975.68 N, 2,199,543.14 E (39° 34' 21.51" N, 108° 20' 24.14" W)
Ground Level: 6,342.00 ft

Local Coordinate Origin:	Centered on Well SKR-598-36-AV-15 - Slot slot 15
Viewing Datum:	RFE @ 6367.0ft (Original Well Elev)
TVDs to System:	N
North Reference:	Grid
Unit System:	API - US Survey Feet

Version: 2003.16 Build: 42

HALLIBURTON

Design Report for SKR-598-36-AV-15 - Surveys

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
45.0	0.20	88.02	45.0	0.0	0.1	0.1	0.44
65.0	0.56	84.62	65.0	0.0	0.2	0.2	1.80
85.0	0.80	84.25	85.0	0.0	0.4	0.4	1.20
105.0	0.82	82.18	105.0	0.1	0.7	0.6	0.18
115.0	0.75	78.04	115.0	0.1	0.9	0.7	0.90
169.0	0.88	74.54	169.0	0.3	1.6	1.3	0.26
199.0	0.97	85.11	199.0	0.4	2.1	1.7	0.64
230.0	2.11	106.08	230.0	0.2	2.9	2.5	4.04
261.0	3.00	104.50	260.9	-0.1	4.2	3.9	2.88
292.0	3.79	109.96	291.9	-0.7	6.0	5.7	2.75
322.0	3.70	112.07	321.8	-1.4	7.8	7.6	0.55
353.0	4.49	118.06	352.7	-2.3	9.8	9.8	2.89
384.0	6.17	128.46	383.6	-3.9	12.2	12.7	6.23
411.0	7.84	130.88	410.4	-6.1	14.7	15.9	6.28
456.0	9.42	130.05	454.9	-10.4	19.8	22.4	3.52
503.0	11.07	128.39	501.1	-15.7	26.3	30.5	3.57
549.0	12.42	125.08	546.2	-21.3	33.8	39.7	3.28
595.0	13.13	121.70	591.0	-26.9	42.3	49.8	2.24
641.0	13.80	118.90	635.8	-32.3	51.6	60.5	2.03
687.0	15.17	117.13	680.3	-37.7	61.7	72.0	3.13
734.0	16.59	116.37	725.5	-43.5	73.2	84.9	3.05
780.0	17.57	115.53	769.5	-49.4	85.4	98.4	2.20
828.0	18.28	114.92	815.2	-55.7	98.7	113.1	1.53
874.0	19.25	113.98	858.7	-61.8	112.2	127.9	2.21
921.0	20.71	114.40	902.9	-68.4	126.9	144.0	3.12
968.0	21.68	114.58	946.7	-75.4	142.3	161.0	2.07
1,016.0	22.63	115.17	991.2	-83.0	158.7	179.1	2.03
1,063.0	23.17	114.99	1,034.5	-90.8	175.3	197.4	1.16
1,110.0	24.27	114.41	1,077.5	-98.7	192.5	216.3	2.39
1,157.0	25.43	114.46	1,120.1	-106.9	210.5	236.0	2.47
1,204.0	26.93	114.33	1,162.3	-115.4	229.3	256.7	3.19
1,251.0	28.31	114.12	1,204.0	-124.4	249.2	278.5	2.94
1,308.0	30.08	114.49	1,253.7	-135.8	274.6	306.3	3.12
1,418.0	30.30	114.62	1,348.8	-158.8	324.9	361.6	0.21
1,513.0	30.31	113.14	1,430.8	-178.2	368.7	409.5	0.79
1,607.0	31.63	112.65	1,511.4	-197.0	413.3	457.8	1.43
1,701.0	33.08	112.34	1,590.8	-216.2	459.7	508.0	1.55
1,796.0	30.31	111.56	1,671.6	-234.9	506.0	557.8	2.95
1,890.0	29.27	111.37	1,753.2	-252.0	549.5	604.4	1.11
1,984.0	29.48	114.01	1,835.1	-269.8	592.0	650.4	1.40
2,079.0	28.93	115.05	1,918.1	-289.0	634.2	696.7	0.79
2,173.0	29.32	115.04	2,000.2	-308.4	675.6	742.5	0.41
2,267.0	29.13	114.18	2,082.2	-327.5	717.4	788.3	0.49
2,362.0	29.76	115.57	2,164.9	-347.2	759.7	835.0	0.98
2,456.0	30.08	117.71	2,246.4	-368.2	801.6	881.9	1.19
2,550.0	29.15	115.89	2,328.1	-389.1	843.1	928.3	1.38
2,645.0	29.35	114.93	2,411.0	-409.1	885.0	974.8	0.54
2,739.0	27.78	114.29	2,493.6	-427.8	925.9	1,019.7	1.70
2,833.0	25.31	113.43	2,577.7	-444.8	964.3	1,061.7	2.66

Design Report for SKR-598-36-AV-15 - Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2,928.0	23.01	113.41	2,664.3	-460.2	999.9	1,100.5	2.42
3,022.0	20.58	113.38	2,751.6	-474.1	1,032.0	1,135.4	2.59
3,116.0	19.87	114.67	2,839.8	-487.3	1,061.7	1,167.9	0.89
3,211.0	19.43	116.89	2,929.3	-501.2	1,090.4	1,199.8	0.91
3,305.0	18.01	117.53	3,018.3	-515.0	1,117.3	1,230.0	1.53
3,399.0	17.83	118.88	3,107.7	-528.7	1,142.7	1,258.9	0.48
3,494.0	16.73	119.13	3,198.5	-542.3	1,167.4	1,287.0	1.16
3,588.0	16.07	116.89	3,288.6	-554.8	1,190.8	1,313.5	0.97
3,682.0	15.16	117.78	3,379.2	-566.4	1,213.3	1,338.8	1.00
3,777.0	14.39	118.02	3,471.0	-577.8	1,234.7	1,363.1	0.81
3,871.0	13.56	119.48	3,562.2	-588.7	1,254.6	1,385.7	0.96
3,965.0	12.35	125.35	3,653.8	-599.9	1,272.4	1,406.6	1.90
4,060.0	10.09	126.58	3,747.0	-610.7	1,287.4	1,424.9	2.39
4,154.0	8.73	127.79	3,839.8	-620.0	1,299.7	1,439.9	1.46
4,249.0	8.19	133.76	3,933.7	-629.1	1,310.2	1,453.4	1.08
4,343.0	7.25	118.38	4,026.9	-636.6	1,320.3	1,465.7	2.41
4,437.0	5.91	102.11	4,120.3	-640.4	1,330.2	1,476.4	2.43
4,532.0	4.44	96.34	4,214.9	-641.8	1,338.7	1,484.6	1.64
4,626.0	3.08	93.56	4,308.7	-642.4	1,344.8	1,490.3	1.46
4,720.0	2.06	94.48	4,402.6	-642.7	1,349.0	1,494.2	1.09
4,815.0	1.64	88.31	4,497.5	-642.8	1,352.1	1,497.0	0.49
4,909.0	1.56	78.39	4,591.5	-642.5	1,354.7	1,499.2	0.31
5,003.0	1.49	73.18	4,685.5	-641.9	1,357.1	1,501.1	0.17
5,098.0	1.37	63.89	4,780.4	-641.0	1,359.3	1,502.8	0.27
5,192.0	1.12	45.54	4,874.4	-639.9	1,361.0	1,503.8	0.50
5,287.0	0.44	153.42	4,969.4	-639.6	1,361.8	1,504.4	1.39
5,381.0	0.40	188.19	5,063.4	-640.2	1,361.9	1,504.7	0.27
5,475.0	0.05	102.40	5,157.4	-640.5	1,361.9	1,504.9	0.42
5,570.0	0.27	32.85	5,252.4	-640.4	1,362.1	1,504.9	0.27
5,664.0	0.43	0.09	5,346.4	-639.8	1,362.2	1,504.8	0.27
5,758.0	1.07	334.90	5,440.4	-638.7	1,361.8	1,504.0	0.75
5,853.0	1.73	321.97	5,535.4	-636.7	1,360.6	1,502.0	0.77
5,947.0	2.13	327.51	5,629.3	-634.1	1,358.7	1,499.2	0.47
6,042.0	2.21	342.45	5,724.2	-630.9	1,357.2	1,496.5	0.60
6,136.0	2.14	346.21	5,818.2	-627.5	1,356.3	1,494.1	0.17
6,230.0	2.72	348.63	5,912.1	-623.6	1,355.4	1,491.6	0.63
6,325.0	2.88	342.93	6,007.0	-619.1	1,354.3	1,488.6	0.34
6,419.0	4.33	351.67	6,100.8	-613.3	1,353.1	1,485.0	1.65
6,514.0	4.16	352.13	6,195.5	-606.4	1,352.1	1,481.1	0.18
6,608.0	3.59	348.63	6,289.3	-600.1	1,351.0	1,477.4	0.66
6,684.0	3.59	348.63	6,365.2	-595.4	1,350.1	1,474.5	0.00

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	SKR-598-36-47	115.97	Slot	0.0	0.0	0.0

Design Report for SKR-598-36-AV-15 - Surveys

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
45.0	115.0	Conductor Gyro	GYD_GWD_SS
115.0	384.0	8in Gyro	GYD_GWD_SS
411.0	1,308.0	8 in MWD	MWD
1,308.0	6,684.0	6in EM-MWD	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,402.0	1,335.0	8 5/8"	8-5/8	12-1/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	TVDSS (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,408.2	2,205.0	-4,162.00	Wasatch G		0.00	
2,587.7	2,361.0	-4,006.00	Fort Union		0.00	
3,644.5	3,343.0	-3,024.00	Ohio Creek		0.00	
4,064.0	3,751.0	-2,616.00	WF		0.00	
6,039.2	5,721.4	-645.60	Cameo		0.00	
6,364.1	6,046.0	-321.00	Rollins		0.00	

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
SKR-598-36-47B	0.00	0.00	6,246.0	-652.9	1,340.3	1,645,322.80	2,200,883.40	39° 34' 15.470 N	108° 20' 6.768 W
- actual wellpath misses by 51.2ft at 6561.4ft MD (6242.8 TVD, -603.1 N, 1351.6 E)									
- Point									
SKR-598-36-47	0.00	360.00	4,051.0	-652.9	1,340.3	1,645,322.80	2,200,883.40	39° 34' 15.470 N	108° 20' 6.768 W
- actual wellpath misses by 22.7ft at 4369.7ft MD (4053.4 TVD, -638.0 N, 1323.2 E)									
- Ellipse (radii L45.0 W80.0 on 360.00 azi)									

North Reference Sheet for SKR-598-36-AV - SKR-598-36-AV-15 - 598-36-47

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

Vertical Depths are relative to RFE @ 6367.0ft (Original Well Elev). Northing and Easting are relative to SKR-598-36-AV-15 - Slot slot 15

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: 0.99996973

Grid Coordinates of Well: 1,645,975.68 ft N, 2,199,543.14 ft E

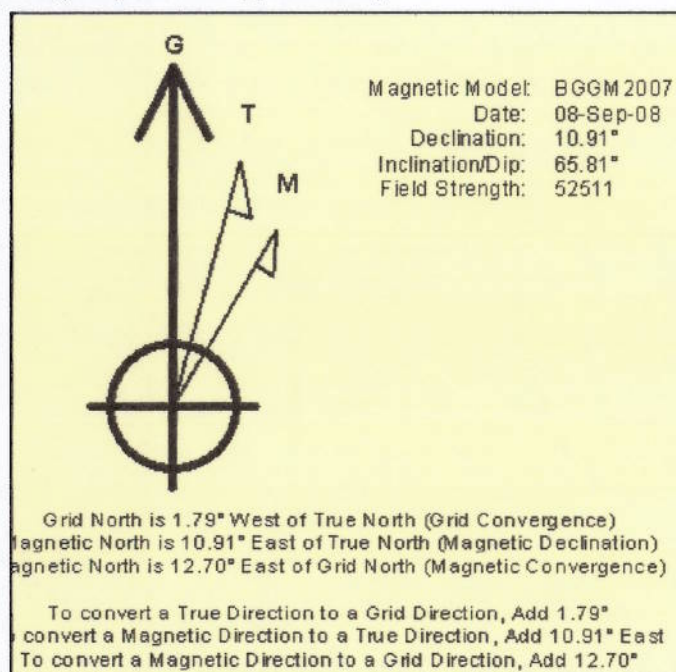
Geographical Coordinates of Well: 39° 34' 21.51" N, 108° 20' 24.14" W

Grid Convergence at Surface is: -1.79°

Based upon Minimum Curvature type calculations, at a Measured Depth of 6,684.00ft

the Bottom Hole Displacement is 1,475.57ft in the Direction of 113.80° (Grid).

Magnetic Convergence at surface is: -12.70° (8 September 2008, , BGGM2007)





Directional Plot

Well Name SKR-598-36-AV-15	Lease Chevron USA	Field Name Skinner Ridge	Business Unit Mid-Continent/Alaska	Surface UWI 0504516273	Surface ChevNo LG4060
Wellbore Name Original Hole	Directional Type Shallow Kick Off 'S'	Kick Off Depth (ftKB) 	Total Depth of Wellbore (ftKB) 6,684.00	Wellbore UWI 050451627300	Wellbore ChevNo LG4060-00

