

Chevron USA

Piceance

SKR-598-36-AV

SKR-598-36-AV-11 - slot 11

598-36-27

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

03 October, 2008

Well Coordinates: 1,645,970.39 N, 2,199,528.97 E (39° 34' 21.45" N, 108° 20' 24.31" W)

Ground Level: 6,342.00 ft

Local Coordinate Origin: Centered on Well SKR-598-36-AV-11 - Slot slot 11

Viewing Datum: RFE @ 6367.0ft (Original Well Elev)

TVDs to System: N

North Reference: Grid

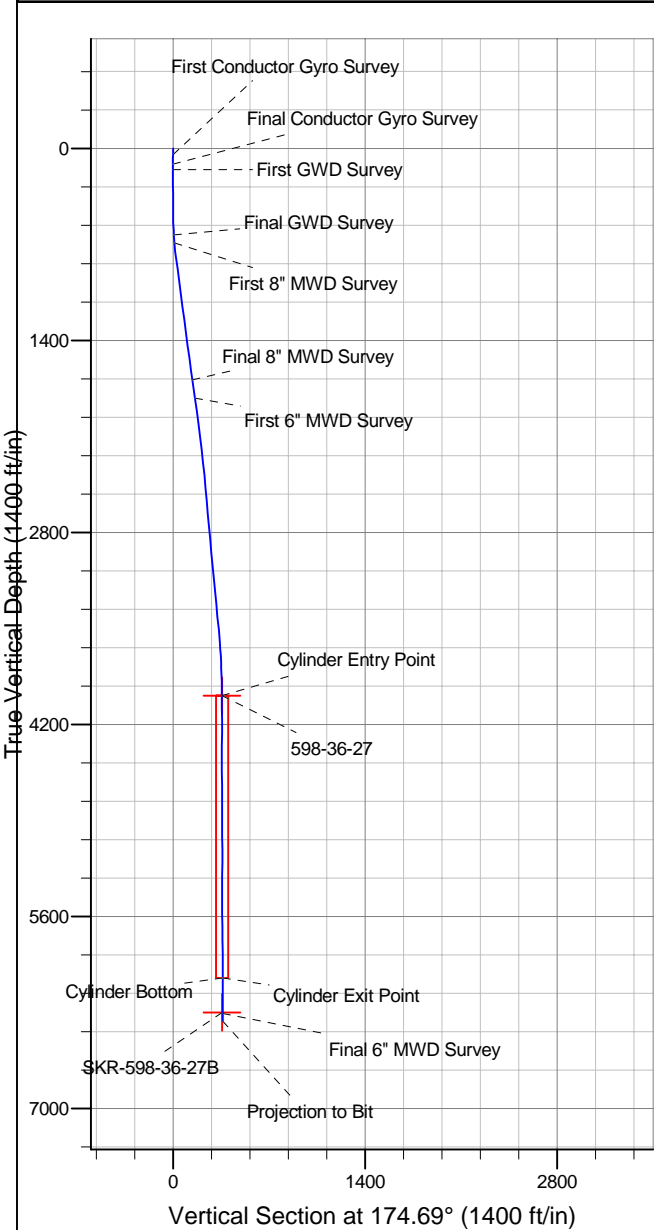
Unit System: API - US Survey Feet

Version: 2003.16 Build: 42B

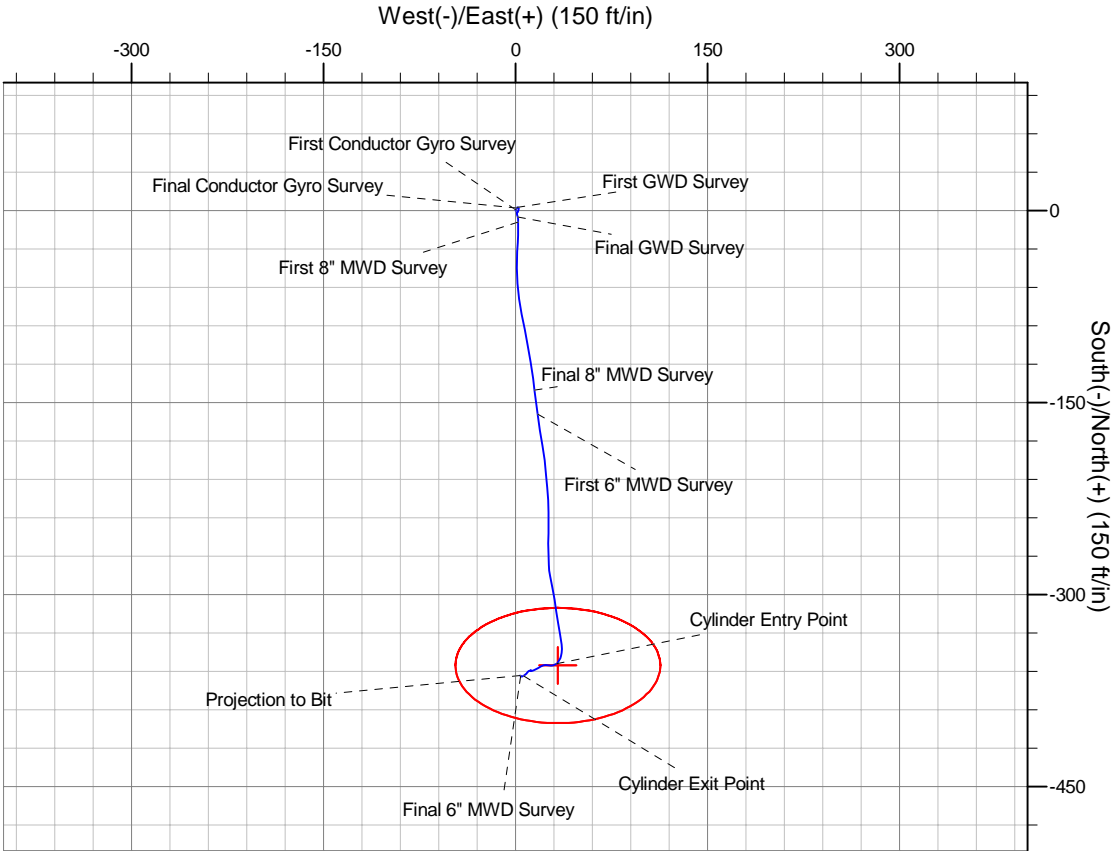
HALLIBURTON

Project: Piceance
Site: SKR-598-36-AV
Well: SKR-598-36-AV-11
Wellbore: 598-36-27
Plan: Actual Field Surveys

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WELL DETAILS: SKR-598-36-AV-11							
+N/-S	+E/-W	Northing	Ground Level: 6342.0		Latitude	Longitude	Slot
0.0	0.0	1645970.39	Easting	39° 34'	21.450 N 108° 20'	24.314 W	slot 11
2199528.97							
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape	
598-36-27	3992.0	-355.4	33.0	1645615.00	2199562.00	Ellipse (Radii: L45.0 W80.0)	
SKR-598-36-27B	6620.0	-355.4	33.0	1645614.99	2199561.97	Point	



Design Report for SKR-598-36-AV-11 - Actual Field 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	1.14	19.93	45.0	0.4	0.2	-0.4	2.53
First Conductor Gyro Survey							
65.0	1.51	26.73	65.0	0.8	0.3	-0.8	2.01
85.0	1.50	23.78	85.0	1.3	0.6	-1.3	0.39
105.0	1.27	26.75	105.0	1.8	0.8	-1.7	1.20
115.0	1.24	28.14	115.0	1.9	0.9	-1.9	0.43
Final Conductor Gyro Survey							
156.0	0.88	58.34	156.0	2.5	1.3	-2.4	1.59
First GWD Survey							
202.0	0.88	105.92	202.0	2.6	2.0	-2.4	1.54
264.0	1.50	183.63	264.0	1.7	2.4	-1.4	2.53
325.0	1.41	190.67	324.9	0.1	2.2	0.1	0.33
387.0	0.88	210.41	386.9	-1.0	1.8	1.2	1.05
448.0	0.53	298.69	447.9	-1.3	1.3	1.4	1.66
540.0	0.79	176.40	539.9	-1.7	1.0	1.8	1.26
632.0	3.35	166.00	631.8	-5.0	1.7	5.1	2.80
Final GWD Survey							
689.0	5.06	180.25	688.7	-9.1	2.1	9.3	3.49
First 8" MWD Survey							
783.0	7.26	181.28	782.1	-19.2	1.9	19.3	2.34
877.0	8.24	183.43	875.3	-31.9	1.4	31.8	1.09
972.0	7.62	179.47	969.4	-45.0	1.1	44.9	0.87
1,066.0	7.35	176.09	1,062.6	-57.2	1.5	57.1	0.55
1,160.0	7.36	172.82	1,155.8	-69.2	2.7	69.1	0.45
1,255.0	7.27	168.60	1,250.0	-81.1	4.6	81.2	0.57
1,350.0	7.62	167.73	1,344.2	-93.1	7.2	93.4	0.39
1,444.0	7.87	169.55	1,437.4	-105.5	9.6	106.0	0.37
1,538.0	7.89	171.39	1,530.5	-118.3	11.8	118.8	0.27
1,633.0	8.09	172.75	1,624.6	-131.3	13.6	132.0	0.29
1,698.0	8.06	171.84	1,688.9	-140.4	14.8	141.2	0.20
Final 8" MWD Survey							
1,831.0	8.16	173.46	1,820.6	-159.0	17.2	159.9	0.19
First 6" MWD Survey							
1,925.0	7.52	170.77	1,913.7	-171.7	19.0	172.7	0.78
2,019.0	7.17	170.68	2,006.9	-183.5	20.9	184.7	0.37
2,114.0	6.88	172.52	2,101.2	-195.0	22.6	196.3	0.39
2,208.0	6.58	174.15	2,194.6	-206.0	23.9	207.3	0.38
2,302.0	6.23	176.23	2,288.0	-216.4	24.8	217.8	0.45
2,397.0	5.83	176.30	2,382.5	-226.4	25.4	227.8	0.42
2,491.0	5.46	179.14	2,476.0	-235.6	25.8	237.0	0.49
2,585.0	5.05	180.68	2,569.6	-244.2	25.8	245.6	0.46
2,680.0	4.51	183.32	2,664.3	-252.1	25.6	253.4	0.61
2,774.0	5.27	178.37	2,757.9	-260.1	25.5	261.4	0.92
2,868.0	4.73	178.07	2,851.6	-268.3	25.7	269.6	0.58
2,963.0	5.46	178.94	2,946.2	-276.8	25.9	278.0	0.77
3,057.0	5.47	167.54	3,039.8	-285.6	27.0	286.9	1.15
3,151.0	5.75	169.40	3,133.3	-294.6	28.8	296.0	0.36
3,245.0	5.74	171.04	3,226.9	-303.9	30.4	305.4	0.17
3,340.0	5.40	171.73	3,321.4	-313.0	31.8	314.6	0.36

Design Report for SKR-598-36-AV-11 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3,434.0	5.84	172.13	3,415.0	-322.1	33.1	323.8	0.47
3,529.0	5.14	166.73	3,509.5	-331.0	34.7	332.8	0.92
3,623.0	4.75	174.75	3,603.2	-339.0	36.0	340.9	0.84
3,717.0	3.30	187.54	3,696.9	-345.6	36.0	347.4	1.81
3,812.0	1.79	210.87	3,791.8	-349.6	34.9	351.3	1.90
3,906.0	1.96	207.97	3,885.8	-352.2	33.4	353.8	0.21
4,000.0	0.69	238.94	3,979.8	-354.0	32.2	355.4	1.50
4,012.2	0.71	239.54	3,992.0	-354.0	32.1	355.5	0.21
Cylinder Entry Point - 598-36-27							
4,095.0	0.88	242.74	4,074.8	-354.6	31.0	355.9	0.21
4,189.0	1.04	250.03	4,168.8	-355.2	29.6	356.4	0.21
4,284.0	1.25	274.85	4,263.7	-355.4	27.8	356.5	0.56
4,378.0	1.45	279.99	4,357.7	-355.1	25.6	356.0	0.25
4,472.0	1.02	273.79	4,451.7	-354.9	23.6	355.5	0.48
4,567.0	1.29	254.01	4,546.7	-355.1	21.7	355.6	0.50
4,661.0	1.07	229.78	4,640.6	-356.0	20.0	356.3	0.57
4,755.0	0.81	239.65	4,734.6	-356.9	18.8	357.1	0.32
4,850.0	0.94	245.03	4,829.6	-357.5	17.5	357.6	0.16
4,944.0	1.10	246.62	4,923.6	-358.2	15.9	358.2	0.17
5,039.0	1.00	243.90	5,018.6	-358.9	14.4	358.7	0.12
5,133.0	0.67	239.70	5,112.6	-359.6	13.1	359.3	0.36
5,227.0	0.52	304.63	5,206.6	-359.6	12.3	359.2	0.69
5,322.0	0.31	14.23	5,301.6	-359.1	12.0	358.7	0.53
5,416.0	0.24	269.59	5,395.6	-358.9	11.9	358.4	0.47
5,510.0	0.26	199.99	5,489.6	-359.1	11.6	358.6	0.30
5,605.0	0.46	250.62	5,584.6	-359.4	11.2	358.9	0.38
5,699.0	0.90	241.53	5,678.6	-359.9	10.2	359.3	0.48
5,794.0	0.75	208.95	5,773.6	-360.8	9.2	360.1	0.51
5,888.0	0.91	234.28	5,867.5	-361.8	8.3	361.0	0.42
5,982.0	0.83	224.30	5,961.5	-362.7	7.2	361.8	0.18
6,070.5	0.87	248.17	6,050.0	-363.4	6.2	362.4	0.40
Cylinder Bottom - Cylinder Exit Point							
6,077.0	0.88	249.78	6,056.5	-363.4	6.1	362.4	0.40
6,171.0	0.63	243.69	6,150.5	-363.9	4.9	362.8	0.28
6,265.0	0.35	302.72	6,244.5	-364.0	4.2	362.8	0.58
6,320.4	0.56	320.87	6,299.9	-363.7	3.9	362.5	0.46
SKR-598-36-27B							
6,327.0	0.59	322.14	6,306.5	-363.6	3.9	362.4	0.46
Final 6" MWD Survey							
6,384.0	0.59	322.14	6,363.5	-363.2	3.5	361.9	0.00
Projection to Bit							

Design Report for SKR-598-36-AV-11 - Actual Field Surveys**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
45.0	45.0	0.4	0.2	First Conductor Gyro Survey	
115.0	115.0	1.9	0.9	Final Conductor Gyro Survey	
156.0	156.0	2.5	1.3	First GWD Survey	
632.0	631.8	-5.0	1.7	Final GWD Survey	
689.0	688.7	-9.1	2.1	First 8" MWD Survey	
1,698.0	1,688.9	-140.4	14.8	Final 8" MWD Survey	
1,831.0	1,820.6	-159.0	17.2	First 6" MWD Survey	
4,012.2	3,992.0	-354.0	32.1	Cylinder Entry Point	
6,070.5	6,050.0	-363.4	6.2	Cylinder Bottom	
6,070.5	6,050.0	-363.4	6.2	Cylinder Exit Point	
6,327.0	6,306.5	-363.6	3.9	Final 6" MWD Survey	
6,384.0	6,363.5	-363.2	3.5	Projection to Bit	

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	598-36-27	174.69	Slot	0.0	0.0	0.0

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
45.0	115.0	Conductor Gyro	MWD
156.0	632.0	GWD Surveys	GYD_GWD_SS
689.0	1,698.0	8" MWD Surveys	MWD
1,831.0	6,384.0	6" MWD Surveys	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
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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
598-36-27	0.00	0.00	3,992.0	-355.4	33.0	1,645,615.00	2,199,562.00	39° 34' 17.949 N	108° 20' 23.751 W
- actual wellpath misses by 1.7ft at 4012.2ft MD (3992.0 TVD, -354.0 N, 32.1 E)									
- Ellipse (radii L45.0 W80.0 on 0.00 azi) - Target 100% Intersected									
SKR-598-36-27B	0.00	0.00	6,300.0	-355.4	33.0	1,645,614.99	2,199,561.97	39° 34' 17.949 N	108° 20' 23.751 W
- actual wellpath misses by 30.2ft at 6320.4ft MD (6299.9 TVD, -363.7 N, 3.9 E)									
- Point									