

Chevron USA

Piceance

SKR-598-36-AV

SKR-598-36-AV-18 - slot 18

598-36-41

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

02 December, 2008

Well Coordinates (NAD83): 1,645,987.66 N, 2,199,546.67 E (39° 34' 21.63" N, 108° 20' 24.10" W)

Ground Level: 6,342.00 ft

Local Coordinate Origin: Centered on Well SKR-598-36-AV-18 - Slot slot 18

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-18
Wellbore: 598-36-41
Plan: Actual Field Surveys

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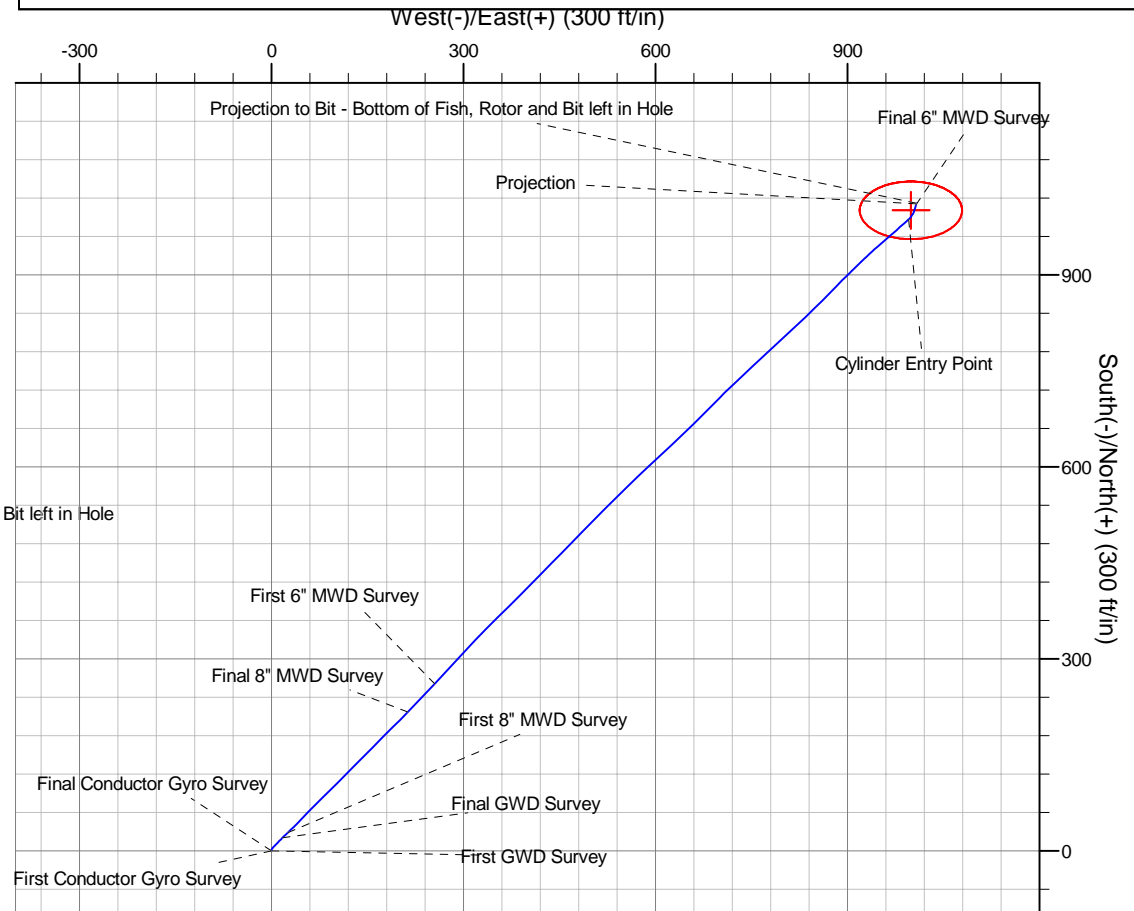
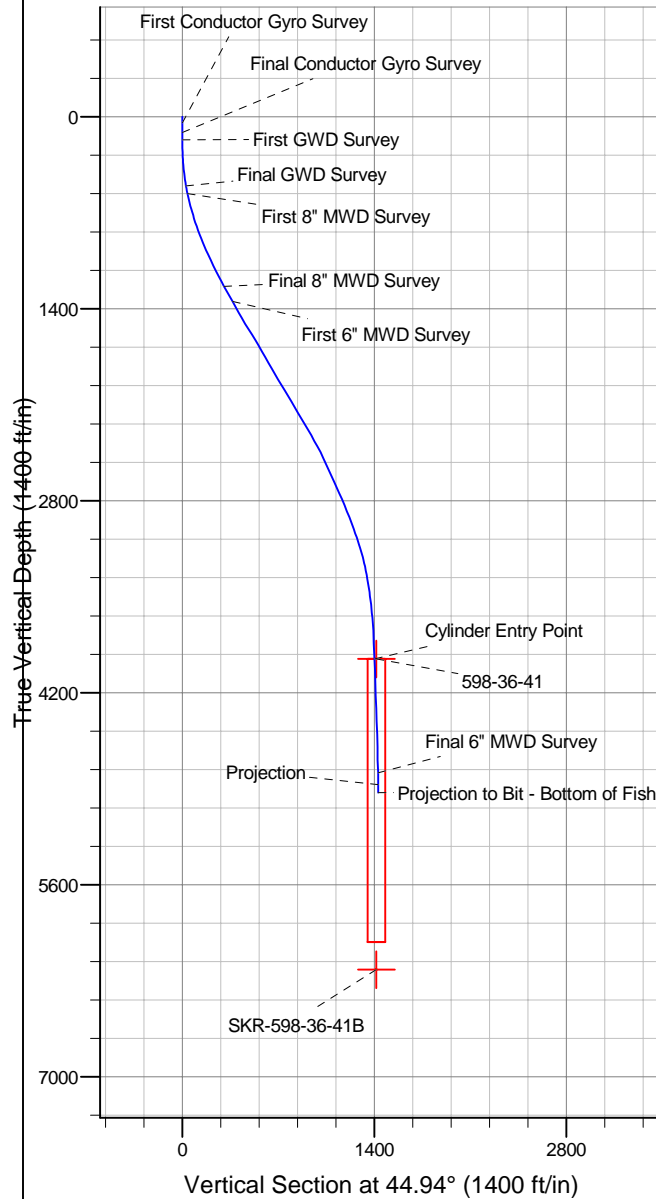
Drilling and Formation
Evaluation

WELL DETAILS: SKR-598-36-AV-18

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1645987.66	2199546.67	39° 34' 21.626 N	108° 20' 24.095 W	slot 18

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
598-36-41	3953.0	1000.9	998.9	1646988.52	2200545.61	Ellipse (Radii: L45.0 W80.0)
SKR-598-36-41B	6219.0	1000.9	998.9	1646988.52	2200545.61	Point



Design Report for SKR-598-36-AV-18 - 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	0.24	317.05	45.0	0.1	-0.1	0.0	0.53
First Conductor Gyro Survey							
65.0	0.22	302.80	65.0	0.1	-0.1	0.0	0.30
85.0	0.18	261.72	85.0	0.1	-0.2	0.0	0.73
105.0	0.52	208.27	105.0	0.1	-0.3	-0.1	2.19
115.0	0.64	206.28	115.0	0.0	-0.3	-0.2	1.22
Final Conductor Gyro Survey							
168.0	0.53	352.78	168.0	-0.1	-0.5	-0.4	2.11
First GWD Survey							
229.0	1.50	7.40	229.0	1.0	-0.4	0.4	1.63
291.0	3.17	33.84	290.9	3.2	0.7	2.8	3.14
352.0	5.11	42.12	351.8	6.7	3.4	7.1	3.32
414.0	6.87	45.64	413.4	11.3	7.9	13.6	2.90
505.0	9.87	44.06	503.5	20.7	17.2	26.8	3.31
Final GWD Survey							
564.0	11.92	47.30	561.4	28.5	25.2	38.0	3.62
First 8" MWD Survey							
656.0	14.51	43.72	650.9	43.3	40.2	59.0	2.95
748.0	17.56	44.68	739.4	61.5	57.9	84.4	3.33
843.0	20.09	45.02	829.3	83.2	79.5	115.1	2.67
937.0	22.50	45.28	916.8	107.3	103.7	149.2	2.57
1,031.0	24.84	44.45	1,002.9	134.0	130.3	186.9	2.51
1,125.0	25.92	44.61	1,087.9	162.7	158.6	227.2	1.15
1,220.0	27.60	45.79	1,172.7	192.9	189.0	270.0	1.85
1,292.0	28.78	44.28	1,236.1	216.9	213.0	304.0	1.91
Final 8" MWD Survey							
1,418.0	28.94	42.70	1,346.5	261.0	254.9	364.8	0.62
First 6" MWD Survey							
1,512.0	29.58	42.82	1,428.5	294.7	286.1	410.7	0.68
1,606.0	31.37	43.35	1,509.5	329.6	318.6	458.3	1.93
1,701.0	31.77	45.67	1,590.4	365.0	353.5	508.1	1.35
1,795.0	30.59	44.33	1,670.9	399.4	387.9	556.7	1.46
1,890.0	29.09	45.12	1,753.3	433.0	421.2	604.0	1.63
1,984.0	30.43	43.89	1,834.9	466.3	453.9	650.7	1.57
2,078.0	30.21	44.57	1,916.0	500.3	487.0	698.1	0.43
2,172.0	31.02	45.09	1,996.9	534.2	520.7	746.0	0.91
2,267.0	31.32	45.46	2,078.2	568.8	555.7	795.1	0.37
2,361.0	30.42	47.16	2,158.9	602.2	590.5	843.4	1.33
2,455.0	30.34	46.94	2,240.0	634.6	625.3	890.9	0.15
2,550.0	30.02	45.49	2,322.1	667.6	659.8	938.6	0.84
2,644.0	28.21	44.24	2,404.2	700.0	692.1	984.3	2.03
2,738.0	25.38	46.55	2,488.1	729.8	722.2	1,026.7	3.21
2,833.0	24.76	46.89	2,574.2	757.4	751.5	1,066.9	0.67
2,927.0	23.91	47.10	2,659.8	783.8	779.8	1,105.6	0.91
3,021.0	23.99	47.20	2,745.7	809.7	807.8	1,143.8	0.10
3,116.0	22.38	46.65	2,833.0	835.3	835.1	1,181.2	1.71
3,210.0	21.34	45.05	2,920.3	859.7	860.2	1,216.1	1.27
3,304.0	20.48	43.93	3,008.1	883.6	883.8	1,249.7	1.01
3,398.0	18.57	46.42	3,096.7	905.7	906.0	1,281.1	2.22

Design Report for SKR-598-36-AV-18 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3,493.0	15.24	46.09	3,187.6	924.8	926.0	1,308.7	3.51
3,587.0	11.99	47.64	3,278.9	940.0	942.1	1,330.8	3.48
3,682.0	9.60	49.75	3,372.2	951.8	955.4	1,348.6	2.55
3,776.0	8.74	49.71	3,465.0	961.4	966.9	1,363.5	0.91
3,870.0	6.59	46.56	3,558.2	969.8	976.2	1,376.0	2.33
3,965.0	4.01	49.16	3,652.8	975.7	982.7	1,384.8	2.73
4,059.0	3.42	48.51	3,746.6	979.7	987.3	1,390.9	0.63
4,153.0	2.88	51.01	3,840.4	983.0	991.2	1,396.0	0.59
4,248.0	2.32	47.38	3,935.3	985.8	994.5	1,400.3	0.61
4,265.7	2.25	46.64	3,953.0	986.3	995.0	1,401.0	0.43
Cylinder Entry Point							
4,266.2	2.25	46.62	3,953.5	986.3	995.0	1,401.0	0.43
598-36-41							
4,342.0	1.95	42.85	4,029.3	988.3	997.0	1,403.8	0.43
4,437.0	1.78	34.66	4,124.2	990.7	998.9	1,406.9	0.33
4,531.0	2.05	35.97	4,218.2	993.3	1,000.7	1,410.0	0.29
4,625.0	2.19	25.91	4,312.1	996.2	1,002.5	1,413.3	0.42
4,720.0	2.20	20.48	4,407.0	999.6	1,003.9	1,416.7	0.22
4,814.0	1.73	13.11	4,501.0	1,002.7	1,004.9	1,419.5	0.57
4,908.0	1.60	16.40	4,594.9	1,005.3	1,005.6	1,421.9	0.17
5,003.0	1.23	18.67	4,689.9	1,007.5	1,006.3	1,424.0	0.39
5,097.0	1.25	19.70	4,783.9	1,009.5	1,006.9	1,425.8	0.03
Final 6" MWD Survey							
5,183.0	0.95	352.17	4,869.9	1,011.0	1,007.2	1,427.1	0.70
Projection							
5,243.0	0.95	352.17	4,929.9	1,012.0	1,007.0	1,427.7	0.00
Projection to Bit - Bottom of Fish, Rotor and Bit left in Hole - SKR-598-36-41B							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
45.0	45.0	0.1	-0.1	First Conductor Gyro Survey	
115.0	115.0	0.0	-0.3	Final Conductor Gyro Survey	
168.0	168.0	-0.1	-0.5	First GWD Survey	
505.0	503.5	20.7	17.2	Final GWD Survey	
564.0	561.4	28.5	25.2	First 8" MWD Survey	
1,292.0	1,236.1	216.9	213.0	Final 8" MWD Survey	
1,418.0	1,346.5	261.0	254.9	First 6" MWD Survey	
4,265.7	3,953.0	986.3	995.0	Cylinder Entry Point	
5,097.0	4,783.9	1,009.5	1,006.9	Final 6" MWD Survey	
5,183.0	4,869.9	1,011.0	1,007.2	Projection	
5,243.0	4,929.9	1,012.0	1,007.0	Projection to Bit - Bottom of Fish, Rotor and Bit left in Hole	

Vertical Section Information

Angle Type		Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
					+N/_S (ft)	+E/-W (ft)	
User		598-36-41	44.94	Slot	0.0	0.0	0.0

Design Report for SKR-598-36-AV-18 - Actual Field Surveys**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
45.0	115.0	Conductor Gyros	NS-GYRO-MS
168.0	505.0	GWD Surveys	GYD_GWD_SS
564.0	1,292.0	8" MWD Surveys	MWD
1,418.0	5,243.0	6" MWD Surveys	MWD

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
598-36-41	0.00	0.00	3,953.0	1,000.9	998.9	1,646,988.52	2,200,545.61	39° 34' 31.821 N	108° 20' 11.743 W
- actual wellpath misses by 15.1ft at 4266.2ft MD (3953.5 TVD, 986.3 N, 995.0 E)									
- Ellipse (radii L45.0 W80.0 on 360.00 azi) - Target Cylinder 62% Intersected									
SKR-598-36-41B	0.00	0.00	6,219.0	1,000.9	998.9	1,646,988.52	2,200,545.61	39° 34' 31.821 N	108° 20' 11.743 W
- actual wellpath misses by 1289.2ft at 5243.0ft MD (4929.9 TVD, 1012.0 N, 1007.0 E)									
- Point									