

Chevron USA

Piceance

SKR-598-36-AV

SKR-598-36-AV-05 - slot 5

598-36-30

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

02 October, 2008

Well Coordinates: 1,645,962.53 N, 2,199,507.90 E (39° 34' 21.37" N, 108° 20' 24.58" W)

Ground Level: 6,342.00 ft

Local Coordinate Origin: Centered on Well SKR-598-36-AV-05 - Slot slot 5

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-05
 Wellbore: 598-36-30
 Plan: Actual Field Surveys

Chevron USA

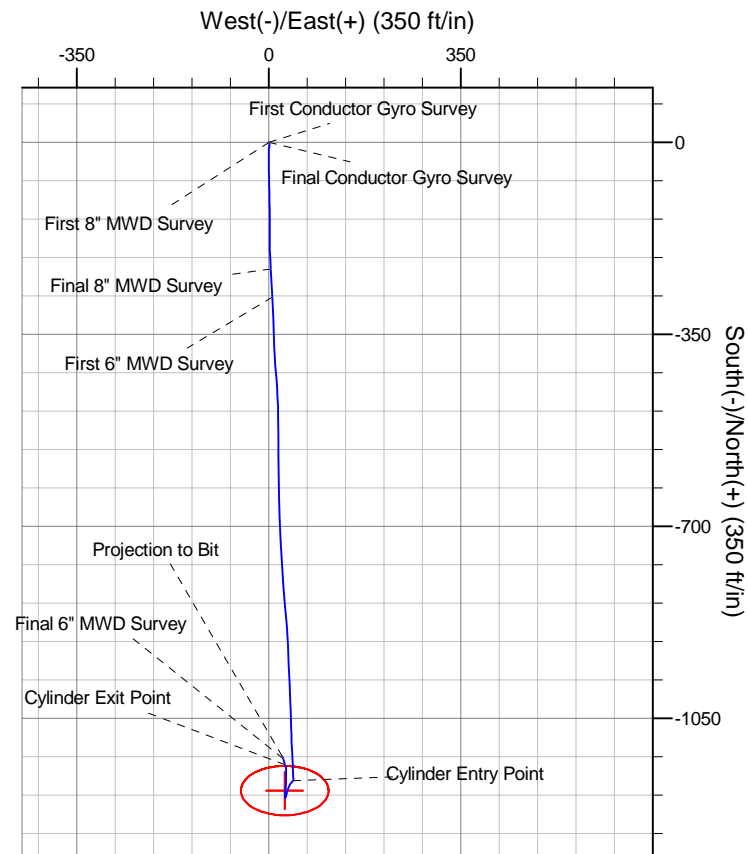
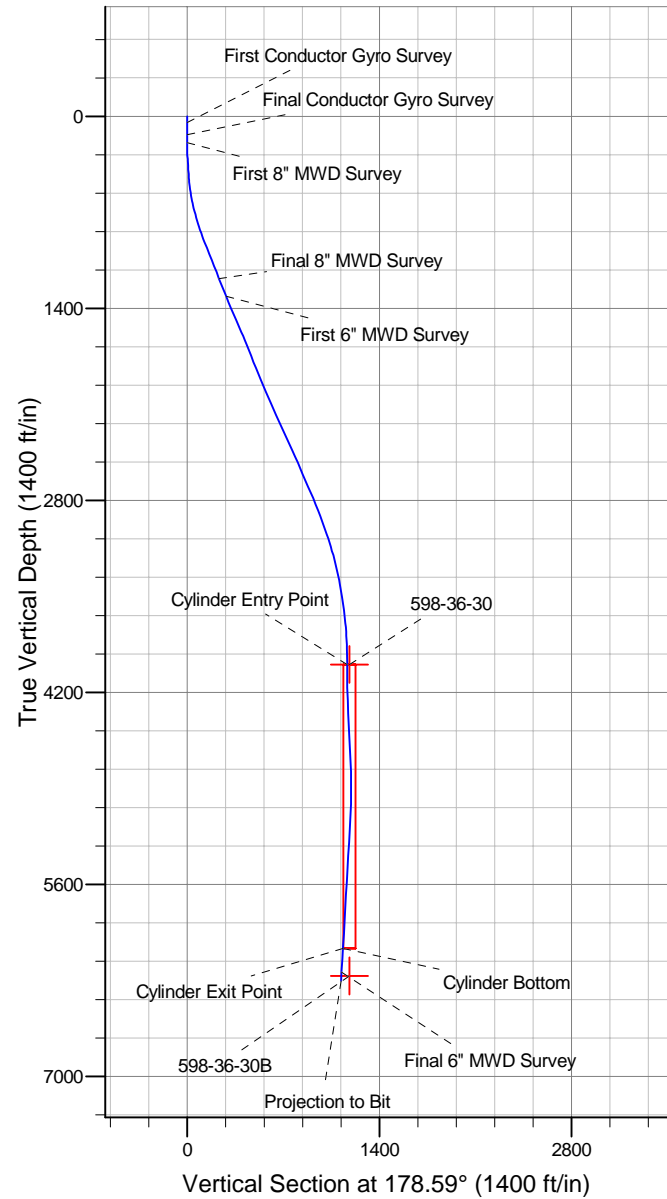


WELL DETAILS: SKR-598-36-AV-05

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1645962.53	2199507.90	39° 34' 21.365 N	108° 20' 24.580 W	slot 5

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
598-36-30	3997.0	-1181.5	29.1	1644781.03	2199537.00	Ellipse (Radii: L45.0 W80.0)
598-36-30B	6268.0	-1181.5	29.1	1644781.00	2199537.00	Point



Design Report for SKR-598-36-AV-05 - 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	0.12	234.50	45.0	0.0	0.0	0.0	0.27
First Conductor Gyro Survey							
65.0	0.06	350.57	65.0	0.0	-0.1	0.0	0.78
85.0	0.18	75.80	85.0	0.0	0.0	0.0	0.92
105.0	0.42	81.11	105.0	0.0	0.1	0.0	1.21
125.0	0.48	56.09	125.0	0.1	0.2	-0.1	1.02
135.0	0.17	22.53	135.0	0.1	0.3	-0.1	3.51
Final Conductor Gyro Survey							
194.0	0.65	47.33	194.0	0.4	0.5	-0.4	0.85
First 8" MWD Survey							
236.0	0.65	112.59	236.0	0.5	0.9	-0.5	1.67
266.0	1.56	165.48	266.0	0.0	1.2	0.0	4.26
297.0	3.03	178.26	297.0	-1.2	1.3	1.2	4.99
327.0	4.16	182.93	326.9	-3.1	1.3	3.1	3.89
358.0	4.14	186.82	357.8	-5.3	1.1	5.3	0.91
389.0	3.45	187.18	388.8	-7.4	0.9	7.4	2.23
420.0	2.79	190.66	419.7	-9.0	0.6	9.0	2.21
450.0	3.95	184.50	449.7	-10.8	0.4	10.8	4.05
512.0	7.26	182.97	511.4	-16.8	0.0	16.8	5.34
558.0	9.17	179.27	556.9	-23.4	-0.1	23.4	4.31
604.0	10.98	179.22	602.2	-31.4	0.0	31.4	3.93
650.0	12.99	179.53	647.2	-41.0	0.1	41.0	4.37
697.0	14.60	179.08	692.8	-52.2	0.3	52.2	3.43
744.0	15.84	178.87	738.2	-64.5	0.5	64.5	2.64
792.0	17.03	178.54	784.2	-78.1	0.8	78.1	2.49
839.0	18.55	178.68	828.9	-92.5	1.1	92.5	3.24
886.0	19.96	179.17	873.3	-108.0	1.4	108.0	3.02
933.0	21.76	179.72	917.2	-124.7	1.6	124.7	3.85
980.0	22.73	179.78	960.7	-142.5	1.7	142.5	2.06
1,027.0	22.65	179.63	1,004.1	-160.6	1.7	160.6	0.21
1,075.0	22.28	179.63	1,048.5	-178.9	1.9	178.9	0.77
1,169.0	20.63	177.92	1,135.9	-213.3	2.6	213.3	1.88
1,219.0	21.07	176.26	1,182.7	-231.1	3.5	231.1	1.47
Final 8" MWD Survey							
1,359.0	21.92	176.82	1,312.9	-282.3	6.6	282.4	0.62
First 6" MWD Survey							
1,453.0	23.14	177.67	1,399.7	-318.3	8.3	318.4	1.34
1,547.0	23.17	178.92	1,486.2	-355.2	9.4	355.3	0.52
1,642.0	24.36	176.45	1,573.1	-393.5	11.0	393.6	1.63
1,736.0	21.67	174.66	1,659.6	-430.1	13.8	430.3	2.96
1,830.0	20.73	177.38	1,747.3	-464.0	16.2	464.3	1.45
1,925.0	22.38	179.60	1,835.6	-498.9	17.1	499.1	1.94
2,019.0	22.46	179.41	1,922.5	-534.7	17.4	535.0	0.11
2,113.0	23.95	179.81	2,008.9	-571.8	17.6	572.0	1.59
2,207.0	23.50	178.65	2,095.0	-609.6	18.1	609.8	0.69
2,302.0	24.19	178.96	2,181.9	-648.0	18.9	648.2	0.74
2,396.0	24.99	178.28	2,267.3	-687.1	19.9	687.4	0.90
2,491.0	24.46	176.51	2,353.6	-726.8	21.7	727.1	0.96
2,585.0	24.67	176.88	2,439.1	-765.8	23.9	766.1	0.28

Design Report for SKR-598-36-AV-05 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
2,679.0	23.30	176.19	2,525.0	-803.9	26.2	804.3	1.49
2,774.0	23.36	174.51	2,612.2	-841.4	29.3	841.9	0.70
2,868.0	23.38	175.65	2,698.5	-878.6	32.5	879.1	0.48
2,962.0	23.28	177.06	2,784.8	-915.7	34.8	916.3	0.60
3,057.0	21.43	177.87	2,872.7	-951.8	36.4	952.4	1.97
3,151.0	19.96	177.67	2,960.6	-985.0	37.7	985.6	1.57
3,245.0	19.00	177.62	3,049.2	-1,016.3	39.0	1,017.0	1.02
3,339.0	16.79	178.10	3,138.7	-1,045.2	40.1	1,045.9	2.36
3,434.0	14.28	178.59	3,230.2	-1,070.6	40.8	1,071.3	2.65
3,528.0	12.20	177.12	3,321.7	-1,092.1	41.6	1,092.8	2.24
3,622.0	9.90	177.21	3,414.0	-1,110.1	42.5	1,110.8	2.45
3,717.0	9.33	176.62	3,507.6	-1,126.0	43.4	1,126.7	0.61
3,811.0	7.61	178.37	3,600.6	-1,139.8	44.0	1,140.5	1.85
3,906.0	5.90	177.68	3,694.9	-1,151.0	44.4	1,151.7	1.80
4,000.0	3.33	180.22	3,788.6	-1,158.5	44.6	1,159.3	2.74
4,094.0	1.28	174.32	3,882.5	-1,162.3	44.7	1,163.0	2.19
4,189.0	0.61	237.31	3,977.5	-1,163.6	44.3	1,164.4	1.20
4,208.5	0.68	233.81	3,997.0	-1,163.7	44.2	1,164.5	0.39
Cylinder Entry Point							
4,208.8	0.68	233.81	3,997.3	-1,163.7	44.2	1,164.5	0.00
598-36-30							
4,283.0	0.94	225.09	4,071.5	-1,164.4	43.4	1,165.1	0.39
4,378.0	1.66	222.98	4,166.5	-1,166.0	41.9	1,166.7	0.76
4,472.0	2.16	214.31	4,260.4	-1,168.5	40.0	1,169.1	0.61
4,566.0	2.72	210.04	4,354.4	-1,171.8	37.8	1,172.4	0.63
4,661.0	2.84	200.86	4,449.3	-1,176.0	35.9	1,176.5	0.48
4,755.0	3.62	198.15	4,543.1	-1,181.0	34.1	1,181.5	0.85
4,849.0	2.27	189.47	4,637.0	-1,185.6	32.9	1,186.1	1.51
4,944.0	3.28	196.12	4,731.9	-1,190.1	31.8	1,190.5	1.11
5,038.0	1.59	200.94	4,825.8	-1,193.9	30.6	1,194.3	1.81
5,133.0	1.02	343.19	4,920.8	-1,194.3	29.9	1,194.7	2.61
5,227.0	2.12	359.15	5,014.7	-1,191.8	29.6	1,192.2	1.25
5,321.0	2.63	0.36	5,108.6	-1,187.9	29.6	1,188.3	0.55
5,416.0	2.91	6.67	5,203.5	-1,183.3	29.9	1,183.7	0.44
5,510.0	3.32	7.93	5,297.4	-1,178.3	30.6	1,178.7	0.44
5,604.0	3.03	4.57	5,391.3	-1,173.1	31.1	1,173.5	0.37
5,699.0	3.71	3.41	5,486.1	-1,167.5	31.5	1,167.9	0.72
5,793.0	3.38	357.83	5,579.9	-1,161.7	31.6	1,162.1	0.51
5,887.0	3.01	0.41	5,673.8	-1,156.5	31.5	1,156.9	0.42
5,982.0	3.04	4.09	5,768.6	-1,151.5	31.7	1,151.9	0.21
6,076.0	3.33	0.93	5,862.5	-1,146.3	31.9	1,146.7	0.36
6,171.0	3.40	348.59	5,957.3	-1,140.7	31.4	1,141.2	0.76
6,265.0	3.66	342.19	6,051.1	-1,135.1	29.9	1,135.5	0.50
6,281.9	3.69	342.02	6,068.0	-1,134.1	29.6	1,134.5	0.19
Cylinder Bottom - Cylinder Exit Point							
6,359.0	3.83	341.30	6,144.9	-1,129.3	28.0	1,129.7	0.19
6,454.0	3.79	341.82	6,239.7	-1,123.3	26.0	1,123.6	0.06
Final 6" MWD Survey - 598-36-30B							
6,520.0	3.79	341.82	6,305.6	-1,119.2	24.7	1,119.4	0.00
Projection to Bit							

Design Report for SKR-598-36-AV-05 - Actual Field Surveys**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
45.0	45.0	0.0	0.0	First Conductor Gyro Survey
135.0	135.0	0.1	0.3	Final Conductor Gyro Survey
194.0	194.0	0.4	0.5	First 8" MWD Survey
1,219.0	1,182.7	-231.1	3.5	Final 8" MWD Survey
1,359.0	1,312.9	-282.3	6.6	First 6" MWD Survey
4,208.5	3,997.0	-1,163.7	44.2	Cylinder Entry Point
6,281.9	6,068.0	-1,134.1	29.6	Cylinder Bottom
6,281.9	6,068.0	-1,134.1	29.6	Cylinder Exit Point
6,454.0	6,239.7	-1,123.3	26.0	Final 6" MWD Survey
6,520.0	6,305.6	-1,119.2	24.7	Projection to Bit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	598-36-30	178.59	Slot	0.0	0.0	0.0

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
45.0	135.0	Conductor Gyros	NS-GYRO-MS
194.0	1,219.0	8" MWD Surveys	MWD
1,359.0	6,520.0	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
598-36-30	0.00	360.00	3,997.0	-1,181.5	29.1	1,644,781.03	2,199,537.00	39° 34' 9.703 N	108° 20' 23.737 W
- actual wellpath misses by 23.3ft at 4208.7ft MD (3997.3 TVD, -1163.7 N, 44.2 E)									
- Ellipse (radii L45.0 W80.0 on 360.00 azi) - Target Cylinder 100% Intersected									
598-36-30B	0.00	360.00	6,268.0	-1,181.5	29.1	1,644,781.00	2,199,537.00	39° 34' 9.703 N	108° 20' 23.737 W
- actual wellpath misses by 64.8ft at 6454.0ft MD (6239.7 TVD, -1123.3 N, 26.0 E)									
- Point									