

Sandridge Energy

Comanche (KS27S)

Sec 30-T31H-R19W - GRID

Ellis 1-19H

Wellbore #1

Survey: MWD Surveys

Standard Survey Report

16 November, 2011

Wolverine Directional, LLC

Survey Report

Company: Sandridge Energy	Local Co-ordinate Reference: Well Ellis 1-19H
Project: Comanche (KS27S)	TVD Reference: WELL @ 0.0ft (Original Well Elev)
Site: Sec 30-T31H-R19W - GRID	MD Reference: WELL @ 0.0ft (Original Well Elev)
Well: Ellis 1-19H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: EDM 2003.21 Single User Db

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	1.16	

Survey Program	Date 2011/11/16			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
980.0	9,574.0	MWD Surveys (Wellbore #1)	MWD	MWD - Standard

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
980.0	1.20	226.80	979.9	-7.0	-7.5	-7.2	0.12	0.12	0.00
First MWD Survey									
1,137.0	1.10	215.80	1,136.9	-9.4	-9.6	-9.6	0.15	-0.06	-7.01
1,327.0	1.30	236.00	1,326.9	-12.1	-12.4	-12.3	0.24	0.11	10.63
1,613.0	0.50	2.20	1,612.8	-12.6	-15.1	-12.9	0.58	-0.28	44.13
1,993.0	0.70	49.10	1,992.8	-9.4	-13.2	-9.7	0.13	0.05	12.34
2,469.0	0.00	180.70	2,468.8	-7.5	-11.0	-7.8	0.15	-0.15	0.00
2,945.0	0.60	130.10	2,944.8	-9.1	-9.1	-9.3	0.13	0.13	0.00
3,422.0	0.10	335.90	3,421.8	-10.4	-7.4	-10.5	0.14	-0.10	-32.33
3,898.0	0.70	96.50	3,897.8	-10.3	-4.7	-10.4	0.16	0.13	25.34
4,025.0	0.40	83.90	4,024.8	-10.4	-3.5	-10.4	0.25	-0.24	-9.92
4,056.0	0.80	88.60	4,055.8	-10.4	-3.1	-10.4	1.30	1.29	15.16
4,088.0	0.60	116.50	4,087.8	-10.4	-2.8	-10.5	1.22	-0.63	87.19
4,120.0	0.40	106.80	4,119.8	-10.5	-2.5	-10.6	0.68	-0.63	-30.31
4,152.0	0.60	109.80	4,151.8	-10.6	-2.2	-10.7	0.63	0.63	9.38
4,183.0	0.30	124.30	4,182.8	-10.7	-2.0	-10.8	1.03	-0.97	46.77
4,215.0	0.40	102.60	4,214.8	-10.8	-1.8	-10.8	0.51	0.31	-67.81
4,247.0	1.50	18.30	4,246.8	-10.4	-1.6	-10.4	4.73	3.44	-263.44
4,278.0	4.80	17.80	4,277.7	-8.8	-1.1	-8.8	10.65	10.65	-1.61
4,310.0	8.00	12.90	4,309.5	-5.3	-0.2	-5.4	10.14	10.00	-15.31
4,342.0	10.60	8.30	4,341.1	-0.3	0.7	-0.3	8.44	8.13	-14.38
4,374.0	12.50	7.40	4,372.4	6.1	1.6	6.1	5.96	5.94	-2.81
4,405.0	14.90	7.80	4,402.5	13.4	2.6	13.4	7.75	7.74	1.29
4,437.0	17.40	7.70	4,433.3	22.2	3.8	22.2	7.81	7.81	-0.31
4,469.0	19.90	7.70	4,463.6	32.3	5.2	32.4	7.81	7.81	0.00
4,501.0	22.20	7.50	4,493.5	43.7	6.7	43.8	7.19	7.19	-0.63
4,533.0	24.20	6.30	4,522.9	56.2	8.2	56.4	6.42	6.25	-3.75
4,564.0	25.90	4.40	4,551.0	69.3	9.4	69.5	6.07	5.48	-6.13
4,596.0	27.20	3.80	4,579.6	83.6	10.4	83.8	4.15	4.06	-1.88
4,628.0	28.00	3.40	4,607.9	98.4	11.4	98.6	2.57	2.50	-1.25
4,659.0	30.10	2.60	4,635.0	113.4	12.1	113.6	6.89	6.77	-2.58
4,691.0	32.50	2.40	4,662.4	130.0	12.9	130.2	7.51	7.50	-0.63
4,723.0	34.40	0.60	4,689.1	147.6	13.3	147.9	6.70	5.94	-5.63
4,755.0	36.10	358.20	4,715.2	166.1	13.1	166.3	6.85	5.31	-7.50
4,786.0	37.80	357.80	4,740.0	184.7	12.5	184.9	5.54	5.48	-1.29
4,818.0	39.90	358.60	4,764.9	204.8	11.8	205.0	6.75	6.56	2.50
4,850.0	42.20	357.90	4,789.0	225.8	11.2	226.0	7.33	7.19	-2.19
4,882.0	43.80	357.80	4,812.4	247.6	10.4	247.7	5.00	5.00	-0.31

Wolverine Directional, LLC

Survey Report

Company: Sandridge Energy
Project: Comanche (KS27S)
Site: Sec 30-T31H-R19W - GRID
Well: Ellis 1-19H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Ellis 1-19H
TVD Reference: WELL @ 0.0ft (Original Well Elev)
MD Reference: WELL @ 0.0ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.21 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,913.0	45.80	358.00	4,834.4	269.4	9.6	269.5	6.47	6.45	0.65
4,945.0	48.40	358.00	4,856.2	292.8	8.8	293.0	8.13	8.13	0.00
4,977.0	49.90	358.10	4,877.1	317.0	7.9	317.1	4.69	4.69	0.31
5,009.0	49.80	358.00	4,897.8	341.5	7.1	341.5	0.39	-0.31	-0.31
5,040.0	49.80	357.90	4,917.8	365.1	6.3	365.2	0.25	0.00	-0.32
5,072.0	49.70	357.40	4,938.5	389.5	5.3	389.6	1.23	-0.31	-1.56
5,104.0	49.50	357.40	4,959.2	413.9	4.1	413.9	0.63	-0.63	0.00
5,135.0	49.40	356.80	4,979.4	437.4	3.0	437.4	1.51	-0.32	-1.94
5,167.0	50.20	357.10	5,000.0	461.8	1.7	461.8	2.60	2.50	0.94
5,199.0	53.60	357.60	5,019.8	487.0	0.5	486.9	10.70	10.63	1.56
5,231.0	56.60	359.30	5,038.1	513.2	-0.2	513.1	10.34	9.38	5.31
5,262.0	59.00	1.20	5,054.6	539.4	-0.1	539.3	9.32	7.74	6.13
5,294.0	61.50	1.50	5,070.5	567.2	0.6	567.1	7.85	7.81	0.94
5,326.0	65.60	0.60	5,084.7	595.8	1.1	595.7	13.06	12.81	-2.81
5,358.0	70.20	359.30	5,096.7	625.5	1.1	625.4	14.86	14.38	-4.06
5,389.0	73.40	359.10	5,106.4	654.9	0.6	654.8	10.34	10.32	-0.65
5,421.0	76.00	358.90	5,114.9	685.8	0.1	685.6	8.15	8.13	-0.63
5,453.0	78.30	359.50	5,122.0	717.0	-0.3	716.8	7.42	7.19	1.88
5,485.0	80.50	359.60	5,127.9	748.4	-0.6	748.3	6.88	6.88	0.31
5,516.0	82.40	1.00	5,132.5	779.1	-0.4	778.9	7.58	6.13	4.52
5,543.0	84.80	1.30	5,135.5	805.9	0.1	805.7	8.96	8.89	1.11
5,608.0	87.30	2.50	5,140.0	870.7	2.3	870.6	4.26	3.85	1.85
5,640.0	87.20	2.30	5,141.5	902.6	3.6	902.5	0.70	-0.31	-0.63
5,672.0	88.80	1.90	5,142.6	934.6	4.8	934.5	5.15	5.00	-1.25
5,704.0	91.50	2.00	5,142.5	966.6	5.9	966.5	8.44	8.44	0.31
5,736.0	91.80	1.80	5,141.6	998.5	6.9	998.5	1.13	0.94	-0.63
5,832.0	92.30	2.50	5,138.2	1,094.4	10.5	1,094.4	0.90	0.52	0.73
5,927.0	89.80	0.60	5,136.4	1,189.3	13.1	1,189.4	3.31	-2.63	-2.00
6,023.0	89.30	0.30	5,137.2	1,285.3	13.9	1,285.4	0.61	-0.52	-0.31
6,119.0	90.80	0.30	5,137.1	1,381.3	14.4	1,381.3	1.56	1.56	0.00
6,214.0	90.50	359.70	5,136.0	1,476.3	14.4	1,476.3	0.71	-0.32	-0.63
6,310.0	92.80	0.50	5,133.3	1,572.3	14.5	1,572.3	2.54	2.40	0.83
6,405.0	92.00	0.80	5,129.3	1,667.2	15.6	1,667.2	0.90	-0.84	0.32
6,501.0	90.70	1.30	5,127.0	1,763.1	17.4	1,763.1	1.45	-1.35	0.52
6,597.0	90.50	0.80	5,126.0	1,859.1	19.1	1,859.1	0.56	-0.21	-0.52
6,692.0	90.30	0.70	5,125.4	1,954.1	20.4	1,954.1	0.24	-0.21	-0.11
6,788.0	90.20	0.70	5,124.9	2,050.1	21.5	2,050.1	0.10	-0.10	0.00
6,883.0	89.80	0.60	5,124.9	2,145.1	22.6	2,145.1	0.43	-0.42	-0.11
6,979.0	91.60	1.20	5,123.8	2,241.1	24.1	2,241.1	1.98	1.88	0.63
7,074.0	91.60	1.30	5,121.1	2,336.0	26.2	2,336.1	0.11	0.00	0.11
7,170.0	91.90	1.60	5,118.2	2,431.9	28.6	2,432.0	0.44	0.31	0.31
7,265.0	91.40	0.40	5,115.4	2,526.9	30.3	2,527.0	1.37	-0.53	-1.26
7,361.0	90.60	1.30	5,113.8	2,622.9	31.7	2,623.0	1.25	-0.83	0.94
7,456.0	90.00	1.00	5,113.3	2,717.8	33.6	2,718.0	0.71	-0.63	-0.32
7,551.0	89.80	1.20	5,113.4	2,812.8	35.4	2,813.0	0.30	-0.21	0.21
7,646.0	89.80	1.60	5,113.8	2,907.8	37.8	2,908.0	0.42	0.00	0.42
7,742.0	89.50	1.70	5,114.4	3,003.7	40.5	3,004.0	0.33	-0.31	0.10
7,838.0	90.60	1.80	5,114.3	3,099.7	43.5	3,099.9	1.15	1.15	0.10
7,933.0	91.00	1.60	5,112.9	3,194.7	46.3	3,194.9	0.47	0.42	-0.21
8,029.0	91.20	1.40	5,111.1	3,290.6	48.8	3,290.9	0.29	0.21	-0.21
8,125.0	91.20	1.20	5,109.1	3,386.6	51.0	3,386.9	0.21	0.00	-0.21
8,220.0	91.40	0.90	5,106.9	3,481.5	52.7	3,481.9	0.38	0.21	-0.32
8,316.0	92.80	1.10	5,103.4	3,577.4	54.4	3,577.8	1.47	1.46	0.21
8,411.0	92.80	1.20	5,098.8	3,672.3	56.3	3,672.7	0.11	0.00	0.11

Wolverine Directional, LLC

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Wellbore: Wellbore #1
Design: Wellbore #1

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,507.0	91.80	1.90	5,094.9	3,768.2	58.9	3,768.6	1.27	-1.04	0.73
8,603.0	89.50	1.50	5,093.8	3,864.1	61.7	3,864.6	2.43	-2.40	-0.42
8,698.0	89.40	1.50	5,094.7	3,959.1	64.2	3,959.6	0.11	-0.11	0.00
8,730.0	89.70	1.20	5,095.0	3,991.1	65.0	3,991.6	1.33	0.94	-0.94
8,794.0	90.40	1.50	5,094.9	4,055.1	66.5	4,055.6	1.19	1.09	0.47
8,890.0	90.40	1.90	5,094.3	4,151.0	69.3	4,151.6	0.42	0.00	0.42
8,986.0	90.50	2.40	5,093.5	4,247.0	72.9	4,247.6	0.53	0.10	0.52
9,017.0	89.40	2.60	5,093.5	4,277.9	74.3	4,278.5	3.61	-3.55	0.65
9,081.0	87.50	2.60	5,095.3	4,341.8	77.2	4,342.5	2.97	-2.97	0.00
9,113.0	87.90	2.80	5,096.6	4,373.8	78.7	4,374.5	1.40	1.25	0.63
9,177.0	88.50	3.10	5,098.6	4,437.7	82.0	4,438.4	1.05	0.94	0.47
9,273.0	89.10	3.00	5,100.6	4,533.5	87.1	4,534.3	0.63	0.63	-0.10
9,368.0	91.20	3.30	5,100.3	4,628.3	92.3	4,629.3	2.23	2.21	0.32
9,464.0	93.10	3.20	5,096.7	4,724.1	97.7	4,725.1	1.98	1.98	-0.10
9,520.0	94.20	2.20	5,093.2	4,779.9	100.4	4,781.0	2.65	1.96	-1.79
Last MWD Survey									
9,574.0	94.20	2.20	5,089.2	4,833.8	102.4	4,834.8	0.00	0.00	0.00
Proj to TD - Ellis 1-19H PBHL									

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
980.0	979.9	-7.0	-7.5	First MWD Survey
9,520.0	5,093.2	4,779.9	100.4	Last MWD Survey
9,574.0	5,089.2	4,833.8	102.4	Proj to TD

Checked By: _____ Approved By: _____ Date: _____