

SandRidge Energy

Comanche County (KS27S)

Sec 15-T31S-R20W - GRID

PTL 1-15H

Wellbore #1

Survey: MWD Surveys

Standard Survey Report

01 February, 2012

Wolverine Directional, LLC

Survey Report

Company: SandRidge Energy	Local Co-ordinate Reference: Well PTL 1-15H
Project: Comanche County (KS27S)	TVD Reference: WELL @ 0.0ft (Original Well Elev)
Site: Sec 15-T31S-R20W - GRID	MD Reference: WELL @ 0.0ft (Original Well Elev)
Well: PTL 1-15H	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	181.17	

Survey Program	Date	2012/02/01			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
952.0	12,075.0	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	
952.0	0.30	297.30	952.0	1.1	-2.2	-1.1	0.03	0.03	0.00	
First MWD Survey										
1,139.0	0.40	248.40	1,139.0	1.1	-3.3	-1.1	0.16	0.05	-26.15	
1,520.0	0.80	172.70	1,520.0	-2.0	-4.2	2.1	0.21	0.10	-19.87	
1,996.0	0.40	161.90	1,995.9	-6.9	-3.2	6.9	0.09	-0.08	-2.27	
2,472.0	0.50	177.10	2,471.9	-10.5	-2.6	10.6	0.03	0.02	3.19	
2,948.0	0.30	152.80	2,947.9	-13.7	-1.9	13.7	0.05	-0.04	-5.11	
3,424.0	0.70	151.10	3,423.9	-17.4	0.1	17.4	0.08	0.08	-0.36	
3,901.0	0.80	141.90	3,900.9	-22.5	3.5	22.5	0.03	0.02	-1.93	
3,996.0	0.70	145.40	3,995.9	-23.5	4.3	23.4	0.12	-0.11	3.68	
4,091.0	0.50	159.20	4,090.8	-24.4	4.7	24.3	0.26	-0.21	14.53	
4,155.0	0.40	146.00	4,154.8	-24.8	5.0	24.7	0.22	-0.16	-20.63	
4,186.0	0.40	151.10	4,185.8	-25.0	5.1	24.9	0.11	0.00	16.45	
4,218.0	1.90	172.40	4,217.8	-25.7	5.2	25.5	4.79	4.69	66.56	
4,250.0	4.20	182.60	4,249.8	-27.4	5.2	27.2	7.36	7.19	31.88	
4,282.0	6.10	185.80	4,281.7	-30.2	5.0	30.1	6.00	5.94	10.00	
4,313.0	8.20	183.70	4,312.4	-34.1	4.7	34.0	6.83	6.77	-6.77	
4,345.0	10.70	181.60	4,344.0	-39.3	4.4	39.2	7.89	7.81	-6.56	
4,375.0	13.40	180.90	4,373.3	-45.6	4.3	45.5	9.01	9.00	-2.33	
4,407.0	16.10	180.70	4,404.3	-53.7	4.2	53.6	8.44	8.44	-0.63	
4,439.0	18.10	180.80	4,434.8	-63.1	4.1	63.0	6.25	6.25	0.31	
4,471.0	20.00	181.00	4,465.1	-73.6	3.9	73.5	5.94	5.94	0.63	
4,502.0	22.20	181.80	4,494.0	-84.7	3.6	84.6	7.16	7.10	2.58	
4,534.0	24.20	182.00	4,523.4	-97.3	3.2	97.2	6.25	6.25	0.63	
4,566.0	26.10	182.90	4,552.4	-110.9	2.6	110.8	6.06	5.94	2.81	
4,598.0	27.90	182.90	4,580.9	-125.4	1.9	125.3	5.63	5.63	0.00	
4,630.0	30.00	182.80	4,608.9	-140.9	1.1	140.8	6.56	6.56	-0.31	
4,661.0	32.00	182.70	4,635.5	-156.8	0.4	156.8	6.45	6.45	-0.32	
4,693.0	34.50	182.10	4,662.2	-174.4	-0.4	174.3	7.88	7.81	-1.88	
4,725.0	36.20	181.40	4,688.3	-192.9	-0.9	192.8	5.46	5.31	-2.19	
4,757.0	37.80	181.50	4,713.9	-212.1	-1.4	212.1	5.00	5.00	0.31	
4,789.0	40.00	181.70	4,738.8	-232.2	-2.0	232.2	6.89	6.88	0.63	
4,820.0	41.70	181.30	4,762.2	-252.5	-2.5	252.5	5.55	5.48	-1.29	
4,852.0	44.10	181.20	4,785.7	-274.2	-3.0	274.3	7.50	7.50	-0.31	
4,884.0	45.80	182.00	4,808.3	-296.8	-3.6	296.9	5.60	5.31	2.50	
4,915.0	48.00	181.30	4,829.5	-319.5	-4.3	319.5	7.29	7.10	-2.26	
4,947.0	50.80	180.70	4,850.3	-343.8	-4.7	343.8	8.87	8.75	-1.88	
4,979.0	51.00	180.70	4,870.5	-368.6	-5.0	368.6	0.63	0.63	0.00	

Wolverine Directional, LLC

Survey Report

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Project:	Comanche County (KS27S)	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 15-T31S-R20W - GRID	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	PTL 1-15H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
5,011.0	50.30	180.90	4,890.8	-393.3	-5.3	393.4	2.24	-2.19	0.63
5,042.0	50.20	180.90	4,910.6	-417.2	-5.7	417.2	0.32	-0.32	0.00
5,074.0	49.70	180.60	4,931.2	-441.7	-6.0	441.7	1.72	-1.56	-0.94
5,106.0	49.10	180.20	4,952.0	-466.0	-6.2	466.0	2.10	-1.88	-1.25
5,138.0	50.60	180.00	4,972.7	-490.4	-6.2	490.4	4.71	4.69	-0.63
5,169.0	53.30	179.70	4,991.8	-514.8	-6.2	514.8	8.74	8.71	-0.97
5,201.0	56.70	180.40	5,010.1	-541.0	-6.2	541.0	10.77	10.63	2.19
5,233.0	59.70	181.50	5,027.0	-568.2	-6.7	568.2	9.82	9.38	3.44
5,265.0	63.20	181.90	5,042.3	-596.3	-7.5	596.3	10.99	10.94	1.25
5,296.0	65.80	181.40	5,055.6	-624.3	-8.3	624.3	8.51	8.39	-1.61
5,328.0	68.80	180.80	5,068.0	-653.8	-8.9	653.8	9.53	9.38	-1.88
5,360.0	71.80	180.60	5,078.8	-683.9	-9.2	684.0	9.39	9.38	-0.63
5,392.0	75.60	180.50	5,087.7	-714.6	-9.5	714.7	11.88	11.88	-0.31
5,424.0	79.20	180.50	5,094.7	-745.8	-9.8	745.9	11.25	11.25	0.00
5,456.0	82.10	181.10	5,099.9	-777.4	-10.2	777.5	9.25	9.06	1.88
5,476.0	84.30	181.10	5,102.3	-797.3	-10.6	797.3	11.00	11.00	0.00
5,554.0	87.80	182.30	5,107.6	-875.0	-12.9	875.1	4.74	4.49	1.54
5,586.0	87.90	182.10	5,108.9	-907.0	-14.2	907.1	0.70	0.31	-0.63
5,618.0	88.80	182.10	5,109.8	-938.9	-15.3	939.1	2.81	2.81	0.00
5,650.0	89.90	182.40	5,110.1	-970.9	-16.6	971.1	3.56	3.44	0.94
5,745.0	90.10	182.50	5,110.1	-1,065.8	-20.7	1,066.0	0.24	0.21	0.11
5,841.0	90.10	182.60	5,110.0	-1,161.7	-24.9	1,162.0	0.10	0.00	0.10
5,937.0	89.80	181.90	5,110.1	-1,257.7	-28.7	1,258.0	0.79	-0.31	-0.73
6,032.0	89.60	181.60	5,110.5	-1,352.6	-31.6	1,353.0	0.38	-0.21	-0.32
6,128.0	88.70	180.60	5,112.0	-1,448.6	-33.4	1,449.0	1.40	-0.94	-1.04
6,223.0	90.10	180.40	5,113.0	-1,543.6	-34.3	1,544.0	1.49	1.47	-0.21
6,319.0	90.10	180.40	5,112.8	-1,639.6	-34.9	1,639.9	0.00	0.00	0.00
6,415.0	89.80	179.80	5,112.9	-1,735.6	-35.1	1,735.9	0.70	-0.31	-0.63
6,510.0	89.50	179.00	5,113.5	-1,830.6	-34.1	1,830.9	0.90	-0.32	-0.84
6,606.0	89.40	178.90	5,114.4	-1,926.5	-32.3	1,926.8	0.15	-0.10	-0.10
6,701.0	90.20	179.70	5,114.7	-2,021.5	-31.2	2,021.8	1.19	0.84	0.84
6,796.0	90.40	179.70	5,114.2	-2,116.5	-30.7	2,116.7	0.21	0.21	0.00
6,892.0	90.30	179.40	5,113.6	-2,212.5	-29.9	2,212.7	0.33	-0.10	-0.31
6,988.0	90.00	178.90	5,113.4	-2,308.5	-28.5	2,308.6	0.61	-0.31	-0.52
7,083.0	90.70	178.50	5,112.8	-2,403.5	-26.4	2,403.5	0.85	0.74	-0.42
7,179.0	90.20	177.90	5,112.0	-2,499.4	-23.3	2,499.4	0.81	-0.52	-0.63
7,275.0	90.20	179.20	5,111.7	-2,595.4	-20.9	2,595.3	1.35	0.00	1.35
7,370.0	90.60	180.30	5,111.0	-2,690.4	-20.5	2,690.3	1.23	0.42	1.16
7,466.0	89.40	181.30	5,111.0	-2,786.4	-21.8	2,786.3	1.63	-1.25	1.04
7,561.0	89.40	180.70	5,112.0	-2,881.4	-23.5	2,881.2	0.63	0.00	-0.63
7,657.0	89.00	181.10	5,113.4	-2,977.3	-25.0	2,977.2	0.59	-0.42	0.42
7,753.0	89.10	181.20	5,115.0	-3,073.3	-26.9	3,073.2	0.15	0.10	0.10
7,848.0	88.90	180.90	5,116.6	-3,168.3	-28.7	3,168.2	0.38	-0.21	-0.32
7,944.0	89.30	180.70	5,118.1	-3,264.3	-30.0	3,264.2	0.47	0.42	-0.21
8,040.0	89.90	181.70	5,118.8	-3,360.2	-32.0	3,360.2	1.21	0.63	1.04
8,159.0	90.20	180.70	5,118.7	-3,479.2	-34.5	3,479.2	0.88	0.25	-0.84
8,254.0	91.80	181.50	5,117.1	-3,574.2	-36.3	3,574.2	1.88	1.68	0.84
8,350.0	92.80	181.90	5,113.2	-3,670.1	-39.2	3,670.1	1.12	1.04	0.42
8,446.0	91.80	181.90	5,109.3	-3,765.9	-42.4	3,766.0	1.04	-1.04	0.00
8,541.0	91.30	181.40	5,106.8	-3,860.8	-45.1	3,861.0	0.74	-0.53	-0.53
8,637.0	90.90	181.40	5,104.9	-3,956.8	-47.4	3,956.9	0.42	-0.42	0.00
8,733.0	90.60	182.80	5,103.7	-4,052.7	-51.0	4,052.9	1.49	-0.31	1.46
8,829.0	89.10	183.40	5,103.9	-4,148.6	-56.2	4,148.9	1.68	-1.56	0.63
8,925.0	89.40	183.80	5,105.2	-4,244.4	-62.2	4,244.8	0.52	0.31	0.42

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Survey Report

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Site: Sec 15-T31S-R20W - GRID	MD Reference: WELL @ 0.0ft (Original Well Elev)
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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)
9,020.0	87.00	182.80	5,108.2	-4,339.2	-67.6	4,339.6	2.74	-2.53	-1.05
9,116.0	87.30	182.10	5,112.9	-4,435.0	-71.7	4,435.5	0.79	0.31	-0.73
9,212.0	88.00	182.30	5,116.9	-4,530.8	-75.4	4,531.4	0.76	0.73	0.21
9,308.0	88.60	181.90	5,119.7	-4,626.7	-78.9	4,627.4	0.75	0.63	-0.42
9,404.0	88.80	182.20	5,121.9	-4,722.6	-82.4	4,723.3	0.38	0.21	0.31
9,499.0	89.30	181.80	5,123.5	-4,817.5	-85.7	4,818.3	0.67	0.53	-0.42
9,595.0	88.90	181.20	5,125.0	-4,913.5	-88.2	4,914.3	0.75	-0.42	-0.63
9,691.0	90.00	180.00	5,125.9	-5,009.5	-89.2	5,010.3	1.70	1.15	-1.25
9,786.0	90.00	179.90	5,125.9	-5,104.5	-89.1	5,105.2	0.11	0.00	-0.11
9,882.0	91.20	179.50	5,124.9	-5,200.5	-88.6	5,201.2	1.32	1.25	-0.42
9,978.0	91.40	180.00	5,122.7	-5,296.5	-88.2	5,297.1	0.56	0.21	0.52
10,073.0	91.60	180.70	5,120.2	-5,391.4	-88.8	5,392.1	0.77	0.21	0.74
10,169.0	90.30	181.40	5,118.6	-5,487.4	-90.5	5,488.1	1.54	-1.35	0.73
10,265.0	87.30	181.60	5,120.7	-5,583.3	-93.1	5,584.1	3.13	-3.13	0.21
10,360.0	88.40	180.60	5,124.2	-5,678.2	-94.9	5,679.0	1.56	1.16	-1.05
10,456.0	89.60	181.80	5,125.9	-5,774.2	-96.9	5,775.0	1.77	1.25	1.25
10,550.0	90.40	181.80	5,125.9	-5,868.1	-99.8	5,869.0	0.85	0.85	0.00
10,645.0	91.60	181.10	5,124.2	-5,963.1	-102.2	5,963.9	1.46	1.26	-0.74
10,741.0	92.70	181.10	5,120.6	-6,059.0	-104.1	6,059.9	1.15	1.15	0.00
10,836.0	92.00	180.60	5,116.7	-6,153.9	-105.5	6,154.8	0.91	-0.74	-0.53
10,931.0	90.90	181.50	5,114.3	-6,248.9	-107.2	6,249.8	1.50	-1.16	0.95
11,027.0	90.00	182.60	5,113.6	-6,344.8	-110.7	6,345.7	1.48	-0.94	1.15
11,123.0	90.20	181.90	5,113.4	-6,440.7	-114.4	6,441.7	0.76	0.21	-0.73
11,218.0	88.70	181.40	5,114.3	-6,535.7	-117.2	6,536.7	1.66	-1.58	-0.53
11,314.0	89.10	182.00	5,116.2	-6,631.6	-120.0	6,632.7	0.75	0.42	0.63
11,410.0	90.00	181.30	5,116.9	-6,727.6	-122.8	6,728.7	1.19	0.94	-0.73
11,506.0	91.50	181.70	5,115.7	-6,823.5	-125.3	6,824.7	1.62	1.56	0.42
11,603.0	92.30	182.20	5,112.5	-6,920.4	-128.6	6,921.6	0.97	0.82	0.52
11,699.0	89.70	183.40	5,110.8	-7,016.3	-133.3	7,017.5	2.98	-2.71	1.25
11,795.0	88.80	181.90	5,112.0	-7,112.2	-137.7	7,113.5	1.82	-0.94	-1.56
11,891.0	90.80	186.00	5,112.4	-7,207.9	-144.3	7,209.4	4.75	2.08	4.27
11,988.0	90.70	186.00	5,111.1	-7,304.4	-154.5	7,306.0	0.10	-0.10	0.00
12,026.0	90.70	185.50	5,110.6	-7,342.2	-158.3	7,343.9	1.32	0.00	-1.32
Last MWD Survey									
12,074.8	90.70	185.50	5,110.0	-7,390.8	-163.0	7,392.6	0.00	0.00	0.00
PTL 1-15H PBHL									
12,075.0	90.70	185.50	5,110.0	-7,391.0	-163.0	7,392.7	0.00	0.00	0.00
Proj to TD									

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
952.0	952.0	1.1	-2.2	First MWD Survey
12,026.0	5,110.6	-7,342.2	-158.3	Last MWD Survey
12,075.0	5,110.0	-7,391.0	-163.0	Proj to TD

Checked By: _____ Approved By: _____ Date: _____