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Solaris MidStream

DISTRICT II-ARTESIA O.C.D.

Eddy County, New Mexico (NAD 83)

Mad Cow SWD

#1

OH / 63723

Survey: Phoenix MWD Surveys (Pre-Gyro)

Standard Survey Report

14 February, 2019



Survey Report



Company:	Solaris MidStream	Local Co-ordinate Reference:	Well #1
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	RKB @ 3567.00usft
Site:	Mad Cow SWD	MD Reference:	RKB @ 3567.00usft
Well:	#1	North Reference:	Grid
Wellbore:	OH / 63723	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Latshaw 21)	Database:	USA Compass

Project	Eddy County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Mad Cow SWD		
Site Position:	Map	Northing:	448,449.69 usft
From:		Easting:	697,178.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 13' 54.69373 N
		Longitude:	103° 49' 45.59676 W
		Grid Convergence:	0.27 °

Well	#1		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 13' 54.69373 N
		Longitude:	103° 49' 45.59676 W
		Ground Level:	3,535.00 usft

Wellbore	OH / 63723		
Magnetics	Model Name	Sample Date	Declination
			(°)
	MVHD	10/15/2018	6.87
			Dip Angle
			(°)
			59.95
			Field Strength
			(nT)
			47,988.89942078

Design	Surveys (Latshaw 21)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			0.00

Survey Program	Date 2/14/2019		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
779.00	9,160.00	Phoenix MWD Surveys (Pre-Gyro) (OH / 6	MWD+HDGM
9,100.00	10,765.00	Phoenix Gryo Surveys (OH / 63723)	SPT_GTD
10,902.00	17,430.00	Phoenix MWD Surveys (OH / 63723)	MWD+HDGM
			Description
			OWSG Rev.2 MWD + HDGM
			Continuous north-seeking gyro
			OWSG Rev.2 MWD + HDGM

Survey			
Measured	Inclination	Azimuth	Vertical
Depth	(°)	(°)	Depth
(usft)			(usft)
			+N/-S
			(usft)
			+E/-W
			(usft)
			Vertical
			Section
			(usft)
			Dogleg
			Rate
			(°/100usft)
			Build
			Rate
			(°/100usft)
			Turn
			Rate
			(°/100usft)
631.00	1.40	0.00	630.97
			4.97
			0.00
			4.97
			0.00
			0.00
			0.00
Tie In			
779.00	1.23	234.68	778.95
			5.86
			-1.30
			5.86
			1.58
			-0.11
			-84.68
First Phoenix MWD Survey			
873.00	1.41	246.19	872.93
			4.81
			-3.18
			4.81
			0.34
			0.19
			12.24
966.00	1.49	246.45	965.90
			3.86
			-5.33
			3.86
			0.09
			0.09
			0.28
1,060.00	1.85	250.67	1,059.86
			2.87
			-7.88
			2.87
			0.40
			0.38
			4.49
1,156.00	0.44	175.09	1,155.84
			1.99
			-9.32
			1.99
			1.87
			-1.47
			-78.73

Survey Report



Company:	Solaris MidStream	Local Co-ordinate Reference:	Well #1:
Project:	Eddy County, New Mexico (NAD 83)	TVD Reference:	RKB @ 3567.00usft
Site:	Mad Cow SWD	MD Reference:	RKB @ 3567.00usft
Well:	#1	North Reference:	Grid
Wellbore:	OH / 63723	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Latshaw 21)	Database:	USA Compass

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,249.00	0.53	124.81	1,248.84	1.39	-8.93	1.39	0.45	0.10	-54.06
1,344.00	0.44	145.91	1,343.83	0.84	-8.37	0.84	0.21	-0.09	22.21
1,439.00	0.53	128.42	1,438.83	0.26	-7.82	0.26	0.18	0.09	-18.41
1,534.00	0.62	113.56	1,533.82	-0.21	-7.00	-0.21	0.18	0.09	-15.64
1,628.00	0.62	129.47	1,627.82	-0.74	-6.14	-0.74	0.18	0.00	16.93
1,819.00	0.79	122.44	1,818.80	-2.10	-4.23	-2.10	0.10	0.09	-3.68
2,008.00	0.97	118.75	2,007.78	-3.57	-1.73	-3.57	0.10	0.10	-1.95
2,198.00	1.14	107.06	2,197.75	-4.90	1.48	-4.90	0.14	0.09	-6.15
2,387.00	0.97	76.21	2,386.72	-5.07	4.84	-5.07	0.31	-0.09	-16.32
2,576.00	1.41	53.45	2,575.68	-3.30	8.26	-3.30	0.34	0.23	-12.04
2,767.00	1.06	57.49	2,766.63	-0.96	11.63	-0.96	0.19	-0.18	2.12
2,951.00	1.41	41.93	2,950.59	1.64	14.58	1.64	0.26	0.19	-8.46
3,140.00	1.76	35.34	3,139.52	5.74	17.82	5.74	0.21	0.19	-3.49
3,327.00	2.09	13.99	3,326.42	11.39	20.30	11.39	0.42	0.18	-11.42
3,518.00	1.97	32.80	3,517.30	17.53	22.92	17.53	0.35	-0.06	9.85
3,707.00	2.44	76.87	3,706.17	21.18	28.60	21.18	0.91	0.25	23.32
3,896.00	2.83	112.38	3,894.98	20.31	36.83	20.31	0.87	0.21	18.79
4,084.00	3.29	133.20	4,082.72	14.85	45.06	14.85	0.64	0.24	11.07
4,204.00	3.00	127.70	4,202.54	10.58	50.05	10.58	0.35	-0.24	-4.58
4,279.00	2.26	137.97	4,277.46	8.28	52.59	8.28	1.17	-0.99	13.69
4,374.00	2.46	130.00	4,372.38	5.58	55.41	5.58	0.40	0.21	-8.39
4,468.00	1.06	137.91	4,466.33	3.63	57.54	3.63	1.51	-1.49	8.41
4,563.00	0.35	66.49	4,561.33	3.10	58.39	3.10	1.06	-0.75	-75.18
4,658.00	0.10	156.90	4,656.33	3.14	58.69	3.14	0.38	-0.26	95.17
4,752.00	0.38	74.85	4,750.33	3.14	59.03	3.14	0.40	0.30	-87.29
4,847.00	0.37	73.67	4,845.32	3.31	59.62	3.31	0.01	-0.01	-1.24
4,942.00	0.55	109.20	4,940.32	3.25	60.35	3.25	0.35	0.19	37.40
5,131.00	0.25	131.77	5,129.32	2.67	61.51	2.67	0.18	-0.16	11.94
5,321.00	0.22	91.55	5,319.31	2.39	62.19	2.39	0.09	-0.02	-21.17
5,511.00	0.16	113.98	5,509.31	2.27	62.79	2.27	0.05	-0.03	11.81
5,701.00	0.26	80.22	5,699.31	2.24	63.46	2.24	0.08	0.05	-17.77
5,890.00	0.11	150.64	5,888.31	2.15	63.97	2.15	0.13	-0.08	37.26
6,079.00	0.41	158.82	6,077.31	1.36	64.31	1.36	0.16	0.16	4.33
6,266.00	0.09	221.99	6,264.31	0.63	64.45	0.63	0.20	-0.17	33.78
6,455.00	0.14	132.03	6,453.31	0.36	64.52	0.36	0.09	0.03	-47.60
6,643.00	0.61	160.51	6,641.30	-0.73	65.03	-0.73	0.26	0.25	15.15
6,838.00	0.35	55.64	6,836.30	-1.38	65.86	-1.38	0.40	-0.13	-53.78
7,026.00	0.18	192.49	7,024.30	-1.34	66.27	-1.34	0.26	-0.09	72.79
7,214.00	0.88	45.27	7,212.29	-0.61	67.24	-0.61	0.55	0.37	-78.31
7,403.00	0.70	67.07	7,401.27	0.86	69.33	0.86	0.18	-0.10	11.53
7,588.00	0.53	86.32	7,586.26	1.35	71.22	1.35	0.14	-0.09	10.41
7,777.00	0.53	109.43	7,775.25	1.12	72.92	1.12	0.11	0.00	12.23
7,966.00	0.70	65.31	7,964.24	1.31	74.79	1.31	0.26	0.09	-23.34
8,156.00	1.17	18.03	8,154.22	3.64	76.45	3.64	0.46	0.25	-24.88

Survey Report



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Well:	#1	North Reference:	Grid
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Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,347.00	1.43	2.40	8,345.17	7.88	77.15	7.88	0.23	0.14	-8.18
8,536.00	1.22	336.89	8,534.12	12.08	76.46	12.08	0.33	-0.11	-13.50
8,725.00	0.88	328.94	8,723.09	15.18	74.92	15.18	0.20	-0.18	-4.21
8,914.00	0.70	298.96	8,912.07	16.98	73.16	16.98	0.23	-0.10	-15.86
Final Phoenix MWD Survey									
8,980.00	0.70	298.96	8,978.07	17.37	72.46	17.37	0.00	0.00	0.00
Projection to TD									

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
631.00	630.97	4.97	0.00	Tie In	
779.00	778.95	5.86	-1.30	First Phoenix MWD Survey	
8,914.00	8,912.07	16.98	73.16	Final Phoenix MWD Survey	
8,980.00	8,978.07	17.37	72.46	Projection to TD	