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January 31, 2017

Devon Energy Production Company, L.P.
Well: Big Cat 16 State VDW #1 (ST01)
County/Parish: Lea County, NM

LEAM MWD: (ST01) from 6,589' MD – 7,991' MD
Projection: 8,047'

This Borehole Survey taken between 12/31/2016 and 01/08/2017 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: January 31, 2017



Survey Certification Form

State of New Mexico

Lea County

I, Randy W. Rakowitz, certify that; I am employed by LEAM Drilling Services LLC, that I did on the day(s) of December 31, 2016 through January 8, 2016, conduct or supervise the taking of MWD Survey from a depth of 6,589' MD to 8,047' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Services LLC, that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Product Company, L.P. for the Big Cat 16 State VDW #1 (ST01) in Lea County, New Mexico; and that I reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Services LLC.

A handwritten signature in black ink, appearing to read 'Randy W. Rakowitz', written over a horizontal line.

Randy W. Rakowitz
MWD Operations Coordinator

LEAM Drilling Systems LLC

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well #1
Project:	Lea County, NM (NAD-83)	TVD Reference:	3683.9' GE + 23.5' KB @ 3707.40usft
Site:	Big Cat 16 State VDW	MD Reference:	3683.9' GE + 23.5' KB @ 3707.40usft
Well:	#1	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Multi User Db

Project	Lea County, NM (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		Big Cat 16 State VDW			
Site Position:		Northing:	474,609.56 usft	Latitude:	32° 18' 11.242 N
From:	Map	Easting:	740,873.61 usft	Longitude:	103° 41' 15.057 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.35 °

Well	#1					
Well Position	+N/-S	0.00 usft	Northing:	474,609.56 usft	Latitude:	32° 18' 11.242 N
	+E/-W	0.00 usft	Easting:	740,873.61 usft	Longitude:	103° 41' 15.057 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,683.90 usft

Wellbore	ST1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/27/16	6.98	60.12	48,244

Design	ST1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	6,413.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	67.63	

Survey Program	Date	01/30/17			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
215.00	1,169.00	Survey #1 (OH)	ISCWSA-GYRO-3	Gyroflex Explorer(corrected acsfe)	
1,357.00	6,413.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
6,589.00	7,991.00	Survey #1 (ST1)	LEAM MWD+HDGM	MWD+HDGM	
8,047.00	8,047.00	Survey #2 (ST1)	Project	Projection	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
215.00	0.50	193.30	215.00	-0.91	-0.22	-0.55	0.23	0.23	0.00	
357.00	0.40	110.30	356.99	-1.69	0.11	-0.54	0.42	-0.07	-58.45	
453.00	0.10	25.30	452.99	-1.73	0.46	-0.24	0.42	-0.31	-88.54	
542.00	0.30	34.00	541.99	-1.47	0.62	0.02	0.23	0.22	9.78	
633.00	0.10	194.00	632.99	-1.34	0.73	0.17	0.43	-0.22	175.82	
725.00	0.30	345.00	724.99	-1.19	0.65	0.15	0.42	0.22	164.13	
818.00	0.30	340.00	817.99	-0.73	0.51	0.19	0.03	0.00	-5.38	

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Well:	#1	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Multi User Db

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)
910.00	0.50	284.00	909.99	-0.40	0.03	-0.12	0.45	0.22	-60.87
995.00	0.50	288.00	994.99	-0.20	-0.68	-0.70	0.04	0.00	4.71
1,090.00	0.40	314.30	1,089.98	0.16	-1.31	-1.15	0.24	-0.11	27.68
1,169.00	0.50	273.30	1,168.98	0.37	-1.85	-1.57	0.42	0.13	-51.90
1,357.00	0.50	101.40	1,356.98	0.26	-1.87	-1.63	0.53	0.00	-91.44
1,548.00	0.30	116.10	1,547.97	-0.13	-0.60	-0.60	0.12	-0.10	7.70
1,740.00	0.30	53.90	1,739.97	-0.05	0.26	0.22	0.16	0.00	-32.40
1,931.00	0.50	98.20	1,930.97	0.13	1.49	1.42	0.19	0.10	23.19
2,122.00	0.40	95.00	2,121.96	-0.05	2.98	2.73	0.05	-0.05	-1.68
2,313.00	0.50	144.30	2,312.96	-0.79	4.13	3.52	0.20	0.05	25.81
2,504.00	0.40	149.10	2,503.95	-2.04	4.95	3.81	0.06	-0.05	2.51
2,695.00	0.50	118.40	2,694.94	-3.00	6.03	4.43	0.13	0.05	-16.07
2,886.00	0.30	32.40	2,885.94	-2.98	7.03	5.37	0.30	-0.10	-45.03
3,078.00	0.40	38.30	3,077.94	-2.03	7.72	6.36	0.06	0.05	3.07
3,269.00	0.10	128.10	3,268.94	-1.61	8.26	7.03	0.22	-0.16	47.02
3,460.00	0.40	350.30	3,459.93	-1.05	8.28	7.25	0.25	0.16	-72.15
3,651.00	0.10	349.30	3,650.93	-0.23	8.14	7.43	0.16	-0.16	-0.52
3,842.00	0.40	342.50	3,841.93	0.57	7.90	7.53	0.16	0.16	-3.56
4,033.00	0.30	266.60	4,032.93	1.17	7.20	7.11	0.23	-0.05	-39.74
4,224.00	0.40	148.40	4,223.93	0.58	7.05	6.74	0.32	0.05	-61.88
4,415.00	0.60	147.40	4,414.92	-0.83	7.94	7.03	0.10	0.10	-0.52
4,606.00	0.70	110.50	4,605.91	-2.09	9.57	8.06	0.22	0.05	-19.32
4,647.00	0.90	123.60	4,646.90	-2.35	10.08	8.42	0.66	0.49	31.95
4,788.00	0.90	136.20	4,787.89	-3.76	11.77	9.45	0.14	0.00	8.94
4,884.00	0.80	101.40	4,883.88	-4.44	12.94	10.28	0.54	-0.10	-36.25
4,979.00	0.40	149.00	4,978.87	-4.86	13.77	10.88	0.64	-0.42	50.11
5,075.00	0.90	118.10	5,074.86	-5.50	14.60	11.41	0.62	0.52	-32.19
5,170.00	0.40	130.90	5,169.86	-6.07	15.51	12.04	0.54	-0.53	13.47
5,266.00	0.80	113.20	5,265.85	-6.55	16.38	12.66	0.45	0.42	-18.44
5,362.00	0.60	107.70	5,361.85	-6.97	17.48	13.51	0.22	-0.21	-5.73
5,457.00	0.90	114.80	5,456.84	-7.43	18.63	14.40	0.33	0.32	7.47
5,552.00	0.40	141.70	5,551.83	-8.00	19.51	15.00	0.60	-0.53	28.32
5,648.00	0.50	113.70	5,647.83	-8.44	20.10	15.38	0.25	0.10	-29.17
5,743.00	0.90	124.60	5,742.82	-9.03	21.10	16.07	0.44	0.42	11.47
5,839.00	1.00	149.60	5,838.81	-10.18	22.14	16.60	0.44	0.10	26.04
5,936.00	0.90	135.00	5,935.79	-11.44	23.11	17.01	0.27	-0.10	-15.05
6,030.00	1.00	156.60	6,029.78	-12.72	23.95	17.31	0.39	0.11	22.98
6,126.00	0.90	166.60	6,125.77	-14.22	24.46	17.21	0.20	-0.10	10.42
6,221.00	1.00	166.10	6,220.76	-15.75	24.83	16.97	0.11	0.11	-0.53
6,317.00	1.10	157.00	6,316.74	-17.41	25.40	16.86	0.20	0.10	-9.48
6,413.00	0.50	150.10	6,412.73	-18.63	25.96	16.92	0.63	-0.63	-7.19
6,589.00	3.40	56.40	6,588.63	-16.40	30.70	22.14	1.97	1.65	-53.24
6,653.00	4.90	53.20	6,652.46	-13.71	34.47	26.65	2.37	2.34	-5.00

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6,748.00	6.70	58.30	6,746.97	-8.37	42.43	36.05	1.97	1.89	5.37
6,844.00	7.70	56.00	6,842.21	-1.83	52.53	47.88	1.08	1.04	-2.40
6,939.00	6.90	56.00	6,936.44	4.92	62.53	59.70	0.84	-0.84	0.00
7,035.00	6.40	54.30	7,031.79	11.26	71.66	70.55	0.56	-0.52	-1.77
7,131.00	6.20	55.00	7,127.21	17.36	80.25	80.82	0.22	-0.21	0.73
7,226.00	5.50	54.50	7,221.72	22.95	88.16	90.26	0.74	-0.74	-0.53
7,322.00	5.00	55.90	7,317.31	27.96	95.37	98.83	0.54	-0.52	1.46
7,418.00	4.60	54.60	7,412.98	32.54	101.97	106.68	0.43	-0.42	-1.35
7,513.00	5.00	50.40	7,507.64	37.38	108.27	114.35	0.56	0.42	-4.42
7,609.00	4.50	50.60	7,603.31	42.44	114.40	121.94	0.52	-0.52	0.21
7,704.00	3.30	46.50	7,698.09	46.69	119.26	128.06	1.30	-1.26	-4.32
7,800.00	2.20	57.80	7,793.98	49.57	122.83	132.45	1.27	-1.15	11.77
7,895.00	1.30	58.00	7,888.94	51.12	125.28	135.31	0.95	-0.95	0.21
7,991.00	1.10	60.80	7,984.91	52.14	127.01	137.30	0.22	-0.21	2.92
8,047.00	1.10	60.80	8,040.90	52.67	127.95	138.37	0.00	0.00	0.00
Projection									