



HOBBS OCD
JUN 25 2019
RECEIVED

December 3, 2018

Devon Energy Production Company, LP
Well: Van Doo Dah 28-33 Fed Com 235H
County/Parish: Lea County, NM

LEAM MWD: (OH) from 5,293' MD – 20,722' MD
Projection; 20,777' MD

This Borehole Survey taken between 11/13/18 and 11/27/18 had been conducted and calculated according to the highest professional standards and complies with all known State and Federal requirements.

Reviewed and Approved:

Date: December 3, 2018



Survey Certification Form

State of New Mexico

Lea County

I, Randy W. Rakowitz, certify that; I am employed by LEAM Drilling Services, that I did on the day(s) of 11/13/2018 through 11/27/2018, conduct or supervise the taking of MWD Survey from a depth of 5,293' MD to 20,777' MD; that the data is is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Devon Energy Production Company, LP for the Van Doo Dah 28-33 Fed Com 235H 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.

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

Randy W. Rakowitz
MWD Operations Coordinator

Devon Energy

Project: Lea County, NM (NAD-83)
 Site: Marwari/Van Doo Dah
 Well: Van Doo Dah 28-33 Fed Com 235H
 Wellbore: OH
 Design: OH



Azimuths to Grid North
 True North: -0.35°
 Magnetic North: 6.38°
 Magnetic Field
 Strength: 47841.6anT
 Dip Angle: 59.77°
 Date: 11/01/2018
 Model: HDGM

PROJECT DETAILS: Lea County, NM (NAD-83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 Datum: 3389.1' GE + 32' KB @ 3421.10usft

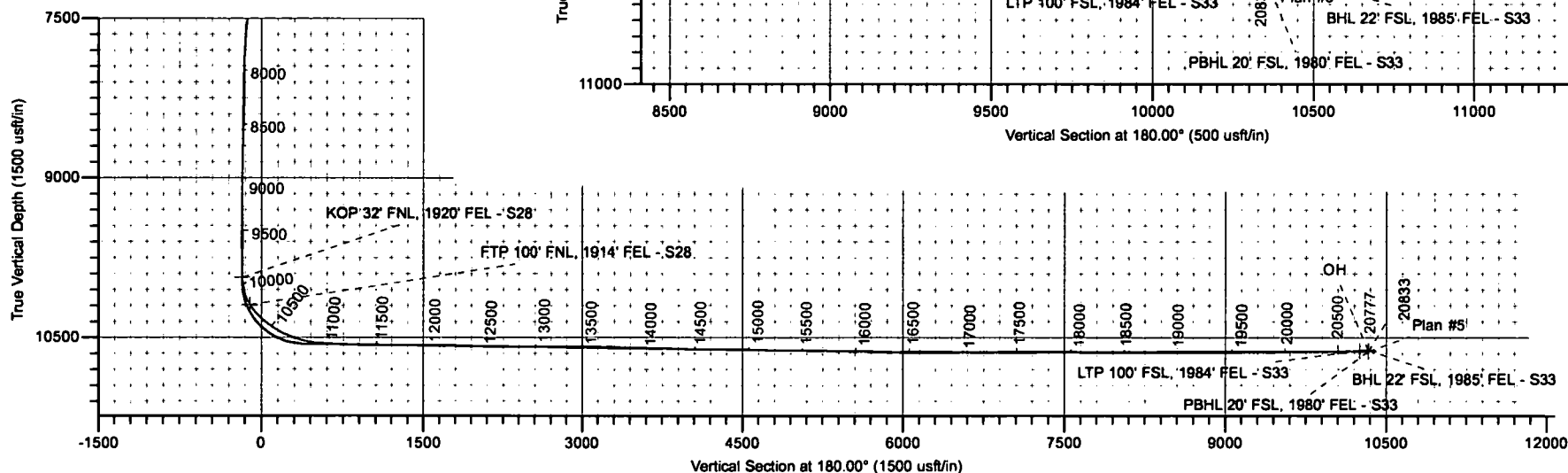
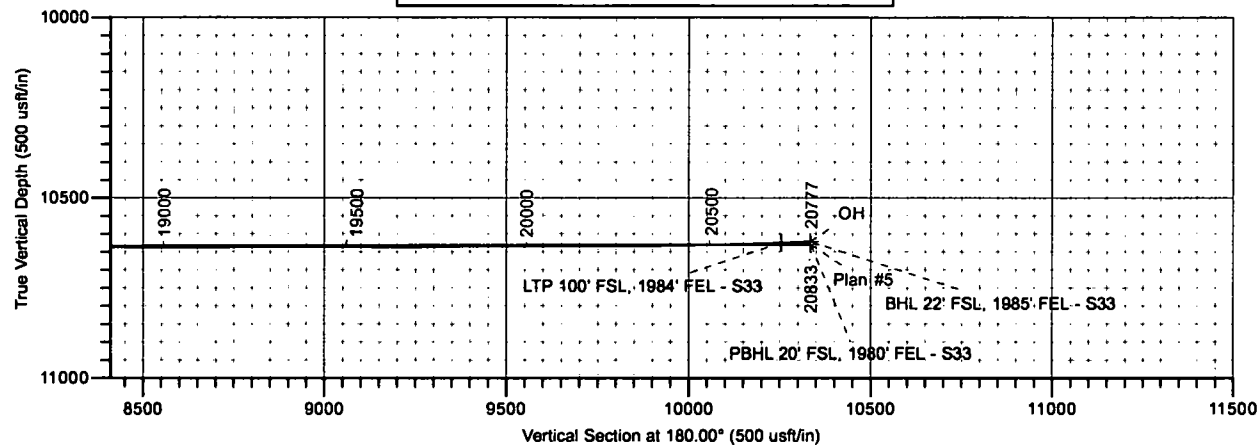
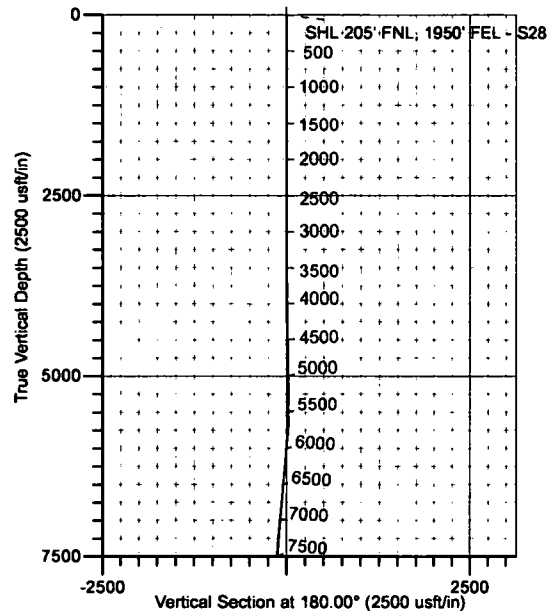


DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL	10621.07	-10334.17	30.24	393351.63	744340.46	32° 4' 46.9488 N	103° 40' 40.4345 W
FTP	10192.10	104.79	34.64	403790.59	744344.86	32° 6' 30.2485 N	103° 40' 39.6457 W
KOP	9934.73	173.30	28.36	403859.10	744338.58	32° 6' 30.9268 N	103° 40' 39.7139 W
LTP	10623.71	-10255.95	31.24	393429.85	744341.46	32° 4' 47.7228 N	103° 40' 40.4174 W
PBHL	10629.00	-10335.95	34.24	393349.85	744344.46	32° 4' 46.9310 N	103° 40' 40.3882 W
SHL	0.00	0.00	0.00	403685.80	744310.22	32° 6' 29.2136 N	103° 40' 40.0558 W

ACTUAL LINE CALLS

SHL: 205' FNL, 1950' FEL of Sec 28
 KOP: 32' FNL, 1920' FEL of Sec 28
 FTP: 100' FNL, 1914' FEL of Sec 28
 LTP: 100' FSL, 1984' FEL of Sec 33
 BHL: 22' FSL, 1985' FEL of Sec 33



LEAM DRILLING SERVICES
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7618, Fax: 936/756-7595

Design: OH (Van Doo Dah 28-33 Fed Com 235H/OH)
 Marwari/Van Doo Dah
 Created By: Eric Wooten Date: 11:56, December 11 2018
 Date: _____
 Approved: _____ Date: _____

Devon Energy

Project: Lea County, NM (NAD-83)
 Site: Marwari/Van Doo Dah
 Well: Van Doo Dah 28-33 Fed Com 235H
 Wellbore: OH
 Design: OH

PROJECT DETAILS: Lea County, NM (NAD-83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level



Azimuths to Grid North
 True North: -0.35°
 Magnetic North: 6.38°
 Magnetic Field
 Strength: 47841.6nT
 Dip Angle: 59.77°
 Date: 11/01/2018
 Model: HDGM

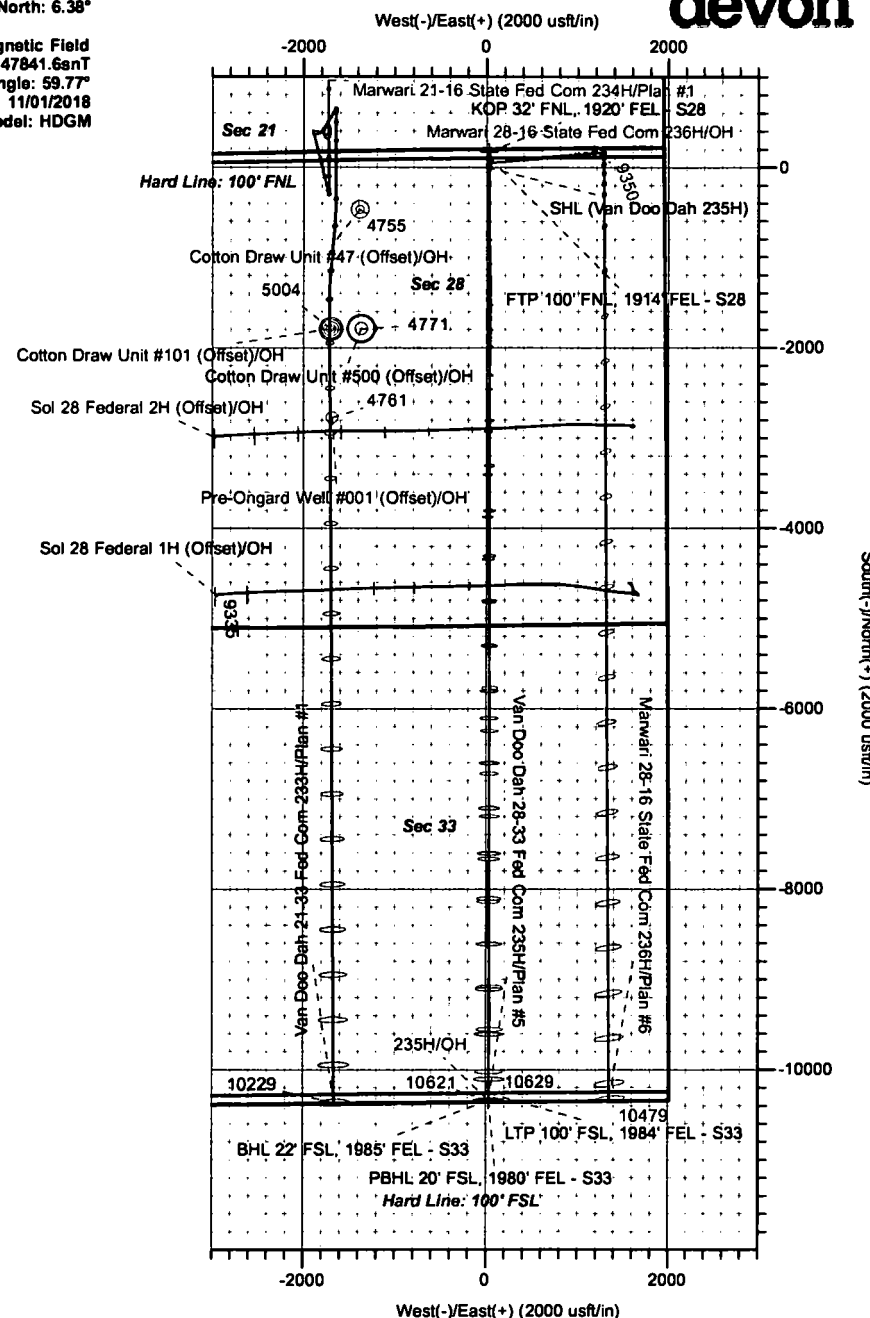
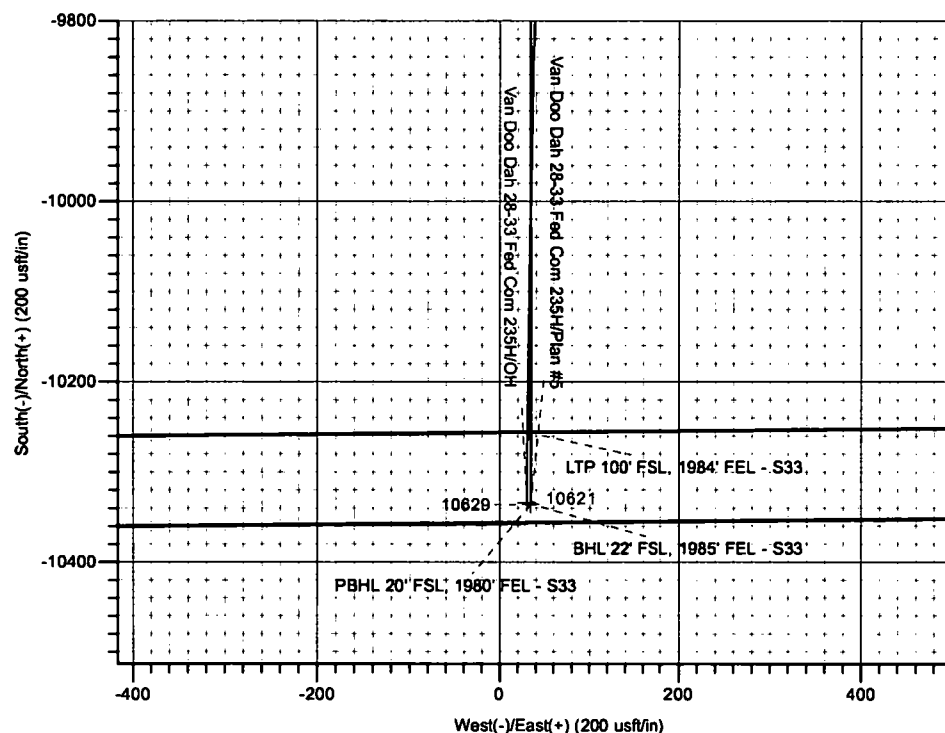
devon

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL	10621.07	-10334.17	30.24	393351.63	744340.46	32° 4' 48.9488 N	103° 40' 40.4345 W
FTP	10192.10	104.79	34.64	403790.59	744344.88	32° 6' 30.2485 N	103° 40' 39.6457 W
KOP	9934.73	173.30	28.36	403859.10	744338.58	32° 6' 30.9268 N	103° 40' 39.7139 W
LTP	10623.71	-10255.95	31.24	393429.85	744341.46	32° 4' 47.7228 N	103° 40' 40.4174 W
PBHL	10629.00	-10335.95	34.24	393349.85	744344.46	32° 4' 48.9310 N	103° 40' 40.3882 W
SHL	0.00	0.00	0.00	403685.80	744310.22	32° 6' 29.2136 N	103° 40' 40.0558 W

ACTUAL LINE CALLS

SHL: 205' FNL, 1950' FEL of Sec 28
 KOP: 32' FNL, 1920' FEL of Sec 28
 FTP: 100' FNL, 1914' FEL of Sec 28
 LTP: 100' FSL, 1984' FEL of Sec 33
 BHL: 22' FSL, 1985' FEL of Sec 33



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7618, Fax: 936/756-7595

Design: OH (Van Doo Dah 28-33 Fed Com 235H/OH)
 Marwari/Van Doo Dah
 Created By: Eric Wooten
 Date: 16:43, December 11 2018
 Approved: _____
 Date: _____

Devon Energy

Lea County, NM (NAD-83)

Marwari/Van Doo Dah

Van Doo Dah 28-33 Fed Com 235H

OH

Design: OH

Standard Survey Report

11 December, 2018

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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		Marwari/Van Doo Dah				
Site Position:		Northing:	404,089.34 usft	Latitude:	32° 6' 33.3204 N	
From:	Map	Easting:	742,415.36 usft	Longitude:	103° 41' 2.0577 W	
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.35 °

Well	Van Doo Dah 28-33 Fed Com 235H					
Well Position	+N/-S	0.00 usft	Northing:	403,685.80 usft	Latitude:	32° 6' 29.2137 N
	+E/-W	0.00 usft	Easting:	744,310.22 usft	Longitude:	103° 40' 40.0558 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,389.10 usft

Wellbore	OH				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/01/18	6.73	59.77	47,842

Design	OH				
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Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.00

Survey Program	Date 12/11/18				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	5,120.00	Survey #1 (OH)	GYRO		
5,293.00	20,722.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
20,777.00	20,777.00	Survey #3 (OH)	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
100.00	0.28	110.36	100.00	-0.09	0.23	0.09	0.28	0.28	0.00
200.00	0.29	116.95	200.00	-0.28	0.68	0.28	0.03	0.01	6.59
300.00	0.42	94.58	300.00	-0.43	1.27	0.43	0.19	0.13	-22.37
400.00	0.45	98.84	399.99	-0.52	2.03	0.52	0.04	0.03	4.26
500.00	0.45	97.11	499.99	-0.63	2.81	0.63	0.01	0.00	-1.73
600.00	0.40	89.84	599.99	-0.67	3.54	0.67	0.07	-0.05	-7.27
700.00	0.49	93.27	699.98	-0.70	4.32	0.70	0.09	0.09	3.43
800.00	0.42	89.69	799.98	-0.72	5.11	0.72	0.08	-0.07	-3.58

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
900.00	0.36	92.08	899.98	-0.73	5.79	0.73	0.06	-0.06	2.39
1,000.00	0.30	68.63	999.98	-0.65	6.35	0.65	0.15	-0.06	-23.45
1,100.00	0.30	70.81	1,099.98	-0.46	6.84	0.46	0.01	0.00	2.18
1,200.00	0.28	67.29	1,199.98	-0.28	7.32	0.28	0.03	-0.02	-3.52
1,300.00	0.22	75.77	1,299.97	-0.14	7.73	0.14	0.07	-0.06	8.48
1,400.00	0.24	69.40	1,399.97	-0.02	8.11	0.02	0.03	0.02	-6.37
1,500.00	0.16	98.74	1,499.97	0.03	8.44	-0.03	0.13	-0.08	29.34
1,600.00	0.25	117.29	1,599.97	-0.09	8.78	0.09	0.11	0.09	18.55
1,700.00	0.22	127.26	1,699.97	-0.31	9.12	0.31	0.05	-0.03	9.97
1,800.00	0.24	123.14	1,799.97	-0.54	9.45	0.54	0.03	0.02	-4.12
1,900.00	0.27	120.19	1,899.97	-0.77	9.83	0.77	0.03	0.03	-2.95
2,000.00	0.29	140.01	1,999.97	-1.08	10.20	1.08	0.10	0.02	19.82
2,100.00	0.45	155.33	2,099.97	-1.63	10.52	1.63	0.19	0.16	15.32
2,200.00	0.45	157.27	2,199.96	-2.35	10.84	2.35	0.02	0.00	1.94
2,300.00	0.43	159.24	2,299.96	-3.07	11.12	3.07	0.03	-0.02	1.97
2,400.00	0.46	157.97	2,399.96	-3.79	11.41	3.79	0.03	0.03	-1.27
2,500.00	0.43	157.40	2,499.95	-4.51	11.70	4.51	0.03	-0.03	-0.57
2,600.00	0.46	183.39	2,599.95	-5.25	11.82	5.25	0.20	0.03	25.99
2,700.00	0.43	179.97	2,699.95	-6.03	11.80	6.03	0.04	-0.03	-3.42
2,800.00	0.23	169.38	2,799.95	-6.60	11.83	6.60	0.21	-0.20	-10.59
2,900.00	0.22	164.50	2,899.95	-6.99	11.92	6.99	0.02	-0.01	-4.88
3,000.00	0.25	169.89	2,999.94	-7.39	12.01	7.39	0.04	0.03	5.39
3,100.00	0.19	133.11	3,099.94	-7.71	12.17	7.71	0.15	-0.06	-36.78
3,200.00	0.39	83.60	3,199.94	-7.79	12.63	7.79	0.30	0.20	-49.51
3,300.00	0.58	68.04	3,299.94	-7.56	13.44	7.56	0.23	0.19	-15.56
3,400.00	0.69	62.79	3,399.93	-7.10	14.44	7.10	0.12	0.11	-5.25
3,500.00	0.78	57.38	3,499.93	-6.45	15.55	6.45	0.11	0.09	-5.41
3,600.00	0.81	62.20	3,599.92	-5.76	16.75	5.76	0.07	0.03	4.82
3,700.00	0.76	57.10	3,699.91	-5.07	17.93	5.07	0.09	-0.05	-5.10
3,800.00	0.78	61.40	3,799.90	-4.38	19.09	4.38	0.06	0.02	4.30
3,900.00	0.87	86.62	3,899.89	-4.01	20.44	4.01	0.37	0.09	25.22
4,000.00	1.11	96.15	3,999.87	-4.07	22.16	4.07	0.29	0.24	9.53
4,100.00	1.03	106.88	4,099.85	-4.44	23.99	4.44	0.22	-0.08	10.73
4,200.00	1.11	130.30	4,199.84	-5.32	25.59	5.32	0.44	0.08	23.42
4,300.00	1.74	139.21	4,299.81	-7.10	27.32	7.10	0.67	0.63	8.91
4,400.00	1.96	140.68	4,399.75	-9.57	29.39	9.57	0.23	0.22	1.47
4,500.00	1.74	141.07	4,499.70	-12.07	31.43	12.07	0.22	-0.22	0.39
4,600.00	1.51	139.21	4,599.66	-14.25	33.24	14.25	0.24	-0.23	-1.86
4,700.00	1.29	139.99	4,699.63	-16.11	34.83	16.11	0.22	-0.22	0.78
4,800.00	1.19	140.31	4,799.61	-17.77	36.22	17.77	0.10	-0.10	0.32
4,900.00	1.06	139.74	4,899.59	-19.28	37.48	19.28	0.13	-0.13	-0.57
5,000.00	0.93	149.63	4,999.57	-20.69	38.48	20.69	0.21	-0.13	9.89
5,100.00	0.88	158.96	5,099.56	-22.10	39.17	22.10	0.16	-0.05	9.33

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
5,120.00	0.87	155.93	5,119.56	-22.38	39.29	22.38	0.24	-0.05	-15.15
5,255.00	0.81	151.39	5,254.54	-24.15	40.16	24.15	0.07	-0.05	-3.36
Casing									
5,293.00	0.79	149.99	5,292.54	-24.62	40.42	24.62	0.07	-0.04	-3.70
5,387.00	0.88	147.01	5,386.53	-25.78	41.14	25.78	0.11	0.10	-3.17
5,481.00	0.70	301.69	5,480.53	-26.09	41.04	26.09	1.64	-0.19	164.55
5,575.00	1.06	349.86	5,574.52	-24.93	40.40	24.93	0.84	0.38	51.24
5,673.00	1.41	22.55	5,672.50	-22.92	40.70	22.92	0.79	0.36	33.36
5,772.00	2.64	17.81	5,771.43	-19.63	41.87	19.63	1.25	1.24	-4.79
5,870.00	3.78	12.01	5,869.28	-14.32	43.23	14.32	1.21	1.16	-5.92
5,968.00	4.57	3.04	5,967.02	-7.26	44.11	7.26	1.04	0.81	-9.15
6,067.00	5.10	6.91	6,065.87	1.05	44.85	-1.05	0.83	0.54	3.91
6,162.00	5.89	4.62	6,160.23	10.10	45.75	-10.10	0.86	0.83	-2.41
6,255.00	5.98	4.80	6,252.73	19.68	46.54	-19.68	0.10	0.10	0.19
6,349.00	5.72	355.13	6,346.24	29.23	46.55	-29.23	1.08	-0.28	-10.29
6,444.00	5.54	351.44	6,440.78	38.48	45.47	-38.48	0.43	-0.19	-3.88
6,539.00	5.28	350.21	6,535.36	47.32	44.04	-47.32	0.30	-0.27	-1.29
6,633.00	5.28	349.33	6,628.96	55.83	42.50	-55.83	0.09	0.00	-0.94
6,727.00	4.84	354.60	6,722.60	64.03	41.33	-64.03	0.68	-0.47	5.61
6,821.00	4.66	356.36	6,816.27	71.79	40.71	-71.79	0.25	-0.19	1.87
6,916.00	4.31	354.25	6,910.98	79.19	40.11	-79.19	0.41	-0.37	-2.22
7,011.00	4.13	356.01	7,005.72	86.16	39.52	-86.16	0.23	-0.19	1.85
7,105.00	4.92	357.24	7,099.43	93.56	39.09	-93.56	0.85	0.84	1.31
7,199.00	5.01	357.77	7,193.08	101.69	38.73	-101.69	0.11	0.10	0.56
7,294.00	4.48	0.76	7,287.75	109.54	38.62	-109.54	0.62	-0.56	3.15
7,389.00	5.10	355.61	7,382.42	117.46	38.35	-117.46	0.79	0.65	-5.42
7,484.00	5.01	354.08	7,477.05	125.80	37.59	-125.80	0.17	-0.09	-1.61
7,579.00	4.75	353.20	7,571.71	133.83	36.70	-133.83	0.28	-0.27	-0.93
7,673.00	4.48	353.55	7,665.40	141.34	35.83	-141.34	0.29	-0.29	0.37
7,767.00	3.61	350.91	7,759.17	147.92	34.95	-147.92	0.95	-0.93	-2.81
7,861.00	2.29	353.55	7,853.04	152.70	34.27	-152.70	1.41	-1.40	2.81
7,956.00	2.02	357.24	7,947.97	156.26	33.98	-156.26	0.32	-0.28	3.88
8,050.00	1.14	349.15	8,041.94	158.84	33.72	-158.84	0.96	-0.94	-8.61
8,145.00	0.88	345.46	8,136.92	160.47	33.36	-160.47	0.28	-0.27	-3.88
8,239.00	0.88	350.03	8,230.91	161.88	33.05	-161.88	0.07	0.00	4.86
8,334.00	0.88	350.56	8,325.90	163.32	32.81	-163.32	0.01	0.00	0.56
8,428.00	0.88	348.10	8,419.89	164.74	32.54	-164.74	0.04	0.00	-2.62
8,523.00	0.88	347.57	8,514.88	166.16	32.23	-166.16	0.01	0.00	-0.56
8,618.00	0.88	3.74	8,609.87	167.60	32.12	-167.60	0.26	0.00	17.02
8,711.00	0.62	353.37	8,702.86	168.81	32.11	-168.81	0.31	-0.28	-11.15
8,806.00	0.70	343.88	8,797.85	169.88	31.89	-169.88	0.14	0.08	-9.99
8,901.00	0.35	67.90	8,892.85	170.55	32.00	-170.55	0.79	-0.37	88.44
8,995.00	0.53	5.68	8,986.85	171.09	32.31	-171.09	0.51	0.19	-66.19
9,090.00	1.06	341.24	9,081.84	172.36	32.07	-172.36	0.65	0.56	-25.73

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
9,184.00	0.44	298.88	9,175.83	173.36	31.47	-173.36	0.84	-0.66	-45.06
9,279.00	0.26	303.45	9,270.83	173.65	30.97	-173.65	0.19	-0.19	4.81
9,374.00	0.79	334.92	9,365.82	174.36	30.52	-174.36	0.61	0.56	33.13
9,470.00	1.58	341.95	9,461.80	176.22	29.83	-176.22	0.84	0.82	7.32
9,564.00	0.79	337.90	9,555.78	178.05	29.18	-178.05	0.84	-0.84	-4.31
9,658.00	0.88	177.06	9,649.78	177.93	28.97	-177.93	1.75	0.10	-171.11
9,753.00	1.41	185.15	9,744.76	176.04	28.91	-176.04	0.58	0.56	8.52
9,847.00	1.06	182.34	9,838.74	174.02	28.77	-174.02	0.38	-0.37	-2.99
9,910.00	0.35	233.84	9,901.73	173.32	28.59	-173.32	1.41	-1.13	81.75
9,943.00	0.53	283.94	9,934.73	173.30	28.36	-173.30	1.23	0.55	151.82
10,037.00	9.06	178.47	10,028.34	165.99	28.13	-165.99	9.80	9.07	-112.20
10,085.00	15.21	171.26	10,075.25	155.98	29.19	-155.98	13.17	12.81	-15.02
10,133.00	21.46	169.30	10,120.79	141.12	31.78	-141.12	13.08	13.02	-4.08
10,180.00	28.23	174.60	10,163.42	121.58	34.43	-121.58	15.15	14.40	11.28
10,227.00	32.62	181.99	10,203.96	97.83	35.03	-97.83	12.26	9.34	15.72
10,274.00	38.08	181.80	10,242.28	70.66	34.14	-70.66	11.62	11.62	-0.40
10,321.00	43.09	181.99	10,277.96	40.11	33.12	-40.11	10.66	10.66	0.40
10,368.00	46.96	184.09	10,311.17	6.92	31.34	-6.92	8.82	8.23	4.47
10,416.00	48.89	184.97	10,343.34	-28.60	28.52	28.60	4.24	4.02	1.83
10,463.00	51.44	183.22	10,373.44	-64.59	25.96	64.59	6.13	5.43	-3.72
10,510.00	55.40	181.11	10,401.45	-102.29	24.55	102.29	9.16	8.43	-4.49
10,557.00	58.65	181.81	10,427.03	-141.70	23.54	141.70	7.03	6.91	1.49
10,605.00	61.47	180.76	10,450.98	-183.28	22.61	183.28	6.17	5.88	-2.19
10,652.00	64.81	179.17	10,472.21	-225.20	22.65	225.20	7.72	7.11	-3.38
10,700.00	68.41	179.17	10,491.27	-269.25	23.29	269.25	7.50	7.50	0.00
10,747.00	70.52	179.88	10,507.75	-313.26	23.65	313.26	4.71	4.49	1.51
10,794.00	73.95	180.76	10,522.09	-358.01	23.39	358.01	7.51	7.30	1.87
10,841.00	76.59	180.58	10,534.04	-403.46	22.86	403.46	5.63	5.62	-0.38
10,888.00	79.40	179.17	10,543.82	-449.42	22.97	449.42	6.66	5.98	-3.00
10,935.00	82.04	178.29	10,551.39	-495.79	24.00	495.79	5.91	5.62	-1.87
10,981.00	85.38	178.65	10,556.43	-541.49	25.22	541.49	7.30	7.26	0.78
11,052.00	86.97	178.12	10,561.17	-612.30	27.21	612.30	2.36	2.24	-0.75
11,144.00	87.85	178.47	10,565.33	-704.17	29.95	704.17	1.03	0.96	0.38
11,236.00	89.16	178.82	10,567.73	-796.11	32.12	796.11	1.47	1.42	0.38
11,327.00	88.99	178.82	10,569.20	-887.08	34.00	887.08	0.19	-0.19	0.00
11,418.00	88.72	179.00	10,571.01	-978.04	35.73	978.04	0.36	-0.30	0.20
11,509.00	88.29	178.65	10,573.39	-1,068.99	37.59	1,068.99	0.61	-0.47	-0.38
11,599.00	90.31	179.00	10,574.49	-1,158.96	39.44	1,158.96	2.28	2.24	0.39
11,690.00	91.10	179.17	10,573.37	-1,249.94	40.89	1,249.94	0.89	0.87	0.19
11,782.00	91.10	179.17	10,571.60	-1,341.92	42.22	1,341.92	0.00	0.00	0.00
11,873.00	90.04	180.58	10,570.70	-1,432.91	42.42	1,432.91	1.94	-1.16	1.55
11,965.00	89.69	180.05	10,570.91	-1,524.90	41.92	1,524.90	0.69	-0.38	-0.58
12,056.00	89.08	179.70	10,571.89	-1,615.90	42.11	1,615.90	0.77	-0.67	-0.38

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
12,146.00	88.55	179.88	10,573.75	-1,705.88	42.44	1,705.88	0.62	-0.59	0.20
12,239.00	88.46	179.88	10,576.18	-1,798.85	42.64	1,798.85	0.10	-0.10	0.00
12,332.00	88.46	180.93	10,578.68	-1,891.81	41.98	1,891.81	1.13	0.00	1.13
12,427.00	87.14	180.58	10,582.32	-1,986.73	40.73	1,986.73	1.44	-1.39	-0.37
12,522.00	87.49	180.40	10,586.77	-2,081.62	39.92	2,081.62	0.41	0.37	-0.19
12,617.00	89.60	181.63	10,589.19	-2,176.57	38.24	2,176.57	2.57	2.22	1.29
12,711.00	90.31	181.99	10,589.26	-2,270.52	35.27	2,270.52	0.85	0.76	0.38
12,805.00	90.04	181.81	10,588.97	-2,364.47	32.15	2,364.47	0.35	-0.29	-0.19
12,900.00	89.43	182.16	10,589.41	-2,459.41	28.86	2,459.41	0.74	-0.64	0.37
12,994.00	89.52	181.99	10,590.27	-2,553.34	25.46	2,553.34	0.20	0.10	-0.18
13,089.00	90.75	181.11	10,590.05	-2,648.31	22.89	2,648.31	1.59	1.29	-0.93
13,179.00	91.01	180.76	10,588.67	-2,738.28	21.42	2,738.28	0.48	0.29	-0.39
13,274.00	90.48	180.93	10,587.43	-2,833.26	20.02	2,833.26	0.59	-0.56	0.18
13,369.00	89.08	180.23	10,587.80	-2,928.26	19.06	2,928.26	1.65	-1.47	-0.74
13,464.00	90.04	180.93	10,588.53	-3,023.25	18.09	3,023.25	1.25	1.01	0.74
13,559.00	88.81	180.58	10,589.48	-3,118.23	16.84	3,118.23	1.35	-1.29	-0.37
13,654.00	88.46	180.40	10,591.74	-3,213.20	16.03	3,213.20	0.41	-0.37	-0.19
13,749.00	87.85	179.00	10,594.80	-3,308.15	16.53	3,308.15	1.61	-0.64	-1.47
13,844.00	88.46	180.05	10,597.86	-3,403.09	17.31	3,403.09	1.28	0.64	1.11
13,939.00	89.96	180.40	10,599.17	-3,498.08	16.94	3,498.08	1.62	1.58	0.37
14,033.00	88.64	180.40	10,600.32	-3,592.07	16.29	3,592.07	1.40	-1.40	0.00
14,127.00	89.08	180.40	10,602.19	-3,686.05	15.63	3,686.05	0.47	0.47	0.00
14,220.00	87.49	178.65	10,604.97	-3,779.00	16.40	3,779.00	2.54	-1.71	-1.88
14,312.00	87.93	178.47	10,608.65	-3,870.89	18.71	3,870.89	0.52	0.48	-0.20
14,404.00	88.64	179.35	10,611.40	-3,962.83	20.46	3,962.83	1.23	0.77	0.96
14,498.00	89.16	180.40	10,613.21	-4,056.82	20.66	4,056.82	1.25	0.55	1.12
14,593.00	88.99	179.17	10,614.74	-4,151.80	21.02	4,151.80	1.31	-0.18	-1.29
14,688.00	89.34	179.52	10,616.13	-4,246.78	22.11	4,246.78	0.52	0.37	0.37
14,782.00	90.22	179.70	10,616.49	-4,340.78	22.75	4,340.78	0.96	0.94	0.19
14,876.00	89.25	179.00	10,616.92	-4,434.77	23.81	4,434.77	1.27	-1.03	-0.74
14,971.00	90.22	178.82	10,617.36	-4,529.75	25.62	4,529.75	1.04	1.02	-0.19
15,066.00	89.60	178.82	10,617.51	-4,624.73	27.58	4,624.73	0.65	-0.65	0.00
15,160.00	88.20	178.65	10,619.31	-4,718.69	29.65	4,718.69	1.50	-1.49	-0.18
15,255.00	88.55	179.35	10,622.01	-4,813.64	31.31	4,813.64	0.82	0.37	0.74
15,350.00	88.64	179.17	10,624.34	-4,908.60	32.53	4,908.60	0.21	0.09	-0.19
15,445.00	90.04	179.88	10,625.43	-5,003.59	33.32	5,003.59	1.65	1.47	0.75
15,544.00	89.87	180.58	10,625.51	-5,102.59	32.92	5,102.59	0.73	-0.17	0.71
15,639.00	90.75	181.11	10,625.00	-5,197.57	31.52	5,197.57	1.08	0.93	0.56
15,734.00	89.08	180.40	10,625.14	-5,292.56	30.27	5,292.56	1.91	-1.76	-0.75
15,829.00	89.78	178.82	10,626.08	-5,387.55	30.92	5,387.55	1.82	0.74	-1.66
15,924.00	88.90	178.82	10,627.18	-5,482.52	32.87	5,482.52	0.93	-0.93	0.00
16,019.00	89.25	177.59	10,628.71	-5,577.46	35.85	5,577.46	1.35	0.37	-1.29
16,114.00	88.55	178.12	10,630.53	-5,672.38	39.40	5,672.38	0.92	-0.74	0.56

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
16,209.00	87.58	179.35	10,633.74	-5,767.30	41.50	5,767.30	1.65	-1.02	1.29
16,304.00	89.34	179.35	10,636.29	-5,862.25	42.58	5,862.25	1.85	1.85	0.00
16,399.00	89.43	180.93	10,637.31	-5,957.24	42.35	5,957.24	1.67	0.09	1.66
16,493.00	91.45	180.93	10,636.59	-6,051.22	40.82	6,051.22	2.15	2.15	0.00
16,589.00	90.57	180.93	10,634.90	-6,147.19	39.26	6,147.19	0.92	-0.92	0.00
16,684.00	88.46	180.40	10,635.70	-6,242.18	38.16	6,242.18	2.29	-2.22	-0.56
16,779.00	90.13	180.76	10,636.87	-6,337.16	37.20	6,337.16	1.80	1.76	0.38
16,874.00	89.52	180.93	10,637.16	-6,432.15	35.80	6,432.15	0.67	-0.64	0.18
16,969.00	88.46	179.70	10,638.84	-6,527.13	35.28	6,527.13	1.71	-1.12	-1.29
17,064.00	89.52	180.23	10,640.51	-6,622.12	35.33	6,622.12	1.25	1.12	0.56
17,159.00	91.71	181.11	10,639.49	-6,717.10	34.22	6,717.10	2.48	2.31	0.93
17,254.00	90.40	180.05	10,637.74	-6,812.07	33.26	6,812.07	1.77	-1.38	-1.12
17,349.00	89.87	179.00	10,637.52	-6,907.07	34.05	6,907.07	1.24	-0.56	-1.11
17,443.00	91.45	178.82	10,636.44	-7,001.04	35.84	7,001.04	1.69	1.68	-0.19
17,538.00	90.48	178.65	10,634.84	-7,096.00	37.93	7,096.00	1.04	-1.02	-0.18
17,633.00	90.92	179.70	10,633.68	-7,190.99	39.30	7,190.99	1.20	0.46	1.11
17,728.00	90.84	180.05	10,632.22	-7,285.97	39.51	7,285.97	0.38	-0.08	0.37
17,823.00	89.78	181.11	10,631.70	-7,380.96	38.55	7,380.96	1.58	-1.12	1.12
17,917.00	87.93	180.93	10,633.58	-7,474.93	36.87	7,474.93	1.98	-1.97	-0.19
18,011.00	89.52	181.28	10,635.67	-7,568.88	35.06	7,568.88	1.73	1.69	0.37
18,106.00	89.78	180.93	10,636.25	-7,663.86	33.23	7,663.86	0.46	0.27	-0.37
18,200.00	88.46	181.28	10,637.70	-7,757.83	31.42	7,757.83	1.45	-1.40	0.37
18,293.00	90.04	181.63	10,638.91	-7,850.79	29.06	7,850.79	1.74	1.70	0.38
18,387.00	90.31	180.23	10,638.63	-7,944.78	27.53	7,944.78	1.52	0.29	-1.49
18,482.00	89.78	179.88	10,638.55	-8,039.78	27.44	8,039.78	0.67	-0.56	-0.37
18,577.00	91.28	180.05	10,637.67	-8,134.77	27.50	8,134.77	1.59	1.58	0.18
18,671.00	90.92	179.88	10,635.87	-8,228.75	27.55	8,228.75	0.42	-0.38	-0.18
18,766.00	89.87	179.35	10,635.21	-8,323.75	28.19	8,323.75	1.24	-1.11	-0.56
18,860.00	88.29	179.17	10,636.72	-8,417.72	29.41	8,417.72	1.69	-1.68	-0.19
18,954.00	89.69	179.52	10,638.38	-8,511.70	30.48	8,511.70	1.54	1.49	0.37
19,048.00	90.40	179.17	10,638.31	-8,605.69	31.56	8,605.69	0.84	0.76	-0.37
19,143.00	90.48	178.82	10,637.58	-8,700.67	33.22	8,700.67	0.38	0.08	-0.37
19,238.00	90.40	179.00	10,636.85	-8,795.65	35.03	8,795.65	0.21	-0.08	0.19
19,333.00	90.84	179.35	10,635.82	-8,890.64	36.40	8,890.64	0.59	0.46	0.37
19,427.00	89.96	178.82	10,635.16	-8,984.62	37.90	8,984.62	1.09	-0.94	-0.56
19,521.00	88.46	178.47	10,636.46	-9,078.59	40.12	9,078.59	1.64	-1.60	-0.37
19,614.00	89.60	178.47	10,638.03	-9,171.54	42.60	9,171.54	1.23	1.23	0.00
19,709.00	91.45	179.70	10,637.16	-9,266.52	44.12	9,266.52	2.34	1.95	1.29
19,804.00	90.75	180.23	10,635.34	-9,361.50	44.18	9,361.50	0.92	-0.74	0.56
19,898.00	89.25	180.23	10,635.34	-9,455.49	43.80	9,455.49	1.60	-1.60	0.00
19,993.00	90.92	180.58	10,635.20	-9,550.49	43.13	9,550.49	1.80	1.76	0.37
20,087.00	89.60	180.93	10,634.77	-9,644.48	41.89	9,644.48	1.45	-1.40	0.37
20,182.00	90.57	181.46	10,634.63	-9,739.45	39.91	9,739.45	1.16	1.02	0.56
20,276.00	90.84	181.28	10,633.47	-9,833.42	37.66	9,833.42	0.35	0.29	-0.19

Survey Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
20,369.00	90.48	180.98	10,632.40	-9,926.39	35.83	9,926.39	0.50	-0.39	-0.32
20,463.00	91.54	180.93	10,630.75	-10,020.37	34.26	10,020.37	1.13	1.13	-0.05
20,558.00	91.10	180.76	10,628.56	-10,115.33	32.86	10,115.33	0.50	-0.46	-0.18
20,651.00	91.45	180.76	10,626.49	-10,208.30	31.63	10,208.30	0.38	0.38	0.00
20,722.00	92.86	180.58	10,623.82	-10,279.24	30.80	10,279.24	2.00	1.99	-0.25
20,777.00	92.86	180.58	10,621.07	-10,334.17	30.24	10,334.17	0.00	0.00	0.00

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,255.00	5,254.54	Casing	7	7-1/2

Devon Energy

Lea County, NM (NAD-83)

Marwari/Van Doo Dah

Van Doo Dah 28-33 Fed Com 235H

OH

Design: OH

Survey Report - Geographic

12 December, 2018

Survey Report - Geographic

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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	Marwari/Van Doo Dah				
Site Position:		Northing:	404,089.34 usft	Latitude:	32° 6' 33.3204 N
From:	Map	Easting:	742,415.36 usft	Longitude:	103° 41' 2.0577 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.35 °

Well	Van Doo Dah 28-33 Fed Com 235H					
Well Position	+N/-S	0.00 usft	Northing:	403,685.80 usft	Latitude:	32° 6' 29.2137 N
	+E/-W	0.00 usft	Easting:	744,310.22 usft	Longitude:	103° 40' 40.0558 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,389.10 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/01/18	6.73	59.77	47,842

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		180.00

Survey Program	Date	12/11/18			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	5,120.00	Survey #1 (OH)	GYRO		
5,293.00	20,722.00	Survey #2 (OH)	LEAM MWD+HDGM	MWD+HDGM	
20,777.00	20,777.00	Survey #3 (OH)	Project	Projection	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	403,685.80	744,310.22	32° 6' 29.2137 N	103° 40' 40.0558 W	
SHL (Van Doo Dah 235H) - 205' FNL, 1950' FEL - S28										
100.00	0.28	110.36	100.00	-0.09	0.23	403,685.71	744,310.45	32° 6' 29.2128 N	103° 40' 40.0532 W	
200.00	0.29	116.95	200.00	-0.28	0.68	403,685.51	744,310.90	32° 6' 29.2108 N	103° 40' 40.0479 W	
300.00	0.42	94.58	300.00	-0.43	1.27	403,685.37	744,311.49	32° 6' 29.2093 N	103° 40' 40.0411 W	
400.00	0.45	98.84	399.99	-0.52	2.03	403,685.28	744,312.24	32° 6' 29.2084 N	103° 40' 40.0323 W	
500.00	0.45	97.11	499.99	-0.63	2.81	403,685.17	744,313.02	32° 6' 29.2073 N	103° 40' 40.0233 W	
600.00	0.40	89.84	599.99	-0.67	3.54	403,685.12	744,313.76	32° 6' 29.2068 N	103° 40' 40.0147 W	
700.00	0.49	93.27	699.98	-0.70	4.32	403,685.10	744,314.54	32° 6' 29.2065 N	103° 40' 40.0057 W	
800.00	0.42	89.69	799.98	-0.72	5.11	403,685.08	744,315.33	32° 6' 29.2062 N	103° 40' 39.9964 W	

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Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi_User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
900.00	0.36	92.08	899.98	-0.73	5.79	403,685.07	744,316.01	32° 6' 29.2061 N	103° 40' 39.9885 W
1,000.00	0.30	68.63	999.98	-0.65	6.35	403,685.15	744,316.57	32° 6' 29.2069 N	103° 40' 39.9820 W
1,100.00	0.30	70.81	1,099.98	-0.46	6.84	403,685.33	744,317.06	32° 6' 29.2086 N	103° 40' 39.9763 W
1,200.00	0.28	67.29	1,199.98	-0.28	7.32	403,685.51	744,317.53	32° 6' 29.2104 N	103° 40' 39.9708 W
1,300.00	0.22	75.77	1,299.97	-0.14	7.73	403,685.66	744,317.94	32° 6' 29.2118 N	103° 40' 39.9660 W
1,400.00	0.24	69.40	1,399.97	-0.02	8.11	403,685.78	744,318.33	32° 6' 29.2129 N	103° 40' 39.9616 W
1,500.00	0.16	98.74	1,499.97	0.03	8.44	403,685.83	744,318.66	32° 6' 29.2134 N	103° 40' 39.9577 W
1,600.00	0.25	117.29	1,599.97	-0.09	8.78	403,685.71	744,318.99	32° 6' 29.2122 N	103° 40' 39.9538 W
1,700.00	0.22	127.26	1,699.97	-0.31	9.12	403,685.49	744,319.34	32° 6' 29.2101 N	103° 40' 39.9498 W
1,800.00	0.24	123.14	1,799.97	-0.54	9.45	403,685.26	744,319.67	32° 6' 29.2078 N	103° 40' 39.9460 W
1,900.00	0.27	120.19	1,899.97	-0.77	9.83	403,685.03	744,320.05	32° 6' 29.2054 N	103° 40' 39.9416 W
2,000.00	0.29	140.01	1,999.97	-1.08	10.20	403,684.72	744,320.41	32° 6' 29.2023 N	103° 40' 39.9374 W
2,100.00	0.45	155.33	2,099.97	-1.63	10.52	403,684.17	744,320.74	32° 6' 29.1969 N	103° 40' 39.9336 W
2,200.00	0.45	157.27	2,199.96	-2.35	10.84	403,683.45	744,321.05	32° 6' 29.1897 N	103° 40' 39.9300 W
2,300.00	0.43	159.24	2,299.96	-3.07	11.12	403,682.73	744,321.34	32° 6' 29.1826 N	103° 40' 39.9268 W
2,400.00	0.46	157.97	2,399.96	-3.79	11.41	403,682.01	744,321.62	32° 6' 29.1755 N	103° 40' 39.9235 W
2,500.00	0.43	157.40	2,499.95	-4.51	11.70	403,681.29	744,321.92	32° 6' 29.1683 N	103° 40' 39.9201 W
2,600.00	0.46	183.39	2,599.95	-5.25	11.82	403,680.54	744,322.04	32° 6' 29.1609 N	103° 40' 39.9188 W
2,700.00	0.43	179.97	2,699.95	-6.03	11.80	403,679.77	744,322.01	32° 6' 29.1533 N	103° 40' 39.9191 W
2,800.00	0.23	169.38	2,799.95	-6.60	11.83	403,679.20	744,322.05	32° 6' 29.1476 N	103° 40' 39.9187 W
2,900.00	0.22	164.50	2,899.95	-6.99	11.92	403,678.81	744,322.14	32° 6' 29.1438 N	103° 40' 39.9177 W
3,000.00	0.25	169.89	2,999.94	-7.39	12.01	403,678.41	744,322.23	32° 6' 29.1398 N	103° 40' 39.9167 W
3,100.00	0.19	133.11	3,099.94	-7.71	12.17	403,678.09	744,322.39	32° 6' 29.1366 N	103° 40' 39.9149 W
3,200.00	0.39	83.60	3,199.94	-7.79	12.63	403,678.01	744,322.85	32° 6' 29.1358 N	103° 40' 39.9095 W
3,300.00	0.58	68.04	3,299.94	-7.56	13.44	403,678.24	744,323.66	32° 6' 29.1380 N	103° 40' 39.9001 W
3,400.00	0.69	62.79	3,399.93	-7.10	14.44	403,678.70	744,324.66	32° 6' 29.1426 N	103° 40' 39.8884 W
3,500.00	0.78	57.38	3,499.93	-6.45	15.55	403,679.34	744,325.77	32° 6' 29.1488 N	103° 40' 39.8755 W
3,600.00	0.81	62.20	3,599.92	-5.76	16.75	403,680.04	744,326.97	32° 6' 29.1557 N	103° 40' 39.8615 W
3,700.00	0.76	57.10	3,699.91	-5.07	17.93	403,680.73	744,328.15	32° 6' 29.1624 N	103° 40' 39.8477 W
3,800.00	0.78	61.40	3,799.90	-4.38	19.09	403,681.42	744,329.30	32° 6' 29.1691 N	103° 40' 39.8342 W
3,900.00	0.87	86.62	3,899.89	-4.01	20.44	403,681.79	744,330.66	32° 6' 29.1727 N	103° 40' 39.8185 W
4,000.00	1.11	96.15	3,999.87	-4.07	22.16	403,681.73	744,332.38	32° 6' 29.1720 N	103° 40' 39.7985 W
4,100.00	1.03	106.88	4,099.85	-4.44	23.99	403,681.36	744,334.20	32° 6' 29.1683 N	103° 40' 39.7773 W
4,200.00	1.11	130.30	4,199.84	-5.32	25.59	403,680.48	744,335.80	32° 6' 29.1594 N	103° 40' 39.7588 W
4,300.00	1.74	139.21	4,299.81	-7.10	27.32	403,678.70	744,337.53	32° 6' 29.1418 N	103° 40' 39.7388 W
4,400.00	1.96	140.68	4,399.75	-9.57	29.39	403,676.23	744,339.61	32° 6' 29.1172 N	103° 40' 39.7148 W
4,500.00	1.74	141.07	4,499.70	-12.07	31.43	403,673.72	744,341.65	32° 6' 29.0923 N	103° 40' 39.6913 W
4,600.00	1.51	139.21	4,599.66	-14.25	33.24	403,671.55	744,343.46	32° 6' 29.0706 N	103° 40' 39.6703 W
4,700.00	1.29	139.99	4,699.63	-16.11	34.83	403,669.69	744,345.05	32° 6' 29.0521 N	103° 40' 39.6521 W
4,800.00	1.19	140.31	4,799.61	-17.77	36.22	403,668.02	744,346.43	32° 6' 29.0356 N	103° 40' 39.6361 W
4,900.00	1.06	139.74	4,899.59	-19.28	37.48	403,666.52	744,347.69	32° 6' 29.0206 N	103° 40' 39.6215 W
5,000.00	0.93	149.63	4,999.57	-20.69	38.48	403,665.11	744,348.70	32° 6' 29.0066 N	103° 40' 39.6099 W
5,100.00	0.88	158.96	5,099.56	-22.10	39.17	403,663.70	744,349.39	32° 6' 28.9926 N	103° 40' 39.6020 W
5,120.00	0.87	155.93	5,119.56	-22.38	39.29	403,663.41	744,349.50	32° 6' 28.9898 N	103° 40' 39.6007 W
5,255.00	0.81	151.39	5,254.54	-24.15	40.16	403,661.64	744,350.38	32° 6' 28.9722 N	103° 40' 39.5906 W
Casing									
5,293.00	0.79	149.99	5,292.54	-24.62	40.42	403,661.18	744,350.64	32° 6' 28.9676 N	103° 40' 39.5877 W
5,387.00	0.88	147.01	5,386.53	-25.78	41.14	403,660.02	744,351.35	32° 6' 28.9560 N	103° 40' 39.5794 W
5,481.00	0.70	301.69	5,480.53	-26.09	41.04	403,659.71	744,351.26	32° 6' 28.9530 N	103° 40' 39.5805 W
5,575.00	1.06	349.86	5,574.52	-24.93	40.40	403,660.87	744,350.62	32° 6' 28.9645 N	103° 40' 39.5879 W
5,673.00	1.41	22.55	5,672.50	-22.92	40.70	403,662.88	744,350.92	32° 6' 28.9844 N	103° 40' 39.5843 W
5,772.00	2.64	17.81	5,771.43	-19.63	41.87	403,666.17	744,352.08	32° 6' 29.0169 N	103° 40' 39.5705 W
5,870.00	3.78	12.01	5,869.28	-14.32	43.23	403,671.48	744,353.45	32° 6' 29.0694 N	103° 40' 39.5543 W
5,968.00	4.57	3.04	5,967.02	-7.26	44.11	403,678.54	744,354.33	32° 6' 29.1392 N	103° 40' 39.5435 W
6,067.00	5.10	6.91	6,065.67	1.05	44.85	403,686.85	744,355.06	32° 6' 29.2213 N	103° 40' 39.5344 W

Survey Report - Geographic

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi_User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,162.00	5.89	4.62	6,160.23	10.10	45.75	403,695.90	744,355.96	32° 6' 29.3108 N	103° 40' 39.5233 W
6,255.00	5.98	4.80	6,252.73	19.68	46.54	403,705.48	744,356.75	32° 6' 29.4056 N	103° 40' 39.5134 W
6,349.00	5.72	355.13	6,346.24	29.23	46.55	403,715.03	744,356.77	32° 6' 29.5001 N	103° 40' 39.5126 W
6,444.00	5.54	351.44	6,440.78	38.48	45.47	403,724.28	744,355.68	32° 6' 29.5917 N	103° 40' 39.5245 W
6,539.00	5.28	350.21	6,535.36	47.32	44.04	403,733.12	744,354.26	32° 6' 29.6793 N	103° 40' 39.5405 W
6,633.00	5.28	349.33	6,628.96	55.83	42.50	403,741.63	744,352.72	32° 6' 29.7636 N	103° 40' 39.5577 W
6,727.00	4.84	354.60	6,722.60	64.03	41.33	403,749.83	744,351.55	32° 6' 29.8448 N	103° 40' 39.5708 W
6,821.00	4.66	356.36	6,816.27	71.79	40.71	403,757.59	744,350.93	32° 6' 29.9216 N	103° 40' 39.5774 W
6,916.00	4.31	354.25	6,910.98	79.19	40.11	403,764.99	744,350.33	32° 6' 29.9949 N	103° 40' 39.5839 W
7,011.00	4.13	356.01	7,005.72	86.16	39.52	403,771.96	744,349.73	32° 6' 30.0639 N	103° 40' 39.5903 W
7,105.00	4.92	357.24	7,099.43	93.56	39.09	403,779.36	744,349.30	32° 6' 30.1371 N	103° 40' 39.5948 W
7,199.00	5.01	357.77	7,193.08	101.69	38.73	403,787.49	744,348.95	32° 6' 30.2176 N	103° 40' 39.5983 W
7,294.00	4.48	0.76	7,287.75	109.54	38.62	403,795.34	744,348.84	32° 6' 30.2953 N	103° 40' 39.5991 W
7,389.00	5.10	355.61	7,382.42	117.46	38.35	403,803.26	744,348.56	32° 6' 30.3737 N	103° 40' 39.6017 W
7,484.00	5.01	354.08	7,477.05	125.80	37.59	403,811.60	744,347.81	32° 6' 30.4563 N	103° 40' 39.6099 W
7,579.00	4.75	353.20	7,571.71	133.83	36.70	403,819.63	744,346.92	32° 6' 30.5358 N	103° 40' 39.6197 W
7,673.00	4.48	353.55	7,665.40	141.34	35.83	403,827.14	744,346.04	32° 6' 30.6102 N	103° 40' 39.6293 W
7,767.00	3.61	350.91	7,759.17	147.92	34.95	403,833.71	744,345.16	32° 6' 30.6753 N	103° 40' 39.6391 W
7,861.00	2.29	353.55	7,853.04	152.70	34.27	403,838.50	744,344.49	32° 6' 30.7227 N	103° 40' 39.6466 W
7,956.00	2.02	357.24	7,947.97	156.26	33.98	403,842.06	744,344.19	32° 6' 30.7579 N	103° 40' 39.6498 W
8,050.00	1.14	349.15	8,041.94	158.84	33.72	403,844.63	744,343.94	32° 6' 30.7834 N	103° 40' 39.6526 W
8,145.00	0.88	345.46	8,136.92	160.47	33.36	403,846.27	744,343.58	32° 6' 30.7996 N	103° 40' 39.6567 W
8,239.00	0.88	350.03	8,230.91	161.88	33.05	403,847.68	744,343.27	32° 6' 30.8136 N	103° 40' 39.6601 W
8,334.00	0.88	350.56	8,325.90	163.32	32.81	403,849.12	744,343.02	32° 6' 30.8278 N	103° 40' 39.6629 W
8,428.00	0.88	348.10	8,419.89	164.74	32.54	403,850.53	744,342.76	32° 6' 30.8419 N	103° 40' 39.6659 W
8,523.00	0.88	347.57	8,514.88	166.16	32.23	403,851.96	744,342.45	32° 6' 30.8560 N	103° 40' 39.6694 W
8,618.00	0.88	3.74	8,609.87	167.60	32.12	403,853.40	744,342.34	32° 6' 30.8702 N	103° 40' 39.6705 W
8,711.00	0.62	353.37	8,702.86	168.81	32.11	403,854.61	744,342.33	32° 6' 30.8822 N	103° 40' 39.6706 W
8,806.00	0.70	343.88	8,797.85	169.88	31.89	403,855.68	744,342.11	32° 6' 30.8928 N	103° 40' 39.6731 W
8,901.00	0.35	67.90	8,892.85	170.55	32.00	403,856.35	744,342.21	32° 6' 30.8994 N	103° 40' 39.6718 W
8,995.00	0.53	5.68	8,986.85	171.09	32.31	403,856.89	744,342.52	32° 6' 30.9047 N	103° 40' 39.6681 W
9,090.00	1.06	341.24	9,081.84	172.36	32.07	403,858.16	744,342.28	32° 6' 30.9173 N	103° 40' 39.6708 W
9,184.00	0.44	298.88	9,175.83	173.36	31.47	403,859.16	744,341.69	32° 6' 30.9272 N	103° 40' 39.6777 W
9,279.00	0.26	303.45	9,270.83	173.65	30.97	403,859.45	744,341.19	32° 6' 30.9302 N	103° 40' 39.6835 W
9,374.00	0.79	334.92	9,365.82	174.36	30.52	403,860.16	744,340.73	32° 6' 30.9373 N	103° 40' 39.6887 W
9,470.00	1.58	341.95	9,461.80	176.22	29.83	403,862.02	744,340.04	32° 6' 30.9557 N	103° 40' 39.6966 W
9,564.00	0.79	337.90	9,555.78	178.05	29.18	403,863.85	744,339.40	32° 6' 30.9738 N	103° 40' 39.7040 W
9,658.00	0.88	177.06	9,649.78	177.93	28.97	403,863.73	744,339.19	32° 6' 30.9727 N	103° 40' 39.7064 W
9,753.00	1.41	185.15	9,744.76	176.04	28.91	403,861.84	744,339.12	32° 6' 30.9539 N	103° 40' 39.7073 W
9,847.00	1.06	182.34	9,838.74	174.02	28.77	403,859.82	744,338.98	32° 6' 30.9340 N	103° 40' 39.7091 W
9,910.00	0.35	233.84	9,901.73	173.32	28.59	403,859.12	744,338.80	32° 6' 30.9271 N	103° 40' 39.7112 W
9,943.00	0.53	283.94	9,934.73	173.30	28.36	403,859.10	744,338.57	32° 6' 30.9269 N	103° 40' 39.7139 W
KOP (Van Doo Dah 235H) - 32' FNL, 1920' FEL - S28									
10,037.00	9.06	178.47	10,028.34	165.99	28.13	403,851.79	744,338.35	32° 6' 30.8546 N	103° 40' 39.7170 W
10,085.00	15.21	171.26	10,075.25	155.98	29.19	403,841.78	744,339.41	32° 6' 30.7554 N	103° 40' 39.7054 W
10,133.00	21.46	169.30	10,120.79	141.12	31.78	403,826.91	744,342.00	32° 6' 30.6082 N	103° 40' 39.6764 W
10,180.00	28.23	174.60	10,163.42	121.58	34.43	403,807.37	744,344.64	32° 6' 30.4146 N	103° 40' 39.6470 W
10,213.86	31.35	180.11	10,192.81	104.79	35.16	403,790.59	744,345.38	32° 6' 30.2485 N	103° 40' 39.6396 W
FTP (Van Doo Dah 235H) - 100' FNL, 1914' FEL - S28									
10,227.00	32.62	181.99	10,203.96	97.83	35.03	403,783.63	744,345.25	32° 6' 30.1796 N	103° 40' 39.6416 W
10,274.00	38.08	181.80	10,242.28	70.66	34.14	403,756.46	744,344.35	32° 6' 29.9108 N	103° 40' 39.6540 W
10,321.00	43.09	181.99	10,277.96	40.11	33.12	403,725.91	744,343.34	32° 6' 29.6086 N	103° 40' 39.6679 W
10,368.00	46.96	184.09	10,311.17	6.92	31.34	403,692.72	744,341.56	32° 6' 29.2802 N	103° 40' 39.6910 W
10,416.00	48.89	184.97	10,343.34	-28.60	28.52	403,657.20	744,338.74	32° 6' 28.9290 N	103° 40' 39.7263 W
10,463.00	51.44	183.22	10,373.44	-64.59	25.96	403,621.21	744,336.17	32° 6' 28.5729 N	103° 40' 39.7586 W

Survey Report - Geographic

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi_User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
10,510.00	55.40	181.11	10,401.45	-102.29	24.55	403,583.51	744,334.77	32° 6' 28.1999 N	103° 40' 39.7777 W	
10,557.00	58.65	181.81	10,427.03	-141.70	23.54	403,544.10	744,333.76	32° 6' 27.8100 N	103° 40' 39.7922 W	
10,605.00	61.47	180.76	10,450.98	-183.28	22.61	403,502.52	744,332.83	32° 6' 27.3986 N	103° 40' 39.8059 W	
10,652.00	64.81	179.17	10,472.21	-225.20	22.65	403,460.59	744,332.86	32° 6' 26.9838 N	103° 40' 39.8085 W	
10,700.00	68.41	179.17	10,491.27	-269.25	23.29	403,416.55	744,333.50	32° 6' 26.5479 N	103° 40' 39.8042 W	
10,747.00	70.52	179.88	10,507.75	-313.26	23.65	403,372.54	744,333.86	32° 6' 26.1124 N	103° 40' 39.8031 W	
10,794.00	73.95	180.76	10,522.09	-358.01	23.39	403,327.79	744,333.61	32° 6' 25.6695 N	103° 40' 39.8092 W	
10,841.00	76.59	180.58	10,534.04	-403.46	22.86	403,282.34	744,333.08	32° 6' 25.2198 N	103° 40' 39.8186 W	
10,888.00	79.40	179.17	10,543.82	-449.42	22.97	403,236.38	744,333.18	32° 6' 24.7650 N	103° 40' 39.8206 W	
10,935.00	82.04	178.29	10,551.39	-495.79	24.00	403,190.01	744,334.21	32° 6' 24.3061 N	103° 40' 39.8119 W	
10,981.00	85.38	178.65	10,556.43	-541.49	25.22	403,144.31	744,335.43	32° 6' 23.8538 N	103° 40' 39.8010 W	
11,052.00	86.97	178.12	10,561.17	-612.30	27.21	403,073.50	744,337.43	32° 6' 23.1529 N	103° 40' 39.7828 W	
11,144.00	87.85	178.47	10,565.33	-704.17	29.95	402,981.63	744,340.16	32° 6' 22.2437 N	103° 40' 39.7575 W	
11,236.00	89.16	178.82	10,567.73	-796.11	32.12	402,889.69	744,342.34	32° 6' 21.3338 N	103° 40' 39.7387 W	
11,327.00	88.99	178.82	10,569.20	-887.08	34.00	402,798.72	744,344.21	32° 6' 20.4335 N	103° 40' 39.7233 W	
11,418.00	88.72	179.00	10,571.01	-978.04	35.73	402,707.76	744,345.94	32° 6' 19.5332 N	103° 40' 39.7096 W	
11,509.00	88.29	178.65	10,573.39	-1,068.99	37.59	402,616.81	744,347.81	32° 6' 18.6331 N	103° 40' 39.6944 W	
11,599.00	90.31	179.00	10,574.49	-1,158.96	39.44	402,526.84	744,349.65	32° 6' 17.7427 N	103° 40' 39.6793 W	
11,690.00	91.10	179.17	10,573.37	-1,249.94	40.89	402,435.86	744,351.11	32° 6' 16.8423 N	103° 40' 39.6688 W	
11,782.00	91.10	179.17	10,571.60	-1,341.92	42.22	402,343.88	744,352.44	32° 6' 15.9321 N	103° 40' 39.6598 W	
11,873.00	90.04	180.58	10,570.70	-1,432.91	42.42	402,252.89	744,352.64	32° 6' 15.0316 N	103° 40' 39.6640 W	
11,965.00	89.69	180.05	10,570.91	-1,524.90	41.92	402,160.89	744,352.13	32° 6' 14.1213 N	103° 40' 39.6764 W	
12,056.00	89.08	179.70	10,571.89	-1,615.90	42.11	402,069.90	744,352.33	32° 6' 13.2208 N	103° 40' 39.6805 W	
12,146.00	88.55	179.88	10,573.75	-1,705.88	42.44	401,979.92	744,352.66	32° 6' 12.3304 N	103° 40' 39.6830 W	
12,239.00	88.46	179.88	10,576.18	-1,798.85	42.64	401,886.95	744,352.86	32° 6' 11.4104 N	103° 40' 39.6873 W	
12,332.00	88.46	180.93	10,578.68	-1,891.81	41.98	401,793.99	744,352.20	32° 6' 10.4905 N	103° 40' 39.7015 W	
12,427.00	87.14	180.58	10,582.32	-1,986.73	40.73	401,699.07	744,350.95	32° 6' 9.5513 N	103° 40' 39.7228 W	
12,522.00	87.49	180.40	10,586.77	-2,081.62	39.92	401,604.18	744,350.14	32° 6' 8.6124 N	103° 40' 39.7389 W	
12,617.00	89.60	181.63	10,589.19	-2,176.57	38.24	401,509.23	744,348.45	32° 6' 7.6729 N	103° 40' 39.7652 W	
12,711.00	90.31	181.99	10,589.26	-2,270.52	35.27	401,415.28	744,345.48	32° 6' 6.7434 N	103° 40' 39.8064 W	
12,805.00	90.04	181.81	10,588.97	-2,364.47	32.15	401,321.33	744,342.37	32° 6' 5.8139 N	103° 40' 39.8492 W	
12,900.00	89.43	182.16	10,589.41	-2,459.41	28.86	401,226.39	744,339.08	32° 6' 4.8746 N	103° 40' 39.8942 W	
12,994.00	89.52	181.99	10,590.27	-2,553.34	25.46	401,132.45	744,335.67	32° 6' 3.9452 N	103° 40' 39.9404 W	
13,089.00	90.75	181.11	10,590.05	-2,648.31	22.89	401,037.49	744,333.10	32° 6' 3.0057 N	103° 40' 39.9770 W	
13,179.00	91.01	180.76	10,588.67	-2,738.28	21.42	400,947.52	744,331.64	32° 6' 2.1154 N	103° 40' 40.0004 W	
13,274.00	90.48	180.93	10,587.43	-2,833.26	20.02	400,852.53	744,330.23	32° 6' 1.1756 N	103° 40' 40.0234 W	
13,369.00	89.08	180.23	10,587.80	-2,928.26	19.06	400,757.54	744,329.27	32° 6' 0.2356 N	103° 40' 40.0413 W	
13,464.00	90.04	180.93	10,588.53	-3,023.25	18.09	400,662.55	744,328.31	32° 5' 59.2957 N	103° 40' 40.0592 W	
13,559.00	88.81	180.58	10,589.48	-3,118.23	16.84	400,567.57	744,327.06	32° 5' 58.3559 N	103° 40' 40.0805 W	
13,654.00	88.46	180.40	10,591.74	-3,213.20	16.03	400,472.60	744,326.25	32° 5' 57.4161 N	103° 40' 40.0966 W	
13,749.00	87.85	179.00	10,594.80	-3,308.15	16.53	400,377.65	744,326.74	32° 5' 56.4765 N	103° 40' 40.0976 W	
13,844.00	88.46	180.05	10,597.86	-3,403.09	17.31	400,282.71	744,327.53	32° 5' 55.5369 N	103° 40' 40.0951 W	
13,939.00	89.96	180.40	10,599.17	-3,498.08	16.94	400,187.72	744,327.16	32° 5' 54.5970 N	103° 40' 40.1062 W	
14,033.00	88.64	180.40	10,600.32	-3,592.07	16.29	400,093.73	744,326.50	32° 5' 53.6670 N	103° 40' 40.1205 W	
14,127.00	89.08	180.40	10,602.19	-3,686.05	15.63	399,999.75	744,325.85	32° 5' 52.7370 N	103° 40' 40.1347 W	
14,220.00	87.49	178.65	10,604.97	-3,779.00	16.40	399,906.80	744,326.62	32° 5' 51.8172 N	103° 40' 40.1323 W	
14,312.00	87.93	178.47	10,608.65	-3,870.89	18.71	399,814.90	744,328.93	32° 5' 50.9077 N	103° 40' 40.1120 W	
14,404.00	88.64	179.35	10,611.40	-3,962.83	20.46	399,722.96	744,330.68	32° 5' 49.9978 N	103° 40' 40.0981 W	
14,498.00	89.16	180.40	10,613.21	-4,056.82	20.66	399,628.98	744,330.88	32° 5' 49.0678 N	103° 40' 40.1024 W	
14,593.00	88.99	179.17	10,614.74	-4,151.80	21.02	399,534.00	744,331.24	32° 5' 48.1278 N	103° 40' 40.1050 W	
14,688.00	89.34	179.52	10,616.13	-4,246.78	22.11	399,439.01	744,332.32	32° 5' 47.1878 N	103° 40' 40.0991 W	
14,782.00	90.22	179.70	10,616.49	-4,340.78	22.75	399,345.02	744,332.96	32° 5' 46.2576 N	103° 40' 40.0983 W	
14,876.00	89.25	179.00	10,616.92	-4,434.77	23.81	399,251.03	744,334.03	32° 5' 45.3275 N	103° 40' 40.0925 W	
14,971.00	90.22	178.82	10,617.36	-4,529.75	25.62	399,156.05	744,335.84	32° 5' 44.3875 N	103° 40' 40.0782 W	
15,066.00	89.60	178.82	10,617.51	-4,624.73	27.58	399,061.07	744,337.79	32° 5' 43.4475 N	103° 40' 40.0622 W	

Survey Report - Geographic

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi_User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,160.00	88.20	178.65	10,619.31	-4,718.69	29.65	398,967.11	744,339.87	32° 5' 42.5176 N	103° 40' 40.0447 W
15,255.00	88.55	179.35	10,622.01	-4,813.64	31.31	398,872.16	744,341.52	32° 5' 41.5779 N	103° 40' 40.0322 W
15,350.00	88.64	179.17	10,624.34	-4,908.60	32.53	398,777.20	744,342.75	32° 5' 40.6381 N	103° 40' 40.0246 W
15,445.00	90.04	179.88	10,625.43	-5,003.59	33.32	398,682.21	744,343.54	32° 5' 39.6981 N	103° 40' 40.0222 W
15,544.00	89.87	180.58	10,625.51	-5,102.59	32.92	398,583.21	744,343.14	32° 5' 38.7185 N	103° 40' 40.0338 W
15,639.00	90.75	181.11	10,625.00	-5,197.57	31.52	398,488.23	744,341.74	32° 5' 37.7786 N	103° 40' 40.0568 W
15,734.00	89.08	180.40	10,625.14	-5,292.56	30.27	398,393.24	744,340.49	32° 5' 36.8387 N	103° 40' 40.0780 W
15,829.00	89.78	178.82	10,626.08	-5,387.55	30.92	398,298.25	744,341.13	32° 5' 35.8987 N	103° 40' 40.0772 W
15,924.00	88.90	178.82	10,627.18	-5,482.52	32.87	398,203.28	744,343.09	32° 5' 34.9588 N	103° 40' 40.0612 W
16,019.00	89.25	177.59	10,628.71	-5,577.46	35.85	398,108.34	744,346.07	32° 5' 34.0191 N	103° 40' 40.0333 W
16,114.00	88.55	178.12	10,630.53	-5,672.38	39.40	398,013.42	744,349.62	32° 5' 33.0797 N	103° 40' 39.9987 W
16,209.00	87.58	179.35	10,633.74	-5,767.30	41.50	397,918.50	744,351.72	32° 5' 32.1403 N	103° 40' 39.9811 W
16,304.00	89.34	179.35	10,636.29	-5,862.25	42.58	397,823.55	744,352.79	32° 5' 31.2005 N	103° 40' 39.9752 W
16,399.00	89.43	180.93	10,637.31	-5,957.24	42.35	397,728.56	744,352.56	32° 5' 30.2606 N	103° 40' 39.9847 W
16,493.00	91.45	180.93	10,636.59	-6,051.22	40.82	397,634.58	744,351.04	32° 5' 29.3307 N	103° 40' 40.0090 W
16,589.00	90.57	180.93	10,634.90	-6,147.19	39.26	397,538.60	744,349.48	32° 5' 28.3811 N	103° 40' 40.0339 W
16,684.00	88.46	180.40	10,635.70	-6,242.18	38.16	397,443.62	744,348.38	32° 5' 27.4412 N	103° 40' 40.0534 W
16,779.00	90.13	180.76	10,636.87	-6,337.16	37.20	397,348.64	744,347.42	32° 5' 26.5013 N	103° 40' 40.0713 W
16,874.00	89.52	180.93	10,637.16	-6,432.15	35.80	397,253.65	744,346.01	32° 5' 25.5614 N	103° 40' 40.0943 W
16,969.00	88.46	179.70	10,638.84	-6,527.13	35.28	397,158.67	744,345.49	32° 5' 24.6216 N	103° 40' 40.1071 W
17,064.00	89.52	180.23	10,640.51	-6,622.12	35.33	397,063.68	744,345.55	32° 5' 23.6816 N	103° 40' 40.1132 W
17,159.00	91.71	181.11	10,639.49	-6,717.10	34.22	396,968.70	744,344.44	32° 5' 22.7418 N	103° 40' 40.1328 W
17,254.00	90.40	180.05	10,637.74	-6,812.07	33.26	396,873.73	744,343.48	32° 5' 21.8020 N	103° 40' 40.1507 W
17,349.00	89.87	179.00	10,637.52	-6,907.07	34.05	396,778.73	744,344.27	32° 5' 20.8619 N	103° 40' 40.1482 W
17,443.00	91.45	178.82	10,636.44	-7,001.04	35.84	396,684.76	744,346.05	32° 5' 19.9319 N	103° 40' 40.1341 W
17,538.00	90.48	178.65	10,634.84	-7,096.00	37.93	396,589.80	744,348.15	32° 5' 18.9921 N	103° 40' 40.1164 W
17,633.00	90.92	179.70	10,633.68	-7,190.99	39.30	396,494.81	744,349.52	32° 5' 18.0521 N	103° 40' 40.1072 W
17,728.00	90.84	180.05	10,632.22	-7,285.97	39.51	396,399.83	744,349.73	32° 5' 17.1121 N	103° 40' 40.1115 W
17,823.00	89.78	181.11	10,631.70	-7,380.96	38.55	396,304.83	744,348.76	32° 5' 16.1722 N	103° 40' 40.1294 W
17,917.00	87.93	180.93	10,633.58	-7,474.93	36.87	396,210.87	744,347.09	32° 5' 15.2425 N	103° 40' 40.1555 W
18,011.00	89.52	181.28	10,635.67	-7,568.88	35.06	396,116.92	744,345.28	32° 5' 14.3128 N	103° 40' 40.1832 W
18,106.00	89.78	180.93	10,636.25	-7,663.86	33.23	396,021.94	744,343.45	32° 5' 13.3730 N	103° 40' 40.2112 W
18,200.00	88.46	181.28	10,637.70	-7,757.83	31.42	395,927.97	744,341.63	32° 5' 12.4433 N	103° 40' 40.2389 W
18,293.00	90.04	181.63	10,638.91	-7,850.79	29.06	395,835.01	744,339.27	32° 5' 11.5235 N	103° 40' 40.2729 W
18,387.00	90.31	180.23	10,638.63	-7,944.78	27.53	395,741.02	744,337.75	32° 5' 10.5936 N	103° 40' 40.2973 W
18,482.00	89.78	179.88	10,638.55	-8,039.78	27.44	395,646.02	744,337.66	32° 5' 9.6535 N	103° 40' 40.3051 W
18,577.00	91.28	180.05	10,637.67	-8,134.77	27.50	395,551.03	744,337.71	32° 5' 8.7135 N	103° 40' 40.3111 W
18,671.00	90.92	179.88	10,635.87	-8,228.75	27.55	395,457.05	744,337.77	32° 5' 7.7834 N	103° 40' 40.3171 W
18,766.00	89.87	179.35	10,635.21	-8,323.75	28.19	395,362.05	744,338.41	32° 5' 6.8434 N	103° 40' 40.3164 W
18,860.00	88.29	179.17	10,636.72	-8,417.72	29.41	395,268.08	744,339.62	32° 5' 5.9133 N	103° 40' 40.3089 W
18,954.00	89.69	179.52	10,638.38	-8,511.70	30.48	395,174.10	744,340.70	32° 5' 4.9833 N	103° 40' 40.3030 W
19,048.00	90.40	179.17	10,638.31	-8,605.69	31.56	395,080.11	744,341.77	32° 5' 4.0531 N	103° 40' 40.2972 W
19,143.00	90.48	178.82	10,637.58	-8,700.67	33.22	394,985.12	744,343.44	32° 5' 3.1131 N	103° 40' 40.2845 W
19,238.00	90.40	179.00	10,636.85	-8,795.65	35.03	394,890.14	744,345.25	32° 5' 2.1731 N	103° 40' 40.2702 W
19,333.00	90.84	179.35	10,635.82	-8,890.64	36.40	394,795.16	744,346.61	32° 5' 1.2331 N	103° 40' 40.2610 W
19,427.00	89.96	178.82	10,635.16	-8,984.62	37.90	394,701.18	744,348.11	32° 5' 0.3030 N	103° 40' 40.2502 W
19,521.00	88.46	178.47	10,636.46	-9,078.59	40.12	394,607.21	744,350.34	32° 4' 59.3730 N	103° 40' 40.2310 W
19,614.00	89.60	178.47	10,638.03	-9,171.54	42.60	394,514.26	744,352.82	32° 4' 58.4531 N	103° 40' 40.2087 W
19,709.00	91.45	179.70	10,637.16	-9,266.52	44.12	394,419.28	744,354.34	32° 4' 57.5131 N	103° 40' 40.1978 W
19,804.00	90.75	180.23	10,635.34	-9,361.50	44.18	394,324.30	744,354.39	32° 4' 56.5732 N	103° 40' 40.2039 W
19,898.00	89.25	180.23	10,635.34	-9,455.49	43.80	394,230.31	744,354.02	32° 4' 55.6431 N	103° 40' 40.2149 W
19,993.00	90.92	180.58	10,635.20	-9,550.49	43.13	394,135.31	744,353.35	32° 4' 54.7031 N	103° 40' 40.2294 W
20,087.00	89.60	180.93	10,634.77	-9,644.48	41.89	394,041.32	744,352.11	32° 4' 53.7731 N	103° 40' 40.2504 W
20,182.00	90.57	181.46	10,634.63	-9,739.45	39.91	393,946.35	744,350.13	32° 4' 52.8333 N	103° 40' 40.2802 W
20,276.00	90.84	181.28	10,633.47	-9,833.42	37.66	393,852.38	744,347.88	32° 4' 51.9036 N	103° 40' 40.3129 W

Survey Report - Geographic

Company:	Devon Energy	Local Co-ordinate Reference:	Well Van Doo Dah 28-33 Fed Com 235H
Project:	Lea County, NM (NAD-83)	TVD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Site:	Marwari/Van Doo Dah	MD Reference:	3389.1' GE + 32' KB @ 3421.10usft
Well:	Van Doo Dah 28-33 Fed Com 235H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Multi_User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,369.00	90.48	180.98	10,632.40	-9,926.39	35.83	393,759.40	744,346.04	32° 4' 50.9837 N	103° 40' 40.3408 W
20,463.00	91.54	180.93	10,630.75	-10,020.37	34.26	393,665.43	744,344.48	32° 4' 50.0539 N	103° 40' 40.3656 W
20,558.00	91.10	180.76	10,628.56	-10,115.33	32.86	393,570.47	744,343.08	32° 4' 49.1142 N	103° 40' 40.3886 W
20,651.00	91.45	180.76	10,626.49	-10,208.30	31.63	393,477.50	744,341.84	32° 4' 48.1943 N	103° 40' 40.4095 W
20,698.68	92.40	180.64	10,624.89	-10,255.95	31.05	393,429.85	744,341.26	32° 4' 47.7228 N	103° 40' 40.4197 W
LTP (Van Doo Dah 235H) - 100' FSL, 1984' FEL - S33									
20,722.00	92.86	180.58	10,623.82	-10,279.24	30.80	393,406.56	744,341.01	32° 4' 47.4923 N	103° 40' 40.4242 W
20,777.00	92.86	180.58	10,621.07	-10,334.17	30.24	393,351.63	744,340.46	32° 4' 46.9488 N	103° 40' 40.4345 W
Projection - BHL (Van Doo Dah 235H) - 22' FSL, 1985' FEL - S33 - PBHL (Van Doo Dah 235H) - 20' FSL, 1980' FEL - S33									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
SHL (Van Doo Dah 235H)	0.00	0.00	0.00	0.00	0.00	403,685.80	744,310.22	32° 6' 29.2137 N	103° 40' 40.0558 W
- actual wellpath hits target center									
- Point									
KOP (Van Doo Dah 235H)	0.00	0.00	9,934.73	173.30	28.36	403,859.10	744,338.58	32° 6' 30.9269 N	103° 40' 39.7139 W
- actual wellpath hits target center									
- Point									
FTP (Van Doo Dah 235H)	0.00	0.00	10,192.81	104.79	35.16	403,790.59	744,345.38	32° 6' 30.2485 N	103° 40' 39.6397 W
- actual wellpath hits target center									
- Point									
BHL (Van Doo Dah 235H)	0.00	0.00	10,621.07	-10,334.17	30.24	393,351.63	744,340.46	32° 4' 46.9488 N	103° 40' 40.4345 W
- actual wellpath hits target center									
- Point									
LTP (Van Doo Dah 235H)	0.00	0.00	10,624.89	-10,255.95	31.05	393,429.85	744,341.27	32° 4' 47.7228 N	103° 40' 40.4196 W
- actual wellpath hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,255.00	5,254.54	Casing	7	7-1/2