



NABORS DRILLING TECHNOLOGIES USA, INC.

515 West Greens Road

Houston, TX 77067

Phone: 281.874.0035

Fax: 281.872.5205

Tuesday, July 24, 2018

State of New Mexico

County of Eddy

Subject: **Survey Certification Letter**

Survey Company: NABORS DRILLING TECH USA, INC.

Job Number: T5169

Survey Job Type: Nabors MWD

Customer: Devon Energy Corporation

Well Name: Cotton Draw Unit 515H

Rig Name: Nabors X20

Surface: 32.19426884 N 103.7242973 W

A.P.I. No: 30-015-44716

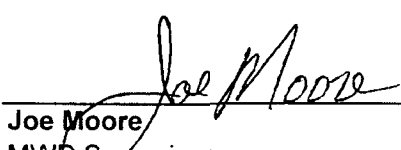
Location: Eddy, NM

RKB Height: 32'

Distance to Bit: 62'

Surveyor Name	Surveyor Title	Borehole Number	Start Depth	End Depth	Start Date	End Date	Type of	TD Straight Line Projection
Joe Moore	MWD Supervisor	OH	145'	19260'	07/08/18	07/24/18	MWD	19322'

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by NABORS DRILLING TECHNOLOGIES USA, INC. I am authorized and qualified to review the data, calculations and these reports; the reports represents true and correct Directional Surveys of this well based on the original data, the minimum curvature method, corrected to Grid North and obtained at the well site.


Joe Moore

MWD Supervisor

NABORS DRILLING TECHNOLOGIES USA, INC.



Devon Energy Corporation

**Eddy Co., NM
Cotton Draw Unit
515H**

OH

Design: Surveys

Standard Survey Report

24 July, 2018





Nabors
Survey Report



Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well 515H
Project:	Eddy Co., NM	TVD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

Project	Eddy Co., NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Cotton Draw Unit		
Site Position:	Map	Northing:	434,943.040 usft
From:		Easting:	729,763.800 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 39.367416 N
		Longitude:	103° 43' 27.121085 W
		Grid Convergence:	0.32 °

Well	515H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	32° 11' 39.367812 N
		Longitude:	103° 43' 27.470329 W
		Ground Level:	3,541.10 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	User Defined	6/1/2018	6.93
			Dip Angle
			(°)
			59.92
			Field Strength
			(nT)
			48,027.30000000

Design	Surveys		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			119.02

Survey Program	Date 7/24/2018		
From	To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
145.00	19,322.00	Survey #1 - NDS MWD (OH)	MWD+IFR1
			Description
			OWSG MWD + IFR1

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145.00	0.75	116.99	145.00	-0.43	0.85	0.95	0.52	0.52	0.00
235.00	0.63	113.47	234.99	-0.90	1.82	2.03	0.14	-0.13	-3.91
336.00	0.75	110.14	335.98	-1.34	2.95	3.24	0.13	0.12	-3.30
426.00	0.88	128.77	425.97	-1.98	4.05	4.50	0.33	0.14	20.70
516.00	0.81	129.47	515.96	-2.82	5.08	5.81	0.08	-0.08	0.78
689.00	0.56	151.62	688.95	-4.34	6.42	7.72	0.21	-0.14	12.80
787.00	0.56	160.58	786.95	-5.21	6.81	8.48	0.09	0.00	9.14
878.00	0.75	197.50	877.94	-6.20	6.78	8.93	0.50	0.21	40.57
968.00	0.94	179.04	967.93	-7.50	6.61	9.42	0.37	0.21	-20.51



Nabors
Survey Report



Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well 515H
Project:	Eddy Co., NM	TVD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

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)	
1,060.00	0.75	224.57	1,059.92	-8.68	6.20	9.64	0.74	-0.21	49.49	
1,151.00	0.69	266.76	1,150.92	-9.14	5.24	9.01	0.57	-0.07	46.36	
1,242.00	0.88	294.35	1,241.91	-8.88	4.05	7.85	0.46	0.21	30.32	
1,332.00	1.13	295.76	1,331.89	-8.21	2.63	6.28	0.28	0.28	1.57	
1,424.00	0.88	300.33	1,423.88	-7.46	1.20	4.67	0.29	-0.27	4.97	
1,516.00	0.69	325.82	1,515.87	-6.64	0.28	3.47	0.43	-0.21	27.71	
1,608.00	0.44	342.52	1,607.87	-5.85	-0.14	2.71	0.32	-0.27	18.15	
1,701.00	0.25	313.34	1,700.86	-5.37	-0.39	2.26	0.27	-0.20	-31.38	
1,795.00	0.31	1.68	1,794.86	-4.97	-0.54	1.94	0.25	0.06	51.43	
1,890.00	0.25	301.03	1,889.86	-4.61	-0.71	1.62	0.30	-0.06	-63.84	
1,984.00	0.31	337.95	1,983.86	-4.27	-0.98	1.22	0.20	0.06	39.28	
2,078.00	0.31	39.47	2,077.86	-3.84	-0.91	1.06	0.34	0.00	65.45	
2,172.00	0.31	3.61	2,171.86	-3.39	-0.73	1.00	0.20	0.00	-38.15	
2,266.00	0.19	16.09	2,265.86	-2.98	-0.67	0.86	0.14	-0.13	13.28	
2,361.00	0.31	86.58	2,360.86	-2.82	-0.37	1.04	0.32	0.13	74.20	
2,455.00	0.25	158.30	2,454.86	-2.99	-0.04	1.41	0.35	-0.06	76.30	
2,549.00	0.19	92.91	2,548.86	-3.19	0.19	1.71	0.26	-0.06	-69.56	
2,643.00	0.50	82.19	2,642.85	-3.14	0.75	2.18	0.34	0.33	-11.40	
2,738.00	0.94	14.86	2,737.85	-2.33	1.36	2.32	0.92	0.46	-70.87	
2,832.00	2.50	345.68	2,831.80	0.40	1.05	0.72	1.85	1.66	-31.04	
2,926.00	4.44	328.46	2,925.63	5.49	-1.36	-3.85	2.32	2.06	-18.32	
3,020.00	5.25	324.24	3,019.29	12.08	-5.78	-10.91	0.94	0.86	-4.49	
3,115.00	6.13	322.30	3,113.82	19.62	-11.42	-19.50	0.95	0.93	-2.04	
3,209.00	7.13	323.36	3,207.19	28.27	-17.97	-29.43	1.07	1.06	1.13	
3,303.00	6.50	329.69	3,300.53	37.55	-24.14	-39.32	1.04	-0.67	6.73	
3,398.00	6.06	329.16	3,394.96	46.49	-29.42	-48.28	0.47	-0.46	-0.56	
3,492.00	5.81	333.38	3,488.46	55.01	-34.10	-56.50	0.53	-0.27	4.49	
3,587.00	6.19	325.12	3,582.94	63.51	-39.18	-65.07	0.99	0.40	-8.69	
3,681.00	6.19	319.31	3,676.39	71.51	-45.38	-74.38	0.67	0.00	-6.18	
3,775.00	5.56	318.26	3,769.90	78.75	-51.72	-83.43	0.68	-0.67	-1.12	
3,869.00	5.94	312.99	3,863.42	85.46	-58.31	-92.45	0.69	0.40	-5.61	
3,964.00	5.69	313.34	3,957.94	92.05	-65.33	-101.78	0.27	-0.26	0.37	
4,058.00	5.81	321.25	4,051.46	98.96	-71.70	-110.70	0.85	0.13	8.41	
4,152.00	5.94	327.75	4,144.97	106.78	-77.27	-119.37	0.72	0.14	6.91	
4,247.00	5.81	322.65	4,239.47	114.76	-82.81	-128.09	0.57	-0.14	-5.37	
4,341.00	6.44	321.07	4,332.94	122.64	-89.01	-137.33	0.69	0.67	-1.68	
4,435.00	7.19	317.73	4,426.27	131.10	-96.28	-147.79	0.90	0.80	-3.55	
4,503.00	7.75	317.56	4,493.69	137.63	-102.23	-156.17	0.82	0.82	-0.25	
4,625.00	6.88	314.39	4,614.70	148.81	-113.01	-171.02	0.79	-0.71	-2.60	
4,720.00	6.81	315.10	4,709.02	156.78	-121.05	-181.92	0.12	-0.07	0.75	
4,814.00	6.69	312.99	4,802.37	164.46	-128.99	-192.58	0.29	-0.13	-2.24	
4,908.00	6.94	313.34	4,895.71	172.09	-137.12	-203.40	0.27	0.27	0.37	
5,002.00	6.75	312.64	4,989.04	179.73	-145.32	-214.27	0.22	-0.20	-0.74	
5,096.00	7.06	312.81	5,082.36	187.40	-153.62	-225.25	0.33	0.33	0.18	

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Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

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)
5,191.00	7.19	315.98	5,176.62	195.64	-162.03	-236.61	0.44	0.14	3.34
5,285.00	7.38	313.51	5,269.86	204.03	-170.50	-248.08	0.39	0.20	-2.63
5,379.00	7.31	312.46	5,363.09	212.22	-179.29	-259.74	0.16	-0.07	-1.12
5,474.00	7.19	311.93	5,457.33	220.28	-188.17	-271.42	0.14	-0.13	-0.56
5,569.00	7.00	310.00	5,551.61	227.97	-197.03	-282.89	0.32	-0.20	-2.03
5,663.00	6.94	308.94	5,644.91	235.22	-205.83	-294.11	0.15	-0.06	-1.13
5,758.00	6.88	305.43	5,739.22	242.13	-214.93	-305.42	0.45	-0.06	-3.69
5,852.00	6.81	315.45	5,832.56	249.36	-223.43	-316.36	1.27	-0.07	10.66
5,947.00	7.25	319.14	5,926.84	257.91	-231.31	-327.39	0.66	0.46	3.88
6,041.00	7.13	317.91	6,020.10	266.73	-239.10	-338.48	0.21	-0.13	-1.31
6,135.00	6.88	317.56	6,113.40	275.21	-246.81	-349.34	0.27	-0.27	-0.37
6,229.00	6.63	315.45	6,206.75	283.23	-254.41	-359.88	0.37	-0.27	-2.24
6,324.00	7.13	322.13	6,301.07	291.80	-261.88	-370.56	0.99	0.53	7.03
6,418.00	7.13	323.53	6,394.34	301.09	-268.93	-381.24	0.18	0.00	1.49
6,512.00	7.00	322.65	6,487.62	310.34	-275.87	-391.79	0.18	-0.14	-0.94
6,607.00	7.06	322.30	6,581.91	319.56	-282.95	-402.46	0.08	0.06	-0.37
6,700.00	6.94	321.60	6,674.22	328.48	-289.94	-412.90	0.16	-0.13	-0.75
6,795.00	6.56	320.72	6,768.56	337.18	-296.94	-423.24	0.41	-0.40	-0.93
6,889.00	6.19	321.78	6,861.98	345.32	-303.47	-432.90	0.41	-0.39	1.13
6,983.00	5.94	319.49	6,955.45	353.00	-309.77	-442.13	0.37	-0.27	-2.44
7,077.00	5.69	319.14	7,048.97	360.22	-315.98	-451.07	0.27	-0.27	-0.37
7,171.00	5.69	315.10	7,142.50	367.05	-322.31	-459.92	0.43	0.00	-4.30
7,266.00	5.81	315.98	7,237.03	373.84	-328.98	-469.04	0.16	0.13	0.93
7,360.00	6.56	321.60	7,330.48	381.47	-335.62	-478.55	1.02	0.80	5.98
7,454.00	6.50	319.31	7,423.87	389.71	-342.42	-488.50	0.28	-0.06	-2.44
7,548.00	6.19	320.55	7,517.29	397.66	-349.11	-498.21	0.36	-0.33	1.32
7,642.00	5.56	321.25	7,610.80	405.12	-355.18	-507.14	0.67	-0.67	0.74
7,736.00	5.25	320.72	7,704.38	412.00	-360.76	-515.35	0.33	-0.33	-0.56
7,830.00	5.06	321.60	7,798.00	418.58	-366.06	-523.17	0.22	-0.20	0.94
7,925.00	4.69	318.26	7,892.66	424.76	-371.24	-530.71	0.49	-0.39	-3.52
8,019.00	4.00	316.15	7,986.39	429.99	-376.07	-537.47	0.75	-0.73	-2.24
8,114.00	3.44	313.16	8,081.19	434.33	-380.45	-543.40	0.62	-0.59	-3.15
8,208.00	3.19	310.17	8,175.03	437.95	-384.50	-548.70	0.32	-0.27	-3.18
8,302.00	2.94	292.24	8,268.90	440.55	-388.73	-553.66	1.05	-0.27	-19.07
8,396.00	1.75	289.43	8,362.82	441.94	-392.32	-557.47	1.27	-1.27	-2.99
8,490.00	1.13	285.92	8,456.79	442.67	-394.56	-559.79	0.67	-0.66	-3.73
8,585.00	4.31	156.54	8,551.71	439.65	-394.04	-557.87	5.37	3.35	-136.19
8,595.37	5.60	157.48	8,562.04	438.83	-393.69	-557.16	12.44	12.42	9.05
CDU_515H_KOP									
8,679.00	16.00	159.53	8,644.07	424.22	-388.08	-545.17	12.44	12.44	2.45
8,724.00	21.75	163.57	8,686.64	410.40	-383.55	-534.50	13.10	12.78	8.98
8,773.00	23.19	176.40	8,731.94	392.05	-380.38	-522.82	10.41	2.94	26.18
8,867.00	29.38	187.83	8,816.24	350.67	-382.36	-504.48	8.48	6.59	12.16



Nabors
Survey Report



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Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

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)
8,912.00	35.88	186.60	8,854.12	326.61	-385.38	-495.45	14.52	14.44	-2.73
8,962.00	40.75	179.04	8,893.36	295.70	-386.80	-481.69	13.50	9.74	-15.12
9,007.00	44.13	170.78	8,926.59	265.52	-384.04	-464.63	14.47	7.51	-18.36
9,055.00	49.94	171.66	8,959.29	230.82	-378.69	-443.12	12.18	12.10	1.83
9,100.00	54.19	175.53	8,986.95	195.57	-374.77	-422.59	11.62	9.44	8.60
9,149.00	57.44	177.28	9,014.48	155.12	-372.24	-400.75	7.26	6.63	3.57
9,194.00	62.19	175.88	9,037.10	116.30	-369.91	-379.88	10.89	10.56	-3.11
9,243.00	67.63	176.58	9,057.87	72.04	-367.00	-355.86	11.18	11.10	1.43
9,288.00	69.69	178.51	9,074.25	30.17	-365.21	-333.98	6.08	4.58	4.29
9,336.00	72.25	178.16	9,089.90	-15.19	-363.89	-310.82	5.38	5.33	-0.73
9,381.00	74.63	178.51	9,102.72	-58.30	-362.63	-288.81	5.34	5.29	0.78
9,431.00	77.44	179.57	9,114.79	-106.81	-361.82	-264.56	5.98	5.62	2.12
9,467.04	80.64	179.71	9,121.64	-142.18	-361.60	-247.20	8.90	8.89	0.38
CDU_515H_EOC									
9,476.00	81.44	179.74	9,123.03	-151.04	-361.56	-242.87	8.90	8.89	0.37
9,525.00	85.38	180.45	9,128.66	-199.70	-361.64	-219.33	8.17	8.04	1.45
9,561.00	90.00	181.15	9,130.11	-235.66	-362.14	-202.32	12.98	12.83	1.94
9,593.00	90.50	180.98	9,129.97	-267.65	-362.74	-187.32	1.65	1.56	-0.53
9,638.00	90.38	180.45	9,129.62	-312.65	-363.30	-165.98	1.21	-0.27	-1.18
9,687.00	90.25	180.62	9,129.35	-361.64	-363.76	-142.61	0.44	-0.27	0.35
9,732.00	90.44	180.80	9,129.08	-406.64	-364.31	-121.26	0.58	0.42	0.40
9,781.00	89.69	180.62	9,129.03	-455.64	-364.92	-98.02	1.57	-1.53	-0.37
9,880.00	89.69	180.27	9,129.56	-554.63	-365.69	-50.66	0.35	0.00	-0.35
9,974.00	89.81	179.39	9,129.97	-648.63	-365.41	-4.81	0.94	0.13	-0.94
10,068.00	88.38	178.34	9,131.46	-742.60	-363.55	42.40	1.89	-1.52	-1.12
10,162.00	88.25	178.34	9,134.22	-836.52	-360.83	90.35	0.14	-0.14	0.00
10,256.00	90.19	178.34	9,135.50	-930.46	-358.10	138.32	2.06	2.06	0.00
10,351.00	90.25	177.99	9,135.13	-1,025.41	-355.06	187.04	0.37	0.06	-0.37
10,445.00	91.31	180.62	9,133.86	-1,119.39	-353.92	233.64	3.02	1.13	2.80
10,539.00	92.75	181.85	9,130.53	-1,213.30	-355.95	277.43	2.01	1.53	1.31
10,633.00	93.88	182.56	9,125.09	-1,307.07	-359.56	319.77	1.42	1.20	0.76
10,725.00	92.31	181.33	9,120.12	-1,398.88	-362.67	361.59	2.17	-1.71	-1.34
10,815.00	93.13	180.80	9,115.85	-1,488.76	-364.35	403.74	1.08	0.91	-0.59
10,905.00	91.50	179.74	9,112.22	-1,578.69	-364.77	447.00	2.16	-1.81	-1.18
10,997.00	89.88	180.45	9,111.11	-1,670.68	-364.92	491.49	1.92	-1.76	0.77
11,087.00	89.38	180.27	9,111.69	-1,760.67	-365.49	534.67	0.59	-0.56	-0.20
11,178.00	89.13	180.62	9,112.87	-1,851.66	-366.19	578.19	0.47	-0.27	0.38
11,269.00	89.63	180.98	9,113.86	-1,942.65	-367.46	621.23	0.68	0.55	0.40
11,360.00	89.50	180.80	9,114.55	-2,033.63	-368.88	664.14	0.24	-0.14	-0.20
11,451.00	87.88	180.27	9,116.63	-2,124.60	-369.73	707.53	1.87	-1.78	-0.58
11,543.00	87.31	180.27	9,120.49	-2,216.52	-370.16	751.75	0.62	-0.62	0.00
11,633.00	88.31	180.45	9,123.93	-2,306.45	-370.72	794.89	1.13	1.11	0.20
11,710.90	88.52	180.30	9,126.08	-2,384.32	-371.23	832.23	0.34	0.27	-0.20
CDU_515H_T1									

Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well 515H
Project:	Eddy Co., NM	TVD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

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)
11,724.00	88.56	180.27	9,126.41	-2,397.41	-371.30	838.52	0.34	0.27	-0.20
11,817.00	92.19	179.57	9,125.80	-2,490.40	-371.17	883.75	3.98	3.90	-0.75
11,909.00	94.56	180.10	9,120.39	-2,582.23	-370.90	928.54	2.64	2.58	0.58
12,001.00	92.38	178.87	9,114.82	-2,674.05	-370.08	973.81	2.72	-2.37	-1.34
12,095.00	92.88	178.34	9,110.51	-2,767.92	-367.79	1,021.35	0.77	0.53	-0.56
12,189.00	91.00	178.69	9,107.33	-2,861.83	-365.35	1,069.05	2.03	-2.00	0.37
12,283.00	91.38	178.34	9,105.37	-2,955.78	-362.92	1,116.76	0.55	0.40	-0.37
12,377.00	91.50	177.64	9,103.01	-3,049.69	-359.62	1,165.20	0.76	0.13	-0.74
12,471.00	91.13	177.28	9,100.85	-3,143.57	-355.46	1,214.40	0.55	-0.39	-0.38
12,565.00	91.00	179.39	9,099.11	-3,237.51	-352.73	1,262.36	2.25	-0.14	2.24
12,659.00	90.94	179.39	9,097.52	-3,331.49	-351.73	1,308.84	0.06	-0.06	0.00
12,753.00	91.38	179.74	9,095.61	-3,425.47	-351.01	1,355.06	0.60	0.47	0.37
12,847.00	92.81	179.92	9,092.18	-3,519.41	-350.74	1,400.87	1.53	1.52	0.19
12,941.00	91.56	181.33	9,088.59	-3,613.33	-351.76	1,445.55	2.00	-1.33	1.50
13,036.00	91.19	181.50	9,086.31	-3,708.27	-354.11	1,489.56	0.43	-0.39	0.18
13,130.00	89.63	180.98	9,085.64	-3,802.24	-356.14	1,533.38	1.75	-1.66	-0.55
13,224.00	87.75	181.15	9,087.79	-3,896.20	-357.89	1,577.44	2.01	-2.00	0.18
13,318.00	87.00	180.62	9,092.09	-3,990.09	-359.34	1,621.72	0.98	-0.80	-0.56
13,413.00	90.44	179.39	9,094.22	-4,085.05	-359.34	1,667.79	3.85	3.62	-1.29
13,507.00	92.88	177.99	9,091.49	-4,178.98	-357.20	1,715.24	2.99	2.60	-1.49
13,601.00	92.75	177.99	9,086.88	-4,272.80	-353.90	1,763.64	0.14	-0.14	0.00
13,693.00	92.38	176.58	9,082.76	-4,364.61	-349.55	1,811.99	1.58	-0.40	-1.53
13,788.00	92.44	176.05	9,078.76	-4,459.33	-343.45	1,863.28	0.56	0.06	-0.56
13,882.00	92.94	176.40	9,074.35	-4,553.02	-337.27	1,914.14	0.65	0.53	0.37
13,976.00	92.75	177.46	9,069.69	-4,646.77	-332.24	1,964.02	1.14	-0.20	1.13
14,017.06	92.40	178.61	9,067.84	-4,687.76	-330.84	1,985.14	2.94	-0.86	2.81
CDU_515H_T2									
14,070.00	91.94	180.10	9,065.84	-4,740.66	-330.24	2,011.33	2.94	-0.86	2.81
14,164.00	90.50	178.69	9,063.84	-4,834.63	-329.25	2,057.79	2.14	-1.53	-1.50
14,259.00	90.25	178.34	9,063.22	-4,929.59	-326.79	2,106.02	0.45	-0.26	-0.37
14,353.00	89.94	177.46	9,063.06	-5,023.53	-323.34	2,154.60	0.99	-0.33	-0.94
14,446.00	91.25	179.92	9,062.10	-5,116.49	-321.22	2,201.57	3.00	1.41	2.65
14,540.00	91.69	179.92	9,059.68	-5,210.46	-321.09	2,247.27	0.47	0.47	0.00
14,635.00	91.75	179.22	9,056.83	-5,305.41	-320.37	2,293.97	0.74	0.06	-0.74
14,729.00	90.50	181.85	9,054.99	-5,399.38	-321.25	2,338.79	3.10	-1.33	2.80
14,823.00	90.44	182.21	9,054.22	-5,493.32	-324.58	2,381.46	0.39	-0.06	0.38
14,918.00	90.31	182.21	9,053.59	-5,588.24	-328.24	2,424.31	0.14	-0.14	0.00
15,012.00	90.63	182.21	9,052.82	-5,682.17	-331.87	2,466.71	0.34	0.34	0.00
15,106.00	90.06	183.26	9,052.26	-5,776.06	-336.35	2,508.34	1.27	-0.61	1.12
15,200.00	89.75	182.91	9,052.41	-5,869.92	-341.41	2,549.46	0.50	-0.33	-0.37
15,294.00	89.56	182.91	9,052.98	-5,963.80	-346.18	2,590.84	0.20	-0.20	0.00
15,388.00	89.00	182.73	9,054.16	-6,057.68	-350.81	2,632.34	0.63	-0.60	-0.19
15,483.00	88.63	182.73	9,056.12	-6,152.55	-355.33	2,674.42	0.39	-0.39	0.00



Nabors
Survey Report



Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well 515H
Project:	Eddy Co., NM	TVD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

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)
15,577.00	88.56	182.73	9,058.43	-6,246.42	-359.81	2,716.04	0.07	-0.07	0.00
15,671.00	89.94	182.91	9,059.66	-6,340.29	-364.43	2,757.55	1.48	1.47	0.19
15,765.00	90.31	182.91	9,059.45	-6,434.17	-369.20	2,798.92	0.39	0.39	0.00
15,858.00	91.56	183.96	9,057.94	-6,526.99	-374.78	2,839.09	1.76	1.34	1.13
15,952.00	91.25	183.96	9,055.63	-6,620.73	-381.27	2,878.90	0.33	-0.33	0.00
16,045.00	89.19	183.79	9,055.27	-6,713.52	-387.55	2,918.42	2.22	-2.22	-0.18
16,139.00	89.13	183.61	9,056.65	-6,807.31	-393.62	2,958.62	0.20	-0.06	-0.19
16,233.00	88.81	183.61	9,058.34	-6,901.11	-399.53	2,998.96	0.34	-0.34	0.00
16,326.00	88.13	183.44	9,060.83	-6,993.90	-405.25	3,038.98	0.75	-0.73	-0.18
16,420.00	87.75	183.44	9,064.20	-7,087.67	-410.89	3,079.55	0.40	-0.40	0.00
16,514.00	88.63	182.03	9,067.17	-7,181.51	-415.37	3,121.16	1.77	0.94	-1.50
16,607.00	90.25	180.62	9,068.08	-7,274.48	-417.52	3,164.38	2.31	1.74	-1.52
16,702.00	88.88	180.98	9,068.80	-7,369.46	-418.84	3,209.31	1.49	-1.44	0.38
16,795.00	92.94	182.03	9,067.33	-7,462.40	-421.29	3,252.26	4.51	4.37	1.13
16,889.00	93.19	181.85	9,062.30	-7,556.21	-424.46	3,295.00	0.33	0.27	-0.19
16,982.00	93.69	182.03	9,056.72	-7,648.99	-427.61	3,337.27	0.57	0.54	0.19
17,075.00	92.00	182.38	9,052.10	-7,741.80	-431.18	3,379.17	1.86	-1.82	0.38
17,168.00	89.75	182.56	9,050.68	-7,834.70	-435.19	3,420.74	2.43	-2.42	0.19
17,262.00	89.56	182.56	9,051.25	-7,928.60	-439.39	3,462.63	0.20	-0.20	0.00
17,355.00	88.38	183.08	9,052.92	-8,021.47	-443.96	3,503.69	1.39	-1.27	0.56
17,450.00	88.06	182.73	9,055.87	-8,116.30	-448.77	3,545.49	0.50	-0.34	-0.37
17,543.00	88.31	183.26	9,058.82	-8,209.13	-453.63	3,586.29	0.63	0.27	0.57
17,637.00	88.75	183.26	9,061.23	-8,302.95	-458.97	3,627.13	0.47	0.47	0.00
17,730.00	88.69	182.91	9,063.31	-8,395.79	-463.98	3,667.80	0.38	-0.06	-0.38
17,822.00	89.63	183.08	9,064.66	-8,487.65	-468.78	3,708.17	1.04	1.02	0.18
17,916.00	89.38	182.73	9,065.47	-8,581.53	-473.55	3,749.55	0.46	-0.27	-0.37
18,010.00	89.44	182.73	9,066.44	-8,675.42	-478.02	3,791.19	0.06	0.06	0.00
18,104.00	90.31	183.26	9,066.64	-8,769.29	-482.94	3,832.44	1.08	0.93	0.56
18,198.00	90.75	183.08	9,065.77	-8,863.14	-488.13	3,873.43	0.51	0.47	-0.19
18,291.00	90.69	182.91	9,064.60	-8,956.00	-492.99	3,914.24	0.19	-0.06	-0.18
18,384.00	90.75	182.73	9,063.43	-9,048.88	-497.57	3,955.30	0.20	0.06	-0.19
18,478.00	90.69	182.38	9,062.25	-9,142.78	-501.76	3,997.20	0.38	-0.06	-0.37
18,571.00	90.56	182.56	9,061.24	-9,235.69	-505.76	4,038.77	0.24	-0.14	0.19
18,666.00	90.81	182.03	9,060.10	-9,330.61	-509.57	4,081.50	0.62	0.26	-0.56
18,759.00	90.56	181.50	9,058.99	-9,423.56	-512.43	4,124.09	0.63	-0.27	-0.57
18,853.00	90.63	181.50	9,058.02	-9,517.52	-514.89	4,167.53	0.07	0.07	0.00
18,948.00	90.81	181.15	9,056.82	-9,612.49	-517.09	4,211.68	0.41	0.19	-0.37
19,042.00	90.69	180.98	9,055.59	-9,706.46	-518.84	4,255.75	0.22	-0.13	-0.18
19,075.75	90.94	180.92	9,055.11	-9,740.20	-519.40	4,271.63	0.76	0.73	-0.19
CDU_515H_BHL									
19,136.00	91.38	180.80	9,053.89	-9,800.43	-520.30	4,300.07	0.76	0.73	-0.19
19,205.56	91.38	180.67	9,052.22	-9,869.96	-521.19	4,333.02	0.19	0.00	-0.19
CDU_515H_TD									
19,230.00	91.38	180.62	9,051.63	-9,894.40	-521.46	4,344.64	0.19	0.00	-0.19



Nabors
Survey Report



Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well 515H
Project:	Eddy Co., NM	TVD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Site:	Cotton Draw Unit	MD Reference:	KB=32' (Nabors X20) @ 3573.10ft (Nabors X20)
Well:	515H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	Ryan USA_ODBC_32bit

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)
19,260.00	91.31	180.45	9,050.93	-9,924.39	-521.74	4,358.95	0.61	-0.23	-0.57
19,322.00	91.31	180.45	9,049.51	-9,986.37	-522.23	4,388.59	0.00	0.00	0.00
PTB									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		
		+N/-S (ft)	+E/-W (ft)	Comment
19,322.00	9,049.51	-9,986.37	-522.23	PTB

Checked By: _____	Approved By: _____	Date: _____
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