

Devon Energy Corporation

Thistle Unit 159H

Lea County, NM

Nabors X05

API# 30-025-43659

HOBBS OCD

JAN 16 2020

RECEIVED

March 21, 2019 - April 18, 2019

MO-XX-0905554820

Sperry Drilling

MWD Survey Report

Submitted by:

3950 Interwood South Parkway Houston, TX 77032

Ph: 281.986.4400

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Sperry Drilling

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HALLIBURTON

3950 Interwood S. Pkwy • Houston, TX 77032
PHONE 281.986.4400 • FAX 281.986.4499

State of Texas, Lea County, NM

I, Ralph Clarke, certify that I am employed by Halliburton Energy Services, Inc. (aka Sperry Drilling) and that on the dates of March 21, 2019 through April 18, 2019, I did conduct or supervise the taking of MWD directional surveys for the Thistle Unit 159H well from a depth of 143' MD to a depth of 25,076' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (aka Sperry Drilling). I am authorized and qualified to make this report and these surveys were conducted at the request of Devon Energy Corporation, for the Thistle Unit 159H well, API # 30-025-43659 in Lea County, NM. I have reviewed this report and find that it confirms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (aka Sperry Drilling).



Ralph Clarke
Service Coordinator

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Devon Energy Corporation

Lea County, NM (NAD 83)

Sec 33 - 23S - 33E (Thistle Unit)

Thistle Unit 159H

Wellbore #1

Design: Actual Drilled

Survey Report - Geographic

22 April, 2019

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

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

Site Sec 33 - 23S - 33E (Thistle Unit)			
Site Position:	Northing: 457,083.16 usft	Latitude: 32° 15' 15.548 N	
From: Map	Easting: 775,859.81 usft	Longitude: 103° 34' 28.879 W	
Position Uncertainty: 5.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.40 °	

Well Thistle Unit 159H			
Well Position	+N/-S 0.0 usft	Northing: 457,083.16 usft	Latitude: 32° 15' 15.548 N
	+E/-W 0.0 usft	Easting: 775,859.81 usft	Longitude: 103° 34' 28.879 W
Position Uncertainty 0.5 usft	Wellhead Elevation: usft	Ground Level: 3,653.5 usft	

Wellbore Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)
	BGGM2018	1/23/2019	6.85
			Dip Angle (°)
			60.02
			Field Strength (nT)
			47,827.93333309

Design Actual Drilled			
Audit Notes:			
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			0.00

Survey Program		Date 4/22/2019
From (usft)	To (usft)	Survey (Wellbore)
143.0	25,018.0	MWD (Wellbore #1)
25,076.0	25,076.0	Projection to TD (Wellbore #1)
		Tool Name
		2_MWD+IFR1
		2_Blind
		Description
		A005Mb: IFR declination correction only
		A026Ua: Blind drilling - no survey data

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	457,083.16	775,859.81	32° 15' 15.548 N	103° 34' 28.879 W
143.0	0.72	174.33	143.0	-0.9	0.1	457,082.27	775,859.90	32° 15' 15.540 N	103° 34' 28.878 W
First MWD Survey									
232.0	0.59	156.25	232.0	-1.9	0.3	457,081.29	775,860.14	32° 15' 15.530 N	103° 34' 28.876 W
330.0	0.44	151.54	330.0	-2.7	0.7	457,080.50	775,860.52	32° 15' 15.522 N	103° 34' 28.871 W
426.0	0.45	153.84	426.0	-3.3	1.1	457,079.84	775,860.86	32° 15' 15.515 N	103° 34' 28.867 W
521.0	0.34	137.03	521.0	-3.9	1.4	457,079.29	775,861.22	32° 15' 15.510 N	103° 34' 28.863 W
615.0	0.39	107.39	615.0	-4.2	1.9	457,078.99	775,861.71	32° 15' 15.507 N	103° 34' 28.858 W
711.0	0.50	111.45	711.0	-4.4	2.6	457,078.74	775,862.41	32° 15' 15.505 N	103° 34' 28.849 W
806.0	0.57	114.23	806.0	-4.8	3.4	457,078.40	775,863.23	32° 15' 15.501 N	103° 34' 28.840 W
901.0	0.47	104.61	901.0	-5.1	4.2	457,078.11	775,864.04	32° 15' 15.498 N	103° 34' 28.831 W

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Survey Report - Geographic

Company: Devon Energy Corporation
 Project: Lea County, NM (NAD 83)
 Site: Sec 33 - 23S - 33E (Thistle Unit)
 Well: Thistle Unit 159H
 Wellbore: Wellbore #1
 Design: Actual Drilled

Local Co-ordinate Reference: Well Thistle Unit 159H
 TVD Reference: RKB (Nabors X05) 33 + GL @ 3886.5usft
 MD Reference: RKB (Nabors X05) 33 + GL @ 3886.5usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
996.0	0.47	102.93	996.0	-5.2	5.0	457,077.92	775,864.80	32° 15' 15.486 N	103° 34' 28.822 W
1,092.0	0.34	105.10	1,092.0	-5.4	5.6	457,077.76	775,865.45	32° 15' 15.495 N	103° 34' 28.814 W
1,187.0	0.22	137.98	1,187.0	-5.6	8.0	457,077.55	775,865.85	32° 15' 15.492 N	103° 34' 28.809 W
1,282.0	0.09	35.16	1,282.0	-5.7	6.2	457,077.47	775,866.01	32° 15' 15.492 N	103° 34' 28.808 W
1,314.0	0.24	109.49	1,314.0	-5.7	6.3	457,077.47	775,866.09	32° 15' 15.492 N	103° 34' 28.807 W
1,411.0	0.39	336.54	1,411.0	-5.5	6.3	457,077.71	775,866.15	32° 15' 15.494 N	103° 34' 28.808 W
1,506.0	0.44	346.57	1,506.0	-4.8	6.1	457,078.36	775,865.94	32° 15' 15.500 N	103° 34' 28.808 W
1,602.0	0.59	341.59	1,602.0	-4.0	5.9	457,079.19	775,865.70	32° 15' 15.509 N	103° 34' 28.811 W
1,697.0	0.71	0.77	1,696.9	-2.9	5.7	457,080.24	775,865.55	32° 15' 15.519 N	103° 34' 28.813 W
1,792.0	0.35	344.11	1,791.9	-2.1	5.7	457,081.11	775,865.48	32° 15' 15.528 N	103° 34' 28.813 W
1,887.0	0.25	16.87	1,886.9	-1.6	5.7	457,081.58	775,865.46	32° 15' 15.532 N	103° 34' 28.814 W
1,983.0	0.07	279.16	1,982.9	-1.4	5.7	457,081.79	775,865.46	32° 15' 15.534 N	103° 34' 28.814 W
2,078.0	0.92	251.32	2,077.9	-1.6	4.9	457,081.56	775,864.68	32° 15' 15.532 N	103° 34' 28.823 W
2,173.0	1.47	244.45	2,172.9	-2.4	3.1	457,080.79	775,862.86	32° 15' 15.525 N	103° 34' 28.844 W
2,268.0	1.93	253.84	2,267.9	-3.3	0.4	457,079.82	775,860.22	32° 15' 15.515 N	103° 34' 28.875 W
2,363.0	2.58	256.25	2,362.8	-4.3	-3.2	457,078.87	775,856.61	32° 15' 15.506 N	103° 34' 28.917 W
2,458.0	3.46	251.94	2,457.7	-5.7	-8.0	457,077.47	775,851.81	32° 15' 15.493 N	103° 34' 28.973 W
2,553.0	4.27	252.95	2,552.5	-7.6	-14.1	457,075.54	775,845.70	32° 15' 15.474 N	103° 34' 29.044 W
2,648.0	5.10	254.83	2,648.1	-9.8	-21.6	457,073.38	775,838.17	32° 15' 15.453 N	103° 34' 29.132 W
2,744.0	5.68	255.91	2,742.7	-12.0	-30.3	457,071.13	775,829.53	32° 15' 15.431 N	103° 34' 29.233 W
2,839.0	6.81	260.00	2,837.2	-14.1	-40.2	457,069.03	775,819.59	32° 15' 15.411 N	103° 34' 29.349 W
2,934.0	6.28	260.98	2,931.6	-15.9	-50.7	457,067.27	775,809.07	32° 15' 15.395 N	103° 34' 29.471 W
3,029.0	5.94	261.66	3,026.0	-17.4	-60.7	457,065.74	775,799.07	32° 15' 15.380 N	103° 34' 29.588 W
3,124.0	6.51	264.51	3,120.5	-18.6	-71.0	457,064.51	775,788.85	32° 15' 15.369 N	103° 34' 29.707 W
3,220.0	6.19	260.98	3,215.9	-20.0	-81.5	457,063.18	775,778.32	32° 15' 15.356 N	103° 34' 29.830 W
3,315.0	6.60	258.86	3,310.3	-21.8	-91.9	457,061.32	775,767.91	32° 15' 15.339 N	103° 34' 29.951 W
3,410.0	6.89	259.65	3,404.6	-23.9	-102.9	457,059.24	775,756.94	32° 15' 15.319 N	103° 34' 30.079 W
3,505.0	6.73	263.30	3,499.0	-25.6	-114.0	457,057.57	775,745.81	32° 15' 15.303 N	103° 34' 30.209 W
3,601.0	6.20	269.42	3,594.3	-26.3	-124.8	457,056.86	775,735.04	32° 15' 15.297 N	103° 34' 30.334 W
3,696.0	6.36	269.04	3,688.8	-26.4	-135.2	457,056.72	775,724.65	32° 15' 15.296 N	103° 34' 30.455 W
3,791.0	6.60	269.95	3,783.2	-26.5	-145.9	457,056.63	775,713.93	32° 15' 15.296 N	103° 34' 30.580 W
3,886.0	6.43	259.11	3,877.6	-27.5	-156.6	457,055.62	775,703.24	32° 15' 15.287 N	103° 34' 30.705 W
3,981.0	6.98	249.24	3,971.8	-30.6	-167.2	457,052.57	775,692.62	32° 15' 15.257 N	103° 34' 30.829 W
4,076.0	6.72	247.67	4,066.2	-34.8	-177.7	457,048.41	775,682.08	32° 15' 15.217 N	103° 34' 30.952 W
4,171.0	6.79	246.59	4,160.8	-39.1	-188.0	457,044.07	775,671.79	32° 15' 15.175 N	103° 34' 31.072 W
4,267.0	6.89	247.19	4,255.9	-43.6	-198.6	457,039.55	775,661.20	32° 15' 15.131 N	103° 34' 31.196 W
4,362.0	6.81	252.93	4,350.2	-47.5	-209.4	457,035.63	775,650.40	32° 15' 15.093 N	103° 34' 31.322 W
4,448.0	5.91	253.73	4,435.6	-50.3	-218.6	457,032.87	775,641.21	32° 15' 15.066 N	103° 34' 31.429 W
100' FSL Perf Line Cross 4448' MD/ 4435' TVD (100.28' FSL, 2057.88' FEL of Sec 33)									
4,457.0	5.81	253.83	4,444.6	-50.5	-219.5	457,032.61	775,640.32	32° 15' 15.064 N	103° 34' 31.439 W
4,552.0	5.24	251.08	4,539.2	-53.3	-228.2	457,029.87	775,631.60	32° 15' 15.037 N	103° 34' 31.541 W
4,647.0	5.91	253.56	4,633.7	-56.1	-237.0	457,027.07	775,622.81	32° 15' 15.010 N	103° 34' 31.644 W
4,742.0	6.26	256.82	4,728.2	-58.7	-246.7	457,024.51	775,613.07	32° 15' 14.985 N	103° 34' 31.757 W
4,838.0	6.17	259.91	4,823.6	-60.7	-256.9	457,022.41	775,602.90	32° 15' 14.965 N	103° 34' 31.876 W
4,933.0	6.20	260.03	4,918.1	-62.5	-267.0	457,020.63	775,592.82	32° 15' 14.948 N	103° 34' 31.993 W
5,028.0	6.41	268.00	5,012.5	-63.6	-277.3	457,019.56	775,582.47	32° 15' 14.938 N	103° 34' 32.114 W
5,123.0	6.76	268.41	5,106.9	-63.9	-288.2	457,018.22	775,571.56	32° 15' 14.936 N	103° 34' 32.241 W
5,176.0	6.22	266.63	5,159.5	-64.2	-294.2	457,018.96	775,565.59	32° 15' 14.934 N	103° 34' 32.311 W
5,284.0	5.67	267.86	5,266.9	-64.7	-305.4	457,018.42	775,554.42	32° 15' 14.929 N	103° 34' 32.441 W
5,378.0	6.55	270.26	5,361.4	-64.9	-315.5	457,018.27	775,544.31	32° 15' 14.928 N	103° 34' 32.559 W
5,474.0	7.84	265.05	5,455.6	-65.4	-327.4	457,017.73	775,532.44	32° 15' 14.924 N	103° 34' 32.697 W
5,570.0	7.64	262.13	5,550.8	-66.9	-340.2	457,016.29	775,519.59	32° 15' 14.911 N	103° 34' 32.847 W
5,665.0	7.89	261.78	5,644.9	-68.6	-352.8	457,014.52	775,507.05	32° 15' 14.894 N	103° 34' 32.993 W
5,760.0	7.62	261.23	5,739.1	-70.5	-365.3	457,012.65	775,494.53	32° 15' 14.876 N	103° 34' 33.139 W
5,855.0	7.40	261.48	5,833.3	-72.4	-377.6	457,010.78	775,482.26	32° 15' 14.859 N	103° 34' 33.282 W

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Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,951.0	7.23	260.42	5,928.5	-74.3	-389.6	457,008.86	775,470.19	32° 15' 14.840 N	103° 34' 33.422 W
6,046.0	6.70	259.44	6,022.8	-76.3	-401.0	457,006.85	775,458.84	32° 15' 14.821 N	103° 34' 33.555 W
6,141.0	6.18	259.93	6,117.2	-78.2	-411.4	457,004.94	775,448.36	32° 15' 14.803 N	103° 34' 33.677 W
6,236.0	6.19	269.04	6,211.6	-79.2	-421.6	457,003.96	775,438.20	32° 15' 14.794 N	103° 34' 33.795 W
6,331.0	6.58	262.75	6,306.0	-80.0	-432.1	457,003.19	775,427.68	32° 15' 14.787 N	103° 34' 33.918 W
6,427.0	6.38	261.03	6,401.4	-81.5	-442.8	457,001.66	775,416.96	32° 15' 14.773 N	103° 34' 34.043 W
6,522.0	6.06	261.65	6,495.9	-83.0	-453.0	457,000.11	775,406.78	32° 15' 14.758 N	103° 34' 34.161 W
6,617.0	6.84	262.48	6,590.3	-84.5	-463.6	456,998.64	775,396.21	32° 15' 14.744 N	103° 34' 34.285 W
6,712.0	6.67	261.49	6,684.6	-86.1	-474.7	456,997.09	775,385.15	32° 15' 14.730 N	103° 34' 34.414 W
6,807.0	6.50	261.30	6,779.0	-87.7	-485.4	456,995.46	775,374.38	32° 15' 14.714 N	103° 34' 34.539 W
6,902.0	5.90	260.79	6,873.4	-89.3	-495.6	456,993.66	775,364.24	32° 15' 14.699 N	103° 34' 34.657 W
6,997.0	8.24	261.32	6,967.9	-90.9	-505.5	456,992.30	775,354.32	32° 15' 14.685 N	103° 34' 34.773 W
7,092.0	6.07	262.51	7,062.3	-92.3	-515.6	456,990.87	775,344.23	32° 15' 14.671 N	103° 34' 34.891 W
7,188.0	5.94	264.43	7,157.8	-93.4	-525.5	456,989.72	775,334.26	32° 15' 14.661 N	103° 34' 35.007 W
7,283.0	5.70	265.09	7,252.3	-94.3	-535.1	456,988.84	775,324.68	32° 15' 14.652 N	103° 34' 35.119 W
7,378.0	5.38	264.84	7,346.9	-95.1	-544.3	456,988.05	775,315.53	32° 15' 14.645 N	103° 34' 35.225 W
7,473.0	5.46	262.19	7,441.5	-96.1	-553.2	456,987.04	775,306.61	32° 15' 14.638 N	103° 34' 35.329 W
7,568.0	4.98	258.20	7,536.1	-97.6	-561.7	456,985.58	775,298.10	32° 15' 14.622 N	103° 34' 35.428 W
7,664.0	3.64	249.26	7,631.8	-99.5	-568.6	456,983.65	775,291.17	32° 15' 14.603 N	103° 34' 35.509 W
7,759.0	3.51	248.54	7,726.6	-101.6	-574.2	456,981.52	775,285.64	32° 15' 14.583 N	103° 34' 35.574 W
7,854.0	2.54	244.27	7,821.5	-103.6	-578.8	456,979.54	775,281.04	32° 15' 14.563 N	103° 34' 35.627 W
7,949.0	2.48	241.87	7,916.4	-105.5	-582.5	456,977.66	775,277.33	32° 15' 14.545 N	103° 34' 35.671 W
8,044.0	1.33	243.67	8,011.3	-107.0	-585.3	456,976.20	775,274.53	32° 15' 14.531 N	103° 34' 35.703 W
8,140.0	0.62	228.51	8,107.3	-107.8	-588.7	456,975.36	775,273.14	32° 15' 14.523 N	103° 34' 35.720 W
8,235.0	0.84	225.90	8,202.3	-108.6	-587.5	456,974.54	775,272.26	32° 15' 14.515 N	103° 34' 35.730 W
8,330.0	0.17	307.18	8,297.3	-109.0	-588.2	456,974.14	775,271.65	32° 15' 14.511 N	103° 34' 35.737 W
8,425.0	0.22	304.88	8,392.3	-108.8	-588.4	456,974.33	775,271.38	32° 15' 14.513 N	103° 34' 35.740 W
8,520.0	0.40	301.86	8,487.3	-108.6	-588.9	456,974.61	775,270.95	32° 15' 14.515 N	103° 34' 35.745 W
8,616.0	0.10	300.76	8,583.3	-108.3	-589.2	456,974.83	775,270.60	32° 15' 14.518 N	103° 34' 35.749 W
8,711.0	0.33	214.34	8,678.3	-108.5	-589.4	456,974.64	775,270.37	32° 15' 14.516 N	103° 34' 35.752 W
8,806.0	0.42	227.56	8,773.3	-108.0	-589.8	456,974.18	775,269.96	32° 15' 14.511 N	103° 34' 35.757 W
8,901.0	0.74	225.71	8,868.3	-109.6	-590.5	456,973.52	775,269.26	32° 15' 14.505 N	103° 34' 35.765 W
KOP 8901' MD/ 8868' TVD (43.17' FSL, 2430.27' FEL of Sec 33)									
9,015.0	4.76	352.17	8,982.2	-105.5	-591.7	456,977.69	775,268.09	32° 15' 14.546 N	103° 34' 35.778 W
9,111.0	17.78	353.45	9,076.1	-88.9	-593.9	456,998.28	775,265.87	32° 15' 14.730 N	103° 34' 35.803 W
9,181.0	24.08	352.63	9,122.8	-69.2	-596.1	457,014.00	775,263.69	32° 15' 14.906 N	103° 34' 35.827 W
9,199.0	28.54	353.62	9,156.8	-52.4	-598.1	457,030.72	775,261.68	32° 15' 15.071 N	103° 34' 35.849 W
100' FSL Perf Line Cross 9199' MD/9166' TVD (100.42' FSL, 2437.41' FEL of Sec 33)									
9,206.0	29.36	353.77	9,163.0	-49.1	-598.5	457,034.08	775,261.31	32° 15' 15.105 N	103° 34' 35.853 W
9,256.0	33.13	356.85	9,205.7	-23.2	-600.6	457,059.92	775,259.23	32° 15' 15.360 N	103° 34' 35.875 W
9,300.0	34.72	357.08	9,242.2	1.3	-601.9	457,084.44	775,257.92	32° 15' 15.603 N	103° 34' 35.888 W
9,348.0	36.83	357.20	9,281.2	29.3	-603.3	457,112.47	775,256.52	32° 15' 15.881 N	103° 34' 35.902 W
9,395.0	39.27	358.64	9,318.2	58.3	-604.3	457,141.41	775,255.48	32° 15' 16.167 N	103° 34' 35.912 W
9,445.0	42.01	0.54	9,356.1	90.8	-604.5	457,173.97	775,255.26	32° 15' 16.489 N	103° 34' 35.912 W
9,491.0	44.88	1.55	9,389.6	122.4	-604.0	457,205.54	775,255.84	32° 15' 16.802 N	103° 34' 35.902 W
9,541.0	46.93	1.24	9,424.4	158.2	-603.1	457,241.37	775,256.71	32° 15' 17.156 N	103° 34' 35.889 W
9,586.0	48.35	0.72	9,454.7	191.5	-602.5	457,274.62	775,257.28	32° 15' 17.485 N	103° 34' 35.880 W
9,636.0	49.66	0.89	9,487.5	229.2	-602.0	457,312.35	775,257.81	32° 15' 17.858 N	103° 34' 35.871 W
9,681.0	53.16	1.51	9,515.6	264.4	-601.3	457,347.51	775,258.55	32° 15' 18.206 N	103° 34' 35.859 W
9,731.0	57.39	0.89	9,544.1	305.4	-600.4	457,388.59	775,259.41	32° 15' 18.613 N	103° 34' 35.846 W
9,776.0	61.63	0.89	9,566.9	344.2	-599.8	457,427.35	775,260.01	32° 15' 18.996 N	103° 34' 35.835 W
9,826.0	66.34	1.13	9,588.8	389.1	-599.0	457,472.27	775,260.80	32° 15' 19.440 N	103° 34' 35.823 W
9,871.0	71.74	1.33	9,604.9	431.1	-598.1	457,514.26	775,261.71	32° 15' 19.856 N	103° 34' 35.809 W
9,892.0	73.80	1.52	9,611.1	451.2	-597.6	457,534.31	775,262.21	32° 15' 20.054 N	103° 34' 35.801 W
Leonard B POE 9892' MD/9611' TVD (604.007' FSL, 2433.0402' FEL of Sec 33)									

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H	
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft	
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft	
Well: Thistle Unit 159H	North Reference: Grid	
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature	
Design: Actual Drilled	Database: SOUTH US	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,921.0	76.64	1.77	9,618.5	479.2	-596.8	457,562.34	775,263.01	32° 15' 20.332 N	103° 34' 35.789 W	
9,967.0	80.96	1.28	9,627.5	524.3	-595.6	457,607.44	775,264.21	32° 15' 20.778 N	103° 34' 35.772 W	
10,017.0	86.43	0.56	9,633.0	573.9	-594.8	457,657.11	775,265.01	32° 15' 21.269 N	103° 34' 35.758 W	
10,062.0	87.35	0.63	9,635.4	618.9	-594.3	457,702.04	775,265.47	32° 15' 21.714 N	103° 34' 35.749 W	
10,157.0	88.52	0.13	9,638.8	713.8	-593.7	457,796.97	775,266.10	32° 15' 22.653 N	103° 34' 35.734 W	
10,252.0	90.21	0.11	9,639.9	808.8	-593.5	457,891.96	775,266.30	32° 15' 23.593 N	103° 34' 35.724 W	
10,347.0	90.59	359.97	9,639.2	903.8	-593.4	457,986.96	775,266.37	32° 15' 24.533 N	103° 34' 35.716 W	
10,442.0	89.85	359.39	9,638.8	998.8	-594.0	458,081.96	775,265.84	32° 15' 25.473 N	103° 34' 35.714 W	
10,538.0	92.04	359.60	9,637.3	1,094.8	-594.8	458,177.94	775,264.99	32° 15' 26.423 N	103° 34' 35.716 W	
10,633.0	91.54	358.96	9,634.3	1,189.7	-596.0	458,272.88	775,263.80	32° 15' 27.362 N	103° 34' 35.722 W	
10,728.0	88.70	357.19	9,634.1	1,284.7	-599.2	458,367.81	775,260.61	32° 15' 28.302 N	103° 34' 35.751 W	
10,823.0	87.81	358.30	9,636.9	1,379.5	-602.8	458,462.70	775,256.67	32° 15' 29.241 N	103° 34' 35.787 W	
10,918.0	88.37	0.30	9,640.0	1,474.5	-604.1	458,557.63	775,255.71	32° 15' 30.181 N	103° 34' 35.793 W	
11,013.0	90.19	0.16	9,641.2	1,569.5	-603.7	458,652.62	775,256.09	32° 15' 31.121 N	103° 34' 35.781 W	
11,108.0	88.55	0.40	9,642.2	1,664.5	-603.3	458,747.61	775,256.56	32° 15' 32.061 N	103° 34' 35.767 W	
11,204.0	88.71	358.98	9,644.5	1,760.4	-603.8	458,843.58	775,256.04	32° 15' 33.010 N	103° 34' 35.765 W	
11,299.0	89.66	358.59	9,645.9	1,855.4	-605.8	458,938.55	775,254.04	32° 15' 33.950 N	103° 34' 35.781 W	
11,394.0	92.84	359.51	9,643.7	1,950.3	-607.3	459,033.50	775,252.48	32° 15' 34.890 N	103° 34' 35.792 W	
11,489.0	91.76	0.24	9,638.8	2,045.3	-607.6	459,128.42	775,252.26	32° 15' 35.829 N	103° 34' 35.786 W	
11,584.0	91.67	1.24	9,637.0	2,140.2	-608.3	459,223.36	775,253.48	32° 15' 36.768 N	103° 34' 35.764 W	
11,680.0	85.66	0.02	9,639.2	2,236.1	-605.3	459,319.29	775,254.54	32° 15' 37.717 N	103° 34' 35.744 W	
11,775.0	85.43	359.07	9,646.6	2,330.8	-608.0	459,413.99	775,253.79	32° 15' 38.655 N	103° 34' 35.745 W	
11,870.0	86.33	359.11	9,653.4	2,425.6	-607.5	459,508.74	775,252.28	32° 15' 39.592 N	103° 34' 35.755 W	
11,965.0	88.24	359.00	9,657.9	2,520.5	-609.1	459,603.61	775,250.72	32° 15' 40.531 N	103° 34' 35.765 W	
12,060.0	86.83	359.23	9,662.0	2,615.4	-610.6	459,698.51	775,249.25	32° 15' 41.470 N	103° 34' 35.774 W	
12,156.0	86.47	359.64	9,667.6	2,711.2	-611.5	459,794.34	775,248.31	32° 15' 42.419 N	103° 34' 35.777 W	
12,250.0	87.13	0.37	9,672.9	2,805.0	-611.5	459,888.19	775,248.31	32° 15' 43.347 N	103° 34' 35.770 W	
12,345.0	90.89	0.37	9,674.5	2,900.0	-610.9	459,983.16	775,248.93	32° 15' 44.287 N	103° 34' 35.755 W	
12,441.0	90.89	1.39	9,673.0	2,996.0	-609.4	460,079.14	775,250.40	32° 15' 45.237 N	103° 34' 35.730 W	
12,536.0	93.73	1.34	9,689.2	3,090.9	-607.1	460,174.02	775,252.66	32° 15' 46.175 N	103° 34' 35.698 W	
12,631.0	94.35	2.87	9,682.5	3,185.6	-603.7	460,268.72	775,256.14	32° 15' 47.112 N	103° 34' 35.647 W	
12,726.0	91.02	1.69	9,658.0	3,280.4	-599.9	460,363.52	775,259.92	32° 15' 48.050 N	103° 34' 35.596 W	
12,821.0	91.33	0.80	9,656.1	3,375.3	-597.8	460,458.48	775,261.98	32° 15' 48.989 N	103° 34' 35.584 W	
12,917.0	91.48	0.09	9,653.7	3,471.3	-597.1	460,554.45	775,262.73	32° 15' 49.939 N	103° 34' 35.547 W	
13,041.0	91.26	357.67	9,650.8	3,565.2	-599.5	460,678.38	775,260.30	32° 15' 51.165 N	103° 34' 35.585 W	
13,137.0	90.25	359.40	9,649.5	3,661.2	-602.0	460,774.34	775,257.85	32° 15' 52.115 N	103° 34' 35.588 W	
13,233.0	89.72	359.30	9,649.5	3,757.2	-603.0	460,870.33	775,256.78	32° 15' 53.065 N	103° 34' 35.591 W	
13,328.0	89.91	359.98	9,649.8	3,852.2	-603.6	460,965.33	775,256.18	32° 15' 54.005 N	103° 34' 35.590 W	
13,423.0	89.69	0.06	9,650.2	3,947.2	-603.6	461,060.33	775,256.20	32° 15' 54.945 N	103° 34' 35.582 W	
13,518.0	90.12	359.76	9,650.3	4,043.2	-603.8	461,156.33	775,256.04	32° 15' 55.895 N	103° 34' 35.576 W	
13,614.0	90.80	359.32	9,649.6	4,138.2	-604.5	461,251.32	775,255.28	32° 15' 56.835 N	103° 34' 35.577 W	
13,708.0	91.26	359.22	9,647.9	4,232.1	-605.7	461,345.30	775,254.08	32° 15' 57.765 N	103° 34' 35.583 W	
13,803.0	89.63	0.23	9,647.1	4,327.1	-606.2	461,440.29	775,253.63	32° 15' 58.705 N	103° 34' 35.580 W	
13,898.0	89.91	0.73	9,647.5	4,421.1	-605.4	461,535.28	775,254.42	32° 15' 59.645 N	103° 34' 35.563 W	
13,994.0	89.20	0.88	9,648.3	4,516.1	-604.0	461,631.27	775,255.77	32° 16' 0.595 N	103° 34' 35.540 W	
14,089.0	89.57	359.85	9,649.3	4,611.1	-603.4	461,726.26	775,256.38	32° 16' 1.535 N	103° 34' 35.525 W	
14,184.0	89.84	358.76	9,649.7	4,706.1	-604.6	461,821.25	775,255.23	32° 16' 2.475 N	103° 34' 35.530 W	
14,279.0	90.49	358.69	9,649.3	4,801.1	-606.7	461,916.23	775,253.11	32° 16' 3.415 N	103° 34' 35.547 W	
14,374.0	91.36	358.92	9,647.8	4,896.0	-608.7	462,011.19	775,251.13	32° 16' 4.354 N	103° 34' 35.563 W	
14,470.0	92.19	359.75	9,644.8	4,991.0	-609.8	462,107.14	775,250.02	32° 16' 5.304 N	103° 34' 35.568 W	
14,565.0	92.43	0.48	9,641.0	5,086.0	-609.6	462,202.06	775,250.21	32° 16' 6.243 N	103° 34' 35.558 W	
14,583.0	92.00	0.36	9,640.3	5,136.9	-609.5	462,220.05	775,250.34	32° 16' 6.421 N	103° 34' 35.555 W	
Sec 33/28 Cross 14583' MD/9640' TVD (0.09' FSL, 2409.03' FEL of Sec 28)										
14,660.0	90.15	359.85	9,638.9	5,213.9	-609.3	462,297.03	775,250.48	32° 16' 7.183 N	103° 34' 35.547 W	
14,755.0	90.93	0.38	9,638.0	5,308.9	-609.1	462,392.02	775,250.67	32° 16' 8.123 N	103° 34' 35.537 W	

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation
 Project: Lea County, NM (NAD 83)
 Site: Sec 33 - 23S - 33E (Thistle Unit)
 Well: Thistle Unit 159H
 Wellbore: Wellbore #1
 Design: Actual Drilled

Local Co-ordinate Reference: Well Thistle Unit 159H
 TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
 MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,851.0	89.88	359.89	9,637.3	5,404.9	-608.9	462,488.02	775,250.90	32° 16' 9.073 N	103° 34' 35.526 W
14,946.0	91.02	0.93	9,636.5	5,499.9	-608.2	462,583.01	775,251.58	32° 16' 10.013 N	103° 34' 35.510 W
15,041.0	89.75	1.79	9,635.9	5,594.8	-608.0	462,677.98	775,253.83	32° 16' 10.952 N	103° 34' 35.478 W
15,136.0	88.28	1.17	9,637.5	5,689.8	-603.5	462,772.93	775,258.29	32° 16' 11.892 N	103° 34' 35.440 W
15,231.0	89.38	1.95	9,639.5	5,784.7	-600.9	462,867.87	775,258.87	32° 16' 12.831 N	103° 34' 35.402 W
15,326.0	89.75	2.19	9,640.2	5,879.6	-597.5	462,962.81	775,262.30	32° 16' 13.770 N	103° 34' 35.354 W
15,421.0	88.89	0.85	9,641.3	5,974.6	-595.0	463,057.77	775,264.82	32° 16' 14.709 N	103° 34' 35.317 W
15,516.0	88.09	0.43	9,643.8	6,069.6	-593.9	463,152.73	775,265.88	32° 16' 15.649 N	103° 34' 35.287 W
15,611.0	89.42	1.85	9,645.9	6,164.5	-592.0	463,247.88	775,267.77	32° 16' 16.589 N	103° 34' 35.267 W
15,706.0	88.12	1.57	9,647.9	6,259.5	-589.2	463,342.61	775,270.61	32° 16' 17.528 N	103° 34' 35.226 W
15,802.0	87.38	0.71	9,651.7	6,355.4	-587.3	463,438.52	775,272.52	32° 16' 18.477 N	103° 34' 35.196 W
15,897.0	85.44	0.67	9,657.7	6,450.2	-586.1	463,533.32	775,273.66	32° 16' 19.415 N	103° 34' 35.175 W
15,992.0	86.39	0.62	9,664.4	6,544.9	-585.1	463,628.07	775,274.72	32° 16' 20.352 N	103° 34' 35.155 W
16,088.0	88.40	1.11	9,668.8	6,640.8	-583.6	463,723.96	775,278.17	32° 16' 21.301 N	103° 34' 35.130 W
16,183.0	89.44	1.40	9,670.6	6,735.8	-581.6	463,819.82	775,278.25	32° 16' 22.240 N	103° 34' 35.098 W
16,278.0	90.68	0.28	9,670.5	6,830.7	-580.2	463,913.90	775,279.65	32° 16' 23.180 N	103° 34' 35.074 W
16,373.0	89.54	358.79	9,670.3	6,925.7	-580.9	464,008.89	775,278.87	32° 16' 24.120 N	103° 34' 35.075 W
16,468.0	90.68	359.47	9,670.1	7,020.7	-582.4	464,103.88	775,277.43	32° 16' 25.060 N	103° 34' 35.084 W
16,563.0	88.46	358.77	9,670.8	7,115.7	-583.8	464,198.86	775,275.97	32° 16' 26.000 N	103° 34' 35.093 W
16,658.0	89.57	359.76	9,672.5	7,210.7	-585.1	464,293.84	775,274.76	32° 16' 26.940 N	103° 34' 35.100 W
16,753.0	90.34	358.78	9,672.5	7,305.7	-585.4	464,388.84	775,274.37	32° 16' 27.880 N	103° 34' 35.097 W
16,848.0	90.77	359.53	9,671.6	7,400.7	-586.0	464,483.83	775,273.80	32° 16' 28.820 N	103° 34' 35.095 W
16,943.0	89.81	357.64	9,671.1	7,495.6	-588.4	464,578.79	775,271.46	32° 16' 29.760 N	103° 34' 35.115 W
17,038.0	92.44	356.51	9,669.3	7,590.5	-593.2	464,673.84	775,268.61	32° 16' 30.699 N	103° 34' 35.184 W
17,134.0	90.83	356.93	9,668.5	7,686.3	-598.7	464,769.44	775,261.12	32° 16' 31.647 N	103° 34' 35.220 W
17,229.0	90.28	357.68	9,665.6	7,781.2	-603.2	464,864.33	775,258.65	32° 16' 32.586 N	103° 34' 35.264 W
17,324.0	90.22	358.35	9,665.2	7,876.1	-606.4	464,959.27	775,253.36	32° 16' 33.526 N	103° 34' 35.294 W
17,419.0	89.48	357.79	9,665.4	7,971.1	-609.6	465,054.22	775,250.16	32° 16' 34.466 N	103° 34' 35.324 W
17,514.0	89.78	358.57	9,666.1	8,066.0	-612.7	465,149.17	775,247.15	32° 16' 35.405 N	103° 34' 35.351 W
17,609.0	90.37	357.26	9,665.9	8,160.9	-616.1	465,244.10	775,243.69	32° 16' 36.345 N	103° 34' 35.384 W
17,705.0	93.61	359.40	9,662.6	8,256.8	-618.9	465,339.98	775,240.89	32° 16' 37.284 N	103° 34' 35.408 W
17,800.0	91.41	359.67	9,658.4	8,351.7	-619.7	465,434.88	775,240.12	32° 16' 38.233 N	103° 34' 35.409 W
17,895.0	92.94	2.29	9,654.8	8,446.6	-618.1	465,529.79	775,241.75	32° 16' 39.172 N	103° 34' 35.383 W
17,990.0	90.88	3.03	9,651.6	8,541.5	-613.7	465,624.63	775,248.15	32° 16' 40.110 N	103° 34' 35.324 W
18,085.0	89.81	4.88	9,650.9	8,636.2	-607.3	465,719.40	775,252.54	32° 16' 41.048 N	103° 34' 35.242 W
18,180.0	92.40	4.42	9,649.1	8,730.9	-599.7	465,814.08	775,260.07	32° 16' 41.984 N	103° 34' 35.146 W
18,276.0	91.38	4.00	9,645.9	8,826.6	-592.7	465,909.77	775,267.12	32° 16' 42.930 N	103° 34' 35.056 W
18,371.0	91.39	4.36	9,643.6	8,921.3	-585.8	466,004.49	775,274.04	32° 16' 43.867 N	103° 34' 34.968 W
18,466.0	89.42	3.38	9,643.0	9,016.1	-579.4	466,099.26	775,280.45	32° 16' 44.804 N	103° 34' 34.885 W
18,561.0	87.90	4.15	9,645.2	9,110.9	-573.1	466,194.03	775,286.69	32° 16' 45.742 N	103° 34' 34.805 W
18,657.0	84.87	1.56	9,651.1	9,206.5	-568.3	466,289.70	775,291.46	32° 16' 46.688 N	103° 34' 34.741 W
18,752.0	86.95	0.75	9,657.8	9,301.3	-566.4	466,384.44	775,293.37	32° 16' 47.625 N	103° 34' 34.711 W
18,847.0	91.33	0.80	9,659.3	9,396.2	-565.2	466,479.40	775,294.65	32° 16' 48.565 N	103° 34' 34.688 W
18,942.0	92.13	0.81	9,656.4	9,491.2	-563.8	466,574.35	775,295.99	32° 16' 49.504 N	103° 34' 34.665 W
19,038.0	90.99	359.86	9,653.8	9,587.1	-563.3	466,670.31	775,298.55	32° 16' 50.454 N	103° 34' 34.651 W
19,133.0	89.78	358.58	9,653.1	9,682.1	-564.6	466,765.29	775,295.26	32° 16' 51.394 N	103° 34' 34.658 W
19,228.0	87.93	358.75	9,655.0	9,777.1	-566.8	466,860.24	775,293.04	32° 16' 52.333 N	103° 34' 34.676 W
19,324.0	91.51	359.11	9,655.5	9,873.0	-566.6	466,956.21	775,291.25	32° 16' 53.283 N	103° 34' 34.689 W
19,419.0	92.07	358.30	9,652.5	9,968.0	-570.7	467,051.14	775,289.11	32° 16' 54.223 N	103° 34' 34.706 W
19,514.0	91.83	358.40	9,649.5	10,062.9	-573.4	467,146.05	775,286.37	32° 16' 55.162 N	103° 34' 34.730 W
19,609.0	93.55	358.65	9,645.2	10,157.8	-575.9	467,240.92	775,283.93	32° 16' 56.101 N	103° 34' 34.751 W
19,704.0	94.97	359.32	9,638.1	10,252.5	-577.6	467,335.64	775,282.25	32° 16' 57.038 N	103° 34' 34.763 W
19,799.0	93.18	358.96	9,631.4	10,347.2	-579.0	467,430.38	775,280.83	32° 16' 57.976 N	103° 34' 34.771 W
19,865.0	92.86	0.95	9,627.9	10,413.1	-578.0	467,496.29	775,280.77	32° 16' 58.628 N	103° 34' 34.767 W

Sec 28/21 Cross 19885' MD/9627' TVD (0.02' F&L, 2338.39' FEL of Sec 21)

Halliburton

Survey Report - Geographic

Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well Thistle Unit 159H
Project:	Lea County, NM (NAD 83)	TVD Reference:	RKB (Nabors X05) 33 + GL @ 3686.5usft
Site:	Sec 33 - 23S - 33E (Thistle Unit)	MD Reference:	RKB (Nabors X05) 33 + GL @ 3686.5usft
Well:	Thistle Unit 159H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual Drilled	Database:	SOUTH US

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
19,895.0	92.71	1.85	9,626.4	10,443.1	-578.3	487,526.24	775,281.51	32° 16' 58.924 N	103° 34' 34.756 W	
19,990.0	90.99	1.84	9,623.4	10,538.0	-575.2	487,621.14	775,284.56	32° 16' 59.863 N	103° 34' 34.712 W	
20,085.0	91.02	1.60	9,621.7	10,632.9	-572.4	487,718.08	775,287.41	32° 17' 0.802 N	103° 34' 34.671 W	
20,180.0	90.43	0.45	9,620.5	10,727.9	-570.7	487,811.06	775,289.11	32° 17' 1.742 N	103° 34' 34.644 W	
20,276.0	92.10	359.75	9,618.4	10,823.9	-570.5	487,907.03	775,289.28	32° 17' 2.692 N	103° 34' 34.634 W	
20,371.0	90.08	358.71	9,616.8	10,918.8	-571.8	488,002.00	775,288.00	32° 17' 3.632 N	103° 34' 34.641 W	
20,466.0	89.57	358.18	9,616.9	11,013.8	-574.4	488,098.86	775,285.43	32° 17' 4.571 N	103° 34' 34.663 W	
20,561.0	88.88	358.21	9,618.1	11,108.7	-577.4	488,191.91	775,282.43	32° 17' 5.511 N	103° 34' 34.690 W	
20,656.0	88.30	358.65	9,620.4	11,203.7	-580.0	488,286.84	775,279.83	32° 17' 6.451 N	103° 34' 34.713 W	
20,751.0	87.79	357.94	9,623.6	11,298.6	-582.8	488,381.74	775,277.01	32° 17' 7.390 N	103° 34' 34.738 W	
20,847.0	87.81	358.09	9,627.3	11,394.5	-586.1	488,477.62	775,273.68	32° 17' 8.339 N	103° 34' 34.768 W	
20,942.0	89.60	359.74	9,629.4	11,489.4	-587.9	488,572.57	775,271.89	32° 17' 9.279 N	103° 34' 34.782 W	
21,037.0	88.70	358.45	9,630.8	11,584.4	-589.4	488,667.54	775,270.39	32° 17' 10.218 N	103° 34' 34.791 W	
21,132.0	95.06	359.98	9,627.7	11,679.3	-590.7	488,762.43	775,269.08	32° 17' 11.158 N	103° 34' 34.799 W	
21,227.0	92.96	0.36	9,621.1	11,774.0	-590.4	488,857.19	775,269.37	32° 17' 12.095 N	103° 34' 34.788 W	
21,323.0	92.21	0.66	9,616.8	11,869.9	-589.6	488,953.09	775,270.22	32° 17' 13.044 N	103° 34' 34.770 W	
21,418.0	92.56	0.52	9,612.8	11,964.8	-588.6	489,048.00	775,271.20	32° 17' 13.983 N	103° 34' 34.751 W	
21,513.0	92.00	0.01	9,609.0	12,059.8	-588.2	489,142.93	775,271.64	32° 17' 14.922 N	103° 34' 34.738 W	
21,608.0	92.25	359.75	9,605.5	12,154.7	-588.4	489,237.86	775,271.44	32° 17' 15.862 N	103° 34' 34.732 W	
21,703.0	92.59	359.87	9,601.5	12,249.6	-588.7	489,332.77	775,271.12	32° 17' 16.801 N	103° 34' 34.728 W	
21,798.0	92.84	0.19	9,597.0	12,344.5	-588.6	489,427.67	775,271.17	32° 17' 17.740 N	103° 34' 34.720 W	
21,894.0	92.62	0.19	9,592.4	12,440.4	-588.3	489,523.56	775,271.49	32° 17' 18.689 N	103° 34' 34.708 W	
21,989.0	90.77	359.33	9,589.6	12,535.4	-588.7	489,618.51	775,271.09	32° 17' 19.628 N	103° 34' 34.705 W	
22,084.0	90.22	359.52	9,588.8	12,630.3	-589.7	489,713.50	775,270.14	32° 17' 20.568 N	103° 34' 34.708 W	
22,179.0	89.45	359.09	9,589.1	12,725.3	-590.8	489,808.49	775,268.99	32° 17' 21.508 N	103° 34' 34.714 W	
22,274.0	90.15	359.94	9,589.4	12,820.3	-591.6	489,903.49	775,268.18	32° 17' 22.448 N	103° 34' 34.715 W	
22,370.0	90.59	0.44	9,588.8	12,916.3	-591.3	489,999.49	775,268.50	32° 17' 23.388 N	103° 34' 34.704 W	
22,464.0	92.87	1.06	9,585.9	13,010.3	-590.1	470,093.43	775,269.73	32° 17' 24.328 N	103° 34' 34.682 W	
22,559.0	90.15	0.66	9,583.4	13,105.2	-588.7	470,188.37	775,271.15	32° 17' 25.267 N	103° 34' 34.657 W	
22,654.0	91.36	1.74	9,582.2	13,200.2	-586.7	470,283.34	775,273.14	32° 17' 26.207 N	103° 34' 34.626 W	
22,750.0	93.88	3.74	9,577.8	13,296.0	-582.1	470,379.12	775,277.73	32° 17' 27.154 N	103° 34' 34.565 W	
22,845.0	92.31	3.36	9,572.7	13,390.6	-576.2	470,473.80	775,283.60	32° 17' 28.091 N	103° 34' 34.489 W	
22,940.0	89.41	2.54	9,571.2	13,485.5	-571.3	470,568.65	775,288.49	32° 17' 29.029 N	103° 34' 34.424 W	
23,035.0	88.61	1.62	9,572.9	13,580.4	-567.9	470,663.57	775,291.93	32° 17' 29.968 N	103° 34' 34.376 W	
23,130.0	86.80	1.27	9,576.7	13,675.3	-565.5	470,758.48	775,294.33	32° 17' 30.907 N	103° 34' 34.340 W	
23,225.0	89.17	0.99	9,580.0	13,770.2	-563.6	470,853.38	775,296.20	32° 17' 31.846 N	103° 34' 34.311 W	
23,320.0	90.77	0.33	9,580.1	13,865.2	-562.5	470,948.37	775,297.29	32° 17' 32.786 N	103° 34' 34.290 W	
23,416.0	91.42	0.34	9,578.2	13,961.2	-562.0	471,044.35	775,297.86	32° 17' 33.735 N	103° 34' 34.276 W	
23,511.0	91.63	0.36	9,575.7	14,056.2	-561.4	471,139.31	775,298.44	32° 17' 34.675 N	103° 34' 34.261 W	
23,606.0	90.25	0.55	9,574.2	14,151.1	-560.6	471,234.29	775,299.19	32° 17' 35.615 N	103° 34' 34.245 W	
23,698.0	90.59	0.18	9,573.6	14,231.1	-560.1	471,314.28	775,299.70	32° 17' 36.406 N	103° 34' 34.232 W	
23,781.0	90.25	0.38	9,572.9	14,326.1	-559.6	471,409.28	775,300.16	32° 17' 37.346 N	103° 34' 34.219 W	
23,877.0	88.89	0.37	9,573.6	14,422.1	-559.0	471,505.28	775,300.79	32° 17' 38.286 N	103° 34' 34.204 W	
23,972.0	86.52	0.89	9,577.4	14,517.0	-558.0	471,600.19	775,301.84	32° 17' 39.235 N	103° 34' 34.184 W	
24,067.0	88.98	0.04	9,581.1	14,611.9	-557.2	471,695.10	775,302.60	32° 17' 40.174 N	103° 34' 34.167 W	
24,162.0	90.31	358.20	9,581.7	14,706.9	-558.7	471,790.09	775,301.15	32° 17' 41.114 N	103° 34' 34.176 W	
24,257.0	91.97	358.39	9,579.8	14,801.9	-561.5	471,885.02	775,298.32	32° 17' 42.054 N	103° 34' 34.201 W	
24,352.0	90.31	358.56	9,577.9	14,896.8	-564.0	471,979.96	775,295.79	32° 17' 42.993 N	103° 34' 34.223 W	
24,447.0	86.61	359.25	9,580.5	14,991.7	-565.8	472,074.90	775,293.98	32° 17' 43.933 N	103° 34' 34.236 W	
24,543.0	89.17	359.23	9,584.0	15,087.7	-567.1	472,170.81	775,292.70	32° 17' 44.882 N	103° 34' 34.243 W	
24,638.0	88.36	359.37	9,586.1	15,182.6	-568.3	472,265.78	775,291.54	32° 17' 45.822 N	103° 34' 34.249 W	
24,733.0	87.99	359.28	9,589.1	15,277.6	-569.4	472,360.73	775,290.41	32° 17' 46.762 N	103° 34' 34.254 W	
24,828.0	87.93	358.87	9,592.5	15,372.5	-570.9	472,455.66	775,288.86	32° 17' 47.701 N	103° 34' 34.265 W	
24,923.0	90.59	358.99	9,593.7	15,467.5	-572.7	472,550.62	775,287.09	32° 17' 48.641 N	103° 34' 34.277 W	

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Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
25,018.0	89.60	359.79	9,593.5	15,562.5	-573.7	472,645.62	775,286.08	32° 17' 49.581 N	103° 34' 34.281 W
Last MWD Survey									
25,053.0	89.60	359.79	9,593.8	15,597.5	-573.9	472,680.62	775,285.95	32° 17' 48.927 N	103° 34' 34.280 W
100' FSL Perf Line Cross 25053' MD/9593.8' TVD (100.29' FNL, 2295.80' FEL of Sec 21)									
25,065.1	89.60	359.79	9,593.9	15,609.6	-573.9	472,692.75	775,285.90	32° 17' 50.047 N	103° 34' 34.280 W
PBHL of Thistle 159H (20' FNL-2310' FEL)									
25,076.0	89.60	359.79	9,593.9	15,620.5	-573.9	472,703.61	775,285.86	32° 17' 50.155 N	103° 34' 34.279 W
PBHL 25076' MD/9593' TVD (77.29' FNL, 2295.72' FEL of Sec 21)									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
143.0	143.0	-0.9	0.1	First MWD Survey
4,448.0	4,435.6	-50.3	-218.6	100' FSL Perf Line Cross 4448' MD/ 4435' TVD (100.26' FSL, 2057.88' FEL of S
8,901.0	8,868.3	-109.6	-590.5	KOP 8901' MD/ 8868' TVD (43.17' FSL, 2430.27' FEL of Sec 33)
9,199.0	9,156.8	-52.4	-598.1	100' FSL Perf Line Cross 9199' MD/9156' TVD (100.42' FSL, 2437.41' FEL of S
9,892.0	9,611.1	451.2	-597.6	Leonard B POE 9892' MD/9611' TVD (604.0077' FSL, 2433.0402' FEL of Sec 3
14,583.0	9,640.3	5,136.9	-609.5	Sec 33/28 Cross 14583' MD/9640' TVD (0.09' FSL, 2409.03' FEL of Sec 28)
19,865.0	9,627.9	10,413.1	-578.0	Sec 28/21 Cross 19865' MD/9627' TVD (0.02' FSL, 2338.39' FEL of Sec 21)
25,018.0	9,593.5	15,562.5	-573.7	Last MWD Survey
25,053.0	9,593.8	15,597.5	-573.9	100' FSL Perf Line Cross 25053' MD/9593.8' TVD (100.29' FNL, 2295.80' FEL c
25,076.0	9,593.9	15,620.5	-573.9	PBHL 25076' MD/9593' TVD (77.29' FNL, 2295.72' FEL of Sec 21)

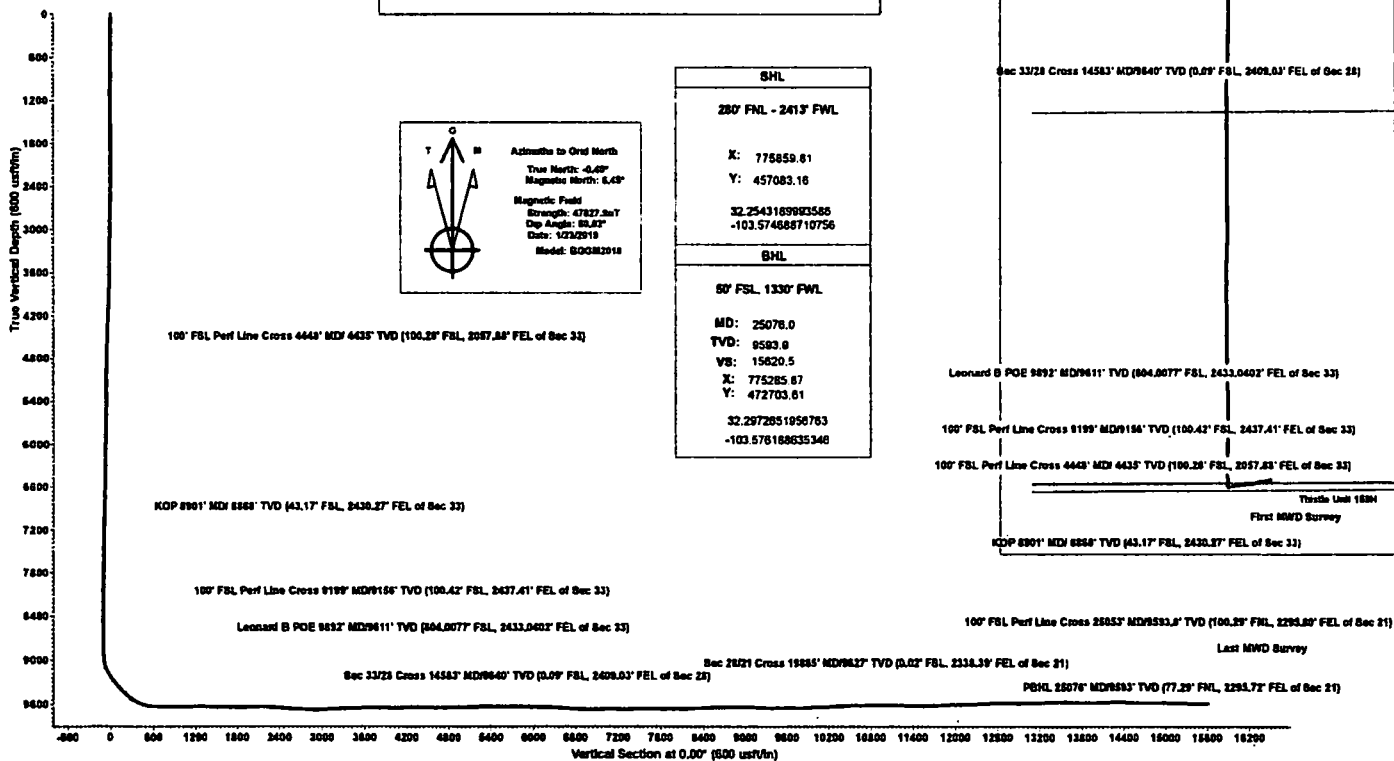
Checked By: _____	Approved By: _____	Date: _____
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Devon Energy Corporation									
WELL DETAILS: Thistle Unit 159H									
RKB (Nabors XOS) 33 + GL @ 3686.5uH									
3653.5									
		North		East		Latitude		Longitude	
		457083.16		775859.81		32° 15' 15.348 N		103° 34' 28.878 W	
ANNOATIONS									
MD	Inc	Adj	TVD	+N-S	+E-W	V-Sect	Annotation		
143.0	0.72	174.33	143.0	-0.9	0.1	-0.9	First MWD Survey		
4448.0	5.91	253.73	4435.6	-50.3	-218.8	-50.3	100' FSL Perf Line Cross 4448' MD/ 4435' TVD (100.25' FSL, 2057.88' FEL of Sec 33)		
8901.0	0.74	225.71	8883.3	-109.6	-580.5	-109.6	KOP 8901' MD/8883' TVD (43.17' FSL, 2430.27' FEL of Sec 33)		
9189.0	28.54	253.62	9156.8	-52.4	-598.1	-52.4	100' FSL Perf Line Cross 9189' MD/9156' TVD (100.42' FSL, 2437.41' FEL of Sec 33)		
9892.0	73.80	1.52	9811.1	-451.2	-597.8	-451.2	Leonard B POE 9892' MD/9811' TVD (804.0077' FSL, 2433.0402' FEL of Sec 33)		
14583.0	92.00	0.36	14483.3	-5136.9	-5136.9	-5136.9	Sec 33/28 Cross 14583' MD/9840' TVD (0.02' FSL, 2408.03' FEL of Sec 28)		
15825.0	92.85	0.95	15827.9	-10413.1	-578.0	-10413.1	Sec 28/21 Cross 15825' MD/9827' TVD (0.02' FSL, 2338.39' FEL of Sec 21)		
25018.0	89.60	359.79	25030.5	-15582.5	-673.7	-15582.5	Last MWD Survey		
25053.0	89.60	359.79	25053.8	-15597.5	-673.9	-15597.5	100' FSL Perf Line Cross 25053' MD/9593.8' TVD (100.25' FSL, 2295.80' FEL of Sec 21)		
25076.0	89.60	359.79	25076.9	-15620.5	-673.9	-15620.5	PBHL 25076' MD/9593' TVD (77.29' FSL, 2295.72' FEL of Sec 21)		



Lea County, NM (NAD 83)
 Sec 33 - 23S - 33E (Thistle Unit)
 API #
 Thistle Unit 159H
 150' FSL - 1839' FEL
 Job #
 Wellbore #1
 Actual Drilled

HALLIBURTON | Sperry Drilling



Devon Energy Corporation

Lea County, NM (NAD 83)

Sec 33 - 23S - 33E (Thistle Unit)

Thistle Unit 159H

Wellbore #1

Design: Actual Drilled

Survey Report - Geographic

22 April, 2019

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

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: Sec 33 - 23S - 33E (Thistle Unit)			
Site Position:	Northing: 457,083.16 usft	Latitude: 32° 15' 15.548 N	
From: Map	Easting: 775,859.81 usft	Longitude: 103° 34' 28.879 W	
Position Uncertainty: 5.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.40 °	

Well: Thistle Unit 159H			
Well Position	Northing: 457,083.16 usft	Latitude: 32° 15' 15.548 N	
+N-S 0.0 usft	Easting: 775,859.81 usft	Longitude: 103° 34' 28.879 W	
+E-W 0.0 usft	Wellhead Elevation: usft	Ground Level: 3,653.5 usft	
Position Uncertainty: 0.5 usft			

Wellbore: Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2018	1/23/2019	6.85	60.02	47,827.93333309

Design: Actual Drilled					
Audit Notes:					
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0			
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	0.00	

Survey Program Date: 4/22/2019					
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
143.0	25,018.0	MWD (Wellbore #1)	2_MWD+IFR1	A005Mb: IFR declination correction only	
25,076.0	25,076.0	Projection to TD (Wellbore #1)	2_Blind	A026Ua: Blind drilling - no survey data	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	457,083.16	775,859.81	32° 15' 15.548 N	103° 34' 28.879 W
143.0	0.72	174.33	143.0	-0.9	0.1	457,082.27	775,859.90	32° 15' 15.540 N	103° 34' 28.878 W
First MWD Survey									
232.0	0.59	156.25	232.0	-1.9	0.3	457,081.29	775,860.14	32° 15' 15.530 N	103° 34' 28.876 W
330.0	0.44	151.54	330.0	-2.7	0.7	457,080.50	775,860.52	32° 15' 15.522 N	103° 34' 28.871 W
426.0	0.45	153.84	426.0	-3.3	1.1	457,079.84	775,860.86	32° 15' 15.515 N	103° 34' 28.867 W
521.0	0.34	137.03	521.0	-3.9	1.4	457,079.29	775,861.22	32° 15' 15.510 N	103° 34' 28.863 W
615.0	0.39	107.39	615.0	-4.2	1.9	457,078.99	775,861.71	32° 15' 15.507 N	103° 34' 28.858 W
711.0	0.50	111.45	711.0	-4.4	2.6	457,078.74	775,862.41	32° 15' 15.505 N	103° 34' 28.849 W
806.0	0.57	114.23	806.0	-4.8	3.4	457,078.40	775,863.23	32° 15' 15.501 N	103° 34' 28.840 W
901.0	0.47	104.61	901.0	-5.1	4.2	457,078.11	775,864.04	32° 15' 15.498 N	103° 34' 28.831 W

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Survey Report - Geographic

Company: Devon Energy Corporation
 Project: Lea County, NM (NAD 83)
 Site: Sec 33 - 23S - 33E (Thistle Unit)
 Well: Thistle Unit 159H
 Wellbore: Wellbore #1
 Design: Actual Drilled

Local Co-ordinate Reference: Well Thistle Unit 159H
 TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
 MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
996.0	0.47	102.93	996.0	-5.2	5.0	457,077.92	775,864.80	32° 15' 15.496 N	103° 34' 28.822 W
1,092.0	0.34	105.10	1,092.0	-5.4	5.6	457,077.76	775,865.45	32° 15' 15.495 N	103° 34' 28.814 W
1,187.0	0.22	137.98	1,187.0	-5.6	6.0	457,077.55	775,865.85	32° 15' 15.492 N	103° 34' 28.809 W
1,282.0	0.09	35.16	1,282.0	-5.7	6.2	457,077.47	775,866.01	32° 15' 15.492 N	103° 34' 28.808 W
1,314.0	0.24	109.49	1,314.0	-5.7	6.3	457,077.47	775,866.09	32° 15' 15.492 N	103° 34' 28.807 W
1,411.0	0.39	336.54	1,411.0	-5.5	6.3	457,077.71	775,866.15	32° 15' 15.494 N	103° 34' 28.806 W
1,506.0	0.44	346.57	1,506.0	-4.8	6.1	457,078.36	775,865.94	32° 15' 15.500 N	103° 34' 28.808 W
1,602.0	0.59	341.59	1,602.0	-4.0	5.9	457,078.19	775,865.70	32° 15' 15.509 N	103° 34' 28.811 W
1,697.0	0.71	0.77	1,696.9	-2.9	5.7	457,080.24	775,865.55	32° 15' 15.519 N	103° 34' 28.813 W
1,792.0	0.35	344.11	1,791.9	-2.1	5.7	457,081.11	775,865.48	32° 15' 15.528 N	103° 34' 28.813 W
1,887.0	0.25	16.87	1,886.9	-1.6	5.7	457,081.58	775,865.46	32° 15' 15.532 N	103° 34' 28.814 W
1,983.0	0.07	279.16	1,982.9	-1.4	5.7	457,081.79	775,865.46	32° 15' 15.534 N	103° 34' 28.814 W
2,078.0	0.92	251.32	2,077.9	-1.6	4.9	457,081.56	775,864.88	32° 15' 15.532 N	103° 34' 28.823 W
2,173.0	1.47	244.45	2,172.9	-2.4	3.1	457,080.79	775,862.86	32° 15' 15.525 N	103° 34' 28.844 W
2,268.0	1.93	253.84	2,267.9	-3.3	0.4	457,079.82	775,860.22	32° 15' 15.515 N	103° 34' 28.875 W
2,363.0	2.58	256.25	2,362.8	-4.3	-3.2	457,078.87	775,856.61	32° 15' 15.506 N	103° 34' 28.917 W
2,458.0	3.46	251.84	2,457.7	-5.7	-8.0	457,077.47	775,851.81	32° 15' 15.493 N	103° 34' 28.973 W
2,553.0	4.27	252.95	2,552.5	-7.6	-14.1	457,075.54	775,845.70	32° 15' 15.474 N	103° 34' 29.044 W
2,649.0	5.10	254.83	2,648.1	-8.8	-21.6	457,073.38	775,838.17	32° 15' 15.453 N	103° 34' 29.132 W
2,744.0	5.68	255.91	2,742.7	-12.0	-30.3	457,071.13	775,829.53	32° 15' 15.431 N	103° 34' 29.233 W
2,839.0	6.81	260.00	2,837.2	-14.1	-40.2	457,069.03	775,819.59	32° 15' 15.411 N	103° 34' 29.349 W
2,934.0	6.28	260.98	2,931.6	-15.9	-50.7	457,067.27	775,809.07	32° 15' 15.395 N	103° 34' 29.471 W
3,029.0	5.94	261.66	3,026.0	-17.4	-60.7	457,065.74	775,799.07	32° 15' 15.380 N	103° 34' 29.588 W
3,124.0	6.51	264.51	3,120.5	-18.6	-71.0	457,064.51	775,788.85	32° 15' 15.369 N	103° 34' 29.707 W
3,220.0	6.19	260.96	3,215.9	-20.0	-81.5	457,063.18	775,778.32	32° 15' 15.358 N	103° 34' 29.830 W
3,315.0	6.60	258.86	3,310.3	-21.8	-91.9	457,061.32	775,767.91	32° 15' 15.339 N	103° 34' 29.951 W
3,410.0	6.89	259.65	3,404.8	-23.9	-102.9	457,059.24	775,756.94	32° 15' 15.319 N	103° 34' 30.079 W
3,505.0	6.73	263.30	3,499.0	-25.6	-114.0	457,057.57	775,745.81	32° 15' 15.303 N	103° 34' 30.209 W
3,601.0	6.20	269.42	3,594.3	-26.3	-124.8	457,056.88	775,735.04	32° 15' 15.287 N	103° 34' 30.334 W
3,696.0	6.36	269.04	3,688.8	-26.4	-135.2	457,056.72	775,724.65	32° 15' 15.296 N	103° 34' 30.455 W
3,791.0	6.60	269.95	3,783.2	-26.5	-145.9	457,056.63	775,713.93	32° 15' 15.296 N	103° 34' 30.580 W
3,886.0	6.43	259.11	3,877.6	-27.5	-156.6	457,055.62	775,703.24	32° 15' 15.287 N	103° 34' 30.705 W
3,981.0	6.98	249.24	3,971.9	-30.6	-167.2	457,052.57	775,692.62	32° 15' 15.257 N	103° 34' 30.829 W
4,076.0	6.72	247.67	4,068.2	-34.8	-177.7	457,048.41	775,682.08	32° 15' 15.217 N	103° 34' 30.952 W
4,171.0	6.79	248.59	4,160.6	-39.1	-188.0	457,044.07	775,671.79	32° 15' 15.175 N	103° 34' 31.072 W
4,267.0	6.99	247.19	4,255.9	-43.6	-198.6	457,039.55	775,661.20	32° 15' 15.131 N	103° 34' 31.196 W
4,362.0	6.91	252.93	4,350.2	-47.5	-209.4	457,035.63	775,650.40	32° 15' 15.093 N	103° 34' 31.322 W
4,448.0	5.91	253.73	4,435.6	-50.3	-218.6	457,032.87	775,641.21	32° 15' 15.066 N	103° 34' 31.429 W
100' FSL Perf Line Cross 4448' MD/ 4435' TVD (100.26' FSL, 2057.88' FEL of Sec 33)									
4,457.0	5.81	253.83	4,444.6	-50.5	-219.5	457,032.81	775,640.32	32° 15' 15.064 N	103° 34' 31.439 W
4,552.0	5.24	251.08	4,539.2	-53.3	-228.2	457,029.87	775,631.60	32° 15' 15.037 N	103° 34' 31.541 W
4,647.0	5.91	253.56	4,633.7	-56.1	-237.0	457,027.07	775,622.81	32° 15' 15.010 N	103° 34' 31.644 W
4,742.0	6.26	256.82	4,728.2	-58.7	-246.7	457,024.51	775,613.07	32° 15' 14.985 N	103° 34' 31.757 W
4,838.0	6.17	259.91	4,823.6	-60.7	-256.9	457,022.41	775,602.90	32° 15' 14.965 N	103° 34' 31.876 W
4,933.0	6.20	260.03	4,918.1	-62.5	-267.0	457,020.63	775,592.82	32° 15' 14.946 N	103° 34' 31.993 W
5,028.0	6.41	268.00	5,012.5	-63.6	-277.3	457,019.58	775,582.47	32° 15' 14.938 N	103° 34' 32.114 W
5,123.0	6.76	268.41	5,106.9	-63.9	-288.2	457,019.22	775,571.58	32° 15' 14.936 N	103° 34' 32.241 W
5,176.0	6.22	266.63	5,159.5	-64.2	-294.2	457,018.96	775,565.59	32° 15' 14.934 N	103° 34' 32.311 W
5,284.0	5.67	267.86	5,266.9	-64.7	-305.4	457,018.42	775,554.42	32° 15' 14.929 N	103° 34' 32.441 W
5,379.0	6.55	270.26	5,361.4	-64.9	-315.5	457,018.27	775,544.31	32° 15' 14.928 N	103° 34' 32.559 W
5,474.0	7.84	265.05	5,455.6	-65.4	-327.4	457,017.73	775,532.44	32° 15' 14.924 N	103° 34' 32.697 W
5,570.0	7.64	262.13	5,550.8	-66.9	-340.2	457,016.29	775,518.59	32° 15' 14.911 N	103° 34' 32.847 W
5,665.0	7.69	261.78	5,644.9	-68.6	-352.8	457,014.52	775,507.05	32° 15' 14.894 N	103° 34' 32.983 W
5,760.0	7.62	261.23	5,739.1	-70.5	-365.3	457,012.65	775,494.53	32° 15' 14.876 N	103° 34' 33.139 W
5,855.0	7.40	261.48	5,833.3	-72.4	-377.6	457,010.78	775,482.26	32° 15' 14.859 N	103° 34' 33.282 W

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,951.0	7.23	260.42	5,928.5	-74.3	-389.6	457,008.86	775,470.19	32° 15' 14.840 N	103° 34' 33.422 W
6,046.0	6.70	259.44	6,022.8	-76.3	-401.0	457,006.85	775,458.84	32° 15' 14.821 N	103° 34' 33.555 W
6,141.0	6.18	259.93	6,117.2	-78.2	-411.4	457,004.94	775,448.36	32° 15' 14.803 N	103° 34' 33.677 W
6,236.0	6.19	269.04	6,211.6	-79.2	-421.6	457,003.86	775,438.20	32° 15' 14.794 N	103° 34' 33.795 W
6,331.0	6.58	262.75	6,306.0	-80.0	-432.1	457,003.19	775,427.68	32° 15' 14.787 N	103° 34' 33.918 W
6,427.0	6.38	261.03	6,401.4	-81.5	-442.8	457,001.66	775,416.96	32° 15' 14.773 N	103° 34' 34.043 W
6,522.0	6.06	261.65	6,495.9	-83.0	-453.0	457,000.11	775,406.78	32° 15' 14.758 N	103° 34' 34.161 W
6,617.0	6.84	262.48	6,590.3	-84.5	-463.6	456,998.64	775,396.21	32° 15' 14.744 N	103° 34' 34.285 W
6,712.0	6.67	261.49	6,684.6	-86.1	-474.7	456,997.09	775,385.15	32° 15' 14.730 N	103° 34' 34.414 W
6,807.0	6.50	261.30	6,779.0	-87.7	-485.4	456,995.46	775,374.38	32° 15' 14.714 N	103° 34' 34.539 W
6,902.0	5.90	260.79	6,873.4	-89.3	-495.6	456,993.86	775,364.24	32° 15' 14.699 N	103° 34' 34.657 W
6,997.0	6.24	261.32	6,967.9	-90.9	-505.5	456,992.30	775,354.32	32° 15' 14.685 N	103° 34' 34.773 W
7,092.0	6.07	262.51	7,062.3	-92.3	-515.6	456,990.87	775,344.23	32° 15' 14.671 N	103° 34' 34.891 W
7,188.0	5.94	264.43	7,157.8	-93.4	-525.5	456,989.72	775,334.26	32° 15' 14.661 N	103° 34' 35.007 W
7,283.0	5.70	265.09	7,252.3	-94.3	-535.1	456,988.84	775,324.66	32° 15' 14.652 N	103° 34' 35.119 W
7,378.0	5.38	264.94	7,346.9	-95.1	-544.3	456,988.05	775,315.53	32° 15' 14.645 N	103° 34' 35.225 W
7,473.0	5.46	262.19	7,441.5	-96.1	-553.2	456,987.04	775,306.61	32° 15' 14.636 N	103° 34' 35.329 W
7,568.0	4.98	258.20	7,536.1	-97.6	-561.7	456,985.58	775,298.10	32° 15' 14.622 N	103° 34' 35.428 W
7,664.0	3.64	249.26	7,631.8	-99.5	-568.6	456,983.65	775,291.17	32° 15' 14.603 N	103° 34' 35.509 W
7,759.0	3.51	248.54	7,726.6	-101.6	-574.2	456,981.52	775,285.64	32° 15' 14.583 N	103° 34' 35.574 W
7,854.0	2.54	244.27	7,821.5	-103.6	-578.8	456,979.54	775,281.04	32° 15' 14.563 N	103° 34' 35.627 W
7,949.0	2.48	241.87	7,916.4	-105.5	-582.5	456,977.66	775,277.33	32° 15' 14.545 N	103° 34' 35.671 W
8,044.0	1.33	243.67	8,011.3	-107.0	-585.3	456,976.20	775,274.53	32° 15' 14.531 N	103° 34' 35.703 W
8,140.0	0.62	228.51	8,107.3	-107.8	-586.7	456,975.36	775,273.14	32° 15' 14.523 N	103° 34' 35.720 W
8,235.0	0.84	225.90	8,202.3	-108.6	-587.5	456,974.54	775,272.28	32° 15' 14.515 N	103° 34' 35.730 W
8,330.0	0.17	307.18	8,297.3	-109.0	-588.2	456,974.14	775,271.65	32° 15' 14.511 N	103° 34' 35.737 W
8,425.0	0.22	304.88	8,392.3	-108.8	-588.4	456,974.33	775,271.38	32° 15' 14.513 N	103° 34' 35.740 W
8,520.0	0.40	301.86	8,487.3	-108.6	-588.9	456,974.61	775,270.95	32° 15' 14.515 N	103° 34' 35.745 W
8,616.0	0.10	300.76	8,583.3	-108.3	-589.2	456,974.83	775,270.60	32° 15' 14.518 N	103° 34' 35.749 W
8,711.0	0.33	214.34	8,678.3	-108.5	-589.4	456,974.64	775,270.37	32° 15' 14.516 N	103° 34' 35.752 W
8,806.0	0.42	227.56	8,773.3	-109.0	-589.8	456,974.18	775,269.96	32° 15' 14.511 N	103° 34' 35.757 W
8,901.0	0.74	225.71	8,868.3	-109.6	-590.5	456,973.52	775,269.26	32° 15' 14.505 N	103° 34' 35.765 W
KOP 8901' MD/ 8868' TVD (43.17' FSL, 2430.27' FEL of Sec 33)									
9,015.0	4.76	352.17	9,082.2	-105.5	-591.7	456,977.69	775,268.09	32° 15' 14.546 N	103° 34' 35.778 W
9,111.0	17.78	353.45	9,076.1	-86.9	-593.9	456,996.28	775,265.87	32° 15' 14.730 N	103° 34' 35.803 W
9,161.0	24.08	352.63	9,122.8	-69.2	-596.1	457,014.00	775,263.69	32° 15' 14.906 N	103° 34' 35.827 W
9,199.0	28.54	353.62	9,156.8	-52.4	-598.1	457,030.72	775,261.68	32° 15' 15.071 N	103° 34' 35.849 W
100' FSL Perf Line Cross 8199' MD/8156' TVD (100.42' FSL, 2437.41' FEL of Sec 33)									
9,206.0	29.36	353.77	9,163.0	-49.1	-598.5	457,034.08	775,261.31	32° 15' 15.105 N	103° 34' 35.853 W
9,256.0	33.13	356.85	9,205.7	-23.2	-600.6	457,059.92	775,259.23	32° 15' 15.360 N	103° 34' 35.875 W
9,300.0	34.72	357.06	9,242.2	1.3	-601.9	457,084.44	775,257.92	32° 15' 15.603 N	103° 34' 35.888 W
9,348.0	36.83	357.20	9,281.2	29.3	-603.3	457,112.47	775,256.52	32° 15' 15.881 N	103° 34' 35.902 W
9,395.0	39.27	358.64	9,318.2	58.3	-604.3	457,141.41	775,255.48	32° 15' 16.167 N	103° 34' 35.912 W
9,445.0	42.01	0.54	9,356.1	90.8	-604.5	457,173.97	775,255.26	32° 15' 16.489 N	103° 34' 35.912 W
9,491.0	44.68	1.55	9,389.6	122.4	-604.0	457,205.54	775,255.84	32° 15' 16.802 N	103° 34' 35.902 W
9,541.0	46.93	1.24	9,424.4	158.2	-603.1	457,241.37	775,256.71	32° 15' 17.156 N	103° 34' 35.889 W
9,586.0	48.35	0.72	9,454.7	191.5	-602.5	457,274.62	775,257.28	32° 15' 17.485 N	103° 34' 35.880 W
9,636.0	49.66	0.89	9,487.5	229.2	-602.0	457,312.35	775,257.81	32° 15' 17.858 N	103° 34' 35.871 W
9,681.0	53.16	1.51	9,515.6	264.4	-601.3	457,347.51	775,258.55	32° 15' 18.206 N	103° 34' 35.859 W
9,731.0	57.39	0.89	9,544.1	305.4	-600.4	457,388.59	775,259.41	32° 15' 18.613 N	103° 34' 35.846 W
9,776.0	61.63	0.89	9,566.9	344.2	-599.8	457,427.35	775,260.01	32° 15' 18.996 N	103° 34' 35.835 W
9,826.0	66.34	1.13	9,588.8	389.1	-599.0	457,472.27	775,260.80	32° 15' 19.440 N	103° 34' 35.823 W
9,871.0	71.74	1.33	9,604.9	431.1	-598.1	457,514.26	775,261.71	32° 15' 19.856 N	103° 34' 35.809 W
9,892.0	73.80	1.52	9,611.1	451.2	-597.6	457,534.31	775,262.21	32° 15' 20.054 N	103° 34' 35.801 W
Leonard B POE 9892' MD/9611' TVD (604.0077' FSL, 2433.0402' FEL of Sec 33)									

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H	
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft	
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft	
Well: Thistle Unit 159H	North Reference: Grid	
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature	
Design: Actual Drilled	Database: SOUTH US	

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,921.0	76.64	1.77	9,618.5	479.2	-596.8	457,562.34	775,263.01	32° 15' 20.332 N	103° 34' 35.789 W
9,987.0	80.96	1.28	9,627.5	524.3	-595.6	457,607.44	775,264.21	32° 15' 20.778 N	103° 34' 35.772 W
10,017.0	86.43	0.56	9,633.0	573.9	-594.8	457,657.11	775,265.01	32° 15' 21.269 N	103° 34' 35.758 W
10,082.0	87.35	0.83	9,635.4	618.9	-594.3	457,702.04	775,265.47	32° 15' 21.714 N	103° 34' 35.749 W
10,157.0	88.52	0.13	9,638.8	713.8	-593.7	457,786.97	775,266.10	32° 15' 22.653 N	103° 34' 35.734 W
10,252.0	90.21	0.11	9,639.9	808.8	-593.5	457,891.98	775,266.30	32° 15' 23.593 N	103° 34' 35.724 W
10,347.0	90.59	359.87	9,639.2	903.8	-593.4	457,986.96	775,266.37	32° 15' 24.533 N	103° 34' 35.716 W
10,442.0	89.85	359.39	9,638.8	998.8	-594.0	458,081.96	775,265.84	32° 15' 25.473 N	103° 34' 35.714 W
10,538.0	92.04	359.60	9,637.3	1,094.8	-594.8	458,177.94	775,264.99	32° 15' 26.423 N	103° 34' 35.716 W
10,633.0	91.54	358.96	9,634.3	1,189.7	-596.0	458,272.88	775,263.80	32° 15' 27.362 N	103° 34' 35.722 W
10,728.0	88.70	357.19	9,634.1	1,284.7	-599.2	458,367.81	775,260.61	32° 15' 28.302 N	103° 34' 35.751 W
10,823.0	87.91	358.30	9,636.9	1,379.5	-602.9	458,462.70	775,256.87	32° 15' 29.241 N	103° 34' 35.787 W
10,918.0	88.37	0.30	9,640.0	1,474.5	-604.1	458,557.63	775,255.71	32° 15' 30.181 N	103° 34' 35.793 W
11,013.0	90.19	0.16	9,641.2	1,569.5	-603.7	458,652.62	775,256.09	32° 15' 31.121 N	103° 34' 35.781 W
11,108.0	88.55	0.40	9,642.2	1,664.5	-603.3	458,747.61	775,256.56	32° 15' 32.061 N	103° 34' 35.767 W
11,204.0	88.71	358.99	9,644.5	1,760.4	-603.8	458,843.58	775,256.04	32° 15' 33.010 N	103° 34' 35.765 W
11,299.0	89.66	358.59	9,645.9	1,855.4	-605.8	458,938.55	775,254.04	32° 15' 33.950 N	103° 34' 35.781 W
11,394.0	92.94	359.51	9,643.7	1,950.3	-607.3	459,033.50	775,252.46	32° 15' 34.890 N	103° 34' 35.792 W
11,489.0	91.76	0.24	9,639.8	2,045.3	-607.6	459,128.42	775,252.26	32° 15' 35.829 N	103° 34' 35.786 W
11,584.0	91.67	1.24	9,637.0	2,140.2	-608.3	459,223.36	775,253.48	32° 15' 36.768 N	103° 34' 35.764 W
11,680.0	85.66	0.02	9,639.2	2,236.1	-605.3	459,318.29	775,254.54	32° 15' 37.717 N	103° 34' 35.744 W
11,775.0	85.43	359.07	9,646.6	2,330.8	-608.0	459,413.99	775,253.79	32° 15' 38.655 N	103° 34' 35.745 W
11,870.0	86.33	359.11	9,653.4	2,425.6	-607.5	459,508.74	775,252.28	32° 15' 39.592 N	103° 34' 35.755 W
11,965.0	88.24	359.00	9,657.9	2,520.5	-609.1	459,603.61	775,250.72	32° 15' 40.531 N	103° 34' 35.765 W
12,060.0	86.83	359.23	9,662.0	2,615.4	-610.6	459,698.51	775,249.25	32° 15' 41.470 N	103° 34' 35.774 W
12,156.0	86.47	359.64	9,667.6	2,711.2	-611.5	459,794.34	775,248.31	32° 15' 42.419 N	103° 34' 35.777 W
12,250.0	87.13	0.37	9,672.9	2,805.0	-611.5	459,888.19	775,248.31	32° 15' 43.347 N	103° 34' 35.770 W
12,345.0	90.89	0.37	9,674.5	2,900.0	-610.9	459,983.16	775,248.93	32° 15' 44.287 N	103° 34' 35.755 W
12,441.0	90.89	1.39	9,673.0	2,996.0	-609.4	460,078.14	775,250.40	32° 15' 45.237 N	103° 34' 35.730 W
12,538.0	93.73	1.34	9,689.2	3,090.9	-607.1	460,174.02	775,252.66	32° 15' 46.175 N	103° 34' 35.696 W
12,631.0	94.35	2.87	9,682.5	3,185.6	-603.7	460,268.72	775,256.14	32° 15' 47.112 N	103° 34' 35.647 W
12,728.0	91.02	1.69	9,658.0	3,280.4	-599.9	460,363.52	775,259.92	32° 15' 48.050 N	103° 34' 35.596 W
12,821.0	91.33	0.80	9,656.1	3,375.3	-597.8	460,458.48	775,261.98	32° 15' 48.989 N	103° 34' 35.564 W
12,917.0	91.48	0.09	9,653.7	3,471.3	-597.1	460,554.45	775,262.73	32° 15' 49.939 N	103° 34' 35.547 W
13,041.0	91.26	357.67	9,650.8	3,565.2	-599.5	460,648.38	775,260.30	32° 15' 51.165 N	103° 34' 35.565 W
13,137.0	90.25	359.40	9,649.5	3,661.2	-602.0	460,744.34	775,257.85	32° 15' 52.115 N	103° 34' 35.586 W
13,233.0	89.72	359.30	9,649.5	3,757.2	-603.0	460,840.33	775,256.76	32° 15' 53.065 N	103° 34' 35.591 W
13,328.0	89.91	359.98	9,649.8	3,852.2	-603.6	460,935.33	775,256.16	32° 15' 54.005 N	103° 34' 35.590 W
13,423.0	89.69	0.06	9,650.2	3,947.2	-603.6	461,030.33	775,256.20	32° 15' 54.945 N	103° 34' 35.582 W
13,518.0	90.12	359.76	9,650.3	4,042.2	-603.8	461,125.33	775,256.04	32° 15' 55.885 N	103° 34' 35.576 W
13,614.0	90.80	359.32	9,649.8	4,138.2	-604.5	461,220.32	775,255.28	32° 15' 56.835 N	103° 34' 35.577 W
13,708.0	91.26	359.22	9,647.9	4,234.1	-605.7	461,315.30	775,254.08	32° 15' 57.785 N	103° 34' 35.583 W
13,803.0	89.63	0.23	9,647.1	4,329.1	-606.2	461,410.29	775,253.63	32° 15' 58.705 N	103° 34' 35.580 W
13,898.0	89.91	0.73	9,647.5	4,424.1	-605.4	461,505.28	775,254.42	32° 15' 59.645 N	103° 34' 35.563 W
13,994.0	89.20	0.88	9,648.3	4,519.1	-604.0	461,600.27	775,255.77	32° 16' 0.595 N	103° 34' 35.540 W
14,089.0	89.57	359.85	9,649.3	4,614.1	-603.4	461,695.26	775,256.38	32° 16' 1.535 N	103° 34' 35.525 W
14,184.0	89.94	358.76	9,649.7	4,709.1	-604.6	461,790.25	775,255.23	32° 16' 2.475 N	103° 34' 35.530 W
14,279.0	90.49	358.69	9,649.3	4,804.1	-606.7	461,885.23	775,253.11	32° 16' 3.415 N	103° 34' 35.547 W
14,374.0	91.36	358.92	9,647.8	4,899.1	-608.7	461,980.22	775,251.13	32° 16' 4.355 N	103° 34' 35.563 W
14,470.0	92.19	359.75	9,644.8	4,994.1	-609.8	462,075.21	775,250.02	32° 16' 5.304 N	103° 34' 35.568 W
14,565.0	92.43	0.48	9,641.0	5,089.1	-609.6	462,170.20	775,250.21	32° 16' 6.243 N	103° 34' 35.558 W
14,583.0	92.00	0.36	9,640.3	5,134.1	-609.5	462,220.05	775,250.34	32° 16' 6.421 N	103° 34' 35.555 W
Sec 33/28 Cross 14583' MD/8640' TVD (0.09' FSL, 2409.03' FEL of Sec 28)									
14,680.0	90.15	359.85	9,638.9	5,229.1	-609.3	462,297.03	775,250.48	32° 16' 7.183 N	103° 34' 35.547 W
14,755.0	90.93	0.36	9,638.0	5,304.1	-609.1	462,392.02	775,250.67	32° 16' 8.123 N	103° 34' 35.537 W

Halliburton

Survey Report - Geographic

Company:	Devon Energy Corporation	Local Co-ordinate Reference:	Well Thistle Unit 159H
Project:	Lea County, NM (NAD 83)	TVD Reference:	RKB (Nabors X05) 33 + GL @ 3688.5usft
Site:	Sec 33 - 23S - 33E (Thistle Unit)	MD Reference:	RKB (Nabors X05) 33 + GL @ 3688.5usft
Well:	Thistle Unit 159H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual Drilled	Database:	SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,851.0	89.88	359.89	9,637.3	5,404.9	-608.9	462,488.02	775,250.90	32° 16' 8.073 N	103° 34' 35.526 W
14,946.0	91.02	0.93	9,636.5	5,499.9	-608.2	462,583.01	775,251.58	32° 16' 10.013 N	103° 34' 35.510 W
15,041.0	89.75	1.79	9,635.9	5,594.8	-606.0	462,677.98	775,253.83	32° 16' 10.952 N	103° 34' 35.476 W
15,136.0	88.28	1.17	9,637.5	5,689.8	-603.5	462,772.93	775,256.29	32° 16' 11.892 N	103° 34' 35.440 W
15,231.0	89.38	1.95	9,639.5	5,784.7	-600.9	462,867.87	775,258.87	32° 16' 12.831 N	103° 34' 35.402 W
15,326.0	89.75	2.19	9,640.2	5,879.6	-597.5	462,962.81	775,262.30	32° 16' 13.770 N	103° 34' 35.354 W
15,421.0	88.89	0.85	9,641.3	5,974.6	-595.0	463,057.77	775,264.82	32° 16' 14.709 N	103° 34' 35.317 W
15,516.0	88.09	0.43	9,643.8	6,069.6	-593.9	463,152.73	775,265.88	32° 16' 15.649 N	103° 34' 35.297 W
15,611.0	89.42	1.85	9,645.9	6,164.5	-592.0	463,247.68	775,267.77	32° 16' 16.589 N	103° 34' 35.267 W
15,706.0	88.12	1.57	9,647.9	6,259.5	-589.2	463,342.61	775,270.61	32° 16' 17.528 N	103° 34' 35.226 W
15,802.0	87.38	0.71	9,651.7	6,355.4	-587.3	463,438.52	775,272.52	32° 16' 18.477 N	103° 34' 35.196 W
15,897.0	85.44	0.67	9,657.7	6,450.2	-586.1	463,533.32	775,273.66	32° 16' 19.415 N	103° 34' 35.175 W
15,992.0	86.39	0.62	9,664.4	6,544.9	-585.1	463,628.07	775,274.72	32° 16' 20.352 N	103° 34' 35.155 W
16,088.0	88.40	1.11	9,668.8	6,640.8	-583.6	463,723.96	775,276.17	32° 16' 21.301 N	103° 34' 35.130 W
16,183.0	89.44	1.40	9,670.8	6,735.8	-581.8	463,818.92	775,278.25	32° 16' 22.240 N	103° 34' 35.098 W
16,278.0	90.68	0.28	9,670.5	6,830.7	-580.2	463,913.90	775,279.65	32° 16' 23.180 N	103° 34' 35.074 W
16,373.0	89.54	358.79	9,670.3	6,925.7	-580.9	464,008.89	775,278.87	32° 16' 24.120 N	103° 34' 35.075 W
16,468.0	90.68	359.47	9,670.1	7,020.7	-582.4	464,103.88	775,277.43	32° 16' 25.060 N	103° 34' 35.084 W
16,563.0	88.46	358.77	9,670.8	7,115.7	-583.8	464,198.86	775,275.97	32° 16' 26.000 N	103° 34' 35.093 W
16,658.0	89.57	359.76	9,672.5	7,210.7	-585.1	464,293.84	775,274.76	32° 16' 26.940 N	103° 34' 35.100 W
16,753.0	90.34	359.78	9,672.5	7,305.7	-585.4	464,388.84	775,274.37	32° 16' 27.880 N	103° 34' 35.097 W
16,848.0	90.77	359.53	9,671.6	7,400.7	-586.0	464,483.83	775,273.80	32° 16' 28.820 N	103° 34' 35.095 W
16,943.0	89.81	357.64	9,671.1	7,495.6	-588.4	464,578.79	775,271.46	32° 16' 29.760 N	103° 34' 35.115 W
17,038.0	92.44	356.51	9,669.3	7,590.5	-593.2	464,673.64	775,268.61	32° 16' 30.699 N	103° 34' 35.164 W
17,134.0	90.83	358.93	9,666.5	7,686.3	-598.7	464,769.44	775,261.12	32° 16' 31.647 N	103° 34' 35.220 W
17,229.0	90.28	357.68	9,665.6	7,781.2	-603.2	464,864.33	775,256.65	32° 16' 32.586 N	103° 34' 35.264 W
17,324.0	90.22	358.35	9,665.2	7,876.1	-606.4	464,959.27	775,253.36	32° 16' 33.526 N	103° 34' 35.294 W
17,419.0	89.48	357.79	9,665.4	7,971.1	-609.6	465,054.22	775,250.16	32° 16' 34.466 N	103° 34' 35.324 W
17,514.0	89.78	358.57	9,666.1	8,066.0	-612.7	465,149.17	775,247.15	32° 16' 35.405 N	103° 34' 35.351 W
17,609.0	90.37	357.26	9,665.9	8,160.9	-616.1	465,244.10	775,243.69	32° 16' 36.345 N	103° 34' 35.384 W
17,705.0	93.81	359.40	9,662.6	8,256.8	-618.9	465,339.98	775,240.89	32° 16' 37.294 N	103° 34' 35.408 W
17,800.0	91.41	359.67	9,658.4	8,351.7	-618.7	465,434.88	775,240.12	32° 16' 38.233 N	103° 34' 35.409 W
17,895.0	92.94	2.29	9,654.8	8,446.6	-618.1	465,529.79	775,241.75	32° 16' 39.172 N	103° 34' 35.383 W
17,990.0	90.88	3.03	9,651.6	8,541.5	-613.7	465,624.83	775,246.15	32° 16' 40.110 N	103° 34' 35.324 W
18,085.0	89.81	4.88	9,650.9	8,636.2	-607.3	465,719.40	775,252.54	32° 16' 41.048 N	103° 34' 35.242 W
18,180.0	92.40	4.42	9,649.1	8,730.9	-599.7	465,814.08	775,260.07	32° 16' 41.984 N	103° 34' 35.146 W
18,276.0	91.38	4.00	9,645.9	8,826.6	-592.7	465,909.77	775,267.12	32° 16' 42.930 N	103° 34' 35.056 W
18,371.0	91.39	4.38	9,643.6	8,921.3	-585.8	466,004.49	775,274.04	32° 16' 43.867 N	103° 34' 34.968 W
18,468.0	89.42	3.38	9,643.0	9,016.1	-579.4	466,099.26	775,280.45	32° 16' 44.804 N	103° 34' 34.885 W
18,561.0	87.90	4.15	9,645.2	9,110.9	-573.1	466,194.03	775,286.69	32° 16' 45.742 N	103° 34' 34.805 W
18,657.0	84.97	1.56	9,651.1	9,206.5	-568.3	466,289.70	775,291.46	32° 16' 46.688 N	103° 34' 34.741 W
18,752.0	86.95	0.75	9,657.8	9,301.3	-566.4	466,384.44	775,293.37	32° 16' 47.625 N	103° 34' 34.711 W
18,847.0	91.33	0.80	9,659.3	9,396.2	-565.2	466,479.40	775,294.65	32° 16' 48.565 N	103° 34' 34.686 W
18,942.0	92.13	0.81	9,656.4	9,491.2	-563.8	466,574.35	775,295.99	32° 16' 49.504 N	103° 34' 34.665 W
19,038.0	90.99	359.86	9,653.8	9,587.1	-563.3	466,670.31	775,296.55	32° 16' 50.454 N	103° 34' 34.651 W
19,133.0	89.78	358.58	9,653.1	9,682.1	-564.6	466,765.29	775,295.26	32° 16' 51.394 N	103° 34' 34.658 W
19,228.0	87.93	358.75	9,655.0	9,777.1	-566.8	466,860.24	775,293.04	32° 16' 52.333 N	103° 34' 34.676 W
19,324.0	91.51	359.11	9,655.5	9,873.0	-568.6	466,956.21	775,291.25	32° 16' 53.283 N	103° 34' 34.689 W
19,419.0	92.07	358.30	9,652.5	9,968.0	-570.7	467,051.14	775,289.11	32° 16' 54.223 N	103° 34' 34.706 W
19,514.0	91.63	358.40	9,649.5	10,062.9	-573.4	467,146.05	775,286.37	32° 16' 55.162 N	103° 34' 34.730 W
19,609.0	93.55	358.65	9,645.2	10,157.8	-575.9	467,240.92	775,283.93	32° 16' 56.101 N	103° 34' 34.751 W
19,704.0	94.97	359.32	9,638.1	10,252.5	-577.6	467,335.64	775,282.25	32° 16' 57.038 N	103° 34' 34.763 W
19,799.0	93.18	358.96	9,631.4	10,347.2	-579.0	467,430.38	775,280.83	32° 16' 57.976 N	103° 34' 34.771 W
19,865.0	92.86	0.95	9,627.9	10,413.1	-579.0	467,496.29	775,280.77	32° 16' 58.928 N	103° 34' 34.767 W

Sec 28/21 Cross 19885' MD/9627' TVD (0.02' FSL, 2338.39' FEL of Sec 21)

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
19,895.0	92.71	1.85	9,626.4	10,443.1	-578.3	467,526.24	775,281.51	32° 16' 58.924 N	103° 34' 34.756 W
19,990.0	90.99	1.84	9,623.4	10,538.0	-575.2	467,621.14	775,284.56	32° 16' 59.863 N	103° 34' 34.712 W
20,085.0	91.02	1.60	9,621.7	10,632.9	-572.4	467,716.08	775,287.41	32° 17' 0.802 N	103° 34' 34.671 W
20,180.0	90.43	0.45	9,620.5	10,727.9	-570.7	467,811.06	775,289.11	32° 17' 1.742 N	103° 34' 34.644 W
20,276.0	92.10	359.75	9,618.4	10,823.9	-570.5	467,907.03	775,289.28	32° 17' 2.692 N	103° 34' 34.634 W
20,371.0	90.06	359.71	9,616.6	10,918.8	-571.8	468,002.00	775,288.00	32° 17' 3.632 N	103° 34' 34.641 W
20,466.0	89.57	358.18	9,616.9	11,013.8	-574.4	468,096.98	775,285.43	32° 17' 4.571 N	103° 34' 34.663 W
20,561.0	88.98	358.21	9,618.1	11,108.7	-577.4	468,191.91	775,282.43	32° 17' 5.511 N	103° 34' 34.690 W
20,656.0	88.30	358.65	9,620.4	11,203.7	-580.0	468,286.84	775,279.83	32° 17' 6.451 N	103° 34' 34.713 W
20,751.0	87.79	357.94	9,623.6	11,298.6	-582.8	468,381.74	775,277.01	32° 17' 7.390 N	103° 34' 34.738 W
20,847.0	87.81	358.09	9,627.3	11,394.5	-586.1	468,477.62	775,273.68	32° 17' 8.339 N	103° 34' 34.768 W
20,942.0	89.60	359.74	9,629.4	11,489.4	-587.9	468,572.57	775,271.89	32° 17' 8.279 N	103° 34' 34.782 W
21,037.0	88.70	358.45	9,630.8	11,584.4	-589.4	468,667.54	775,270.39	32° 17' 10.218 N	103° 34' 34.791 W
21,132.0	95.06	359.98	9,627.7	11,679.3	-590.7	468,762.43	775,269.08	32° 17' 11.158 N	103° 34' 34.789 W
21,227.0	92.96	0.36	9,621.1	11,774.0	-590.4	468,857.19	775,269.37	32° 17' 12.095 N	103° 34' 34.788 W
21,323.0	92.21	0.66	9,616.8	11,869.9	-589.6	468,953.09	775,270.22	32° 17' 13.044 N	103° 34' 34.770 W
21,418.0	92.56	0.52	9,612.8	11,964.8	-588.6	469,048.00	775,271.20	32° 17' 13.983 N	103° 34' 34.751 W
21,513.0	92.00	0.01	9,609.0	12,059.8	-588.2	469,142.93	775,271.64	32° 17' 14.922 N	103° 34' 34.738 W
21,608.0	92.25	359.75	9,605.5	12,154.7	-588.4	469,237.86	775,271.44	32° 17' 15.862 N	103° 34' 34.732 W
21,703.0	92.59	359.87	9,601.5	12,249.6	-588.7	469,332.77	775,271.12	32° 17' 16.801 N	103° 34' 34.728 W
21,798.0	92.84	0.19	9,597.0	12,344.5	-588.6	469,427.67	775,271.17	32° 17' 17.740 N	103° 34' 34.720 W
21,894.0	92.62	0.19	9,592.4	12,440.4	-588.3	469,523.56	775,271.49	32° 17' 18.689 N	103° 34' 34.708 W
21,989.0	90.77	359.33	9,589.6	12,535.4	-588.7	469,618.51	775,271.09	32° 17' 19.628 N	103° 34' 34.705 W
22,084.0	90.22	359.52	9,588.8	12,630.3	-589.7	469,713.50	775,270.14	32° 17' 20.568 N	103° 34' 34.708 W
22,179.0	89.45	359.09	9,589.1	12,725.3	-590.8	469,808.49	775,268.99	32° 17' 21.508 N	103° 34' 34.714 W
22,274.0	90.15	359.94	9,589.4	12,820.3	-591.6	469,903.49	775,268.18	32° 17' 22.448 N	103° 34' 34.715 W
22,370.0	90.59	0.44	9,588.8	12,916.3	-591.3	469,999.49	775,268.50	32° 17' 23.398 N	103° 34' 34.704 W
22,464.0	92.87	1.06	9,585.9	13,010.3	-590.1	470,093.43	775,269.73	32° 17' 24.328 N	103° 34' 34.682 W
22,559.0	90.15	0.66	9,583.4	13,105.2	-588.7	470,188.37	775,271.15	32° 17' 25.267 N	103° 34' 34.657 W
22,654.0	91.36	1.74	9,582.2	13,200.2	-586.7	470,283.34	775,273.14	32° 17' 26.207 N	103° 34' 34.626 W
22,750.0	93.88	3.74	9,577.8	13,296.0	-582.1	470,379.12	775,277.73	32° 17' 27.154 N	103° 34' 34.565 W
22,845.0	92.31	3.36	9,572.7	13,390.6	-576.2	470,473.80	775,283.60	32° 17' 28.091 N	103° 34' 34.489 W
22,940.0	89.41	2.54	9,571.2	13,485.5	-571.3	470,568.65	775,288.49	32° 17' 29.029 N	103° 34' 34.424 W
23,035.0	88.61	1.62	9,572.9	13,580.4	-567.9	470,663.57	775,291.93	32° 17' 29.968 N	103° 34' 34.376 W
23,130.0	86.80	1.27	9,576.7	13,675.3	-565.5	470,758.46	775,294.33	32° 17' 30.907 N	103° 34' 34.340 W
23,225.0	89.17	0.99	9,580.0	13,770.2	-563.6	470,853.38	775,296.20	32° 17' 31.848 N	103° 34' 34.311 W
23,320.0	90.77	0.33	9,580.1	13,865.2	-562.5	470,948.37	775,297.29	32° 17' 32.786 N	103° 34' 34.290 W
23,416.0	91.42	0.34	9,578.2	13,961.2	-562.0	471,044.35	775,297.86	32° 17' 33.735 N	103° 34' 34.276 W
23,511.0	91.63	0.36	9,575.7	14,056.2	-561.4	471,139.31	775,298.44	32° 17' 34.675 N	103° 34' 34.261 W
23,606.0	90.25	0.55	9,574.2	14,151.1	-560.6	471,234.29	775,299.19	32° 17' 35.615 N	103° 34' 34.245 W
23,698.0	90.59	0.18	9,573.6	14,231.1	-560.1	471,314.29	775,299.70	32° 17' 36.406 N	103° 34' 34.232 W
23,781.0	90.25	0.38	9,572.9	14,326.1	-559.6	471,409.28	775,300.16	32° 17' 37.348 N	103° 34' 34.219 W
23,877.0	88.89	0.37	9,573.6	14,422.1	-559.0	471,505.28	775,300.79	32° 17' 38.296 N	103° 34' 34.204 W
23,972.0	86.52	0.89	9,577.4	14,517.0	-558.0	471,600.19	775,301.84	32° 17' 39.235 N	103° 34' 34.184 W
24,067.0	88.98	0.04	9,581.1	14,611.9	-557.2	471,695.10	775,302.60	32° 17' 40.174 N	103° 34' 34.167 W
24,162.0	90.31	358.20	9,581.7	14,706.9	-558.7	471,790.09	775,301.15	32° 17' 41.114 N	103° 34' 34.176 W
24,257.0	91.97	358.39	9,579.8	14,801.9	-561.5	471,885.02	775,298.32	32° 17' 42.054 N	103° 34' 34.201 W
24,352.0	90.31	358.56	9,577.9	14,896.8	-564.0	471,979.96	775,295.79	32° 17' 42.993 N	103° 34' 34.223 W
24,447.0	86.61	359.25	9,580.5	14,991.7	-565.8	472,074.90	775,293.98	32° 17' 43.933 N	103° 34' 34.236 W
24,543.0	89.17	359.23	9,584.0	15,087.7	-567.1	472,170.81	775,292.70	32° 17' 44.882 N	103° 34' 34.243 W
24,638.0	88.36	359.37	9,588.1	15,182.6	-568.3	472,265.78	775,291.54	32° 17' 45.822 N	103° 34' 34.249 W
24,733.0	87.99	359.26	9,589.1	15,277.6	-569.4	472,360.73	775,290.41	32° 17' 46.762 N	103° 34' 34.254 W
24,828.0	87.93	358.87	9,592.5	15,372.5	-570.9	472,455.66	775,288.86	32° 17' 47.701 N	103° 34' 34.265 W
24,923.0	90.59	358.99	9,593.7	15,467.5	-572.7	472,550.62	775,287.09	32° 17' 48.641 N	103° 34' 34.277 W

Halliburton

Survey Report - Geographic

Company: Devon Energy Corporation	Local Co-ordinate Reference: Well Thistle Unit 159H
Project: Lea County, NM (NAD 83)	TVD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Site: Sec 33 - 23S - 33E (Thistle Unit)	MD Reference: RKB (Nabors X05) 33 + GL @ 3686.5usft
Well: Thistle Unit 159H	North Reference: Grid
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual Drilled	Database: SOUTH US

Survey

Measured Depth (usft)	Inclination (")	Azimuth (")	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
25,018.0	89.60	359.79	9,593.5	15,562.5	-573.7	472,645.62	775,286.08	32° 17' 49.581 N	103° 34' 34.281 W
Last MWD Survey									
25,053.0	89.60	359.79	9,593.8	15,597.5	-573.9	472,680.62	775,285.95	32° 17' 49.927 N	103° 34' 34.280 W
100' FSL Perf Line Cross 25053' MD/9593.8' TVD (100.29' FNL, 2295.80' FEL of Sec 21)									
25,065.1	89.60	359.79	9,593.9	15,609.6	-573.9	472,692.75	775,285.90	32° 17' 50.047 N	103° 34' 34.280 W
PBHL of Thistle 159H (20' FNL-2310' FEL)									
25,076.0	89.60	359.79	9,593.9	15,620.5	-573.9	472,703.61	775,285.86	32° 17' 50.155 N	103° 34' 34.279 W
PBHL 25076' MD/9593' TVD (77.29' FNL, 2295.72' FEL of Sec 21)									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
143.0	143.0	-0.9	0.1	First MWD Survey
4,448.0	4,435.6	-50.3	-218.6	100' FSL Perf Line Cross 4448' MD/ 4435' TVD (100.26' FSL, 2057.88' FEL of S
8,901.0	8,868.3	-109.6	-590.5	KOP 8901' MD/ 8868' TVD (43.17' FSL, 2430.27' FEL of Sec 33)
9,189.0	9,156.8	-52.4	-598.1	100' FSL Perf Line Cross 9199' MD/9156' TVD (100.42' FSL, 2437.41' FEL of S
9,892.0	9,811.1	451.2	-597.6	Leonard B POE 9892' MD/9611' TVD (604.0077' FSL, 2433.0402' FEL of Sec 3
14,583.0	9,640.3	5,136.9	-609.5	Sec 33/28 Cross 14583' MD/9640' TVD (0.09' FSL, 2409.03' FEL of Sec 28)
19,865.0	9,627.9	10,413.1	-578.0	Sec 28/21 Cross 19865' MD/9627' TVD (0.02' FSL, 2338.39' FEL of Sec 21)
25,018.0	9,593.5	15,562.5	-573.7	Last MWD Survey
25,053.0	9,593.8	15,597.5	-573.9	100' FSL Perf Line Cross 25053' MD/9593.8' TVD (100.29' FNL, 2295.80' FEL c
25,076.0	9,593.9	15,620.5	-573.9	PBHL 25076' MD/9593' TVD (77.29' FNL, 2295.72' FEL of Sec 21)

Checked By: _____	Approved By: _____	Date: _____
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