

30.015-44942

JAN 10 2019

DISTRICT CLERK, SIA O.C.D.

Devon Energy

Tomb Raider 1-12 FED 714H

SCIENTIFIC DRILLING NABORS X-15

This survey is correct to the best of my knowledge and is supported by actual field data.

Witnessed this date 17th of December, 2018.

Sherry Stewart

Notary Signature

County of Midland

State of Texas



SHERRY STEWART
Notary Public, State of Texas
My Commission Expires
April 08, 2019

Scientific Drilling

The Ultimate Partner In Wellbore Placement

Devon Energy

Eddy County, NM (NAD83 NME)

Tomb Raider 1-12 Fed

714H

OH

Survey: SDI Survey #1

Standard Survey Report

20 August, 2018



www.scientificdrilling.com

Scientific Drilling, Intl

Survey Report

Company: Devon Energy
Project: Eddy County, NM (NAD83 NME)
Site: Tomb Raider 1-12 Fed
Well: 714H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 714H
TVD Reference: KB = 33' @ 3508.00usft (Nabors X15)
MD Reference: KB = 33' @ 3508.00usft (Nabors X15)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland District

Project	Eddy County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone	Using geodetic scale factor	

Site	Tomb Raider 1-12 Fed		
Site Position:		Northing:	487,968.75 usft
From:	Map	Easting:	727,482.68 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 20' 24.208 N
		Longitude:	103° 43' 50.202 W
		Grid Convergence:	0.32 °

Well	714H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 20' 24.208 N
		Longitude:	103° 43' 50.202 W
		Ground Level:	3,475.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	12/31/2009	(°)
			7.83
			Dip Angle
			(°)
			60.32
			Field Strength
			(nT)
			48,845

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD)	+N/-S	Tie On Depth:
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(bearing)
			179.68

Survey Program	Date 8/20/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
188.00	11,939.00	MWD Survey (OH)	MWD
12,032.00	22,234.00	SDI Survey #1 (OH)	MWD+HDGM
			Description
			MWD - Standard ISCWSA
			OWSG MWD + HDGM

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(bearing)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
11,939.00	46.80	175.00	11,845.89	-50.53	659.76	54.21	0.00	0.00	0.00
12,032.00	57.75	181.97	11,902.75	-123.88	661.37	127.57	13.17	11.77	7.49
12,063.00	61.81	183.19	11,918.35	-150.63	660.16	154.32	13.53	13.10	3.94
12,095.00	66.51	183.78	11,932.30	-179.37	658.40	183.05	14.78	14.69	1.84
12,126.00	69.78	183.23	11,943.84	-208.09	656.65	211.75	10.68	10.55	-1.77
12,158.00	72.38	183.18	11,954.21	-238.31	654.95	241.96	8.13	8.13	-0.16
12,190.00	75.49	181.93	11,963.07	-269.02	653.59	272.67	10.42	9.72	-3.91
12,237.00	80.71	181.10	11,972.75	-314.98	652.37	318.62	11.24	11.11	-1.77
12,284.00	88.76	177.73	11,977.07	-361.74	652.86	365.38	18.55	17.13	-7.17
12,378.00	93.77	178.85	11,974.99	-455.64	655.66	459.29	5.46	5.33	1.19

Scientific Drilling, Intl

Survey Report

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Wellbore: OH
Design: OH

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MD Reference: KB = 33' @ 3508.00usft (Nabors X15)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,473.00	94.78	180.12	11,967.91	-550.37	656.52	554.03	1.71	1.06	1.34
12,567.00	90.71	179.18	11,963.41	-644.24	657.09	647.90	4.44	-4.33	-1.00
12,661.00	89.60	178.60	11,963.15	-738.22	658.91	741.89	1.33	-1.18	-0.62
12,756.00	89.60	179.21	11,963.82	-833.20	660.73	836.88	0.64	0.00	0.64
12,850.00	89.23	180.16	11,964.78	-927.19	661.24	930.87	1.08	-0.39	1.01
12,945.00	87.38	180.30	11,967.59	-1,022.14	660.86	1,025.82	1.95	-1.95	0.15
13,040.00	87.65	181.29	11,971.71	-1,117.04	659.55	1,120.71	1.08	0.28	1.04
13,135.00	88.56	180.66	11,974.85	-1,211.98	657.93	1,215.63	1.16	0.96	-0.66
13,229.00	89.73	180.97	11,976.25	-1,305.96	656.59	1,309.60	1.29	1.24	0.33
13,323.00	91.61	180.62	11,975.15	-1,399.94	655.29	1,403.57	2.03	2.00	-0.37
13,418.00	92.55	180.73	11,971.70	-1,494.87	654.17	1,498.50	1.00	0.99	0.12
13,512.00	92.95	180.57	11,967.19	-1,588.75	653.11	1,592.37	0.46	0.43	-0.17
13,607.00	94.27	179.30	11,961.21	-1,683.56	653.21	1,687.18	1.93	1.39	-1.34
13,701.00	90.13	177.70	11,957.60	-1,777.43	655.67	1,781.07	4.72	-4.40	-1.70
13,795.00	90.40	177.08	11,957.17	-1,871.33	659.95	1,874.99	0.72	0.29	-0.66
13,890.00	87.45	178.03	11,958.95	-1,966.22	664.01	1,969.90	3.26	-3.11	1.00
13,984.00	88.39	178.46	11,962.36	-2,060.11	666.88	2,063.80	1.10	1.00	0.46
14,079.00	87.88	177.14	11,965.45	-2,154.99	670.53	2,158.70	1.49	-0.54	-1.39
14,174.00	89.80	177.02	11,967.38	-2,249.84	675.37	2,253.58	2.02	2.02	-0.13
14,268.00	90.54	176.01	11,967.10	-2,343.67	681.08	2,347.43	1.33	0.79	-1.07
14,363.00	90.27	178.27	11,966.43	-2,438.54	685.82	2,442.33	2.40	-0.28	2.38
14,458.00	90.34	178.24	11,965.92	-2,533.49	688.71	2,537.30	0.08	0.07	-0.03
14,552.00	91.81	178.12	11,964.16	-2,627.43	691.70	2,631.25	1.57	1.56	-0.13
14,647.00	93.59	176.79	11,959.68	-2,722.22	695.91	2,726.07	2.34	1.87	-1.40
14,741.00	94.30	178.60	11,953.21	-2,815.92	699.68	2,819.78	2.06	0.76	1.93
14,836.00	85.53	179.96	11,953.36	-2,910.82	700.87	2,914.69	9.34	-9.23	1.43
14,930.00	90.17	179.19	11,956.88	-3,004.72	701.57	3,008.59	5.00	4.94	-0.82
15,025.00	86.38	179.30	11,959.74	-3,099.65	702.82	3,103.53	3.99	-3.99	0.12
15,119.00	90.17	178.89	11,962.57	-3,193.58	704.31	3,197.46	4.06	4.03	-0.44
15,213.00	91.65	179.46	11,961.08	-3,287.56	705.66	3,291.45	1.69	1.57	0.61
15,308.00	92.99	179.53	11,957.23	-3,382.47	706.50	3,386.37	1.41	1.41	0.07
15,402.00	92.79	182.73	11,952.49	-3,476.32	704.65	3,480.20	3.41	-0.21	3.40
15,497.00	93.66	185.29	11,947.15	-3,570.93	698.01	3,574.77	2.84	0.92	2.69
15,591.00	90.03	190.55	11,944.12	-3,663.94	685.07	3,667.71	6.80	-3.86	5.60
15,686.00	89.60	190.25	11,944.42	-3,757.38	667.92	3,761.05	0.55	-0.45	-0.32
15,781.00	90.20	191.25	11,944.59	-3,850.71	650.20	3,854.28	1.23	0.63	1.05
15,875.00	83.67	191.01	11,949.61	-3,942.76	632.09	3,946.23	6.95	-6.95	-0.26
15,884.00	83.30	190.73	11,950.63	-3,951.54	630.41	3,955.00	5.14	-4.11	-3.11
15,979.00	82.88	185.39	11,962.07	-4,044.88	617.19	4,048.27	5.60	-0.44	-5.62
16,073.00	89.43	179.93	11,968.38	-4,138.48	612.85	4,141.84	9.06	6.97	-5.81
16,168.00	88.89	178.37	11,969.77	-4,233.46	614.26	4,236.82	1.74	-0.57	-1.64
16,262.00	91.85	176.22	11,969.16	-4,327.34	618.70	4,330.72	3.89	3.15	-2.29
16,357.00	93.13	176.04	11,965.04	-4,422.03	625.10	4,425.45	1.36	1.35	-0.19

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Survey

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16,451.00	90.81	175.37	11,961.80	-4,515.70	632.14	4,519.16	2.57	-2.47	-0.71
16,545.00	90.37	174.77	11,960.84	-4,609.35	640.22	4,612.85	0.79	-0.47	-0.64
16,640.00	88.05	173.82	11,962.15	-4,703.86	649.66	4,707.42	2.64	-2.44	-1.00
16,734.00	87.65	175.11	11,965.67	-4,797.35	658.72	4,800.96	1.44	-0.43	1.37
16,828.00	92.79	177.37	11,965.31	-4,891.11	664.88	4,894.75	5.97	5.47	2.40
16,923.00	89.70	174.29	11,963.25	-4,985.82	671.79	4,989.49	4.59	-3.25	-3.24
17,017.00	91.48	174.91	11,962.28	-5,079.39	680.63	5,083.11	2.01	1.89	0.66
17,111.00	90.10	176.90	11,960.98	-5,173.14	687.34	5,176.89	2.58	-1.47	2.12
17,206.00	90.81	178.34	11,960.23	-5,268.05	691.29	5,271.83	1.69	0.75	1.52
17,300.00	89.97	174.86	11,959.59	-5,361.86	696.86	5,365.67	3.81	-0.89	-3.70
17,394.00	89.93	174.54	11,959.67	-5,455.46	705.55	5,459.32	0.34	-0.04	-0.34
17,488.00	89.80	175.86	11,959.89	-5,549.13	713.41	5,553.03	1.41	-0.14	1.40
17,582.00	90.74	176.62	11,959.45	-5,642.93	719.57	5,646.86	1.29	1.00	0.81
17,677.00	92.69	177.04	11,956.61	-5,737.73	724.83	5,741.69	2.10	2.05	0.44
17,771.00	87.85	177.09	11,956.16	-5,831.58	729.64	5,835.56	5.15	-5.15	0.05
17,866.00	91.34	181.67	11,956.84	-5,926.53	730.66	5,930.52	6.06	3.67	4.82
17,906.13	91.33	182.06	11,955.90	-5,966.63	729.36	5,970.61	0.98	-0.03	0.98
MidP[TR714H]									
17,960.00	91.31	182.59	11,954.66	-6,020.44	727.17	6,024.41	0.98	-0.03	0.98
18,054.00	89.83	183.09	11,953.73	-6,114.32	722.51	6,118.26	1.66	-1.57	0.53
18,148.00	91.14	182.36	11,952.93	-6,208.21	718.05	6,212.12	1.60	1.39	-0.78
18,242.00	90.67	180.84	11,951.45	-6,302.15	715.42	6,306.05	1.69	-0.50	-1.62
18,337.00	88.05	182.97	11,952.51	-6,397.08	712.26	6,400.96	3.55	-2.76	2.24
18,431.00	85.87	182.82	11,957.49	-6,490.82	707.52	6,494.67	2.32	-2.32	-0.16
18,526.00	87.55	180.97	11,962.94	-6,585.61	704.39	6,589.44	2.63	1.77	-1.95
18,621.00	89.93	182.39	11,965.03	-6,680.54	701.60	6,684.35	2.92	2.51	1.49
18,715.00	92.52	183.70	11,963.02	-6,774.37	696.61	6,778.16	3.09	2.76	1.39
18,810.00	89.29	181.11	11,961.52	-6,869.26	692.63	6,873.02	4.36	-3.40	-2.73
18,904.00	86.94	178.19	11,964.62	-6,963.19	693.20	6,966.95	3.99	-2.50	-3.11
18,998.00	87.99	177.41	11,968.77	-7,057.02	696.81	7,060.80	1.39	1.12	-0.83
19,093.00	86.94	176.29	11,972.97	-7,151.78	702.02	7,155.59	1.62	-1.11	-1.18
19,187.00	89.50	176.21	11,975.89	-7,245.53	708.17	7,249.37	2.72	2.72	-0.09
19,281.00	89.66	176.15	11,976.58	-7,339.32	714.43	7,343.19	0.18	0.17	-0.06
19,375.00	89.77	176.54	11,977.05	-7,433.13	720.42	7,437.03	0.43	0.12	0.41
19,470.00	91.71	177.70	11,975.82	-7,527.99	725.19	7,531.92	2.38	2.04	1.22
19,564.00	92.05	178.46	11,972.74	-7,621.89	728.34	7,625.84	0.89	0.36	0.81
19,658.00	90.17	179.98	11,970.92	-7,715.85	729.62	7,719.81	2.57	-2.00	1.62
19,752.00	90.03	178.92	11,970.76	-7,809.85	730.52	7,813.81	1.14	-0.15	-1.13
19,846.00	89.43	178.27	11,971.20	-7,903.82	732.83	7,907.79	0.94	-0.64	-0.69
19,941.00	88.93	177.74	11,972.56	-7,998.75	736.13	8,002.74	0.77	-0.53	-0.56
20,035.00	89.03	179.21	11,974.23	-8,092.70	738.63	8,096.70	1.57	0.11	1.56
20,130.00	88.49	177.18	11,976.29	-8,187.62	741.63	8,191.64	2.21	-0.57	-2.14
20,224.00	88.62	178.36	11,978.66	-8,281.52	745.28	8,285.55	1.26	0.14	1.26

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 Site: Tomb Raider 1-12 Fed
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 Design: OH

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Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20,319.00	89.26	181.76	11,980.42	-8,376.49	745.18	8,380.52	3.64	0.67	3.58
20,413.00	90.07	182.20	11,980.97	-8,470.43	741.93	8,474.44	0.98	0.86	0.47
20,508.00	88.99	181.05	11,981.74	-8,565.39	739.24	8,569.38	1.66	-1.14	-1.21
20,602.00	89.56	182.55	11,982.93	-8,659.33	736.29	8,663.31	1.71	0.61	1.60
20,697.00	91.48	182.10	11,982.07	-8,754.24	732.43	8,758.20	2.08	2.02	-0.47
20,791.00	92.85	182.73	11,978.52	-8,848.09	728.48	8,852.02	1.60	1.46	0.67
20,886.00	92.25	182.87	11,974.29	-8,942.88	723.84	8,946.79	0.65	-0.63	0.15
20,980.00	92.01	182.07	11,970.80	-9,036.73	719.79	9,040.61	0.89	-0.26	-0.85
21,075.00	92.75	181.07	11,966.86	-9,131.61	717.19	9,135.47	1.31	0.78	-1.05
21,170.00	91.88	179.39	11,963.02	-9,226.53	716.81	9,230.39	1.99	-0.92	-1.77
21,265.00	86.30	178.09	11,964.53	-9,321.45	718.90	9,325.32	6.03	-5.87	-1.37
21,359.00	87.62	178.25	11,969.51	-9,415.27	721.90	9,419.16	1.41	1.40	0.17
21,454.00	87.31	177.71	11,973.71	-9,510.12	725.24	9,514.02	0.65	-0.33	-0.57
21,548.00	91.64	179.90	11,974.57	-9,604.07	727.20	9,607.98	5.16	4.61	2.33
21,643.00	92.08	179.97	11,971.49	-9,699.02	727.31	9,702.93	0.47	0.46	0.07
21,737.00	92.24	179.66	11,967.95	-9,792.95	727.61	9,796.86	0.37	0.17	-0.33
21,831.00	90.57	179.84	11,965.64	-9,886.92	728.02	9,890.83	1.79	-1.78	0.19
21,926.00	87.68	178.67	11,967.09	-9,981.88	729.26	9,985.80	3.28	-3.04	-1.23
21,928.64	87.69	178.66	11,967.20	-9,984.52	729.32	9,988.44	0.40	0.25	-0.32
BHL[TR 714H]									
22,021.00	87.92	178.37	11,970.74	-10,076.78	731.71	10,080.71	0.40	0.25	-0.32
22,115.00	88.42	178.99	11,973.74	-10,170.71	733.87	10,174.65	0.85	0.53	0.66
22,171.00	88.49	178.61	11,975.25	-10,226.68	735.04	10,230.62	0.69	0.13	-0.68
FINAL MWD Survey (22171.00' MD)									
22,234.00	88.49	178.61	11,976.91	-10,289.64	736.57	10,293.59	0.00	0.00	0.00
FINAL Proj. to Bit (22234.00' MD)									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
22,171.00	11,975.25	-10,226.68	735.04	FINAL MWD Survey (22171.00' MD)
22,234.00	11,976.91	-10,289.64	736.57	FINAL Proj. to Bit (22234.00' MD)

Checked By: _____ Approved By: _____ Date: _____