



PRODIRECTIONAL

HOBBS OCD

SEP 24 2019

RECEIVED



Jeff Hart State Com No. 124H

Lea County, NM

June 05, 2019

30-085-45759

Job No. LNM5206219

ORIGINAL

Certified Report



PRODIRECTIONAL

Survey Certification Letter

June 05, 2019



Operator Name: Matador Resources
Well Name: Jeff Hart State Com No. 124H
County/Parish: Lea County,
State: NM
Rig Name: Patterson 810
Job Number: LNM5206219

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

<u>Surveyor</u>	<u>Surveyed Depths</u>	<u>Projection to Bit</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
ProDirectional	153' MD – 20,554' MD	20,612' MD	03/31/19 – 05/22/19	MWD-OWSG

Sincerely,

Mike Coats

Mike Coats
Regulatory Specialist
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com



Matador Resources

**Lea County, NM
Jeff Hart State Com
No. 124H
OH**

Survey: ProDirectional

Survey Report

05 June, 2019





ProDirectional
Survey Report



Company:	Matador Resources	Local Co-ordinate Reference:	Well No. 124H
Project:	Lea County, NM (NAD83)	TVD Reference:	Well @ 3425.50usft
Site:	Jeff Hart State Com	MD Reference:	Well @ 3425.50usft
Well:	No. 124H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	MWD-153'-20554', Proj. 20612'	Database:	WellPlanner1

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Jeff Hart State Com		
Site Position:		Northing:	462,976.00 usft
From:	Map	Easting:	823,993.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.269485
		Longitude:	-103.418838
		Grid Convergence:	0.49 °

Well		No. 124H				
Well Position	+N/-S	0.00 usft	Northing:	462,965.00 usft	Latitude:	32.269454
	+E/-W	0.00 usft	Easting:	824,021.00 usft	Longitude:	-103.418748
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,397.00 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/10/2019	6.67	59.98	47,975.00

Design		MWD-153'-20554', Proj. 20612'		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.50

Survey Program	Date	6/5/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
153.00	20,612.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HRGM



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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	462,965.00	824,021.00
153.00	0.80	40.50	153.00	0.81	0.81	0.69	1.07	40.50	462,965.81	824,021.69
Pro MWD First Survey: 153' MD										
245.00	0.70	59.10	244.99	1.58	1.59	1.59	2.25	45.07	462,966.59	824,022.59
336.00	0.50	50.00	335.98	2.11	2.13	2.37	3.19	48.10	462,967.13	824,023.37
427.00	1.80	126.70	426.97	1.50	1.53	3.82	4.12	68.18	462,966.53	824,024.82
519.00	3.00	143.70	518.88	-1.33	-1.27	6.41	6.53	101.24	462,963.73	824,027.41
611.00	2.30	156.00	610.79	-4.97	-4.90	8.58	9.88	119.72	462,960.10	824,029.58
706.00	1.80	158.30	705.72	-8.11	-8.03	9.91	12.75	129.00	462,956.97	824,030.91
800.00	0.80	169.40	799.70	-10.14	-10.04	10.58	14.59	133.52	462,954.96	824,031.58
895.00	0.50	202.40	894.69	-11.17	-11.08	10.54	15.29	136.42	462,953.92	824,031.54
945.00	0.90	187.50	944.69	-11.76	-11.67	10.41	15.64	138.27	462,953.33	824,031.41
1,090.00	1.00	171.90	1,089.67	-14.14	-14.05	10.44	17.50	143.40	462,950.95	824,031.44
1,184.00	2.10	172.10	1,183.63	-16.66	-16.57	10.79	19.77	146.93	462,948.43	824,031.79
1,279.00	2.70	175.20	1,278.55	-20.62	-20.52	11.22	23.39	151.34	462,944.48	824,032.22
1,374.00	1.90	172.40	1,373.47	-24.42	-24.31	11.61	26.95	154.47	462,940.69	824,032.61
1,469.00	1.70	172.50	1,468.43	-27.38	-27.27	12.00	29.80	156.24	462,937.73	824,033.00
1,564.00	1.50	174.30	1,563.39	-30.01	-29.91	12.31	32.34	157.63	462,935.09	824,033.31
1,660.00	1.30	177.80	1,659.36	-32.35	-32.25	12.48	34.58	158.85	462,932.75	824,033.48
1,755.00	1.10	172.60	1,754.34	-34.34	-34.23	12.64	36.49	159.74	462,930.77	824,033.64
1,850.00	0.90	160.90	1,849.33	-35.95	-35.84	13.00	38.12	160.06	462,929.16	824,034.00
1,945.00	1.80	168.00	1,944.30	-38.12	-38.00	13.55	40.35	160.37	462,927.00	824,034.55
2,041.00	2.50	168.50	2,040.23	-41.65	-41.53	14.28	43.91	161.02	462,923.47	824,035.28
2,135.00	2.00	166.40	2,134.16	-45.26	-45.13	15.08	47.58	161.53	462,919.87	824,036.08
2,230.00	1.70	170.60	2,229.11	-48.27	-48.13	15.70	50.63	161.94	462,916.87	824,036.70
2,325.00	1.30	163.00	2,324.07	-50.69	-50.55	16.24	53.10	162.19	462,914.45	824,037.24
2,421.00	1.30	158.00	2,420.05	-52.75	-52.60	16.97	55.27	162.12	462,912.40	824,037.97



ProDirectional Survey Report



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Project: Lea County, NM (NAD83)
Site: Jeff Hart State Com
Well: No. 124H
Wellbore: OH
Design: MWD-153'-20554', Proj. 20612'

Local Co-ordinate Reference: Well No. 124H
TVD Reference: Well @ 3425.50usft
MD Reference: Well @ 3425.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
2,516.00	1.10	154.60	2,515.03	-54.58	-54.43	17.76	57.25	161.92	462,910.57	824,038.76
2,611.00	1.20	181.00	2,610.01	-56.40	-56.25	18.14	59.10	162.13	462,908.75	824,039.14
2,713.00	1.20	189.30	2,711.99	-58.52	-58.37	17.95	61.06	162.91	462,906.63	824,038.95
2,809.00	0.90	162.30	2,807.97	-60.23	-60.08	18.01	62.72	163.31	462,904.92	824,039.01
2,905.00	0.80	141.50	2,903.96	-61.48	-61.32	18.66	64.10	163.07	462,903.68	824,039.66
3,000.00	1.00	112.90	2,998.95	-62.33	-62.16	19.84	65.25	162.30	462,902.84	824,040.84
3,096.00	0.80	120.20	3,094.94	-63.01	-62.82	21.19	66.30	161.36	462,902.18	824,042.19
3,191.00	1.10	204.50	3,189.93	-64.17	-63.99	21.38	67.47	161.52	462,901.01	824,042.38
3,287.00	1.10	220.50	3,285.91	-65.70	-65.53	20.40	68.63	162.71	462,899.47	824,041.40
3,382.00	0.90	218.00	3,380.90	-66.98	-66.81	19.35	69.55	163.85	462,898.19	824,040.35
3,478.00	1.10	196.30	3,476.88	-68.45	-68.29	18.63	70.78	164.74	462,896.71	824,039.63
3,573.00	1.40	190.00	3,571.86	-70.46	-70.31	18.17	72.62	165.51	462,894.69	824,039.17
3,669.00	1.30	208.40	3,667.83	-72.57	-72.42	17.45	74.49	166.45	462,892.58	824,038.45
3,765.00	0.90	83.40	3,763.83	-73.44	-73.29	17.68	75.39	166.44	462,891.71	824,038.68
3,860.00	2.60	59.20	3,858.78	-72.27	-72.10	20.27	74.90	164.30	462,892.90	824,041.27
3,956.00	4.60	55.30	3,954.58	-69.01	-68.79	25.31	73.30	159.80	462,896.21	824,046.31
4,052.00	4.10	64.30	4,050.31	-65.39	-65.11	31.56	72.36	154.14	462,899.89	824,052.56
4,147.00	1.70	121.20	4,145.20	-64.68	-64.37	35.83	73.67	150.90	462,900.63	824,056.83
4,243.00	4.80	221.40	4,241.08	-68.42	-68.12	34.39	76.31	153.21	462,896.88	824,055.39
4,338.00	5.70	231.30	4,335.68	-74.30	-74.06	28.08	79.20	159.23	462,890.94	824,049.08
4,434.00	4.60	227.90	4,431.29	-79.80	-79.62	21.50	82.47	164.89	462,885.38	824,042.50
4,529.00	4.40	217.20	4,526.00	-85.21	-85.07	16.47	86.65	169.04	462,879.93	824,037.47
4,625.00	1.90	211.20	4,621.85	-89.48	-89.37	13.42	90.37	171.46	462,875.63	824,034.42
4,721.00	0.50	140.80	4,717.83	-91.16	-91.06	12.86	91.96	171.96	462,873.94	824,033.86
4,816.00	0.70	160.30	4,812.82	-92.04	-91.92	13.32	92.88	171.75	462,873.08	824,034.32
4,912.00	0.50	164.80	4,908.82	-92.99	-92.88	13.63	93.87	171.65	462,872.12	824,034.63
5,007.00	0.30	99.60	5,003.81	-93.44	-93.32	13.98	94.36	171.48	462,871.68	824,034.98



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5,103.00	0.30	153.80	5,099.81	-93.71	-93.59	14.34	94.68	171.29	462,871.41	824,035.34
5,198.00	0.30	166.50	5,194.81	-94.18	-94.05	14.51	95.17	171.23	462,870.95	824,035.51
5,265.00	0.50	187.00	5,261.81	-94.64	-94.51	14.51	95.62	171.27	462,870.49	824,035.51
5,376.00	0.50	168.60	5,372.81	-95.59	-95.47	14.55	96.57	171.33	462,869.53	824,035.55
5,472.00	0.40	161.80	5,468.80	-96.32	-96.20	14.74	97.32	171.29	462,868.80	824,035.74
5,568.00	0.50	175.40	5,564.80	-97.06	-96.93	14.88	98.07	171.27	462,868.07	824,035.88
5,663.00	0.50	191.00	5,659.80	-97.88	-97.75	14.83	98.87	171.37	462,867.25	824,035.83
5,759.00	0.60	195.80	5,755.79	-98.77	-98.65	14.61	99.73	171.57	462,866.35	824,035.61
5,854.00	0.70	201.20	5,850.79	-99.79	-99.67	14.27	100.68	171.85	462,865.33	824,035.27
5,950.00	0.70	205.30	5,946.78	-100.86	-100.75	13.81	101.69	172.20	462,864.25	824,034.81
6,045.00	0.60	200.10	6,041.77	-101.85	-101.74	13.39	102.61	172.50	462,863.26	824,034.39
6,141.00	0.60	187.30	6,137.77	-102.82	-102.71	13.15	103.55	172.70	462,862.29	824,034.15
6,236.00	0.60	193.60	6,232.76	-103.79	-103.68	12.97	104.49	172.87	462,861.32	824,033.97
6,332.00	1.20	162.00	6,328.75	-105.24	-105.13	13.16	105.95	172.86	462,859.87	824,034.16
6,427.00	1.40	156.90	6,423.73	-107.26	-107.14	13.93	108.04	172.59	462,857.86	824,034.93
6,523.00	2.60	150.10	6,519.67	-110.24	-110.11	15.47	111.19	172.00	462,854.89	824,036.47
6,618.00	4.00	147.50	6,614.51	-114.93	-114.77	18.33	116.23	170.93	462,850.23	824,039.33
6,714.00	5.70	155.80	6,710.16	-122.13	-121.94	22.08	123.93	169.74	462,843.06	824,043.08
6,810.00	6.20	163.30	6,805.64	-131.48	-131.26	25.52	133.72	169.00	462,833.74	824,046.52
6,905.00	6.60	167.70	6,900.05	-141.75	-141.51	28.16	144.28	168.74	462,823.49	824,049.16
7,000.00	6.60	167.80	6,994.42	-152.44	-152.18	30.48	155.20	168.67	462,812.82	824,051.48
7,096.00	6.50	166.20	7,089.80	-163.13	-162.85	32.94	166.14	168.56	462,802.15	824,053.94
7,191.00	6.60	166.80	7,184.18	-173.69	-173.38	35.47	176.97	168.44	462,791.62	824,056.47
7,287.00	6.40	167.60	7,279.56	-184.30	-183.98	37.88	187.84	168.37	462,781.02	824,058.88
7,382.00	5.90	168.10	7,374.01	-194.27	-193.93	40.02	198.02	168.34	462,771.07	824,061.02
7,478.00	5.90	167.80	7,469.50	-203.94	-203.58	42.08	207.88	168.32	462,761.42	824,063.08
7,573.00	5.20	169.70	7,564.06	-212.96	-212.59	43.88	217.07	168.34	462,752.41	824,064.88



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7,669.00	4.80	171.90	7,659.69	-221.23	-220.85	45.23	225.43	168.43	462,744.15	824,066.23
7,764.00	4.60	172.00	7,754.37	-228.95	-228.55	46.32	233.20	168.54	462,736.45	824,067.32
7,860.00	4.40	172.80	7,850.08	-236.42	-236.02	47.31	240.71	168.66	462,728.98	824,068.31
7,955.00	4.00	174.60	7,944.82	-243.34	-242.93	48.08	247.65	168.80	462,722.07	824,069.08
8,051.00	4.40	159.30	8,040.57	-250.14	-249.71	49.70	254.61	168.74	462,715.29	824,070.70
8,146.00	4.50	158.10	8,135.28	-257.02	-256.58	52.38	261.87	168.46	462,708.42	824,073.38
8,242.00	5.40	155.50	8,230.92	-264.66	-264.18	55.66	269.98	168.10	462,700.82	824,076.66
8,337.00	5.60	155.50	8,325.48	-272.98	-272.47	59.43	278.87	167.70	462,692.53	824,080.43
8,433.00	5.40	156.30	8,421.04	-281.41	-280.87	63.19	287.89	167.32	462,684.13	824,084.19
8,528.00	5.40	156.60	8,515.62	-289.63	-289.06	66.76	296.67	166.99	462,675.94	824,087.76
8,624.00	4.60	156.30	8,611.25	-297.33	-296.73	70.10	304.90	166.71	462,668.27	824,091.10
8,719.00	4.20	157.60	8,705.97	-304.06	-303.44	72.96	312.09	166.48	462,661.56	824,093.96
8,814.00	5.40	155.20	8,800.64	-311.36	-310.71	76.16	319.91	166.23	462,654.29	824,097.16
8,910.00	3.30	160.30	8,896.36	-318.09	-317.41	78.99	327.09	166.03	462,647.59	824,099.99
9,005.00	2.90	164.30	8,991.22	-322.99	-322.30	80.56	332.22	165.97	462,642.70	824,101.56
9,101.00	3.40	166.10	9,087.07	-328.11	-327.40	81.90	337.49	165.96	462,637.60	824,102.90
9,197.00	4.10	172.50	9,182.87	-334.28	-333.57	83.03	343.75	166.02	462,631.43	824,104.03
9,292.00	4.40	175.50	9,277.61	-341.29	-340.57	83.76	350.72	166.18	462,624.43	824,104.76
9,388.00	4.00	182.30	9,373.35	-348.31	-347.59	83.92	357.57	166.43	462,617.41	824,104.92
9,483.00	4.00	184.10	9,468.12	-354.92	-354.20	83.55	363.92	166.73	462,610.80	824,104.55
9,579.00	4.10	187.40	9,563.88	-361.65	-360.95	82.87	370.34	167.07	462,604.05	824,103.87
9,680.00	4.00	193.60	9,664.63	-368.65	-367.95	81.57	376.88	167.50	462,597.05	824,102.57
9,776.00	4.30	231.20	9,760.39	-374.13	-373.46	77.98	381.51	168.21	462,591.54	824,098.98
9,871.00	3.80	294.80	9,855.20	-374.99	-374.37	72.34	381.30	169.06	462,590.63	824,093.34
9,903.00	6.40	328.10	9,887.07	-373.01	-372.41	70.44	379.01	169.29	462,592.59	824,091.44
9,967.00	13.30	339.20	9,950.10	-363.05	-362.49	65.93	368.44	169.69	462,602.51	824,086.93
10,062.00	21.60	341.20	10,040.65	-336.15	-335.67	56.40	340.38	170.46	462,629.33	824,077.40



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Wellbore: OH
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
10,158.00	30.60	352.90	10,126.83	-294.99	-294.59	47.66	298.42	170.81	462,670.41	824,068.66
10,254.00	41.00	354.00	10,204.58	-239.22	-238.87	41.33	242.42	170.18	462,726.13	824,062.33
10,285.00	44.50	355.30	10,227.34	-218.26	-217.92	39.38	221.45	169.76	462,747.08	824,060.38
10,349.00	51.20	0.60	10,270.28	-170.88	-170.56	37.80	174.70	167.50	462,794.44	824,058.80
10,381.00	56.10	5.20	10,289.25	-145.18	-144.84	39.14	150.03	164.88	462,820.16	824,060.14
10,445.00	65.10	11.10	10,320.66	-90.16	-89.76	47.15	101.39	152.29	462,875.24	824,068.15
10,508.00	68.20	12.90	10,345.63	-33.71	-33.19	59.19	67.86	119.28	462,931.81	824,080.19
10,540.00	68.00	12.80	10,357.56	-4.82	-4.25	65.79	65.93	93.69	462,960.75	824,086.79
10,572.00	71.30	12.20	10,368.69	24.41	25.04	72.28	76.50	70.89	462,990.04	824,093.28
10,604.00	76.80	11.50	10,377.48	54.46	55.14	78.59	96.01	54.95	463,020.14	824,099.59
10,636.00	79.90	11.30	10,383.94	85.12	85.86	84.79	120.67	44.64	463,050.86	824,105.79
10,695.00	85.60	7.30	10,391.39	142.76	143.59	94.23	171.74	33.27	463,108.59	824,115.23
10,791.00	86.20	5.60	10,398.25	237.81	238.73	104.98	260.80	23.74	463,203.73	824,125.98
10,884.00	88.60	4.90	10,402.47	330.24	331.24	113.48	350.14	18.91	463,296.24	824,134.48
10,977.00	88.90	4.60	10,404.50	422.82	423.90	121.18	440.88	15.95	463,388.90	824,142.18
11,069.00	89.10	4.40	10,406.10	514.46	515.60	128.40	531.35	13.98	463,480.60	824,149.40
11,162.00	89.00	4.50	10,407.64	607.10	608.31	135.61	623.24	12.57	463,573.31	824,156.61
11,255.00	89.50	4.10	10,408.86	699.77	701.04	142.59	715.39	11.50	463,666.04	824,163.59
11,348.00	89.70	4.00	10,409.51	792.47	793.80	149.15	807.69	10.64	463,758.80	824,170.15
11,441.00	90.00	3.70	10,409.75	885.20	886.59	155.40	900.11	9.94	463,851.59	824,176.40
11,534.00	90.10	3.60	10,409.67	977.96	979.40	161.32	992.60	9.35	463,944.40	824,182.32
11,627.00	90.70	2.30	10,409.02	1,070.78	1,072.27	166.11	1,085.06	8.81	464,037.27	824,187.11
11,720.00	91.70	0.10	10,407.08	1,163.72	1,165.23	168.05	1,177.28	8.21	464,130.23	824,189.05
11,815.00	92.80	359.90	10,403.35	1,258.64	1,260.15	168.05	1,271.31	7.60	464,225.15	824,189.05
11,911.00	91.00	359.20	10,400.16	1,354.58	1,356.09	167.30	1,366.37	7.03	464,321.09	824,188.30
12,006.00	89.20	358.60	10,400.00	1,449.57	1,451.07	165.48	1,460.47	6.51	464,416.07	824,186.48
12,102.00	87.80	358.30	10,402.51	1,545.52	1,547.00	162.88	1,555.55	6.01	464,512.00	824,183.88



ProDirectional Survey Report



Company: Matador Resources
Project: Lea County, NM (NAD83)
Site: Jeff Hart State Com
Well: No. 124H
Wellbore: OH
Design: MWD-153'-20554', Proj. 20612'

Local Co-ordinate Reference: Well No. 124H
TVD Reference: Well @ 3425.50usft
MD Reference: Well @ 3425.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
12,197.00	90.10	358.90	10,404.25	1,640.48	1,641.95	160.56	1,649.78	5.58	464,606.95	824,181.56
12,293.00	90.60	359.10	10,403.67	1,736.48	1,737.93	158.88	1,745.18	5.22	464,702.93	824,179.88
12,388.00	91.10	358.50	10,402.26	1,831.46	1,832.90	156.89	1,839.60	4.89	464,797.90	824,177.89
12,484.00	91.10	358.30	10,400.41	1,927.43	1,928.84	154.21	1,935.00	4.57	464,893.84	824,175.21
12,580.00	91.60	357.80	10,398.15	2,023.37	2,024.76	150.95	2,030.38	4.26	464,989.76	824,171.95
12,675.00	91.50	357.00	10,395.58	2,118.27	2,119.63	146.64	2,124.69	3.96	465,084.63	824,167.64
12,771.00	91.80	358.40	10,392.82	2,214.18	2,215.51	142.79	2,220.11	3.69	465,180.51	824,163.79
12,866.00	92.90	357.60	10,388.92	2,309.06	2,310.37	139.48	2,314.58	3.45	465,275.37	824,160.48
12,962.00	92.30	358.90	10,384.57	2,404.94	2,406.22	136.55	2,410.09	3.25	465,371.22	824,157.55
13,058.00	92.80	0.20	10,380.30	2,500.84	2,502.12	135.80	2,505.80	3.11	465,467.12	824,156.80
13,153.00	92.40	359.10	10,375.99	2,595.74	2,597.02	135.22	2,600.54	2.98	465,562.02	824,156.22
13,248.00	91.20	0.60	10,373.00	2,690.69	2,691.97	134.97	2,695.35	2.87	465,656.97	824,155.97
13,344.00	89.10	1.60	10,372.75	2,786.65	2,787.95	136.81	2,791.30	2.81	465,752.95	824,157.81
13,438.00	88.90	1.60	10,374.39	2,880.57	2,881.89	139.44	2,885.27	2.77	465,846.89	824,160.44
13,534.00	89.00	1.20	10,376.15	2,976.50	2,977.85	141.78	2,981.22	2.73	465,942.85	824,162.78
13,630.00	88.90	0.20	10,377.91	3,072.46	3,073.82	142.95	3,077.15	2.66	466,038.82	824,163.95
13,725.00	88.90	359.70	10,379.73	3,167.44	3,168.81	142.87	3,172.03	2.58	466,133.81	824,163.87
13,821.00	88.80	359.30	10,381.66	3,263.42	3,264.78	142.03	3,267.87	2.49	466,229.78	824,163.03
13,916.00	89.10	359.10	10,383.40	3,358.40	3,359.76	140.71	3,362.70	2.40	466,324.76	824,161.71
14,012.00	91.20	359.90	10,383.15	3,454.40	3,455.75	139.87	3,458.58	2.32	466,420.75	824,160.87
14,107.00	91.70	359.90	10,380.75	3,549.36	3,550.72	139.70	3,553.46	2.25	466,515.72	824,160.70
14,203.00	92.30	359.20	10,377.40	3,645.30	3,646.65	138.95	3,649.30	2.18	466,611.65	824,159.95
14,299.00	93.10	358.80	10,372.87	3,741.19	3,742.53	137.28	3,745.05	2.10	466,707.53	824,158.28
14,394.00	93.50	358.20	10,367.40	3,836.02	3,837.34	134.79	3,839.71	2.01	466,802.34	824,155.79
14,490.00	92.80	359.00	10,362.13	3,931.86	3,933.17	132.45	3,935.40	1.93	466,898.17	824,153.45
14,585.00	90.20	359.10	10,359.64	4,026.82	4,028.11	130.88	4,030.24	1.86	466,993.11	824,151.88
14,681.00	90.30	359.10	10,359.22	4,122.81	4,124.10	129.37	4,126.13	1.80	467,089.10	824,150.37



ProDirectional
Survey Report



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Site: Jeff Hart State Com
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Wellbore: OH
Design: MWD-153'-20554', Proj. 20612'

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North Reference: Grid
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
14,777.00	87.50	358.60	10,361.07	4,218.78	4,220.05	127.44	4,221.98	1.73	467,185.05	824,148.44
14,872.00	87.70	358.10	10,365.04	4,313.68	4,314.93	124.71	4,316.73	1.66	467,279.93	824,145.71
14,968.00	87.60	357.60	10,368.98	4,409.56	4,410.78	121.11	4,412.44	1.57	467,375.78	824,142.11
15,063.00	88.00	357.00	10,372.63	4,504.42	4,505.61	116.64	4,507.12	1.48	467,470.61	824,137.64
15,159.00	88.20	357.00	10,375.81	4,600.27	4,601.42	111.62	4,602.78	1.39	467,566.42	824,132.62
15,254.00	88.60	357.30	10,378.46	4,695.15	4,696.27	106.90	4,697.48	1.30	467,661.27	824,127.90
15,350.00	88.60	356.80	10,380.81	4,791.04	4,792.11	101.96	4,793.20	1.22	467,757.11	824,122.96
15,445.00	88.60	356.40	10,383.13	4,885.89	4,886.91	96.33	4,887.86	1.13	467,851.91	824,117.33
15,541.00	88.90	356.10	10,385.22	4,981.71	4,982.69	90.05	4,983.50	1.04	467,947.69	824,111.05
15,637.00	87.30	356.50	10,388.41	5,077.50	5,078.43	83.86	5,079.12	0.95	468,043.43	824,104.86
15,732.00	88.00	357.60	10,392.30	5,172.34	5,173.22	78.97	5,173.83	0.87	468,138.22	824,099.97
15,828.00	90.20	359.20	10,393.81	5,268.30	5,269.16	76.29	5,269.72	0.83	468,234.16	824,097.29
15,923.00	90.90	358.80	10,392.90	5,363.29	5,364.14	74.63	5,364.66	0.80	468,329.14	824,095.63
16,018.00	91.20	0.40	10,391.16	5,458.27	5,459.12	73.97	5,459.62	0.78	468,424.12	824,094.97
16,114.00	91.60	0.50	10,388.81	5,554.23	5,555.09	74.73	5,555.59	0.77	468,520.09	824,095.73
16,209.00	92.30	0.30	10,385.58	5,649.16	5,650.03	75.39	5,650.54	0.76	468,615.03	824,096.39
16,305.00	93.70	0.40	10,380.56	5,745.02	5,745.90	75.97	5,746.40	0.76	468,710.90	824,096.97
16,400.00	93.60	0.00	10,374.51	5,839.82	5,840.70	76.30	5,841.20	0.75	468,805.70	824,097.30
16,496.00	92.30	0.20	10,369.57	5,935.68	5,936.57	76.47	5,937.07	0.74	468,901.57	824,097.47
16,592.00	92.20	359.70	10,365.80	6,031.60	6,032.50	76.39	6,032.98	0.73	468,997.50	824,097.39
16,687.00	90.80	359.90	10,363.31	6,126.57	6,127.46	76.06	6,127.94	0.71	469,092.46	824,097.06
16,782.00	88.90	0.50	10,363.56	6,221.56	6,222.46	76.39	6,222.93	0.70	469,187.46	824,097.39
16,878.00	90.10	0.00	10,364.40	6,317.54	6,318.45	76.81	6,318.92	0.70	469,283.45	824,097.81
16,974.00	89.20	0.50	10,364.98	6,413.53	6,414.45	77.23	6,414.91	0.69	469,379.45	824,098.23
17,070.00	90.10	0.60	10,365.57	6,509.51	6,510.44	78.15	6,510.91	0.69	469,475.44	824,099.15
17,166.00	90.70	0.10	10,364.90	6,605.50	6,606.44	78.73	6,606.91	0.68	469,571.44	824,099.73
17,262.00	91.70	0.40	10,362.89	6,701.47	6,702.41	79.15	6,702.88	0.68	469,667.41	824,100.15



ProDirectional Survey Report



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Wellbore: OH
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Local Co-ordinate Reference: Well No. 124H
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North Reference: Grid
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
17,357.00	91.00	0.70	10,360.65	6,796.42	6,797.38	80.06	6,797.85	0.67	469,762.38	824,101.06
17,453.00	92.40	0.20	10,357.80	6,892.37	6,893.33	80.82	6,893.81	0.67	469,858.33	824,101.82
17,548.00	90.10	1.40	10,355.73	6,987.31	6,988.29	82.14	6,988.78	0.67	469,953.29	824,103.14
17,644.00	86.60	1.30	10,358.50	7,083.21	7,084.21	84.41	7,084.72	0.68	470,049.21	824,105.41
17,739.00	86.50	0.20	10,364.21	7,178.01	7,179.03	85.65	7,179.54	0.68	470,144.03	824,106.65
17,835.00	86.90	359.30	10,369.74	7,273.85	7,274.87	85.23	7,275.37	0.67	470,239.87	824,106.23
17,930.00	87.30	358.70	10,374.55	7,368.72	7,369.73	83.57	7,370.21	0.65	470,334.73	824,104.57
18,026.00	87.40	358.50	10,378.98	7,464.61	7,465.60	81.23	7,466.04	0.62	470,430.60	824,102.23
18,121.00	87.60	357.70	10,383.13	7,559.49	7,560.46	78.08	7,560.86	0.59	470,525.46	824,099.08
18,217.00	89.70	357.80	10,385.39	7,655.41	7,656.35	74.31	7,656.71	0.56	470,621.35	824,095.31
18,312.00	90.30	359.60	10,385.39	7,750.40	7,751.32	72.16	7,751.66	0.53	470,716.32	824,093.16
18,408.00	90.30	359.10	10,384.89	7,846.40	7,847.32	71.07	7,847.64	0.52	470,812.32	824,092.07
18,503.00	89.90	358.10	10,384.72	7,941.38	7,942.29	68.75	7,942.58	0.50	470,907.29	824,089.75
18,599.00	91.60	359.80	10,383.46	8,037.36	8,038.25	66.99	8,038.53	0.48	471,003.25	824,087.99
18,694.00	92.40	359.70	10,380.15	8,132.30	8,133.19	66.58	8,133.47	0.47	471,098.19	824,087.58
18,790.00	93.00	359.60	10,375.63	8,228.20	8,229.09	65.99	8,229.35	0.46	471,194.09	824,086.99
18,885.00	93.90	359.20	10,369.91	8,323.02	8,323.91	65.00	8,324.16	0.45	471,288.91	824,086.00
18,981.00	95.10	359.30	10,362.38	8,418.72	8,419.60	63.74	8,419.84	0.43	471,384.60	824,084.74
19,076.00	92.20	0.90	10,356.33	8,513.51	8,514.39	63.91	8,514.63	0.43	471,479.39	824,084.91
19,172.00	93.00	0.60	10,351.98	8,609.39	8,610.29	65.17	8,610.53	0.43	471,575.29	824,086.17
19,267.00	92.70	1.40	10,347.25	8,704.24	8,705.15	66.82	8,705.41	0.44	471,670.15	824,087.82
19,363.00	88.60	0.90	10,346.16	8,800.17	8,801.11	68.75	8,801.38	0.45	471,766.11	824,089.75
19,458.00	89.30	0.10	10,347.90	8,895.14	8,896.09	69.58	8,896.36	0.45	471,861.09	824,090.58
19,553.00	91.00	359.40	10,347.65	8,990.14	8,991.08	69.16	8,991.35	0.44	471,956.08	824,090.16
19,649.00	91.60	359.00	10,345.48	9,086.11	9,087.05	67.82	9,087.30	0.43	472,052.05	824,088.82
19,744.00	89.70	359.90	10,344.40	9,181.10	9,182.03	66.91	9,182.27	0.42	472,147.03	824,087.91
19,840.00	90.80	359.90	10,343.98	9,277.09	9,278.03	66.74	9,278.27	0.41	472,243.03	824,087.74



ProDirectional Survey Report



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Site: Jeff Hart State Com
Well: No. 124H
Wellbore: OH
Design: MWD-153'-20554', Proj. 20612'

Local Co-ordinate Reference: Well No. 124H
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
19,903.00	91.50	359.50	10,342.72	9,340.08	9,341.01	66.41	9,341.25	0.41	472,306.01	824,087.41
19,998.00	90.10	0.40	10,341.39	9,435.06	9,436.00	66.33	9,436.23	0.40	472,401.00	824,087.33
20,094.00	90.90	0.80	10,340.55	9,531.04	9,531.99	67.34	9,532.23	0.40	472,496.99	824,088.34
20,189.00	91.30	1.60	10,338.73	9,625.98	9,626.95	69.33	9,627.20	0.41	472,591.95	824,090.33
20,285.00	92.40	2.20	10,335.63	9,721.85	9,722.85	72.51	9,723.12	0.43	472,687.85	824,093.51
20,380.00	94.10	2.30	10,330.24	9,816.58	9,817.62	76.23	9,817.91	0.44	472,782.62	824,097.23
20,476.00	94.90	2.30	10,322.71	9,912.17	9,913.24	80.07	9,913.57	0.46	472,878.24	824,101.07
20,554.00	96.50	2.80	10,314.96	9,989.67	9,990.78	83.52	9,991.13	0.48	472,955.78	824,104.52
Last Survey: 20554' MD										
20,612.00	96.50	2.80	10,308.40	10,047.20	10,048.34	86.34	10,048.71	0.49	473,013.34	824,107.34
PTB: 20612' MD										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
153.00	153.00	0.81	0.69	Pro MWD First Survey: 153' MD
20,554.00	10,314.96	9,990.78	83.52	Last Survey: 20554' MD
20,612.00	10,308.40	10,048.34	86.34	PTB: 20612' MD