



RECEIVED

JUL 26 2018

DISTRICT II-ARTESIA O.C.D.



Joe Coleman 13-23S-27E RB No. 221H

Eddy County, NM

30-015-44805

June 25, 2018

Job No. LNM5170318

ORIGINAL

Survey Completion Report



Survey Certification Letter

June 25, 2018



Operator Name: Matador Resources
Well Name: Joe Coleman 13-23S-27E RB No. 221H
County/Parish: Eddy County,
State: NM
Rig Name: Patterson 274
Job Number: LNM5170318

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	171' MD – 14,910' MD	14,977' MD	04/01/18 – 05/27/18	MWD

Sincerely,

Mike Coats
Regulatory Specialist
Professional Directional

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

prodirectional.com



Matador Resources

**Eddy County, NM
Joe Coleman 13-23S-27E RB
No. 221H
OH**

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JUL 26 2018

DISTRICT II-ARTESIA O.C.D.

Survey: ProDirectional

Survey Report

25 June, 2018





ProDirectional Survey Report



Company: Matador Resources
Project: Eddy County, NM(NAD 83)
Site: Joe Coleman 13-23S-27E RB
Well: No. 221H
Wellbore: OH
Design: MWD-171'-14910', Proj 14977'

Local Co-ordinate Reference: Well No. 221H
TVD Reference: Well @ 3131.50usft
MD Reference: Well @ 3131.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project Eddy 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 Joe Coleman 13-23S-27E RB

Site Position:	Map	Northing:	476,982.00 usft	Latitude:	32.311168
From:	Map	Easting:	596,884.00 usft	Longitude:	-104.153534
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.10 °

Well No. 221H

Well Position	+N/-S	0.00 usft	Northing:	476,952.00 usft	Latitude:	32.311086
	+E/-W	0.00 usft	Easting:	596,883.00 usft	Longitude:	-104.153538
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,103.00 usft	

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/30/2018	7.32	60.07	48,018.80

Design MWD-171'-14910', Proj 14977'

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	89.82	

Survey Program Date 6/25/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
171.00	14,977.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HRGM



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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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	476,952.00	596,883.00	
171.00	0.60	316.80	171.00	-0.61	0.65	-0.61	0.90	316.80	476,952.65	596,882.39	
Pro MWD First Survey: 171' MD											
231.00	0.40	317.70	230.99	-0.97	1.04	-0.97	1.42	316.93	476,953.04	596,882.03	
322.00	0.90	229.60	321.99	-1.72	0.81	-1.73	1.91	295.08	476,952.81	596,881.27	
408.00	1.10	229.10	407.98	-2.87	-0.17	-2.87	2.87	266.61	476,951.83	596,880.13	
508.00	1.00	223.80	507.96	-4.20	-1.43	-4.19	4.43	251.20	476,950.57	596,878.81	
598.00	0.60	88.30	597.96	-4.27	-1.98	-4.27	4.70	245.10	476,950.02	596,878.73	
689.00	2.50	70.10	688.92	-1.93	-1.29	-1.92	2.32	236.14	476,950.71	596,881.08	
780.00	2.90	71.80	779.82	2.13	0.10	2.13	2.13	87.22	476,952.10	596,885.13	
871.00	3.90	58.90	870.66	6.97	2.42	6.97	7.37	70.83	476,954.42	596,889.97	
966.00	4.10	59.30	965.43	12.67	5.82	12.65	13.93	65.28	476,957.82	596,895.65	
1,061.00	5.10	54.60	1,060.12	19.05	10.00	19.01	21.48	62.25	476,962.00	596,902.01	
1,157.00	5.00	49.60	1,155.75	25.73	15.19	25.68	29.83	59.40	476,967.19	596,908.68	
1,251.00	3.80	48.50	1,249.47	31.19	19.91	31.13	36.95	57.40	476,971.91	596,914.13	
1,347.00	4.50	49.10	1,345.22	36.44	24.48	36.36	43.83	56.05	476,976.48	596,919.36	
1,442.00	7.30	50.60	1,439.70	43.94	30.75	43.84	53.55	54.95	476,982.75	596,926.84	
1,537.00	8.00	56.90	1,533.86	54.16	38.19	54.04	66.18	54.75	476,990.19	596,937.04	
1,632.00	7.60	65.10	1,627.98	65.42	44.45	65.28	78.98	55.75	476,996.45	596,948.28	
1,727.00	6.60	67.10	1,722.25	76.16	49.22	76.01	90.55	57.08	477,001.22	596,959.01	
1,822.00	6.80	72.40	1,816.61	86.56	53.04	86.40	101.38	58.45	477,005.04	596,969.40	
1,917.00	7.40	72.30	1,910.88	97.77	56.60	97.59	112.82	59.89	477,008.60	596,980.59	
2,012.00	6.90	67.80	2,005.14	108.89	60.62	108.70	124.46	60.85	477,012.62	596,991.70	
2,108.00	6.90	69.60	2,100.44	119.65	64.81	119.44	135.89	61.52	477,016.81	597,002.44	
2,203.00	4.70	58.60	2,194.95	128.33	68.83	128.12	145.43	61.75	477,020.83	597,011.12	
2,299.00	4.00	41.80	2,290.68	133.93	73.37	133.70	152.51	61.24	477,025.37	597,016.70	
2,394.00	3.90	35.90	2,385.46	138.05	78.46	137.81	158.58	60.35	477,030.46	597,020.81	



ProDirectional Survey Report



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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)	
2,416.00	3.70	35.80	2,407.41	138.91	79.64	138.66	159.91	60.13	477,031.64	597,021.66	
2,489.00	4.00	39.80	2,480.24	141.93	83.51	141.67	164.45	59.48	477,035.51	597,024.67	
2,584.00	5.40	51.40	2,574.92	147.56	88.84	147.28	172.00	58.90	477,040.84	597,030.28	
2,679.00	5.50	52.40	2,669.49	154.68	94.41	154.38	180.96	58.55	477,046.41	597,037.38	
2,774.00	6.10	67.40	2,764.01	162.96	99.13	162.65	190.48	58.64	477,051.13	597,045.65	
2,870.00	6.50	68.80	2,859.43	172.75	103.05	172.43	200.88	59.14	477,055.05	597,055.43	
2,965.00	6.30	67.80	2,953.84	182.60	106.97	182.27	211.34	59.59	477,058.97	597,065.27	
3,156.00	6.10	65.70	3,143.72	201.58	115.10	201.22	231.81	60.23	477,067.10	597,084.22	
3,251.00	6.20	64.60	3,238.18	210.83	119.38	210.45	241.95	60.44	477,071.38	597,093.45	
3,347.00	6.00	63.00	3,333.63	219.99	123.88	219.61	252.14	60.57	477,075.88	597,102.61	
3,442.00	5.90	61.40	3,428.12	228.72	128.47	228.32	261.98	60.63	477,080.47	597,111.32	
3,537.00	6.00	65.80	3,522.61	237.55	132.84	237.13	271.81	60.74	477,084.84	597,120.13	
3,632.00	5.90	67.20	3,617.10	246.59	136.77	246.16	281.61	60.94	477,088.77	597,129.16	
3,728.00	5.90	67.70	3,712.59	255.72	140.56	255.28	291.41	61.16	477,092.56	597,138.28	
3,823.00	6.10	69.30	3,807.07	264.97	144.19	264.52	301.26	61.40	477,096.19	597,147.52	
3,919.00	4.60	66.60	3,902.65	273.28	147.53	272.82	310.15	61.60	477,099.53	597,155.82	
4,014.00	4.60	66.00	3,997.34	280.27	150.59	279.80	317.75	61.71	477,102.59	597,162.80	
4,109.00	4.70	66.00	4,092.03	287.31	153.72	286.83	325.43	61.81	477,105.72	597,169.83	
4,204.00	4.70	65.20	4,186.71	294.41	156.94	293.92	333.19	61.90	477,108.94	597,176.92	
4,299.00	4.30	63.40	4,281.42	301.14	160.16	300.64	340.64	61.95	477,112.16	597,183.64	
4,395.00	5.30	69.10	4,377.08	308.51	163.36	308.00	348.64	62.06	477,115.36	597,191.00	
4,490.00	5.10	68.80	4,471.69	316.56	166.45	316.03	357.19	62.23	477,118.45	597,199.03	
4,586.00	4.60	66.60	4,567.34	324.08	169.52	323.55	365.27	62.35	477,121.52	597,206.55	
4,680.00	3.90	64.10	4,661.09	330.42	172.41	329.88	372.22	62.41	477,124.41	597,212.88	
4,776.00	5.40	68.20	4,756.77	337.56	175.52	337.01	379.98	62.49	477,127.52	597,220.01	
4,871.00	5.10	67.20	4,851.37	345.62	178.81	345.06	388.64	62.61	477,130.81	597,228.06	
4,967.00	4.60	64.30	4,947.02	353.03	182.14	352.46	396.74	62.67	477,134.14	597,235.46	



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5,062.00	4.30	65.20	5,041.74	359.70	185.28	359.12	404.10	62.71	477,137.28	597,242.12
5,158.00	1.40	53.60	5,137.61	363.92	187.49	363.34	408.86	62.71	477,139.49	597,246.34
5,253.00	0.80	51.80	5,232.59	365.38	188.59	364.79	410.65	62.66	477,140.59	597,247.79
5,348.00	0.60	355.40	5,327.59	365.87	189.49	365.27	411.50	62.58	477,141.49	597,248.27
5,444.00	0.60	297.80	5,423.58	365.38	190.23	364.79	411.41	62.46	477,142.23	597,247.79
5,539.00	1.10	287.00	5,518.57	364.07	190.73	363.47	410.48	62.31	477,142.73	597,246.47
5,634.00	1.30	281.20	5,613.55	362.14	191.20	361.55	408.99	62.13	477,143.20	597,244.55
5,730.00	1.40	265.70	5,709.52	359.91	191.33	359.31	407.07	61.97	477,143.33	597,242.31
5,825.00	1.00	222.40	5,804.50	358.19	190.63	357.59	405.23	61.94	477,142.63	597,240.59
5,920.00	0.90	230.10	5,899.49	357.05	189.54	356.46	403.72	62.00	477,141.54	597,239.46
6,016.00	1.90	136.60	5,995.47	357.56	187.90	356.98	403.41	62.24	477,139.90	597,239.98
6,111.00	0.60	136.60	6,090.45	358.98	186.39	358.40	403.97	62.52	477,138.39	597,241.40
6,206.00	0.90	226.30	6,185.44	358.78	185.51	358.20	403.39	62.62	477,137.51	597,241.20
6,302.00	1.80	211.30	6,281.41	357.45	183.70	356.87	401.38	62.76	477,135.70	597,239.87
6,397.00	0.30	100.10	6,376.40	356.91	182.39	356.34	400.31	62.90	477,134.39	597,239.34
6,492.00	1.10	76.90	6,471.39	358.05	182.55	357.48	401.39	62.95	477,134.55	597,240.48
6,588.00	1.10	100.30	6,567.37	359.85	182.59	359.28	403.02	63.06	477,134.59	597,242.28
6,683.00	1.00	102.10	6,662.36	361.56	182.26	360.99	404.39	63.21	477,134.26	597,243.99
6,779.00	0.60	63.70	6,758.35	362.83	182.30	362.26	405.54	63.29	477,134.30	597,245.26
6,874.00	0.10	22.40	6,853.35	363.31	182.60	362.74	406.10	63.28	477,134.60	597,245.74
6,970.00	1.50	97.40	6,949.33	364.58	182.52	364.01	407.21	63.37	477,134.52	597,247.01
7,064.00	1.90	86.80	7,043.29	367.36	182.44	366.79	409.66	63.55	477,134.44	597,249.79
7,160.00	1.20	99.20	7,139.26	369.94	182.37	369.37	411.94	63.72	477,134.37	597,252.37
7,255.00	1.60	120.40	7,234.23	372.06	181.54	371.50	413.48	63.96	477,133.54	597,254.50
7,350.00	1.60	128.30	7,329.19	374.24	180.05	373.68	414.80	64.27	477,132.05	597,256.68
7,445.00	1.50	112.90	7,424.16	376.43	178.74	375.87	416.20	64.57	477,130.74	597,258.87
7,540.00	0.80	132.90	7,519.14	378.06	177.81	377.50	417.28	64.78	477,129.81	597,260.50



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7,635.00	0.50	135.90	7,614.13	378.83	177.06	378.27	417.66	64.92	477,129.06	597,261.27
7,730.00	0.20	203.30	7,709.13	379.05	176.61	378.50	417.67	64.99	477,128.61	597,261.50
7,825.00	0.20	253.70	7,804.13	378.82	176.41	378.27	417.38	65.00	477,128.41	597,261.27
7,920.00	0.40	252.50	7,899.13	378.35	176.26	377.80	416.89	64.99	477,128.26	597,260.80
8,016.00	0.30	31.30	7,995.13	378.16	176.38	377.61	416.77	64.96	477,128.38	597,260.61
8,111.00	0.40	77.50	8,090.13	378.61	176.66	378.06	417.30	64.95	477,128.66	597,261.06
8,206.00	0.60	140.40	8,185.12	379.25	176.35	378.70	417.75	65.03	477,128.35	597,261.70
8,301.00	0.80	171.50	8,280.12	379.66	175.31	379.12	417.69	65.18	477,127.31	597,262.12
8,397.00	1.30	158.90	8,376.10	380.15	173.63	379.61	417.43	65.42	477,125.63	597,262.61
8,492.00	1.90	202.30	8,471.07	379.93	171.17	379.40	416.22	65.72	477,123.17	597,262.40
8,587.00	0.50	255.40	8,566.05	378.93	169.61	378.40	414.67	65.86	477,121.61	597,261.40
8,683.00	0.90	290.00	8,662.04	377.82	169.76	377.28	413.72	65.77	477,121.76	597,260.28
8,777.00	1.30	263.30	8,756.02	376.06	169.89	375.53	412.17	65.66	477,121.89	597,258.53
8,872.00	1.80	247.20	8,850.99	373.62	169.19	373.09	409.65	65.61	477,121.19	597,256.09
8,968.00	1.80	248.20	8,946.94	370.82	168.04	370.30	406.64	65.59	477,120.04	597,253.30
9,063.00	2.00	250.70	9,041.89	367.87	166.94	367.35	403.50	65.56	477,118.94	597,250.35
9,166.00	1.20	264.60	9,144.85	365.10	166.24	364.58	400.69	65.49	477,118.24	597,247.58
9,261.00	1.20	11.70	9,239.83	364.31	167.12	363.79	400.34	65.33	477,119.12	597,246.79
9,357.00	2.20	20.30	9,335.79	365.16	169.84	364.63	402.24	65.02	477,121.84	597,247.63
9,452.00	2.10	17.60	9,430.72	366.33	173.21	365.79	404.72	64.66	477,125.21	597,248.79
9,548.00	4.30	53.40	9,526.58	369.77	177.03	369.21	409.46	64.38	477,129.03	597,252.21
9,580.00	8.50	55.60	9,558.37	372.69	179.08	372.13	412.98	64.30	477,131.08	597,255.13
9,611.00	12.80	52.80	9,588.83	377.33	182.45	376.75	418.61	64.16	477,134.45	597,259.75
9,643.00	15.60	54.90	9,619.85	383.69	187.07	383.10	426.33	63.97	477,139.07	597,266.10
9,675.00	18.40	66.20	9,650.46	391.84	191.59	391.25	435.64	63.91	477,143.59	597,274.25
9,707.00	21.10	76.40	9,680.58	402.08	194.98	401.47	446.31	64.10	477,146.98	597,284.47
9,739.00	24.00	84.90	9,710.14	414.17	196.91	413.56	458.04	64.54	477,148.91	597,296.56



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9,770.00	26.50	89.80	9,738.18	427.37	197.50	426.75	470.24	65.17	477,149.50	597,309.75
9,801.00	28.90	89.10	9,765.62	441.78	197.64	441.16	483.41	65.87	477,149.64	597,324.16
9,833.00	31.50	87.00	9,793.28	457.87	198.20	457.25	498.35	66.56	477,150.20	597,340.25
9,928.00	38.70	89.50	9,870.95	512.43	199.76	511.80	549.41	68.68	477,151.76	597,394.80
10,023.00	46.90	90.40	9,940.60	576.92	199.78	576.29	609.94	70.88	477,151.78	597,459.29
10,119.00	57.00	89.50	9,999.69	652.42	199.88	651.79	681.75	72.95	477,151.88	597,534.79
10,214.00	64.80	88.20	10,045.86	735.35	201.58	734.72	761.87	74.66	477,153.58	597,617.72
10,299.00	64.10	91.30	10,082.53	812.02	201.92	811.39	836.14	76.03	477,153.92	597,694.39
10,330.00	65.90	91.40	10,095.63	840.10	201.26	839.48	863.27	76.52	477,153.26	597,722.48
10,363.00	70.10	91.70	10,107.99	870.68	200.43	870.06	892.84	77.03	477,152.43	597,753.06
10,394.00	74.60	90.40	10,117.39	900.21	199.90	899.58	921.52	77.47	477,151.90	597,782.58
10,426.00	79.00	91.20	10,124.69	931.35	199.46	930.73	951.86	77.90	477,151.46	597,813.73
10,489.00	83.40	90.50	10,134.33	993.58	198.54	992.96	1,012.62	78.69	477,150.54	597,875.96
10,521.00	84.60	91.10	10,137.67	1,025.40	198.09	1,024.78	1,043.75	79.06	477,150.09	597,907.78
10,585.00	83.30	91.90	10,144.42	1,089.01	196.43	1,088.40	1,105.99	79.77	477,148.43	597,971.40
10,617.00	83.50	92.30	10,148.10	1,120.78	195.26	1,120.17	1,137.06	80.11	477,147.26	598,003.17
10,712.00	88.50	91.50	10,154.72	1,215.45	192.13	1,214.86	1,229.95	81.01	477,144.13	598,097.86
10,807.00	92.10	93.00	10,154.22	1,310.35	188.40	1,309.76	1,323.24	81.81	477,140.40	598,192.76
10,902.00	88.40	91.00	10,153.81	1,405.26	185.08	1,404.68	1,416.82	82.49	477,137.08	598,287.68
10,998.00	88.00	90.70	10,156.82	1,501.19	183.66	1,500.62	1,511.82	83.02	477,135.66	598,383.62
11,094.00	88.00	90.70	10,160.17	1,597.12	182.49	1,596.56	1,606.95	83.48	477,134.49	598,479.56
11,189.00	85.00	89.10	10,165.97	1,691.93	182.65	1,691.37	1,701.20	83.84	477,134.65	598,574.37
11,282.00	82.40	86.90	10,176.18	1,784.31	185.87	1,783.74	1,793.39	84.05	477,137.87	598,666.74
11,377.00	85.00	86.20	10,186.60	1,878.57	191.55	1,877.98	1,887.73	84.18	477,143.55	598,760.98
11,409.00	87.30	87.20	10,188.75	1,910.45	193.39	1,909.85	1,919.62	84.22	477,145.39	598,792.85
11,472.00	83.00	83.40	10,194.08	1,973.01	198.53	1,972.39	1,982.36	84.25	477,150.53	598,855.39
11,568.00	84.70	83.20	10,204.36	2,067.83	209.66	2,067.18	2,077.79	84.21	477,161.66	598,950.18



ProDirectional Survey Report



Company: Matador Resources
Project: Eddy County, NM(NAD 83)
Site: Joe Coleman 13-23S-27E RB
Well: No. 221H
Wellbore: OH
Design: MWD-171'-14910', Proj 14977'

Local Co-ordinate Reference: Well No. 221H
TVD Reference: Well @ 3131.50usft
MD Reference: Well @ 3131.50usft
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)	
11,599.00	86.20	84.20	10,206.82	2,098.56	213.05	2,097.90	2,108.69	84.20	477,165.05	598,980.90	
11,631.00	86.30	85.00	10,208.92	2,130.36	216.06	2,129.69	2,140.62	84.21	477,168.06	599,012.69	
11,663.00	89.40	85.40	10,210.12	2,162.23	218.73	2,161.55	2,172.59	84.22	477,170.73	599,044.55	
11,695.00	91.40	86.40	10,209.89	2,194.15	221.02	2,193.46	2,204.57	84.25	477,173.02	599,076.46	
11,727.00	93.80	88.50	10,208.44	2,226.08	222.44	2,225.40	2,236.49	84.29	477,174.44	599,108.40	
11,759.00	93.90	88.30	10,206.29	2,258.00	223.34	2,257.31	2,268.33	84.35	477,175.34	599,140.31	
11,822.00	93.40	89.60	10,202.28	2,320.87	224.49	2,320.17	2,331.01	84.47	477,176.49	599,203.17	
11,854.00	89.60	87.60	10,201.44	2,352.84	225.27	2,352.14	2,362.91	84.53	477,177.27	599,235.14	
11,886.00	90.30	87.80	10,201.47	2,384.82	226.55	2,384.12	2,394.86	84.57	477,178.55	599,267.12	
11,918.00	91.40	89.60	10,201.00	2,416.81	227.28	2,416.10	2,426.77	84.63	477,179.28	599,299.10	
11,949.00	90.50	90.80	10,200.48	2,447.80	227.17	2,447.10	2,457.62	84.70	477,179.17	599,330.10	
11,981.00	90.20	91.00	10,200.29	2,479.79	226.67	2,479.09	2,489.43	84.78	477,178.67	599,362.09	
12,013.00	91.10	92.60	10,199.92	2,511.77	225.66	2,511.07	2,521.19	84.86	477,177.66	599,394.07	
12,044.00	90.70	93.70	10,199.44	2,542.71	223.96	2,542.02	2,551.87	84.97	477,175.96	599,425.02	
12,077.00	88.70	93.00	10,199.61	2,575.65	222.03	2,574.96	2,584.52	85.07	477,174.03	599,457.96	
12,108.00	91.40	95.20	10,199.58	2,606.56	219.82	2,605.88	2,615.14	85.18	477,171.82	599,488.88	
12,139.00	90.80	95.40	10,198.99	2,637.41	216.95	2,636.74	2,645.65	85.30	477,168.95	599,519.74	
12,171.00	91.80	95.70	10,198.26	2,669.24	213.86	2,668.58	2,677.14	85.42	477,165.86	599,551.58	
12,235.00	89.20	95.00	10,197.70	2,732.94	207.89	2,732.30	2,740.19	85.65	477,159.89	599,615.30	
12,330.00	88.40	93.60	10,199.69	2,827.62	200.77	2,827.01	2,834.13	85.94	477,152.77	599,710.01	
12,426.00	88.60	93.60	10,202.21	2,923.38	194.75	2,922.78	2,929.26	86.19	477,146.75	599,805.78	
12,522.00	86.30	92.60	10,206.48	3,019.12	189.56	3,018.54	3,024.49	86.41	477,141.56	599,901.54	
12,617.00	92.30	93.50	10,207.64	3,113.92	184.51	3,113.35	3,118.82	86.61	477,136.51	599,996.35	
12,712.00	90.40	92.40	10,205.40	3,208.74	179.62	3,208.20	3,213.22	86.80	477,131.62	600,091.20	
12,808.00	91.10	90.60	10,204.14	3,304.69	177.11	3,304.15	3,308.89	86.93	477,129.11	600,187.15	
12,903.00	87.50	89.90	10,205.30	3,399.66	176.69	3,399.13	3,403.72	87.02	477,128.69	600,282.13	
12,999.00	88.80	92.80	10,208.40	3,495.57	174.43	3,495.04	3,499.39	87.14	477,126.43	600,378.04	



ProDirectional Survey Report



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Wellbore: OH
Design: MWD-171'-14910', Proj 14977'

Local Co-ordinate Reference: Well No. 221H
TVD Reference: Well @ 3131.50usft
MD Reference: Well @ 3131.50usft
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)
13,094.00	89.50	91.20	91.20	10,209.81	3,590.48	171.12	3,589.96	3,594.04	87.27	477,123.12	600,472.96
13,126.00	90.10	91.30	91.30	10,209.92	3,622.47	170.42	3,621.96	3,625.96	87.31	477,122.42	600,504.96
13,189.00	86.90	88.60	88.60	10,211.57	3,685.44	170.47	3,684.92	3,688.86	87.35	477,122.47	600,567.92
13,284.00	85.60	88.30	88.30	10,217.79	3,780.21	173.04	3,779.68	3,783.64	87.38	477,125.04	600,662.68
13,380.00	89.80	90.10	90.10	10,221.64	3,876.10	174.37	3,875.57	3,879.49	87.42	477,126.37	600,758.57
13,475.00	87.60	89.30	89.30	10,223.79	3,971.07	174.87	3,970.54	3,974.39	87.48	477,126.87	600,853.54
13,570.00	85.90	90.90	90.90	10,229.18	4,065.91	174.70	4,065.38	4,069.13	87.54	477,126.70	600,948.38
13,665.00	84.00	90.40	90.40	10,237.54	4,160.52	173.63	4,160.00	4,163.62	87.61	477,125.63	601,043.00
13,760.00	85.00	90.20	90.20	10,246.65	4,255.08	173.14	4,254.56	4,258.08	87.67	477,125.14	601,137.56
13,857.00	84.00	89.70	89.70	10,255.94	4,351.63	173.22	4,351.11	4,354.56	87.72	477,125.22	601,234.11
13,952.00	84.00	89.80	89.80	10,265.87	4,446.11	173.63	4,445.59	4,448.98	87.76	477,125.63	601,328.59
14,048.00	87.00	90.80	90.80	10,273.41	4,541.80	173.13	4,541.28	4,544.58	87.82	477,125.13	601,424.28
14,145.00	87.50	88.70	88.70	10,278.06	4,638.68	173.55	4,638.16	4,641.41	87.86	477,125.55	601,521.16
14,240.00	90.30	89.40	89.40	10,279.88	4,733.65	175.13	4,733.12	4,736.36	87.88	477,127.13	601,616.12
14,336.00	90.50	90.90	90.90	10,279.21	4,829.64	174.88	4,829.11	4,832.28	87.93	477,126.88	601,712.11
14,431.00	90.40	92.60	92.60	10,278.47	4,924.58	171.97	4,924.06	4,927.07	88.00	477,123.97	601,807.06
14,526.00	87.10	91.10	91.10	10,280.54	5,019.48	168.91	5,018.98	5,021.82	88.07	477,120.91	601,901.98
14,622.00	88.00	92.40	92.40	10,284.64	5,115.34	165.98	5,114.84	5,117.53	88.14	477,117.98	601,997.84
14,718.00	89.10	94.60	94.60	10,287.07	5,211.10	160.12	5,210.62	5,213.08	88.24	477,112.12	602,093.62
14,813.00	88.50	93.60	93.60	10,289.06	5,305.81	153.33	5,305.36	5,307.57	88.34	477,105.33	602,188.36
14,910.00	85.80	91.10	91.10	10,293.89	5,402.58	149.35	5,402.14	5,404.20	88.42	477,101.35	602,285.14
Last Survey: 14910' MD											
14,977.00	85.80	91.10	91.10	10,298.79	5,469.39	148.07	5,468.95	5,470.95	88.45	477,100.07	602,351.95
PTB: 14977' MD											



ProDirectional Survey Report



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Design: MWD-171'-14910', Proj 14977'

Local Co-ordinate Reference: Well No. 221H
TVD Reference: Well @ 3131.50usft
MD Reference: Well @ 3131.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
171.00	171.00	0.65	-0.61	Pro MWD First Survey: 171' MD
14,910.00	10,293.89	149.35	5,402.14	Last Survey: 14910' MD
14,977.00	10,298.79	148.07	5,468.95	PTB: 14977' MD