



HOBBS OCD
DEC 01 2017
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Ranger 33 State Com No. 123H

Lea County, NM

October 31, 2017

Job No. LNM5152517

ORIGINAL

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

October 31, 2017



Operator Name: Matador Resources
Well Name: Ranger 33 State Com No. 123H
County/Parish: Lea County,
State: NM
Rig Name: Patterson 809
Job Number: LNM5152517

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:

Surveyor	Surveyed Depths	Projection to Bit	Dates Performed	Type of Survey
ProDirectional	200' MD – 15,348' MD	15,460' MD	09/25/17 – 10/12/17	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
Ranger 33 State Com
No. 123H
OH

Survey: ProDirectional

Survey Report

31 October, 2017





ProDirectional Survey Report



Company: Matador Resources
Project: Lea County, NM(NAD83)
Site: Ranger 33 State Com
Well: No. 123H
Wellbore: OH
Design: MWD-200'-15348', Proj. 15460'

Local Co-ordinate Reference: Well No. 123H
TVD Reference: Well @ 3725.00usft
MD Reference: Well @ 3725.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project Lea County, NM(NAD83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Ranger 33 State Com

Site Position:		Northing:	559,882.00 usft	Latitude:	32.5361452
From:	Map	Easting:	810,289.00 usft	Longitude:	-103.4606122
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well No. 123H

Well Position	+N/-S	0.00 usft	Northing:	559,882.00 usft	Latitude:	32.5361452
	+E/-W	0.00 usft	Easting:	810,289.00 usft	Longitude:	-103.4606122
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,697.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/15/2017	6.73	60.52	48,245.90

Design MWD-200'-15348', Proj. 15460'

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	179.50

Survey Program Date 10/31/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
200.00	15,460.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HRGM



ProDirectional
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Survey Calculation Method:
Database:
Well No. 123H
Well @ 3725.00usft
Well @ 3725.00usft
Grid
Minimum Curvature
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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	559,882.00	810,289.00
200.00	0.20	22.70	200.00	-0.32	0.32	0.13	0.35	22.70	559,882.32	810,289.13
Pro MWD First Survey: 200' MD										
323.00	0.40	31.40	323.00	-0.88	0.89	0.44	0.99	26.46	559,882.89	810,289.44
415.00	0.60	54.10	414.99	-1.43	1.44	1.00	1.76	34.69	559,883.44	810,290.00
513.00	0.80	58.60	512.99	-2.08	2.10	2.00	2.90	43.57	559,884.10	810,291.00
605.00	1.10	89.90	604.97	-2.41	2.44	3.43	4.21	54.61	559,884.44	810,292.43
697.00	1.00	84.40	696.96	-2.47	2.52	5.11	5.70	63.79	559,884.52	810,294.11
788.00	1.00	77.90	787.95	-2.70	2.76	6.68	7.23	67.54	559,884.76	810,295.68
880.00	0.80	91.90	879.93	-2.84	2.91	8.11	8.61	70.27	559,884.91	810,297.11
974.00	0.90	93.30	973.92	-2.76	2.84	9.50	9.91	73.34	559,884.84	810,298.50
1,067.00	1.10	106.40	1,066.91	-2.45	2.55	11.08	11.37	77.05	559,884.55	810,300.08
1,160.00	1.80	81.10	1,159.88	-2.41	2.52	13.38	13.62	79.32	559,884.52	810,302.38
1,254.00	2.50	64.30	1,253.81	-3.49	3.64	16.69	17.08	77.69	559,885.64	810,305.69
1,348.00	2.00	51.50	1,347.74	-5.38	5.55	19.82	20.58	74.36	559,887.55	810,308.82
1,441.00	1.80	42.40	1,440.69	-7.45	7.64	22.08	23.36	70.91	559,889.64	810,311.08
1,535.00	2.00	37.50	1,534.64	-9.82	10.03	24.07	26.08	67.38	559,892.03	810,313.07
1,629.00	1.90	38.30	1,628.59	-12.33	12.56	26.03	28.90	64.25	559,894.56	810,315.03
1,722.00	1.90	55.60	1,721.53	-14.39	14.64	28.26	31.83	62.62	559,896.64	810,317.26
1,815.00	1.60	61.10	1,814.49	-15.87	16.13	30.67	34.65	62.25	559,898.13	810,319.67
1,909.00	1.30	60.80	1,908.46	-17.00	17.29	32.75	37.03	62.17	559,899.29	810,321.75
2,095.00	1.80	81.10	2,094.39	-18.44	18.77	37.48	41.92	63.40	559,900.77	810,326.48
2,188.00	2.50	88.40	2,187.33	-18.69	19.05	40.95	45.16	65.05	559,901.05	810,329.95
2,282.00	3.50	73.30	2,281.20	-19.53	19.93	45.75	49.90	66.45	559,901.93	810,334.75
2,375.00	3.90	40.60	2,374.02	-22.71	23.15	50.52	55.58	65.38	559,905.15	810,339.52
2,469.00	4.40	25.20	2,467.77	-28.37	28.84	54.14	61.34	61.95	559,910.84	810,343.14
2,562.00	5.40	22.50	2,560.43	-35.61	36.11	57.33	67.76	57.79	559,918.11	810,346.33



ProDirectional Survey Report



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Site: Ranger 33 State Com
Well: No. 123H
Wellbore: OH
Design: MWD-200'-15348', Proj. 15460'

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well No. 123H
Well @ 3725.00usft
Well @ 3725.00usft
Grid
Minimum Curvature
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)	
2,656.00	6.70	22.90	2,653.91	-44.72	45.25	61.16	76.08	53.50	559,927.25	810,350.16	
2,750.00	6.20	33.50	2,747.31	-53.96	54.54	66.10	85.69	50.47	559,936.54	810,355.10	
2,844.00	5.30	52.30	2,840.85	-60.79	61.42	72.33	94.89	49.66	559,943.42	810,361.33	
2,937.00	3.90	58.70	2,933.55	-65.01	65.69	78.43	102.31	50.05	559,947.69	810,367.43	
3,031.00	3.20	60.60	3,027.37	-67.91	68.64	83.45	108.06	50.56	559,950.64	810,372.45	
3,125.00	4.00	62.30	3,121.18	-70.68	71.46	88.64	113.85	51.13	559,953.46	810,377.64	
3,218.00	5.60	67.80	3,213.85	-73.84	74.68	95.71	121.40	52.04	559,956.68	810,384.71	
3,312.00	5.60	63.00	3,307.40	-77.58	78.49	104.05	130.33	52.97	559,960.49	810,393.05	
3,406.00	4.30	55.70	3,401.05	-81.59	82.56	111.04	138.37	53.37	559,964.56	810,400.04	
3,499.00	3.40	35.30	3,493.84	-85.77	86.78	115.52	144.48	53.09	559,968.78	810,404.52	
3,593.00	3.70	30.00	3,587.66	-90.64	91.68	118.65	149.94	52.31	559,973.68	810,407.65	
3,686.00	4.40	31.30	3,680.43	-96.26	97.33	122.00	156.06	51.42	559,979.33	810,411.00	
3,780.00	3.30	37.70	3,774.22	-101.45	102.55	125.53	162.09	50.75	559,984.55	810,414.53	
3,874.00	1.10	73.90	3,868.15	-103.82	104.94	128.05	165.56	50.66	559,986.94	810,417.05	
3,967.00	0.80	96.70	3,961.13	-103.98	105.11	129.55	166.83	50.95	559,987.11	810,418.55	
4,061.00	0.80	54.30	4,055.13	-104.27	105.42	130.74	167.94	51.12	559,987.42	810,419.74	
4,155.00	1.10	43.60	4,149.11	-105.30	106.45	131.89	169.49	51.09	559,988.45	810,420.89	
4,248.00	1.60	34.70	4,242.09	-107.00	108.17	133.25	171.62	50.93	559,990.17	810,422.25	
4,342.00	1.80	34.90	4,336.05	-109.28	110.46	134.84	174.30	50.68	559,992.46	810,423.84	
4,528.00	2.50	35.70	4,521.91	-114.93	116.15	138.88	181.04	50.09	559,998.15	810,427.88	
4,623.00	3.00	34.70	4,616.80	-118.63	119.87	141.50	185.45	49.73	560,001.87	810,430.50	
4,716.00	3.40	28.00	4,709.66	-123.05	124.31	144.18	190.37	49.23	560,006.31	810,433.18	
4,810.00	4.00	22.20	4,803.46	-128.52	129.81	146.73	195.90	48.50	560,011.81	810,435.73	
4,903.00	4.80	24.80	4,896.19	-135.03	136.34	149.59	202.40	47.65	560,018.34	810,438.59	
5,091.00	3.70	46.30	5,083.68	-146.30	147.67	157.27	215.74	46.80	560,029.67	810,446.27	
5,184.00	3.60	50.00	5,176.49	-150.21	151.62	161.68	221.65	46.84	560,033.62	810,450.68	
5,278.00	3.70	49.30	5,270.30	-154.04	155.50	166.24	227.63	46.91	560,037.50	810,455.24	



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Local Co-ordinate Reference:
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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)	
5,371.00	3.80	50.30	5,363.10	-157.93	159.42	170.88	233.70	46.99	560,041.42	810,459.88	
5,465.00	4.20	50.50	5,456.87	-162.06	163.60	175.94	240.25	47.08	560,045.60	810,464.94	
5,558.00	5.00	50.90	5,549.57	-166.73	168.33	181.71	247.69	47.19	560,050.33	810,470.71	
5,746.00	4.20	53.80	5,736.97	-175.86	177.56	193.62	262.71	47.48	560,059.56	810,482.62	
5,839.00	4.70	54.40	5,829.68	-180.04	181.79	199.47	269.88	47.66	560,063.79	810,488.47	
5,933.00	5.40	56.70	5,923.32	-184.65	186.46	206.30	278.07	47.89	560,068.46	810,495.30	
6,027.00	5.40	60.00	6,016.90	-189.22	191.10	213.82	286.77	48.21	560,073.10	810,502.82	
6,120.00	4.80	61.50	6,109.53	-193.21	195.14	221.03	294.85	48.56	560,077.14	810,510.03	
6,214.00	4.00	66.50	6,203.26	-196.33	198.33	227.50	301.81	48.92	560,080.33	810,516.50	
6,307.00	2.50	83.20	6,296.11	-197.82	199.86	232.49	306.58	49.32	560,081.86	810,521.49	
6,401.00	2.60	86.60	6,390.01	-198.16	200.23	236.65	309.99	49.77	560,082.23	810,525.65	
6,494.00	2.40	85.50	6,482.92	-198.40	200.51	240.70	313.27	50.20	560,082.51	810,529.70	
6,588.00	1.90	41.50	6,576.86	-199.69	201.83	243.69	316.42	50.37	560,083.83	810,532.69	
6,681.00	1.50	32.30	6,669.82	-201.86	204.01	245.36	319.10	50.26	560,086.01	810,534.36	
6,774.00	1.60	49.20	6,762.79	-203.73	205.89	247.00	321.56	50.19	560,087.89	810,536.00	
6,868.00	1.70	63.10	6,856.75	-205.19	207.38	249.23	324.23	50.24	560,089.38	810,538.23	
6,961.00	1.80	74.50	6,949.71	-206.19	208.39	251.87	326.90	50.40	560,090.39	810,540.87	
7,054.00	1.80	81.80	7,042.66	-206.76	208.99	254.73	329.49	50.63	560,090.99	810,543.73	
7,147.00	0.30	306.80	7,135.65	-207.10	209.35	255.98	330.68	50.72	560,091.35	810,544.98	
7,241.00	0.50	231.80	7,229.65	-207.00	209.24	255.46	330.21	50.68	560,091.24	810,544.46	
7,334.00	0.60	199.10	7,322.64	-206.29	208.53	254.98	329.39	50.72	560,090.53	810,543.98	
7,427.00	0.70	189.30	7,415.64	-205.28	207.51	254.73	328.55	50.83	560,089.51	810,543.73	
7,521.00	0.80	172.80	7,509.63	-204.06	206.29	254.72	327.77	51.00	560,088.29	810,543.72	
7,614.00	0.80	165.50	7,602.62	-202.78	205.02	254.96	327.16	51.20	560,087.02	810,543.96	
7,708.00	0.80	161.60	7,696.61	-201.52	203.76	255.33	326.67	51.41	560,085.76	810,544.33	
7,801.00	0.80	153.10	7,789.60	-200.32	202.56	255.83	326.31	51.63	560,084.56	810,544.83	
7,895.00	0.90	146.80	7,883.59	-199.11	201.36	256.53	326.12	51.87	560,083.36	810,545.53	



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Well No. 123H
Well @ 3725.00usft
Well @ 3725.00usft
Grid
Minimum Curvature
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)
7,988.00	0.80	132.50	7,976.58	-198.06	200.31	257.41	326.17	52.11	560,082.31	810,546.41
8,082.00	0.60	209.30	8,070.58	-197.18	199.44	257.65	325.82	52.26	560,081.44	810,546.65
8,175.00	0.70	199.90	8,163.57	-196.23	198.48	257.22	324.90	52.35	560,080.48	810,546.22
8,269.00	0.80	177.10	8,257.56	-195.03	197.28	257.06	324.04	52.50	560,079.28	810,546.06
8,363.00	1.00	158.30	8,351.55	-193.61	195.87	257.40	323.44	52.73	560,077.87	810,546.40
8,457.00	0.40	118.40	8,445.54	-192.69	194.95	257.99	323.36	52.92	560,076.95	810,546.99
8,550.00	0.30	26.50	8,538.54	-192.75	195.01	258.38	323.71	52.96	560,077.01	810,547.38
8,644.00	0.70	349.30	8,632.54	-193.53	195.80	258.39	324.19	52.85	560,077.80	810,547.39
8,737.00	1.40	340.10	8,725.52	-195.16	197.42	257.89	324.78	52.57	560,079.42	810,546.89
8,831.00	1.50	348.20	8,819.49	-197.45	199.71	257.25	325.67	52.18	560,081.71	810,546.25
8,924.00	1.00	19.40	8,912.47	-199.41	201.66	257.27	326.89	51.91	560,083.66	810,546.27
9,017.00	0.70	17.50	9,005.46	-200.71	202.97	257.71	328.04	51.78	560,084.97	810,546.71
9,111.00	0.40	16.10	9,099.46	-201.58	203.83	257.98	328.79	51.69	560,085.83	810,546.98
9,205.00	0.40	352.50	9,193.45	-202.22	204.47	258.02	329.22	51.60	560,086.47	810,547.02
9,298.00	0.30	38.70	9,286.45	-202.73	204.99	258.13	329.62	51.55	560,086.99	810,547.13
9,392.00	0.40	166.50	9,380.45	-202.60	204.86	258.36	329.73	51.59	560,086.86	810,547.36
9,485.00	1.00	148.30	9,473.44	-201.59	203.85	258.87	329.50	51.78	560,085.85	810,547.87
9,579.00	0.30	126.50	9,567.44	-200.74	203.01	259.49	329.47	51.96	560,085.01	810,548.49
9,673.00	0.30	206.00	9,661.44	-200.37	202.64	259.58	329.31	52.02	560,084.64	810,548.58
9,766.00	0.30	221.00	9,754.44	-199.97	202.24	259.32	328.86	52.05	560,084.24	810,548.32
9,861.00	0.60	216.90	9,849.43	-199.39	201.65	258.86	328.13	52.08	560,083.65	810,547.86
9,954.00	0.80	215.40	9,942.43	-198.47	200.73	258.19	327.04	52.14	560,082.73	810,547.19
10,048.00	0.50	229.00	10,036.42	-197.68	199.93	257.50	326.00	52.17	560,081.93	810,546.50
10,100.00	0.50	240.40	10,088.42	-197.42	199.67	257.13	325.55	52.17	560,081.67	810,546.13
10,140.00	1.50	194.70	10,128.41	-196.83	199.08	256.85	324.96	52.22	560,081.08	810,545.85
10,194.00	8.40	194.60	10,182.18	-192.33	194.57	255.67	321.29	52.73	560,076.57	810,544.67
10,241.00	14.00	195.10	10,228.26	-183.54	185.75	253.32	314.13	53.75	560,067.75	810,542.32



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Survey											
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10,287.00	20.30	190.10	10,272.20	-170.32	172.51	250.47	304.13	55.44	560,054.51	810,539.47	
10,334.00	25.30	184.50	10,315.52	-152.29	154.46	248.25	292.38	58.11	560,036.46	810,537.25	
10,381.00	28.30	183.90	10,357.46	-131.17	133.33	246.70	280.43	61.61	560,015.33	810,535.70	
10,428.00	33.50	185.20	10,397.78	-107.14	109.28	244.77	268.06	65.94	559,991.28	810,533.77	
10,474.00	37.90	182.10	10,435.13	-80.38	82.50	243.10	256.72	71.25	559,964.50	810,532.10	
10,521.00	39.90	179.60	10,471.71	-50.88	53.00	242.68	248.40	77.68	559,935.00	810,531.68	
10,568.00	43.30	178.10	10,506.85	-19.68	21.81	243.32	244.29	84.88	559,903.81	810,532.32	
10,615.00	46.60	176.50	10,540.11	13.49	-11.36	244.89	245.16	92.65	559,870.64	810,533.89	
10,661.00	49.30	176.10	10,570.92	47.59	-45.44	247.10	251.24	100.42	559,836.56	810,536.10	
10,708.00	53.00	174.80	10,600.39	84.10	-81.92	250.01	263.09	108.14	559,800.08	810,539.01	
10,754.00	54.80	175.80	10,627.50	121.16	-118.96	253.06	279.62	115.18	559,763.04	810,542.06	
10,801.00	57.00	178.00	10,653.85	160.04	-157.81	255.15	300.01	121.74	559,724.19	810,544.15	
10,848.00	62.40	180.50	10,677.55	200.59	-198.37	255.66	323.59	127.81	559,683.63	810,544.66	
10,895.00	67.90	181.20	10,697.30	243.21	-241.00	255.02	350.88	133.38	559,641.00	810,544.02	
10,941.00	72.40	181.60	10,712.91	286.45	-284.24	253.96	381.17	138.22	559,597.76	810,542.96	
10,988.00	77.90	181.80	10,724.95	331.83	-329.63	252.61	415.30	142.54	559,552.37	810,541.61	
11,034.00	83.60	180.20	10,732.35	377.19	-375.01	251.82	451.72	146.12	559,506.99	810,540.82	
11,081.00	86.00	178.50	10,736.61	423.99	-421.81	252.36	491.53	149.11	559,460.19	810,541.36	
11,128.00	87.60	178.40	10,739.23	470.91	-468.71	253.63	532.94	151.58	559,413.29	810,542.63	
11,221.00	89.20	178.40	10,741.83	563.85	-561.64	256.22	617.32	155.48	559,320.36	810,545.22	
11,315.00	89.80	178.60	10,742.65	657.84	-655.60	258.68	704.79	158.47	559,226.40	810,547.68	
11,408.00	90.20	179.00	10,742.65	750.83	-748.58	260.63	792.66	160.80	559,133.42	810,549.63	
11,501.00	90.60	178.60	10,742.00	843.82	-841.56	262.58	881.57	162.67	559,040.44	810,551.58	
11,608.00	91.10	179.30	10,740.41	950.80	-948.53	264.54	984.73	164.42	558,933.47	810,553.54	
11,702.00	91.60	179.90	10,738.20	1,044.77	-1,042.50	265.19	1,075.70	165.73	558,839.50	810,554.19	
11,795.00	89.80	179.90	10,737.06	1,137.76	-1,135.49	265.36	1,166.08	166.85	558,746.51	810,554.36	
11,889.00	89.80	180.20	10,737.39	1,231.76	-1,229.49	265.27	1,257.78	167.82	558,652.51	810,554.27	



ProDirectional
Survey Report



Company: Matador Resources
Project: Lea County, NM(NAD83)
Site: Ranger 33 State Com
Well: No. 123H
Wellbore: OH
Design: MWD-200'-15348', Proj. 15460'

Local Co-ordinate Reference:
TVD Reference: Well No. 123H
MD Reference: Well @ 3725.00usft
North Reference: Well @ 3725.00usft
Survey Calculation Method: Grid
Database: Minimum Curvature
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)
11,982.00	90.90	180.70	10,736.82	1,324.74	-1,322.48	264.54	1,348.68	168.69	558,559.52	810,553.54
12,075.00	89.10	181.50	10,736.82	1,417.70	-1,415.46	262.76	1,439.64	169.48	558,466.54	810,551.76
12,169.00	89.40	181.90	10,738.05	1,511.62	-1,509.41	259.97	1,531.63	170.23	558,372.59	810,548.97
12,262.00	90.20	182.40	10,738.37	1,604.52	-1,602.34	256.48	1,622.74	170.91	558,279.66	810,545.48
12,355.00	88.60	181.50	10,739.35	1,697.43	-1,695.28	253.32	1,714.10	171.50	558,186.72	810,542.32
12,448.00	88.20	181.10	10,741.95	1,790.34	-1,788.22	251.21	1,805.78	172.00	558,093.78	810,540.21
12,541.00	89.10	181.30	10,744.14	1,883.28	-1,881.17	249.26	1,897.61	172.45	558,000.83	810,538.26
12,635.00	87.70	180.40	10,746.76	1,977.21	-1,975.12	247.87	1,990.61	172.85	557,906.88	810,536.87
12,728.00	86.70	178.20	10,751.30	2,070.09	-2,068.00	249.00	2,082.93	173.13	557,814.00	810,538.00
12,822.00	86.90	177.60	10,756.55	2,163.91	-2,161.79	252.44	2,176.48	173.34	557,720.21	810,541.44
12,915.00	87.10	178.00	10,761.42	2,256.74	-2,254.59	256.01	2,269.08	173.52	557,627.41	810,545.01
13,009.00	87.70	178.00	10,765.68	2,350.61	-2,348.44	259.28	2,362.71	173.70	557,533.56	810,548.28
13,102.00	88.30	178.00	10,768.93	2,443.52	-2,441.32	262.53	2,455.40	173.86	557,440.68	810,551.53
13,196.00	88.40	178.40	10,771.64	2,537.46	-2,535.24	265.48	2,549.10	174.02	557,346.76	810,554.48
13,289.00	89.10	178.60	10,773.66	2,630.42	-2,628.18	267.91	2,641.80	174.18	557,253.82	810,556.91
13,383.00	89.80	178.80	10,774.57	2,724.41	-2,722.15	270.04	2,735.51	174.33	557,159.85	810,559.04
13,476.00	87.70	179.40	10,776.59	2,817.38	-2,815.11	271.50	2,828.18	174.49	557,066.89	810,560.50
13,570.00	87.50	179.40	10,780.53	2,911.29	-2,909.03	272.49	2,921.76	174.65	556,972.97	810,561.49
13,664.00	87.80	179.60	10,784.39	3,005.21	-3,002.94	273.31	3,015.36	174.80	556,879.06	810,562.31
13,758.00	88.00	179.80	10,787.83	3,099.15	-3,096.88	273.80	3,108.96	174.95	556,785.12	810,562.80
13,851.00	88.90	179.90	10,790.35	3,192.11	-3,189.84	274.04	3,201.59	175.09	556,692.16	810,563.04
13,945.00	89.20	180.50	10,791.90	3,286.09	-3,283.83	273.71	3,295.22	175.24	556,598.17	810,562.71
14,038.00	89.80	180.90	10,792.72	3,379.07	-3,376.82	272.58	3,387.80	175.39	556,505.18	810,561.58
14,132.00	90.90	181.10	10,792.14	3,473.03	-3,470.80	270.94	3,481.36	175.54	556,411.20	810,559.94
14,225.00	91.40	181.30	10,790.28	3,565.97	-3,563.76	268.99	3,573.90	175.68	556,318.24	810,557.99
14,318.00	92.40	181.80	10,787.19	3,658.86	-3,656.67	266.48	3,666.37	175.83	556,225.33	810,555.48
14,412.00	90.80	181.30	10,784.57	3,752.76	-3,750.60	263.94	3,759.88	175.97	556,131.40	810,552.94



ProDirectional Survey Report



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Local Co-ordinate Reference: Well No. 123H
TVD Reference: Well @ 3725.00usft
MD Reference: Well @ 3725.00usft
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)
14,505.00	91.20	181.30	10,782.94	3,845.70	-3,843.56	261.83	3,852.47	176.10	556,038.44	810,550.83
14,599.00	89.20	180.80	10,782.62	3,939.66	-3,937.54	260.10	3,946.12	176.22	555,944.46	810,549.10
14,693.00	89.20	180.20	10,783.93	4,033.64	-4,031.53	259.28	4,039.86	176.32	555,850.47	810,548.28
14,786.00	89.50	180.40	10,784.98	4,126.62	-4,124.52	258.80	4,132.63	176.41	555,757.48	810,547.80
14,880.00	90.30	180.20	10,785.15	4,220.61	-4,218.52	258.30	4,226.42	176.50	555,663.48	810,547.30
14,974.00	89.20	179.00	10,785.56	4,314.61	-4,312.51	258.96	4,320.28	176.56	555,569.49	810,547.96
15,067.00	89.60	178.50	10,786.53	4,407.59	-4,405.48	260.99	4,413.21	176.61	555,476.52	810,549.99
15,162.00	90.30	178.50	10,786.61	4,502.58	-4,500.45	263.48	4,508.16	176.65	555,381.55	810,552.48
15,255.00	91.10	178.80	10,785.48	4,595.56	-4,593.42	265.67	4,601.09	176.69	555,288.58	810,554.67
15,348.00	91.90	178.80	10,783.04	4,688.52	-4,686.36	267.61	4,694.00	176.73	555,195.64	810,556.61
Last Survey: 15348' MD										
15,460.00	91.90	178.80	10,779.33	4,800.45	-4,798.28	269.96	4,805.87	176.78	555,083.72	810,558.96
PTB: 15460' MD										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	0.32	0.13	Pro MWD First Survey: 200' MD
15,348.00	10,783.04	-4,686.36	267.61	Last Survey: 15348' MD
15,460.00	10,779.33	-4,798.28	269.96	PTB: 15460' MD