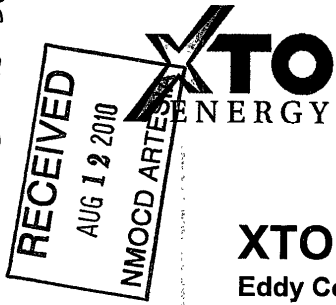


30-015-36951



XTO

Eddy County
Nash Unit #39H
Nash Unit #39H
OH

Survey: MWD #1

Pathfinder X & Y Survey Report

18 February, 2010

PATHFINDER



Pathfinder
Pathfinder X & Y Survey Report



Company:	XTO	Local Co-ordinate Reference:	Well Nash Unit #39H
Project:	Eddy County	TVD Reference:	WELL @ 3000.00ft (Norton #2- 17' RKB)
Site:	Nash Unit #39H	MD Reference:	WELL @ 3000.00ft (Norton #2- 17' RKB)
Well:	Nash Unit #39H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Project:	Eddy County	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Nash Unit #39H		
Site Position:		Northing:	479,963.000 ft
From:	Map	Easting:	621,187.900 ft
Position Uncertainty:	0.00 ft	Slot Radius:	"
		Latitude:	32° 19' 8.129 N
		Longitude:	103° 56' 27.727 W
		Grid Convergence:	0.21 °

Well	Nash Unit #39H					
Well Position	+N/-S	0.00 ft	Northing:	479,963.000 ft	Latitude:	32° 19' 8.129 N
	+E/-W	0.00 ft	Easting:	621,187.900 ft	Longitude:	103° 56' 27.727 W
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	2,983.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/18/2009	7.94	60.26	48,822

Design		OH			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
- Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.00	0.00	0.00	295.50	



Pathfinder
Pathfinder X & Y Survey Report



Company: XTO
Project: Eddy County
Site: Nash Unit #39H
Well: Nash Unit #39H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Nash Unit #39H
TVD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
MD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey Program Date 02/18/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	5,667.00	GYRO (OH)	Gyro	GYRO
5,719.00	11,353.00	MWD #1 (OH)	MWD	MWD - Standard

MD (ft)	Inc (")	Azi (")	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg ("/100ft)	Northing (ft)	Easting (ft)
5,667.00	1.51	224.49	5,663.89	2,663.89	-129.77	51.26	-102.13	0.00	479,833.23	621,239.16
5,719.00	2.29	251.23	5,715.87	2,715.87	-130.59	49.80	-101.17	2.23	479,832.41	621,237.70
5,743.00	3.34	267.63	5,739.84	2,739.84	-130.77	48.65	-100.21	5.47	479,832.23	621,236.55
5,776.00	4.92	280.38	5,772.75	2,772.75	-130.56	46.29	-97.99	5.51	479,832.44	621,234.19
5,807.00	6.68	287.09	5,803.59	2,803.59	-129.79	43.26	-94.92	6.07	479,833.21	621,231.16
5,838.00	8.35	293.15	5,834.33	2,834.33	-128.37	39.47	-90.89	5.98	479,834.63	621,227.37
5,869.00	10.20	298.11	5,864.92	2,864.92	-126.19	34.98	-85.90	6.50	479,836.81	621,222.88
5,900.00	11.96	298.11	5,895.34	2,895.34	-123.39	29.72	-79.95	5.68	479,839.61	621,217.62
5,931.00	13.28	297.98	5,925.59	2,925.59	-120.20	23.75	-73.18	4.26	479,842.80	621,211.65
5,962.00	14.77	298.12	5,955.67	2,955.67	-116.67	17.12	-65.68	4.81	479,846.33	621,205.02
5,993.00	16.53	298.36	5,985.52	2,985.52	-112.71	9.75	-57.32	5.68	479,850.29	621,197.65
6,023.00	18.32	299.36	6,014.14	3,014.14	-108.37	1.88	-48.36	6.05	479,854.63	621,189.78
6,053.00	19.61	297.37	6,042.51	3,042.51	-103.75	-6.70	-38.62	4.81	479,859.25	621,181.20
6,085.00	21.28	297.94	6,072.49	3,072.49	-98.56	-16.60	-27.45	5.26	479,864.44	621,171.30
6,116.00	22.51	296.93	6,101.26	3,101.26	-93.23	-26.86	-15.90	4.15	479,869.77	621,161.04
6,147.00	24.09	297.42	6,129.73	3,129.73	-87.63	-37.76	-3.64	5.13	479,875.37	621,150.14
6,177.00	25.76	296.58	6,156.93	3,156.93	-81.89	-49.03	9.00	5.69	479,881.11	621,138.87
6,208.00	27.44	297.06	6,184.65	3,184.65	-75.63	-61.42	22.87	5.46	479,887.37	621,126.48
6,239.00	28.93	297.31	6,211.97	3,211.97	-68.94	-74.44	37.51	4.82	479,894.06	621,113.46
6,270.00	30.16	298.94	6,238.94	3,238.94	-61.73	-87.92	52.78	4.74	479,901.27	621,099.98
6,301.00	31.30	299.64	6,265.59	3,265.59	-53.98	-101.73	68.58	3.85	479,909.02	621,086.17



Pathfinder
Pathfinder X & Y Survey Report



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Site: Nash Unit #39H
Well: Nash Unit #39H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well Nash Unit #39H
TVD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
MD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
6,332.00	32.45	302.21	6,291.91	3,291.91	-45.56	-115.77	84.87	5.74	479,917.44	621,072.13	
6,362.00	33.33	303.14	6,317.11	3,317.11	-36.77	-129.48	101.04	3.38	479,926.23	621,058.42	
6,393.00	34.73	304.12	6,342.80	3,342.80	-27.16	-143.92	118.21	4.85	479,935.84	621,043.98	
6,424.00	36.32	305.67	6,368.03	3,368.03	-16.85	-158.69	135.98	5.89	479,946.15	621,029.21	
6,455.00	37.28	306.19	6,392.85	3,392.85	-5.95	-173.73	154.24	3.26	479,957.05	621,014.17	
6,486.00	38.69	306.03	6,417.28	3,417.28	5.29	-189.14	172.99	4.56	479,968.29	620,998.76	
6,517.00	40.19	306.59	6,441.22	3,441.22	16.95	-205.01	192.34	4.97	479,979.95	620,982.89	
6,548.00	41.50	306.46	6,464.67	3,464.67	29.02	-221.30	212.24	4.23	479,992.02	620,966.60	
6,579.00	42.82	306.60	6,487.65	3,487.65	41.40	-238.02	232.66	4.27	480,004.40	620,949.88	
6,609.00	43.79	308.66	6,509.48	3,509.48	53.97	-254.31	252.77	5.71	480,016.97	620,933.59	
6,640.00	44.32	310.73	6,531.76	3,531.76	67.73	-270.90	273.67	4.95	480,030.73	620,917.00	
6,671.00	45.02	312.07	6,553.81	3,553.81	82.15	-287.24	294.63	3.79	480,045.15	620,900.66	
6,702.00	46.34	312.20	6,575.47	3,575.47	97.03	-303.69	315.88	4.27	480,060.03	620,884.21	
6,733.00	48.19	312.65	6,596.50	3,596.50	112.39	-320.49	337.66	6.06	480,075.39	620,867.41	
6,763.00	49.33	312.47	6,616.28	3,616.28	127.65	-337.11	359.22	3.83	480,090.65	620,850.79	
6,794.00	51.18	311.83	6,636.10	3,636.10	143.64	-354.78	382.06	6.18	480,106.64	620,833.12	
6,824.00	52.76	311.53	6,654.58	3,654.58	159.35	-372.43	404.75	5.33	480,122.35	620,815.47	
6,856.00	55.49	310.42	6,673.33	3,673.33	176.35	-392.01	429.74	8.98	480,139.35	620,795.89	
6,887.00	58.56	309.18	6,690.20	3,690.20	192.99	-411.99	454.94	10.46	480,155.99	620,775.91	
6,918.00	61.82	308.48	6,705.61	3,705.61	209.85	-432.94	481.11	10.70	480,172.85	620,754.96	
6,949.00	63.58	308.13	6,719.83	3,719.83	226.92	-454.56	507.97	5.77	480,189.92	620,733.34	
6,979.00	66.13	308.31	6,732.58	3,732.58	243.72	-475.89	534.46	8.52	480,206.72	620,712.01	
7,010.00	67.88	308.39	6,744.69	3,744.69	261.43	-498.27	562.28	5.65	480,224.43	620,689.63	
7,041.00	70.26	307.95	6,755.76	3,755.76	279.32	-521.03	590.53	7.79	480,242.32	620,666.87	
7,072.00	72.19	308.04	6,765.74	3,765.74	297.39	-544.16	619.18	6.23	480,260.39	620,643.74	
7,103.00	74.30	307.52	6,774.67	3,774.67	315.57	-567.62	648.18	6.99	480,278.57	620,620.28	
7,134.00	75.97	308.13	6,782.62	3,782.62	333.95	-591.29	677.45	5.71	480,296.95	620,596.61	



Pathfinder
Pathfinder X & Y Survey Report



Company: XTO
Project: Eddy County
Site: Nash Unit #39H
Well: Nash Unit #39H
Wellbore: OH
Design: OH

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

Well Nash Unit #39H
WELL @ 3000.00ft (Norton #2- 17' RKB)
WELL @ 3000.00ft (Norton #2- 17' RKB)
Grid
Minimum Curvature
Midland Database

Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,166.00	77.03	308.13	6,790.09	3,790.09	353.16	-615.76	707.82	3.31	480,316.16	620,572.14
7,197.00	78.61	308.39	6,796.64	3,796.64	371.92	-639.55	737.37	5.16	480,334.92	620,548.35
7,227.00	80.02	308.13	6,802.20	3,802.20	390.18	-662.70	766.12	4.78	480,353.18	620,525.20
7,258.00	82.48	308.57	6,806.91	3,806.91	409.19	-686.73	795.99	8.06	480,372.19	620,501.17
7,289.00	84.15	308.57	6,810.52	3,810.52	428.38	-710.80	825.98	5.39	480,391.38	620,477.10
7,320.00	86.00	308.66	6,813.18	3,813.18	447.66	-734.93	856.06	5.97	480,410.66	620,452.97
7,350.00	89.34	309.36	6,814.40	3,814.40	466.52	-758.22	885.20	11.37	480,429.52	620,429.68
7,455.00	93.12	310.06	6,812.15	3,812.15	533.58	-838.96	986.95	3.66	480,496.58	620,348.94
7,486.00	91.71	309.98	6,810.84	3,810.84	553.49	-862.68	1,016.93	4.56	480,516.49	620,325.22
7,518.00	91.71	310.86	6,809.89	3,809.89	574.23	-887.03	1,047.84	2.75	480,537.23	620,300.87
7,550.00	92.42	310.24	6,808.73	3,808.73	595.02	-911.33	1,078.72	2.94	480,558.02	620,276.57
7,581.00	92.51	310.24	6,807.40	3,807.40	615.03	-934.97	1,108.67	0.29	480,578.03	620,252.93
7,613.00	89.78	309.54	6,806.76	3,806.76	635.55	-959.52	1,139.66	8.81	480,598.55	620,228.38
7,645.00	87.58	309.10	6,807.50	3,807.50	655.82	-984.27	1,170.72	7.01	480,618.82	620,203.63
7,677.00	88.02	309.45	6,808.73	3,808.73	676.06	-1,009.02	1,201.78	1.76	480,639.06	620,178.88
7,708.00	88.55	309.71	6,809.66	3,809.66	695.80	-1,032.90	1,231.83	1.90	480,658.80	620,155.00
7,740.00	88.99	309.80	6,810.34	3,810.34	716.26	-1,057.50	1,262.84	1.40	480,679.26	620,130.40
7,771.00	89.52	310.06	6,810.75	3,810.75	736.16	-1,081.27	1,292.86	1.90	480,699.16	620,106.63
7,803.00	88.90	309.18	6,811.19	3,811.19	756.56	-1,105.91	1,323.89	3.36	480,719.56	620,081.99
7,835.00	88.81	308.22	6,811.83	3,811.83	776.56	-1,130.88	1,355.04	3.01	480,739.56	620,057.02
7,866.00	87.49	307.87	6,812.83	3,812.83	795.66	-1,155.28	1,385.28	4.41	480,758.66	620,032.62
7,898.00	88.20	308.22	6,814.03	3,814.03	815.37	-1,180.46	1,416.49	2.47	480,778.37	620,007.44
7,930.00	87.76	307.08	6,815.16	3,815.16	834.90	-1,205.78	1,447.76	3.82	480,797.90	619,982.12
7,961.00	88.20	307.43	6,816.25	3,816.25	853.65	-1,230.44	1,478.09	1.81	480,816.65	619,957.46
7,993.00	89.34	308.22	6,816.94	3,816.94	873.27	-1,255.71	1,509.34	4.33	480,836.27	619,932.19
8,024.00	91.10	309.10	6,816.82	3,816.82	892.64	-1,279.92	1,539.53	6.35	480,855.64	619,907.98
8,056.00	91.80	309.54	6,816.01	3,816.01	912.91	-1,304.67	1,570.59	2.58	480,875.91	619,883.23



Pathfinder
Pathfinder X & Y Survey Report



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Site: Nash Unit #39H
Well: Nash Unit #39H
Wellbore: OH
Design: OH

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TVD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	D Leg (°/100ft)	Northing (ft)	Easting (ft)	
8,088.00	91.87	309.18	6,814.98	3,814.98	933.19	-1,329.39	1,601.64	1.15	480,896.19	619,858.51	
8,120.00	91.45	309.10	6,814.06	3,814.06	953.38	-1,354.20	1,632.73	1.34	480,916.38	619,833.70	
8,152.00	90.66	308.13	6,813.47	3,813.47	973.35	-1,379.20	1,663.88	3.91	480,936.35	619,808.70	
8,183.00	90.92	308.04	6,813.04	3,813.04	992.47	-1,403.60	1,694.14	0.89	480,955.47	619,784.30	
8,215.00	91.10	307.95	6,812.48	3,812.48	1,012.16	-1,428.81	1,725.37	0.63	480,975.16	619,759.09	
8,247.00	91.63	308.13	6,811.71	3,811.71	1,031.88	-1,454.01	1,756.60	1.75	480,994.88	619,733.89	
8,278.00	91.89	307.87	6,810.76	3,810.76	1,050.95	-1,478.43	1,786.85	1.19	481,013.95	619,709.47	
8,310.00	91.89	307.95	6,809.71	3,809.71	1,070.60	-1,503.66	1,818.09	0.25	481,033.60	619,684.24	
8,341.00	91.01	307.52	6,808.92	3,808.92	1,089.57	-1,528.17	1,848.37	3.16	481,052.57	619,659.73	
8,373.00	91.45	307.25	6,808.24	3,808.24	1,109.00	-1,553.59	1,879.68	1.61	481,072.00	619,634.31	
8,405.00	91.80	307.34	6,807.33	3,807.33	1,128.38	-1,579.03	1,910.99	1.13	481,091.38	619,608.87	
8,436.00	91.36	306.37	6,806.47	3,806.47	1,146.96	-1,603.83	1,941.37	3.43	481,109.96	619,584.07	
8,468.00	90.48	305.93	6,805.96	3,805.96	1,165.84	-1,629.67	1,972.82	3.07	481,128.84	619,558.23	
8,499.00	90.13	304.26	6,805.79	3,805.79	1,183.66	-1,655.03	2,003.38	5.50	481,146.66	619,532.87	
8,531.00	90.66	304.17	6,805.57	3,805.57	1,201.65	-1,681.49	2,035.01	1.68	481,164.65	619,506.41	
8,563.00	90.66	304.00	6,805.20	3,805.20	1,219.59	-1,707.99	2,066.65	0.53	481,182.59	619,479.91	
8,594.00	90.57	303.30	6,804.87	3,804.87	1,236.76	-1,733.79	2,097.34	2.28	481,199.76	619,454.11	
8,625.00	89.96	302.42	6,804.73	3,804.73	1,253.58	-1,759.83	2,128.08	3.45	481,216.58	619,428.07	
8,657.00	91.28	304.17	6,804.38	3,804.38	1,271.15	-1,786.58	2,159.78	6.85	481,234.15	619,401.32	
8,689.00	90.92	301.63	6,803.77	3,803.77	1,288.52	-1,813.44	2,191.51	8.02	481,251.52	619,374.46	
8,720.00	91.89	303.56	6,803.01	3,803.01	1,305.22	-1,839.55	2,222.26	6.97	481,268.22	619,348.35	
8,752.00	91.54	303.03	6,802.05	3,802.05	1,322.77	-1,866.28	2,253.95	1.98	481,285.77	619,321.62	
8,783.00	92.77	303.21	6,800.88	3,800.88	1,339.70	-1,892.23	2,284.65	4.01	481,302.70	619,295.67	
8,815.00	92.15	303.12	6,799.51	3,799.51	1,357.19	-1,918.99	2,316.34	1.96	481,320.19	619,268.91	
8,846.00	91.19	302.24	6,798.61	3,798.61	1,373.92	-1,945.07	2,347.08	4.20	481,336.92	619,242.83	
8,878.00	90.22	301.36	6,798.21	3,798.21	1,390.78	-1,972.26	2,378.88	4.09	481,353.78	619,215.64	
8,910.00	90.48	301.54	6,798.02	3,798.02	1,407.48	-1,999.56	2,410.71	0.99	481,370.48	619,188.34	



Pathfinder
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Site: Nash Unit #39H
Well: Nash Unit #39H
Wellbore: OH
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TVD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
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Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
8,941.00	90.66	300.31	6,797.71	3,797.71	1,423.41	-2,026.15	2,441.57	4.01	481,386.41	619,161.75	
8,973.00	90.66	298.81	6,797.34	3,797.34	1,439.19	-2,053.99	2,473.49	4.69	481,402.19	619,133.91	
9,005.00	89.43	295.83	6,797.32	3,797.32	1,453.88	-2,082.41	2,505.47	10.07	481,416.88	619,105.49	
9,036.00	90.40	294.95	6,797.36	3,797.36	1,467.17	-2,110.42	2,536.46	4.22	481,430.17	619,077.48	
9,061.00	90.84	294.60	6,797.09	3,797.09	1,477.65	-2,133.11	2,561.46	2.25	481,440.65	619,054.79	
9,099.00	91.80	292.22	6,796.22	3,796.22	1,492.74	-2,167.97	2,599.42	6.75	481,455.74	619,019.93	
9,131.00	89.60	287.65	6,795.83	3,795.83	1,503.64	-2,198.05	2,631.26	15.85	481,466.64	618,989.85	
9,163.00	89.08	285.02	6,796.19	3,796.19	1,512.64	-2,228.75	2,662.85	8.38	481,475.64	618,959.15	
9,194.00	89.69	284.51	6,796.53	3,796.53	1,520.54	-2,258.72	2,693.30	2.56	481,483.54	618,929.18	
9,227.00	90.48	283.61	6,796.48	3,796.48	1,528.56	-2,290.73	2,725.64	3.63	481,491.56	618,897.17	
9,257.00	90.92	283.94	6,796.11	3,796.11	1,535.70	-2,319.87	2,755.02	1.83	481,498.70	618,868.03	
9,288.00	91.01	284.00	6,795.59	3,795.59	1,543.18	-2,349.95	2,785.39	0.35	481,506.18	618,837.95	
9,320.00	90.84	284.14	6,795.07	3,795.07	1,550.96	-2,380.98	2,816.75	0.69	481,513.96	618,806.92	
9,352.00	90.84	283.05	6,794.60	3,794.60	1,558.48	-2,412.08	2,848.06	3.41	481,521.48	618,775.82	
9,384.00	90.84	284.17	6,794.13	3,794.13	1,566.01	-2,443.18	2,879.36	3.50	481,529.01	618,744.72	
9,415.00	90.66	284.22	6,793.73	3,793.73	1,573.61	-2,473.23	2,909.76	0.60	481,536.61	618,714.67	
9,447.00	90.57	284.47	6,793.38	3,793.38	1,581.54	-2,504.23	2,941.15	0.83	481,544.54	618,683.67	
9,478.00	90.66	284.80	6,793.05	3,793.05	1,589.37	-2,534.22	2,971.60	1.10	481,552.37	618,653.68	
9,510.00	90.75	285.58	6,792.66	3,792.66	1,597.76	-2,565.10	3,003.08	2.45	481,560.76	618,622.80	
9,542.00	90.75	286.24	6,792.24	3,792.24	1,606.53	-2,595.88	3,034.63	2.06	481,569.53	618,592.02	
9,574.00	90.75	286.28	6,791.82	3,791.82	1,615.49	-2,626.59	3,066.21	0.12	481,578.49	618,561.31	
9,605.00	90.84	286.61	6,791.39	3,791.39	1,624.26	-2,656.32	3,096.82	1.10	481,587.26	618,531.58	
9,637.00	91.63	286.81	6,790.70	3,790.70	1,633.46	-2,686.96	3,128.44	2.55	481,596.46	618,500.94	
9,668.00	92.33	287.46	6,789.63	3,789.63	1,642.59	-2,716.57	3,159.09	3.08	481,605.59	618,471.33	
9,700.00	92.24	287.56	6,788.35	3,788.35	1,652.21	-2,747.06	3,190.75	0.42	481,615.21	618,440.84	
9,732.00	91.89	287.11	6,787.20	3,787.20	1,661.74	-2,777.59	3,222.41	1.78	481,624.74	618,410.31	
9,764.00	90.75	287.59	6,786.46	3,786.46	1,671.28	-2,808.12	3,254.08	3.87	481,634.28	618,379.78	



Pathfinder
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MD Reference: WELL @ 3000.00ft (Norton #2- 17' RKB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
9,795.00	90.66	287.72	6,786.08	3,786.08	1,680.68	-2,837.66	3,284.78	0.51	481,643.68	618,350.24	
9,827.00	91.10	287.45	6,785.59	3,785.59	1,690.35	-2,868.16	3,316.47	1.81	481,653.35	618,319.74	
9,858.00	91.36	287.47	6,784.93	3,784.93	1,699.65	-2,897.73	3,347.16	0.84	481,662.65	618,290.17	
9,890.00	90.84	286.29	6,784.31	3,784.31	1,708.94	-2,928.34	3,378.79	4.03	481,671.94	618,259.56	
9,921.00	89.25	287.15	6,784.29	3,784.29	1,717.85	-2,958.03	3,409.43	5.83	481,680.85	618,229.87	
9,953.00	89.69	287.93	6,784.58	3,784.58	1,727.50	-2,988.54	3,441.12	2.80	481,690.50	618,199.36	
9,984.00	89.34	287.55	6,784.85	3,784.85	1,736.94	-3,018.07	3,471.83	1.67	481,699.94	618,169.83	
10,016.00	89.69	288.00	6,785.12	3,785.12	1,746.71	-3,048.54	3,503.54	1.78	481,709.71	618,139.36	
10,048.00	90.04	287.99	6,785.19	3,785.19	1,756.60	-3,078.97	3,535.27	1.09	481,719.60	618,108.93	
10,079.00	90.31	288.13	6,785.10	3,785.10	1,766.21	-3,108.44	3,566.01	0.98	481,729.21	618,079.46	
10,111.00	90.66	287.80	6,784.83	3,784.83	1,776.08	-3,138.88	3,597.73	1.50	481,739.08	618,049.02	
10,143.00	90.31	288.59	6,784.55	3,784.55	1,786.07	-3,169.28	3,629.47	2.70	481,749.07	618,018.62	
10,174.00	89.34	289.12	6,784.65	3,784.65	1,796.09	-3,198.62	3,660.26	3.57	481,759.09	617,989.28	
10,206.00	89.52	289.72	6,784.97	3,784.97	1,806.73	-3,228.80	3,692.08	1.96	481,769.73	617,959.10	
10,238.00	90.13	289.37	6,785.07	3,785.07	1,817.43	-3,258.95	3,723.91	2.20	481,780.43	617,928.95	
10,270.00	90.40	289.77	6,784.92	3,784.92	1,828.15	-3,289.10	3,755.73	1.51	481,791.15	617,898.80	
10,301.00	91.19	290.72	6,784.49	3,784.49	1,838.88	-3,318.18	3,786.60	3.99	481,801.88	617,869.72	
10,333.00	92.15	291.31	6,783.55	3,783.55	1,850.35	-3,348.04	3,818.49	3.52	481,813.35	617,839.86	
10,364.00	91.54	291.16	6,782.56	3,782.56	1,861.57	-3,376.92	3,849.39	2.03	481,824.57	617,810.98	
10,395.00	91.10	291.53	6,781.84	3,781.84	1,872.85	-3,405.79	3,880.30	1.85	481,835.85	617,782.11	
10,427.00	89.52	291.67	6,781.67	3,781.67	1,884.63	-3,435.54	3,912.22	4.96	481,847.63	617,752.36	
10,458.00	89.34	291.58	6,781.98	3,781.98	1,896.05	-3,464.36	3,943.15	0.65	481,859.05	617,723.54	
10,490.00	89.52	291.51	6,782.30	3,782.30	1,907.80	-3,494.12	3,975.07	0.60	481,870.80	617,693.78	
10,522.00	89.87	292.14	6,782.47	3,782.47	1,919.70	-3,523.82	4,007.00	2.25	481,882.70	617,664.08	
10,553.00	89.43	291.78	6,782.66	3,782.66	1,931.29	-3,552.57	4,037.94	1.83	481,894.29	617,635.33	
10,585.00	89.60	291.65	6,782.93	3,782.93	1,943.13	-3,582.30	4,069.87	0.67	481,906.13	617,605.60	
10,617.00	89.78	291.85	6,783.10	3,783.10	1,954.99	-3,612.02	4,101.80	0.84	481,917.99	617,575.88	



Pathfinder
Pathfinder X & Y Survey Report



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Database: Midland Database

Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,647.00	89.87	290.73	6,783.19	3,783.19	1,965.88	-3,639.98	4,131.72	3.75	481,928.88	617,547.92
10,679.00	90.40	291.17	6,783.12	3,783.12	1,977.32	-3,669.86	4,163.62	2.15	481,940.32	617,518.04
10,711.00	91.28	291.78	6,782.65	3,782.65	1,989.04	-3,699.64	4,195.54	3.35	481,952.04	617,488.26
10,742.00	92.42	292.40	6,781.65	3,781.65	2,000.69	-3,728.34	4,226.47	4.19	481,963.69	617,459.56
10,774.00	92.68	292.13	6,780.22	3,780.22	2,012.80	-3,757.93	4,258.38	1.17	481,975.80	617,429.97
10,806.00	91.54	290.38	6,779.04	3,779.04	2,024.39	-3,787.73	4,290.27	6.52	481,987.39	617,400.17
10,837.00	90.66	288.09	6,778.45	3,778.45	2,034.60	-3,816.99	4,321.08	7.91	481,997.60	617,370.91
10,869.00	88.90	287.04	6,778.57	3,778.57	2,044.26	-3,847.50	4,352.77	6.40	482,007.26	617,340.40
10,901.00	86.79	285.54	6,779.78	3,779.78	2,053.23	-3,878.19	4,384.33	8.09	482,016.23	617,309.71
10,932.00	86.97	285.63	6,781.46	3,781.46	2,061.54	-3,908.00	4,414.83	0.65	482,024.54	617,279.90
10,964.00	87.58	285.89	6,782.98	3,782.98	2,070.23	-3,938.77	4,446.33	2.07	482,033.23	617,249.13
10,996.00	88.20	285.37	6,784.16	3,784.16	2,078.84	-3,969.56	4,477.83	2.53	482,041.84	617,218.34
11,027.00	88.99	285.81	6,784.92	3,784.92	2,087.17	-3,999.41	4,508.36	2.92	482,050.17	617,188.49
11,059.00	88.55	285.28	6,785.61	3,785.61	2,095.74	-4,030.23	4,539.87	2.15	482,058.74	617,157.67
11,090.00	89.34	284.75	6,786.18	3,786.18	2,103.77	-4,060.17	4,570.35	3.07	482,066.77	617,127.73
11,122.00	90.04	284.31	6,786.35	3,786.35	2,111.80	-4,091.15	4,601.76	2.58	482,074.80	617,096.75
11,154.00	90.84	283.52	6,786.11	3,786.11	2,119.50	-4,122.21	4,633.11	3.51	482,082.50	617,065.69
11,185.00	91.63	283.52	6,785.44	3,785.44	2,126.74	-4,152.34	4,663.43	2.55	482,089.74	617,035.56
11,217.00	91.98	284.05	6,784.43	3,784.43	2,134.36	-4,183.40	4,694.74	1.98	482,097.36	617,004.50
11,249.00	90.57	283.78	6,783.72	3,783.72	2,142.06	-4,214.46	4,726.08	4.49	482,105.06	616,973.44
11,281.00	90.31	283.70	6,783.47	3,783.47	2,149.66	-4,245.54	4,757.41	0.85	482,112.66	616,942.36
11,353.00	90.31	283.70	6,783.08	3,783.08	2,166.71	-4,315.49	4,827.89	0.00	482,129.71	616,872.41
BHL-11353.00°MD,90.31°INC,283.70°AZI, 6783.08°TVD, 4827.89°VS, 2166.71°N, -4315.49°E										



Pathfinder
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Survey Calculation Method: Minimum Curvature
Database: Midland Database

Targets

Target Name	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Nash39(4350'VS) - hit/miss target - Shape - Point	0.00	0.00	6,741.00	2,188.68	-3,774.99	482,151.680	617,412.910	32° 19' 29.923 N	103° 57' 11.628 W
- survey misses target center by 163.85ft at 10843.31ft MD (6778.40 TVD, 2036.55 N, -3823.00 E)									
Nash39(5833'VS) - survey misses target center by 1011.85ft at 11353.00ft MD (6783.08 TVD, 2166.71 N, -4315.49 E) - Point	0.00	0.00	6,720.00	2,511.52	-5,264.68	482,474.520	615,923.220	32° 19' 33.170 N	103° 57' 28.976 W
Nash39 TGT(1265'VS) - survey misses target center by 38.99ft at 7748.27ft MD (6810.48 TVD, 721.56 N, -1063.85 E) - Point	0.00	0.00	6,779.00	739.46	-1,049.40	480,702.460	620,138.500	32° 19' 15.485 N	103° 56' 39.925 W
Nash39(3250'VS) - survey misses target center by 299.07ft at 9712.23ft MD (6787.89 TVD, 1655.88 N, -2758.72 E) - Point	0.00	0.00	6,754.00	1,939.16	-2,669.02	481,902.160	618,518.880	32° 19' 27.415 N	103° 56' 58.749 W
Nash39(3633'VS) - survey misses target center by 54.74ft at 10141.59ft MD (6784.56 TVD, 1785.62 N, -3167.94 E) - Point	0.00	0.00	6,750.00	1,825.85	-3,154.41	481,788.850	618,033.490	32° 19' 26.310 N	103° 57' 4.411 W
Target 4 (Nash #39) - survey misses target center by 106.60ft at 8952.55ft MD (6797.58 TVD, 1429.19 N, -2036.15 E) - Point	0.00	0.00	6,764.00	1,517.00	-1,985.90	481,480.000	619,202.000	32° 19' 23.213 N	103° 56' 50.806 W
Nash39(3300'VS) - survey misses target center by 33.82ft at 9809.87ft MD (6785.88 TVD, 1685.19 N, -2851.83 E) - Point	0.00	0.00	6,754.00	1,695.77	-2,847.96	481,658.770	618,339.940	32° 19' 25.012 N	103° 57' 0.845 W
PBHL(Nash #39) - survey misses target center by 1042.31ft at 11353.00ft MD (6783.08 TVD, 2166.71 N, -4315.49 E) - Point	0.00	0.00	6,716.00	2,358.00	-5,337.90	482,321.000	615,850.000	32° 19' 31.653 N	103° 57' 29.835 W
Nash39(2000) - survey misses target center by 37.06ft at 8499.04ft MD (6805.79 TVD, 1183.68 N, -1655.06 E) - Point	0.00	0.00	6,772.00	1,196.12	-1,648.32	481,159.120	619,541.580	32° 19' 20.025 N	103° 56' 46.862 W



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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey Annotations:

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,353.00	6,783.08	2,166.71	-4,315.49	BHL-11353.00'MD,90.31°INC,283.70°AZI, 6783.08'TVD, 4827.89°VS, 2

Checked By: _____ Approved By: _____ Date: _____