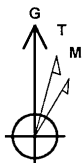


30-015-30070



Project: Eddy County
 Site: Thurman Draw Unit
 Well: #1H
 Wellbore: OH
 Plan: Plan #3 (#1H/OH)



Azimuths to Grid North
 True North: 0.15°
 Magnetic North: 8.25°

Magnetic Field
 Strength: 48437.9nT
 Dip Angle: 59.85°
 Date: 11/16/2010
 Model: IGRF2010

PATHFINDER

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 West(-)/East(+) (200 ft/in)

PROJECT DETAILS: Eddy County
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level
 Local North: Grid

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Target
1	3594.00	1.65	41.55	3593.67	23.72	12.11	0.00	0.00	-24.03	
2	4171.36	89.03	181.82	3868.00	-336.38	7.43	15.64	140.28	336.06	
3	7296.75	89.03	181.82	4020.91	-3459.74	-91.82	0.00	0.00	3460.96	PBHL#2(TDU#1)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PBHL(TDU#1)	3875.00	5904.97	13.45	385502.907	455693.023	Point
PBHL#2(TDU#1)	4020.91	-3459.74	-91.82	376136.197	455687.657	Point

WELL DETAILS: #1H

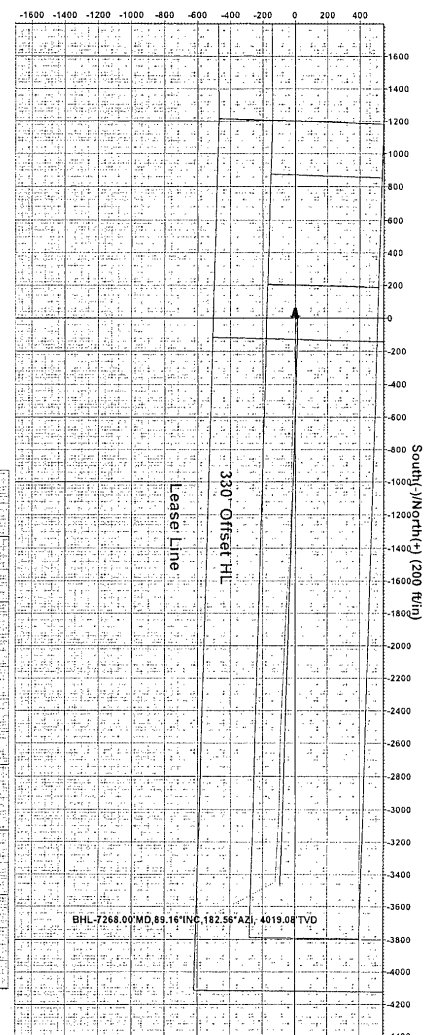
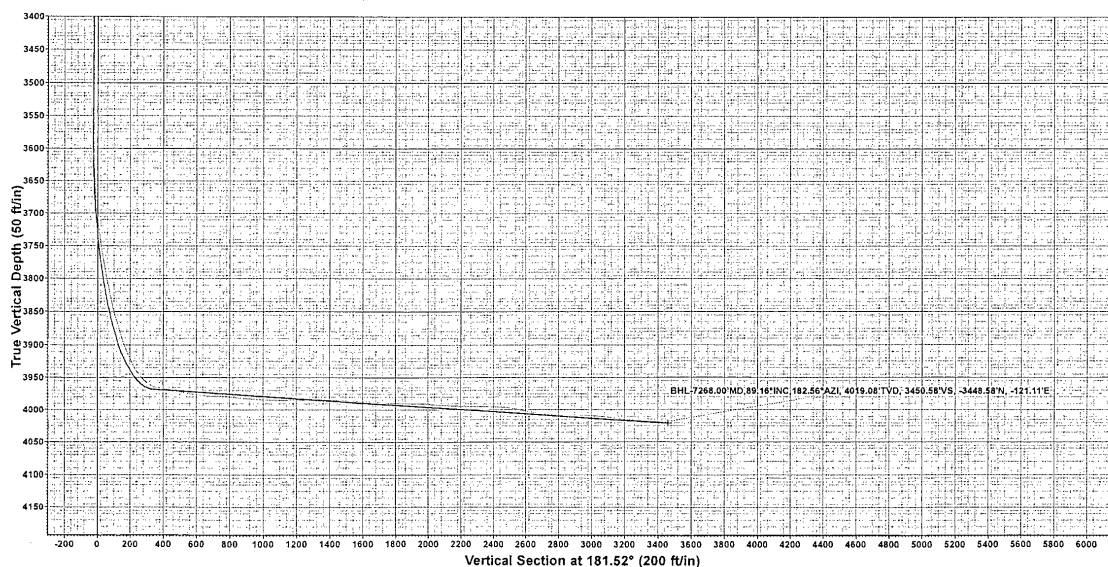
Ground Elevation: 4341.00
 RKB Elevation: WELL @ 4359.50ft (18.5' KB Correction)
 Rig Name: 18.5' KB Correction

+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	379597.941	455679.577	32° 2' 35.856 N	104° 36' 35.242 W	

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Yates Petroleum Corp.

Eddy County
Thurman Draw Unit
#1H
OH

Survey: MWD #1

Pathfinder X & Y Survey Report

29 November, 2010

PATHFINDER[®]
A Schlumberger Company



Pathfinder
Pathfinder X & Y Survey Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Site:	Thurman Draw Unit	MD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Well:	#1H	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 1983		
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Thurman Draw Unit		
Site Position:		Northing:	379,597.941 ft
From:	Map	Easting:	455,679.577 ft
Position Uncertainty:	0.00 ft	Slot Radius:	"
		Latitude:	32° 2' 35.856 N
		Longitude:	104° 36' 35.242 W
		Grid Convergence:	-0.15 °

Well:	#1H					
Well Position	+N/-S	0.00 ft	Northing:	379,597.941 ft	Latitude:	32° 2' 35.856 N
	+E/-W	0.00 ft	Easting:	455,679.577 ft	Longitude:	104° 36' 35.242 W
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	4,341.00 ft

Wellbore:	OH
-----------	----

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/16/10	8.11	59.85	48,438

Design:	OH
---------	----

Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	181.52



Pathfinder
Pathfinder X & Y Survey Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Site:	Thurman Draw Unit	MD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Survey Program		Date	11/29/10	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
579.00	3,480.00	GYRO (OH)	MWD	MWD - Standard
3,595.00	7,268.00	MWD #1 (OH)	MWD	MWD - Standard

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
3,480.00	1.39	39.49	3,479.71	-879.79	21.37	10.03	-21.63	0.00	379,619.31	455,689.61	
3,595.00	0.70	138.73	3,594.70	-764.80	21.92	11.38	-22.21	1.44	379,619.86	455,690.96	
3,627.00	6.16	177.67	3,626.63	-732.87	20.05	11.58	-20.35	17.60	379,617.99	455,691.16	
3,658.00	12.84	177.55	3,657.19	-702.31	14.94	11.80	-15.25	21.55	379,612.88	455,691.38	
3,690.00	19.61	178.46	3,687.89	-671.61	6.01	12.10	-6.33	21.17	379,603.95	455,691.67	
3,722.00	24.62	182.87	3,717.53	-641.97	-6.02	11.91	5.70	16.48	379,591.92	455,691.48	
3,753.00	28.67	187.17	3,745.24	-614.26	-19.86	10.65	19.57	14.46	379,578.09	455,690.23	
3,785.00	33.33	187.60	3,772.66	-586.84	-36.19	8.53	35.96	14.58	379,561.75	455,688.11	
3,817.00	37.99	186.15	3,798.65	-560.85	-54.71	6.31	54.52	14.80	379,543.23	455,685.89	
3,849.00	42.12	184.74	3,823.14	-536.36	-75.21	4.37	75.06	13.21	379,522.73	455,683.95	
3,880.00	45.55	184.96	3,845.50	-514.00	-96.60	2.55	96.49	11.08	379,501.34	455,682.13	
3,912.00	49.95	185.19	3,867.01	-492.49	-120.18	0.46	120.13	13.76	379,477.76	455,680.03	
3,944.00	54.17	184.06	3,886.68	-472.82	-145.33	-1.57	145.32	13.48	379,452.61	455,678.01	
3,975.00	57.07	182.63	3,904.18	-455.32	-170.87	-3.06	170.89	10.10	379,427.07	455,676.52	
4,007.00	61.29	181.11	3,920.58	-438.92	-198.33	-3.95	198.36	13.80	379,399.61	455,675.63	
4,039.00	66.57	181.79	3,934.63	-424.87	-227.05	-4.68	227.10	16.61	379,370.89	455,674.90	
4,071.00	71.75	181.61	3,946.01	-413.49	-256.94	-5.56	256.99	16.20	379,341.00	455,674.01	
4,102.00	76.06	181.69	3,954.61	-404.89	-286.70	-6.42	286.77	13.91	379,311.24	455,673.16	
4,134.00	80.99	182.04	3,960.97	-398.53	-318.04	-7.44	318.12	15.44	379,279.90	455,672.14	
4,166.00	86.09	182.43	3,964.57	-394.93	-349.80	-8.68	349.91	15.98	379,248.14	455,670.90	
4,198.00	87.93	182.33	3,966.24	-393.26	-381.73	-10.01	381.86	5.76	379,216.21	455,669.57	



Pathfinder
Pathfinder X & Y Survey Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Site:	Thurman Draw Unit	MD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	D Leg (°/100ft)	Northing (ft)	Easting (ft)	
4,259.00	87.14	182.26	3,968.86	-390.64	-442.62	-12.45	442.80	1.30	379,155.32	455,667.13	
4,354.00	86.79	181.25	3,973.89	-385.61	-537.44	-15.35	537.66	1.12	379,060.50	455,664.22	
4,450.00	88.55	181.36	3,977.80	-381.70	-633.33	-17.54	633.58	1.84	378,964.61	455,662.04	
4,545.00	89.96	180.77	3,979.03	-380.47	-728.31	-19.30	728.56	1.61	378,869.63	455,660.27	
4,640.00	88.20	181.11	3,980.56	-378.94	-823.28	-20.86	823.54	1.89	378,774.66	455,658.71	
4,734.00	89.34	180.33	3,982.57	-376.93	-917.25	-22.04	917.51	1.47	378,680.69	455,657.53	
4,830.00	88.99	180.99	3,983.97	-375.53	-1,013.23	-23.15	1,013.49	0.78	378,584.71	455,656.43	
4,925.00	90.13	180.90	3,984.70	-374.80	-1,108.21	-24.72	1,108.48	1.20	378,489.73	455,654.86	
5,020.00	90.22	181.63	3,984.41	-375.09	-1,203.19	-26.81	1,203.48	0.77	378,394.75	455,652.76	
5,115.00	89.96	182.10	3,984.26	-375.24	-1,298.14	-29.91	1,298.47	0.57	378,299.80	455,649.67	
5,210.00	90.04	182.88	3,984.26	-375.24	-1,393.05	-34.03	1,393.46	0.83	378,204.89	455,645.54	
5,305.00	89.34	182.89	3,984.78	-374.72	-1,487.92	-38.81	1,488.43	0.74	378,110.02	455,640.76	
5,400.00	88.90	182.86	3,986.24	-373.26	-1,582.79	-43.58	1,583.39	0.46	378,015.15	455,636.00	
5,495.00	88.90	183.21	3,988.06	-371.44	-1,677.64	-48.61	1,678.34	0.37	377,920.30	455,630.97	
5,590.00	89.52	182.82	3,989.37	-370.13	-1,772.50	-53.60	1,773.30	0.77	377,825.44	455,625.97	
5,685.00	89.96	184.01	3,989.80	-369.70	-1,867.33	-59.26	1,868.24	1.34	377,730.61	455,620.31	
5,780.00	89.08	182.23	3,990.60	-368.90	-1,962.18	-64.43	1,963.20	2.09	377,635.76	455,615.14	
5,875.00	88.90	182.78	3,992.27	-367.23	-2,057.07	-68.58	2,058.17	0.61	377,540.87	455,610.99	
5,974.00	89.25	181.61	3,993.87	-365.63	-2,155.99	-72.37	2,157.15	1.23	377,441.95	455,607.20	
6,068.00	89.78	182.29	3,994.66	-364.84	-2,249.93	-75.57	2,251.14	0.92	377,348.01	455,604.00	
6,161.00	89.60	182.77	3,995.17	-364.33	-2,342.84	-79.68	2,344.13	0.55	377,255.11	455,599.90	
6,254.00	89.60	183.45	3,995.82	-363.68	-2,435.70	-84.72	2,437.09	0.73	377,162.24	455,594.85	
6,347.00	87.14	182.32	3,998.46	-361.04	-2,528.53	-89.40	2,530.01	2.91	377,069.41	455,590.17	
6,440.00	87.05	181.14	4,003.18	-356.32	-2,621.37	-92.21	2,622.89	1.27	376,976.57	455,587.37	
6,535.00	89.16	180.31	4,006.32	-353.18	-2,716.30	-93.41	2,717.82	2.39	376,881.64	455,586.17	
6,627.00	88.99	181.14	4,007.80	-351.70	-2,808.28	-94.57	2,809.80	0.92	376,789.66	455,585.01	
6,720.00	89.78	181.64	4,008.80	-350.70	-2,901.25	-96.83	2,902.80	1.01	376,696.69	455,582.75	



Pathfinder
Pathfinder X & Y Survey Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Site:	Thurman Draw Unit	MD Reference:	WELL @ 4359.50ft (18.5' KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
6,814.00	89.69	182.34	4,009.24	-350.26	-2,995.19	-100.09	2,996.79	0.75	376,602.75	455,579.49
6,908.00	87.93	182.88	4,011.19	-348.31	-3,089.07	-104.37	3,090.75	1.96	376,508.87	455,575.21
7,002.00	88.37	182.65	4,014.22	-345.28	-3,182.91	-108.90	3,184.68	0.53	376,415.03	455,570.67
7,094.00	89.25	182.56	4,016.13	-343.37	-3,274.79	-113.08	3,276.64	0.96	376,323.15	455,566.49
7,188.00	88.72	182.80	4,017.80	-341.70	-3,368.68	-117.48	3,370.61	0.62	376,229.26	455,562.10
7,217.00	89.16	182.56	4,018.33	-341.17	-3,397.64	-118.83	3,399.60	1.73	376,200.30	455,560.74
7,268.00	89.16	182.56	4,019.08	-340.42	-3,448.58	-121.11	3,450.58	0.00	376,149.36	455,558.47
BHL-7268.00°MD,89.16°INC,182.56°AZI, 4019.08°TVD, 3450.58°VS, -3448.58°N, -121.11°E										

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL#2(TDU#1)	0.00	0.00	4,020.91	-3,459.74	-91.72	376,138.197	455,587.857	32° 2' 1.615 N	104° 36' 36.204 W
- survey misses target center by 31.49ft at 7268.00ft MD (4019.08 TVD, -3448.58 N, -121.11 E)									
- Point									
PBHL(TDU#1)	0.00	360.00	3,875.00	5,904.97	13.45	385,502.907	455,693.023	32° 3' 34.293 N	104° 36' 35.261 W
- survey misses target center by 5889.72ft at 3595.00ft MD (3594.70 TVD, 21.92 N, 11.38 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,268.00	4,019.08	-3,448.58	-121.11	BHL-7268.00°MD,89.16°INC,182.56°AZI, 4019.08°TVD, 3450.58°VS, -3-

Checked By: _____ Approved By: _____ Date: _____