



30-015-38335

Devon Energy Production Company, L.P.

Eddy County
Agate PWU "21"
#1H
OH

MOBBS OCD

JUN 02 2011

RECEIVED

Survey: MWD #2

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NMOCD ARTESIA

Pathfinder X & Y Survey Report

28 March, 2011

PATHFINDER

A Schlumberger Company



Pathfinder
Pathfinder X & Y Survey Report



Company:	Devon Energy Production Company, L.P.	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Site:	Agate PWU "21"	MD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Well:	#1H	North Reference:	Grd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Eddy County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Agate PWU "21"				
Site Position:		Northing:	601,019.270 usft	Latitude:	32° 39' 7.230 N
From:	Map	Easting:	617,059.460 usft	Longitude:	104° 5' 14.290 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well	#1H					
Well Position	+N/-S	0.00 usft	Northing:	601,019.270 usft	Latitude:	32° 39' 7.230 N
	+E/-W	0.00 usft	Easting:	617,059.460 usft	Longitude:	104° 5' 14.290 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,322.40 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	02/24/11	7.88	60.52	48,883

Design	OH				
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	87.87	



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Site:	Agate PWU "21"	MD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey Program		Date	03/28/11			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description		
115.75	6,497.50	GYRO (OH)	CT_GYRO_MS	Continuous Gyro Multishot		
6,693.00	7,282.00	MWD (OH)	MWD	MWD - Standard		
7,343.00	12,280.00	MWD #2 (OH)	MWD	MWD - Standard		

MD (usft)	Inc (")	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,282.00	2.02	189.24	7,280.49	-3,940.09	26.87	-85.30	-84.24	0.00	601,046.14	616,974.16
7,343.00	9.15	97.50	7,341.22	-4,000.82	25.17	-80.65	-79.66	15.46	601,044.44	616,978.81
7,375.00	13.00	87.86	7,372.62	-4,032.22	24.97	-74.53	-73.55	13.31	601,044.24	616,984.93
7,407.00	16.36	81.17	7,403.57	-4,063.17	25.80	-66.48	-65.47	11.74	601,045.07	616,992.98
7,439.00	19.87	82.28	7,433.98	-4,093.58	27.22	-56.63	-55.58	11.02	601,046.49	617,002.83
7,471.00	23.04	83.24	7,463.76	-4,123.36	28.69	-45.02	-43.92	9.97	601,047.96	617,014.44
7,503.00	26.82	82.34	7,492.77	-4,152.37	30.39	-31.64	-30.49	11.87	601,049.66	617,027.82
7,535.00	30.78	82.18	7,520.81	-4,180.41	32.47	-16.37	-15.15	12.38	601,051.74	617,043.09
7,567.00	34.21	82.66	7,547.79	-4,207.39	34.73	0.67	1.96	10.75	601,054.00	617,060.13
7,599.00	36.67	83.64	7,573.86	-4,233.46	36.94	19.09	20.45	7.89	601,056.21	617,078.55
7,631.00	39.31	85.03	7,599.08	-4,258.68	38.88	38.69	40.11	8.67	601,058.15	617,098.15
7,663.00	42.38	86.52	7,623.29	-4,282.89	40.41	59.56	61.02	10.06	601,059.68	617,119.02
7,695.00	45.99	88.03	7,646.23	-4,305.83	41.46	81.83	83.32	11.75	601,060.73	617,141.29
7,727.00	48.80	89.08	7,667.89	-4,327.49	42.05	105.37	106.86	9.11	601,061.32	617,164.83
7,759.00	51.35	90.36	7,688.43	-4,348.03	42.16	129.91	131.39	8.54	601,061.43	617,189.37
7,790.00	53.82	90.68	7,707.26	-4,366.86	41.94	154.53	155.98	8.01	601,061.21	617,213.99
7,822.00	57.07	90.59	7,725.41	-4,385.01	41.65	180.88	182.30	10.16	601,060.92	617,240.34
7,853.00	60.59	90.77	7,741.45	-4,401.05	41.33	207.40	208.79	11.37	601,060.60	617,266.86
7,885.00	64.02	90.75	7,756.32	-4,415.92	40.96	235.73	237.08	10.72	601,060.23	617,295.19
7,917.00	66.21	90.84	7,769.78	-4,429.38	40.55	264.75	266.07	6.85	601,059.82	617,324.21



Pathfinder
Pathfinder X & Y Survey Report



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Project:	Eddy County	TVD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Site:	Agate PWU "21"	MD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec. (usft)	DLeg ("/100usft)	Northing (usft)	Easting (usft)
7,949.00	69.64	90 26	7,781.81	-4,441.41	40 27	294.40	295.69	10.85	601,059.54	617,353.86
7,981.00	72.37	89 84	7,792.22	-4,451.82	40 25	324.65	325.92	8.62	601,059.52	617,384.11
8,013.00	75.18	89.91	7,801.16	-4,460.76	40 31	355.37	356.63	8.78	601,059.58	617,414.83
8,045.00	78 00	90.15	7,808.58	-4,468.18	40.30	386.50	387.73	8.84	601,059.57	617,445.96
8,077.00	81.07	90 73	7,814.40	-4,474.00	40.05	417.96	419.16	9.76	601,059.32	617,477.42
8,108.00	83.36	90 73	7,818.60	-4,478.20	39.66	448.67	449.84	7.39	601,058.93	617,508.13
8,138.00	86.35	91 24	7,821.29	-4,480.89	39.15	478.54	479.67	10.11	601,058.42	617,538.00
8,171.00	89.96	91.78	7,822.35	-4,481.95	38.28	511.51	512.58	11.06	601,057.55	617,570.97
8,203.00	90.75	91.88	7,822.15	-4,481.75	37.26	543.49	544.50	2.49	601,056.53	617,602.95
8,235.00	90.75	91.53	7,821.73	-4,481.33	36.31	575.47	576.43	1.09	601,055.58	617,634.93
8,267.00	90.84	91 35	7,821.29	-4,480.89	35.50	607.46	608.36	0.63	601,054.77	617,666.92
8,331.00	90.31	91 52	7,820.64	-4,480.24	33 90	671.44	672.23	0.87	601,053.17	617,730.90
8,395.00	90.57	91 71	7,820.15	-4,479.75	32 10	735.41	736.10	0.50	601,051.37	617,794.87
8,459.00	89 52	91.03	7,820.10	-4,479.70	30 56	799.39	799.97	1.95	601,049.83	617,858.85
8,523.00	89.60	90.58	7,820.59	-4,480.19	29.67	863.38	863.89	0.71	601,048.94	617,922.84
8,587.00	88.99	88 87	7,821.38	-4,480.98	29.97	927.37	927.85	2.84	601,049.24	617,986.83
8,651.00	89.52	88.65	7,822.21	-4,481.81	31.36	991.35	991.83	0.90	601,050.63	618,050.81
8,713.00	89.87	88.29	7,822.54	-4,482.14	33 01	1,053.33	1,053.83	0.81	601,052.28	618,112.79
8,778.00	90.48	88.48	7,822.34	-4,481.94	34 84	1,118.30	1,118.83	0.98	601,054.11	618,177.76
8,840.00	88.99	88.74	7,822.63	-4,482.23	36 35	1,180.28	1,180.82	2.44	601,055.62	618,239.74
8,904.00	89.52	88.66	7,823.46	-4,483.06	37 80	1,244.26	1,244.81	0.84	601,057.07	618,303.72
8,969.00	89.78	88.37	7,823.86	-4,483.46	39.49	1,309.24	1,309.80	0.60	601,058.76	618,368.70
9,033.00	90.04	88 14	7,823.96	-4,483.56	41.43	1,373.21	1,373.80	0.54	601,060.70	618,432.67
9,097.00	90.57	88.29	7,823.62	-4,483.22	43.43	1,437.18	1,437.80	0.86	601,062.70	618,496.64
9,161.00	90 84	87 40	7,822.83	-4,482.43	45.83	1,501.13	1,501.79	1.45	601,065.10	618,560.59
9,225.00	91.01	87.14	7,821.80	-4,481.40	48 88	1,565.04	1,565.78	0.49	601,068.15	618,624.50
9,289.00	90 48	87.34	7,820.97	-4,480.57	51.96	1,628.96	1,629.77	0.89	601,071.23	618,688.42



Pathfinder
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Site:	Agate PWU "21"	MD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,353.00	91.10	87.43	7,820.09	-4,479.69	54.88	1,692.89	1,693.76	0.98	601,074.15	618,752.35
9,417.00	89.78	87.26	7,819.59	-4,479.19	57.85	1,756.82	1,757.76	2.08	601,077.12	618,816.28
9,480.00	88.46	86.92	7,820.56	-4,480.16	61.05	1,819.73	1,820.74	2.16	601,080.32	618,879.19
9,544.00	88.64	86.99	7,822.18	-4,481.78	64.44	1,883.62	1,884.71	0.30	601,083.71	618,943.08
9,607.00	89.16	86.78	7,823.39	-4,482.99	67.87	1,946.51	1,947.69	0.89	601,087.14	619,005.97
9,669.00	89.69	87.07	7,824.01	-4,483.61	71.19	2,008.42	2,009.68	0.97	601,090.46	619,067.88
9,730.00	90.22	86.87	7,824.06	-4,483.66	74.42	2,069.34	2,070.67	0.93	601,093.69	619,128.80
9,792.00	90.66	87.27	7,823.58	-4,483.18	77.59	2,131.25	2,132.66	0.96	601,096.86	619,190.71
9,854.00	89.34	86.61	7,823.58	-4,483.18	80.90	2,193.16	2,194.65	2.38	601,100.17	619,252.62
9,916.00	89.60	86.54	7,824.16	-4,483.76	84.60	2,255.05	2,256.63	0.43	601,103.87	619,314.51
9,978.00	89.96	86.47	7,824.40	-4,484.00	88.38	2,316.93	2,318.62	0.59	601,107.65	619,376.39
10,039.00	90.22	85.80	7,824.30	-4,483.90	92.49	2,377.79	2,379.59	1.18	601,111.76	619,437.25
10,103.00	90.40	85.91	7,823.95	-4,483.55	97.12	2,441.62	2,443.55	0.33	601,116.39	619,501.08
10,167.00	89.34	85.80	7,824.10	-4,483.70	101.74	2,505.46	2,507.51	1.67	601,121.01	619,564.92
10,230.00	89.52	85.35	7,824.73	-4,484.33	106.60	2,568.27	2,570.45	0.77	601,125.87	619,627.73
10,292.00	89.87	85.59	7,825.06	-4,484.66	111.50	2,630.07	2,632.40	0.68	601,130.77	619,689.53
10,353.00	89.78	86.74	7,825.24	-4,484.84	115.58	2,690.93	2,693.37	1.89	601,134.85	619,750.39
10,416.00	89.96	86.56	7,825.39	-4,484.99	119.26	2,753.82	2,756.35	0.40	601,138.53	619,813.28
10,478.00	88.72	86.54	7,826.10	-4,485.70	122.99	2,815.71	2,818.33	2.00	601,142.26	619,875.17
10,540.00	87.05	86.72	7,828.39	-4,487.99	126.63	2,877.56	2,880.27	2.71	601,145.90	619,937.02
10,602.00	86.70	87.19	7,831.77	-4,491.37	129.92	2,939.38	2,942.17	0.94	601,149.19	619,998.84
10,664.00	86.79	87.22	7,835.29	-4,494.89	132.94	3,001.20	3,004.07	0.15	601,152.21	620,060.66
10,725.00	87.05	87.29	7,838.57	-4,498.17	135.86	3,062.04	3,064.98	0.44	601,155.13	620,121.50
10,787.00	86.88	87.52	7,841.85	-4,501.45	138.66	3,123.89	3,126.89	0.46	601,157.93	620,183.35
10,850.00	87.05	87.52	7,845.18	-4,504.78	141.38	3,186.75	3,189.80	0.27	601,160.65	620,246.21
10,911.00	87.14	86.71	7,848.28	-4,507.88	144.45	3,247.59	3,250.71	1.33	601,163.72	620,307.05
10,973.00	87.14	86.64	7,851.37	-4,510.97	148.04	3,309.41	3,312.62	0.11	601,167.31	620,368.87



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Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,035.00	87.14	86.25	7,854.46	-4,514.06	151.88	3,371.21	3,374.53	0.63	601,171.15	620,430.67
11,096.00	87.23	85.81	7,857.46	-4,517.06	156.10	3,431.99	3,435.42	0.74	601,175.37	620,491.45
11,158.00	86.53	86.20	7,860.83	-4,520.43	160.41	3,493.75	3,497.30	1.29	601,179.68	620,553.21
11,219.00	87.23	86.19	7,864.15	-4,523.75	164.45	3,554.52	3,558.18	1.15	601,183.72	620,613.98
11,281.00	87.41	85.99	7,867.05	-4,526.65	168.68	3,616.31	3,620.08	0.43	601,187.95	620,675.77
11,343.00	87.58	85.95	7,869.76	-4,529.36	173.03	3,678.10	3,681.99	0.28	601,192.30	620,737.56
11,404.00	88.29	85.67	7,871.96	-4,531.56	177.48	3,738.90	3,742.91	1.25	601,196.75	620,798.36
11,466.00	89.08	85.33	7,873.38	-4,532.98	182.35	3,800.69	3,804.84	1.39	601,201.62	620,860.15
11,527.00	89.69	85.27	7,874.04	-4,533.64	187.35	3,861.48	3,865.77	1.00	601,206.62	620,920.94
11,589.00	90.13	84.46	7,874.13	-4,533.73	192.89	3,923.23	3,927.69	1.49	601,212.16	620,982.69
11,650.00	90.84	85.11	7,873.62	-4,533.22	198.44	3,983.97	3,988.60	1.58	601,217.71	621,043.43
11,711.00	91.10	85.17	7,872.59	-4,532.19	203.61	4,044.75	4,049.52	0.44	601,222.88	621,104.21
11,773.00	91.01	85.93	7,871.44	-4,531.04	208.42	4,106.55	4,111.46	1.23	601,227.69	621,166.01
11,835.00	91.19	85.77	7,870.25	-4,529.85	212.90	4,168.37	4,173.41	0.39	601,232.17	621,227.83
11,865.00	91.01	86.17	7,869.68	-4,529.28	215.01	4,198.30	4,203.39	1.46	601,234.28	621,257.76
11,896.00	91.19	86.07	7,869.08	-4,528.68	217.11	4,229.22	4,234.37	0.66	601,236.38	621,288.68
11,958.00	91.19	85.97	7,867.79	-4,527.39	221.41	4,291.06	4,296.32	0.16	601,240.68	621,350.52
12,020.00	90.92	87.23	7,866.65	-4,526.25	225.09	4,352.93	4,358.29	2.08	601,244.36	621,412.39
12,081.00	89.96	87.75	7,866.18	-4,525.78	227.76	4,413.87	4,419.29	1.79	601,247.03	621,473.33
12,112.00	90.04	87.76	7,866.18	-4,525.78	228.97	4,444.85	4,450.29	0.26	601,248.24	621,504.31
12,143.00	89.87	88.06	7,866.21	-4,525.81	230.10	4,475.83	4,481.29	1.11	601,249.37	621,535.29
12,174.00	88.99	88.13	7,866.52	-4,526.12	231.13	4,506.81	4,512.29	2.85	601,250.40	621,566.27
12,204.00	88.90	87.99	7,867.07	-4,526.67	232.15	4,536.79	4,542.28	0.55	601,251.42	621,596.25
12,280.00	88.90	87.99	7,868.53	-4,528.13	234.81	4,612.73	4,618.27	0.00	601,254.08	621,672.19
BHL-12280.00°MD,88.90°INC,87.99°AZI, 7868.53°TVD, 4618.27°VS, 234.81°N, 4612.73°E - PBHL(Agate #1H)										



Pathfinder
Pathfinder X & Y Survey Report



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Project:	Eddy County	TVD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Site:	Agate PWU "21"	MD Reference:	Well1 @ 3340.40usft (18' KB Mcvay #8)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,280.00	7,868.53	234.81	4,612.73	BHL-12280 00°MD,88.90°INC,87.99°AZI, 7868.53°TVD, 4618 27°VS, 234.81°N, +

Checked By: _____	Approved By: _____	Date: _____
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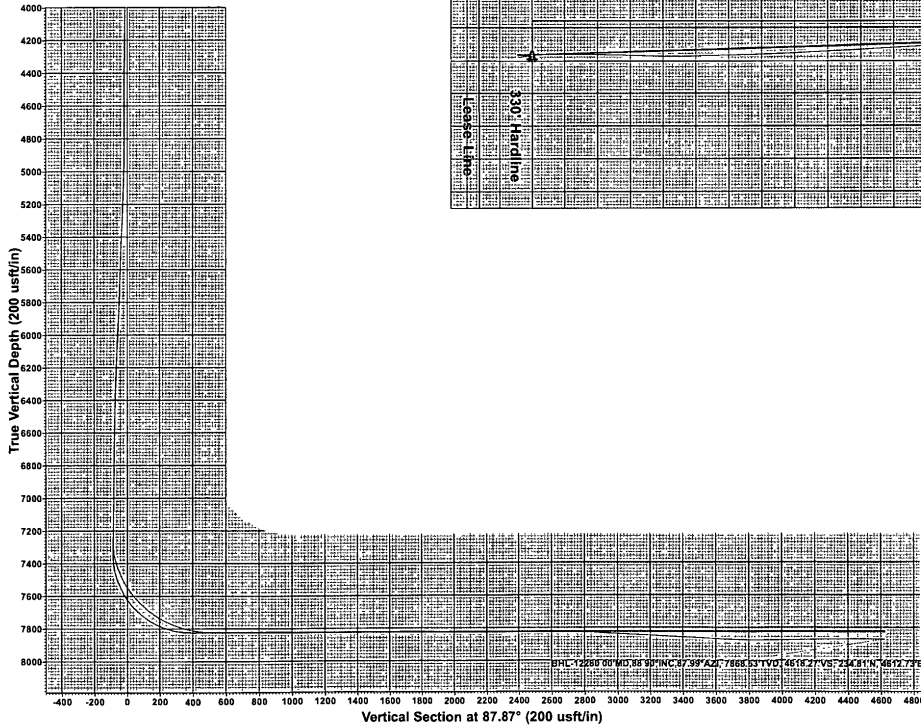
Project: Eddy County
Site: Agate PWU "21"
Well: #1H
Wellbore: OH
Plan: Plan #2 (#1H/OH)



Azimuths to Grid North
True North: -0.13°
Magnetic North: 7.75°
Magnetic Field
Strength: 48883.25nT
Dip Angle: 60.52°
Date: 02/24/2011
Model: IGRF200510

PATHFINDER
A Schlumberger Company

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



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

South(-)/North(+) (200 usft/in)

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dipg	TFace	VSeal	Target
6497.50	0.82	261.12	6496.16	36.66	-74.17	0.00	0.00	-72.75	
7342.00	0.82	261.12	7340.58	34.80	-86.11	0.00	0.00	-84.76	
8989.06	90.00	88.32	7825.00	47.93	391.31	12.00	-172.50	392.82	
12331.60	90.00	88.32	7825.00	172.02	4622.03	0.00	0.00	4625.23	PBHL(Agate #1H)

WELL DETAILS - #1H

Ground Elevation: 3322.40
RKB Elevation: Well @ 3340.40usft (18' KB Mcvay #8)
Rig Name: 18' KB Mcvay #8

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	601019.270	617059.460	32° 39' 7.230 N	104° 5' 14.290 W	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(Agate #1H)	7817.00	171.63	4622.04	601190.900	621681.500	Point

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Created By: Kate Bingham Date: 12.45, March 28 2011

Checked: _____ Date: _____