



August 12, 2014

Devon Energy Production Co., L. P.
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

30-015-41964

Attn: David Cook

Re: **Mizar 11 Federal Com No 001H**

Please find enclosed a copy of the survey from 0.00' to 4404.51' ran on the above referenced well.

If I can be of any further service please do not hesitate to call me at 800-606-4976.

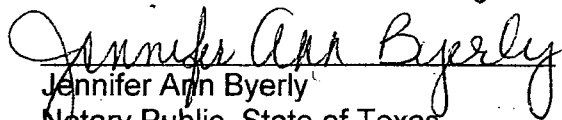
Sincerely,

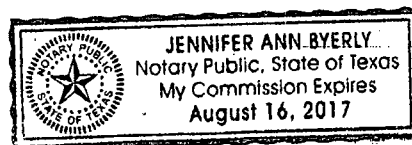

Keith Havelka
Operations

STATE OF TEXAS §

COUNTY OF NUECES §

This instrument was acknowledged before me on the 12 day of August, A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: Devon Energy
Lease/Well: Mizar 11 Federal Com/No. 001H

Rig Name: H&P #300
State/County: New Mexico/Eddy
Latitude: 32.68, Longitude: -103.85
GRID North is 0.26 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : 25 Feet

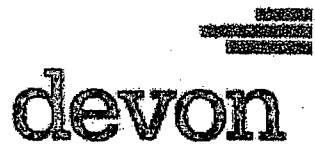
DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 8/12/2014 / 14:43

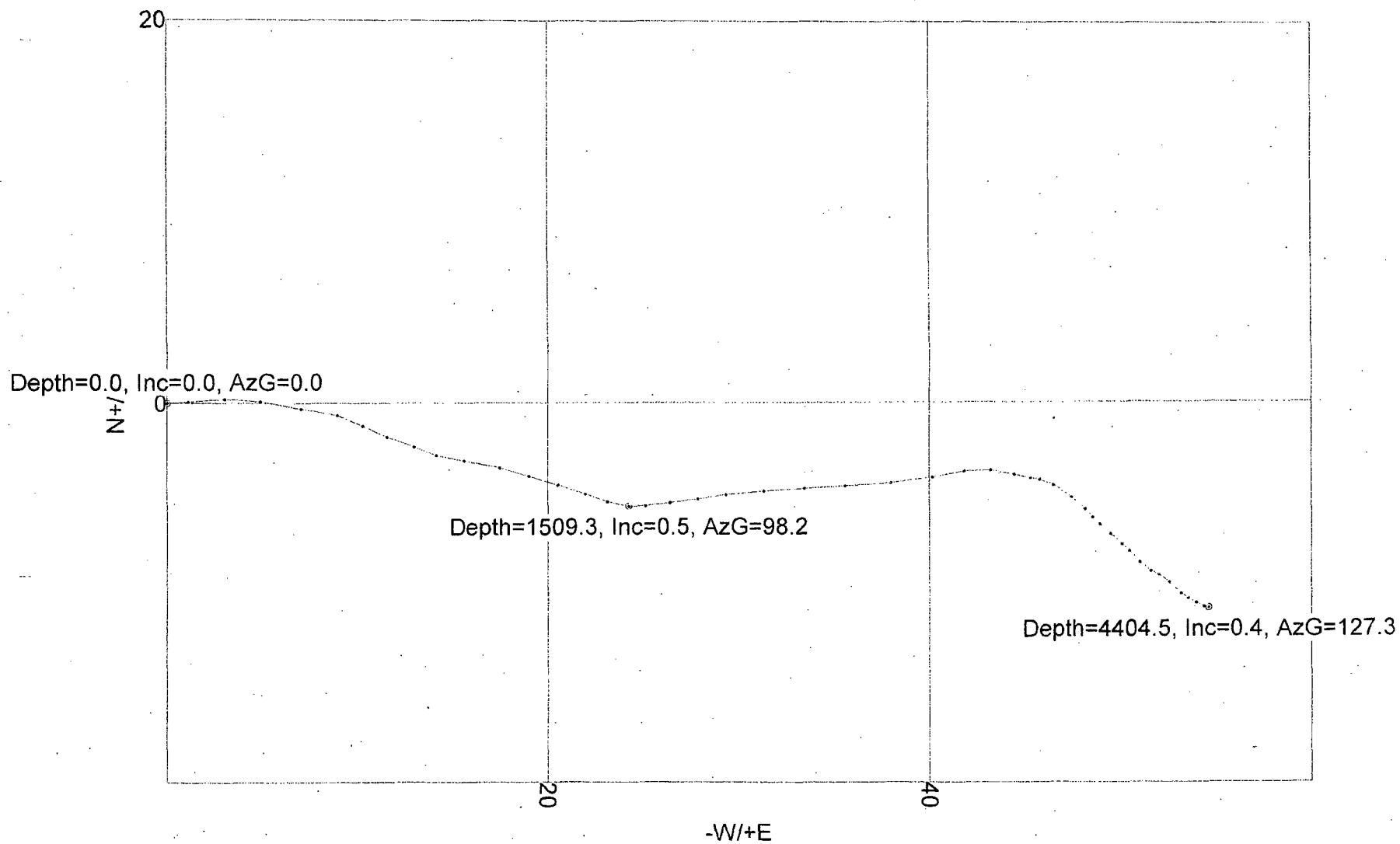
VES Survey International
West Texas
(432) 563-5444
Surveyor: Neil Bates
Mizar 11 Federal Com No 001H / API 30-015-41964

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
92.71	1.34	87.06	92.70	0.06	1.08	0.06	1.08	87.06	1.44
187.15	0.94	83.02	187.12	0.21	2.96	0.21	2.96	86.01	0.43
281.59	1.32	101.59	281.54	0.08	4.79	0.08	4.80	89.02	0.55
376.03	1.31	98.53	375.96	-0.30	6.93	-0.30	6.93	92.46	0.08
470.47	1.04	102.55	470.38	-0.64	8.83	-0.64	8.85	94.16	0.29
564.91	0.77	124.38	564.81	-1.19	10.19	-1.19	10.26	96.65	0.46
659.35	0.96	106.14	659.24	-1.77	11.47	-1.77	11.61	98.76	0.35
753.79	0.90	114.46	753.67	-2.29	12.90	-2.29	13.11	100.08	0.16
848.23	0.68	104.08	848.10	-2.74	14.12	-2.74	14.39	100.97	0.28
942.67	1.15	99.30	942.52	-3.03	15.60	-3.03	15.89	100.98	0.50
1037.11	1.20	103.15	1036.94	-3.40	17.50	-3.40	17.82	101.01	0.10
1131.55	0.73	111.56	1131.37	-3.85	19.02	-3.85	19.41	101.44	0.51
1225.99	1.19	104.73	1225.80	-4.32	20.53	-4.32	20.98	101.89	0.50
1320.43	0.64	114.83	1320.22	-4.79	21.95	-4.79	22.47	102.31	0.61
1414.87	0.87	104.93	1414.66	-5.20	23.12	-5.20	23.70	102.67	0.28
1509.31	0.49	98.18	1509.09	-5.44	24.22	-5.44	24.82	102.66	0.41
1603.75	0.59	80.35	1603.53	-5.42	25.09	-5.42	25.67	102.18	0.20
1698.19	1.03	84.35	1697.96	-5.25	26.42	-5.25	26.93	101.24	0.47

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1792.63	0.74	79.38	1792.38	-5.05	27.87	-5.05	28.32	100.28	0.31
1887.07	1.07	83.01	1886.81	-4.83	29.34	-4.83	29.74	99.35	0.35
1981.51	1.36	86.14	1981.23	-4.65	31.33	-4.65	31.67	98.44	0.31
2075.95	1.23	86.59	2075.65	-4.52	33.46	-4.52	33.76	97.69	0.13
2170.39	1.35	86.73	2170.06	-4.39	35.58	-4.39	35.85	97.04	0.13
2264.83	1.55	86.08	2264.47	-4.24	37.97	-4.24	38.21	96.37	0.21
2359.27	1.14	77.61	2358.89	-3.95	40.16	-3.95	40.36	95.62	0.48
2453.71	0.92	81.08	2453.31	-3.63	41.82	-3.63	41.98	94.97	0.24
2548.15	0.78	96.69	2547.74	-3.59	43.21	-3.59	43.36	94.75	0.28
2642.59	0.76	104.36	2642.17	-3.82	44.46	-3.82	44.62	94.92	0.11
2737.03	0.29	97.14	2736.61	-4.01	45.30	-4.01	45.48	95.06	0.51
2831.47	0.31	101.27	2831.05	-4.09	45.78	-4.09	45.97	95.10	0.03
2925.91	0.66	117.24	2925.48	-4.39	46.52	-4.39	46.72	95.39	0.40
3020.35	0.76	129.57	3019.92	-5.03	47.48	-5.03	47.75	96.05	0.19
3114.79	0.38	136.59	3114.35	-5.66	48.18	-5.66	48.51	96.70	0.41
3209.23	0.34	140.49	3208.79	-6.11	48.58	-6.11	48.96	97.17	0.05
3303.67	0.31	127.24	3303.23	-6.48	48.96	-6.48	49.38	97.54	0.09
3398.11	0.63	133.59	3397.66	-6.99	49.53	-6.99	50.02	98.03	0.35
3492.55	0.32	126.55	3492.10	-7.50	50.12	-7.50	50.68	98.51	0.33
3586.99	0.34	140.95	3586.54	-7.88	50.51	-7.88	51.12	98.86	0.09
3681.43	0.64	135.00	3680.98	-8.47	51.06	-8.47	51.75	99.41	0.33
3775.87	0.26	112.01	3775.41	-8.92	51.63	-8.92	52.39	99.80	0.44
3870.31	0.30	115.95	3869.85	-9.11	52.05	-9.11	52.84	99.92	0.04
3964.75	0.55	132.64	3964.29	-9.52	52.61	-9.52	53.46	100.26	0.30
4059.19	0.44	137.14	4058.73	-10.10	53.19	-10.10	54.14	100.75	0.13
4153.63	0.14	80.11	4153.16	-10.34	53.55	-10.34	54.54	100.93	0.40
4248.07	0.48	130.24	4247.60	-10.58	53.97	-10.58	55.00	101.09	0.43
4342.51	0.16	62.85	4342.04	-10.78	54.40	-10.78	55.45	101.21	0.47
4404.51	0.38	127.25	4404.04	-10.86	54.64	-10.86	55.70	101.24	0.55



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Surveyor: Neil Bates
Mizar 11 Federal Com No 001H / API 30-015-41964



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MIZAR 11 FED COM 1H

WEST UNRESTRICTED



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 11 T19S R31E	API/UWI 3001541964	Latitude (") 32° 40' 53.326" N	Longitude (") 103° 50' 54.573" W	Ground Elev... 3,597.10
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,623.30
				Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore OH	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (") 90.44
Actual Deviation Survey	Definitive?	Proposed?	Proposed Deviation Survey	

Deviation Survey

Date	Description
MD Tie In (ftKB)	TVD Tie In (ftKB)
Inclination Tie In (")	Azimuth Tie In (")
NS Tie In (ft)	EW Tie In (ft)

Survey Data

Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (2/100ft)	Survey Tool	Survey Company
Wellbore Name ST01	Parent Wellbore OH	SAP Well ID	Kick Off Depth (ftKB) 8,527.0	Vertical Section Direction (") 90.44	Actual Deviation Survey GYRO/MWD 2, Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey GYRO/MWD 2, Proposed? No		

Deviation Survey

Date 8/13/2014	Description GYRO/MWD_2
MD Tie In (ftKB) 0.00	TVD Tie In (ftKB) 0.00
Inclination Tie In (") 0.00	Azimuth Tie In (") 0.00
NS Tie In (ft) 0.00	EW Tie In (ft) 0.00

Survey Data

Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (2/100ft)	Survey Tool	Survey Company
8/17/2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GYRO	VAUGHN ENERGY SERVICES
8/17/2014	92.71	1.34	87.06	92.70	1.08	0.06	1.08	1.45	MWD	PATHFINDER ENERGY SE...
8/17/2014	187.15	0.94	83.02	187.12	2.95	0.21	2.95	0.43	MWD	PATHFINDER ENERGY SE...
8/17/2014	281.59	1.32	101.59	281.54	4.79	0.08	4.79	0.55	MWD	PATHFINDER ENERGY SE...
8/17/2014	376.03	1.31	98.53	375.96	6.92	-0.30	6.92	0.08	MWD	PATHFINDER ENERGY SE...
8/17/2014	470.47	1.04	102.55	470.38	8.83	-0.64	8.83	0.30	MWD	PATHFINDER ENERGY SE...
8/17/2014	564.91	0.77	124.38	564.81	10.20	-1.19	10.19	0.46	MWD	PATHFINDER ENERGY SE...
8/17/2014	659.35	0.96	106.14	659.24	11.48	-1.77	11.47	0.35	MWD	PATHFINDER ENERGY SE...
8/17/2014	753.79	0.90	114.46	753.67	12.92	-2.29	12.91	0.16	MWD	PATHFINDER ENERGY SE...
8/17/2014	848.23	0.68	104.08	848.10	14.14	-2.74	14.12	0.28	MWD	PATHFINDER ENERGY SE...
8/17/2014	942.67	1.15	99.30	942.52	15.63	-3.03	15.60	0.50	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,037.11	1.20	103.15	1,036.94	17.53	-3.40	17.50	0.10	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,131.55	0.73	111.56	1,131.37	19.05	-3.85	19.02	0.52	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,225.99	1.19	104.73	1,225.80	20.56	-4.32	20.53	0.50	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,320.43	0.64	114.83	1,320.22	21.99	-4.79	21.96	0.60	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,414.87	0.87	104.93	1,414.66	23.17	-5.20	23.13	0.28	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,509.31	0.49	98.18	1,509.09	24.26	-5.44	24.22	0.41	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,603.75	0.59	80.35	1,603.53	25.14	-5.42	25.10	0.21	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,698.19	1.03	84.35	1,697.96	26.47	-5.25	26.43	0.47	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,792.63	0.74	79.38	1,792.38	27.91	-5.05	27.87	0.32	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,887.07	1.07	83.01	1,886.81	29.38	-4.83	29.34	0.35	MWD	PATHFINDER ENERGY SE...
8/17/2014	1,981.51	1.36	86.14	1,981.23	31.37	-4.65	31.34	0.31	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,075.95	1.23	86.59	2,075.65	33.50	-4.52	33.47	0.14	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,170.39	1.35	86.73	2,170.06	35.62	-4.39	35.59	0.13	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,264.83	1.55	86.08	2,264.47	38.01	-4.24	37.98	0.21	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,359.27	1.14	77.61	2,358.89	40.20	-3.95	40.17	0.48	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,453.71	0.92	81.08	2,453.31	41.86	-3.63	41.83	0.24	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,548.15	0.78	96.69	2,547.74	43.25	-3.59	43.22	0.29	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,642.59	0.76	104.36	2,642.17	44.49	-3.82	44.47	0.11	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,737.03	0.29	97.14	2,736.61	45.34	-4.01	45.31	0.50	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,831.47	0.31	101.27	2,831.05	45.83	-4.09	45.80	0.03	MWD	PATHFINDER ENERGY SE...
8/17/2014	2,925.91	0.66	117.24	2,925.48	46.56	-4.38	46.53	0.39	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,020.35	0.76	129.57	3,019.92	47.54	-5.03	47.50	0.19	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,114.79	0.38	136.59	3,114.35	48.24	-5.66	48.20	0.41	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,209.23	0.34	140.49	3,208.79	48.64	-6.10	48.59	0.05	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,303.67	0.31	127.24	3,303.23	49.02	-6.47	48.97	0.09	MWD	PATHFINDER ENERGY SE...



MIZAR.11 FED COM 1H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 11 T19S R31E	API/UWI 3001541964	Latitude (°) 32° 40' 53.326" N	Longitude (°) 103° 50' 54.573" W	Ground Elev... 3,597.10
			KB - GL (ft) 26.20	Orig KB Elev.(ft) 3,623.30
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl.(°)	Azm.(°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (ft/100ft)	Survey Tool	Survey Company
8/17/2014	3,398.11	0.63	133.59	3,397.66	49.60	-6.99	49.55	0.34	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,492.55	0.32	126.55	3,492.10	50.20	-7.50	50.14	0.33	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,586.99	0.34	140.95	3,586.54	50.59	-7.88	50.53	0.09	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,681.43	0.64	135.00	3,680.98	51.14	-8.47	51.08	0.32	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,775.87	0.26	112.01	3,775.41	51.72	-8.92	51.65	0.44	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,870.31	0.30	115.95	3,869.85	52.14	-9.11	52.07	0.05	MWD	PATHFINDER ENERGY SE...
8/17/2014	3,964.75	0.55	132.64	3,964.29	52.70	-9.52	52.63	0.29	MWD	PATHFINDER ENERGY SE...
8/17/2014	4,059.19	0.44	137.14	4,058.73	53.28	-10.10	53.21	0.12	MWD	PATHFINDER ENERGY SE...
8/17/2014	4,153.63	0.14	80.11	4,153.16	53.64	-10.34	53.57	0.40	MWD	PATHFINDER ENERGY SE...
8/17/2014	4,248.07	0.48	130.24	4,247.60	54.06	-10.58	53.98	0.43	MWD	PATHFINDER ENERGY SE...
8/17/2014	4,342.51	0.16	62.85	4,342.04	54.48	-10.77	54.40	0.47	MWD	PATHFINDER ENERGY SE...
8/17/2014	4,404.51	0.38	127.25	4,404.04	54.72	-10.86	54.64	0.55	MWD	PATHFINDER ENERGY SE...
8/2/2014	4,585.00	0.26	59.46	4,584.53	55.55	-11.01	55.47	0.21	MWD	PATHFINDER ENERGY SE...
8/2/2014	4,679.00	1.76	169.36	4,678.51	56.01	-12.32	55.92	1.98	MWD	PATHFINDER ENERGY SE...
8/2/2014	4,774.00	3.69	175.63	4,773.40	56.55	-16.81	56.42	2.05	MWD	PATHFINDER ENERGY SE...
8/2/2014	4,868.00	5.19	172.93	4,867.12	57.36	-24.04	57.18	1.61	MWD	PATHFINDER ENERGY SE...
8/2/2014	4,962.00	5.98	171.72	4,960.67	58.66	-33.11	58.41	0.85	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,057.00	5.45	171.35	5,055.20	60.12	-42.46	59.80	0.56	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,151.00	5.54	171.97	5,148.77	61.49	-51.37	61.10	0.11	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,246.00	5.54	172.25	5,243.32	62.82	-60.45	62.36	0.03	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,340.00	4.40	167.62	5,336.97	64.27	-68.47	63.75	1.28	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,434.00	3.17	160.94	5,430.76	65.94	-74.45	65.37	1.39	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,529.00	1.23	148.79	5,525.69	67.35	-77.81	66.75	2.09	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,624.00	0.97	132.40	5,620.67	68.48	-79.22	67.88	0.43	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,718.00	0.97	128.58	5,714.66	69.70	-80.25	69.09	0.07	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,812.00	0.88	138.43	5,808.65	70.81	-81.29	70.19	0.19	MWD	PATHFINDER ENERGY SE...
8/2/2014	5,907.00	0.97	134.34	5,903.63	71.88	-82.40	71.25	0.12	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,001.00	0.70	145.15	5,997.62	72.78	-83.42	72.14	0.33	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,096.00	0.79	133.74	6,092.61	73.59	-84.35	72.95	0.18	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,190.00	0.62	123.71	6,186.61	74.49	-85.08	73.84	0.22	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,284.00	0.62	119.39	6,280.60	75.36	-85.62	74.71	0.05	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,379.00	0.26	117.60	6,375.60	76.00	-85.97	75.34	0.38	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,476.00	0.26	147.60	6,472.60	76.32	-86.26	75.66	0.14	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,568.00	0.26	133.26	6,564.60	76.58	-86.57	75.92	0.07	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,662.00	0.26	88.76	6,658.60	76.95	-86.72	76.29	0.21	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,757.00	0.26	76.68	6,753.60	77.38	-86.66	76.71	0.06	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,851.00	0.18	24.23	6,847.59	77.64	-86.48	76.98	0.22	MWD	PATHFINDER ENERGY SE...
8/2/2014	6,946.00	0.18	17.08	6,942.59	77.75	-86.20	77.09	0.02	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,040.00	0.26	315.81	7,036.59	77.64	-85.91	76.98	0.25	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,135.00	0.44	290.51	7,131.59	77.15	-85.62	76.49	0.25	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,229.00	0.53	255.88	7,225.59	76.39	-85.60	75.73	0.32	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,323.00	0.88	249.99	7,319.58	75.29	-85.96	74.63	0.38	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,418.00	0.97	273.21	7,414.57	73.80	-86.16	73.14	0.40	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,513.00	1.23	241.49	7,509.55	72.11	-86.60	71.44	0.69	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,607.00	0.79	216.07	7,603.54	70.85	-87.61	70.18	0.66	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,702.00	0.53	182.00	7,698.53	70.45	-88.58	69.77	0.48	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,796.00	0.62	139.09	7,792.53	70.78	-89.39	70.09	0.46	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,891.00	1.14	158.16	7,887.52	71.48	-90.66	70.78	0.62	MWD	PATHFINDER ENERGY SE...
8/2/2014	7,985.00	1.14	154.86	7,981.50	72.23	-92.37	71.53	0.07	MWD	PATHFINDER ENERGY SE...
8/2/2014	8,080.00	0.97	183.40	8,076.48	72.60	-94.03	71.88	0.57	MWD	PATHFINDER ENERGY SE...
8/2/2014	8,174.00	0.70	205.94	8,170.47	72.31	-95.34	71.58	0.45	MWD	PATHFINDER ENERGY SE...
8/2/2014	8,268.00	0.44	230.51	8,264.47	71.79	-96.09	71.05	0.37	MWD	PATHFINDER ENERGY SE...
8/2/2014	8,363.00	0.70	182.74	8,359.46	71.48	-96.90	70.74	0.55	MWD	PATHFINDER ENERGY SE...
8/2/2014	8,457.00	0.18	116.35	8,453.46	71.59	-97.54	70.85	0.69	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,583.00	10.99	83.36	8,578.68	83.73	-96.24	82.99	8.60	MWD	PATHFINDER ENERGY SE...



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WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 11 T19S R31E	API/UWI 3001541964	Latitude (°) 32° 40' 53.326" N	Longitude (°) 103° 50' 54.573" W	Ground Elev... 3,597.10
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,623.30
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (ft/100ft)	Survey Tool	Survey Company
8/13/2014	8,615.00	14.51	84.14	8,609.89	90.74	-95.47	90.01	11.01	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,646.00	17.41	87.17	8,639.69	99.23	-94.85	98.51	9.73	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,678.00	20.75	88.46	8,669.93	109.68	-94.46	108.96	10.52	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,709.00	23.92	90.42	8,698.60	121.46	-94.36	120.74	10.50	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,741.00	27.17	90.44	8,727.46	135.25	-94.46	134.53	10.16	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,772.00	30.60	91.49	8,754.60	150.23	-94.72	149.50	11.18	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,804.00	34.38	91.22	8,781.59	167.41	-95.12	166.68	11.82	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,835.00	37.64	91.38	8,806.66	185.63	-95.54	184.90	10.52	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,867.00	40.80	91.09	8,831.45	205.86	-95.97	205.13	9.89	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,898.00	43.97	90.72	8,854.35	226.75	-96.30	226.02	10.26	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,930.00	47.22	90.82	8,876.73	249.61	-96.61	248.88	10.16	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,961.00	49.95	91.15	8,897.24	272.86	-97.01	272.12	8.84	MWD	PATHFINDER ENERGY SE...
8/13/2014	8,993.00	52.41	91.03	8,917.30	297.78	-97.48	297.04	7.69	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,024.00	55.40	91.00	8,935.56	322.83	-97.93	322.09	9.65	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,055.00	58.56	91.18	8,952.45	348.82	-98.42	348.07	10.21	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,087.00	62.26	91.04	8,968.25	376.64	-98.96	375.89	11.57	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,118.00	65.69	92.03	8,981.85	404.48	-99.71	403.73	11.43	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,150.00	68.85	92.79	8,994.21	433.98	-100.95	433.21	10.11	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,181.00	71.40	93.70	9,004.75	463.09	-102.61	462.32	8.68	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,213.00	74.30	93.65	9,014.18	493.62	-104.57	492.83	9.06	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,244.00	76.85	93.00	9,021.91	523.60	-106.31	522.80	8.47	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,276.00	79.05	92.06	9,028.59	554.87	-107.69	554.06	7.45	MWD	PATHFINDER ENERGY SE...
8/13/2014	9,308.00	81.69	91.51	9,033.94	586.41	-108.67	585.59	8.42	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,339.00	85.30	90.12	9,037.45	617.20	-109.10	616.38	12.47	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,380.00	89.43	90.19	9,039.34	658.15	-109.22	657.33	10.07	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,412.00	89.60	90.63	9,039.61	690.15	-109.44	689.33	1.47	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,507.00	88.64	91.38	9,041.07	785.13	-111.11	784.30	1.28	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,601.00	88.99	90.56	9,043.01	879.11	-112.70	878.27	0.95	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,696.00	89.34	91.12	9,044.39	974.09	-114.09	973.25	0.70	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,790.00	89.78	90.06	9,045.12	1,068.09	-115.06	1,067.24	1.22	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,884.00	90.48	89.31	9,044.90	1,162.08	-114.54	1,161.23	1.09	MWD	PATHFINDER ENERGY SE...
8/17/2014	9,979.00	90.13	88.99	9,044.40	1,257.05	-113.14	1,256.22	0.50	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,074.00	89.60	88.80	9,044.62	1,352.02	-111.30	1,351.20	0.59	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,168.00	90.04	88.62	9,044.92	1,445.97	-109.19	1,445.18	0.51	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,262.00	91.89	87.33	9,043.33	1,539.87	-105.87	1,539.10	2.40	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,357.00	90.57	88.50	9,041.29	1,634.75	-102.41	1,634.01	1.86	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,454.00	89.34	88.42	9,041.37	1,731.69	-99.80	1,730.98	1.27	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,546.00	90.66	88.43	9,041.37	1,823.63	-97.28	1,822.94	1.43	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,640.00	91.01	88.51	9,040.00	1,917.57	-94.77	1,916.89	0.38	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,735.00	90.75	88.89	9,038.54	2,012.51	-92.61	2,011.86	0.48	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,829.00	90.66	89.11	9,037.38	2,106.47	-90.97	2,105.84	0.25	MWD	PATHFINDER ENERGY SE...
8/17/2014	10,924.00	90.66	89.34	9,036.29	2,201.45	-89.69	2,200.82	0.24	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,018.00	90.13	90.90	9,035.64	2,295.44	-89.88	2,294.82	1.75	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,112.00	91.71	90.13	9,034.13	2,389.42	-90.73	2,388.80	1.87	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,207.00	91.54	90.63	9,031.44	2,484.38	-91.36	2,483.76	0.56	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,301.00	91.63	89.88	9,028.84	2,578.35	-91.78	2,577.72	0.80	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,395.00	91.01	89.03	9,026.67	2,672.31	-90.88	2,671.69	1.12	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,490.00	90.40	88.94	9,025.50	2,767.27	-89.20	2,766.67	0.65	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,585.00	90.13	88.36	9,025.06	2,862.22	-86.96	2,861.64	0.67	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,679.00	88.81	89.30	9,025.93	2,956.18	-85.04	2,955.61	1.72	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,774.00	88.55	89.56	9,028.12	3,051.14	-84.10	3,050.58	0.39	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,868.00	88.99	90.52	9,030.14	3,145.11	-84.16	3,144.56	1.12	MWD	PATHFINDER ENERGY SE...
8/17/2014	11,963.00	89.60	89.99	9,031.31	3,240.10	-84.59	3,239.55	0.85	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,057.00	88.99	88.05	9,032.47	3,334.06	-82.98	3,333.52	2.16	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,151.00	89.08	88.48	9,034.05	3,427.98	-80.13	3,427.47	0.47	MWD	PATHFINDER ENERGY SE...



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 11 T19S R31E	API/UWI 3001541964	Latitude (") 32° 40' 53.326" N	Longitude (") 103° 50' 54.573" W	Ground Elev... 3,597.10
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,623.30
				Tubing Head Elevation (ft)

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (%/100ft)	Survey Tool	Survey Company
8/17/2014	12,246.00	89.87	88.60	9,034.92	3,522.92	-77.71	3,522.43	0.84	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,340.00	90.75	87.88	9,034.41	3,616.85	-74.83	3,616.38	1.21	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,435.00	91.10	87.07	9,032.88	3,711.71	-70.64	3,711.28	0.93	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,529.00	89.60	87.39	9,032.30	3,805.56	-66.10	3,805.16	1.63	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,624.00	90.48	85.91	9,032.24	3,900.35	-60.55	3,900.00	1.81	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,718.00	91.80	87.24	9,030.37	3,994.11	-54.93	3,993.81	1.99	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,813.00	91.10	88.82	9,027.96	4,088.99	-51.67	4,088.72	1.82	MWD	PATHFINDER ENERGY SE...
8/17/2014	12,907.00	90.84	90.64	9,026.37	4,182.97	-51.23	4,182.70	1.96	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,002.00	91.63	91.50	9,024.32	4,277.94	-53.00	4,277.66	1.23	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,080.00	91.54	91.79	9,022.17	4,355.89	-55.24	4,355.60	0.39	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,171.00	91.63	92.55	9,019.65	4,446.82	-58.68	4,446.50	0.84	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,269.00	92.68	90.55	9,015.96	4,544.72	-61.33	4,544.38	2.30	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,363.00	91.01	90.33	9,012.94	4,638.67	-62.05	4,638.33	1.79	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,458.00	91.28	90.83	9,011.04	4,733.65	-63.01	4,733.31	0.60	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,543.00	92.24	90.73	9,008.43	4,818.61	-64.17	4,818.26	1.14	MWD	PATHFINDER ENERGY SE...
8/17/2014	13,623.00	92.24	90.73	9,005.30	4,898.54	-65.19	4,898.19	0.00	BIT	PATHFINDER ENERGY SE...