



August 12, 2014

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

30-015-41964

Attn: David Cook

NM OIL CONSERVATION

ARTESIA DISTRICT

JAN 23 2015

RECEIVED

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.

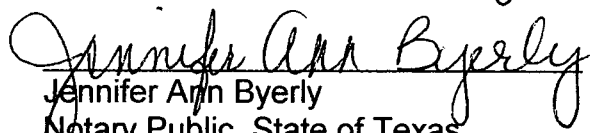
Sincerely,

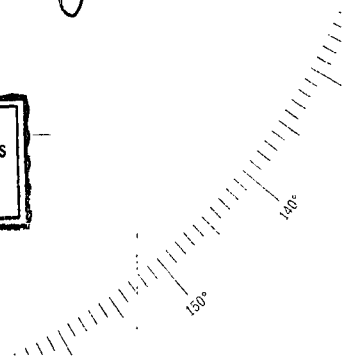
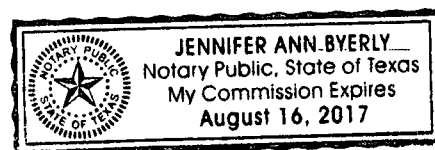

Keith Havelka
Operations

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

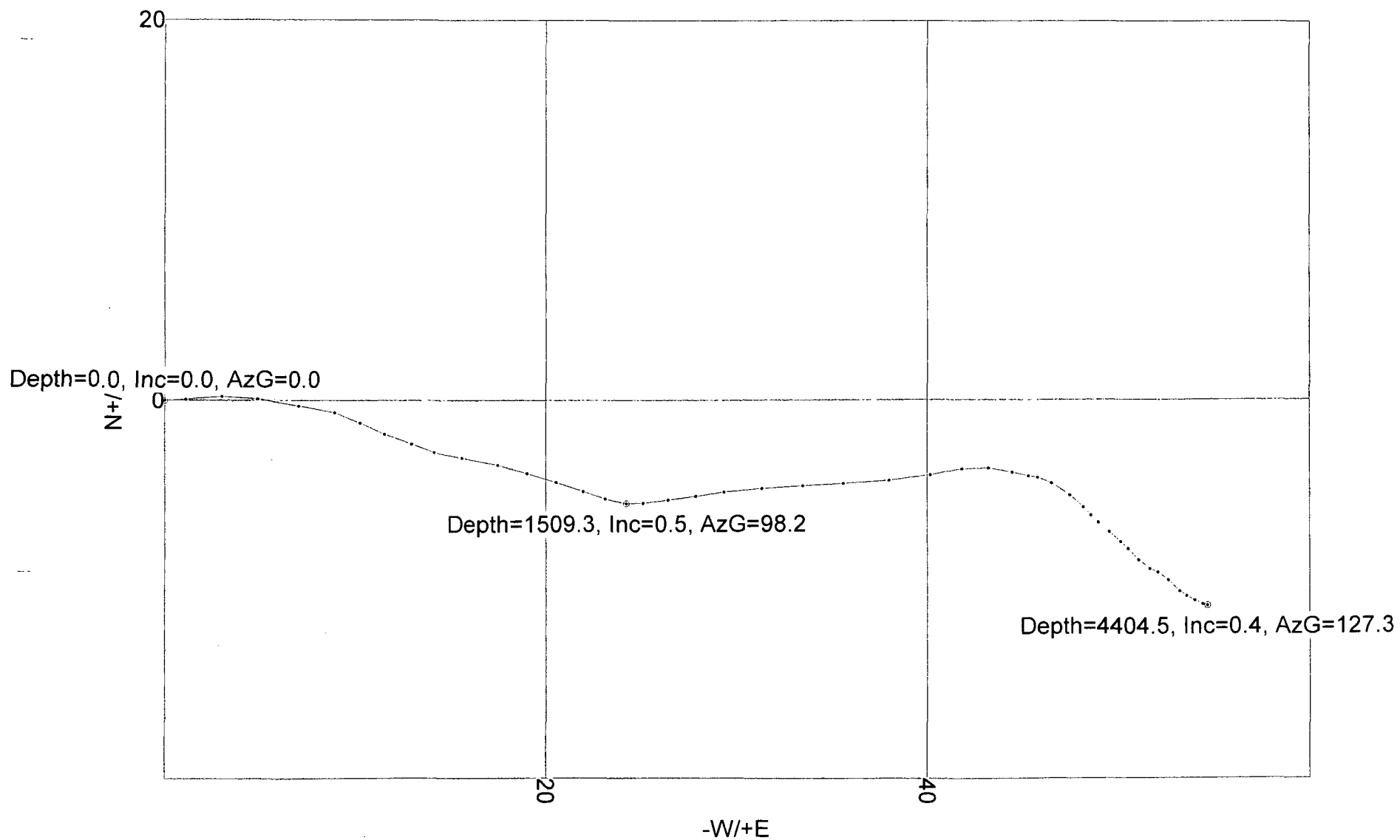
VES Survey International
West Texas
(432) 563-5444
Surveyor: Neil Bates
Mizar 11 Federal Com No 001H / API 30-015-41964

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



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





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)

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	

Date	Description
MD Tie In (ftKB)	TVD Tie In (ftKB)
Inclination Tie In (°)	Azimuth Tie In (°)
NSTie In (ft)	EW Tie In (ft)

Survey Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/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		

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
NSTie In (ft) 0.00	EW Tie In (ft) 0.00

Survey Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/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...



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 (fKB)	Incl (°)	Azm (°)	IVD (fKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/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...
Page 2/4 : Report Printed: 1/21/2015										



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 (°)	PAzm (°)	VD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (1/100ft)	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...