



July 7, 2014

30 015 41914

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

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 06 2014

RECEIVED

Attn: David Cook

Re: **Aquila 22 Federal Com No. 013H**

Please find enclosed a copy of the survey from 0.00' to 2,482.00' 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.

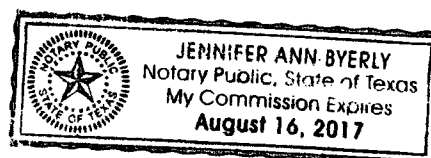
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 7 day of July, A.D., 2014, by Keith Havelka.

Jennifer Ann Byerly
Notary Public, State of Texas





Company: Devon Energy
Lease/Well: Aquila 22 Federal Com /No. 013H



State/County: New Mexico/Eddy
Latitude: 32.65, Longitude: -103.85
GRID North is 0.26 Degrees East of True North
VS-Azi: 0.00 Degrees

RECEIVED
NOV 06 2014
NM OIL CONSERVATION
ARTESIA DISTRICT

Depth Reference : RKB=26 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...22 fed com #13h gyro-de_01.ut

Minimum Curvature Method

Report Date/Time: 7/7/2014 / 11:11

VES Survey International

West Texas

432-563-5444

Surveyor: Chris Bankson

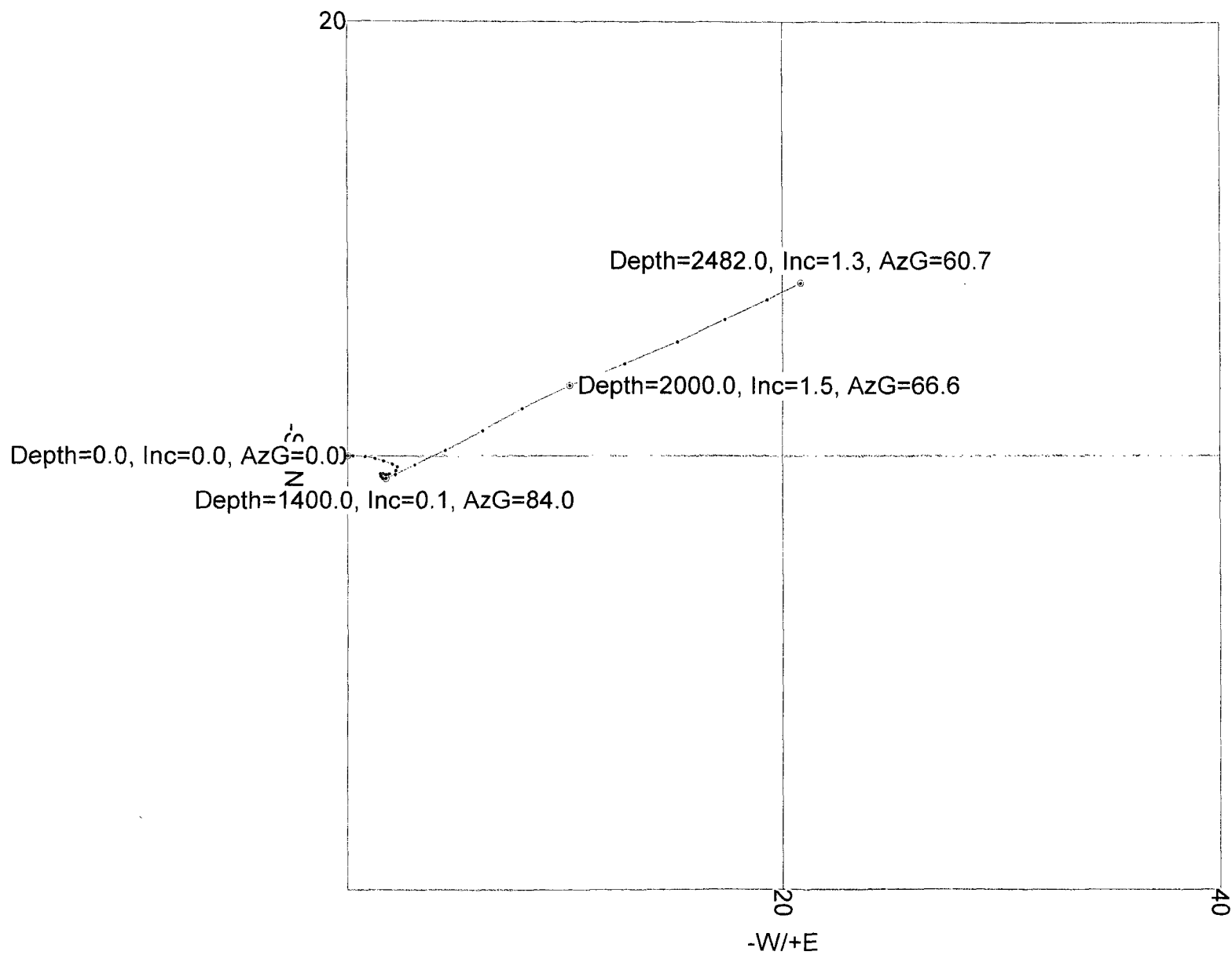
Aquila 22 Federal Com No. 013H / API 30-015-41914

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	****
100.00	0.29	87.61	100.00	0.01	0.25	0.01	0.25	87.61	0.29
200.00	0.37	101.08	200.00	-0.04	0.82	-0.04	0.83	92.83	0.11
300.00	0.16	100.86	300.00	-0.13	1.28	-0.13	1.29	95.77	0.21
400.00	0.30	108.30	400.00	-0.24	1.67	-0.24	1.69	98.15	0.15
500.00	0.17	114.57	500.00	-0.39	2.06	-0.39	2.10	100.61	0.13
600.00	0.13	120.62	599.99	-0.51	2.29	-0.51	2.35	102.44	0.05
700.00	0.24	234.20	699.99	-0.69	2.22	-0.69	2.32	107.18	0.32
800.00	0.16	255.41	799.99	-0.84	1.91	-0.84	2.09	113.82	0.11
900.00	0.02	299.32	899.99	-0.87	1.76	-0.87	1.96	116.28	0.14
1000.00	0.13	283.59	999.99	-0.83	1.63	-0.83	1.83	117.05	0.11
1100.00	0.03	201.70	1099.99	-0.83	1.51	-0.83	1.72	118.90	0.13
1200.00	0.11	155.35	1199.99	-0.95	1.54	-0.95	1.80	121.65	0.09
1300.00	0.04	114.03	1299.99	-1.05	1.61	-1.05	1.92	123.13	0.09
1400.00	0.15	84.02	1399.99	-1.05	1.77	-1.05	2.06	120.74	0.11
1500.00	0.40	60.94	1499.99	-0.87	2.20	-0.87	2.37	111.58	0.27
1600.00	0.74	64.35	1599.99	-0.42	3.09	-0.42	3.12	97.78	0.34
1700.00	1.07	65.32	1699.97	0.25	4.52	0.25	4.53	86.87	0.33
1800.00	1.18	60.81	1799.95	1.14	6.27	1.14	6.37	79.70	0.14

measured Depth FT	inci 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
1900.00	1.25	60.64	1899.93	2.18	8.12	2.18	8.40	74.99	0.07
2000.00	1.51	66.63	1999.90	3.23	10.28	3.23	10.77	72.53	0.30
2100.00	1.60	69.48	2099.87	4.24	12.79	4.24	13.48	71.64	0.12
2200.00	1.40	65.60	2199.83	5.24	15.21	5.24	16.08	71.00	0.22
2300.00	1.35	62.84	2299.80	6.28	17.37	6.28	18.47	70.12	0.08
2400.00	1.10	66.70	2399.78	7.20	19.31	7.20	20.60	69.54	0.26
2482.00	1.31	60.66	2481.76	7.97	20.85	7.97	22.32	69.07	0.30



VES Survey International
West Texas
432-563-5444
Surveyor: Chris Bankson
Aquila 22 Federal Com No. 013H / API 30-015-41914



VES Survey Date: 06/21/2014

devon

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location SEC23 T19S R31E	API/UWI 3001541914	Latitude (°) 32° 38' 47.84" N	Longitude (°) 103° 50' 53.103" W	Ground Elev... 3,540.80
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,567.00
				Tubing Head Elevation (ft)

Wellbore Name OH	Parent Wellbore OH	SAP Well ID	Kick Off Depth (ftKB) 8,530.0	Vertical Section Direction (°) 266.55
Actual Deviation Survey GYRO/MWD, Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey	

Deviation Survey					
Date 6/22/2014		Description GYRO/MWD			
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	EWTTie In (ft) 0.00

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (ft/100ft)	Survey Tool	Survey Company
6/22/2014	100.00	0.29	87.61	100.00	-0.25	0.01	0.25	0.29	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	200.00	0.37	101.08	200.00	-0.82	-0.04	0.82	0.11	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	300.00	0.16	100.86	300.00	-1.27	-0.13	1.28	0.21	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	400.00	0.30	108.30	400.00	-1.64	-0.24	1.66	0.14	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	500.00	0.17	114.57	500.00	-2.02	-0.38	2.05	0.13	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	600.00	0.13	120.62	599.99	-2.24	-0.50	2.28	0.04	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	700.00	0.24	234.20	699.99	-2.16	-0.68	2.21	0.32	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	800.00	0.16	255.41	799.99	-1.85	-0.84	1.90	0.11	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	900.00	0.02	299.32	899.99	-1.70	-0.87	1.75	0.15	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,000.00	0.13	283.59	999.99	-1.57	-0.83	1.63	0.11	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,100.00	0.03	201.70	1,099.99	-1.45	-0.83	1.51	0.13	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,200.00	0.11	155.35	1,199.99	-1.48	-0.94	1.54	0.09	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,300.00	0.04	114.03	1,299.99	-1.54	-1.04	1.61	0.08	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,400.00	0.15	84.02	1,399.99	-1.70	-1.04	1.77	0.12	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,500.00	0.40	60.94	1,499.99	-2.15	-0.86	2.20	0.27	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,600.00	0.74	64.35	1,599.99	-3.06	-0.41	3.09	0.34	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,700.00	1.07	65.32	1,699.97	-4.53	0.26	4.52	0.33	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,800.00	1.18	60.81	1,799.96	-6.33	1.15	6.27	0.14	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	1,900.00	1.25	60.64	1,899.93	-8.24	2.19	8.12	0.07	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,000.00	1.51	66.63	1,999.90	-10.46	3.25	10.28	0.30	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,100.00	1.60	69.48	2,099.87	-13.03	4.26	12.80	0.12	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,200.00	1.40	65.60	2,199.83	-15.51	5.25	15.22	0.22	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,300.00	1.35	62.84	2,299.80	-17.72	6.29	17.38	0.08	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,400.00	1.10	66.70	2,399.78	-19.71	7.21	19.31	0.26	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,482.00	1.31	60.66	2,481.76	-21.29	7.98	20.85	0.30	GYRO	VAUHG N ENERGY SERVICES
6/22/2014	2,622.00	1.41	259.81	2,621.75	-21.02	8.46	20.55	1.92	MWD	PATHFINDER ENERGY SE...
6/22/2014	2,716.00	3.87	276.48	2,715.64	-16.74	8.62	16.26	2.71	MWD	PATHFINDER ENERGY SE...
6/22/2014	2,811.00	5.89	282.19	2,810.29	-8.89	10.01	8.30	2.18	MWD	PATHFINDER ENERGY SE...
6/22/2014	2,905.00	5.89	279.90	2,903.80	0.45	11.85	-1.16	0.25	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,000.00	4.31	273.94	2,998.42	8.73	12.94	-9.52	1.75	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,094.00	2.29	282.85	3,092.26	14.03	13.60	-14.88	2.21	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,189.00	1.14	266.04	3,187.22	16.80	13.96	-17.67	1.31	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,283.00	0.88	258.13	3,281.20	18.45	13.74	-19.31	0.31	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,378.00	0.97	260.41	3,376.19	19.97	13.46	-20.82	0.10	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,473.00	0.88	285.99	3,471.18	21.46	13.53	-22.31	0.44	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,567.00	0.44	1.84	3,565.17	22.11	14.08	-23.00	0.94	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,661.00	0.88	24.34	3,659.17	21.74	15.10	-22.69	0.53	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,756.00	1.32	44.82	3,754.15	20.58	16.54	-21.61	0.61	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,848.00	1.32	26.59	3,846.12	19.26	18.24	-20.39	0.45	MWD	PATHFINDER ENERGY SE...
6/22/2014	3,942.00	1.23	4.37	3,940.10	18.58	20.22	-19.83	0.53	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,037.00	1.23	344.91	4,035.08	18.65	22.22	-20.02	0.44	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,131.00	1.06	344.30	4,129.06	19.03	24.03	-20.52	0.18	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,359.00	0.62	348.04	4,357.04	19.66	27.27	-21.34	0.19	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,453.00	1.41	213.66	4,451.03	20.44	26.80	-22.09	2.02	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,548.00	2.46	193.15	4,545.97	21.73	23.84	-23.20	1.31	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,642.00	2.46	194.22	4,639.89	22.91	19.92	-24.16	0.05	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,737.00	3.69	201.64	4,734.75	24.83	15.11	-25.78	1.36	MWD	PATHFINDER ENERGY SE...



AQUILA 22 FED COM 13H

WEST UNRESTRICTED

Directional Survey

District	County	Field Name		Project Group		State/Province		
DELAWARE BASIN	EDDY	HACKBERRY		DELAWARE BASIN REG		NM		
Surface Legal Location	API/UWI	Latitude (°)	Longitude (°)	Ground Elev...	KB - GL (ft)	Orig KB Elev (ft)	Tubing Head Elevation (ft)	
SEC23 T19S R31E	3001541914	32° 38' 47.84" N	103° 50' 53.103" W	3,540.80	26.20	3,567.00		

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (7/100ft)	Survey Tool	Survey Company
6/22/2014	4,832.00	5.28	201.06	4,829.45	27.94	8.18	-28.48	1.67	MWD	PATHFINDER ENERGY SE...
6/22/2014	4,926.00	6.77	199.77	4,922.93	31.92	-1.07	-31.91	1.59	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,021.00	6.68	199.73	5,017.28	36.30	-11.54	-35.67	0.09	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,115.00	7.39	192.84	5,110.57	40.15	-22.58	-38.86	1.17	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,210.00	6.68	192.54	5,204.86	43.38	-33.93	-41.42	0.75	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,305.00	7.83	191.47	5,299.09	46.57	-45.66	-43.90	1.22	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,399.00	8.79	196.69	5,392.11	50.69	-58.82	-47.24	1.30	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,493.00	8.62	197.71	5,485.02	55.71	-72.41	-51.45	0.24	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,588.00	8.18	199.45	5,579.01	60.91	-85.56	-55.86	0.53	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,682.00	8.00	200.48	5,672.07	66.17	-98.00	-60.38	0.25	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,777.00	8.79	195.57	5,766.05	71.21	-111.18	-64.64	1.12	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,871.00	8.53	196.66	5,858.98	75.95	-124.78	-68.57	0.33	MWD	PATHFINDER ENERGY SE...
6/22/2014	5,965.00	8.27	197.98	5,951.97	80.82	-137.89	-72.65	0.34	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,060.00	7.12	196.07	6,046.12	85.28	-150.05	-76.39	1.24	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,154.00	5.72	192.25	6,139.52	88.49	-160.22	-79.00	1.56	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,249.00	5.01	190.87	6,234.11	90.80	-168.92	-80.78	0.76	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,343.00	3.61	184.80	6,327.84	92.24	-175.90	-81.80	1.56	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,437.00	3.25	177.94	6,421.67	92.73	-181.51	-81.96	0.58	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,532.00	2.11	166.34	6,516.57	92.49	-185.91	-81.45	1.32	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,626.00	1.06	120.57	6,610.53	91.46	-188.03	-80.29	1.67	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,721.00	0.97	110.51	6,705.52	90.00	-188.76	-78.78	0.21	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,815.00	0.79	115.25	6,799.51	88.70	-189.31	-77.45	0.21	MWD	PATHFINDER ENERGY SE...
6/22/2014	6,910.00	0.70	120.46	6,894.50	87.64	-189.89	-76.36	0.12	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,004.00	0.44	123.27	6,988.49	86.88	-190.38	-75.56	0.28	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,099.00	0.53	130.78	7,083.49	86.27	-190.86	-74.92	0.12	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,193.00	0.62	196.09	7,177.49	86.13	-191.64	-74.73	0.67	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,288.00	0.70	210.18	7,272.48	86.62	-192.63	-75.17	0.19	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,382.00	0.53	214.23	7,366.48	87.21	-193.49	-75.70	0.19	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,476.00	0.26	168.75	7,460.47	87.44	-194.06	-75.90	0.42	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,571.00	0.44	136.74	7,555.47	87.18	-194.53	-75.61	0.27	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,665.00	0.70	113.12	7,649.47	86.44	-195.02	-74.84	0.37	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,760.00	1.32	99.83	7,744.45	84.85	-195.44	-73.22	0.69	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,854.00	1.06	98.26	7,838.43	82.95	-195.75	-71.30	0.28	MWD	PATHFINDER ENERGY SE...
6/22/2014	7,949.00	0.70	57.58	7,933.42	81.58	-195.56	-69.94	0.74	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,043.00	0.62	69.65	8,027.41	80.59	-195.08	-68.98	0.17	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,138.00	0.53	197.22	8,122.41	80.25	-195.32	-68.62	1.09	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,232.00	0.88	177.58	8,216.41	80.42	-196.45	-68.72	0.45	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,327.00	2.02	210.22	8,311.37	81.36	-198.63	-69.53	1.44	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,421.00	2.29	210.58	8,405.31	83.33	-201.68	-71.32	0.29	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,436.00	2.11	212.16	8,420.30	83.66	-202.17	-71.62	1.27	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,530.00	2.55	209.96	8,514.22	85.82	-205.45	-73.59	0.48	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,562.00	4.22	223.76	8,546.16	87.07	-206.91	-74.76	5.77	MWD	PATHFINDER ENERGY SE...
6/22/2014	8,593.00	4.04	233.96	8,577.08	88.83	-208.38	-76.43	2.44	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,625.00	3.52	245.21	8,609.01	90.70	-209.45	-78.23	2.82	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,656.00	5.10	249.51	8,639.92	92.90	-210.34	-80.39	5.20	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,688.00	8.35	251.89	8,671.70	96.51	-211.56	-83.93	10.19	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,719.00	11.87	254.00	8,702.21	101.80	-213.14	-89.14	11.42	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,751.00	16.97	253.56	8,733.20	109.57	-215.37	-96.78	15.94	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,782.00	21.37	252.15	8,762.47	119.45	-218.38	-106.50	14.27	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,814.00	24.62	250.83	8,791.92	131.52	-222.36	-118.35	10.28	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,845.00	28.23	248.19	8,819.68	144.70	-227.20	-131.26	12.24	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,877.00	31.30	247.14	8,847.46	159.72	-233.24	-145.95	9.73	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,908.00	34.12	245.65	8,873.54	175.44	-239.96	-161.30	9.46	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,940.00	36.40	243.10	8,899.67	192.54	-247.96	-177.94	8.48	MWD	PATHFINDER ENERGY SE...
7/9/2014	8,971.00	39.92	240.46	8,924.04	209.92	-257.03	-194.81	12.51	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 SEC23 T19S R31E	API/UWI 3001541914	Latitude (°) 32° 38' 47.84" N	Longitude (°) 103° 50' 53.103" W	Ground Elev. (ft) 3,540.80
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,567.00
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company
7/9/2014	9,002.00	43.26	238.00	8,947.22	228.19	-267.56	-212.47	11.99	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,034.00	46.08	236.33	8,969.98	247.79	-279.76	-231.37	9.55	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,065.00	48.72	235.36	8,990.96	267.40	-292.58	-250.25	8.82	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,097.00	50.91	234.83	9,011.61	288.25	-306.57	-270.29	6.96	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,128.00	54.43	233.69	9,030.40	309.08	-320.97	-290.30	11.72	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,160.00	57.95	233.34	9,048.21	331.37	-336.78	-311.67	11.04	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,192.00	60.94	234.22	9,064.47	354.54	-353.05	-333.90	9.64	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,223.00	64.28	236.24	9,078.73	378.05	-368.74	-356.51	12.23	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,255.00	68.24	238.79	9,091.62	403.66	-384.46	-381.21	14.36	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,286.00	71.40	240.37	9,102.31	429.59	-399.19	-406.30	11.26	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,318.00	74.13	242.39	9,111.79	457.25	-413.82	-433.13	10.45	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,349.00	74.92	242.83	9,120.06	484.55	-427.57	-459.66	2.89	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,381.00	76.94	242.57	9,127.84	512.94	-441.80	-487.24	6.36	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,412.00	78.96	241.69	9,134.31	540.54	-455.97	-514.04	7.08	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,494.00	88.81	241.43	9,143.04	614.35	-494.76	-585.64	12.02	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,588.00	89.87	240.63	9,144.12	699.17	-540.28	-667.87	1.41	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,683.00	90.48	241.07	9,143.83	784.78	-586.56	-750.84	0.79	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,777.00	90.22	242.57	9,143.25	870.15	-630.94	-833.69	1.62	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,871.00	89.43	244.85	9,143.54	956.77	-672.57	-917.96	2.57	MWD	PATHFINDER ENERGY SE...
7/9/2014	9,966.00	89.60	247.05	9,144.35	1,045.69	-711.29	-1,004.71	2.32	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,060.00	90.75	251.09	9,144.06	1,135.33	-744.86	-1,092.49	4.47	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,155.00	90.84	255.05	9,142.74	1,227.69	-772.51	-1,183.34	4.17	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,249.00	91.19	258.48	9,141.07	1,320.29	-794.03	-1,274.82	3.67	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,344.00	91.19	263.22	9,139.10	1,414.77	-809.13	-1,368.56	4.99	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,438.00	89.87	268.15	9,138.23	1,508.73	-816.20	-1,462.26	5.43	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,533.00	89.78	272.01	9,138.52	1,603.53	-816.07	-1,557.24	4.06	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,627.00	91.10	272.28	9,137.80	1,697.08	-812.55	-1,651.17	1.43	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,721.00	91.45	272.71	9,135.71	1,790.55	-808.46	-1,745.06	0.59	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,816.00	91.10	270.52	9,133.59	1,885.15	-805.78	-1,839.99	2.33	MWD	PATHFINDER ENERGY SE...
7/9/2014	10,910.00	90.66	268.67	9,132.15	1,979.00	-806.44	-1,933.97	2.02	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,005.00	90.92	267.62	9,130.84	2,073.95	-809.52	-2,028.91	1.14	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,099.00	91.01	267.62	9,129.26	2,167.92	-813.42	-2,122.82	0.10	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,194.00	90.66	267.97	9,127.87	2,262.89	-817.08	-2,217.74	0.52	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,288.00	90.57	267.97	9,126.86	2,356.85	-820.41	-2,311.67	0.10	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,383.00	90.57	267.79	9,125.92	2,451.82	-823.92	-2,406.60	0.19	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,477.00	90.48	267.00	9,125.06	2,545.81	-828.19	-2,500.50	0.85	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,571.00	90.04	267.53	9,124.63	2,639.80	-832.68	-2,594.39	0.73	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,666.00	90.13	267.35	9,124.49	2,734.79	-836.92	-2,689.30	0.21	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,760.00	90.13	267.97	9,124.28	2,828.77	-840.76	-2,783.22	0.66	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,855.00	90.31	267.62	9,123.91	2,923.75	-844.41	-2,878.15	0.41	MWD	PATHFINDER ENERGY SE...
7/9/2014	11,949.00	90.48	267.27	9,123.26	3,017.73	-848.60	-2,972.05	0.41	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,044.00	90.84	267.09	9,122.17	3,112.72	-853.28	-3,066.93	0.42	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,138.00	90.75	269.20	9,120.86	3,206.67	-856.32	-3,160.87	2.25	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,233.00	91.36	268.94	9,119.12	3,301.56	-857.86	-3,255.84	0.70	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,328.00	91.89	268.59	9,116.42	3,396.45	-859.91	-3,350.78	0.67	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,422.00	92.07	267.62	9,113.17	3,490.36	-863.01	-3,444.67	1.05	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,516.00	91.19	267.44	9,110.50	3,584.31	-867.06	-3,538.54	0.96	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,611.00	89.43	266.65	9,109.99	3,679.30	-871.96	-3,633.41	2.03	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,705.00	89.43	265.77	9,110.92	3,773.29	-878.17	-3,727.20	0.94	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,800.10	89.78	266.12	9,111.58	3,868.38	-884.90	-3,822.06	0.52	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,894.00	88.64	267.27	9,112.87	3,962.27	-890.31	-3,915.79	1.72	MWD	PATHFINDER ENERGY SE...
7/9/2014	12,989.00	89.52	267.97	9,114.40	4,057.24	-894.26	-4,010.69	1.18	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,083.00	89.78	267.79	9,114.97	4,151.21	-897.73	-4,104.63	0.34	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,178.00	89.43	267.88	9,115.63	4,246.19	-901.32	-4,199.56	0.38	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,272.00	89.52	267.88	9,116.49	4,340.16	-904.80	-4,293.49	0.10	MWD	PATHFINDER ENERGY SE...



Directional Survey

District DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Project Group DELAWARE BASIN REG			State/Province NM	
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Survey Data

Date	MD (ftKB)	Incl. (°)	Azm. (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
7/9/2014	13,367.00	91.01	268.15	9,116.05	4,435.12	-908.09	-4,388.43	1.59	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,461.00	90.92	268.06	9,114.46	4,529.07	-911.20	-4,482.36	0.14	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,556.00	90.31	267.18	9,113.44	4,624.05	-915.14	-4,577.27	1.13	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,651.00	90.48	267.27	9,112.79	4,719.04	-919.74	-4,672.16	0.20	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,745.00	91.19	267.27	9,111.42	4,813.02	-924.22	-4,766.04	0.76	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,839.00	91.19	266.21	9,109.47	4,907.00	-929.56	-4,859.87	1.13	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,934.00	91.28	264.80	9,107.42	5,001.96	-937.01	-4,954.55	1.49	MWD	PATHFINDER ENERGY SE...
7/9/2014	13,963.00	91.63	264.37	9,106.68	5,030.93	-939.74	-4,983.41	1.91	MWD	PATHFINDER ENERGY SE...
7/16/2014	14,045.00	91.63	264.37	9,104.35	5,112.84	-947.78	-5,064.99	0.00	BIT	PATHFINDER ENERGY SE...