

30-015-41949

September 18, 2014

Devon Energy
333 West Sheridan Ave
Oklahoma City, Oklahoma 73102-5010

Attn: David Cook

NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 21 2015

RECEIVED

Re: **Hadar 10 Federal Com No. 001H**

Please find enclosed a copy of the survey from 0.00' to 4567.27' 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.

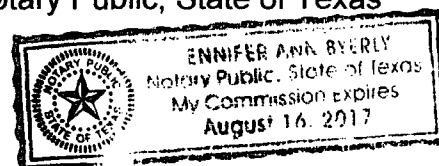
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 18 day of September A.D., 2014, by Keith Havelka.

Jennifer Ann Byerly
Jennifer Ann Byerly
Notary Public, State of Texas





Company: Devon Energy
Lease/Well: Hadar 10 Federal Com /No. 001H
Location: S11 - T19/S - R31/E
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 : RKB = 26.2 FT

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: ves gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/19/2014 / 08:36

VES Survey International

West Texas

(432) 563-5444

Surveyor: Cody Johnson

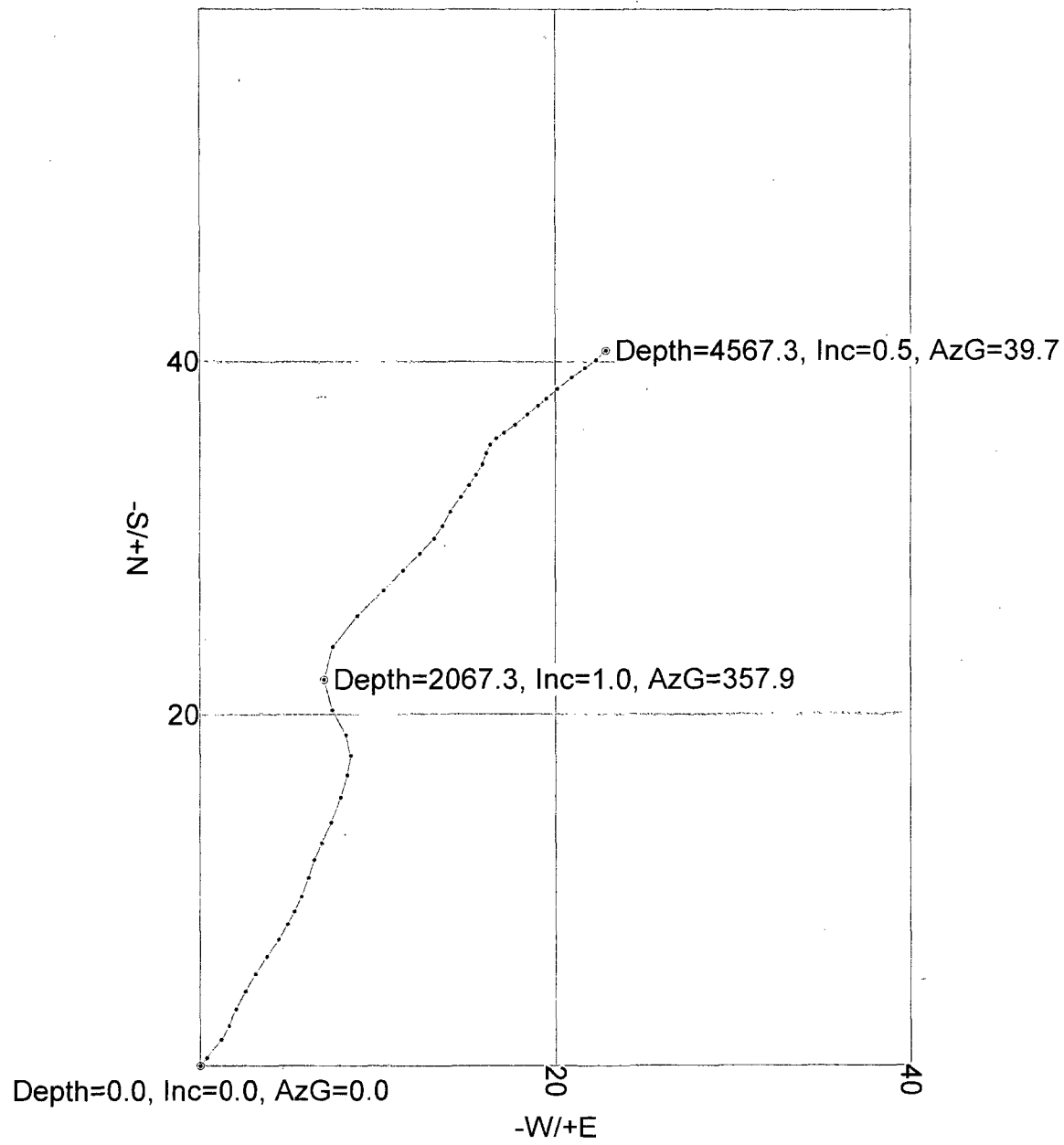
Hadar 10 Federal Com No. 001H / API 30-015-41949

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	****
67.27	0.99	40.43	67.27	0.44	0.38	0.44	0.58	40.43	1.48
167.27	0.52	32.96	167.26	1.48	1.19	1.48	1.90	38.64	0.48
267.27	0.54	25.92	267.25	2.29	1.64	2.29	2.82	35.61	0.07
367.27	0.65	26.57	367.25	3.22	2.10	3.22	3.85	33.10	0.11
467.27	0.67	25.24	467.24	4.26	2.61	4.26	5.00	31.44	0.02
567.27	0.65	32.60	567.23	5.27	3.16	5.27	6.14	30.96	0.09
667.27	0.69	33.04	667.23	6.25	3.79	6.25	7.31	31.26	0.05
767.27	0.67	35.33	767.22	7.23	4.46	7.23	8.50	31.66	0.04
867.27	0.49	28.22	867.22	8.08	5.00	8.08	9.50	31.73	0.19
967.27	0.45	24.96	967.21	8.81	5.36	8.81	10.32	31.33	0.05
1067.27	0.63	25.28	1067.21	9.66	5.76	9.66	11.25	30.81	0.18
1167.27	0.68	15.18	1167.20	10.73	6.15	10.73	12.37	29.83	0.13
1267.27	0.54	21.05	1267.20	11.74	6.48	11.74	13.41	28.89	0.15
1367.27	0.66	28.07	1367.19	12.68	6.91	12.68	14.44	28.60	0.14
1467.27	0.81	21.26	1467.18	13.85	7.44	13.85	15.72	28.25	0.18
1567.27	0.90	19.48	1567.17	15.25	7.96	15.25	17.20	27.56	0.09
1667.27	0.63	11.50	1667.16	16.53	8.33	16.53	18.51	26.75	0.29
1767.27	0.68	8.52	1767.16	17.65	8.53	17.65	19.60	25.79	0.06

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
1867.27	0.77	330.45	1867.15	18.82	8.28	18.82	20.56	23.75	0.48
1967.27	1.07	332.28	1967.13	20.24	7.51	20.24	21.59	20.36	0.30
2067.27	1.03	357.86	2067.12	21.97	7.04	21.97	23.07	17.78	0.47
2167.27	1.26	28.96	2167.10	23.83	7.54	23.83	24.99	17.57	0.65
2267.27	1.31	46.74	2267.07	25.58	8.91	25.58	27.09	19.21	0.40
2367.27	1.06	44.65	2367.05	27.02	10.40	27.02	28.95	21.04	0.26
2467.27	0.74	44.06	2467.04	28.14	11.49	28.14	30.40	22.21	0.32
2567.27	0.79	43.87	2567.03	29.10	12.42	29.10	31.64	23.11	0.05
2667.27	0.55	41.18	2667.02	29.97	13.22	29.97	32.75	23.80	0.24
2767.27	0.43	24.40	2767.02	30.68	13.69	30.68	33.59	24.06	0.19
2867.27	0.60	30.49	2867.02	31.47	14.12	31.47	34.50	24.16	0.18
2967.27	0.58	39.49	2967.01	32.32	14.70	32.32	35.51	24.47	0.10
3067.27	0.37	27.46	3067.01	32.99	15.17	32.99	36.31	24.70	0.23
3167.27	0.42	36.79	3167.01	33.57	15.54	33.57	36.99	24.84	0.09
3267.27	0.41	24.59	3267.00	34.19	15.91	34.19	37.71	24.96	0.09
3367.27	0.33	12.33	3367.00	34.80	16.12	34.80	38.35	24.86	0.11
3467.27	0.30	38.89	3467.00	35.28	16.35	35.28	38.89	24.86	0.15
3567.27	0.27	47.79	3567.00	35.64	16.68	35.64	39.35	25.08	0.05
3667.27	0.35	57.18	3667.00	35.96	17.11	35.96	39.83	25.45	0.10
3767.27	0.52	51.68	3766.99	36.41	17.73	36.41	40.50	25.96	0.17
3867.27	0.52	46.66	3866.99	37.00	18.41	37.00	41.33	26.45	0.05
3967.27	0.37	54.69	3966.99	37.50	19.00	37.50	42.04	26.87	0.16
4067.27	0.36	49.42	4066.98	37.89	19.50	37.89	42.62	27.24	0.03
4167.27	0.60	47.08	4166.98	38.45	20.12	38.45	43.40	27.63	0.24
4267.27	0.60	54.54	4266.98	39.11	20.93	39.11	44.36	28.16	0.08
4367.27	0.46	55.97	4366.97	39.64	21.69	39.64	45.19	28.69	0.14
4467.27	0.42	51.06	4466.97	40.09	22.31	40.09	45.88	29.10	0.06
4567.27	0.49	39.69	4566.97	40.65	22.87	40.65	46.64	29.36	0.11



VES Survey International
West Texas
(432) 563-5444
Surveyor: Cody Johnson
Hadar 10 Federal Com No. 001H / API 30-015-41949



VES Survey Date: 09/02/2014



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 3001541949	Latitude (°) 32° 40' 53.821" N	Longitude (°) 103° 50' 54.575" W	Ground Elev... 3,597.20	KB - GL (ft) 26.20	Orig KB Elev (ft) 3,623.40	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (°) 269.68
Actual Deviation Survey GYRO/MWD, Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey	

Deviation Survey

Date	9/2/2014		Description			
			GYRO/MWD			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EWTie In (ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (%/100ft)	Survey Tool	Survey Company
9/2/2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	67.27	0.99	40.43	67.27	-0.38	0.44	0.38	1.47	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	167.27	0.52	32.96	167.26	-1.19	1.48	1.18	0.48	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	267.27	0.54	25.92	267.25	-1.65	2.29	1.64	0.07	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	367.27	0.65	26.57	367.25	-2.11	3.22	2.10	0.11	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	467.27	0.67	25.24	467.24	-2.62	4.25	2.60	0.03	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	567.27	0.65	32.60	567.23	-3.18	5.26	3.15	0.09	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	667.27	0.69	33.04	667.23	-3.82	6.24	3.79	0.04	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	767.27	0.67	35.33	767.22	-4.50	7.22	4.45	0.03	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	867.27	0.49	28.22	867.22	-5.04	8.08	5.00	0.19	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	967.27	0.45	24.96	967.21	-5.41	8.81	5.36	0.05	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,067.27	0.63	25.28	1,067.21	-5.82	9.66	5.76	0.18	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,167.27	0.68	15.18	1,167.20	-6.21	10.73	6.15	0.13	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,267.27	0.54	21.05	1,267.20	-6.54	11.75	6.48	0.15	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,367.27	0.66	28.07	1,367.19	-6.99	12.69	6.92	0.14	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,467.27	0.81	21.26	1,467.18	-7.52	13.86	7.45	0.17	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,567.27	0.90	19.48	1,567.17	-8.05	15.26	7.96	0.09	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,667.27	0.63	11.50	1,667.16	-8.43	16.54	8.34	0.29	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,767.27	0.68	8.52	1,767.16	-8.63	17.66	8.53	0.06	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,867.27	0.77	330.45	1,867.15	-8.39	18.84	8.29	0.48	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	1,967.27	1.07	332.28	1,967.13	-7.64	20.25	7.52	0.30	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,067.27	1.03	357.86	2,067.12	-7.18	21.97	7.06	0.47	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,167.27	1.26	28.96	2,167.10	-7.69	23.83	7.55	0.65	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,267.27	1.31	46.74	2,267.07	-9.06	25.58	8.92	0.40	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,367.27	1.06	44.65	2,367.05	-10.55	27.02	10.40	0.25	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,467.27	0.74	44.06	2,467.04	-11.66	28.14	11.50	0.32	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,567.27	0.79	43.87	2,567.03	-12.59	29.10	12.43	0.05	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,667.27	0.55	41.18	2,667.03	-13.39	29.96	13.22	0.24	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,767.27	0.43	24.40	2,767.02	-13.86	30.66	13.69	0.19	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,867.27	0.60	30.49	2,867.02	-14.29	31.46	14.11	0.18	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	2,967.27	0.58	39.49	2,967.01	-14.88	32.30	14.70	0.09	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,067.27	0.37	27.46	3,067.01	-15.36	32.97	15.17	0.23	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,167.27	0.42	36.79	3,167.01	-15.73	33.55	15.54	0.08	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,267.27	0.41	24.59	3,267.00	-16.10	34.17	15.91	0.09	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,367.27	0.33	12.33	3,367.00	-16.31	34.78	16.12	0.11	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,467.27	0.30	38.89	3,467.00	-16.54	35.27	16.34	0.15	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,567.27	0.27	47.79	3,567.00	-16.88	35.63	16.68	0.05	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,667.27	0.35	57.18	3,667.00	-17.32	35.95	17.12	0.09	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,767.27	0.52	51.68	3,766.99	-17.93	36.40	17.73	0.17	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,867.27	0.52	46.66	3,866.99	-18.62	36.99	18.41	0.05	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	3,967.27	0.37	54.69	3,966.99	-19.22	37.49	19.01	0.16	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	4,067.27	0.36	49.42	4,066.99	-19.72	37.88	19.51	0.04	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	4,167.27	0.60	47.08	4,166.98	-20.35	38.44	20.13	0.24	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	4,267.27	0.60	54.54	4,266.98	-21.16	39.10	20.94	0.08	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	4,367.27	0.46	55.97	4,366.97	-21.92	39.63	21.70	0.14	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	4,467.27	0.42	51.06	4,466.97	-22.54	40.08	22.32	0.05	GYRO	VAUHGN ENERGY SERVICES
9/2/2014	4,567.27	0.49	39.69	4,566.97	-23.10	40.64	22.88	0.11	GYRO	VAUHGN ENERGY SERVICES



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 3001541949	Latitude (°) 32° 40' 53.821" N	Longitude (°) 103° 50' 54.575" W	Ground Elev... 3,597.20
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,623.40
				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
9/6/2014	4,664.00	0.79	42.78	4,663.69	-23.82	41.45	23.59	0.31	MWD	PATHFINDER ENERGY SE...
9/6/2014	4,758.00	2.02	209.96	4,757.67	-23.43	40.49	23.21	2.97	MWD	PATHFINDER ENERGY SE...
9/6/2014	4,853.00	4.92	207.55	4,852.49	-20.68	35.43	20.49	3.06	MWD	PATHFINDER ENERGY SE...
9/6/2014	4,947.00	5.63	207.05	4,946.09	-16.68	27.75	16.52	0.76	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,042.00	7.21	212.32	5,040.49	-11.32	18.56	11.22	1.77	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,136.00	8.44	214.77	5,133.62	-4.17	7.91	4.13	1.36	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,231.00	8.27	215.85	5,227.61	3.87	-3.36	-3.85	0.24	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,325.00	8.27	214.02	5,320.63	11.67	-14.44	-11.59	0.28	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,419.00	8.18	214.76	5,413.66	19.33	-25.54	-19.19	0.15	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,514.00	8.00	217.08	5,507.72	27.23	-36.36	-27.02	0.39	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,608.00	8.71	210.91	5,600.72	34.89	-47.69	-34.62	1.22	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,703.00	8.97	209.67	5,694.59	42.32	-60.30	-41.99	0.34	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,797.00	8.97	209.77	5,787.44	49.66	-73.02	-49.25	0.02	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,892.00	7.74	213.34	5,881.44	56.92	-84.80	-56.45	1.40	MWD	PATHFINDER ENERGY SE...
9/6/2014	5,987.00	6.24	210.96	5,975.73	63.14	-94.57	-62.62	1.61	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,081.00	5.98	210.49	6,069.19	68.31	-103.17	-67.73	0.28	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,176.00	5.63	211.40	6,163.71	73.29	-111.41	-72.67	0.38	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,270.00	4.66	210.34	6,257.33	77.66	-118.64	-77.00	1.04	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,364.00	3.34	197.57	6,351.10	80.45	-124.55	-79.76	1.69	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,459.00	1.76	191.10	6,446.00	81.59	-128.62	-80.87	1.69	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,554.00	0.35	173.90	6,540.98	81.85	-130.34	-81.12	1.50	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,648.00	0.26	84.15	6,634.98	81.61	-130.60	-80.88	0.46	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,743.00	0.18	42.46	6,729.98	81.29	-130.47	-80.56	0.18	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,837.00	0.35	14.00	6,823.98	81.12	-130.08	-80.39	0.22	MWD	PATHFINDER ENERGY SE...
9/6/2014	6,932.00	0.35	326.58	6,918.98	81.21	-129.56	-80.48	0.30	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,026.00	0.53	306.35	7,012.97	81.71	-129.06	-80.99	0.25	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,121.00	0.79	304.07	7,107.97	82.61	-128.44	-81.89	0.28	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,215.00	0.97	312.34	7,201.96	83.73	-127.54	-83.01	0.23	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,310.00	0.44	218.10	7,296.95	84.54	-127.28	-83.83	1.15	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,404.00	0.79	194.11	7,390.95	84.93	-128.20	-84.21	0.45	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,499.00	0.97	203.10	7,485.93	85.41	-129.57	-84.69	0.24	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,593.00	0.62	200.94	7,579.93	85.91	-130.78	-85.18	0.37	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,688.00	0.35	184.58	7,674.92	86.12	-131.55	-85.39	0.32	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,782.00	0.09	210.24	7,768.92	86.19	-131.90	-85.45	0.29	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,877.00	0.18	133.42	7,863.92	86.12	-132.06	-85.38	0.19	MWD	PATHFINDER ENERGY SE...
9/6/2014	7,972.00	0.79	160.69	7,958.92	85.79	-132.78	-85.05	0.67	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,066.00	0.70	177.85	8,052.91	85.57	-133.97	-84.82	0.25	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,161.00	0.62	193.72	8,147.90	85.67	-135.05	-84.92	0.21	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,255.00	0.62	196.49	8,241.90	85.94	-136.03	-85.18	0.03	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,350.00	0.62	195.04	8,336.89	86.23	-137.02	-85.46	0.02	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,437.00	0.26	217.14	8,423.89	86.47	-137.63	-85.70	0.45	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,531.00	3.96	266.89	8,517.81	89.84	-137.98	-89.08	4.04	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,563.00	7.39	270.53	8,549.65	93.01	-138.02	-92.24	10.77	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,594.00	10.55	270.92	8,580.27	97.84	-137.95	-97.07	10.20	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,626.00	12.22	270.66	8,611.64	104.15	-137.87	-103.39	5.22	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,657.00	15.74	271.75	8,641.71	111.64	-137.70	-110.87	11.39	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,689.00	18.73	271.76	8,672.27	121.11	-137.41	-120.35	9.34	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,720.00	21.63	271.81	8,701.37	131.80	-137.08	-131.04	9.36	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,752.00	25.06	272.95	8,730.74	144.46	-136.54	-143.70	10.81	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,783.00	28.67	273.87	8,758.39	158.44	-135.70	-157.68	11.72	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,815.00	32.18	269.44	8,785.99	174.62	-135.27	-173.87	13.01	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,846.00	35.79	271.94	8,811.69	191.94	-135.04	-191.19	12.49	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,878.00	39.04	270.55	8,837.10	211.37	-134.63	-210.62	10.49	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,909.00	42.21	270.02	8,860.63	231.55	-134.53	-230.81	10.29	MWD	PATHFINDER ENERGY SE...
9/6/2014	8,941.00	45.55	269.91	8,883.69	253.73	-134.55	-252.98	10.44	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 3001541949	Latitude (°) 32° 40' 53.821" N	Longitude (°) 103° 50' 54.575" W	Ground Elev... 3,597.20
			KB - GL (ft) 26.20	Orig KB Elev (ft) 3,623.40
				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
9/6/2014	8,972.00	48.63	269.26	8,904.79	276.43	-134.71	-275.69	10.05	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,004.00	51.62	268.58	8,925.31	300.99	-135.18	-300.24	9.48	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,035.00	55.31	267.99	8,943.76	325.88	-135.93	-325.13	12.00	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,067.00	59.09	267.87	8,961.09	352.76	-136.90	-352.00	11.82	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,098.00	63.22	267.80	8,976.04	379.90	-137.93	-379.13	13.32	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,130.00	67.44	267.70	8,989.39	408.95	-139.07	-408.18	13.19	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,161.00	71.05	268.16	9,000.38	437.92	-140.11	-437.15	11.73	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,193.00	73.42	268.22	9,010.14	468.38	-141.07	-467.60	7.41	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,224.00	75.71	268.54	9,018.39	498.26	-141.92	-497.47	7.45	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,256.00	78.17	268.95	9,025.62	529.42	-142.60	-528.63	7.79	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,287.00	80.46	269.50	9,031.37	559.88	-143.01	-559.09	7.59	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,319.00	83.36	270.56	9,035.87	591.56	-142.99	-590.77	9.64	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,350.00	87.23	270.83	9,038.41	622.44	-142.62	-621.66	12.51	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,381.00	90.48	271.53	9,039.03	653.42	-141.98	-652.64	10.72	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,475.00	91.89	271.45	9,037.09	747.35	-139.54	-746.59	1.50	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,570.00	92.95	272.06	9,033.08	842.20	-136.63	-841.45	1.29	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,664.00	91.36	271.49	9,029.54	936.07	-133.72	-935.34	1.80	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,758.00	89.60	269.93	9,028.76	1,030.05	-132.56	-1,029.32	2.50	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,853.00	88.55	269.45	9,030.29	1,125.03	-133.07	-1,124.31	1.22	MWD	PATHFINDER ENERGY SE...
9/6/2014	9,947.00	88.29	269.19	9,032.88	1,219.00	-134.19	-1,218.26	0.39	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,042.00	88.11	269.22	9,035.87	1,313.94	-135.50	-1,313.21	0.19	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,137.00	88.55	270.03	9,038.63	1,408.90	-136.13	-1,408.17	0.97	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,231.00	89.43	270.19	9,040.29	1,502.89	-135.95	-1,502.15	0.95	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,326.00	90.40	269.93	9,040.43	1,597.88	-135.85	-1,597.15	1.06	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,420.00	91.71	270.58	9,038.70	1,691.86	-135.43	-1,691.13	1.56	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,515.00	90.84	269.49	9,036.59	1,786.83	-135.37	-1,786.10	1.47	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,609.00	90.22	269.15	9,035.72	1,880.82	-136.49	-1,880.09	0.75	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,704.00	90.04	269.44	9,035.50	1,975.82	-137.65	-1,975.08	0.36	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,798.00	90.22	269.85	9,035.29	2,069.82	-138.24	-2,069.08	0.48	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,893.00	90.31	270.07	9,034.85	2,164.82	-138.30	-2,164.08	0.25	MWD	PATHFINDER ENERGY SE...
9/6/2014	10,987.00	90.40	270.85	9,034.27	2,258.81	-137.55	-2,258.08	0.84	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,082.00	90.40	271.35	9,033.60	2,353.78	-135.72	-2,353.05	0.53	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,176.00	90.66	271.97	9,032.74	2,447.72	-133.00	-2,447.01	0.72	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,271.00	90.92	270.72	9,031.43	2,542.66	-130.77	-2,541.97	1.34	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,365.00	90.31	268.89	9,030.42	2,636.65	-131.09	-2,635.96	2.05	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,460.00	90.31	268.77	9,029.90	2,731.64	-133.03	-2,730.94	0.13	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,554.00	90.31	268.87	9,029.39	2,825.63	-134.97	-2,824.92	0.11	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,649.00	90.75	269.11	9,028.51	2,920.62	-136.64	-2,919.90	0.53	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,743.00	89.43	268.69	9,028.37	3,014.61	-138.45	-3,013.88	1.47	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,838.00	89.16	269.02	9,029.54	3,109.59	-140.34	-3,108.86	0.45	MWD	PATHFINDER ENERGY SE...
9/6/2014	11,932.00	89.34	269.43	9,030.77	3,203.58	-141.62	-3,202.84	0.48	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,027.00	90.04	269.32	9,031.28	3,298.58	-142.65	-3,297.83	0.75	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,122.00	90.48	269.28	9,030.85	3,393.57	-143.81	-3,392.82	0.47	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,216.00	90.75	269.12	9,029.84	3,487.56	-145.13	-3,486.81	0.33	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,311.00	90.66	268.90	9,028.67	3,582.55	-146.77	-3,581.79	0.25	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,405.00	91.54	268.61	9,026.87	3,676.52	-148.81	-3,675.75	0.99	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,500.00	90.04	268.33	9,025.56	3,771.49	-151.34	-3,770.70	1.61	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,594.00	90.22	268.08	9,025.34	3,865.46	-154.29	-3,864.65	0.33	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,689.00	91.01	268.46	9,024.32	3,960.42	-157.16	-3,959.60	0.92	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,783.00	90.31	268.91	9,023.24	4,054.40	-159.31	-4,053.57	0.89	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,878.00	90.13	269.07	9,022.88	4,149.39	-160.99	-4,148.56	0.25	MWD	PATHFINDER ENERGY SE...
9/6/2014	12,972.00	89.96	269.01	9,022.80	4,243.39	-162.56	-4,242.54	0.19	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,067.00	90.31	269.40	9,022.58	4,338.38	-163.88	-4,337.53	0.55	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,161.00	90.40	269.73	9,022.00	4,432.38	-164.60	-4,431.53	0.36	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,256.00	90.75	270.05	9,021.04	4,527.37	-164.78	-4,526.52	0.50	MWD	PATHFINDER ENERGY SE...



Directional Survey

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Survey Data

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9/6/2014	13,350.00	91.19	270.60	9,019.45	4,621.35	-164.24	-4,620.51	0.75	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,445.00	91.80	270.91	9,016.97	4,716.30	-162.99	-4,715.47	0.72	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,540.00	91.28	271.65	9,014.42	4,811.23	-160.87	-4,810.41	0.95	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,633.00	90.84	271.78	9,012.70	4,904.16	-158.09	-4,903.35	0.49	MWD	PATHFINDER ENERGY SE...
9/6/2014	13,711.00	90.84	271.78	9,011.56	4,982.10	-155.67	-4,981.30	0.00	BIT	PATHFINDER ENERGY SE...