



January 9, 2015

NM OIL CONSERVATION

ARTESIA DISTRICT

APR 28 2015

RECEIVED

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

Attn: David Cook

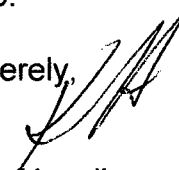
15- 42347

Re: **Vega 29 Fed 4H**

Please find enclosed a copy of the survey from 0' to 4117' ran on the above referenced well.

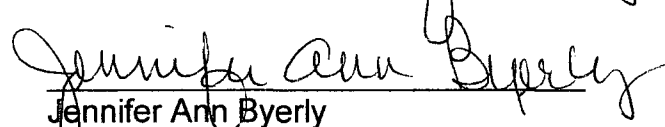
If I can be of any further service please do not hesitate to call me at 800-606-4976.

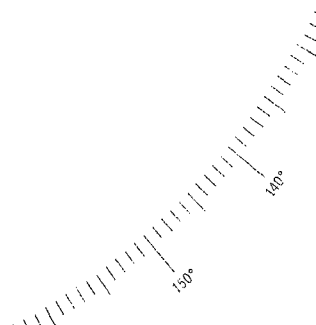
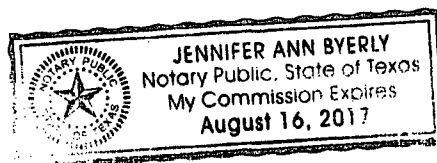
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 9 day of January
A.D., 2015, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: DEVON ENERGY
Lease/Well: VEGA 29 FED/4H

Rig Name: SCAN TEXAS
State/County: NEW MEXICO/EDDY
Latitude: 32.64, Longitude: -103.89
GRID North is 0.24 Degrees East of True North
VS-Azi: 181.43 Degrees



Depth Reference : RKB: 24 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 1/9/2015 / 13:16

VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Vega 29 Fed 4H / API 30-015-42347

NM OIL CONSERVATION

ARTESIA DISTRICT

APR 28 2015

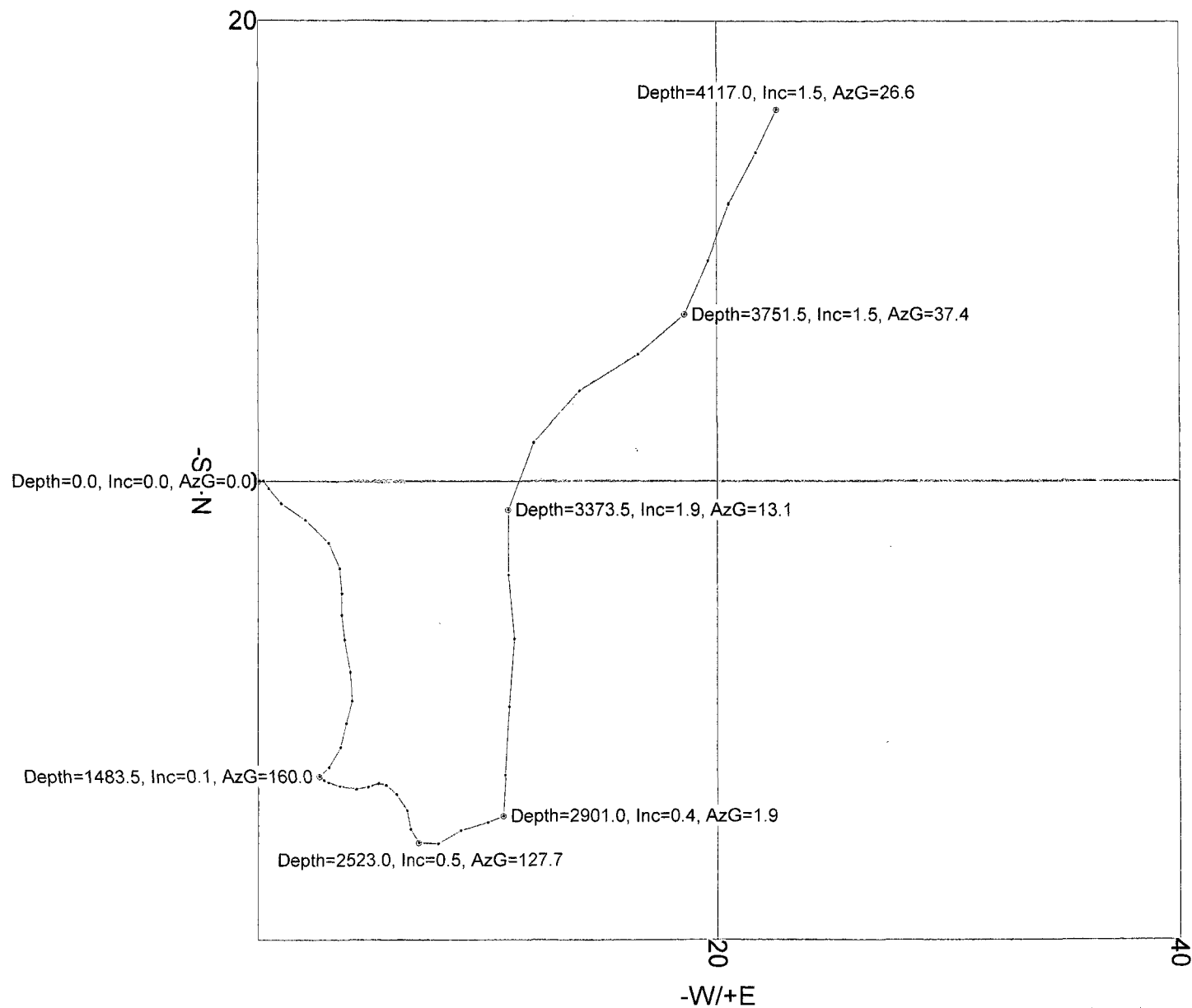
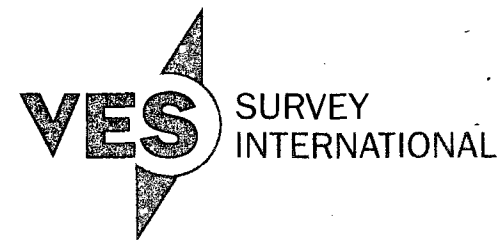
RECEIVED

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	****
66.00	0.10	85.87	66.00	0.00	0.06	-0.01	0.06	85.87	0.15
160.50	0.09	81.87	160.50	0.02	0.21	-0.03	0.21	84.49	0.01
255.00	0.45	155.07	255.00	-0.31	0.44	0.30	0.54	124.96	0.46
349.50	0.64	128.60	349.49	-0.98	1.01	0.95	1.41	133.99	0.33
444.00	0.91	120.43	443.99	-1.69	2.08	1.64	2.68	129.14	0.31
538.50	0.87	148.73	538.47	-2.68	3.09	2.60	4.09	130.90	0.46
633.00	0.62	167.57	632.97	-3.79	3.57	3.70	5.21	136.66	0.36
727.50	0.71	181.02	727.46	-4.87	3.67	4.78	6.10	142.97	0.19
822.00	0.43	179.28	821.96	-5.81	3.67	5.72	6.87	147.74	0.29
916.50	0.87	170.60	916.45	-6.87	3.79	6.78	7.85	151.14	0.47
1011.00	0.90	169.62	1010.94	-8.31	4.04	8.21	9.24	154.07	0.03
1105.50	0.63	184.99	1105.43	-9.55	4.13	9.45	10.41	156.64	0.35
1200.00	0.60	204.74	1199.92	-10.53	3.87	10.43	11.22	159.79	0.23
1294.50	0.71	183.98	1294.42	-11.56	3.62	11.47	12.12	162.59	0.27
1389.00	0.66	237.71	1388.91	-12.43	3.12	12.35	12.82	165.89	0.66
1483.50	0.14	160.03	1483.41	-12.83	2.70	12.76	13.11	168.10	0.68
1578.00	0.19	115.36	1577.91	-13.00	2.88	12.93	13.32	167.49	0.14
1672.50	0.07	123.79	1672.41	-13.10	3.08	13.02	13.46	166.79	0.12

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
1767.00	0.55	106.55	1766.91	-13.27	3.57	13.17	13.74	164.96	0.51
1861.50	0.35	89.25	1861.41	-13.39	4.29	13.28	14.07	162.22	0.25
1956.00	0.31	66.29	1955.90	-13.29	4.82	13.16	14.14	160.06	0.15
2050.50	0.26	77.11	2050.40	-13.14	5.27	13.00	14.15	158.16	0.08
2145.00	0.23	139.78	2144.90	-13.23	5.60	13.09	14.37	157.07	0.27
2239.50	0.52	124.53	2239.40	-13.62	6.07	13.46	14.91	155.97	0.32
2334.00	0.58	167.11	2333.90	-14.33	6.53	14.16	15.74	155.50	0.43
2428.50	0.42	170.74	2428.39	-15.14	6.69	14.97	16.55	156.15	0.17
2523.00	0.51	127.71	2522.89	-15.74	7.08	15.55	17.25	155.78	0.37
2617.50	0.65	66.76	2617.39	-15.78	7.90	15.58	17.65	153.41	0.63
2712.00	0.74	51.73	2711.88	-15.19	8.87	14.97	17.59	149.73	0.22
2806.50	0.82	92.11	2806.37	-14.84	10.03	14.58	17.91	145.96	0.58
2901.00	0.37	1.93	2900.87	-14.56	10.72	14.29	18.08	143.65	0.96
2995.50	1.80	2.90	2995.35	-12.78	10.80	12.50	16.73	139.79	1.52
3090.00	1.80	3.93	3089.80	-9.81	10.98	9.54	14.72	131.79	0.03
3184.50	1.81	4.40	3184.25	-6.85	11.19	6.57	13.12	121.45	0.02
3279.00	1.63	344.06	3278.71	-4.07	10.94	3.80	11.67	110.41	0.67
3373.50	1.91	13.07	3373.17	-1.25	10.93	0.97	11.00	96.51	0.98
3468.00	1.91	28.37	3467.62	1.68	12.03	-1.98	12.15	82.07	0.54
3562.50	1.85	55.77	3562.07	3.92	14.04	-4.27	14.58	74.41	0.94
3657.00	1.77	60.21	3656.52	5.50	16.57	-5.91	17.46	71.63	0.17
3751.50	1.55	37.43	3750.98	7.24	18.62	-7.71	19.97	68.74	0.73
3846.00	1.63	9.78	3845.45	9.58	19.62	-10.07	21.83	63.97	0.81
3940.50	1.61	30.81	3939.91	12.04	20.53	-12.55	23.80	59.61	0.62
4035.00	1.44	23.96	4034.38	14.26	21.69	-14.80	25.96	56.67	0.26
4117.00	1.47	26.58	4116.35	16.15	22.58	-16.70	27.76	54.43	0.09



VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Vega 29 Fed 4H / API 30-015-42347





Directional Survey

Sub-Division DELAWARE BASIN	County EBBY	Field Name HACKBERRY	Region DELAWARE SLOPE EAST	State/Province NM
Surface Legal Location SEC20 T19S R31E	AP Number 3001542347	Latitude (°) 32° 38' 23.701" N	Longitude (°) 103° 53' 7.243" W	Ground Elev. M 3481.70
				Orig. KB Elev. (ft) 3507.70
				Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore OH	SAP Well ID 37470	Vertical Section Direction (°) 180.00
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Kick Offs & Key Depths

Date	Type	Top/Depth (ftKB)
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Actual Deviation Survey GYRO/MWD Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey
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Deviation Survey

Date 12/22/2014	Description GYRO/MWD
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MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)
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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
12/22/2	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	GYRO	VAUHGN ENERGY SERVICES
12/22/2	66:00	0:10	85:87	66:00	0:00	0:00	0:06	0:15	GYRO	VAUHGN ENERGY SERVICES
12/22/2	160:50	0:09	81:87	160:50	-0:02	0:02	0:21	0:01	GYRO	VAUHGN ENERGY SERVICES
12/22/2	255:00	0:45	155:07	255:00	0:31	-0:31	0:44	0:46	GYRO	VAUHGN ENERGY SERVICES
12/22/2	349:50	0:64	128:60	349:49	0:97	-0:97	1:01	0:33	GYRO	VAUHGN ENERGY SERVICES
12/22/2	444:00	0:91	120:43	443:99	1:68	-1:68	2:07	0:31	GYRO	VAUHGN ENERGY SERVICES
12/22/2	538:50	0:87	148:73	538:47	2:67	-2:67	3:09	0:46	GYRO	VAUHGN ENERGY SERVICES
12/22/2	633:00	0:62	167:57	632:97	3:79	-3:79	3:57	0:37	GYRO	VAUHGN ENERGY SERVICES
12/22/2	727:50	0:71	181:02	727:46	4:87	-4:87	3:67	0:19	GYRO	VAUHGN ENERGY SERVICES
12/22/2	822:00	0:43	179:28	821:96	5:81	-5:81	3:67	0:30	GYRO	VAUHGN ENERGY SERVICES
12/22/2	916:50	0:87	170:60	916:45	6:87	-6:87	3:79	0:48	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:011:00	0:90	169:62	1:010:94	8:31	-8:31	4:04	0:04	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:105:50	0:63	184:99	1:105:43	9:56	-9:56	4:13	0:36	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:200:00	0:60	204:74	1:199:92	10:53	-10:53	3:88	0:23	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:294:50	0:71	183:98	1:294:42	11:56	-11:56	3:63	0:27	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:389:00	0:66	237:71	1:388:91	12:43	-12:43	3:13	0:66	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:483:50	0:14	160:03	1:483:41	12:83	-12:83	2:71	0:68	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:578:00	0:19	115:36	1:577:91	13:01	-13:01	2:89	0:14	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:672:50	0:07	123:79	1:672:41	13:11	-13:11	3:08	0:13	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:767:00	0:55	106:55	1:766:91	13:27	-13:27	3:56	0:51	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:861:50	0:35	89:25	1:861:41	13:39	-13:39	4:28	0:25	GYRO	VAUHGN ENERGY SERVICES
12/22/2	1:956:00	0:31	66:29	1:955:90	13:29	-13:29	4:81	0:15	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:050:50	0:26	77:11	2:050:40	13:14	-13:14	5:25	0:08	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:145:00	0:23	139:78	2:144:90	13:23	-13:23	5:58	0:27	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:239:50	0:52	124:53	2:239:40	13:62	-13:62	6:06	0:32	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:334:00	0:58	167:11	2:333:90	14:33	-14:33	6:52	0:43	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:428:50	0:42	170:74	2:428:39	15:14	-15:14	6:68	0:17	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:523:00	0:51	127:71	2:522:89	15:74	-15:74	7:07	0:37	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:617:50	0:65	66:76	2:617:39	15:78	-15:78	7:89	0:64	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:712:00	0:74	51:73	2:711:88	15:20	-15:20	8:86	0:21	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:806:50	0:82	92:11	2:806:37	14:84	-14:84	10:02	0:58	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:901:00	0:37	1:93	2:900:87	14:56	-14:56	10:71	0:95	GYRO	VAUHGN ENERGY SERVICES
12/22/2	2:995:50	1:80	2:90	2:995:35	12:78	-12:78	10:79	1:51	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:090:00	1:80	3:93	3:089:80	9:81	-9:81	10:97	0:03	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:184:50	1:81	4:40	3:184:25	6:84	-6:84	11:18	0:02	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:279:00	1:63	344:06	3:278:71	4:06	-4:06	10:93	0:67	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:373:50	1:91	13:07	3:373:17	1:24	-1:24	10:92	0:98	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:468:00	1:91	28:37	3:467:62	1:68	-1:68	12:02	0:54	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:562:50	1:85	55:77	3:562:07	3:93	-3:93	14:03	0:94	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:657:00	1:77	60:21	3:656:52	5:51	-5:51	16:56	0:17	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:751:50	1:55	37:43	3:750:98	7:25	-7:25	18:60	0:73	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:846:00	1:63	9:78	3:845:45	9:59	-9:59	19:61	0:81	GYRO	VAUHGN ENERGY SERVICES
12/22/2	3:940:50	1:61	30:81	3:939:91	12:05	-12:05	20:51	0:63	GYRO	VAUHGN ENERGY SERVICES
12/22/2	4:035:00	1:44	23:96	4:034:38	14:28	-14:28	21:68	0:26	GYRO	VAUHGN ENERGY SERVICES

devon

Directional Survey

Sub-Division DELAWARE BASIN	County EDDY	Field Name HACKBERRY	Region DELAWARE SLOPE EAST	State/Province NM
Surface Legal Location SEC20 T19S R31E	API/WMI 3001542347	Latitude (°) 32° 38' 23.701" N	Longitude (°) 103° 53' 7.243" W	Ground Elev. M. 3,481.70
				Orig KB Elev. (ft) 3,507.70
				Tubing Head Elevation (ft)

Survey Data										
Date	MD (ft/KB)	Incl. (°)	Azm. (°)	TVD (ft/KB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (7/100ft)	Survey Tool	Survey Company
12/22/2	4,117.00	1.47	26.58	4,116.35	-16.16	-16.16	22.57	0.09	GYRO	VAUHG N ENERGY SERVICES
12/22/2	4,157.00	1.36	27.45	4,156.34	-17.04	-17.04	23.01	0.28	MWD	WEATHERFORD
12/22/2	4,283.00	1.65	86.54	4,282.30	-18.48	-18.48	25.51	1.19	MWD	WEATHERFORD
12/22/2	4,377.00	2.41	109.96	4,376.24	-17.89	-17.89	28.72	1.18	MWD	WEATHERFORD
12/22/2	4,472.00	3.13	119.37	4,471.13	-15.93	-15.93	32.86	0.89	MWD	WEATHERFORD
12/22/2	4,566.00	3.92	127.87	4,564.95	-12.70	-12.70	37.63	1.01	MWD	WEATHERFORD
12/22/2	4,660.00	4.75	130.40	4,658.68	-8.21	-8.21	43.13	0.91	MWD	WEATHERFORD
12/22/2	4,754.00	5.44	135.33	4,752.31	-2.52	-2.52	49.23	0.87	MWD	WEATHERFORD
12/22/2	4,848.00	6.19	131.95	4,845.83	4.04	4.04	56.13	0.88	MWD	WEATHERFORD
12/22/2	4,942.00	6.25	130.56	4,939.28	10.76	10.76	63.79	0.17	MWD	WEATHERFORD
12/22/2	5,037.00	5.85	128.09	5,033.75	17.11	17.11	71.53	0.50	MWD	WEATHERFORD
12/22/2	5,131.00	6.30	136.06	5,127.22	23.77	-23.77	78.88	1.02	MWD	WEATHERFORD
12/22/2	5,225.00	6.79	138.52	5,220.61	31.65	-31.65	86.14	0.60	MWD	WEATHERFORD
12/22/2	5,320.00	6.40	138.18	5,314.98	39.80	-39.80	93.39	0.41	MWD	WEATHERFORD
12/22/2	5,415.00	6.28	139.31	5,409.40	47.69	-47.69	100.30	0.18	MWD	WEATHERFORD
12/22/2	5,509.00	6.49	134.29	5,502.81	55.30	-55.30	107.46	0.63	MWD	WEATHERFORD
12/22/2	5,604.00	6.19	135.10	5,597.23	62.68	-62.68	114.92	0.33	MWD	WEATHERFORD
12/23/2	5,698.00	5.66	135.72	5,690.73	69.58	-69.58	121.73	0.57	MWD	WEATHERFORD
12/23/2	5,792.00	5.52	134.82	5,784.28	76.09	-76.09	128.17	0.18	MWD	WEATHERFORD
12/23/2	5,887.00	5.19	135.46	5,878.87	82.37	-82.37	134.43	0.35	MWD	WEATHERFORD
12/23/2	5,982.00	5.50	133.77	5,973.46	88.58	-88.58	140.73	0.37	MWD	WEATHERFORD
12/23/2	6,075.00	6.62	134.63	6,065.94	95.43	-95.43	147.76	1.21	MWD	WEATHERFORD
12/23/2	6,170.00	6.24	134.96	6,160.34	102.93	-102.93	155.31	0.40	MWD	WEATHERFORD
12/23/2	6,264.00	5.76	135.78	6,253.82	109.92	-109.92	162.22	0.52	MWD	WEATHERFORD
12/23/2	6,359.00	6.20	133.45	6,348.31	116.86	-116.86	169.27	0.53	MWD	WEATHERFORD
12/23/2	6,453.00	5.98	133.87	6,441.77	123.75	-123.75	176.48	0.24	MWD	WEATHERFORD
12/23/2	6,547.00	5.82	129.74	6,535.28	130.19	-130.19	183.68	0.48	MWD	WEATHERFORD
12/23/2	6,641.00	6.35	130.59	6,628.75	136.62	-136.62	191.29	0.57	MWD	WEATHERFORD
12/23/2	6,736.00	6.65	133.23	6,723.14	143.80	-143.80	199.29	0.45	MWD	WEATHERFORD
12/23/2	6,830.00	7.50	131.61	6,816.42	151.61	-151.61	207.84	0.93	MWD	WEATHERFORD
12/23/2	6,925.00	7.06	130.23	6,910.65	159.49	-159.49	216.93	0.50	MWD	WEATHERFORD
12/23/2	7,019.00	6.74	137.00	7,003.97	167.26	-167.26	225.11	0.93	MWD	WEATHERFORD
12/24/2	7,114.00	5.72	133.52	7,098.41	174.60	-174.60	232.34	1.14	MWD	WEATHERFORD
12/24/2	7,208.00	6.41	136.29	7,191.89	181.61	-181.61	239.36	0.80	MWD	WEATHERFORD
12/24/2	7,302.00	7.12	138.66	7,285.23	189.78	-189.78	246.84	0.81	MWD	WEATHERFORD
12/24/2	7,396.00	6.59	138.57	7,378.56	198.20	-198.20	254.25	0.56	MWD	WEATHERFORD
12/24/2	7,490.00	5.98	137.83	7,471.99	205.87	-205.87	261.11	0.65	MWD	WEATHERFORD
12/24/2	7,583.00	5.41	134.39	7,544.63	211.10	-211.10	266.12	0.91	MWD	WEATHERFORD
12/24/2	7,676.00	5.08	132.30	7,591.44	214.05	-214.05	269.25	0.81	MWD	WEATHERFORD
12/24/2	7,642.00	6.68	146.93	7,623.27	216.56	-216.56	271.31	6.81	MWD	WEATHERFORD
12/24/2	7,673.00	9.39	156.82	7,653.96	220.40	-220.40	273.29	9.78	MWD	WEATHERFORD
12/24/2	7,704.00	12.55	162.44	7,684.39	225.94	-225.94	275.30	10.75	MWD	WEATHERFORD
12/24/2	7,736.00	16.09	166.87	7,715.40	233.57	-233.57	277.36	11.57	MWD	WEATHERFORD
12/24/2	7,768.00	19.79	170.47	7,745.84	243.24	-243.24	279.26	12.07	MWD	WEATHERFORD
12/24/2	7,799.00	23.83	171.60	7,774.61	254.61	-254.61	281.05	13.10	MWD	WEATHERFORD
12/24/2	7,831.00	27.90	172.76	7,803.40	268.44	-268.44	282.94	12.82	MWD	WEATHERFORD
12/24/2	7,862.00	31.40	174.68	7,830.34	283.68	-283.68	284.60	11.70	MWD	WEATHERFORD
12/24/2	7,894.00	34.12	175.04	7,857.24	300.93	-300.93	286.15	8.52	MWD	WEATHERFORD
12/24/2	7,925.00	37.02	175.19	7,882.46	318.89	-318.89	287.68	9.36	MWD	WEATHERFORD
12/24/2	7,957.00	39.77	176.44	7,907.53	338.71	-338.71	289.13	8.93	MWD	WEATHERFORD
12/24/2	7,988.00	42.51	176.81	7,930.88	359.07	-359.07	290.33	8.87	MWD	WEATHERFORD
12/24/2	8,020.00	45.01	176.99	7,953.99	381.17	-381.17	291.52	7.82	MWD	WEATHERFORD
12/24/2	8,051.00	47.63	177.50	7,975.40	403.56	-403.56	292.60	8.53	MWD	WEATHERFORD
12/24/2	8,082.00	50.29	176.89	7,995.75	426.91	-426.91	293.74	8.71	MWD	WEATHERFORD
12/24/2	8,114.00	53.34	177.24	8,015.53	452.03	-452.03	295.03	9.57	MWD	WEATHERFORD



Directional Survey

Sub-Division	County	Field Name	Region	State/Province
DELAWARE BASIN	EDDY	HACKBERRY	DELAWARE SLOPE EAST	NM
Surface/ Legal Location	API/E/W	Latitude (°)	Longitude (°)	Ground Elev. (M)
SEC20.T19S.R31E	3001542347	32° 38' 23.701" N	103° 53' 7.243" W	3,481.70
				Orig. (K) Elev. (ft)
				3,507.70
				Tubing Head Elevation (ft)

Survey Data

Date	MD (RKB)	Incl (°)	Azm (°)	TVD (RKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
12/24/2	8,146.00	55.90	177.04	8,034.06	478.08	-478.08	296.33	8.02	MWD	WEATHERFORD
12/24/2	8,177.00	58.51	177.38	8,050.84	504.11	-504.11	297.60	8.47	MWD	WEATHERFORD
12/24/2	8,208.00	60.86	177.30	8,066.49	530.84	-530.84	298.84	7.58	MWD	WEATHERFORD
12/24/2	8,240.00	63.36	177.49	8,081.46	559.09	-559.09	300.13	7.83	MWD	WEATHERFORD
12/24/2	8,271.00	65.72	178.36	8,094.78	587.06	-587.06	301.14	8.02	MWD	WEATHERFORD
12/24/2	8,302.00	67.97	178.77	8,106.97	615.55	-615.55	301.85	7.36	MWD	WEATHERFORD
12/24/2	8,333.00	70.68	179.01	8,117.92	644.55	-644.55	302.41	8.77	MWD	WEATHERFORD
12/24/2	8,355.00	71.78	179.52	8,125.00	665.37	-665.37	302.68	5.46	MWD	WEATHERFORD
12/24/2	8,386.00	73.84	179.99	8,134.16	694.99	-694.99	302.80	6.80	MWD	WEATHERFORD
12/24/2	8,418.00	75.71	179.73	8,142.56	725.86	-725.86	302.88	5.90	MWD	WEATHERFORD
12/24/2	8,449.00	77.95	180.65	8,149.62	756.04	-756.04	302.78	7.78	MWD	WEATHERFORD
12/24/2	8,481.00	80.83	180.25	8,155.51	787.49	-787.49	302.53	9.08	MWD	WEATHERFORD
12/24/2	8,513.00	82.00	180.10	8,160.29	819.13	-819.13	302.44	3.69	MWD	WEATHERFORD
12/28/2	8,544.00	83.28	179.34	8,164.26	849.88	-849.88	302.59	4.79	MWD	WEATHERFORD
12/28/2	8,575.00	85.52	179.01	8,167.29	880.72	-880.72	303.03	7.30	MWD	WEATHERFORD
12/28/2	8,638.00	89.72	179.00	8,169.90	943.65	-943.65	304.12	6.67	MWD	WEATHERFORD
12/28/2	8,732.00	89.51	179.14	8,170.54	1,037.63	-1,037.63	305.65	0.27	MWD	WEATHERFORD
12/28/2	8,827.00	89.44	178.98	8,171.41	1,132.61	-1,132.61	307.21	0.18	MWD	WEATHERFORD
12/28/2	8,921.00	89.79	178.72	8,172.04	1,226.59	-1,226.59	309.09	0.46	MWD	WEATHERFORD
12/28/2	9,016.00	89.79	178.72	8,172.39	1,321.57	-1,321.57	311.22	0.00	MWD	WEATHERFORD
12/28/2	9,110.00	89.58	178.53	8,172.90	1,415.54	-1,415.54	313.47	0.30	MWD	WEATHERFORD
12/28/2	9,204.00	89.65	178.49	8,173.53	1,509.51	-1,509.51	315.92	0.09	MWD	WEATHERFORD
12/28/2	9,298.00	89.72	178.93	8,174.05	1,603.48	-1,603.48	318.03	0.47	MWD	WEATHERFORD
12/28/2	9,393.00	89.37	179.10	8,174.80	1,698.46	-1,698.46	319.67	0.41	MWD	WEATHERFORD
12/28/2	9,487.00	89.23	179.23	8,175.95	1,792.45	-1,792.45	321.03	0.20	MWD	WEATHERFORD
12/28/2	9,582.00	89.09	179.54	8,177.35	1,887.43	-1,887.43	322.05	0.36	MWD	WEATHERFORD
12/28/2	9,670.00	89.02	179.68	8,178.80	1,975.42	-1,975.42	322.65	0.18	MWD	WEATHERFORD
12/28/2	9,770.00	88.95	179.70	8,180.57	2,075.40	-2,075.40	323.19	0.07	MWD	WEATHERFORD
12/28/2	9,864.00	88.81	179.86	8,182.41	2,169.38	-2,169.38	323.56	0.23	MWD	WEATHERFORD
12/28/2	9,958.00	88.67	179.81	8,184.47	2,263.36	-2,263.36	323.83	0.16	MWD	WEATHERFORD
12/28/2	10,053.00	89.02	180.20	8,186.39	2,358.34	-2,358.34	323.82	0.55	MWD	WEATHERFORD
12/28/2	10,147.00	89.16	180.20	8,187.88	2,452.33	-2,452.33	323.49	0.15	MWD	WEATHERFORD
12/28/2	10,241.00	89.37	180.64	8,189.09	2,546.32	-2,546.32	322.80	0.52	MWD	WEATHERFORD
12/28/2	10,335.00	89.37	180.62	8,190.12	2,640.30	-2,640.30	321.77	0.02	MWD	WEATHERFORD
12/28/2	10,429.00	89.58	181.07	8,190.98	2,734.29	-2,734.29	320.38	0.53	MWD	WEATHERFORD
12/28/2	10,524.00	90.00	181.25	8,191.33	2,829.27	-2,829.27	318.46	0.48	MWD	WEATHERFORD
12/28/2	10,618.00	89.44	181.01	8,191.79	2,923.25	-2,923.25	316.60	0.65	MWD	WEATHERFORD
12/28/2	10,712.00	89.79	181.61	8,192.42	3,017.22	-3,017.22	314.45	0.74	MWD	WEATHERFORD
12/28/2	10,807.00	90.21	182.17	8,192.42	3,112.17	-3,112.17	311.32	0.74	MWD	WEATHERFORD
12/28/2	10,902.00	90.00	182.14	8,192.25	3,207.10	-3,207.10	307.75	0.22	MWD	WEATHERFORD
12/28/2	10,996.00	89.79	182.43	8,192.42	3,301.03	-3,301.03	304.00	0.38	MWD	WEATHERFORD
12/28/2	11,091.00	89.93	182.85	8,192.65	3,395.93	-3,395.93	299.63	0.47	MWD	WEATHERFORD
12/28/2	11,185.00	89.72	182.77	8,192.94	3,489.81	-3,489.81	295.02	0.24	MWD	WEATHERFORD
12/29/2	11,279.00	89.44	181.74	8,193.63	3,583.74	-3,583.74	291.32	1.14	MWD	WEATHERFORD
12/29/2	11,374.00	88.67	179.34	8,195.19	3,678.71	-3,678.71	290.42	2.65	MWD	WEATHERFORD
12/29/2	11,468.00	88.81	178.94	8,197.26	3,772.68	-3,772.68	291.83	0.45	MWD	WEATHERFORD
12/29/2	11,562.00	87.69	179.50	8,200.13	3,866.62	-3,866.62	293.11	1.33	MWD	WEATHERFORD
12/29/2	11,657.00	86.85	179.36	8,204.66	3,961.51	-3,961.51	294.06	0.90	MWD	WEATHERFORD
12/29/2	11,751.00	89.09	178.80	8,207.99	4,055.43	-4,055.43	295.57	2.46	MWD	WEATHERFORD
12/29/2	11,846.00	90.21	179.08	8,208.57	4,150.41	-4,150.41	297.32	1.22	MWD	WEATHERFORD
12/29/2	11,940.00	89.65	179.40	8,208.68	4,244.40	-4,244.40	298.57	0.69	MWD	WEATHERFORD
12/29/2	12,034.00	89.37	180.00	8,209.49	4,338.40	-4,338.40	299.06	0.70	MWD	WEATHERFORD
12/29/2	12,128.00	89.93	179.14	8,210.06	4,432.39	-4,432.39	299.77	1.09	MWD	WEATHERFORD
12/29/2	12,223.00	89.93	178.79	8,210.18	4,527.38	-4,527.38	301.48	0.37	MWD	WEATHERFORD
12/29/2	12,317.00	87.90	178.23	8,211.96	4,621.32	-4,621.32	303.93	2.24	MWD	WEATHERFORD



Directional Survey

Sub-Division	County	Field Name	Region	State/Province
DELAWARE BASIN	EDDY	HACKBERRY	DELAWARE SLOPE EAST	NM
Surface Legal Location	APIA/V1	Latitude (°)	Longitude (°)	Ground Elev. M.
SEC20 T19S R31E	30015423-7	32° 38' 23.701" N	103° 53' 7.243" W	3,481.70
				Orig. KB Elev. (ft)
				3,507.70
				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
12/29/2	12:412:00	89:86	178:79	8:213:81	4:716:27	4:716:27	306:40	2:15	MWD	WEATHERFORD
12/29/2	12:506:00	91:26	178:83	8:212:89	4:810:24	4:810:24	308:35	1:49	MWD	WEATHERFORD
12/29/2	12:601:00	90:98	179:39	8:211:04	4:905:21	4:905:21	309:82	0:66	MWD	WEATHERFORD
12/30/2	12:695:00	90:63	179:72	8:209:72	4:999:20	4:999:20	310:55	0:51	MWD	WEATHERFORD
12/30/2	12:788:00	90:00	179:95	8:209:20	5:092:20	5:092:20	310:82	0:72	MWD	WEATHERFORD
12/30/2	12:883:00	89:93	179:99	8:209:26	5:187:20	5:187:20	310:87	0:08	MWD	WEATHERFORD
12/30/2	12:977:00	89:65	179:82	8:209:61	5:281:20	5:281:20	311:03	0:35	MWD	WEATHERFORD
12/30/2	13:028:00	89:51	179:72	8:209:98	5:332:19	5:332:19	311:23	0:34	MWD	WEATHERFORD
12/30/2	13:093:00	89:51	179:72	8:210:54	5:397:19	5:397:19	311:55	0:00	BIT	WEATHERFORD