

December 18, 2014

HOBBSOCD

APR 21 2015

RECEIVED

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

Attn: David Cook

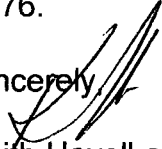
30-025-41264

Re: **Cotton Draw 33 Fed Com 2H**

Please find enclosed a copy of the survey from 0.00' to 4577.00' ran on the above referenced well.

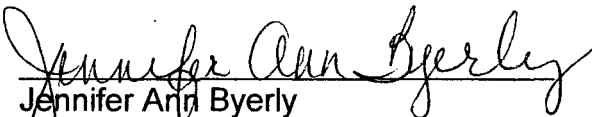
If I can be of any further service please do not hesitate to call me at 800-606-4976.

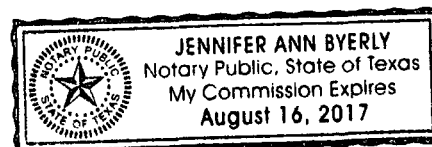
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

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


Jennifer Ann Byerly
Notary Public, State of Texas



MAY 04 2015



Company: Devon Energy
Lease/Well: Cotton Draw 33 Fed Com/2H

Rig Name: Cactus 126
State/County: New Mexico/Lea
Latitude: 32.18, Longitude: -103.68
GRID North is 0.35 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB=25 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 12/18/2014 / 12:36

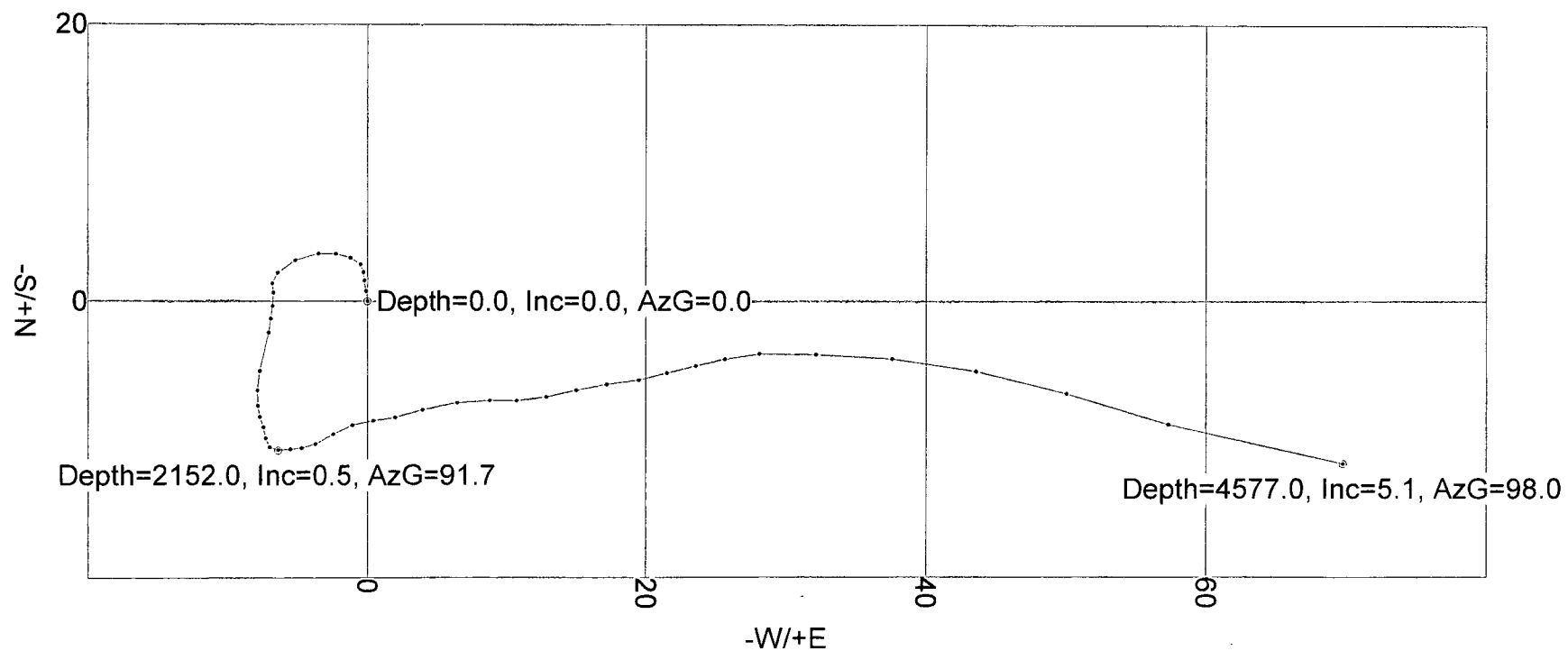
VES Survey International
West Texas
(432) 563-5444
Surveyor: Adam Gathright
Cotton Draw 33 Fed Com 2H / API 30-025-41264

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	****
137.00	0.63	350.65	137.00	0.74	-0.12	0.74	0.75	350.65	0.46
227.00	0.36	351.79	226.99	1.51	-0.24	1.51	1.53	350.86	0.30
317.00	0.41	354.90	316.99	2.11	-0.31	2.11	2.13	351.59	0.06
407.00	0.38	322.46	406.99	2.66	-0.52	2.66	2.71	348.92	0.25
497.00	0.75	293.90	496.99	3.14	-1.24	3.14	3.38	338.40	0.50
587.00	0.64	274.56	586.98	3.42	-2.28	3.42	4.11	326.26	0.29
677.00	0.99	267.48	676.97	3.42	-3.56	3.42	4.94	313.89	0.40
767.00	1.24	243.54	766.95	2.95	-5.21	2.95	5.99	299.57	0.58
857.00	0.77	220.94	856.94	2.06	-6.47	2.06	6.80	287.69	0.68
947.00	0.40	180.29	946.93	1.29	-6.87	1.29	6.99	280.65	0.59
1037.00	0.49	165.14	1036.93	0.61	-6.77	0.61	6.80	275.11	0.16
1127.00	0.77	195.88	1126.93	-0.34	-6.84	-0.34	6.85	267.12	0.48
1217.00	0.42	174.00	1216.92	-1.25	-6.97	-1.25	7.08	259.81	0.45
1307.00	0.91	195.34	1306.92	-2.28	-7.13	-2.28	7.48	252.30	0.60
1487.00	0.90	190.53	1486.89	-5.04	-7.76	-5.04	9.26	236.99	0.04
1582.00	0.83	182.50	1581.88	-6.46	-7.93	-6.46	10.23	230.81	0.14
1677.00	0.50	170.87	1676.88	-7.57	-7.89	-7.57	10.94	226.21	0.37
1772.00	0.49	167.74	1771.87	-8.37	-7.74	-8.37	11.40	222.75	0.03

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
1867.00	0.46	157.01	1866.87	-9.12	-7.51	-9.12	11.81	219.46	0.10
1962.00	0.54	177.75	1961.87	-9.92	-7.34	-9.92	12.34	216.50	0.21
2057.00	0.39	127.59	2056.86	-10.56	-7.07	-10.56	12.71	213.79	0.44
2152.00	0.46	91.72	2151.86	-10.77	-6.44	-10.77	12.55	210.87	0.28
2247.00	0.61	81.56	2246.86	-10.71	-5.56	-10.71	12.06	207.45	0.19
2342.00	0.37	87.95	2341.85	-10.62	-4.76	-10.62	11.64	204.14	0.26
2437.00	0.89	67.20	2436.85	-10.32	-3.77	-10.32	10.99	200.07	0.59
2532.00	0.90	56.65	2531.84	-9.63	-2.47	-9.63	9.94	194.39	0.17
2627.00	0.97	69.87	2626.82	-8.94	-1.10	-8.94	9.01	187.00	0.24
2722.00	0.92	87.43	2721.81	-8.63	0.41	-8.63	8.64	177.27	0.31
2817.00	1.01	75.34	2816.80	-8.39	1.98	-8.39	8.62	166.70	0.24
2912.00	1.52	75.21	2911.77	-7.85	4.01	-7.85	8.82	152.93	0.54
3007.00	1.59	82.06	3006.74	-7.35	6.54	-7.35	9.84	138.35	0.21
3102.00	1.23	91.08	3101.71	-7.19	8.86	-7.19	11.41	129.04	0.44
3197.00	1.08	89.22	3196.69	-7.19	10.78	-7.19	12.96	123.72	0.17
3292.00	1.52	78.00	3291.67	-6.92	12.90	-6.92	14.64	118.21	0.54
3387.00	1.12	76.15	3386.64	-6.44	15.04	-6.44	16.36	113.17	0.42
3482.00	1.54	81.70	3481.61	-6.03	17.20	-6.03	18.23	109.32	0.46
3577.00	1.23	82.56	3576.59	-5.71	19.48	-5.71	20.30	106.35	0.32
3672.00	1.26	69.07	3671.56	-5.21	21.46	-5.21	22.09	103.64	0.31
3767.00	1.31	82.37	3766.54	-4.69	23.51	-4.69	23.98	101.29	0.32
3862.00	1.29	71.18	3861.52	-4.20	25.60	-4.20	25.95	99.32	0.27
3957.00	1.73	88.35	3956.48	-3.82	28.05	-3.82	28.31	97.75	0.66
4052.00	3.18	92.08	4051.39	-3.87	32.12	-3.87	32.35	96.87	1.53
4147.00	3.40	94.38	4146.24	-4.18	37.56	-4.18	37.80	96.35	0.27
4242.00	3.88	102.04	4241.05	-5.07	43.52	-5.07	43.82	96.64	0.72
4337.00	4.15	105.95	4335.81	-6.68	49.98	-6.68	50.42	97.62	0.40
4432.00	5.07	107.84	4430.50	-8.92	57.28	-8.92	57.97	98.85	0.98
4577.00	5.06	98.03	4574.94	-11.77	69.70	-11.77	70.69	99.58	0.60



VES Survey International
West Texas
(432) 563-5444
Surveyor: Adam Gathright
Cotton Draw 33 Fed Com 2H / API 30-025-41264





Directional Survey

Sub-Division DELAWARE BASIN	County DELA	Field Name PADUCA	Region DELAWARE BASIN WEST	State NM						
Surface Legal Location Sec. 33 T24S/R32E	Latitude (°) 32° 10' 49.02" N	Longitude (°) 103° 40' 59.952" W	Ground Elev. M. 3,515.30	Orig. KB Elev. (ft) 3,540.30	Tubing Head Elevation (ft)					
Wellbores		Parent Wellbore		SAP Well ID 37467	Vertical Section Direction (°) 171.73					
Kick Offs & Key Depths										
Date	Type			Top Depth (ftKB)						
Actual Deviation Survey GYRO Proposed? No		Definitive? Yes	Proposed? No	Proposed Deviation Survey						
Deviation Survey										
Date 11/28/2014	Description GYRO									
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 Data										
Date	MD (ftKB)	Incl. (°)	Azm. (°)	TVD (ftKB)	WS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
11/26/2									MWD	LEAM DRILLING SYSTEMS
11/26/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD	LEAM DRILLING SYSTEMS
11/26/2	137.00	0.63	350.65	137.00	-0.75	0.74	-0.12	0.46	GYRO	VAUHGN ENERGY SERVICES
11/26/2	227.00	0.36	351.79	226.99	-1.53	1.51	-0.24	0.30	GYRO	VAUHGN ENERGY SERVICES
11/26/2	317.00	0.41	354.90	316.99	-2.13	2.11	-0.31	0.06	GYRO	VAUHGN ENERGY SERVICES
11/26/2	407.00	0.38	322.46	406.99	-2.72	2.67	-0.52	0.25	GYRO	VAUHGN ENERGY SERVICES
11/26/2	497.00	0.75	293.90	496.99	-3.29	3.14	-1.24	0.50	GYRO	VAUHGN ENERGY SERVICES
11/26/2	587.00	0.64	274.56	586.98	-3.72	3.42	-2.28	0.29	GYRO	VAUHGN ENERGY SERVICES
11/26/2	677.00	0.99	267.48	676.97	-3.91	3.43	-3.56	0.40	GYRO	VAUHGN ENERGY SERVICES
11/26/2	767.00	1.24	243.54	766.95	-3.68	2.96	-5.21	0.58	GYRO	VAUHGN ENERGY SERVICES
11/26/2	857.00	0.77	220.94	856.94	-2.98	2.07	-6.48	0.67	GYRO	VAUHGN ENERGY SERVICES
11/26/2	947.00	0.40	180.29	946.93	-2.27	1.30	-6.87	0.59	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1037.00	0.49	165.14	1036.93	-1.58	0.61	-6.78	0.16	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1127.00	0.77	195.88	1126.93	-0.65	-0.34	-6.84	0.48	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1217.00	0.42	174.00	1216.92	-0.23	-1.25	-6.98	0.46	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1307.00	0.91	195.34	1306.92	-1.22	-2.27	-7.13	0.60	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1582.00	0.83	182.50	1581.88	-5.18	-6.36	-7.79	0.08	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1677.00	0.50	170.87	1676.88	-6.27	-7.46	-7.76	0.37	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1772.00	0.49	167.74	1771.87	-7.09	-8.27	-7.61	0.03	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1867.00	0.46	157.01	1866.87	-7.86	-9.01	-7.37	0.10	GYRO	VAUHGN ENERGY SERVICES
11/26/2	1962.00	0.54	177.75	1961.87	-8.67	-9.81	-7.21	0.21	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2057.00	0.39	127.59	2056.86	-9.35	-10.46	-6.93	0.44	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2152.00	0.46	91.72	2151.86	-9.65	-10.67	-6.29	0.28	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2247.00	0.61	81.56	2246.86	-9.71	-10.60	-5.41	0.19	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2342.00	0.37	87.95	2341.85	-9.75	-10.52	-4.61	0.26	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2437.00	0.89	67.20	2436.85	-9.59	-10.22	-3.62	0.59	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2532.00	0.90	56.65	2531.84	-9.09	-9.53	-2.32	0.17	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2627.00	0.97	69.87	2626.82	-8.61	-8.84	-0.94	0.24	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2722.00	0.92	87.43	2721.81	-8.52	-8.53	-0.58	0.31	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2817.00	1.01	75.34	2816.80	-8.50	-8.28	-2.15	0.23	GYRO	VAUHGN ENERGY SERVICES
11/26/2	2912.00	1.52	75.21	2911.77	-8.27	-7.75	-4.18	0.54	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3007.00	1.59	82.06	3006.74	-8.13	-7.24	-6.70	0.21	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3102.00	1.23	91.08	3101.71	-8.31	-7.08	-9.03	0.44	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3197.00	1.08	89.22	3196.69	-8.59	-7.09	-10.94	0.16	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3292.00	1.52	78.00	3291.67	-8.62	-6.81	-13.07	0.53	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3387.00	1.12	76.15	3386.64	-8.45	-6.33	-15.20	0.42	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3482.00	1.54	81.70	3481.62	-8.36	-5.92	-17.37	0.46	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3577.00	1.23	82.56	3576.59	-8.37	-5.61	-19.64	0.33	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3672.00	1.26	69.07	3671.57	-8.16	-5.10	-21.63	0.31	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3767.00	1.31	82.37	3766.54	-7.94	-4.58	-23.68	0.32	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3862.00	1.29	71.18	3861.52	-7.76	-4.10	-25.77	0.27	GYRO	VAUHGN ENERGY SERVICES
11/26/2	3957.00	1.73	88.35	3956.49	-7.73	-3.71	-28.22	0.66	GYRO	VAUHGN ENERGY SERVICES
11/26/2	4052.00	3.18	92.08	4051.40	-8.37	-3.76	-32.28	1.53	GYRO	VAUHGN ENERGY SERVICES
11/26/2	4147.00	3.40	94.38	4146.24	-9.46	-4.07	-37.72	0.27	GYRO	VAUHGN ENERGY SERVICES



Directional Survey

Sub-Division		Field Name		Region		State/Province				
DELAWARE BASIN		PADUCA		DELAWARE BASIN WEST		NY				
Surface/Well Location		Latitude (°)	Longitude (°)	Ground Elev. (ft)	Orig. KB Elev. (ft)	Tubing Head Elevation (ft)				
Sec. 33 T24S R32E		32° 10' 49.02" N	103° 40' 59.952" W	3,515.30	3,540.30					
Survey Data										
Date	MD (ftKB)	Inc. (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
11/26/2	4,242.00	3.88	102.04	4,241.05	11.19	-4.96	43.68	0.72	GYRO	VAUHG N ENERGY SERVICES
11/26/2	4,337.00	4.15	105.95	4,335.81	13.72	-6.57	50.13	0.40	GYRO	VAUHG N ENERGY SERVICES
11/26/2	4,432.00	5.07	107.84	4,430.51	16.97	-8.81	57.43	0.98	GYRO	VAUHG N ENERGY SERVICES
11/26/2	4,577.00	5.06	98.03	4,574.94	21.59	-11.66	69.86	0.60	GYRO	VAUHG N ENERGY SERVICES
11/26/2	4,667.00	4.70	112.30	4,664.62	24.58	-13.62	77.20	1.40	MWD	LEAM DRILLING SYSTEMS
11/26/2	4,747.00	4.50	94.80	4,744.37	26.95	-15.12	83.36	1.76	MWD	LEAM DRILLING SYSTEMS
11/26/2	4,842.00	6.30	67.90	4,838.96	26.55	-13.47	91.90	3.22	MWD	LEAM DRILLING SYSTEMS
11/26/2	4,937.00	7.00	51.30	4,933.32	22.37	-7.89	101.25	2.14	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,033.00	7.00	40.10	5,028.61	15.52	-0.24	109.59	1.42	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,128.00	6.90	39.60	5,122.92	7.85	-9.07	116.95	0.12	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,223.00	7.30	47.60	5,217.19	0.64	-17.53	125.05	1.12	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,318.00	7.10	55.60	5,311.44	-5.34	-24.92	134.35	1.08	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,413.00	7.30	57.80	5,405.69	-10.37	-31.45	144.30	0.36	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,508.00	5.40	59.60	5,500.11	-14.50	-36.93	153.26	2.01	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,603.00	4.70	55.40	5,594.74	-17.91	-41.40	160.32	0.83	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,698.00	6.20	51.90	5,689.31	-22.19	-46.78	167.56	1.62	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,792.00	6.70	53.30	5,782.71	-27.33	-53.19	175.96	0.56	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,887.00	6.10	49.80	5,877.12	-32.64	-59.76	184.25	0.75	MWD	LEAM DRILLING SYSTEMS
11/26/2	5,981.00	4.50	59.20	5,970.71	-36.69	-64.87	191.24	1.93	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,076.00	3.30	58.90	6,065.49	-39.18	-68.19	196.78	1.26	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,171.00	3.30	58.00	6,160.34	-41.34	-71.05	201.44	0.05	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,265.00	1.90	46.10	6,254.24	-43.34	-73.57	204.86	1.59	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,360.00	1.60	34.50	6,349.19	-45.23	-75.75	206.74	0.49	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,455.00	1.70	37.30	6,444.15	-47.19	-77.97	208.35	0.14	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,550.00	0.50	63.50	6,539.13	-48.30	-79.27	209.57	1.34	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,645.00	0.60	57.50	6,634.13	-48.64	-79.73	210.36	0.12	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,740.00	0.60	42.90	6,729.12	-49.15	-80.36	211.12	0.16	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,835.00	0.40	206.70	6,824.12	-49.19	-80.43	211.31	1.04	MWD	LEAM DRILLING SYSTEMS
11/26/2	6,929.00	0.40	234.30	6,918.12	-48.77	-79.94	210.90	0.20	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,023.00	0.50	217.30	7,012.12	-48.34	-79.42	210.38	0.18	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,118.00	0.70	261.20	7,107.11	-48.04	-79.00	209.56	0.51	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,213.00	1.00	277.60	7,202.10	-48.26	-79.03	208.16	0.40	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,307.00	0.50	287.20	7,296.09	-48.66	-79.25	206.96	0.55	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,403.00	0.80	291.60	7,392.09	-49.18	-79.63	205.93	0.32	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,498.00	1.10	279.90	7,487.08	-49.79	-80.03	204.42	0.37	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,592.00	0.90	299.70	7,581.06	-50.53	-80.55	202.89	0.42	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,687.00	1.10	289.30	7,676.05	-51.41	-81.22	201.38	0.28	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,781.00	0.40	218.20	7,770.04	-51.60	-81.26	200.33	1.11	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,876.00	3.00	168.10	7,864.99	-48.89	-78.56	200.63	2.91	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,908.00	5.80	166.50	7,896.89	-46.44	-76.17	201.18	8.76	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,940.00	9.10	168.10	7,928.82	-42.31	-72.12	202.08	10.33	MWD	LEAM DRILLING SYSTEMS
11/26/2	7,971.00	11.70	170.20	7,959.11	-36.72	-66.63	203.12	8.47	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,003.00	14.30	171.70	7,990.29	-29.52	-59.52	204.25	8.19	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,034.00	17.10	171.70	8,020.13	-21.13	-51.22	205.46	9.03	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,066.00	20.40	172.60	8,050.42	-10.85	-41.03	206.86	10.35	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,098.00	23.90	173.00	8,080.06	-1.21	-29.06	208.37	10.95	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,129.00	27.10	173.20	8,108.03	14.55	-15.81	209.97	10.33	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,161.00	30.40	172.30	8,136.09	29.94	-0.55	211.92	10.40	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,192.00	33.70	170.70	8,162.36	46.39	-15.72	214.36	10.99	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,224.00	37.10	170.30	8,188.44	64.92	-34.00	217.42	10.65	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,255.00	40.70	171.00	8,212.56	84.38	-53.20	220.58	11.70	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,287.00	44.30	170.70	8,236.15	105.99	-74.54	224.02	11.27	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,319.00	47.60	171.20	8,258.39	128.98	-97.25	227.63	10.37	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,350.00	50.40	170.00	8,278.73	152.37	-120.33	231.46	9.49	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,382.00	53.50	169.60	8,298.45	177.55	-145.13	235.92	9.74	MWD	LEAM DRILLING SYSTEMS

Directional Survey

Sub-Division		Country	Field Name		Region		State Province			
DELAWARE BASIN		USA	PADUCA		DELAWARE BASIN WEST		NM			
Surface Legal Location			Latitude (°)	Longitude (°)	Ground Elev. M	Orig KB Elev. (ft)	Tubing Head Elevation (ft)			
Sec. 33 T24S R32E			32° 10' 49.02" N	103° 40' 59.952" W	3,515.30	3,540.30				
Survey Data										
Date	MD (ftKB)	Inc (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (ft/100ft)	Survey Tool	Survey Company
11/26/2	8,413.00	57.20	168.20	8,316.07	203.02	-170.15	240.83	12.50	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,444.00	60.10	166.80	8,332.20	229.42	-195.99	246.57	10.12	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,476.00	62.10	166.30	8,347.67	257.31	-223.23	253.09	6.40	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,507.00	64.10	166.80	8,361.69	284.85	-250.12	259.51	6.61	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,539.00	67.00	166.60	8,374.93	313.86	-278.46	266.22	9.08	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,571.00	70.90	167.70	8,386.43	343.62	-307.58	272.85	12.60	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,603.00	74.40	168.90	8,395.97	374.11	-337.48	279.04	11.51	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,635.00	76.90	169.10	8,403.90	405.07	-367.91	284.96	7.84	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,666.00	79.40	168.80	8,410.26	435.37	-397.68	290.77	8.12	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,698.00	82.70	168.60	8,415.24	466.94	-428.68	296.97	10.33	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,729.00	85.60	167.90	8,418.40	497.71	-458.87	303.24	9.62	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,761.00	86.90	167.70	8,420.49	529.57	-490.08	309.99	4.11	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,824.00	89.30	169.60	8,422.58	592.44	-551.80	322.38	4.86	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,850.00	89.70	170.30	8,422.81	618.42	-577.40	326.92	3.10	MWD	LEAM DRILLING SYSTEMS
11/26/2	8,944.00	89.90	172.30	8,423.14	712.41	-670.32	341.14	2.14	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,039.00	89.30	170.50	8,423.80	807.41	-764.24	355.34	2.00	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,134.00	90.50	171.90	8,423.97	902.40	-858.12	369.87	1.94	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,229.00	90.70	173.20	8,422.97	997.38	-952.31	382.19	1.38	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,324.00	89.40	171.20	8,422.89	1,092.37	-1,046.42	395.08	2.51	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,418.00	89.20	172.80	8,424.04	1,186.36	-1,139.50	408.16	1.72	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,513.00	88.60	173.90	8,425.86	1,281.30	-1,233.84	419.16	1.32	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,607.00	90.90	176.70	8,426.27	1,375.10	-1,327.51	426.86	3.85	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,702.00	90.60	177.40	8,425.03	1,469.69	-1,422.37	431.75	0.80	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,796.00	90.00	177.00	8,424.54	1,563.26	-1,516.26	436.34	0.77	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,891.00	90.40	177.40	8,424.20	1,657.82	-1,611.15	440.99	0.60	MWD	LEAM DRILLING SYSTEMS
11/26/2	9,985.00	90.50	178.10	8,423.47	1,751.30	-1,705.07	444.68	0.75	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,080.00	89.90	177.00	8,423.13	1,845.81	-1,799.98	448.74	1.32	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,175.00	89.50	175.40	8,423.63	1,940.51	-1,894.77	455.03	1.74	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,269.00	90.40	177.00	8,423.71	2,034.22	-1,988.56	461.26	1.95	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,364.00	89.30	175.40	8,423.96	2,128.93	-2,083.34	467.56	2.04	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,459.00	89.50	174.60	8,424.96	2,223.77	-2,177.97	475.84	0.87	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,554.00	90.80	175.60	8,424.71	2,318.60	-2,272.62	483.95	1.73	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,649.00	90.20	175.10	8,423.88	2,413.41	-2,367.31	491.65	0.82	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,743.00	90.20	173.20	8,423.55	2,507.32	-2,460.81	501.23	2.02	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,838.00	90.10	174.40	8,423.30	2,602.26	-2,555.25	511.49	1.27	MWD	LEAM DRILLING SYSTEMS
11/26/2	10,933.00	89.80	175.60	8,423.38	2,697.10	-2,649.89	519.77	1.30	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,028.00	90.20	176.00	8,423.38	2,791.86	-2,744.64	526.73	0.60	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,123.00	89.60	175.80	8,423.55	2,886.61	-2,839.39	533.52	0.67	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,218.00	88.20	175.40	8,425.37	2,981.37	-2,934.09	540.81	1.53	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,313.00	89.90	175.10	8,426.95	3,076.17	-3,028.75	548.67	1.82	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,406.00	89.30	174.60	8,427.60	3,169.03	-3,121.37	557.02	0.84	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,501.00	91.10	177.00	8,427.27	3,263.78	-3,216.10	563.98	3.16	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,596.00	90.30	175.60	8,426.11	3,358.47	-3,310.90	570.11	1.70	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,691.00	87.40	175.10	8,428.01	3,453.25	-3,405.55	577.81	3.10	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,787.00	88.10	174.70	8,431.78	3,549.03	-3,501.10	586.33	0.84	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,882.00	90.00	175.80	8,433.36	3,643.83	-3,595.75	594.20	2.31	MWD	LEAM DRILLING SYSTEMS
11/26/2	11,977.00	90.80	176.50	8,432.69	3,738.55	-3,690.54	600.58	1.12	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,073.00	89.20	176.30	8,432.69	3,834.22	-3,786.34	606.61	1.68	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,168.00	89.40	175.80	8,433.85	3,928.95	-3,881.11	613.15	0.57	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,264.00	91.40	175.60	8,433.18	4,024.71	-3,976.83	620.35	2.09	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,359.00	91.30	174.70	8,430.95	4,119.51	-4,071.47	628.38	0.95	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,455.00	88.80	172.50	8,430.86	4,215.45	-4,166.85	639.08	3.47	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,550.00	89.70	174.00	8,432.11	4,310.40	-4,261.18	650.24	1.84	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,646.00	91.30	175.60	8,431.27	4,406.25	-4,356.78	658.94	2.36	MWD	LEAM DRILLING SYSTEMS
11/26/2	12,741.00	89.70	177.40	8,430.44	4,500.91	-4,451.59	664.74	2.53	MWD	LEAM DRILLING SYSTEMS



Directional Survey

Sub-Division		County	Field Name		Region		State/Province			
DELAWARE BASIN		LEA	PADUCA		DELAWARE BASIN WEST		NM			
Surface Legal Location		API No.	Latitude (°)	Longitude (°)	Ground Elev. (M)	Orig KB Elev. (ft)	Tubing Head Elevation (ft)			
Sec. 33 T24S R32E		30045	32° 10' 49.02" N	103° 40' 59.952" W	3,515.30	3,540.30				
Survey Data										
Date	MD (ftKB)	Incl. (°)	Azm. (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ¹ (°/100ft)	Survey Tool	Survey Company
11/26/2	12:837.00	90:80	181.40	8,430.02	4,596.03	-4,547.56	665.74	4.32	MWD	LEAM DRILLING SYSTEMS
11/26/2	12:853.00	91:10	182.30	8,429.75	4,611.78	-4,563.55	665.23	5.93	MWD	LEAM DRILLING SYSTEMS
11/26/2	12:909.00	91:10	182.30	8,428.68	4,666.82	-4,619.50	662.98	0:00	BIT	LEAM DRILLING SYSTEMS