



30-025-40986

January 16, 2015

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

HOBBS OCD

APR 30 2015

RECEIVED

Attn: David Cook

Re: **Monk 21 State Com 1H**

Please find enclosed a copy of the survey from 0' to 5731' 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 _____ day of _____,
A.D., 2015, by Keith Havelka.

Jennifer Ann Byerly
Notary Public, State of Texas

MAY 18 2015



Company: Devon Energy
Lease/Well: Monk 21 State Com/1H

Rig Name: HP 394
State/County: New Mexico/Lea
Latitude: 32.47, Longitude: -103.48
GRID North is 0.46 Degrees East of True North
VS-Azi: 0.00 Degrees



HOBBS OCD

APR 30 2015

RECEIVED

Depth Reference : RKB= 25 Feet
DRILLOG MS GYRO SURVEY CALCULATIONS
Filename: dropfinal.ut
Minimum Curvature Method
Report Date/Time: 1/16/2015 / 14:03
VES Survey International
West Texas
(432) 563-5444
Surveyor: Bryan Massey
Monk 21 State Com 1H / API 30-025-40986

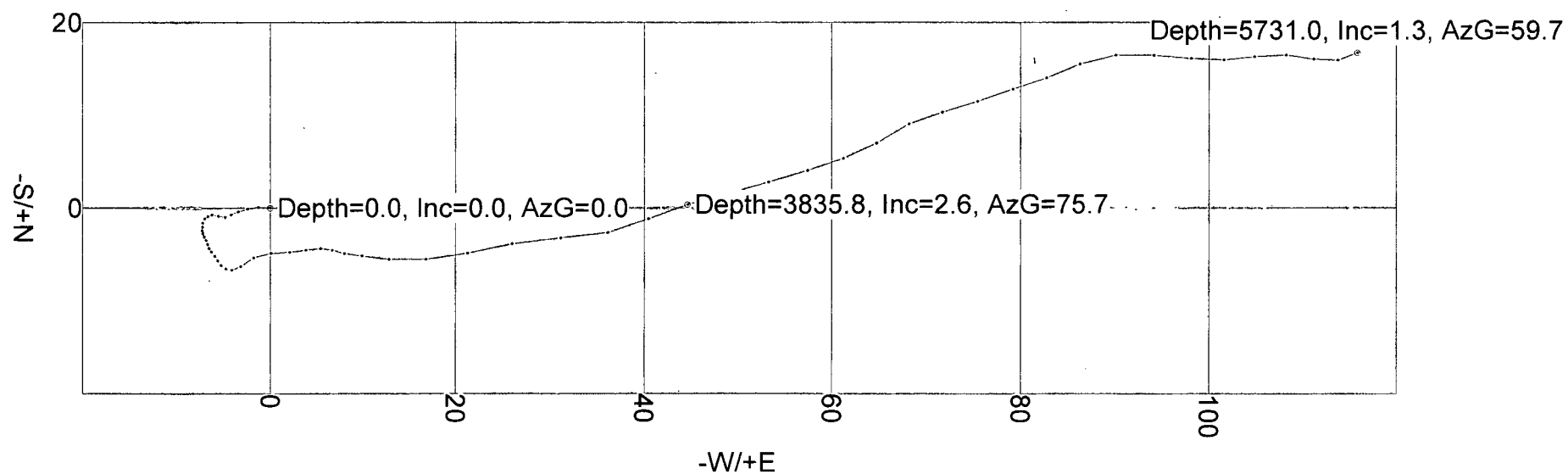
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
45.40	0.65	278.44	45.40	0.04	-0.26	0.04	0.26	278.44	1.44
140.16	0.62	265.77	140.15	0.08	-1.30	0.08	1.31	273.47	0.15
234.92	0.77	257.24	234.91	-0.10	-2.44	-0.10	2.44	267.67	0.19
329.68	0.54	247.82	329.66	-0.41	-3.47	-0.41	3.49	263.31	0.27
424.44	0.47	245.40	424.42	-0.74	-4.23	-0.74	4.30	260.14	0.07
519.20	0.41	249.76	519.17	-1.01	-4.90	-1.01	5.00	258.31	0.07
613.96	0.55	303.31	613.93	-0.88	-5.60	-0.88	5.66	261.05	0.47
708.72	0.37	250.99	708.69	-0.73	-6.26	-0.73	6.31	263.33	0.46
803.48	0.20	246.37	803.45	-0.90	-6.71	-0.90	6.77	262.36	0.18
898.24	0.34	224.59	898.21	-1.17	-7.06	-1.17	7.15	260.61	0.18
993.00	0.28	180.34	992.96	-1.60	-7.26	-1.60	7.43	257.58	0.25
1087.76	0.27	182.63	1087.72	-2.05	-7.27	-2.05	7.55	254.26	0.02
1182.52	0.21	184.39	1182.48	-2.44	-7.29	-2.44	7.69	251.50	0.06
1277.28	0.22	159.54	1277.24	-2.78	-7.24	-2.78	7.76	249.01	0.10
1372.04	0.24	151.71	1372.00	-3.12	-7.08	-3.12	7.74	246.21	0.04
1466.80	0.25	152.94	1466.76	-3.48	-6.90	-3.48	7.73	243.22	0.01
1561.56	0.32	165.56	1561.52	-3.92	-6.74	-3.92	7.80	239.80	0.10
1656.32	0.24	156.44	1656.28	-4.36	-6.59	-4.36	7.90	236.51	0.10

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
1751.08	0.32	136.47	1751.04	-4.74	-6.33	-4.74	7.90	233.17	0.13
1845.84	0.35	147.48	1845.80	-5.17	-5.99	-5.17	7.91	229.18	0.07
1940.60	0.37	147.97	1940.55	-5.67	-5.67	-5.67	8.02	225.00	0.03
2035.36	0.40	144.00	2035.31	-6.20	-5.32	-6.20	8.17	220.63	0.04
2130.12	0.41	106.38	2130.07	-6.56	-4.80	-6.56	8.13	216.19	0.28
2224.88	0.39	97.19	2224.83	-6.70	-4.15	-6.70	7.88	211.81	0.07
2319.64	0.93	55.64	2319.58	-6.30	-3.20	-6.30	7.06	206.91	0.73
2414.40	1.07	56.27	2414.33	-5.37	-1.82	-5.37	5.67	198.72	0.15
2509.16	1.38	89.68	2509.07	-4.87	0.06	-4.87	4.87	179.34	0.80
2603.92	1.09	83.79	2603.80	-4.77	2.09	-4.77	5.21	156.34	0.33
2698.68	1.01	81.56	2698.55	-4.55	3.81	-4.55	5.93	140.04	0.09
2793.44	0.89	84.26	2793.29	-4.35	5.37	-4.35	6.91	129.04	0.14
2888.20	0.68	116.26	2888.05	-4.53	6.60	-4.53	8.00	124.45	0.50
2982.96	1.00	98.19	2982.80	-4.90	7.92	-4.90	9.31	121.71	0.43
3077.72	1.31	97.80	3077.54	-5.16	9.81	-5.16	11.09	117.74	0.33
3172.48	2.30	96.49	3172.25	-5.52	12.77	-5.52	13.91	113.38	1.05
3267.24	2.67	84.48	3266.92	-5.52	16.86	-5.52	17.74	108.14	0.67
3362.00	2.75	78.50	3361.57	-4.86	21.28	-4.86	21.83	102.86	0.31
3456.76	3.08	77.59	3456.21	-3.86	25.99	-3.86	26.28	98.45	0.35
3551.52	3.30	88.29	3550.83	-3.23	31.20	-3.23	31.37	95.91	0.67
3646.28	2.76	77.47	3645.45	-2.65	36.15	-2.65	36.25	94.20	0.82
3741.04	2.78	64.33	3740.10	-1.16	40.45	-1.16	40.47	91.65	0.67
3835.80	2.64	75.69	3834.76	0.37	44.64	0.37	44.64	89.52	0.58
3930.56	2.77	72.50	3929.41	1.60	48.95	1.60	48.97	88.13	0.21
4025.32	2.66	76.75	4024.07	2.79	53.27	2.79	53.35	87.00	0.24
4120.08	2.61	69.66	4118.73	4.05	57.44	4.05	57.58	85.97	0.35
4214.84	2.25	73.26	4213.40	5.33	61.24	5.33	61.47	85.02	0.41
4309.60	2.45	56.23	4308.08	7.00	64.71	7.00	65.08	83.83	0.76
4404.36	2.38	61.85	4402.76	9.05	68.12	9.05	68.72	82.43	0.26
4499.12	2.25	79.38	4497.44	10.32	71.68	10.32	72.42	81.81	0.76
4593.88	2.52	66.67	4592.12	11.49	75.43	11.49	76.30	81.34	0.63
4688.64	2.28	74.50	4686.80	12.82	79.16	12.82	80.19	80.80	0.43
4783.40	2.29	69.03	4781.48	14.00	82.74	14.00	83.92	80.40	0.23
4878.16	2.44	65.43	4876.16	15.51	86.34	15.51	87.73	79.81	0.22
4972.92	2.43	87.04	4970.84	16.45	90.18	16.45	91.67	79.66	0.96
5067.68	2.44	92.79	5065.51	16.46	94.20	16.46	95.62	80.09	0.26
5162.44	2.35	96.81	5160.19	16.13	98.14	16.13	99.46	80.67	0.20
5257.20	1.86	87.41	5254.89	15.97	101.61	15.97	102.86	81.07	0.64
5351.96	2.08	80.86	5349.59	16.31	104.84	16.31	106.10	81.16	0.33

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
5446.72	1.99	93.03	5444.29	16.50	108.18	16.50	109.43	81.33	0.46
5541.48	1.66	105.40	5539.00	16.05	111.14	16.05	112.30	81.79	0.54
5636.24	1.50	78.06	5633.73	15.94	113.68	15.94	114.79	82.02	0.80
5731.00	1.28	59.66	5728.46	16.73	115.80	16.73	117.01	81.78	0.52



VES Survey International
West Texas
(432) 563-5444
Surveyor: Bryan Massey
Monk 21 State Com 1H / API 30-025-40986





Directional Survey

Sub-Division DELAWARE BASIN	County LEA	Field Name CORBIN AREA UNASSIGNED	Region DELAWARE SLOPE EAST	State/Province NM
Surface Legal Location SEC21 T21S R34E	API/UWI 3002540986	Latitude (°) 32° 28' 14.129" N	Longitude (°) 103° 28' 53.381" W	Ground Elev M... 3,734.40
				Orig KB Elev (ft) 3,759.40
				Tubing Head Elevation (ft)

Wellbores				
Wellbore Name OH	Parent Wellbore	SAP Well ID 37622	Vertical Section Direction (°) 178.65	

Kick Offs & Key Depths				
Date	Type			Top Depth (ftKB)

Actual Deviation Survey GYRO, Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey	
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Deviation Survey				
Date 1/6/2015	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)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
1/7/2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	45.40	0.65	278.44	45.40	-0.04	0.04	-0.25	1.43	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	140.16	0.62	265.77	140.15	-0.11	0.08	-1.30	0.15	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	234.92	0.77	257.24	234.91	0.04	-0.10	-2.43	0.19	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	329.68	0.54	247.82	329.66	0.33	-0.41	-3.46	0.27	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	424.44	0.47	245.40	424.42	0.64	-0.74	-4.23	0.08	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	519.20	0.41	249.76	519.17	0.90	-1.02	-4.90	0.07	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	613.96	0.55	303.31	613.93	0.75	-0.89	-5.60	0.48	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	708.72	0.37	250.99	708.69	0.59	-0.74	-6.27	0.46	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	803.48	0.20	246.37	803.45	0.74	-0.90	-6.71	0.18	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	898.24	0.34	224.59	898.21	1.00	-1.17	-7.06	0.18	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	993.00	0.28	180.34	992.96	1.43	-1.60	-7.26	0.25	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,087.76	0.27	182.63	1,087.72	1.88	-2.05	-7.27	0.02	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,182.52	0.21	184.39	1,182.48	2.28	-2.45	-7.29	0.06	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,277.28	0.22	159.54	1,277.24	2.62	-2.79	-7.24	0.10	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,372.04	0.24	151.71	1,372.00	2.97	-3.14	-7.09	0.04	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,466.80	0.25	152.94	1,466.76	3.33	-3.50	-6.90	0.01	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,561.56	0.32	165.56	1,561.52	3.78	-3.94	-6.74	0.10	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,656.32	0.24	156.44	1,656.28	4.22	-4.38	-6.59	0.10	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,751.08	0.32	136.47	1,751.04	4.60	-4.75	-6.33	0.13	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,845.84	0.35	147.48	1,845.80	5.04	-5.19	-5.99	0.07	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	1,940.60	0.37	147.97	1,940.55	5.55	-5.69	-5.68	0.02	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,035.36	0.40	144.00	2,035.31	6.09	-6.22	-5.32	0.04	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,130.12	0.41	106.38	2,130.07	6.47	-6.58	-4.80	0.28	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,224.88	0.39	97.19	2,224.83	6.62	-6.72	-4.15	0.07	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,319.64	0.93	55.64	2,319.58	6.25	-6.32	-3.20	0.73	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,414.40	1.07	56.27	2,414.33	5.35	-5.40	-1.83	0.15	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,509.16	1.38	89.68	2,509.07	4.90	-4.90	0.05	0.81	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,603.92	1.09	83.79	2,603.80	4.84	-4.80	2.09	0.33	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,698.68	1.01	81.56	2,698.55	4.66	-4.58	3.81	0.09	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,793.44	0.89	84.26	2,793.29	4.50	-4.38	5.37	0.14	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,888.20	0.68	116.26	2,888.05	4.71	-4.55	6.60	0.50	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	2,982.96	1.00	98.19	2,982.80	5.11	-4.92	7.93	0.43	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,077.72	1.31	97.80	3,077.54	5.42	-5.19	9.82	0.33	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,172.48	2.30	96.49	3,172.25	5.85	-5.55	12.78	1.05	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,267.24	2.67	84.48	3,266.92	5.95	-5.55	16.87	0.67	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,362.00	2.75	78.50	3,361.57	5.39	-4.88	21.29	0.31	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,456.76	3.08	77.59	3,456.21	4.50	-3.88	26.00	0.35	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,551.52	3.30	88.29	3,550.82	3.99	-3.26	31.22	0.67	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,646.28	2.76	77.47	3,645.45	3.53	-2.68	36.17	0.83	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,741.04	2.78	64.33	3,740.10	2.14	-1.19	40.47	0.67	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,835.80	2.64	75.69	3,834.76	0.71	0.35	44.65	0.58	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	3,930.56	2.77	72.50	3,929.41	-0.42	1.57	48.95	0.21	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,025.32	2.66	76.75	4,024.07	-1.51	2.77	53.28	0.24	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,120.08	2.61	69.66	4,118.73	-2.67	4.02	57.44	0.35	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,214.84	2.25	73.26	4,213.40	-3.86	5.31	61.24	0.41	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,309.60	2.45	56.23	4,308.08	-5.44	6.97	64.71	0.76	GYRO	VAUHGN ENERGY SERVICES



Directional Survey

Sub-Division DELAWARE BASIN	County LEA	Field Name CORBIN AREA UNASSIGNED	Region DELAWARE SLOPE EAST	State/Province NM
Surface Legal Location SEC21 T21S R34E	API/UWI 3002540986	Latitude (°) 32° 28' 14.129" N	Longitude (°) 103° 28' 53.381" W	Ground Elev M. 3,734.40
				Orig KB Elev (ft) 3,759.40
				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
1/7/2015	4,404.36	2.38	61.85	4,402.76	-7.41	9.02	68.13	0.26	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,499.12	2.25	79.38	4,497.44	-8.60	10.29	71.69	0.76	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,593.88	2.52	66.67	4,592.12	-9.68	11.46	75.43	0.62	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,688.64	2.28	74.50	4,686.80	-10.92	12.79	79.16	0.43	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,783.40	2.29	69.03	4,781.48	-12.02	13.97	82.75	0.23	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,878.16	2.44	65.43	4,876.16	-13.45	15.49	86.35	0.22	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	4,972.92	2.43	87.04	4,970.84	-14.30	16.43	90.19	0.96	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,067.68	2.44	92.79	5,065.51	-14.21	16.43	94.21	0.26	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,162.44	2.35	96.81	5,160.19	-13.79	16.11	98.15	0.20	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,257.20	1.86	87.41	5,254.89	-13.55	15.95	101.62	0.63	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,351.96	2.08	80.86	5,349.59	-13.81	16.29	104.85	0.33	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,446.72	1.99	93.03	5,444.29	-13.92	16.47	108.19	0.46	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,541.48	1.66	105.40	5,539.00	-13.40	16.02	111.16	0.54	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,636.24	1.50	78.06	5,633.73	-13.23	15.91	113.70	0.80	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,731.00	1.28	59.66	5,728.46	-13.97	16.71	115.82	0.52	GYRO	VAUHGN ENERGY SERVICES
1/7/2015	5,906.00	1.00	71.30	5,903.43	-15.38	18.18	118.96	0.21	MWD	LEAM DRILLING SYSTEMS
1/7/2015	5,968.00	1.10	69.00	5,965.42	-15.74	18.57	120.02	0.17	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,063.00	1.80	10.60	6,060.39	-17.50	20.36	121.15	1.62	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,158.00	3.80	1.00	6,155.27	-22.11	24.98	121.48	2.16	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,252.00	5.40	1.50	6,248.97	-29.64	32.51	121.65	1.70	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,346.00	5.80	1.50	6,342.52	-38.80	41.68	121.89	0.43	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,441.00	5.90	1.50	6,437.02	-48.47	51.36	122.14	0.11	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,535.00	5.90	359.80	6,530.52	-58.13	61.02	122.25	0.19	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,629.00	6.00	359.50	6,624.02	-67.87	70.77	122.19	0.11	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,723.00	6.10	0.30	6,717.49	-77.77	80.67	122.18	0.14	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,817.00	6.10	358.90	6,810.96	-87.76	90.66	122.11	0.16	MWD	LEAM DRILLING SYSTEMS
1/7/2015	6,911.00	6.10	359.40	6,904.43	-97.75	100.65	121.96	0.06	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,006.00	6.20	357.90	6,998.88	-107.93	110.82	121.72	0.20	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,100.00	6.00	0.70	7,092.35	-117.91	120.81	121.59	0.38	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,195.00	5.30	2.70	7,186.89	-127.25	130.16	121.86	0.77	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,289.00	5.10	6.70	7,280.50	-135.72	138.64	122.55	0.44	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,384.00	4.80	357.80	7,375.15	-143.87	146.81	122.89	0.87	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,478.00	4.70	356.10	7,468.83	-151.65	154.58	122.48	0.18	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,573.00	4.60	356.30	7,563.51	-159.35	162.27	121.97	0.11	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,667.00	4.30	357.00	7,657.23	-166.64	169.55	121.54	0.32	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,762.00	4.30	355.40	7,751.96	-173.75	176.65	121.07	0.13	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,856.00	5.20	355.60	7,845.64	-181.52	184.41	120.46	0.96	MWD	LEAM DRILLING SYSTEMS
1/7/2015	7,950.00	5.30	356.40	7,939.24	-190.12	192.99	119.86	0.13	MWD	LEAM DRILLING SYSTEMS
1/7/2015	8,045.00	4.80	353.40	8,033.88	-198.46	201.32	119.13	0.60	MWD	LEAM DRILLING SYSTEMS
1/7/2015	8,139.00	5.30	355.10	8,127.51	-206.71	209.55	118.30	0.56	MWD	LEAM DRILLING SYSTEMS
1/7/2015	8,234.00	5.20	8.40	8,222.12	-215.33	218.18	118.56	1.28	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,328.00	5.60	14.40	8,315.70	-223.94	226.84	120.32	0.74	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,422.00	5.10	3.60	8,409.29	-232.52	235.45	121.72	1.19	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,517.00	4.90	2.50	8,503.93	-240.77	243.72	122.17	0.23	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,611.00	4.70	2.10	8,597.60	-248.62	251.58	122.48	0.22	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,706.00	4.80	1.50	8,692.27	-256.48	259.44	122.73	0.12	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,801.00	4.70	359.30	8,786.95	-264.34	267.31	122.79	0.22	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,895.00	3.50	5.60	8,880.71	-271.04	274.01	123.02	1.36	MWD	LEAM DRILLING SYSTEMS
1/12/2015	8,990.00	2.90	8.00	8,975.56	-276.29	279.28	123.64	0.65	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,084.00	2.80	8.70	9,069.44	-280.90	283.90	124.31	0.11	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,179.00	2.90	7.30	9,164.32	-285.56	288.58	124.97	0.13	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,273.00	1.70	0.60	9,258.25	-289.30	292.33	125.29	1.31	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,367.00	0.70	0.70	9,352.22	-291.27	294.30	125.31	1.06	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,462.00	0.30	339.00	9,447.22	-292.08	295.11	125.23	0.46	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,557.00	0.40	234.20	9,542.22	-292.13	295.15	124.87	0.59	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,651.00	0.80	234.30	9,636.21	-291.57	294.58	124.07	0.43	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,746.00	0.90	226.90	9,731.20	-290.70	293.68	122.99	0.16	MWD	LEAM DRILLING SYSTEMS
1/12/2015	9,840.00	1.10	239.40	9,825.19	-289.77	292.72	121.67	0.31	MWD	LEAM DRILLING SYSTEMS



Directional Survey

Sub-Division DELAWARE BASIN	County LEA	Field Name CORBIN AREA UNASSIGNED	Region DELAWARE SLOPE EAST	State/Province NM
Surface Legal Location SEC21 T21S R34E	API/UWI 3002540986	Latitude (°) 32° 28' 14.129" N	Longitude (°) 103° 28' 53.381" W	Ground Elev M... 3,734.40
				Orig KB Elev (ft) 3,759.40
				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
1/12/2015	9,934.00	0.40	230.10	9,919.18	-289.12	292.05	120.64	0.75	MWD	LEAM DRILLING SYSTEMS
1/12/2015	10,029.00	0.40	221.00	10,014.18	-288.67	291.58	120.17	0.07	MWD	LEAM DRILLING SYSTEMS
1/12/2015	10,123.00	0.70	222.70	10,108.17	-288.02	290.92	119.57	0.32	MWD	LEAM DRILLING SYSTEMS
1/12/2015	10,218.00	0.70	223.50	10,203.17	-287.19	290.07	118.77	0.01	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,247.00	0.70	231.10	10,232.17	-286.96	289.83	118.51	0.32	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,298.00	0.70	224.30	10,283.16	-286.55	289.41	118.05	0.16	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,329.00	2.80	185.90	10,314.15	-285.66	288.52	117.84	7.40	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,361.00	5.90	174.70	10,346.05	-283.25	286.10	117.91	10.00	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,392.00	8.70	169.20	10,376.80	-279.34	282.21	118.50	9.30	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,424.00	11.20	166.90	10,408.31	-273.91	276.81	119.66	7.91	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,455.00	13.60	165.10	10,438.59	-267.42	270.35	121.28	7.84	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,486.00	16.80	163.70	10,468.50	-259.55	262.53	123.47	10.39	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,518.00	20.10	162.10	10,498.85	-249.81	252.86	126.46	10.43	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,550.00	23.10	161.90	10,528.60	-238.52	241.65	130.10	9.38	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,581.00	26.60	162.60	10,556.73	-226.03	229.25	134.07	11.33	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,613.00	29.80	162.10	10,584.92	-211.51	214.84	138.66	10.03	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,644.00	33.90	162.30	10,611.25	-195.83	199.27	143.66	13.23	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,676.00	37.20	162.60	10,637.28	-177.96	181.53	149.26	10.33	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,707.00	39.50	163.90	10,661.59	-159.42	163.11	154.80	7.86	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,738.00	41.80	166.90	10,685.11	-139.77	143.57	159.88	9.73	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,770.00	44.70	169.00	10,708.42	-118.23	122.13	164.44	10.12	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,801.00	48.10	170.20	10,729.79	-96.06	100.06	168.49	11.32	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,833.00	52.40	171.10	10,750.25	-71.70	75.78	172.48	13.61	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,864.00	56.30	171.60	10,768.32	-46.72	50.89	176.26	12.65	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,895.00	60.20	172.30	10,784.63	-20.54	24.79	179.95	12.73	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,927.00	64.30	173.70	10,799.52	7.63	-3.31	183.40	13.38	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,959.00	67.40	175.50	10,812.61	36.75	-32.38	186.14	10.96	MWD	LEAM DRILLING SYSTEMS
1/14/2015	10,990.00	68.40	177.20	10,824.28	65.45	-61.04	187.96	6.02	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,021.00	71.30	178.50	10,834.96	94.55	-90.12	189.05	10.15	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,053.00	75.10	178.50	10,844.20	125.18	-120.74	189.85	11.88	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,083.00	79.70	178.80	10,850.75	154.45	-150.00	190.54	15.36	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,112.00	83.30	180.70	10,855.03	183.12	-178.67	190.67	14.00	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,143.00	85.60	181.50	10,858.03	213.94	-209.52	190.07	7.85	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,175.00	87.10	182.00	10,860.07	245.83	-241.44	189.10	4.94	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,206.00	88.50	181.60	10,861.26	276.76	-272.40	188.13	4.70	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,237.00	90.00	181.50	10,861.66	307.71	-303.39	187.29	4.85	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,332.00	90.40	181.80	10,861.33	402.58	-398.35	184.55	0.53	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,426.00	90.70	181.80	10,860.43	496.44	-492.29	181.60	0.32	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,520.00	90.80	180.60	10,859.20	590.33	-586.26	179.63	1.28	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,615.00	88.00	179.50	10,860.19	685.29	-681.25	179.55	3.17	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,709.00	87.00	179.70	10,864.29	779.19	-775.16	180.20	1.08	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,804.00	87.20	178.30	10,869.10	874.06	-870.02	181.86	1.49	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,898.00	89.20	177.20	10,872.05	968.00	-963.89	185.55	2.43	MWD	LEAM DRILLING SYSTEMS
1/14/2015	11,993.00	88.90	176.90	10,873.63	1,062.95	-1,058.75	190.44	0.45	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,087.00	88.70	178.80	10,875.60	1,156.91	-1,152.66	193.96	2.03	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,182.00	88.10	178.80	10,878.25	1,251.87	-1,247.60	195.95	0.63	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,276.00	89.30	179.20	10,880.38	1,345.85	-1,341.56	197.59	1.35	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,370.00	89.10	179.90	10,881.69	1,439.82	-1,435.55	198.33	0.77	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,464.00	88.30	180.00	10,883.83	1,533.77	-1,529.52	198.41	0.86	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,559.00	88.50	180.00	10,886.48	1,628.71	-1,624.49	198.41	0.21	MWD	LEAM DRILLING SYSTEMS
1/14/2015	12,653.00	88.50	180.20	10,888.94	1,722.65	-1,718.46	198.25	0.21	MWD	LEAM DRILLING SYSTEMS
1/20/2015	12,748.00	87.20	180.40	10,892.50	1,817.54	-1,813.39	197.75	1.38	MWD	LEAM DRILLING SYSTEMS
1/20/2015	12,842.00	86.60	180.40	10,897.59	1,911.36	-1,907.24	197.09	0.64	MWD	LEAM DRILLING SYSTEMS
1/20/2015	12,937.00	86.10	180.00	10,903.64	2,006.13	-2,002.05	196.76	0.67	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,031.00	87.40	178.60	10,908.96	2,099.97	-2,095.89	197.91	2.03	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,125.00	90.00	177.40	10,911.10	2,193.93	-2,189.80	201.19	3.05	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,220.00	90.70	177.80	10,910.52	2,288.91	-2,284.71	205.17	0.85	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,315.00	90.60	177.40	10,909.44	2,383.89	-2,379.62	209.15	0.43	MWD	LEAM DRILLING SYSTEMS



Directional Survey

Sub-Division DELAWARE BASIN	County LEA	Field Name CORBIN AREA UNASSIGNED	Region DELAWARE SLOPE EAST	State/Province NM
Surface Legal Location SEC21 T21S R34E	API/UWI 3002540986	Latitude (°) 32° 28' 14.129" N	Longitude (°) 103° 28' 53.381" W	Ground Elev M... 3,734.40
				Orig KB Elev (ft) 3,759.40
				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
1/20/2015	13,409.00	88.60	177.20	10,910.10	2,477.86	-2,473.51	213.57	2.14	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,504.00	87.80	177.20	10,913.08	2,572.78	-2,568.35	218.21	0.84	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,598.00	88.30	177.80	10,916.28	2,666.70	-2,662.20	222.31	0.83	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,693.00	89.30	179.30	10,918.27	2,761.68	-2,757.15	224.71	1.90	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,787.00	89.00	179.70	10,919.66	2,855.66	-2,851.14	225.53	0.53	MWD	LEAM DRILLING SYSTEMS
1/20/2015	13,882.00	88.90	180.00	10,921.40	2,950.62	-2,946.12	225.78	0.33	MWD	LEAM DRILLING SYSTEMS
1/21/2015	13,976.00	88.70	180.90	10,923.37	3,044.55	-3,040.09	225.04	0.98	MWD	LEAM DRILLING SYSTEMS
1/21/2015	14,071.00	89.50	180.40	10,924.86	3,139.48	-3,135.08	223.97	0.99	MWD	LEAM DRILLING SYSTEMS
1/21/2015	14,165.00	89.20	181.30	10,925.93	3,233.41	-3,229.06	222.57	1.01	MWD	LEAM DRILLING SYSTEMS
1/21/2015	14,260.00	89.10	181.60	10,927.34	3,328.28	-3,324.02	220.17	0.33	MWD	LEAM DRILLING SYSTEMS
1/21/2015	14,354.00	89.20	181.50	10,928.73	3,422.15	-3,417.97	217.63	0.15	MWD	LEAM DRILLING SYSTEMS
1/21/2015	14,449.00	88.70	180.00	10,930.47	3,517.07	-3,512.95	216.38	1.66	MWD	LEAM DRILLING SYSTEMS
1/21/2015	14,543.00	87.90	179.90	10,933.26	3,611.00	-3,606.90	216.47	0.86	MWD	LEAM DRILLING SYSTEMS
1/22/2015	14,638.00	88.40	179.20	10,936.33	3,705.94	-3,701.85	217.21	0.91	MWD	LEAM DRILLING SYSTEMS
1/22/2015	14,732.00	89.90	178.30	10,937.72	3,799.93	-3,795.81	219.26	1.86	MWD	LEAM DRILLING SYSTEMS
1/22/2015	14,827.00	89.80	178.50	10,937.97	3,894.92	-3,890.78	221.91	0.24	MWD	LEAM DRILLING SYSTEMS
1/22/2015	14,921.00	89.80	177.60	10,938.30	3,988.92	-3,984.72	225.11	0.96	MWD	LEAM DRILLING SYSTEMS
1/22/2015	15,015.00	89.30	178.10	10,939.04	4,082.90	-4,078.65	228.64	0.75	MWD	LEAM DRILLING SYSTEMS
1/22/2015	15,110.00	88.80	177.60	10,940.62	4,177.88	-4,173.57	232.20	0.74	MWD	LEAM DRILLING SYSTEMS
1/22/2015	15,250.00	88.80	177.60	10,943.55	4,317.83	-4,313.42	238.06	0.00	BIT	LEAM DRILLING SYSTEMS