



October 28, 2014

15- 42648

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 25 2015

RECEIVED

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

Attn: David Cook

Re: **Cotton Draw Unit No. 216Y**

Please find enclosed a copy of the survey from 0.00' to 4193.30' ran on the above referenced well.

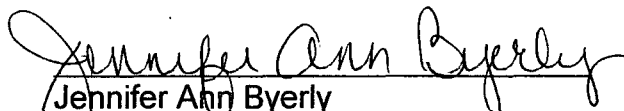
If I can be of any further service please do not hesitate to call me at 800-606-4976.

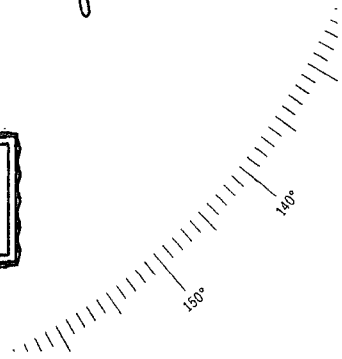
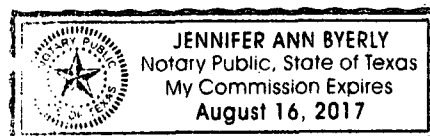
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 28 day of October, A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: DEVON ENERGY
 Lease/Well: COTTON DRAW UNIT/No. 216Y
 Location: 19 MILES SE OF MALAGA, NM
 Rig Name: H&P 223
 State/County: NEW MEXICO/EDDY
 Latitude: 32.15, Longitude: -103.76
 GRID North is 0.30 Degrees East of True North
 VS-Azi: 0.00 Degrees



Depth Reference : RKB 25 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: cotton draw unit #216y.ut

Minimum Curvature Method

Report Date/Time: 10/28/2014 / 10:23

VES Survey International

Fort Worth, Texas

817-741-3610

Surveyor: Eric Warner

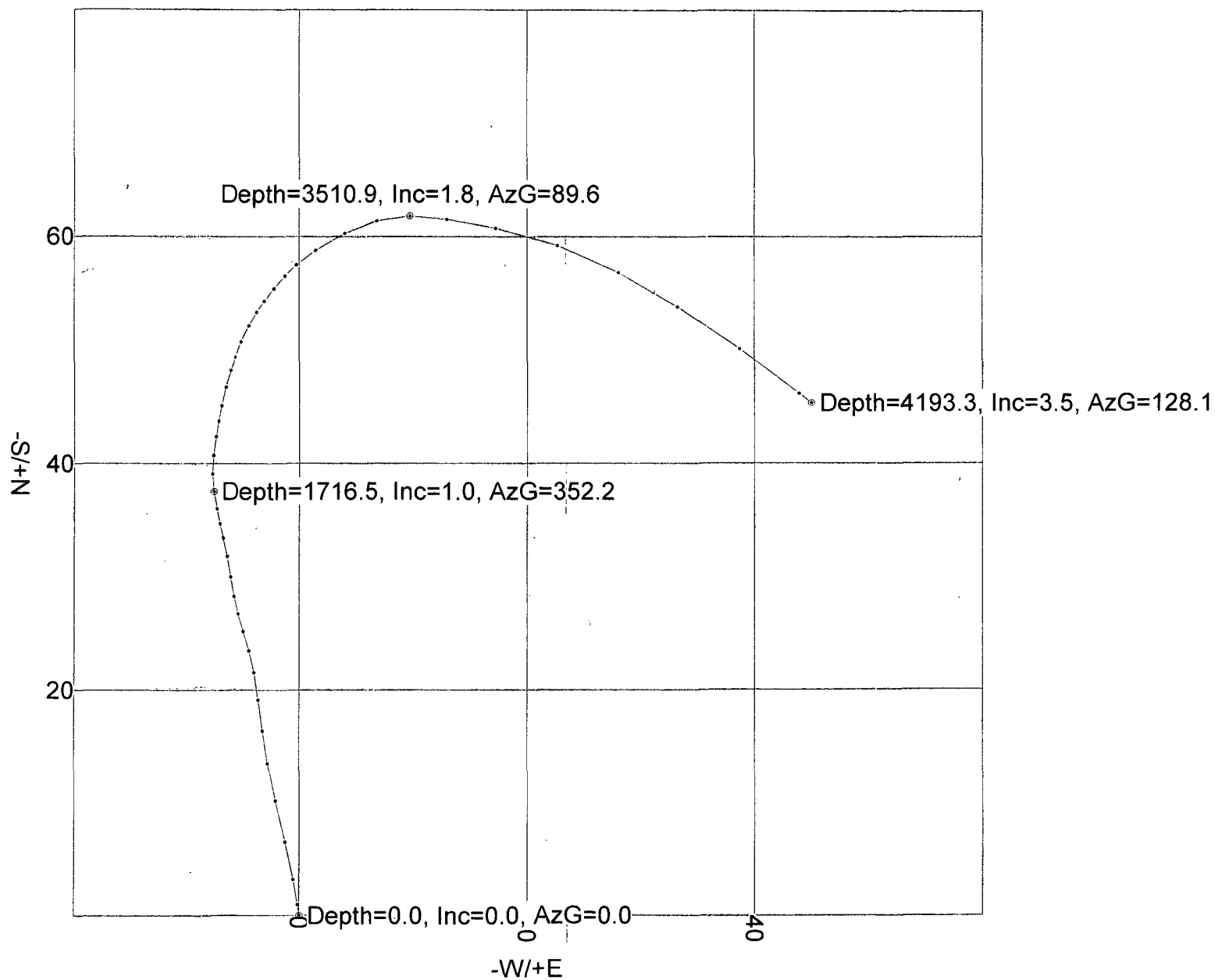
Cotton Draw Unit No. 216Y / API 30-015-42648

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	****
111.02	1.00	351.92	111.01	0.96	-0.14	0.96	0.97	351.92	0.90
205.46	1.76	348.91	205.43	3.20	-0.53	3.20	3.24	350.57	0.81
299.90	2.41	347.61	299.80	6.56	-1.24	6.56	6.67	349.33	0.69
394.34	2.15	346.22	394.17	10.22	-2.08	10.22	10.43	348.47	0.28
488.78	1.93	350.92	488.55	13.50	-2.76	13.50	13.78	348.47	0.30
583.22	1.64	352.46	582.94	16.41	-3.18	16.41	16.72	349.02	0.31
677.66	1.71	351.74	677.34	19.14	-3.56	19.14	19.47	349.46	0.08
772.10	1.29	349.46	771.75	21.59	-3.96	21.59	21.95	349.60	0.45
866.54	1.10	345.03	866.17	23.51	-4.39	23.51	23.92	349.42	0.23
960.98	1.04	343.52	960.59	25.21	-4.87	25.21	25.67	349.07	0.07
1055.42	0.96	341.22	1055.02	26.78	-5.36	26.78	27.31	348.67	0.10
1149.86	0.98	348.01	1149.45	28.31	-5.79	28.31	28.90	348.45	0.12
1244.30	1.14	352.51	1243.87	30.03	-6.07	30.03	30.63	348.56	0.19
1338.74	1.11	349.87	1338.29	31.85	-6.36	31.85	32.48	348.71	0.06
1433.18	0.85	345.51	1432.72	33.43	-6.69	33.43	34.09	348.68	0.28
1527.62	0.73	346.87	1527.15	34.70	-7.01	34.70	35.40	348.58	0.13
1622.06	0.91	348.33	1621.58	36.02	-7.30	36.02	36.75	348.55	0.19
1716.50	0.97	352.18	1716.01	37.55	-7.56	37.55	38.31	348.62	0.09

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
1810.94	0.89	358.70	1810.43	39.08	-7.68	39.08	39.83	348.88	0.14
1905.38	1.10	7.38	1904.86	40.72	-7.58	40.72	41.42	349.45	0.27
1999.82	0.95	8.01	1999.28	42.40	-7.36	42.40	43.03	350.16	0.16
2094.26	0.72	10.26	2093.71	43.76	-7.14	43.76	44.34	350.73	0.25
2188.70	0.94	13.34	2188.14	45.11	-6.86	45.11	45.62	351.36	0.24
2283.14	1.11	13.08	2282.57	46.75	-6.47	46.75	47.20	352.12	0.17
2377.58	0.75	18.35	2377.00	48.23	-6.07	48.23	48.61	352.83	0.39
2472.02	0.76	22.00	2471.43	49.39	-5.64	49.39	49.72	353.49	0.05
2566.46	1.01	24.36	2565.86	50.74	-5.06	50.74	50.99	354.31	0.27
2660.90	0.90	27.81	2660.28	52.16	-4.37	52.16	52.34	355.21	0.13
2755.34	0.74	31.41	2754.71	53.34	-3.70	53.34	53.47	356.03	0.17
2849.78	0.68	36.26	2849.15	54.32	-3.05	54.32	54.40	356.79	0.09
2944.22	1.00	38.22	2943.58	55.42	-2.20	55.42	55.46	357.72	0.33
3038.66	0.79	42.77	3038.00	56.54	-1.26	56.54	56.55	358.73	0.24
3133.10	0.90	48.66	3132.43	57.51	-0.26	57.51	57.51	359.75	0.15
3227.54	1.67	55.08	3226.85	58.79	1.43	58.79	58.81	1.39	0.82
3321.98	1.93	63.51	3321.24	60.28	3.98	60.28	60.42	3.78	0.39
3416.42	1.80	74.03	3415.63	61.40	6.83	61.40	61.78	6.35	0.39
3510.86	1.78	89.60	3510.03	61.82	9.72	61.82	62.58	8.94	0.51
3605.30	2.18	99.47	3604.41	61.53	12.96	61.53	62.88	11.89	0.56
3699.74	3.11	101.15	3698.75	60.74	17.25	60.74	63.14	15.85	0.99
3794.18	3.73	109.26	3793.02	59.23	22.66	59.23	63.42	20.94	0.84
3888.62	3.41	119.06	3887.28	56.86	28.02	56.86	63.38	26.23	0.73
3983.06	3.89	121.31	3981.53	53.83	33.21	53.83	63.25	31.68	0.54
4077.50	4.16	126.55	4075.73	50.12	38.71	50.12	63.32	37.68	0.48
4171.94	3.73	127.89	4169.95	46.19	43.89	46.19	63.71	43.54	0.47
4193.30	3.54	128.11	4191.27	45.35	44.96	45.35	63.86	44.75	0.90



VES Survey International
Fort Worth, Texas
817-741-3610
Surveyor: Eric Warner
Cotton Draw Unit No. 216Y / API 30-015-42648



VES Survey Date: 10/08/2014



COTTON DRAW UNIT 216Y

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (") 32° 9' 10.049" N	Longitude (") 103° 45' 43.125" W	Ground Elev... 3,425.70	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,450.70	Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (")
ACTUAL Deviation Survey	Definitive? Yes	Proposed? No	Proposed Deviation Survey	

Deviation Survey

Date 10/8/2014		Description GYRO-VES			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)

Survey Data

Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS ("/100ft)	Survey Tool	Survey Company
10/8/2014	111.02	1.00	351.92	111.01	0.97	0.96	-0.14	0.90	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	205.46	1.76	348.91	205.43	3.24	3.20	-0.53	0.81	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	299.90	2.41	347.61	299.80	6.66	6.56	-1.24	0.69	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	394.34	2.15	346.22	394.17	10.40	10.22	-2.08	0.28	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	488.78	1.93	350.92	488.55	13.75	13.51	-2.76	0.29	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	583.22	1.64	352.46	582.94	16.69	16.42	-3.19	0.31	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	677.66	1.71	351.74	677.34	19.45	19.16	-3.56	0.08	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	772.10	1.29	349.46	771.75	21.92	21.60	-3.96	0.45	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	866.54	1.10	345.03	866.17	23.88	23.52	-4.39	0.22	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	960.98	1.04	343.52	960.59	25.63	25.21	-4.87	0.07	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,055.42	0.96	341.22	1,055.02	27.25	26.78	-5.37	0.09	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,149.86	0.98	348.01	1,149.44	28.83	28.32	-5.79	0.12	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,244.30	1.14	352.51	1,243.87	30.57	30.05	-6.08	0.19	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,338.74	1.11	349.87	1,338.29	32.43	31.88	-6.36	0.06	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,433.18	0.85	345.51	1,432.72	34.03	33.46	-6.70	0.29	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,527.62	0.73	346.87	1,527.15	35.33	34.72	-7.01	0.13	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,622.06	0.91	348.33	1,621.58	36.67	36.04	-7.30	0.19	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,716.50	0.97	352.18	1,716.01	38.22	37.57	-7.56	0.09	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,810.94	0.89	358.70	1,810.43	39.75	39.09	-7.68	0.14	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,905.38	1.10	7.38	1,904.86	41.36	40.72	-7.58	0.27	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	1,999.82	0.95	8.01	1,999.28	42.99	42.40	-7.36	0.16	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,094.26	0.72	10.26	2,093.71	44.31	43.76	-7.14	0.25	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,188.70	0.94	13.34	2,188.14	45.60	45.10	-6.86	0.24	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,283.14	1.11	13.08	2,282.57	47.18	46.74	-6.47	0.18	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,377.58	0.75	18.35	2,377.00	48.60	48.22	-6.07	0.39	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,472.02	0.76	22.00	2,471.43	49.70	49.39	-5.64	0.05	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,566.46	1.01	24.36	2,565.86	50.96	50.72	-5.06	0.27	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,660.90	0.90	27.81	2,660.28	52.27	52.14	-4.38	0.13	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,755.34	0.74	31.41	2,754.71	53.36	53.31	-3.71	0.18	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,849.78	0.68	36.26	2,849.15	54.24	54.29	-3.06	0.09	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	2,944.22	1.00	38.22	2,943.58	55.22	55.39	-2.22	0.34	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,038.66	0.79	42.77	3,038.00	56.22	56.51	-1.27	0.23	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,133.10	0.90	48.66	3,132.43	57.05	57.48	-0.27	0.15	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,227.54	1.67	55.08	3,226.85	58.11	58.76	1.42	0.83	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,321.98	1.93	63.51	3,321.24	59.27	60.25	3.97	0.39	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,416.42	1.80	74.03	3,415.63	60.02	61.37	6.82	0.39	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,510.86	1.78	89.60	3,510.03	60.07	61.79	9.71	0.51	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,605.30	2.18	99.47	3,604.41	59.38	61.51	12.95	0.56	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,699.74	3.11	101.15	3,698.75	58.05	60.71	17.23	0.99	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,794.18	3.73	109.26	3,793.02	55.87	59.21	22.65	0.83	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,888.62	3.41	119.06	3,887.28	52.83	56.83	28.00	0.73	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	3,983.06	3.89	121.31	3,981.53	49.17	53.80	33.19	0.53	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	4,077.50	4.16	126.55	4,075.73	44.81	50.09	38.68	0.48	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	4,171.94	3.73	127.89	4,169.95	40.26	46.17	43.86	0.47	GYRO	VAUHG N ENERGY SERVICES
10/8/2014	4,193.30	3.54	128.11	4,191.27	39.29	45.33	44.93	0.89	GYRO	VAUHG N ENERGY SERVICES
10/10/2...	4,375.00	3.20	142.00	4,372.66	30.94	37.88	52.46	0.49	MWD	LEAM
10/10/2...	4,470.00	1.50	143.00	4,467.57	27.58	34.79	54.84	1.79	MWD	LEAM



COTTON DRAW UNIT 216Y

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG			State/Province NM	
Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (°) 32° 9' 10.049" N	Longitude (°) 103° 45' 43.125" W	Ground Elev... 3,425.70	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,450.70	Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl. (°)	Azm (°)	VD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS* (/100ft)	Survey Tool	Survey Company
10/10/2...	4,562.00	1.10	329.70	4,559.56	27.35	34.59	55.12	2.82	MWD	LEAM
10/10/2...	4,659.00	1.90	326.40	4,656.53	29.65	36.74	53.76	0.83	MWD	LEAM
10/10/2...	4,753.00	2.00	318.80	4,750.48	32.41	39.27	51.82	0.29	MWD	LEAM
10/10/2...	4,848.00	1.50	307.20	4,845.43	34.65	41.27	49.74	0.64	MWD	LEAM
10/10/2...	4,942.00	1.60	307.20	4,939.40	36.43	42.81	47.71	0.11	MWD	LEAM
10/10/2...	5,037.00	0.40	157.30	5,034.39	37.04	43.30	46.78	2.06	MWD	LEAM
10/10/2...	5,132.00	0.90	154.10	5,129.38	36.02	42.32	47.24	0.53	MWD	LEAM
10/10/2...	5,226.00	0.50	191.60	5,223.37	34.93	41.26	47.48	0.63	MWD	LEAM
10/10/2...	5,321.00	1.80	247.60	5,318.35	34.15	40.28	46.01	1.66	MWD	LEAM
10/10/2...	5,416.00	3.60	256.40	5,413.25	33.43	39.01	41.74	1.94	MWD	LEAM
10/10/2...	5,510.00	4.00	267.90	5,507.04	33.40	38.20	35.59	0.91	MWD	LEAM
10/10/2...	5,605.00	5.40	265.20	5,601.72	33.89	37.70	27.82	1.49	MWD	LEAM
10/10/2...	5,699.00	7.10	265.80	5,695.16	34.39	36.91	17.62	1.81	MWD	LEAM
10/12/2...	5,794.00	7.70	265.90	5,789.36	35.05	36.02	5.42	0.63	MWD	LEAM
10/12/2...	5,889.00	7.80	266.10	5,883.50	35.78	35.13	-7.36	0.11	MWD	LEAM
10/12/2...	5,983.00	7.70	267.50	5,976.64	36.67	34.42	-20.02	0.23	MWD	LEAM
10/12/2...	6,078.00	8.40	267.20	6,070.70	37.74	33.80	-33.31	0.74	MWD	LEAM
10/12/2...	6,173.00	8.40	267.00	6,164.68	38.80	33.10	-47.17	0.03	MWD	LEAM
10/12/2...	6,267.00	8.50	265.80	6,257.66	39.68	32.23	-60.95	0.22	MWD	LEAM
10/12/2...	6,362.00	8.60	266.60	6,351.61	40.53	31.30	-75.04	0.16	MWD	LEAM
10/12/2...	6,456.00	8.70	265.10	6,444.54	41.30	30.27	-89.14	0.26	MWD	LEAM
10/12/2...	6,551.00	9.00	263.60	6,538.41	41.70	28.83	-103.68	0.40	MWD	LEAM
10/12/2...	6,646.00	8.90	264.70	6,632.25	42.06	27.33	-118.39	0.21	MWD	LEAM
10/12/2...	6,740.00	8.80	263.30	6,725.13	42.38	25.82	-132.77	0.25	MWD	LEAM
10/12/2...	6,834.00	8.80	262.20	6,818.02	42.39	24.00	-147.03	0.18	MWD	LEAM
10/12/2...	6,929.00	8.90	262.80	6,911.89	42.32	22.09	-161.52	0.14	MWD	LEAM
10/12/2...	7,024.00	7.10	272.80	7,005.97	43.36	21.46	-174.68	2.39	MWD	LEAM
10/13/2...	7,118.00	6.90	276.10	7,099.27	45.68	22.34	-186.10	0.48	MWD	LEAM
10/13/2...	7,213.00	6.80	274.50	7,193.59	48.14	23.39	-197.38	0.23	MWD	LEAM
10/14/2...	7,307.00	6.90	273.50	7,286.92	50.33	24.17	-208.56	0.17	MWD	LEAM
10/14/2...	7,402.00	5.80	273.50	7,381.34	52.29	24.81	-219.05	1.16	MWD	LEAM
10/14/2...	7,496.00	4.80	271.70	7,474.93	53.79	25.22	-227.72	1.08	MWD	LEAM
10/14/2...	7,591.00	3.90	278.90	7,569.66	55.31	25.84	-234.89	1.11	MWD	LEAM
10/14/2...	7,686.00	2.60	278.90	7,664.50	56.81	26.67	-240.21	1.37	MWD	LEAM
10/14/2...	7,780.00	0.80	286.80	7,758.46	57.67	27.19	-242.94	1.93	MWD	LEAM
10/14/2...	7,875.00	0.60	256.30	7,853.45	57.88	27.26	-244.06	0.44	MWD	LEAM
10/14/2...	7,969.00	0.80	232.90	7,947.45	57.50	26.75	-245.06	0.37	MWD	LEAM
10/14/2...	8,064.00	1.10	203.90	8,042.43	56.39	25.52	-245.96	0.59	MWD	LEAM
10/14/2...	8,159.00	1.20	197.40	8,137.41	54.71	23.74	-246.63	0.17	MWD	LEAM
10/14/2...	8,253.00	1.30	192.80	8,231.39	52.81	21.76	-247.16	0.15	MWD	LEAM
10/14/2...	8,347.00	1.10	257.70	8,325.37	51.73	20.52	-248.28	1.38	MWD	LEAM
10/14/2...	8,442.00	1.30	260.30	8,420.35	51.60	20.15	-250.23	0.22	MWD	LEAM
10/14/2...	8,537.00	1.20	216.50	8,515.33	50.84	19.17	-251.88	0.99	MWD	LEAM
10/14/2...	8,631.00	1.80	218.80	8,609.30	49.10	17.23	-253.39	0.64	MWD	LEAM
10/14/2...	8,726.00	1.10	204.10	8,704.27	47.29	15.23	-254.70	0.83	MWD	LEAM
10/14/2...	8,820.00	1.00	48.80	8,798.26	46.98	14.95	-254.45	2.18	MWD	LEAM
10/14/2...	8,915.00	0.80	46.90	8,893.25	47.83	15.95	-253.34	0.21	MWD	LEAM
10/14/2...	9,009.00	0.70	117.70	8,987.25	47.88	16.13	-252.36	0.93	MWD	LEAM
10/15/2...	9,104.00	1.30	153.80	9,082.23	46.53	14.89	-251.37	0.89	MWD	LEAM
10/15/2...	9,198.00	0.90	140.90	9,176.21	44.90	13.36	-250.43	0.50	MWD	LEAM
10/15/2...	9,293.00	0.40	122.00	9,271.21	44.05	12.61	-249.68	0.57	MWD	LEAM
10/15/2...	9,387.00	0.20	109.10	9,365.21	43.77	12.38	-249.25	0.22	MWD	LEAM
10/15/2...	9,481.00	0.30	235.90	9,459.21	43.59	12.19	-249.29	0.48	MWD	LEAM
10/15/2...	9,576.00	0.40	276.80	9,554.20	43.56	12.09	-249.83	0.28	MWD	LEAM
10/15/2...	9,671.00	1.00	272.60	9,649.20	43.78	12.16	-250.99	0.63	MWD	LEAM



COTTON DRAW UNIT 216Y

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (°) 32° 9' 10.049" N	Longitude (°) 103° 45' 43.125" W	Ground Elev... 3,425.70
				KB - GL (ft) 25.00
				Orig KB Elev (ft) 3,450.70
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (%/1000)	Survey Tool	Survey Company
10/15/2...	9,727.00	1.60	266.50	9,705.18	43.91	12.14	-252.25	1.10	MWD	LEAM
10/16/2...	9,797.00	2.80	321.30	9,775.14	45.44	13.41	-254.30	3.27	MWD	LEAM
10/16/2...	9,828.00	5.50	338.50	9,806.05	47.52	15.39	-255.32	9.50	MWD	LEAM
10/16/2...	9,860.00	9.40	346.10	9,837.78	51.61	19.35	-256.51	12.54	MWD	LEAM
10/16/2...	9,891.00	14.10	352.60	9,868.12	57.90	25.56	-257.60	15.73	MWD	LEAM
10/16/2...	9,923.00	18.00	354.20	9,898.87	66.74	34.35	-258.61	12.26	MWD	LEAM
10/16/2...	9,954.00	20.00	354.00	9,928.18	76.83	44.38	-259.64	6.46	MWD	LEAM
10/16/2...	9,986.00	22.30	351.20	9,958.02	88.38	55.83	-261.14	7.85	MWD	LEAM
10/16/2...	10,017.00	24.40	350.30	9,986.48	100.65	67.95	-263.12	6.87	MWD	LEAM
10/16/2...	10,049.00	26.40	349.80	10,015.39	114.36	81.47	-265.50	6.29	MWD	LEAM
10/17/2...	10,080.00	28.90	352.40	10,042.84	128.74	95.68	-267.71	8.95	MWD	LEAM
10/17/2...	10,111.00	31.20	352.20	10,069.68	144.26	111.06	-269.79	7.43	MWD	LEAM
10/17/2...	10,143.00	33.90	352.20	10,096.65	161.48	128.12	-272.13	8.44	MWD	LEAM
10/17/2...	10,174.00	37.90	352.60	10,121.75	179.65	146.14	-274.53	12.93	MWD	LEAM
10/17/2...	10,206.00	40.70	352.80	10,146.51	199.92	166.24	-277.10	8.76	MWD	LEAM
10/17/2...	10,237.00	43.50	355.80	10,169.51	220.68	186.91	-279.15	11.12	MWD	LEAM
10/17/2...	10,269.00	46.40	356.60	10,192.16	243.25	209.47	-280.64	9.23	MWD	LEAM
10/17/2...	10,300.00	48.90	357.70	10,213.04	266.09	232.35	-281.78	8.48	MWD	LEAM
10/17/2...	10,332.00	51.40	355.90	10,233.55	290.59	256.87	-283.16	8.93	MWD	LEAM
10/17/2...	10,363.00	54.60	352.80	10,252.20	315.33	281.50	-285.61	13.05	MWD	LEAM
10/17/2...	10,395.00	58.30	350.50	10,269.89	341.99	307.88	-289.49	13.02	MWD	LEAM
10/17/2...	10,426.00	61.90	351.40	10,285.34	368.84	334.41	-293.71	11.88	MWD	LEAM
10/17/2...	10,458.00	64.50	351.90	10,299.76	397.40	362.67	-297.86	8.24	MWD	LEAM
10/17/2...	10,489.00	67.40	354.20	10,312.40	425.70	390.77	-301.28	11.55	MWD	LEAM
10/17/2...	10,521.00	68.80	355.60	10,324.33	455.37	420.34	-303.91	5.97	MWD	LEAM
10/17/2...	10,552.00	69.90	355.60	10,335.27	484.34	449.26	-306.14	3.55	MWD	LEAM
10/17/2...	10,584.00	71.70	356.80	10,345.79	514.50	479.41	-308.14	6.65	MWD	LEAM
10/17/2...	10,615.00	74.20	358.20	10,354.88	544.03	509.02	-309.43	9.15	MWD	LEAM
10/17/2...	10,647.00	78.30	359.10	10,362.48	574.95	540.09	-310.16	13.10	MWD	LEAM
10/17/2...	10,678.00	82.10	359.80	10,367.76	605.28	570.63	-310.45	12.46	MWD	LEAM
10/17/2...	10,710.00	84.60	0.70	10,371.46	636.79	602.41	-310.31	8.30	MWD	LEAM
10/17/2...	10,741.00	86.40	0.70	10,373.90	667.39	633.31	-309.94	5.81	MWD	LEAM
10/17/2...	10,773.00	88.50	1.90	10,375.32	699.00	665.27	-309.21	7.56	MWD	LEAM
10/17/2...	10,899.00	89.60	2.30	10,377.41	823.31	791.16	-304.59	0.93	MWD	LEAM
10/17/2...	10,993.00	90.20	3.30	10,377.57	915.86	885.05	-300.00	1.24	MWD	LEAM
10/17/2...	11,088.00	90.20	3.00	10,377.24	1,009.30	979.90	-294.78	0.32	MWD	LEAM
10/17/2...	11,183.00	90.80	2.40	10,376.41	1,102.86	1,074.79	-290.31	0.89	MWD	LEAM
10/17/2...	11,277.00	90.80	1.60	10,375.10	1,195.63	1,168.73	-287.03	0.85	MWD	LEAM
10/17/2...	11,372.00	91.10	1.00	10,373.52	1,289.55	1,263.69	-284.87	0.71	MWD	LEAM
10/18/2...	11,466.00	91.50	360.00	10,371.39	1,382.67	1,357.66	-284.05	1.15	MWD	LEAM
10/18/2...	11,561.00	92.70	0.30	10,367.91	1,476.81	1,452.59	-283.80	1.30	MWD	LEAM
10/18/2...	11,656.00	91.70	359.40	10,364.26	1,571.01	1,547.52	-284.05	1.42	MWD	LEAM
10/18/2...	11,750.00	91.80	358.20	10,361.39	1,664.44	1,641.45	-286.02	1.28	MWD	LEAM
10/18/2...	11,845.00	92.90	357.90	10,357.50	1,758.95	1,736.32	-289.25	1.20	MWD	LEAM
10/18/2...	11,940.00	91.10	356.60	10,354.18	1,853.59	1,831.14	-293.81	2.34	MWD	LEAM
10/18/2...	12,034.00	90.20	356.30	10,353.12	1,947.39	1,924.96	-299.63	1.01	MWD	LEAM
10/18/2...	12,129.00	90.00	356.50	10,352.95	2,042.19	2,019.77	-305.59	0.30	MWD	LEAM
10/18/2...	12,224.00	90.50	357.00	10,352.54	2,136.96	2,114.62	-310.98	0.74	MWD	LEAM
10/18/2...	12,319.00	89.80	357.20	10,352.29	2,231.68	2,209.49	-315.78	0.77	MWD	LEAM
10/18/2...	12,413.00	88.00	357.70	10,354.09	2,325.35	2,303.38	-319.96	1.99	MWD	LEAM
10/18/2...	12,508.00	87.30	356.30	10,357.99	2,420.00	2,398.17	-324.93	1.65	MWD	LEAM
10/18/2...	12,603.00	87.20	355.20	10,362.55	2,514.76	2,492.79	-331.96	1.16	MWD	LEAM
10/18/2...	12,698.00	87.70	355.60	10,366.77	2,609.56	2,587.39	-339.57	0.67	MWD	LEAM
10/18/2...	12,792.00	88.10	355.20	10,370.22	2,703.40	2,681.03	-347.11	0.60	MWD	LEAM
10/18/2...	12,887.00	88.50	353.80	10,373.03	2,798.31	2,775.55	-356.21	1.53	MWD	LEAM



COTTON DRAW UNIT 216Y

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (") 32° 9' 10.049" N	Longitude (") 103° 45' 43.125" W	Ground Elev... 3,425.70
			KB - GL (ft) 25.00	Orig KB Elev (ft) 3,450.70
				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
10/18/2...	12,981.00	89.30	353.60	10,374.84	2,892.28	2,868.96	-366.52	0.88	MWD	LEAM
10/19/2...	13,076.00	91.30	356.10	10,374.34	2,987.20	2,963.56	-375.05	3.37	MWD	LEAM
10/19/2...	13,170.00	92.50	356.10	10,371.23	3,080.98	3,057.29	-381.44	1.28	MWD	LEAM
10/19/2...	13,265.00	92.20	355.80	10,367.33	3,175.76	3,151.97	-388.14	0.45	MWD	LEAM
10/19/2...	13,359.00	93.40	356.10	10,362.74	3,269.49	3,245.63	-394.77	1.32	MWD	LEAM
10/19/2...	13,454.00	94.40	355.10	10,356.28	3,364.15	3,340.12	-402.04	1.49	MWD	LEAM
10/19/2...	13,548.00	93.00	354.30	10,350.21	3,457.90	3,433.52	-410.71	1.71	MWD	LEAM
10/19/2...	13,643.00	90.00	353.30	10,347.72	3,552.84	3,527.92	-420.96	3.33	MWD	LEAM
10/19/2...	13,737.00	90.00	351.70	10,347.72	3,646.84	3,621.12	-433.23	1.70	MWD	LEAM
10/19/2...	13,832.00	90.90	350.50	10,346.98	3,741.79	3,714.97	-447.93	1.58	MWD	LEAM
10/19/2...	14,021.00	88.70	349.80	10,347.64	3,930.58	3,901.17	-480.26	1.22	MWD	LEAM
10/19/2...	14,116.00	90.10	350.50	10,348.63	4,025.48	3,994.76	-496.51	1.65	MWD	LEAM
10/19/2...	14,210.00	90.00	350.50	10,348.55	4,119.41	4,087.47	-512.02	0.11	MWD	LEAM
10/20/2...	14,305.00	90.00	351.20	10,348.55	4,214.35	4,181.26	-527.13	0.74	MWD	LEAM
10/20/2...	14,400.00	91.20	352.40	10,347.56	4,309.33	4,275.28	-540.68	1.79	MWD	LEAM
10/20/2...	14,494.00	90.60	352.90	10,346.08	4,403.32	4,368.50	-552.70	0.83	MWD	LEAM
10/20/2...	14,588.00	91.30	352.90	10,344.52	4,497.31	4,461.76	-564.32	0.74	MWD	LEAM
10/20/2...	14,683.00	92.20	352.10	10,341.62	4,592.26	4,555.90	-576.71	1.27	MWD	LEAM
10/21/2...	14,778.00	93.00	351.50	10,337.31	4,687.15	4,649.83	-590.25	1.05	MWD	LEAM
10/21/2...	14,817.00	93.20	351.50	10,335.20	4,726.08	4,688.35	-596.01	0.51	MWD	LEAM
10/21/2...	14,870.00	93.20	351.50	10,332.24	4,778.99	4,740.69	-603.83	0.00	BIT	LEAM



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Directional Survey

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Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (") 32° 9' 10.049" N	Longitude (") 103° 45' 43.125" W	Ground Elev... 3,425.70	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,450.70	Tubing Head Elevation (ft)

Wellbores				
Wellbore Name OH	Parent Wellbore	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (")
Actual Deviation Survey GYRO-VES, Proposed? No		Definitive? Yes	Proposed? No	Proposed Deviation Survey

Deviation Survey					
Date 10/8/2014	Description GYRO-VES				
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (")	Azimuth Tie In (")	NSTie In (ft)	EWtie In (ft)

Survey Data

Date	MD (ftKB)	Ind (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company
10/8/2014	111.02	1.00	351.92	111.01	0.97	0.96	-0.14	0.90	GYRO	VAUHG ENERGY SERVICES
10/8/2014	205.46	1.76	348.91	205.43	3.24	3.20	-0.53	0.81	GYRO	VAUHG ENERGY SERVICES
10/8/2014	299.90	2.41	347.61	299.80	6.66	6.56	-1.24	0.69	GYRO	VAUHG ENERGY SERVICES
10/8/2014	394.34	2.15	346.22	394.17	10.40	10.22	-2.08	0.28	GYRO	VAUHG ENERGY SERVICES
10/8/2014	488.78	1.93	350.92	488.55	13.75	13.51	-2.76	0.29	GYRO	VAUHG ENERGY SERVICES
10/8/2014	583.22	1.64	352.46	582.94	16.69	16.42	-3.19	0.31	GYRO	VAUHG ENERGY SERVICES
10/8/2014	677.66	1.71	351.74	677.34	19.45	19.16	-3.56	0.08	GYRO	VAUHG ENERGY SERVICES
10/8/2014	772.10	1.29	349.46	771.75	21.92	21.60	-3.96	0.45	GYRO	VAUHG ENERGY SERVICES
10/8/2014	866.54	1.10	345.03	866.17	23.88	23.52	-4.39	0.22	GYRO	VAUHG ENERGY SERVICES
10/8/2014	960.98	1.04	343.52	960.59	25.63	25.21	-4.87	0.07	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,055.42	0.96	341.22	1,055.02	27.25	26.78	-5.37	0.09	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,149.86	0.98	348.01	1,149.44	28.83	28.32	-5.79	0.12	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,244.30	1.14	352.51	1,243.87	30.57	30.05	-6.08	0.19	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,338.74	1.11	349.87	1,338.29	32.43	31.88	-6.36	0.06	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,433.18	0.85	345.51	1,432.72	34.03	33.46	-6.70	0.29	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,527.62	0.73	346.87	1,527.15	35.33	34.72	-7.01	0.13	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,622.06	0.91	348.33	1,621.58	36.67	36.04	-7.30	0.19	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,716.50	0.97	352.18	1,716.01	38.22	37.57	-7.56	0.09	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,810.94	0.89	358.70	1,810.43	39.75	39.09	-7.68	0.14	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,905.38	1.10	7.38	1,904.86	41.36	40.72	-7.58	0.27	GYRO	VAUHG ENERGY SERVICES
10/8/2014	1,999.82	0.95	8.01	1,999.28	42.99	42.40	-7.36	0.16	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,094.26	0.72	10.26	2,093.71	44.31	43.76	-7.14	0.25	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,188.70	0.94	13.34	2,188.14	45.60	45.10	-6.86	0.24	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,283.14	1.11	13.08	2,282.57	47.18	46.74	-6.47	0.18	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,377.58	0.75	18.35	2,377.00	48.60	48.22	-6.07	0.39	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,472.02	0.76	22.00	2,471.43	49.70	49.39	-5.64	0.05	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,566.46	1.01	24.36	2,565.86	50.96	50.72	-5.06	0.27	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,660.90	0.90	27.81	2,660.28	52.27	52.14	-4.38	0.13	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,755.34	0.74	31.41	2,754.71	53.36	53.31	-3.71	0.18	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,849.78	0.68	36.26	2,849.15	54.24	54.29	-3.06	0.09	GYRO	VAUHG ENERGY SERVICES
10/8/2014	2,944.22	1.00	38.22	2,943.58	55.22	55.39	-2.22	0.34	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,038.66	0.79	42.77	3,038.00	56.22	56.51	-1.27	0.23	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,133.10	0.90	48.66	3,132.43	57.05	57.48	-0.27	0.15	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,227.54	1.67	55.08	3,226.85	58.11	58.76	1.42	0.83	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,321.98	1.93	63.51	3,321.24	59.27	60.25	3.97	0.39	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,416.42	1.80	74.03	3,415.63	60.02	61.37	6.82	0.39	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,510.86	1.78	89.60	3,510.03	60.07	61.79	9.71	0.51	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,605.30	2.18	99.47	3,604.41	59.38	61.51	12.95	0.56	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,699.74	3.11	101.15	3,698.75	58.05	60.71	17.23	0.99	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,794.18	3.73	109.26	3,793.02	55.87	59.21	22.65	0.83	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,888.62	3.41	119.06	3,887.28	52.83	56.83	28.00	0.73	GYRO	VAUHG ENERGY SERVICES
10/8/2014	3,983.06	3.89	121.31	3,981.53	49.17	53.80	33.19	0.53	GYRO	VAUHG ENERGY SERVICES
10/8/2014	4,077.50	4.16	126.55	4,075.73	44.81	50.09	38.68	0.48	GYRO	VAUHG ENERGY SERVICES
10/8/2014	4,171.94	3.73	127.89	4,169.95	40.26	46.17	43.86	0.47	GYRO	VAUHG ENERGY SERVICES
10/8/2014	4,193.30	3.54	128.11	4,191.27	39.29	45.33	44.93	0.89	GYRO	VAUHG ENERGY SERVICES
10/10/2...	4,375.00	3.20	142.00	4,372.66	30.94	37.88	52.46	0.49	MWD	LEAM
10/10/2...	4,470.00	1.50	143.00	4,467.57	27.58	34.79	54.84	1.79	MWD	LEAM



COTTON DRAW UNIT 216Y

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG			State/Province NM	
Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (°) 32° 9' 10.049" N	Longitude (°) 103° 45' 43.125" W	Ground Elev... 3,425.70	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,450.70	Tubing Head Elevation (ft)

Survey Data

Date	MD (ft/KB)	Ind. (°)	Azm (°)	TVD (ft/KB)	VS (ft)	NS (ft)	EW (ft)	DLS (%/100ft)	Survey Tool	Survey Company
10/10/2...	4,562.00	1.10	329.70	4,559.56	27.35	34.59	55.12	2.82	MWD	LEAM
10/10/2...	4,659.00	1.90	326.40	4,656.53	29.65	36.74	53.76	0.83	MWD	LEAM
10/10/2...	4,753.00	2.00	318.80	4,750.48	32.41	39.27	51.82	0.29	MWD	LEAM
10/10/2...	4,848.00	1.50	307.20	4,845.43	34.65	41.27	49.74	0.64	MWD	LEAM
10/10/2...	4,942.00	1.60	307.20	4,939.40	36.43	42.81	47.71	0.11	MWD	LEAM
10/10/2...	5,037.00	0.40	157.30	5,034.39	37.04	43.30	46.78	2.06	MWD	LEAM
10/10/2...	5,132.00	0.90	154.10	5,129.38	36.02	42.32	47.24	0.53	MWD	LEAM
10/10/2...	5,226.00	0.50	191.60	5,223.37	34.93	41.26	47.48	0.63	MWD	LEAM
10/10/2...	5,321.00	1.80	247.60	5,318.35	34.15	40.28	46.01	1.66	MWD	LEAM
10/10/2...	5,416.00	3.60	256.40	5,413.25	33.43	39.01	41.74	1.94	MWD	LEAM
10/10/2...	5,510.00	4.00	267.90	5,507.04	33.40	38.20	35.59	0.91	MWD	LEAM
10/10/2...	5,605.00	5.40	265.20	5,601.72	33.89	37.70	27.82	1.49	MWD	LEAM
10/10/2...	5,699.00	7.10	265.80	5,695.16	34.39	36.91	17.62	1.81	MWD	LEAM
10/12/2...	5,794.00	7.70	265.90	5,789.36	35.05	36.02	5.42	0.63	MWD	LEAM
10/12/2...	5,889.00	7.80	266.10	5,883.50	35.78	35.13	-7.36	0.11	MWD	LEAM
10/12/2...	5,983.00	7.70	267.50	5,976.64	36.67	34.42	-20.02	0.23	MWD	LEAM
10/12/2...	6,078.00	8.40	267.20	6,070.70	37.74	33.80	-33.31	0.74	MWD	LEAM
10/12/2...	6,173.00	8.40	267.00	6,164.68	38.80	33.10	-47.17	0.03	MWD	LEAM
10/12/2...	6,267.00	8.50	265.80	6,257.66	39.68	32.23	-60.95	0.22	MWD	LEAM
10/12/2...	6,362.00	8.60	266.60	6,351.61	40.53	31.30	-75.04	0.16	MWD	LEAM
10/12/2...	6,456.00	8.70	265.10	6,444.54	41.30	30.27	-89.14	0.26	MWD	LEAM
10/12/2...	6,551.00	9.00	263.60	6,538.41	41.70	28.83	-103.68	0.40	MWD	LEAM
10/12/2...	6,646.00	8.90	264.70	6,632.25	42.06	27.33	-118.39	0.21	MWD	LEAM
10/12/2...	6,740.00	8.80	263.30	6,725.13	42.38	25.82	-132.77	0.25	MWD	LEAM
10/12/2...	6,834.00	8.80	262.20	6,818.02	42.39	24.00	-147.03	0.18	MWD	LEAM
10/12/2...	6,929.00	8.90	262.80	6,911.89	42.32	22.09	-161.52	0.14	MWD	LEAM
10/12/2...	7,024.00	7.10	272.80	7,005.97	43.36	21.46	-174.68	2.39	MWD	LEAM
10/13/2...	7,118.00	6.90	276.10	7,099.27	45.68	22.34	-186.10	0.48	MWD	LEAM
10/13/2...	7,213.00	6.80	274.50	7,193.59	48.14	23.39	-197.38	0.23	MWD	LEAM
10/14/2...	7,307.00	6.90	273.50	7,286.92	50.33	24.17	-208.56	0.17	MWD	LEAM
10/14/2...	7,402.00	5.80	273.50	7,381.34	52.29	24.81	-219.05	1.16	MWD	LEAM
10/14/2...	7,496.00	4.80	271.70	7,474.93	53.79	25.22	-227.72	1.08	MWD	LEAM
10/14/2...	7,591.00	3.90	278.90	7,569.66	55.31	25.84	-234.89	1.11	MWD	LEAM
10/14/2...	7,686.00	2.60	278.90	7,664.50	56.81	26.67	-240.21	1.37	MWD	LEAM
10/14/2...	7,780.00	0.80	286.80	7,758.46	57.67	27.19	-242.94	1.93	MWD	LEAM
10/14/2...	7,875.00	0.60	256.30	7,853.45	57.88	27.26	-244.06	0.44	MWD	LEAM
10/14/2...	7,969.00	0.80	232.90	7,947.45	57.50	26.75	-245.06	0.37	MWD	LEAM
10/14/2...	8,064.00	1.10	203.90	8,042.43	56.39	25.52	-245.96	0.59	MWD	LEAM
10/14/2...	8,159.00	1.20	197.40	8,137.41	54.71	23.74	-246.63	0.17	MWD	LEAM
10/14/2...	8,253.00	1.30	192.80	8,231.39	52.81	21.76	-247.16	0.15	MWD	LEAM
10/14/2...	8,347.00	1.10	257.70	8,325.37	51.73	20.52	-248.28	1.38	MWD	LEAM
10/14/2...	8,442.00	1.30	260.30	8,420.35	51.60	20.15	-250.23	0.22	MWD	LEAM
10/14/2...	8,537.00	1.20	216.50	8,515.33	50.84	19.17	-251.88	0.99	MWD	LEAM
10/14/2...	8,631.00	1.80	218.80	8,609.30	49.10	17.23	-253.39	0.64	MWD	LEAM
10/14/2...	8,726.00	1.10	204.10	8,704.27	47.29	15.23	-254.70	0.83	MWD	LEAM
10/14/2...	8,820.00	1.00	48.80	8,798.26	46.98	14.95	-254.45	2.18	MWD	LEAM
10/14/2...	8,915.00	0.80	46.90	8,893.25	47.83	15.95	-253.34	0.21	MWD	LEAM
10/14/2...	9,009.00	0.70	117.70	8,987.25	47.88	16.13	-252.36	0.93	MWD	LEAM
10/15/2...	9,104.00	1.30	153.80	9,082.23	46.53	14.89	-251.37	0.89	MWD	LEAM
10/15/2...	9,198.00	0.90	140.90	9,176.21	44.90	13.36	-250.43	0.50	MWD	LEAM
10/15/2...	9,293.00	0.40	122.00	9,271.21	44.05	12.61	-249.68	0.57	MWD	LEAM
10/15/2...	9,387.00	0.20	109.10	9,365.21	43.77	12.38	-249.25	0.22	MWD	LEAM
10/15/2...	9,481.00	0.30	235.90	9,459.21	43.59	12.19	-249.29	0.48	MWD	LEAM
10/15/2...	9,576.00	0.40	276.80	9,554.20	43.56	12.09	-249.83	0.28	MWD	LEAM
10/15/2...	9,671.00	1.00	272.60	9,649.20	43.78	12.16	-250.99	0.63	MWD	LEAM



COTTON DRAW UNIT 216Y

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 3 T25S R31E	API/UWI 3001542648	Latitude (°) 32° 9' 10.049" N	Longitude (°) 103° 45' 43.125" W	Ground Elev... 3,425.70
			KB - GL (ft) 25.00	Ong KB Elev (ft) 3,450.70
				Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Ind (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (%/100ft)	Survey Tool	Survey Company
10/15/2...	9,727.00	1.60	266.50	9,705.18	43.91	12.14	-252.25	1.10	MWD	LEAM
10/16/2...	9,797.00	2.80	321.30	9,775.14	45.44	13.41	-254.30	3.27	MWD	LEAM
10/16/2...	9,828.00	5.50	338.50	9,806.05	47.52	15.39	-255.32	9.50	MWD	LEAM
10/16/2...	9,860.00	9.40	346.10	9,837.78	51.61	19.35	-256.51	12.54	MWD	LEAM
10/16/2...	9,891.00	14.10	352.60	9,868.12	57.90	25.56	-257.60	15.73	MWD	LEAM
10/16/2...	9,923.00	18.00	354.20	9,898.87	66.74	34.35	-258.61	12.26	MWD	LEAM
10/16/2...	9,954.00	20.00	354.00	9,928.18	76.83	44.38	-259.64	6.46	MWD	LEAM
10/16/2...	9,986.00	22.30	351.20	9,958.02	88.38	55.83	-261.14	7.85	MWD	LEAM
10/16/2...	10,017.00	24.40	350.30	9,986.48	100.65	67.95	-263.12	6.87	MWD	LEAM
10/16/2...	10,049.00	26.40	349.80	10,015.39	114.36	81.47	-265.50	6.29	MWD	LEAM
10/17/2...	10,080.00	28.90	352.40	10,042.84	128.74	95.68	-267.71	8.95	MWD	LEAM
10/17/2...	10,111.00	31.20	352.20	10,069.68	144.26	111.06	-269.79	7.43	MWD	LEAM
10/17/2...	10,143.00	33.90	352.20	10,096.65	161.48	128.12	-272.13	8.44	MWD	LEAM
10/17/2...	10,174.00	37.90	352.60	10,121.75	179.65	146.14	-274.53	12.93	MWD	LEAM
10/17/2...	10,206.00	40.70	352.80	10,146.51	199.92	166.24	-277.10	8.76	MWD	LEAM
10/17/2...	10,237.00	43.50	355.80	10,169.51	220.68	186.91	-279.15	11.12	MWD	LEAM
10/17/2...	10,269.00	46.40	356.60	10,192.16	243.25	209.47	-280.64	9.23	MWD	LEAM
10/17/2...	10,300.00	48.90	357.70	10,213.04	266.09	232.35	-281.78	8.48	MWD	LEAM
10/17/2...	10,332.00	51.40	355.90	10,233.55	290.59	256.87	-283.16	8.93	MWD	LEAM
10/17/2...	10,363.00	54.60	352.80	10,252.20	315.33	281.50	-285.61	13.05	MWD	LEAM
10/17/2...	10,395.00	58.30	350.50	10,269.89	341.99	307.88	-289.49	13.02	MWD	LEAM
10/17/2...	10,426.00	61.90	351.40	10,285.34	368.84	334.41	-293.71	11.88	MWD	LEAM
10/17/2...	10,458.00	64.50	351.90	10,299.76	397.40	362.67	-297.86	8.24	MWD	LEAM
10/17/2...	10,489.00	67.40	354.20	10,312.40	425.70	390.77	-301.28	11.55	MWD	LEAM
10/17/2...	10,521.00	68.80	355.60	10,324.33	455.37	420.34	-303.91	5.97	MWD	LEAM
10/17/2...	10,552.00	69.90	355.60	10,335.27	484.34	449.26	-306.14	3.55	MWD	LEAM
10/17/2...	10,584.00	71.70	356.80	10,345.79	514.50	479.41	-308.14	6.65	MWD	LEAM
10/17/2...	10,615.00	74.20	358.20	10,354.88	544.03	509.02	-309.43	9.15	MWD	LEAM
10/17/2...	10,647.00	78.30	359.10	10,362.48	574.95	540.09	-310.16	13.10	MWD	LEAM
10/17/2...	10,678.00	82.10	359.80	10,367.76	605.28	570.63	-310.45	12.46	MWD	LEAM
10/17/2...	10,710.00	84.60	0.70	10,371.46	636.79	602.41	-310.31	8.30	MWD	LEAM
10/17/2...	10,741.00	86.40	0.70	10,373.90	667.39	633.31	-309.94	5.81	MWD	LEAM
10/17/2...	10,773.00	88.50	1.90	10,375.32	699.00	665.27	-309.21	7.56	MWD	LEAM
10/17/2...	10,899.00	89.60	2.30	10,377.41	823.31	791.16	-304.59	0.93	MWD	LEAM
10/17/2...	10,993.00	90.20	3.30	10,377.57	915.86	885.05	-300.00	1.24	MWD	LEAM
10/17/2...	11,088.00	90.20	3.00	10,377.24	1,009.30	979.90	-294.78	0.32	MWD	LEAM
10/17/2...	11,183.00	90.80	2.40	10,376.41	1,102.86	1,074.79	-290.31	0.89	MWD	LEAM
10/17/2...	11,277.00	90.80	1.60	10,375.10	1,195.63	1,168.73	-287.03	0.85	MWD	LEAM
10/17/2...	11,372.00	91.10	1.00	10,373.52	1,289.55	1,263.69	-284.87	0.71	MWD	LEAM
10/18/2...	11,466.00	91.50	360.00	10,371.39	1,382.67	1,357.66	-284.05	1.15	MWD	LEAM
10/18/2...	11,561.00	92.70	0.30	10,367.91	1,476.81	1,452.59	-283.80	1.30	MWD	LEAM
10/18/2...	11,656.00	91.70	359.40	10,364.26	1,571.01	1,547.52	-284.05	1.42	MWD	LEAM
10/18/2...	11,750.00	91.80	358.20	10,361.39	1,664.44	1,641.45	-286.02	1.28	MWD	LEAM
10/18/2...	11,845.00	92.90	357.90	10,357.50	1,758.95	1,736.32	-289.25	1.20	MWD	LEAM
10/18/2...	11,940.00	91.10	356.60	10,354.18	1,853.59	1,831.14	-293.81	2.34	MWD	LEAM
10/18/2...	12,034.00	90.20	356.30	10,353.12	1,947.39	1,924.96	-299.63	1.01	MWD	LEAM
10/18/2...	12,129.00	90.00	356.50	10,352.95	2,042.19	2,019.77	-305.59	0.30	MWD	LEAM
10/18/2...	12,224.00	90.50	357.00	10,352.54	2,136.96	2,114.62	-310.98	0.74	MWD	LEAM
10/18/2...	12,319.00	89.80	357.20	10,352.29	2,231.68	2,209.49	-315.78	0.77	MWD	LEAM
10/18/2...	12,413.00	88.00	357.70	10,354.09	2,325.35	2,303.38	-319.96	1.99	MWD	LEAM
10/18/2...	12,508.00	87.30	356.30	10,357.99	2,420.00	2,398.17	-324.93	1.65	MWD	LEAM
10/18/2...	12,603.00	87.20	355.20	10,362.55	2,514.76	2,492.79	-331.96	1.16	MWD	LEAM
10/18/2...	12,698.00	87.70	355.60	10,366.77	2,609.56	2,587.39	-339.57	0.67	MWD	LEAM
10/18/2...	12,792.00	88.10	355.20	10,370.22	2,703.40	2,681.03	-347.11	0.60	MWD	LEAM
10/18/2...	12,887.00	88.50	353.80	10,373.03	2,798.31	2,775.55	-356.21	1.53	MWD	LEAM



Directional Survey

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Survey Data

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10/18/2...	12,981.00	89.30	353.60	10,374.84	2,892.28	2,868.96	-366.52	0.88	MWD	LEAM
10/19/2...	13,076.00	91.30	356.10	10,374.34	2,987.20	2,963.56	-375.05	3.37	MWD	LEAM
10/19/2...	13,170.00	92.50	356.10	10,371.23	3,080.98	3,057.29	-381.44	1.28	MWD	LEAM
10/19/2...	13,265.00	92.20	355.80	10,367.33	3,175.76	3,151.97	-388.14	0.45	MWD	LEAM
10/19/2...	13,359.00	93.40	356.10	10,362.74	3,269.49	3,245.63	-394.77	1.32	MWD	LEAM
10/19/2...	13,454.00	94.40	355.10	10,356.28	3,364.15	3,340.12	-402.04	1.49	MWD	LEAM
10/19/2...	13,548.00	93.00	354.30	10,350.21	3,457.90	3,433.52	-410.71	1.71	MWD	LEAM
10/19/2...	13,643.00	90.00	353.30	10,347.72	3,552.84	3,527.92	-420.96	3.33	MWD	LEAM
10/19/2...	13,737.00	90.00	351.70	10,347.72	3,646.84	3,621.12	-433.23	1.70	MWD	LEAM
10/19/2...	13,832.00	90.90	350.50	10,346.98	3,741.79	3,714.97	-447.93	1.58	MWD	LEAM
10/19/2...	14,021.00	88.70	349.80	10,347.64	3,930.58	3,901.17	-480.26	1.22	MWD	LEAM
10/19/2...	14,116.00	90.10	350.50	10,348.63	4,025.48	3,994.76	-496.51	1.65	MWD	LEAM
10/19/2...	14,210.00	90.00	350.50	10,348.55	4,119.41	4,087.47	-512.02	0.11	MWD	LEAM
10/20/2...	14,305.00	90.00	351.20	10,348.55	4,214.35	4,181.26	-527.13	0.74	MWD	LEAM
10/20/2...	14,400.00	91.20	352.40	10,347.56	4,309.33	4,275.28	-540.68	1.79	MWD	LEAM
10/20/2...	14,494.00	90.60	352.90	10,346.08	4,403.32	4,368.50	-552.70	0.83	MWD	LEAM
10/20/2...	14,588.00	91.30	352.90	10,344.52	4,497.31	4,461.76	-564.32	0.74	MWD	LEAM
10/20/2...	14,683.00	92.20	352.10	10,341.62	4,592.26	4,555.90	-576.71	1.27	MWD	LEAM
10/21/2...	14,778.00	93.00	351.50	10,337.31	4,687.15	4,649.83	-590.25	1.05	MWD	LEAM
10/21/2...	14,817.00	93.20	351.50	10,335.20	4,726.08	4,688.35	-596.01	0.51	MWD	LEAM
10/21/2...	14,870.00	93.20	351.50	10,332.24	4,778.99	4,740.69	-603.83	0.00	BIT	LEAM