



COTTON DRAW 14 FED COM 2H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 14 T25S R31E	API/UWI 3001542092	Latitude (") 32° 8' 12.313" N	Longitude (") 103° 45' 12.012" W	Ground Elev... 3,400.60
			KB - GL (ft) 25.00	Ong KB Elev (ft) 3,425.60
				Tubing Head Elevation (ft)

Wellbores

Wellbore Name OH	Parent Wellbore	SAP Well ID	Kick Off Depth (ftKB)	Vertical Section Direction (") 178.28
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Actual Deviation Survey EXTREME, Proposed? No	Definitive? Yes	Proposed? No	Proposed Deviation Survey
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Deviation Survey

Date 8/21/2014	Description EXTREME
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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
8/21/2014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD	EXTREME
8/21/2014	100.00	0.22	157.97	100.00	0.18	-0.18	0.07	0.22	MWD	EXTREME
8/21/2014	154.00	0.48	285.45	154.00	0.21	-0.21	-0.11	1.18	MWD	EXTREME
8/21/2014	252.00	0.62	288.05	251.99	-0.09	0.06	-1.01	0.15	MWD	EXTREME
8/21/2014	343.00	0.70	295.26	342.99	-0.51	0.45	-1.98	0.13	MWD	EXTREME
8/21/2014	432.00	0.62	299.25	431.98	-1.00	0.92	-2.89	0.10	MWD	EXTREME
8/21/2014	525.00	0.62	327.86	524.98	-1.70	1.59	-3.60	0.33	MWD	EXTREME
8/21/2014	616.00	0.48	346.22	615.97	-2.49	2.38	-3.95	0.25	MWD	EXTREME
8/21/2014	648.00	0.62	346.23	647.97	-2.79	2.67	-4.02	0.44	MWD	EXTREME
8/23/2014	786.00	0.49	346.62	785.97	-4.10	3.97	-4.34	0.09	MWD	SPERRY-SUN DRILLING SE...
8/23/2014	878.00	0.59	352.05	877.96	-4.96	4.83	-4.49	0.12	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	969.00	0.56	355.19	968.96	-5.87	5.73	-4.60	0.05	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,061.00	0.53	357.37	1,060.95	-6.74	6.61	-4.65	0.04	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,153.00	0.40	350.77	1,152.95	-7.49	7.35	-4.72	0.15	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,246.00	0.25	6.96	1,245.95	-8.01	7.87	-4.75	0.19	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,340.00	0.27	0.18	1,339.95	-8.43	8.29	-4.73	0.04	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,529.00	0.03	35.14	1,528.95	-8.92	8.78	-4.70	0.13	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,623.00	0.12	104.59	1,622.95	-8.91	8.78	-4.59	0.12	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,718.00	0.04	62.50	1,717.95	-8.90	8.77	-4.46	0.10	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,812.00	0.15	92.95	1,811.95	-8.90	8.77	-4.31	0.12	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	1,906.00	0.22	58.25	1,905.95	-8.98	8.86	-4.03	0.14	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,001.00	0.34	60.40	2,000.94	-9.20	9.10	-3.63	0.13	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,096.00	0.30	63.07	2,095.94	-9.44	9.35	-3.16	0.04	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,190.00	0.28	46.69	2,189.94	-9.70	9.62	-2.78	0.09	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,285.00	0.10	35.80	2,284.94	-9.92	9.85	-2.56	0.19	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,379.00	0.17	268.17	2,378.94	-9.98	9.91	-2.65	0.26	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,474.00	0.22	284.93	2,473.94	-10.04	9.95	-2.97	0.08	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,568.00	0.44	235.13	2,567.94	-9.89	9.79	-3.44	0.36	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,662.00	0.39	219.33	2,661.94	-9.45	9.34	-3.94	0.13	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,757.00	0.41	208.05	2,756.93	-8.91	8.79	-4.30	0.09	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,852.00	0.24	207.45	2,851.93	-8.44	8.31	-4.56	0.18	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	2,946.00	0.13	34.14	2,945.93	-8.36	8.22	-4.59	0.39	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,040.00	0.59	65.05	3,039.93	-8.63	8.52	-4.09	0.51	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,135.00	0.54	54.87	3,134.93	-9.07	8.98	-3.28	0.12	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,229.00	0.74	68.80	3,228.92	-9.52	9.45	-2.35	0.27	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,324.00	1.14	77.08	3,323.91	-9.91	9.89	-0.86	0.44	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,418.00	0.99	74.53	3,417.89	-10.28	10.31	0.84	0.17	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,512.00	1.12	58.03	3,511.87	-10.94	11.02	2.40	0.35	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,607.00	1.01	66.27	3,606.86	-11.72	11.84	3.95	0.20	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,701.00	1.56	87.45	3,700.84	-12.05	12.24	5.99	0.76	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,796.00	1.75	95.75	3,795.80	-11.88	12.15	8.73	0.32	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,890.00	1.74	96.10	3,889.75	-11.50	11.85	11.57	0.02	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	3,984.00	2.14	114.66	3,983.70	-10.53	10.97	14.59	0.79	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	4,079.00	2.26	125.81	4,078.63	-8.60	9.13	17.72	0.47	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	4,173.00	2.17	124.00	4,172.56	-6.43	7.05	20.70	0.12	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	4,268.00	1.83	120.01	4,267.50	-4.58	5.29	23.50	0.39	MWD	SPERRY-SUN DRILLING SE...
8/24/2014	4,276.00	1.70	118.52	4,275.50	-4.45	5.17	23.72	1.72	MWD	SPERRY-SUN DRILLING SE...

Provide signature page for Survey



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Directional Survey

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Surface Legal Location Sec. 14 T25S R31E	API/UWI 3001542092	Latitude (°) 32° 8' 12.313" N	Longitude (°) 103° 45' 12.012" W	Ground Elev... 3,400.60
				KB - GL (ft) 25.00
				Orig KB Elev (ft) 3,425.60
				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
8/28/2014	4,342.00	1.74	127.24	4,341.47	-3.33	4.09	25.37	0.40	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	4,437.00	1.42	124.30	4,436.43	-1.73	2.56	27.49	0.35	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	4,531.00	2.03	96.32	4,530.39	-0.81	1.72	30.11	1.09	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	4,626.00	2.86	87.45	4,625.30	-0.61	1.64	34.15	0.96	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	4,720.00	3.94	85.19	4,719.14	-0.82	2.01	39.71	1.16	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	4,814.00	4.79	81.41	4,812.86	-1.46	2.87	46.81	0.95	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	4,909.00	5.52	88.89	4,907.48	-1.89	3.55	55.30	1.04	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,003.00	6.03	82.54	5,001.00	-2.34	4.28	64.72	0.87	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,098.00	6.36	80.31	5,095.45	-3.56	5.81	74.85	0.43	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,192.00	6.62	82.53	5,188.85	-4.83	7.39	85.36	0.38	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,286.00	7.33	81.55	5,282.15	-6.07	8.98	96.66	0.77	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,381.00	6.62	79.59	5,376.45	-7.61	10.86	108.04	0.79	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,475.00	6.89	79.53	5,469.79	-9.29	12.86	118.91	0.29	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,570.00	5.89	82.75	5,564.20	-10.62	14.51	129.35	1.12	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,664.00	6.00	81.33	5,657.70	-11.68	15.86	138.99	0.20	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,758.00	5.43	88.49	5,751.23	-12.26	16.72	148.30	0.97	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,853.00	5.09	101.31	5,845.83	-11.30	16.01	156.92	1.28	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	5,947.00	5.15	97.26	5,939.46	-9.70	14.66	165.20	0.39	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,042.00	5.10	94.13	6,034.08	-8.60	13.82	173.64	0.30	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,136.00	4.93	89.27	6,127.72	-8.11	13.57	181.84	0.49	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,231.00	4.73	90.04	6,222.38	-7.91	13.62	189.84	0.22	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,325.00	5.47	94.00	6,316.01	-7.35	13.30	198.19	0.87	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,420.00	5.88	92.79	6,410.54	-6.52	12.75	207.57	0.45	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,514.00	5.59	105.91	6,504.08	-4.75	11.26	216.78	1.43	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,608.00	5.60	106.43	6,597.63	-1.93	8.71	225.58	0.05	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,703.00	4.84	113.76	6,692.24	1.23	5.78	233.69	1.06	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,797.00	4.62	111.51	6,785.92	4.43	2.80	240.85	0.31	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,892.00	4.26	116.75	6,880.63	7.62	-0.19	247.56	0.57	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	6,986.00	4.48	107.65	6,974.36	10.51	-2.88	254.17	0.77	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,081.00	4.67	98.38	7,069.06	12.41	-4.57	261.53	0.80	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,175.00	4.13	108.32	7,162.78	14.25	-6.19	268.53	0.99	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,270.00	4.17	93.06	7,257.54	15.71	-7.45	275.23	1.16	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,364.00	4.93	92.02	7,351.24	16.25	-7.77	282.68	0.81	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,458.00	4.67	87.18	7,444.91	16.44	-7.73	290.54	0.51	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,553.00	4.87	91.14	7,539.58	16.57	-7.62	298.43	0.41	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,647.00	4.57	91.57	7,633.26	16.98	-7.80	306.17	0.32	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,741.00	4.72	98.17	7,726.95	17.86	-8.45	313.74	0.59	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,836.00	4.59	99.97	7,821.64	19.31	-9.66	321.35	0.21	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	7,930.00	4.39	97.09	7,915.35	20.62	-10.76	328.62	0.32	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,025.00	4.44	87.19	8,010.07	21.11	-11.03	335.91	0.80	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,119.00	4.44	83.52	8,103.79	20.73	-10.44	343.15	0.30	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,213.00	4.00	91.32	8,197.53	20.61	-10.10	350.05	0.77	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,308.00	3.66	86.40	8,292.32	20.68	-9.99	356.39	0.50	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,402.00	3.13	84.62	8,386.16	20.42	-9.56	361.94	0.57	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,497.00	2.42	80.15	8,481.05	19.97	-8.97	366.49	0.78	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,591.00	3.09	80.23	8,574.94	19.34	-8.21	370.95	0.71	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,686.00	2.49	92.39	8,669.82	19.13	-7.86	375.53	0.88	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,780.00	2.77	81.04	8,763.73	18.99	-7.59	379.82	0.63	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,874.00	3.28	87.07	8,857.59	18.64	-7.10	384.74	0.64	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	8,969.00	3.37	82.62	8,952.43	18.31	-6.60	390.23	0.29	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,063.00	2.97	94.16	9,046.29	18.29	-6.42	395.40	0.80	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,158.00	2.78	98.16	9,141.17	18.93	-6.93	400.13	0.29	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,252.00	3.03	100.83	9,235.05	19.86	-7.72	404.83	0.30	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,346.00	2.29	104.98	9,328.95	20.94	-8.67	409.08	0.81	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,440.00	2.32	102.27	9,422.87	21.94	-9.56	412.76	0.12	MWD	SPERRY-SUN DRILLING SE...



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Directional Survey

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Surface Legal Location Sec. 14 T25S R31E	API/UWI 3001542092	Latitude (°) 32° 8' 12.313" N	Longitude (°) 103° 45' 12.012" W	Ground Elev... 3,400.60
				KB - GL (ft) 25.00
				Orig KB Elev (ft) 3,425.60
				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
8/28/2014	9,535.00	1.66	86.93	9,517.82	22.38	-9.89	416.01	0.89	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,623.00	1.77	57.82	9,605.78	21.66	-9.10	418.43	0.99	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,683.00	1.76	104.17	9,665.75	21.44	-8.83	420.11	2.32	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,715.00	3.40	112.55	9,697.72	21.96	-9.32	421.46	5.25	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,746.00	4.42	127.13	9,728.65	23.09	-10.39	423.26	4.57	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,778.00	5.53	132.21	9,760.53	24.94	-12.17	425.39	3.73	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,809.00	6.33	148.91	9,791.36	27.46	-14.64	427.38	6.11	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,841.00	7.73	160.60	9,823.12	31.05	-18.18	429.00	6.23	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,872.00	10.52	159.44	9,853.73	35.71	-22.80	430.69	9.02	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,904.00	13.09	158.03	9,885.05	41.88	-28.89	433.07	8.08	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,935.00	15.20	163.73	9,915.11	49.11	-36.05	435.53	8.15	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,967.00	17.41	161.90	9,945.82	57.76	-44.63	438.19	7.09	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	9,998.00	19.23	164.24	9,975.25	67.17	-53.95	441.02	6.33	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,030.00	20.75	162.15	10,005.32	77.72	-64.42	444.19	5.25	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,061.00	23.49	164.90	10,034.04	89.01	-75.62	447.48	9.45	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,092.00	24.66	163.65	10,062.34	101.28	-87.79	450.91	4.12	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,124.00	26.29	165.58	10,091.23	114.65	-101.06	454.55	5.72	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,155.00	27.89	165.23	10,118.83	128.42	-114.72	458.11	5.19	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,198.00	30.55	166.50	10,156.35	148.92	-135.07	463.23	6.35	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,229.00	31.27	166.23	10,182.95	164.50	-150.55	466.98	2.37	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,292.00	34.65	161.32	10,235.81	197.63	-183.41	476.61	6.83	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,324.00	38.01	160.08	10,261.59	215.70	-201.30	482.89	10.75	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,355.00	43.15	159.15	10,285.12	234.80	-220.19	489.92	16.69	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,387.00	47.58	159.39	10,307.60	256.32	-241.48	497.97	13.85	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,418.00	52.47	159.87	10,327.51	278.82	-263.75	506.24	15.82	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,450.00	57.72	161.05	10,345.82	303.80	-288.47	515.00	16.68	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,482.00	62.16	162.62	10,361.84	330.36	-314.78	523.63	14.51	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,513.00	66.91	163.91	10,375.17	357.38	-341.58	531.68	15.78	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,544.00	70.82	163.51	10,386.34	385.36	-369.33	539.79	12.67	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,576.00	74.66	164.02	10,395.83	414.94	-398.66	548.33	12.10	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,607.00	77.56	164.90	10,403.28	444.16	-427.65	556.39	9.75	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,639.00	80.24	165.10	10,409.44	474.72	-457.98	564.51	8.40	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,670.00	82.61	163.86	10,414.06	504.48	-487.51	572.72	8.61	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,702.00	84.85	163.85	10,417.55	535.29	-518.07	581.56	7.00	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,757.00	87.85	165.06	10,421.05	588.58	-570.94	596.27	5.88	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,851.00	88.98	164.61	10,423.65	679.97	-661.63	620.85	1.29	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	10,946.00	89.69	165.87	10,424.76	772.51	-753.49	645.05	1.52	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,040.00	89.41	167.12	10,425.49	864.52	-844.88	667.00	1.36	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,135.00	89.41	167.55	10,426.47	957.79	-937.57	687.83	0.45	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,229.00	89.01	169.23	10,427.77	1,050.38	-1,029.63	706.74	1.84	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,323.00	89.23	169.88	10,429.21	1,143.28	-1,122.06	723.78	0.73	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,418.00	89.63	171.71	10,430.16	1,237.46	-1,215.83	738.98	1.97	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,513.00	89.20	173.74	10,431.13	1,332.01	-1,310.06	751.01	2.18	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,607.00	88.89	175.61	10,432.69	1,425.80	-1,403.63	759.73	2.02	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,702.00	90.03	177.01	10,433.59	1,520.74	-1,498.43	765.84	1.90	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,795.00	91.14	178.10	10,432.64	1,613.72	-1,591.33	769.81	1.67	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,890.00	91.42	180.68	10,430.52	1,708.67	-1,686.30	770.82	2.73	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	11,984.00	91.08	180.35	10,428.47	1,802.58	-1,780.27	769.97	0.50	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,079.00	91.29	181.40	10,426.50	1,897.46	-1,875.24	768.52	1.13	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,173.00	91.35	182.63	10,424.34	1,991.23	-1,969.15	765.22	1.31	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,268.00	89.72	181.85	10,423.45	2,086.00	-2,064.07	761.51	1.90	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,362.00	90.52	181.76	10,423.25	2,179.82	-2,158.03	758.55	0.86	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,457.00	90.89	182.46	10,422.08	2,274.60	-2,252.95	755.05	0.83	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,551.00	90.71	181.98	10,420.77	2,368.37	-2,346.87	751.41	0.55	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,645.00	91.36	183.03	10,419.07	2,462.10	-2,440.77	747.30	1.31	MWD	SPERRY-SUN DRILLING SE...



COTTON DRAW 14 FED COM 2H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM
Surface Legal Location Sec. 14 T25S R31E	API/UWI 3001542092	Latitude (°) 32° 8' 12.313" N	Longitude (°) 103° 45' 12.012" W	Ground Elev... 3,400.60
				KB - GL (ft) 25.00
				Org KB Elev (ft) 3,425.60
				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
8/28/2014	12,740.00	89.60	182.65	10,418.28	2,556.79	-2,535.64	742.59	1.90	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,834.00	88.77	181.63	10,419.62	2,650.56	-2,629.56	739.08	1.40	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	12,929.00	89.50	181.86	10,421.05	2,745.38	-2,724.51	736.19	0.81	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,023.00	89.60	181.06	10,421.79	2,839.23	-2,818.47	733.80	0.86	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,117.00	89.85	181.84	10,422.24	2,933.08	-2,912.44	731.42	0.87	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,212.00	87.90	180.04	10,424.10	3,027.96	-3,007.40	729.86	2.79	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,306.00	88.27	180.73	10,427.25	3,121.84	-3,101.35	729.23	0.83	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,401.00	88.49	180.34	10,429.93	3,216.73	-3,196.31	728.34	0.47	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,495.00	88.92	180.00	10,432.06	3,310.65	-3,290.28	728.06	0.58	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,589.00	89.63	179.28	10,433.24	3,404.62	-3,384.27	728.65	1.08	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,684.00	89.57	179.33	10,433.91	3,499.60	-3,479.26	729.81	0.08	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,778.00	89.91	179.93	10,434.33	3,593.57	-3,573.26	730.41	0.73	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,873.00	90.06	180.39	10,434.36	3,688.52	-3,668.26	730.15	0.51	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	13,967.00	90.77	179.67	10,433.68	3,782.47	-3,762.25	730.10	1.08	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,062.00	90.88	180.50	10,432.31	3,877.41	-3,857.24	729.96	0.88	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,156.00	91.42	180.85	10,430.42	3,971.31	-3,951.22	728.85	0.68	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,250.00	92.35	180.86	10,427.33	4,065.17	-4,045.15	727.45	0.99	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,345.00	90.25	181.09	10,425.18	4,160.03	-4,140.11	725.83	2.22	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,439.00	90.37	180.93	10,424.67	4,253.92	-4,234.09	724.18	0.21	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,534.00	89.23	179.25	10,425.00	4,348.87	-4,329.09	724.03	2.14	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,628.00	89.75	181.09	10,425.84	4,442.81	-4,423.08	723.75	2.03	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,722.00	89.60	181.09	10,426.37	4,536.70	-4,517.06	721.96	0.16	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,761.00	89.72	180.76	10,426.60	4,575.65	-4,556.06	721.33	0.90	MWD	SPERRY-SUN DRILLING SE...
8/28/2014	14,825.00	89.72	180.76	10,426.91	4,639.59	-4,620.05	720.48	0.00	BIT	SPERRY-SUN DRILLING SE...