



COTTON DRAW UNIT 226H

WEST UNRESTRICTED

Directional Survey

30-015-42415

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location Sec. 11 25S 31E	API/UWI 3001542415	Latitude (°) 32° 9' 5.94" N	Longitude (°) 103° 45' 12.439" W	Ground Elev... 3,416.90	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,441.90	Tubing Head Elevation (ft)

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

Deviation Survey							
Date 10/25/2014	Description MS						
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	EWTie 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
10/25/2...	251.00	0.31	93.38	251.00	0.15	-0.04	0.68	0.12	MS	Extreme
10/25/2...	311.00	0.70	92.28	311.00	0.26	-0.06	1.21	0.65	MS	Extreme
10/25/2...	403.00	0.40	85.86	402.99	0.41	-0.06	2.09	0.33	MS	Extreme
10/25/2...	496.00	0.31	178.76	495.99	0.69	-0.29	2.42	0.56	MS	Extreme
10/25/2...	591.00	0.48	171.38	590.99	1.34	-0.94	2.48	0.19	MS	Extreme
10/25/2...	729.00	0.79	224.36	728.98	2.48	-2.19	1.90	0.46	MS	SPERRY-SUN DRILLING SE...
10/25/2...	790.00	0.94	234.90	789.97	2.94	-2.78	1.20	0.36	MS	SPERRY-SUN DRILLING SE...
10/25/2...	884.00	1.18	238.64	883.96	3.63	-3.73	-0.26	0.27	MS	SPERRY-SUN DRILLING SE...
10/25/2...	978.00	1.46	243.63	977.93	4.34	-4.76	-2.16	0.32	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,072.00	1.38	242.35	1,071.90	5.03	-5.82	-4.23	0.09	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,166.00	1.69	226.07	1,165.87	6.16	-7.31	-6.23	0.57	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,229.00	1.24	222.50	1,228.85	7.11	-8.46	-7.36	0.73	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,324.00	1.63	203.46	1,323.82	8.87	-10.45	-8.59	0.64	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,418.00	1.51	201.73	1,417.79	11.05	-12.83	-9.59	0.14	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,513.00	1.05	197.35	1,512.76	12.89	-14.82	-10.31	0.49	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,607.00	0.83	167.84	1,606.75	14.34	-16.31	-10.42	0.56	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,702.00	1.05	173.59	1,701.74	15.89	-17.85	-10.18	0.25	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,796.00	0.68	124.16	1,795.73	17.14	-19.02	-9.62	0.85	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,890.00	0.59	105.27	1,889.72	17.73	-19.46	-8.69	0.24	MS	SPERRY-SUN DRILLING SE...
10/25/2...	1,985.00	0.89	128.01	1,984.71	18.48	-20.04	-7.64	0.44	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,079.00	0.46	132.24	2,078.71	19.32	-20.75	-6.79	0.46	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,174.00	0.42	80.97	2,173.70	19.62	-20.95	-6.16	0.40	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,268.00	0.23	93.50	2,267.70	19.67	-20.90	-5.63	0.21	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,363.00	0.31	120.56	2,362.70	19.88	-21.05	-5.22	0.16	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,457.00	0.53	117.12	2,456.70	20.30	-21.37	-4.61	0.24	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,552.00	0.46	169.11	2,551.70	20.95	-21.95	-4.15	0.46	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,647.00	0.07	114.11	2,646.69	21.36	-22.35	-4.03	0.45	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,741.00	0.28	36.02	2,740.69	21.23	-22.18	-3.84	0.29	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,835.00	0.28	207.13	2,834.69	21.25	-22.20	-3.81	0.59	MS	SPERRY-SUN DRILLING SE...
10/25/2...	2,930.00	0.28	147.19	2,929.69	21.65	-22.61	-3.79	0.29	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,024.00	0.07	269.15	3,023.69	21.86	-22.80	-3.72	0.34	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,119.00	0.23	347.00	3,118.69	21.66	-22.61	-3.82	0.24	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,213.00	0.59	76.41	3,212.69	21.43	-22.32	-3.39	0.67	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,308.00	1.63	88.49	3,307.67	21.59	-22.17	-1.57	1.12	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,402.00	2.66	92.29	3,401.60	22.23	-22.22	1.95	1.11	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,497.00	2.80	91.46	3,496.50	23.13	-22.37	6.47	0.15	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,591.00	2.82	85.16	3,590.38	23.77	-22.23	11.07	0.33	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,686.00	3.93	97.10	3,685.22	24.90	-22.43	16.63	1.38	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,780.00	4.82	93.32	3,778.94	26.71	-23.06	23.77	0.99	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,875.00	4.04	95.14	3,873.66	28.46	-23.59	31.09	0.83	MS	SPERRY-SUN DRILLING SE...
10/25/2...	3,969.00	4.70	99.61	3,967.39	30.57	-24.53	38.18	0.79	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,064.00	5.14	105.21	4,062.04	33.64	-26.30	46.13	0.69	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,158.00	4.81	96.53	4,155.68	36.51	-27.85	54.10	0.87	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,253.00	4.29	90.96	4,250.38	38.27	-28.36	61.61	0.72	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,279.00	3.96	91.14	4,276.32	38.61	-28.40	63.48	1.27	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,358.00	3.61	93.24	4,355.14	39.68	-28.59	68.69	0.48	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,453.00	4.36	90.45	4,449.91	40.98	-28.79	75.29	0.82	MS	SPERRY-SUN DRILLING SE...



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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
10/25/2...	4,547.00	4.66	84.80	4,543.62	41.90	-28.47	82.67	0.57	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,641.00	4.89	82.53	4,637.30	42.34	-27.60	90.44	0.32	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,736.00	5.07	81.31	4,731.94	42.56	-26.44	98.61	0.22	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,830.00	5.30	85.01	4,825.55	42.98	-25.44	107.04	0.43	MS	SPERRY-SUN DRILLING SE...
10/25/2...	4,924.00	5.22	84.52	4,919.16	43.64	-24.65	115.62	0.10	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,019.00	5.28	84.56	5,013.76	44.27	-23.83	124.27	0.06	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,113.00	5.11	83.23	5,107.37	44.80	-22.92	132.74	0.22	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,207.00	5.12	81.44	5,201.00	45.09	-21.80	141.04	0.17	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,301.00	5.02	82.17	5,294.63	45.29	-20.62	149.26	0.13	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,396.00	4.74	76.20	5,389.29	45.14	-19.12	157.19	0.61	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,490.00	4.76	88.57	5,482.97	45.41	-18.09	164.86	1.09	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,585.00	5.39	91.43	5,577.59	46.83	-18.11	173.26	0.71	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,679.00	5.77	87.59	5,671.15	48.27	-18.02	182.40	0.57	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,774.00	5.62	83.71	5,765.68	49.14	-17.31	191.79	0.43	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,868.00	4.70	88.91	5,859.30	49.98	-16.73	200.22	1.10	MS	SPERRY-SUN DRILLING SE...
10/25/2...	5,963.00	4.14	87.13	5,954.02	50.96	-16.48	207.53	0.61	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,057.00	3.66	87.08	6,047.80	51.71	-16.16	213.92	0.51	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,151.00	3.79	83.61	6,141.60	52.24	-15.66	220.00	0.28	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,246.00	4.88	87.99	6,236.33	52.95	-15.17	227.16	1.20	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,340.00	5.62	91.42	6,329.93	54.36	-15.15	235.76	0.85	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,435.00	5.23	94.28	6,424.51	56.29	-15.58	244.73	0.50	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,529.00	5.66	90.79	6,518.08	58.16	-15.97	253.64	0.58	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,624.00	5.79	94.83	6,612.61	60.21	-16.44	263.09	0.45	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,718.00	5.10	91.59	6,706.18	62.20	-16.95	272.00	0.80	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,813.00	4.38	92.55	6,800.86	63.79	-17.23	279.84	0.76	MS	SPERRY-SUN DRILLING SE...
10/25/2...	6,907.00	4.23	96.47	6,894.59	65.51	-17.78	286.87	0.35	MS	SPERRY-SUN DRILLING SE...
10/25/2...	7,002.00	4.28	84.60	6,989.33	66.74	-17.84	293.88	0.93	MS	SPERRY-SUN DRILLING SE...
10/25/2...	7,096.00	4.65	81.48	7,083.05	67.07	-16.95	301.14	0.47	MS	SPERRY-SUN DRILLING SE...
10/25/2...	7,191.00	4.14	81.28	7,177.77	67.20	-15.86	308.34	0.54	MS	SPERRY-SUN DRILLING SE...
10/25/2...	7,285.00	4.81	88.84	7,271.48	67.84	-15.26	315.63	0.95	MS	SPERRY-SUN DRILLING SE...
10/25/2...	7,380.00	4.97	87.46	7,366.14	68.93	-15.00	323.73	0.21	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	7,474.00	5.51	89.27	7,459.74	70.13	-14.76	332.31	0.60	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	7,569.00	5.28	89.72	7,554.32	71.55	-14.68	341.24	0.25	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	7,663.00	4.97	95.67	7,647.95	73.32	-15.06	349.62	0.65	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	7,758.00	4.63	94.55	7,742.61	75.35	-15.77	357.53	0.37	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	7,852.00	4.56	90.73	7,836.31	76.95	-16.12	365.05	0.33	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	7,947.00	4.35	90.47	7,931.03	78.26	-16.20	372.43	0.22	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,041.00	4.24	94.46	8,024.76	79.73	-16.50	379.46	0.34	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,135.00	3.73	95.95	8,118.53	81.40	-17.09	385.97	0.55	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,229.00	2.95	101.68	8,212.37	83.10	-17.89	391.38	0.90	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,324.00	2.75	91.88	8,307.26	84.44	-18.46	396.05	0.55	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,419.00	2.14	78.88	8,402.17	84.85	-18.19	400.07	0.86	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,513.00	1.45	74.85	8,496.12	84.69	-17.55	402.94	0.75	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,608.00	1.91	69.31	8,591.08	84.27	-16.67	405.58	0.51	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,702.00	1.25	77.89	8,685.05	83.92	-15.90	408.04	0.74	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,797.00	1.14	117.20	8,780.03	84.45	-16.12	409.90	0.85	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,891.00	1.14	106.31	8,874.01	85.42	-16.81	411.63	0.23	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	8,985.00	1.06	92.70	8,967.99	86.01	-17.11	413.39	0.29	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,080.00	0.18	28.60	9,062.99	86.08	-17.02	414.34	1.05	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,174.00	0.19	16.75	9,156.99	85.82	-16.74	414.46	0.04	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,269.00	0.48	98.02	9,251.98	85.80	-16.65	414.90	0.51	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,363.00	0.24	135.32	9,345.98	86.08	-16.84	415.43	0.34	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,458.00	0.21	96.15	9,440.98	86.30	-17.00	415.74	0.16	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,552.00	0.24	7.21	9,534.98	86.15	-16.83	415.94	0.34	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,647.00	0.65	222.37	9,629.98	86.29	-17.03	415.60	0.90	MWD	SPERRY-SUN DRILLING SE...



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Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG	State/Province NM			
Surface Legal Location Sec. 11 25S 31E	API/UWI 3001542415	Latitude (°) 32° 9' 5.94" N	Longitude (°) 103° 45' 12.439" W	Ground Elev... 3,416.90	KB - GL (ft) 25.00	Orig KB Elev (ft) 3,441.90	Tubing Head Elevation (ft)

Survey Data

Date	MD (ftKB)	Incl. (°)	Azm. (°)	TVD (ftKB)	VS. (ft)	N/S. (ft)	E/W. (ft)	DLS (7/100ft)	Survey Tool	Survey Company
10/25/2...	9,699.00	0.68	159.56	9,681.98	86.78	-17.53	415.51	1.33	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,730.00	2.17	184.78	9,712.97	87.53	-18.29	415.52	5.10	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,762.00	4.53	155.15	9,744.91	89.34	-20.04	416.00	8.91	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,793.00	7.28	149.94	9,775.74	92.36	-22.85	417.50	9.03	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,824.00	10.27	145.30	9,806.38	96.70	-26.83	420.06	9.90	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,856.00	13.08	142.74	9,837.71	102.50	-32.05	423.88	8.93	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,887.00	15.76	146.22	9,867.73	109.45	-38.35	428.34	9.08	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,919.00	18.46	148.16	9,898.32	118.10	-46.26	433.43	8.62	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,950.00	21.52	150.47	9,927.44	128.00	-55.38	438.82	10.19	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	9,982.00	23.74	151.52	9,956.98	139.61	-66.15	444.79	7.05	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,013.00	25.66	152.14	9,985.14	151.89	-77.57	450.90	6.25	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,045.00	27.05	152.70	10,013.82	165.41	-90.16	457.48	4.41	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,076.00	29.97	152.90	10,041.05	179.51	-103.32	464.24	9.42	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,107.00	32.42	153.79	10,067.57	194.87	-117.68	471.44	8.04	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,139.00	35.36	155.52	10,094.13	212.04	-133.80	479.06	9.67	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,170.00	37.93	156.39	10,119.00	229.96	-150.70	486.60	8.46	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,202.00	41.05	157.66	10,143.69	249.76	-169.43	494.53	10.07	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,233.00	43.81	156.64	10,166.57	270.12	-188.70	502.66	9.18	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,265.00	46.82	156.59	10,189.07	292.21	-209.58	511.69	9.41	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,296.00	49.93	156.71	10,209.66	314.72	-230.86	520.87	10.04	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,327.00	52.98	156.45	10,228.98	338.26	-253.10	530.51	9.86	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,359.00	56.56	156.97	10,247.43	363.66	-277.11	540.84	11.27	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,390.00	58.63	157.75	10,264.05	389.16	-301.26	550.91	7.01	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,422.00	60.50	159.74	10,280.26	416.18	-326.98	560.91	7.93	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,453.00	62.17	161.26	10,295.13	442.98	-352.61	569.98	6.89	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,485.00	64.52	163.05	10,309.48	471.28	-379.84	578.74	8.88	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,516.00	66.25	164.81	10,322.40	499.28	-406.92	586.54	7.60	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,548.00	68.36	167.43	10,334.74	528.72	-435.57	593.62	10.03	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,579.00	71.08	168.98	10,345.49	557.77	-464.03	599.56	9.95	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,611.00	72.61	170.78	10,355.46	588.18	-493.97	604.90	7.17	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,642.00	73.98	171.00	10,364.37	617.87	-523.28	609.60	4.47	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,673.00	75.78	171.44	10,372.45	647.79	-552.86	614.16	5.97	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,705.00	78.65	171.49	10,379.54	678.99	-583.72	618.80	8.97	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,737.00	81.47	171.96	10,385.06	710.49	-614.90	623.33	8.93	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,768.00	83.83	172.38	10,389.02	741.22	-645.36	627.52	7.73	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,800.00	87.07	173.23	10,391.56	773.09	-677.00	631.51	10.47	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,831.00	89.04	174.31	10,392.61	804.01	-707.80	634.87	7.25	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	10,925.00	90.92	174.55	10,392.65	897.77	-801.35	644.00	2.02	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,020.00	89.88	176.16	10,391.98	992.41	-896.03	651.69	2.02	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,114.00	91.05	175.66	10,391.22	1,085.96	-989.79	658.39	1.35	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,209.00	89.91	176.52	10,390.43	1,180.49	-1,084.56	664.87	1.50	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,303.00	91.26	177.64	10,389.47	1,273.83	-1,178.43	669.66	1.87	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,398.00	89.94	177.66	10,388.47	1,368.06	-1,273.34	673.56	1.39	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,492.00	88.00	178.37	10,390.16	1,461.21	-1,367.27	676.81	2.20	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,587.00	88.59	178.64	10,392.99	1,555.21	-1,462.19	679.29	0.68	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,681.00	88.62	178.34	10,395.28	1,648.24	-1,556.13	681.76	0.32	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,776.00	89.17	179.43	10,397.11	1,742.17	-1,651.10	683.61	1.28	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,870.00	89.97	178.63	10,397.81	1,835.10	-1,745.08	685.20	1.20	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	11,965.00	90.62	179.59	10,397.32	1,928.99	-1,840.06	686.68	1.22	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,059.00	89.23	178.27	10,397.45	2,021.94	-1,934.04	688.43	2.04	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,154.00	89.69	177.72	10,398.34	2,116.10	-2,028.98	691.76	0.75	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,248.00	90.25	177.65	10,398.39	2,209.33	-2,122.90	695.56	0.60	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,343.00	90.37	177.78	10,397.88	2,303.55	-2,217.83	699.34	0.19	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,437.00	88.67	174.86	10,398.67	2,397.03	-2,311.61	705.38	3.59	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,532.00	88.79	174.31	10,400.77	2,491.75	-2,406.17	714.34	0.59	MWD	SPERRY-SUN DRILLING SE...



COTTON DRAW UNIT 226H

WEST UNRESTRICTED

Directional Survey

District DELAWARE BASIN	County EDDY	Field Name PADUCA	Project Group DELAWARE BASIN REG			State/Province NM	
Surface Legal Location Sec. 11 25S 31E	API/UWI 3001542415	Latitude (°) 32° 9' 5.94" N	Longitude (°) 103° 45' 12.439" W	Ground Elev... 3,416.90	KB - GL (ft) 25.00	Ong KB Elev (ft) 3,441.90	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
10/25/2...	12,626.00	89.17	174.39	10,402.44	2,585.51	-2,499.70	723.59	0.41	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,720.00	90.46	174.57	10,402.75	2,679.26	-2,593.26	732.63	1.39	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,815.00	89.69	174.99	10,402.62	2,773.98	-2,687.86	741.28	0.92	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	12,910.00	89.57	174.79	10,403.24	2,868.68	-2,782.48	749.74	0.25	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,004.00	89.02	175.85	10,404.39	2,962.32	-2,876.16	757.41	1.27	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,098.00	87.20	176.58	10,407.49	3,055.78	-2,969.90	763.61	2.09	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,193.00	88.15	178.18	10,411.35	3,149.99	-3,064.72	767.95	1.96	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,287.00	87.29	177.20	10,415.09	3,243.15	-3,158.56	771.73	1.39	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,382.00	87.84	177.51	10,419.12	3,337.36	-3,253.38	776.11	0.66	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,476.00	88.55	177.92	10,422.08	3,430.54	-3,347.26	779.86	0.87	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,571.00	89.45	178.13	10,423.74	3,524.68	-3,442.18	783.13	0.97	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,665.00	87.70	178.83	10,426.08	3,617.70	-3,536.12	785.62	2.01	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,760.00	88.14	179.13	10,429.53	3,711.57	-3,631.04	787.31	0.56	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,854.00	86.80	178.92	10,433.68	3,804.41	-3,724.93	788.91	1.44	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	13,949.00	87.29	179.31	10,438.57	3,898.18	-3,819.79	790.38	0.66	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,043.00	87.96	180.20	10,442.47	3,990.84	-3,913.71	790.78	1.18	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,137.00	88.02	180.80	10,445.77	4,083.32	-4,007.65	789.96	0.64	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,232.00	87.23	180.35	10,449.70	4,176.74	-4,102.56	789.01	0.96	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,326.00	85.71	179.40	10,455.49	4,269.27	-4,196.38	789.21	1.91	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,421.00	86.96	178.65	10,461.56	4,362.99	-4,291.17	790.82	1.53	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,516.00	88.17	178.98	10,465.60	4,456.87	-4,386.06	792.79	1.32	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,610.00	89.97	177.99	10,467.13	4,549.92	-4,480.01	795.27	2.19	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,705.00	91.05	178.34	10,466.28	4,644.03	-4,574.96	798.31	1.20	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,799.00	92.16	177.03	10,463.65	4,737.23	-4,668.84	802.11	1.83	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,825.00	92.35	177.02	10,462.62	4,763.03	-4,694.78	803.46	0.73	MWD	SPERRY-SUN DRILLING SE...
10/25/2...	14,885.00	92.35	177.02	10,460.16	4,822.58	-4,754.65	806.57	0.00	BIT	SPERRY-SUN DRILLING SE...