



Well Name: COTTON DRAW UNIT 223H

Sub-Division DELAWARE BASIN WEST		Region BASIN WEST		Field Name PADUCA		County EDDY		State/Province NM					
Surface Legal Location SEC 12 T25S R31E		APN/UM 3001543275		Latitude (°) 32° 8' 39.088" N		Longitude (°) 103° 43' 50.627" W		Orig KS Elevation (ft) 3,448.60		Ground Elev MSL (ft) 3,423.60		KB - GL (ft) 25.00	
Wellbores													
Wellbore Name OH		Parent Wellbore OH				SAP Well ID 39263		Vertical Section Direction (°) 176.54					
Kick Offs & Key Depths													
Date 12/18/2015						Type CURVE			Top Depth (ftKB) 9,667.0				
Actual Deviation Survey EXTREME SURVEYS, Proposed? No						Definitive? No		Proposed? No		Proposed Deviation Survey			
Deviation Survey													
Date 12/11/2015													
Description EXTREME SURVEYS													
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)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
12/11/2...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD	EXTREME			
12/11/2...	48.00	0.10	33.20	48.00	-0.03	0.04	0.02	0.21	MWD	EXTREME			
12/11/2...	181.00	0.10	11.00	181.00	-0.24	0.25	0.11	0.03	MWD	EXTREME			
12/11/2...	368.00	0.20	257.80	368.00	-0.35	0.34	-0.18	0.14	MWD	EXTREME			
12/11/2...	555.00	0.80	222.10	554.99	0.62	-0.70	-1.37	0.35	MWD	EXTREME			
12/11/2...	691.00	1.10	223.50	690.97	2.17	-2.35	-2.91	0.22	MWD	EXTREME			
12/11/2...	896.00	1.06	230.27	895.94	4.64	-4.99	-5.72	0.07	MWD	PATHFINDER			
12/11/2...	1,083.00	1.06	230.01	1,082.90	6.69	-7.21	-8.38	0.00	MWD	PATHFINDER			
12/11/2...	1,267.00	0.70	224.29	1,266.88	8.46	-9.11	-10.47	0.20	MWD	PATHFINDER			
12/11/2...	1,445.00	0.88	223.62	1,444.87	10.12	-10.87	-12.17	0.10	MWD	PATHFINDER			
12/11/2...	1,624.00	0.26	196.67	1,623.86	11.44	-12.26	-13.23	0.37	MWD	PATHFINDER			
12/11/2...	1,802.00	0.18	194.08	1,801.85	12.08	-12.92	-13.42	0.05	MWD	PATHFINDER			
12/11/2...	1,981.00	0.09	142.08	1,980.85	12.47	-13.30	-13.40	0.08	MWD	PATHFINDER			
12/11/2...	2,161.00	0.09	220.24	2,160.85	12.69	-13.52	-13.40	0.06	MWD	PATHFINDER			
12/11/2...	2,340.00	0.53	0.85	2,339.85	11.96	-12.80	-13.48	0.34	MWD	PATHFINDER			
12/11/2...	2,518.00	0.09	161.60	2,517.85	11.28	-12.11	-13.43	0.35	MWD	PATHFINDER			
12/11/2...	2,697.00	0.09	70.59	2,696.85	11.37	-12.20	-13.25	0.07	MWD	PATHFINDER			
12/11/2...	2,875.00	0.09	114.91	2,874.85	11.40	-12.21	-12.99	0.04	MWD	PATHFINDER			
12/11/2...	3,053.00	0.18	180.52	3,052.85	11.75	-12.55	-12.87	0.09	MWD	PATHFINDER			
12/11/2...	3,232.00	0.26	109.79	3,231.85	12.19	-12.96	-12.49	0.15	MWD	PATHFINDER			
12/11/2...	3,411.00	0.35	75.95	3,410.85	12.25	-12.97	-11.57	0.11	MWD	PATHFINDER			
12/11/2...	3,589.00	0.35	50.50	3,588.84	11.83	-12.49	-10.63	0.09	MWD	PATHFINDER			
12/11/2...	3,768.00	0.62	103.35	3,767.84	11.79	-12.37	-9.26	0.28	MWD	PATHFINDER			
12/11/2...	3,946.00	1.14	116.69	3,945.81	12.95	-13.39	-6.74	0.31	MWD	PATHFINDER			
12/11/2...	4,124.00	1.85	138.31	4,123.75	16.10	-16.33	-3.25	0.50	MWD	PATHFINDER			
12/11/2...	4,213.00	1.58	140.73	4,212.71	18.22	-18.35	-1.52	0.31	MWD	PATHFINDER			
12/11/2...	4,287.00	1.32	147.46	4,286.69	19.80	-19.86	-0.41	0.42	MWD	PATHFINDER			
12/11/2...	4,463.00	1.41	144.28	4,462.64	23.40	-23.32	1.94	0.07	MWD	PATHFINDER			
12/11/2...	4,553.00	0.70	161.23	4,552.63	24.67	-24.74	2.76	0.85	MWD	PATHFINDER			
12/11/2...	4,731.00	0.79	169.42	4,730.61	27.13	-26.98	3.34	0.08	MWD	PATHFINDER			
12/11/2...	4,821.00	0.88	133.79	4,820.60	28.26	-28.07	3.95	0.58	MWD	PATHFINDER			
12/11/2...	5,000.00	2.55	111.28	4,999.52	30.93	-30.46	8.66	0.99	MWD	PATHFINDER			
12/11/2...	5,179.00	2.99	95.81	5,178.31	33.35	-32.38	17.01	0.48	MWD	PATHFINDER			
12/11/2...	5,357.00	4.04	101.78	5,355.97	35.75	-34.13	27.77	0.62	MWD	PATHFINDER			
12/11/2...	5,536.00	3.87	100.25	5,534.55	38.84	-36.49	39.88	0.11	MWD	PATHFINDER			
12/11/2...	5,715.00	4.31	100.63	5,713.09	41.90	-38.81	52.44	0.25	MWD	PATHFINDER			
12/11/2...	5,894.00	4.31	96.11	5,891.58	44.66	-40.77	65.74	0.19	MWD	PATHFINDER			
12/11/2...	6,073.00	4.13	96.94	6,070.10	46.94	-42.26	78.82	0.11	MWD	PATHFINDER			
12/11/2...	6,251.00	5.28	95.87	6,247.50	49.43	-43.87	93.34	0.65	MWD	PATHFINDER			
12/11/2...	6,430.00	5.45	99.84	6,425.71	52.72	-46.17	109.90	0.23	MWD	PATHFINDER			
12/11/2...	6,608.00	5.54	96.83	6,603.89	56.22	-48.65	126.86	0.17	MWD	PATHFINDER			
12/11/2...	6,786.00	5.45	97.98	6,780.08	59.41	-50.83	143.67	0.08	MWD	PATHFINDER			
12/11/2...	6,966.00	4.22	93.84	6,959.43	61.96	-52.47	158.74	0.71	MWD	PATHFINDER			
12/11/2...	7,144.00	4.22	96.92	7,136.95	63.98	-53.71	171.77	0.12	MWD	PATHFINDER			
12/11/2...	7,322.00	4.40	97.96	7,314.45	66.51	-55.45	185.04	0.11	MWD	PATHFINDER			
12/11/2...	7,501.00	4.92	102.05	7,492.86	69.83	-58.00	199.34	0.34	MWD	PATHFINDER			
12/11/2...	7,680.00	5.63	99.23	7,671.10	73.91	-61.01	215.52	0.42	MWD	PATHFINDER			
12/11/2...	7,858.00	4.48	101.39	7,848.40	77.61	-63.79	230.95	0.65	MWD	PATHFINDER			
12/11/2...	8,037.00	5.01	97.21	8,026.79	80.85	-66.15	245.56	0.35	MWD	PATHFINDER			
12/11/2...	8,215.00	5.01	108.50	8,204.11	85.19	-69.59	260.64	0.55	MWD	PATHFINDER			
12/11/2...	8,394.00	4.04	88.28	8,382.56	88.31	-71.88	274.36	1.03	MWD	PATHFINDER			
12/11/2...	8,573.00	2.46	83.92	8,561.27	88.32	-71.28	284.48	0.89	MWD	PATHFINDER			
12/11/2...	8,752.00	1.32	181.42	8,740.20	90.20	-72.94	288.25	1.64	MWD	PATHFINDER			
12/11/2...	8,930.00	1.85	210.77	8,918.14	94.62	-77.46	286.73	0.54	MWD	PATHFINDER			
12/11/2...	9,024.00	0.70	221.05	9,012.11	96.28	-79.19	285.58	1.24	MWD	PATHFINDER			
12/11/2...	9,113.00	1.14	242.40	9,101.10	97.03	-80.01	284.43	0.62	MWD	PATHFINDER			
12/11/2...	9,203.00	0.82	209.80	9,191.09	97.81	-80.85	283.40	0.78	MWD	PATHFINDER			
12/11/2...	9,292.00	0.70	187.76	9,280.09	98.74	-81.81	283.09	0.30	MWD	PATHFINDER			
12/11/2...	9,381.00	0.79	196.03	9,369.08	99.85	-82.94	282.84	0.16	MWD	PATHFINDER			
12/11/2...	9,471.00	1.23	193.62	9,459.06	101.36	-84.47	282.44	0.49	MWD	PATHFINDER			
12/11/2...	9,560.00	1.58	161.76	9,548.04	103.46	-86.56	282.60	0.95	MWD	PATHFINDER			
12/11/2...	9,649.00	2.29	179.71	9,636.99	106.42	-89.51	283.00	1.04	MWD	PATHFINDER			

Provide signature page for survey



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Sub-Division		Region	Field Name	County	State/Province	
DELAWARE BASIN WEST		BASIN WEST	PADUCA	EDDY	NM	
Surface Legal Location		API/UWI	Latitude (°)	Longitude (°)	Orig KB Elevation (ft)	Ground Elev MSL (ft)
SEC 12 T25S R31E		3001543275	32° 8' 39.088" N	103° 43' 50.627" W	3,448.60	3,423.60
KB - GL (ft)						25.00
Survey Data						
Date	MD (ftKB)	Ind (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)
12/11/2...	9,694.00	4.92	166.21	9,681.90	109.22	-92.28
12/11/2...	9,739.00	8.27	164.90	9,726.59	114.29	-97.28
12/11/2...	9,783.00	10.16	174.82	9,770.02	121.27	-104.20
12/11/2...	9,828.00	13.72	174.39	9,814.04	130.57	-113.47
12/11/2...	9,873.00	16.36	174.31	9,857.50	142.24	-125.09
12/11/2...	9,918.00	18.99	172.96	9,900.37	155.88	-138.66
12/11/2...	9,962.00	23.09	173.70	9,941.43	171.65	-154.35
12/11/2...	10,007.00	25.74	173.42	9,982.40	190.23	-172.83
12/11/2...	10,052.00	30.65	173.72	10,022.05	211.45	-193.95
12/11/2...	10,097.00	34.31	172.90	10,060.00	235.57	-217.95
12/11/2...	10,141.00	38.86	170.27	10,095.33	261.69	-243.87
12/11/2...	10,186.00	42.80	169.10	10,129.37	290.89	-272.81
12/11/2...	10,231.00	46.38	170.10	10,161.41	322.24	-303.88
12/11/2...	10,275.00	48.65	171.28	10,191.13	354.52	-335.90
12/11/2...	10,320.00	51.74	170.91	10,219.93	388.93	-370.05
12/11/2...	10,364.00	54.95	170.57	10,246.20	424.04	-404.88
12/11/2...	10,409.00	58.55	170.92	10,270.87	461.48	-442.02
12/11/2...	10,454.00	60.16	171.29	10,293.80	500.02	-480.27
12/11/2...	10,499.00	60.94	172.39	10,315.93	539.07	-519.05
12/11/2...	10,543.00	62.06	173.95	10,336.92	577.67	-557.44
12/11/2...	10,588.00	65.08	174.90	10,356.95	617.93	-597.55
12/11/2...	10,633.00	69.47	174.88	10,374.33	659.41	-638.88
12/11/2...	10,677.00	75.10	175.31	10,387.71	701.29	-680.62
12/11/2...	10,722.00	80.37	176.44	10,397.27	745.25	-724.46
12/11/2...	10,767.00	84.24	177.71	10,403.30	789.83	-768.99
12/11/2...	10,811.00	85.47	178.18	10,407.24	833.64	-812.78
12/11/2...	10,856.00	88.03	176.70	10,409.79	878.56	-857.66
12/11/2...	10,901.00	89.26	176.06	10,410.86	923.54	-902.56
12/11/2...	10,946.00	90.96	175.71	10,410.69	1,012.53	-991.33
12/11/2...	11,079.00	90.00	177.31	10,409.94	1,101.53	-1,080.15
12/11/2...	11,168.00	88.21	179.30	10,411.33	1,190.47	-1,169.10
12/11/2...	11,257.00	88.77	178.46	10,413.68	1,279.36	-1,258.05
12/11/2...	11,346.00	89.78	178.78	10,414.80	1,368.29	-1,347.01
12/11/2...	11,436.00	88.49	178.17	10,416.16	1,458.23	-1,436.97
12/11/2...	11,525.00	88.10	178.08	10,418.81	1,547.15	-1,525.98
12/11/2...	11,614.00	90.00	178.15	10,420.28	1,636.10	-1,614.82
12/11/2...	11,704.00	88.29	177.95	10,421.63	1,726.06	-1,704.75
12/11/2...	11,793.00	87.14	177.67	10,425.18	1,814.97	-1,793.61
12/11/2...	11,882.00	87.67	177.51	10,429.20	1,903.86	-1,882.44
12/11/2...	11,971.00	89.22	176.95	10,431.62	1,992.82	-1,971.30
12/11/2...	12,061.00	89.10	177.73	10,432.94	2,082.80	-2,061.20
12/11/2...	12,150.00	88.15	178.43	10,435.07	2,171.74	-2,150.12
12/11/2...	12,240.00	87.76	177.54	10,438.29	2,261.65	-2,240.00
12/11/2...	12,329.00	87.98	176.81	10,441.59	2,350.58	-2,328.83
12/11/2...	12,418.00	87.31	178.44	10,445.25	2,439.49	-2,417.68
12/11/2...	12,508.00	86.69	180.90	10,449.96	2,529.22	-2,507.55
12/11/2...	12,597.00	87.48	181.75	10,454.49	2,617.80	-2,596.41
12/11/2...	12,686.00	88.66	180.60	10,457.49	2,706.45	-2,685.33
12/11/2...	12,776.00	89.94	180.24	10,458.59	2,796.24	-2,775.32
12/11/2...	12,865.00	90.16	180.27	10,458.51	2,885.05	-2,864.32
12/11/2...	12,955.00	86.68	180.41	10,461.07	2,977.80	-2,957.27
12/11/2...	13,044.00	86.62	180.32	10,465.10	3,063.46	-3,043.12
12/11/2...	13,133.00	86.51	179.87	10,471.43	3,152.13	-3,131.96
12/11/2...	13,222.00	87.52	179.97	10,476.06	3,240.85	-3,220.84
12/11/2...	13,312.00	89.03	180.11	10,478.77	3,330.64	-3,310.80
12/11/2...	13,401.00	90.54	179.38	10,479.11	3,419.50	-3,399.79
12/11/2...	13,490.00	90.43	179.00	10,478.35	3,508.40	-3,488.78
12/11/2...	13,580.00	89.54	178.60	10,478.38	3,598.33	-3,578.76
12/11/2...	13,669.00	87.94	179.44	10,480.33	3,687.22	-3,667.72
12/11/2...	13,759.00	88.84	180.26	10,482.86	3,777.03	-3,757.68
12/11/2...	13,848.00	89.68	179.75	10,484.01	3,865.86	-3,846.67
12/11/2...	13,937.00	86.59	179.89	10,486.91	3,954.66	-3,935.62
12/11/2...	14,027.00	86.20	178.41	10,492.57	4,044.38	-4,025.43
12/11/2...	14,116.00	86.87	178.14	10,497.95	4,133.18	-4,114.22
12/11/2...	14,205.00	88.33	177.21	10,501.67	4,222.08	-4,203.07
12/11/2...	14,295.00	88.33	178.05	10,504.30	4,312.03	-4,292.95
12/11/2...	14,384.00	88.55	177.58	10,505.36	4,351.00	-4,331.91
12/11/2...	14,473.00	87.41	177.84	10,508.50	4,439.93	-4,420.78
12/11/2...	14,563.00	86.17	178.05	10,513.54	4,529.76	-4,510.59
12/11/2...	14,652.00	85.65	177.96	10,519.88	4,618.50	-4,599.30
12/11/2...	14,741.00	85.03	178.58	10,527.11	4,707.16	-4,687.96
12/11/2...	14,830.00	85.34	178.92	10,534.58	4,795.78	-4,776.63
12/11/2...	14,919.00	86.41	179.09	10,540.99	4,884.47	-4,865.38



Well Name: COTTON DRAW UNIT 223H

Sub-Division DELAWARE BASIN WEST	Region BASIN WEST	Field Name PADUCA	County EDDY	State/Province NM
Surface Legal Location SEC 12 T25S R31E	API# 3001543225	Latitude (°) 32° 8' 39.088" N	Longitude (°) 103° 43' 50.627" W	Orig KB Elevation (ft) 3,448.60
				Ground Elev MSL (ft) 3,423.60
				KB - GL (ft) 25.00

Survey Data

Date	MD (ftKB)	Ind (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (1/100ft)	Survey Tool	Survey Company
12/11/2...	14,959.00	89.05	180.79	10,544.55	4,974.23	-4,955.30	463.30	3.49	MWD	PATHFINDER
12/11/2...	15,048.00	90.50	181.12	10,544.90	5,062.96	-5,044.29	461.82	1.67	MWD	PATHFINDER
12/11/2...	15,137.00	90.28	181.23	10,544.29	5,151.67	-5,133.26	459.99	0.28	MWD	PATHFINDER
12/11/2...	15,226.00	90.00	181.28	10,544.08	5,240.37	-5,222.24	458.04	0.32	MWD	PATHFINDER
12/11/2...	15,316.00	89.72	181.45	10,544.30	5,330.05	-5,312.22	455.90	0.36	MWD	PATHFINDER
12/11/2...	15,405.00	89.33	181.54	10,545.03	5,418.71	-5,401.18	453.58	0.45	MWD	PATHFINDER
12/11/2...	15,494.00	88.90	181.24	10,546.41	5,507.38	-5,490.15	451.42	0.59	MWD	PATHFINDER
12/11/2...	15,584.00	90.22	180.76	10,547.10	5,597.11	-5,580.13	449.85	1.56	MWD	PATHFINDER
12/11/2...	15,673.00	90.31	180.20	10,546.69	5,685.89	-5,669.12	449.10	0.64	MWD	PATHFINDER
12/11/2...	15,762.00	89.96	179.80	10,546.48	5,774.73	-5,758.12	449.10	0.80	MWD	PATHFINDER
12/11/2...	15,852.00	89.87	179.87	10,546.61	5,864.58	-5,848.12	449.36	0.13	MWD	PATHFINDER
12/11/2...	15,942.00	88.99	180.17	10,547.51	5,954.41	-5,938.12	449.33	1.03	MWD	PATHFINDER
12/11/2...	16,030.00	88.20	179.75	10,549.67	6,042.23	-6,026.09	449.39	1.02	MWD	PATHFINDER
12/11/2...	16,120.00	87.93	179.95	10,552.70	6,132.03	-6,116.04	449.63	0.37	MWD	PATHFINDER
12/11/2...	16,209.00	87.49	180.16	10,556.26	6,220.79	-6,204.97	449.54	0.55	MWD	PATHFINDER
12/11/2...	16,299.00	88.37	181.48	10,559.51	6,310.47	-6,294.90	448.25	1.76	MWD	PATHFINDER
12/11/2...	16,388.00	88.54	182.04	10,561.83	6,399.07	-6,383.82	445.52	0.70	MWD	PATHFINDER
12/11/2...	16,477.00	90.84	182.03	10,562.24	6,487.66	-6,472.76	442.36	2.47	MWD	PATHFINDER
12/11/2...	16,566.00	90.57	182.07	10,561.14	6,576.24	-6,561.70	439.18	0.31	MWD	PATHFINDER
12/11/2...	16,655.00	90.40	181.96	10,560.39	6,664.83	-6,650.64	436.05	0.23	MWD	PATHFINDER
12/11/2...	16,745.00	90.13	181.38	10,559.97	6,754.47	-6,740.60	433.43	0.71	MWD	PATHFINDER
12/11/2...	16,834.00	89.96	182.10	10,559.90	6,843.10	-6,829.56	430.72	0.83	MWD	PATHFINDER
12/11/2...	16,924.00	89.69	182.33	10,560.18	6,932.66	-6,919.49	427.25	0.39	MWD	PATHFINDER
12/11/2...	17,013.00	89.78	182.78	10,560.59	7,021.17	-7,008.40	423.28	0.52	MWD	PATHFINDER
12/11/2...	17,103.00	89.87	182.65	10,560.85	7,110.65	-7,098.30	419.02	0.18	MWD	PATHFINDER
12/11/2...	17,192.00	89.87	182.29	10,561.07	7,199.17	-7,187.21	415.18	0.40	MWD	PATHFINDER
12/11/2...	17,281.00	89.96	182.82	10,561.20	7,287.68	-7,276.13	411.21	0.60	MWD	PATHFINDER
12/11/2...	17,296.00	89.87	182.96	10,561.22	7,302.59	-7,291.11	410.46	1.11	MWD	PATHFINDER
12/11/2...	17,371.00	89.87	182.78	10,561.39	7,377.13	-7,366.01	406.70	0.24	MWD	PATHFINDER
12/11/2...	17,438.00	89.87	182.78	10,561.54	7,443.73	-7,432.93	403.45	0.00	MWD	PATHFINDER