



Directional Survey

NM OIL CONSERVATION DISTRICT
ARTESIA DISTRICT
JAN 13 2016
RECEIVED

Well Name: CERF 10 STATE 7H

Sub-Division DELAWARE BASIN WEST		Region SLOPE WEST		Field Name BURTON FLAT		County EDGAR		State/Province NM					
Surface Legal Location SEC 11 T21S R27E		API/UWI 3001542709		Latitude (") 32° 29' 28.283" N		Longitude (") 104° 10' 7.058" W		Original Elevation (ft) 3,308.20		Ground Elev MSL (ft) 3,283.20		KB - GL (ft) 25.00	
Wellbores													
Wellbore Name OH		Parent Wellbore OH				SAP Well ID 38564				Vertical Section Direction (*) 0.00			
Kick Offs & Key Depths													
Date 7/18/2015				Type CURVE				Top Depth (ftKB) 5,969.0					
Actual Deviation Survey FLO DRIFT, Proposed? No				Definitive? No		Proposed? No		Proposed Deviation Survey FLO DRIFT, Proposed? No					
Deviation Survey													
Date 7/10/2015		Description FLO DRIFT											
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)	EW (ft)	DLS (*/100ft)	Survey Tool	Survey Company			
7/10/2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	MS	NOV			
7/10/2015	173.00	0.10	118.00	173.00	-0.07	-0.07	0.13	0.06	MS	NOV			
7/10/2015	266.00	0.40	85.00	266.00	-0.08	-0.08	0.53	0.34	MS	NOV			
7/10/2015	332.00	0.40	114.00	332.00	-0.15	-0.15	0.97	0.30	MS	NOV			
7/10/2015	395.00	0.40	98.00	395.00	-0.27	-0.27	1.39	0.18	MS	NOV			
7/10/2015	431.00	0.40	116.00	431.00	-0.35	-0.35	1.62	0.35	MS	NOV			
7/10/2015	492.00	0.20	118.00	491.99	-0.49	-0.49	1.91	0.33	MS	NOV			
7/10/2015	539.00	0.10	93.00	538.99	-0.53	-0.53	2.02	0.25	MS	NOV			
7/10/2015	633.00	0.30	62.00	632.99	-0.42	-0.42	2.32	0.23	MS	NOV			
7/10/2015	713.00	0.20	56.00	712.99	-0.24	-0.24	2.62	0.13	MS	NOV			
7/10/2015	888.00	0.31	148.00	887.99	-0.47	-0.47	3.13	0.21	MS	NOV			
7/10/2015	982.00	0.49	339.63	981.99	-0.31	-0.31	3.12	0.85	MWD	WEATHERFORD			
7/10/2015	1,077.00	1.09	329.21	1,076.98	0.84	0.84	2.52	0.65	MWD	WEATHERFORD			
7/10/2015	1,171.00	0.99	318.65	1,170.97	2.22	2.22	1.52	0.23	MWD	WEATHERFORD			
7/10/2015	1,265.00	0.94	315.02	1,264.95	3.38	3.38	0.44	0.08	MWD	WEATHERFORD			
7/10/2015	1,360.00	0.91	318.38	1,359.94	4.49	4.49	-0.61	0.07	MWD	WEATHERFORD			
7/10/2015	1,454.00	0.85	317.48	1,453.93	5.56	5.56	-1.58	0.07	MWD	WEATHERFORD			
7/10/2015	1,549.00	0.88	315.11	1,548.92	6.60	6.60	-2.57	0.05	MWD	WEATHERFORD			
7/10/2015	1,643.00	1.09	319.11	1,642.90	7.79	7.79	-3.66	0.23	MWD	WEATHERFORD			
7/10/2015	1,737.00	1.03	314.18	1,736.89	9.05	9.05	-4.85	0.12	MWD	WEATHERFORD			
7/10/2015	1,831.00	0.91	314.09	1,830.87	10.16	10.16	-6.00	0.13	MWD	WEATHERFORD			
7/10/2015	1,925.00	0.70	320.40	1,924.87	11.12	11.12	-6.90	0.24	MWD	WEATHERFORD			
7/10/2015	2,019.00	0.72	308.41	2,018.86	11.93	11.93	-7.73	0.16	MWD	WEATHERFORD			
7/10/2015	2,113.00	0.60	315.15	2,112.85	12.65	12.65	-8.54	0.15	MWD	WEATHERFORD			
7/10/2015	2,207.00	0.40	283.86	2,206.85	13.07	13.07	-9.20	0.35	MWD	WEATHERFORD			
7/10/2015	2,301.00	0.51	270.79	2,300.85	13.16	13.16	-9.94	0.16	MWD	WEATHERFORD			
7/10/2015	2,395.00	0.47	280.37	2,394.84	13.23	13.23	-10.74	0.10	MWD	WEATHERFORD			
7/10/2015	2,489.00	0.47	273.52	2,488.84	13.33	13.33	-11.50	0.06	MWD	WEATHERFORD			
7/10/2015	2,584.00	0.59	264.88	2,583.83	13.31	13.31	-12.38	0.15	MWD	WEATHERFORD			
7/10/2015	2,678.00	0.70	278.61	2,677.83	13.35	13.35	-13.43	0.20	MWD	WEATHERFORD			
7/10/2015	2,741.00	0.63	268.46	2,740.82	13.40	13.40	-14.15	0.22	MWD	WEATHERFORD			
7/17/2015	2,902.00	0.85	262.88	2,901.81	13.23	13.23	-16.22	0.14	MWD	WEATHERFORD			
7/17/2015	2,997.00	1.50	339.83	2,996.80	14.31	14.31	-17.35	1.63	MWD	WEATHERFORD			
7/17/2015	3,091.00	3.46	358.18	3,090.70	18.30	18.30	-17.87	2.22	MWD	WEATHERFORD			
7/17/2015	3,185.00	4.97	1.27	3,184.45	25.20	25.20	-17.87	1.62	MWD	WEATHERFORD			
7/17/2015	3,279.00	6.76	0.32	3,277.95	34.81	34.81	-17.74	1.91	MWD	WEATHERFORD			
7/17/2015	3,373.00	8.96	359.31	3,371.06	47.66	47.66	-17.80	2.34	MWD	WEATHERFORD			
7/17/2015	3,467.00	9.79	359.76	3,463.81	62.97	62.97	-17.92	0.89	MWD	WEATHERFORD			
7/17/2015	3,561.00	10.07	1.31	3,556.40	79.18	79.18	-17.77	0.41	MWD	WEATHERFORD			
7/17/2015	3,655.00	10.34	1.80	3,648.91	95.83	95.83	-17.32	0.30	MWD	WEATHERFORD			
7/17/2015	3,750.00	10.66	3.28	3,742.32	113.12	113.12	-16.55	0.44	MWD	WEATHERFORD			
7/17/2015	3,843.00	9.32	1.23	3,833.91	129.24	129.24	-15.89	1.49	MWD	WEATHERFORD			
7/17/2015	3,938.00	8.65	359.08	3,927.74	144.07	144.07	-15.84	0.79	MWD	WEATHERFORD			
7/17/2015	4,032.00	8.52	356.76	4,020.69	158.09	158.09	-16.35	0.39	MWD	WEATHERFORD			
7/17/2015	4,126.00	8.41	357.17	4,113.67	171.91	171.91	-17.08	0.13	MWD	WEATHERFORD			
7/17/2015	4,220.00	8.39	357.41	4,206.66	185.63	185.63	-17.73	0.04	MWD	WEATHERFORD			
7/17/2015	4,314.00	8.46	357.67	4,299.64	199.39	199.39	-18.32	0.08	MWD	WEATHERFORD			
7/17/2015	4,409.00	8.34	356.82	4,393.62	213.25	213.25	-18.99	0.18	MWD	WEATHERFORD			
7/17/2015	4,503.00	9.10	4.62	4,486.54	227.46	227.46	-18.77	1.49	MWD	WEATHERFORD			
7/17/2015	4,597.00	9.34	6.39	4,579.33	242.45	242.45	-17.32	0.40	MWD	WEATHERFORD			
7/17/2015	4,691.00	9.63	359.96	4,672.04	257.90	257.90	-16.48	1.17	MWD	WEATHERFORD			
7/17/2015	4,785.00	9.87	357.11	4,764.69	273.81	273.81	-16.89	0.57	MWD	WEATHERFORD			
7/17/2015	4,879.00	10.04	357.79	4,857.27	290.04	290.04	-17.61	0.22	MWD	WEATHERFORD			
7/18/2015	4,973.00	10.00	357.58	4,949.84	306.38	306.38	-18.27	0.06	MWD	WEATHERFORD			
7/18/2015	5,067.00	10.06	357.17	5,042.40	322.74	322.74	-19.02	0.10	MWD	WEATHERFORD			
7/18/2015	5,161.00	8.92	359.08	5,135.11	338.22	338.22	-19.54	1.26	MWD	WEATHERFORD			
7/18/2015	5,255.00	8.46	359.37	5,228.03	352.42	352.42	-19.74	0.49	MWD	WEATHERFORD			
7/18/2015	5,350.00	8.07	359.68	5,322.05	366.08	366.08	-19.85	0.41	MWD	WEATHERFORD			
7/17/2015	5,444.00	7.64	358.21	5,415.16	378.92	378.92	-20.08	0.50	MWD	WEATHERFORD			
7/18/2015	5,538.00	6.73	357.04	5,508.42	390.67	390.67	-20.56	0.98	MWD	WEATHERFORD			
7/18/2015	5,632.00	6.31	355.96	5,601.82	401.32	401.32	-21.21	0.47	MWD	WEATHERFORD			
7/18/2015	5,726.00	6.20	358.45	5,695.26	411.55	411.55	-21.71	0.31	MWD	WEATHERFORD			
7/18/2015	5,820.00	4.81	352.44	5,788.82	420.53	420.53	-22.37	1.60	MWD	WEATHERFORD			
7/18/2015	5,914.00	4.13	347.11	5,882.54	427.74	427.74	-23.64	0.85	MWD	WEATHERFORD			
7/18/2015	5,945.00	4.06	347.52	5,913.46	429.90	429.90	-24.13	0.24	MWD	WEATHERFORD			
7/18/2015	5,977.00	5.49	338.52	5,945.35	432.43	432.43	-24.93	5.03	MWD	WEATHERFORD			



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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			
7/18/2015	6,008.00	7.60	332.95	5,976.14	435.63	435.63	-26.41	7.10	MWD	WEATHERFORD			
7/18/2015	6,039.00	10.31	331.39	6,006.76	439.90	439.90	-28.67	8.78	MWD	WEATHERFORD			
7/18/2015	6,071.00	13.01	331.07	6,038.10	445.56	445.56	-31.78	8.44	MWD	WEATHERFORD			
7/18/2015	6,099.00	15.35	329.88	6,065.24	451.53	451.53	-35.17	8.42	MWD	WEATHERFORD			
7/18/2015	6,133.00	18.32	328.33	6,097.78	459.97	459.97	-40.23	8.83	MWD	WEATHERFORD			
7/18/2015	6,164.00	21.23	326.12	6,126.95	468.78	468.78	-45.92	9.69	MWD	WEATHERFORD			
7/18/2015	6,193.00	23.82	324.65	6,153.74	477.92	477.92	-52.24	9.14	MWD	WEATHERFORD			
7/18/2015	6,227.00	26.95	322.31	6,184.45	489.62	489.62	-60.92	9.67	MWD	WEATHERFORD			
7/18/2015	6,258.00	30.07	321.05	6,211.69	501.22	501.22	-70.10	10.25	MWD	WEATHERFORD			
7/18/2015	6,287.00	33.14	319.99	6,236.38	512.94	512.94	-79.77	10.76	MWD	WEATHERFORD			
7/18/2015	6,321.00	36.85	319.02	6,264.23	527.76	527.76	-92.43	11.03	MWD	WEATHERFORD			
7/18/2015	6,352.00	40.04	317.88	6,288.51	542.18	542.18	-105.22	10.54	MWD	WEATHERFORD			
7/18/2015	6,383.00	42.98	316.68	6,311.72	557.27	557.27	-119.16	9.82	MWD	WEATHERFORD			
7/18/2015	6,415.00	46.22	315.62	6,334.50	573.47	573.47	-134.73	10.39	MWD	WEATHERFORD			
7/18/2015	6,446.00	49.06	314.01	6,355.39	589.60	589.60	-150.98	9.93	MWD	WEATHERFORD			
7/18/2015	6,477.00	51.84	313.39	6,375.13	606.11	606.11	-168.26	9.10	MWD	WEATHERFORD			
7/18/2015	6,508.00	54.47	312.92	6,393.71	623.08	623.08	-186.36	8.57	MWD	WEATHERFORD			
7/18/2015	6,540.00	56.67	311.99	6,411.81	640.89	640.89	-205.83	7.28	MWD	WEATHERFORD			
7/18/2015	6,571.00	59.00	310.47	6,428.31	658.18	658.18	-225.57	8.59	MWD	WEATHERFORD			
7/18/2015	6,603.00	60.85	309.17	6,444.35	675.91	675.91	-246.84	6.77	MWD	WEATHERFORD			
7/18/2015	6,634.00	63.07	308.33	6,458.92	693.03	693.03	-268.18	7.55	MWD	WEATHERFORD			
7/18/2015	6,662.00	65.16	307.52	6,471.14	708.52	708.52	-288.05	7.90	MWD	WEATHERFORD			
7/18/2015	6,697.00	68.28	306.11	6,484.97	727.77	727.77	-313.79	9.65	MWD	WEATHERFORD			
7/18/2015	6,728.00	70.46	304.18	6,495.90	744.47	744.47	-337.51	9.13	MWD	WEATHERFORD			
7/18/2015	6,756.00	72.02	302.18	6,504.90	758.98	758.98	-359.70	8.76	MWD	WEATHERFORD			
7/18/2015	6,791.00	72.68	300.24	6,515.51	776.26	776.26	-388.22	5.61	MWD	WEATHERFORD			
7/18/2015	6,822.00	74.21	297.93	6,524.35	790.70	790.70	-414.19	8.68	MWD	WEATHERFORD			
7/18/2015	6,850.00	75.36	295.81	6,531.70	802.91	802.91	-438.29	8.38	MWD	WEATHERFORD			
7/18/2015	6,885.00	77.17	293.53	6,540.01	817.09	817.09	-469.18	8.17	MWD	WEATHERFORD			
7/18/2015	6,916.00	78.81	291.38	6,546.46	828.67	828.67	-497.20	8.60	MWD	WEATHERFORD			
7/18/2015	6,944.00	80.38	289.44	6,551.52	838.28	838.28	-523.01	8.82	MWD	WEATHERFORD			
7/18/2015	6,979.00	81.72	286.30	6,556.96	848.88	848.88	-555.91	9.65	MWD	WEATHERFORD			
7/18/2015	7,010.00	83.06	283.10	6,561.07	856.68	856.68	-585.63	11.11	MWD	WEATHERFORD			
7/18/2015	7,039.00	83.83	280.58	6,564.38	862.59	862.59	-613.82	9.03	MWD	WEATHERFORD			
7/18/2015	7,073.00	85.45	277.58	6,567.56	867.93	867.93	-647.25	9.99	MWD	WEATHERFORD			
7/21/2015	7,100.00	86.50	275.72	6,569.45	871.05	871.05	-674.00	7.90	MWD	WEATHERFORD			
7/21/2015	7,131.00	88.32	272.94	6,570.85	873.38	873.38	-704.87	10.71	MWD	WEATHERFORD			
7/21/2015	7,163.00	89.65	271.26	6,571.42	874.55	874.55	-736.84	6.70	MWD	WEATHERFORD			
7/21/2015	7,257.00	91.12	270.19	6,570.79	875.74	875.74	-830.83	1.93	MWD	WEATHERFORD			
7/21/2015	7,351.00	92.24	270.99	6,568.03	876.71	876.71	-924.78	1.46	MWD	WEATHERFORD			
7/21/2015	7,445.00	92.59	271.61	6,564.07	878.84	878.84	-1,018.67	0.76	MWD	WEATHERFORD			
7/21/2015	7,539.00	92.87	271.44	6,559.59	881.34	881.34	-1,112.53	0.35	MWD	WEATHERFORD			
7/21/2015	7,633.00	93.50	270.52	6,554.37	882.95	882.95	-1,206.37	1.18	MWD	WEATHERFORD			
7/21/2015	7,727.00	94.06	269.82	6,548.17	883.22	883.22	-1,300.17	0.95	MWD	WEATHERFORD			
7/21/2015	7,821.00	93.57	269.32	6,541.92	882.52	882.52	-1,393.96	0.74	MWD	WEATHERFORD			
7/21/2015	7,915.00	93.71	269.72	6,535.95	881.73	881.73	-1,487.76	0.45	MWD	WEATHERFORD			
7/21/2015	8,009.00	93.36	270.45	6,530.16	881.87	881.87	-1,581.58	0.86	MWD	WEATHERFORD			
7/21/2015	8,103.00	91.61	269.68	6,526.08	881.98	881.98	-1,675.49	2.03	MWD	WEATHERFORD			
7/21/2015	8,197.00	90.98	270.10	6,523.96	881.80	881.80	-1,769.47	0.81	MWD	WEATHERFORD			
7/22/2015	8,291.00	91.75	271.14	6,521.72	882.82	882.82	-1,863.43	1.38	MWD	WEATHERFORD			
7/22/2015	8,386.00	91.40	270.35	6,519.11	884.05	884.05	-1,958.39	0.91	MWD	WEATHERFORD			
7/22/2015	8,480.00	90.91	268.45	6,517.21	883.07	883.07	-2,052.36	2.09	MWD	WEATHERFORD			
7/22/2015	8,574.00	91.40	268.64	6,515.32	880.68	880.68	-2,146.31	0.56	MWD	WEATHERFORD			
7/22/2015	8,668.00	91.33	268.53	6,513.08	878.36	878.36	-2,240.25	0.14	MWD	WEATHERFORD			
7/22/2015	8,762.00	89.86	268.44	6,512.10	875.87	875.87	-2,334.21	1.57	MWD	WEATHERFORD			
7/22/2015	8,857.00	90.07	268.67	6,512.16	873.48	873.48	-2,429.18	0.33	MWD	WEATHERFORD			
7/22/2015	8,951.00	90.42	268.76	6,511.76	871.37	871.37	-2,523.16	0.38	MWD	WEATHERFORD			
7/22/2015	9,045.00	91.47	269.45	6,510.21	869.90	869.90	-2,617.13	1.34	MWD	WEATHERFORD			
7/22/2015	9,139.00	92.73	269.82	6,506.76	869.30	869.30	-2,711.06	1.40	MWD	WEATHERFORD			
7/22/2015	9,233.00	91.47	269.63	6,503.32	868.85	868.85	-2,805.00	1.36	MWD	WEATHERFORD			
7/23/2015	9,327.00	92.03	269.96	6,500.45	868.52	868.52	-2,898.95	0.69	MWD	WEATHERFORD			
7/23/2015	9,421.00	90.77	268.87	6,498.15	867.56	867.56	-2,992.92	1.77	MWD	WEATHERFORD			
7/23/2015	9,515.00	88.53	268.40	6,498.72	865.32	865.32	-3,086.88	2.43	MWD	WEATHERFORD			
7/23/2015	9,609.00	88.18	268.63	6,501.42	862.88	862.88	-3,180.81	0.45	MWD	WEATHERFORD			
7/23/2015	9,703.00	87.76	269.23	6,504.75	861.13	861.13	-3,274.74	0.78	MWD	WEATHERFORD			
7/23/2015	9,797.00	88.04	269.37	6,508.20	859.98	859.98	-3,368.67	0.33	MWD	WEATHERFORD			
7/23/2015	9,891.00	88.53	269.94	6,511.01	859.42	859.42	-3,462.62	0.80	MWD	WEATHERFORD			
7/23/2015	9,985.00	90.42	270.44	6,511.87	859.73	859.73	-3,556.61	2.08	MWD	WEATHERFORD			
7/23/2015	10,079.00	90.42	269.11	6,511.18	859.36	859.36	-3,650.61	1.41	MWD	WEATHERFORD			
7/23/2015	10,173.00	89.79	267.12	6,511.01	856.27	856.27	-3,744.55	2.22	MWD	WEATHERFORD			
7/23/2015	10,267.00	89.51	265.41	6,511.58	850.14	850.14	-3,838.35	1.84	MWD	WEATHERFORD			
7/23/2015	10,361.00	90.35	265.56	6,511.70	842.74	842.74	-3,932.05	0.91	MWD	WEATHERFORD			
7/23/2015	10,455.00	90.21	265.09	6,511.24	835.08	835.08	-4,025.74	0.52	MWD	WEATHERFORD			
7/24/2015	10,549.00	90.49	266.83	6,510.67	828.46	828.46	-4,119.50	1.87	MWD	WEATHERFORD			
7/24/2015	10,643.00	91.26	268.89	6,509.23	824.95	824.95	-4,213.42	2.34	MWD	WEATHERFORD			
7/24/2015	10,737.00	91.26	270.24	6,507.16	824.24	824.24	-4,307.39	1.44	MWD	WEATHERFORD			
7/24/2015	10,831.00	91.47	271.13	6,504.92	825.36	825.36	-4,401.35	0.97	MWD	WEATHERFORD			
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Directional Survey

Well Name: CERF 10 STATE 7H

Sub-Division DELAWARE BASIN WEST		Region SLOPE WEST		Field Name BURTON FLAT			County EDDY		State/Province NM				
Surface Legal Location SEC 11 T21S R27E		API/WVI 3001542709		Latitude (") 32° 29' 28.283" N		Longitude (") 104° 10' 7.058" W		Orig KB Elevation (ft) 3,308.20		Ground Elev MSL (ft) 3,283.20		KB - GL (ft) 25.00	
Survey Data													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company			
7/24/2015	10,925.00	91.82	272.92	6,502.22	828.68	828.68	-4,495.25	1.94	MWD	WEATHERFORD			
7/24/2015	11,019.00	92.31	271.61	6,498.84	832.39	832.39	-4,589.12	1.49	MWD	WEATHERFORD			
7/24/2015	11,113.00	92.03	272.30	6,495.28	835.60	835.60	-4,682.99	0.79	MWD	WEATHERFORD			
7/24/2015	11,207.00	92.38	272.92	6,491.66	839.88	839.88	-4,776.83	0.76	MWD	WEATHERFORD			
7/24/2015	11,301.00	91.54	273.10	6,488.45	844.81	844.81	-4,870.64	0.91	MWD	WEATHERFORD			
7/25/2015	11,395.00	92.03	273.47	6,485.52	850.19	850.19	-4,964.44	0.65	MWD	WEATHERFORD			
7/25/2015	11,490.00	93.15	273.77	6,481.23	856.18	856.18	-5,059.15	1.22	MWD	WEATHERFORD			
7/25/2015	11,582.00	93.15	273.77	6,476.17	862.22	862.22	-5,150.81	0.00	BIT	WEATHERFORD			