



Directional Survey

NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 17 2015

Well Name: TURQUOISE PWU 27 10H

Sub-Division DELAWARE BASIN WEST		Region SLOPE EAST		Field Name PARKWAY WEST		County EDDY		State/Province NM					
Surface Legal Location SEC28 T19S R29E		API/UWI 3001543321		Latitude (") 32° 37' 56.968" N		Longitude (") 104° 4' 19.833" W		Orig KB Elevation (ft) 3,345.00		Ground Elev MSL (ft) 3,320.00		KB - GL (ft) 25.00	
Wellbores													
Wellbore Name OH		Parent Wellbore OH				SAP Well ID 38913				Vertical Section Direction (") 90.24			
Kick Offs & Key Depths													
Date 9/27/2015				Type CURVE				Top Depth (ftKB) 8,270.0					
Actual Deviation Survey ACTUAL, Proposed? No				Definitive? No		Proposed? No		Proposed Deviation Survey					
Deviation Survey													
Date 9/18/2015		Description ACTUAL											
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)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company			
9/18/2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	MWD	TELEDRIFT			
9/18/2015	154.00	1.30	259.00	153.99	-1.71	-0.33	-1.71	0.84	MWD	TELEDRIFT			
9/18/2015	192.00	1.30	263.04	191.98	-2.56	-0.47	-2.57	0.24	MWD	TELEDRIFT			
9/19/2015	235.00	1.30	263.00	234.97	-3.53	-0.59	-3.53	0.00	MWD	TELEDRIFT			
9/19/2015	281.00	1.30	321.00	280.96	-4.38	-0.24	-4.38	2.74	MWD	TELEDRIFT			
9/19/2015	372.00	1.30	263.00	371.94	-6.06	0.43	-6.05	1.39	MWD	TELEDRIFT			
9/19/2015	463.00	1.40	256.00	462.91	-8.16	0.04	-8.16	0.21	MWD	TELEDRIFT			
9/19/2015	554.00	1.10	270.00	553.89	-10.11	-0.23	-10.11	0.47	MWD	TELEDRIFT			
9/19/2015	646.00	0.90	248.00	645.88	-11.66	-0.50	-11.66	0.47	MWD	TELEDRIFT			
9/19/2015	738.00	0.60	254.00	737.87	-12.79	-0.91	-12.80	0.34	MWD	TELEDRIFT			
9/19/2015	827.00	0.40	273.40	826.86	-13.55	-1.02	-13.55	0.29	MWD	TELEDRIFT			
9/19/2015	919.00	0.20	239.00	918.86	-14.01	-1.08	-14.01	0.28	MWD	TELEDRIFT			
9/19/2015	1,009.00	0.40	281.40	1,008.86	-14.45	-1.10	-14.46	0.32	MWD	TELEDRIFT			
9/19/2015	1,098.00	0.40	177.40	1,097.86	-14.74	-1.35	-14.75	0.71	MWD	TELEDRIFT			
9/19/2015	1,188.00	0.20	169.00	1,187.86	-14.69	-1.82	-14.70	0.23	MWD	TELEDRIFT			
9/19/2015	1,283.00	0.40	263.40	1,282.86	-14.99	-2.02	-15.00	0.48	MWD	TELEDRIFT			
9/19/2015	1,377.00	0.10	224.40	1,376.86	-15.37	-2.11	-15.38	0.35	MWD	TELEDRIFT			
9/19/2015	1,472.00	0.30	273.40	1,471.86	-15.68	-2.16	-15.69	0.26	MWD	TELEDRIFT			
9/19/2015	1,564.00	0.90	240.40	1,563.85	-16.55	-2.50	-16.56	0.73	MWD	TELEDRIFT			
9/19/2015	1,661.00	0.90	241.40	1,660.84	-17.87	-3.24	-17.89	0.02	MWD	TELEDRIFT			
9/19/2015	1,756.00	0.40	257.40	1,755.83	-18.85	-3.67	-18.87	0.55	MWD	TELEDRIFT			
9/20/2015	1,850.00	0.60	257.40	1,849.83	-19.65	-3.85	-19.67	0.21	MWD	TELEDRIFT			
9/20/2015	1,944.00	0.70	216.40	1,943.82	-20.47	-4.42	-20.49	0.49	MWD	TELEDRIFT			
9/20/2015	2,038.00	0.70	227.40	2,037.82	-21.23	-5.27	-21.25	0.14	MWD	TELEDRIFT			
9/20/2015	2,131.00	0.50	246.00	2,130.81	-22.02	-5.82	-22.04	0.30	MWD	TELEDRIFT			
9/20/2015	2,223.00	0.50	239.40	2,222.81	-22.73	-6.19	-22.75	0.06	MWD	TELEDRIFT			
9/20/2015	2,320.00	0.40	243.40	2,319.81	-23.39	-6.55	-23.42	0.11	MWD	TELEDRIFT			
9/20/2015	2,414.00	0.50	213.40	2,413.80	-23.91	-7.04	-23.94	0.27	MWD	TELEDRIFT			
9/20/2015	2,511.00	0.30	187.40	2,510.80	-24.17	-7.65	-24.21	0.27	MWD	TELEDRIFT			
9/20/2015	2,600.00	0.30	258.40	2,599.80	-24.43	-7.93	-24.46	0.39	MWD	TELEDRIFT			
9/20/2015	2,696.00	0.30	205.40	2,695.80	-24.78	-8.20	-24.82	0.28	MWD	TELEDRIFT			
9/20/2015	2,789.00	0.10	288.40	2,788.80	-24.96	-8.40	-25.00	0.33	MWD	TELEDRIFT			
9/20/2015	2,884.00	0.30	235.40	2,883.80	-25.25	-8.51	-25.28	0.27	MWD	TELEDRIFT			
9/20/2015	2,977.00	0.10	301.40	2,976.80	-25.52	-8.61	-25.55	0.30	MWD	TELEDRIFT			
9/20/2015	3,071.00	0.30	231.40	3,070.80	-25.78	-8.72	-25.81	0.30	MWD	TELEDRIFT			
9/20/2015	3,165.00	0.30	233.40	3,164.80	-26.17	-9.02	-26.20	0.01	MWD	TELEDRIFT			
9/20/2015	3,259.00	0.10	305.40	3,258.79	-26.43	-9.12	-26.47	0.30	MWD	TELEDRIFT			
9/20/2015	3,288.00	0.20	275.00	3,287.79	-26.50	-9.10	-26.54	0.43	MWD	TELEDRIFT			
9/20/2015	3,375.00	0.09	233.95	3,374.79	-26.71	-9.13	-26.75	0.17	MWD	EXTREME			
9/22/2015	3,470.00	0.09	192.47	3,469.79	-26.78	-9.24	-26.82	0.07	MWD	EXTREME			
9/22/2015	3,563.00	0.09	199.85	3,562.79	-26.82	-9.38	-26.86	0.01	MWD	EXTREME			
9/22/2015	3,646.00	0.48	261.77	3,645.79	-27.19	-9.49	-27.23	0.54	MWD	EXTREME			
9/22/2015	3,750.00	0.79	262.92	3,749.79	-28.33	-9.65	-28.37	0.30	MWD	EXTREME			
9/22/2015	3,844.00	1.41	267.57	3,843.77	-30.13	-9.77	-30.17	0.67	MWD	EXTREME			
9/22/2015	3,938.00	2.20	275.79	3,937.72	-33.08	-9.64	-33.12	0.88	MWD	EXTREME			
9/22/2015	4,033.00	2.42	284.36	4,032.64	-36.84	-8.96	-36.88	0.43	MWD	EXTREME			
9/22/2015	4,124.00	2.02	295.39	4,123.58	-40.16	-7.80	-40.19	0.64	MWD	EXTREME			
9/22/2015	4,217.00	2.02	297.37	4,216.52	-43.10	-6.34	-43.12	0.08	MWD	EXTREME			
9/22/2015	4,312.00	2.11	301.19	4,311.46	-46.09	-4.66	-46.11	0.17	MWD	EXTREME			
9/22/2015	4,407.00	1.89	306.99	4,406.40	-48.84	-2.82	-48.86	0.31	MWD	EXTREME			
9/22/2015	4,501.00	1.89	310.07	4,500.35	-51.28	-0.89	-51.28	0.11	MWD	EXTREME			
9/22/2015	4,595.00	2.02	318.77	4,594.29	-53.56	1.36	-53.56	0.34	MWD	EXTREME			
9/22/2015	4,689.00	1.71	321.49	4,688.24	-55.54	3.70	-55.52	0.34	MWD	EXTREME			
9/22/2015	4,784.00	1.49	324.96	4,783.21	-57.14	5.82	-57.11	0.25	MWD	EXTREME			
9/23/2015	4,879.00	1.49	332.87	4,878.17	-58.42	7.93	-58.39	0.22	MWD	EXTREME			
9/23/2015	4,974.00	1.49	338.45	4,973.14	-59.45	10.18	-59.40	0.15	MWD	EXTREME			
9/23/2015	5,071.00	1.49	355.15	5,070.11	-60.03	12.61	-59.97	0.45	MWD	EXTREME			
9/23/2015	5,165.00	1.71	6.49	5,164.07	-59.98	15.22	-59.92	0.41	MWD	EXTREME			
9/23/2015	5,260.00	1.80	9.48	5,259.03	-59.59	18.10	-59.51	0.14	MWD	EXTREME			
9/23/2015	5,354.00	2.29	3.15	5,352.97	-59.26	21.43	-59.17	0.57	MWD	EXTREME			
9/23/2015	5,448.00	2.59	4.69	5,446.88	-59.00	25.42	-58.89	0.33	MWD	EXTREME			
9/23/2015	5,542.00	2.29	353.66	5,540.80	-59.05	29.41	-58.92	0.59	MWD	EXTREME			
9/23/2015	5,631.00	2.42	345.18	5,629.72	-59.74	32.99	-59.60	0.42	MWD	EXTREME			
9/23/2015	5,725.00	3.21	326.48	5,723.61	-61.72	37.10	-61.56	1.28	MWD	EXTREME			
9/24/2015	5,819.00	4.09	332.39	5,817.42	-64.74	42.27	-64.57	1.02	MWD	EXTREME			
9/24/2015	5,913.00	3.91	330.37	5,911.19	-67.91	48.03	-67.71	0.24	MWD	EXTREME			

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Sub-Division DELAWARE BASIN WEST		Region SLOPE EAST		Field Name PARKWAY WEST			County EDDY		State/Province NM			
Surface Legal Location SEC28 T19S R29E		API/UW# 3001543321		Latitude (") 32° 37' 56.968" N		Longitude (") 104° 4' 19.833" W		Orig KB Elevation (ft) 3,345.00		Ground Elev MSL (ft) 3,320.00		KB - GL (ft) 25.00
Survey Data												
Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS ("/100ft)	Survey Tool	Survey Company		
9/24/2015	6,007.00	4.22	329.58	6,004.95	-71.27	53.79	-71.04	0.34	MWD	EXTREME		
9/24/2015	6,102.00	4.00	333.27	6,099.71	-74.55	59.77	-74.30	0.36	MWD	EXTREME		
9/24/2015	6,196.00	4.31	331.07	6,193.46	-77.76	65.79	-77.49	0.37	MWD	EXTREME		
9/24/2015	6,293.00	4.92	330.06	6,290.15	-81.63	72.58	-81.32	0.63	MWD	EXTREME		
9/24/2015	6,387.00	4.79	327.29	6,383.81	-85.79	79.38	-85.46	0.29	MWD	EXTREME		
9/24/2015	6,481.00	4.79	327.69	6,477.48	-90.04	86.00	-89.68	0.04	MWD	EXTREME		
9/24/2015	6,575.00	4.31	324.48	6,571.19	-94.21	92.19	-93.83	0.58	MWD	EXTREME		
9/24/2015	6,667.00	3.91	316.17	6,662.95	-98.41	97.26	-98.01	0.78	MWD	EXTREME		
9/24/2015	6,765.00	4.09	313.98	6,760.71	-103.26	102.10	-102.84	0.24	MWD	EXTREME		
9/24/2015	6,859.00	3.91	303.56	6,854.48	-108.36	106.20	-107.92	0.80	MWD	EXTREME		
9/25/2015	6,952.00	4.00	301.19	6,947.26	-113.79	109.63	-113.34	0.20	MWD	EXTREME		
9/25/2015	7,047.00	3.78	301.76	7,042.04	-119.30	113.00	-118.83	0.24	MWD	EXTREME		
9/25/2015	7,140.00	4.00	296.97	7,134.83	-124.81	116.08	-124.33	0.42	MWD	EXTREME		
9/25/2015	7,235.00	4.22	302.07	7,229.59	-130.74	119.44	-130.24	0.45	MWD	EXTREME		
9/25/2015	7,334.00	3.38	293.45	7,328.37	-136.52	122.54	-136.01	1.02	MWD	EXTREME		
9/25/2015	7,430.00	2.68	276.49	7,424.24	-141.35	123.92	-140.84	1.18	MWD	EXTREME		
9/25/2015	7,525.00	2.29	276.18	7,519.15	-145.45	124.37	-144.93	0.41	MWD	EXTREME		
9/26/2015	7,621.00	2.68	266.08	7,615.06	-149.59	124.43	-149.08	0.61	MWD	EXTREME		
9/26/2015	7,712.00	2.80	261.68	7,705.95	-153.91	123.96	-153.40	0.27	MWD	EXTREME		
9/26/2015	7,813.00	2.59	248.06	7,806.84	-158.47	122.75	-157.95	0.67	MWD	EXTREME		
9/26/2015	7,907.00	3.30	224.06	7,900.72	-162.31	120.01	-161.81	1.50	MWD	EXTREME		
9/26/2015	7,999.00	2.68	208.07	7,992.60	-165.15	116.21	-164.66	1.12	MWD	EXTREME		
9/26/2015	8,097.00	2.68	196.38	8,090.49	-166.85	111.99	-166.38	0.56	MWD	EXTREME		
9/26/2015	8,178.00	2.68	190.89	8,171.40	-167.73	108.31	-167.28	0.32	MWD	EXTREME		
9/27/2015	8,253.00	2.40	188.76	8,246.33	-168.28	105.04	-167.85	0.39	MWD	WEATHERFORD		
9/27/2015	8,284.00	2.04	162.99	8,277.30	-168.22	103.87	-167.78	3.39	MWD	WEATHERFORD		
9/27/2015	8,316.00	3.29	111.53	8,309.27	-167.19	102.99	-166.76	8.04	MWD	WEATHERFORD		
9/27/2015	8,347.00	5.97	101.30	8,340.17	-164.78	102.35	-164.35	9.01	MWD	WEATHERFORD		
9/27/2015	8,378.00	8.44	99.86	8,370.92	-160.96	101.64	-160.53	7.99	MWD	WEATHERFORD		
9/27/2015	8,423.00	10.36	101.22	8,415.32	-153.73	100.29	-153.31	4.29	MWD	WEATHERFORD		
9/27/2015	8,472.00	13.19										



Sub-Division		Region		Field Name		County		State/Province		
DELAWARE BASIN WEST		SLOPE EAST		PARKWAY WEST		EDDY		NM		
Surface Legal Location		API/UVI		Latitude (°)		Longitude (°)		Orig KB Elevation (ft)		
SEC28 T19S R29E		3001543321		32° 37' 56.968" N		104° 4' 19.833" W		3,345.00		
								Ground Elev MSL (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
9/29/2015	11,507.00	92.03	87.49	9,109.51	2,586.51	68.08	2,586.82	0.97	MWD	WEATHERFORD
9/29/2015	11,601.00	90.63	87.88	9,107.32	2,680.39	71.88	2,680.71	1.55	MWD	WEATHERFORD
9/30/2015	11,694.00	88.11	90.39	9,108.35	2,773.35	73.28	2,773.68	3.82	MWD	WEATHERFORD
9/30/2015	11,789.00	86.29	90.62	9,112.99	2,868.23	72.45	2,868.56	1.93	MWD	WEATHERFORD
9/30/2015	11,883.00	85.94	91.03	9,119.36	2,962.01	71.10	2,962.34	0.57	MWD	WEATHERFORD
9/30/2015	11,977.00	86.01	89.88	9,125.95	3,055.78	70.35	3,056.10	1.22	MWD	WEATHERFORD
9/30/2015	12,071.00	86.71	89.16	9,131.92	3,149.58	71.14	3,149.90	1.07	MWD	WEATHERFORD
9/30/2015	12,165.00	86.43	90.04	9,137.55	3,243.40	71.79	3,243.73	0.98	MWD	WEATHERFORD
9/30/2015	12,259.00	87.34	90.11	9,142.65	3,337.26	71.67	3,337.59	0.97	MWD	WEATHERFORD
10/1/2015	12,354.00	87.62	90.41	9,146.83	3,432.17	71.24	3,432.50	0.43	MWD	WEATHERFORD
10/1/2015	12,448.00	87.55	90.70	9,150.79	3,526.09	70.33	3,526.41	0.32	MWD	WEATHERFORD
10/1/2015	12,542.00	88.11	90.73	9,154.35	3,620.02	69.16	3,620.34	0.60	MWD	WEATHERFORD
10/1/2015	12,636.00	88.60	90.22	9,157.05	3,713.98	68.38	3,714.29	0.75	MWD	WEATHERFORD
10/1/2015	12,731.00	89.02	89.78	9,159.02	3,808.95	68.38	3,809.27	0.64	MWD	WEATHERFORD
10/1/2015	12,825.00	89.16	90.01	9,160.52	3,902.94	68.55	3,903.26	0.29	MWD	WEATHERFORD
10/1/2015	12,920.00	90.49	89.85	9,160.81	3,997.94	68.67	3,998.26	1.41	MWD	WEATHERFORD
10/1/2015	13,014.00	89.86	89.46	9,160.52	4,091.93	69.23	4,092.26	0.79	MWD	WEATHERFORD
10/1/2015	13,108.00	89.51	89.10	9,161.04	4,185.91	70.41	4,186.25	0.53	MWD	WEATHERFORD
10/1/2015	13,202.00	89.02	89.94	9,162.24	4,279.90	71.20	4,280.23	1.03	MWD	WEATHERFORD
10/1/2015	13,297.00	89.51	90.11	9,163.46	4,374.89	71.16	4,375.23	0.55	MWD	WEATHERFORD
10/1/2015	13,391.00	89.30	91.14	9,164.44	4,468.88	70.13	4,469.21	1.12	MWD	WEATHERFORD
10/1/2015	13,485.00	89.86	90.49	9,165.13	4,562.87	68.80	4,563.20	0.91	MWD	WEATHERFORD
10/2/2015	13,579.00	90.77	90.06	9,164.61	4,656.87	68.35	4,657.20	1.07	MWD	WEATHERFORD
10/2/2015	13,673.00	91.47	90.45	9,162.77	4,750.85	67.93	4,751.18	0.85	MWD	WEATHERFORD
10/2/2015	13,768.00	91.40	89.60	9,160.39	4,845.82	67.89	4,846.15	0.90	MWD	WEATHERFORD
10/2/2015	13,862.00	91.54	89.85	9,157.98	4,939.79	68.34	4,940.12	0.30	MWD	WEATHERFORD
10/2/2015	13,956.00	91.54	90.21	9,155.45	5,033.75	68.29	5,034.08	0.38	MWD	WEATHERFORD
10/2/2015	14,050.00	91.82	90.51	9,152.70	5,127.71	67.70	5,128.04	0.44	MWD	WEATHERFORD