

Well Name: ARENA ROJA FED UNIT 15-10 4H

Sub-Division DELAWARE BASIN		Region LEA COUNTY CORE		Field Name RATTLESNAKE DBBU				County LEA		State/Province NM			
Surface Legal Location 15-26S-35E		API/UWI 3002545736		Latitude (°) 32° 2' 30.25" N		Longitude (°) 103° 20' 56.672" W		Orig KB Elevation (ft) 3,118.80		Ground Elev MSL (ft) 3,085.80		KB - GL (ft) 33.00	
Wellbores													
Wellbore Name OH		Parent Wellbore				SAP Well ID				Vertical Section Direction (°) 359.40			
Kick Offs & Key Depths													
Date 9/13/2019				Type CURVE				Top Depth (ftKB) 12,181.0					
Date 9/18/2019				Type CURVE				Top Depth (ftKB) 12,178.0					
Actual Deviation Survey COMPOSITE OH, Proposed? No				Definitive? No		Proposed? No		Proposed Deviation Survey COMPOSITE WELL PLAN - OH, Proposed? Yes					
Deviation Survey													
Date 9/7/2019		Description COMPOSITE OH											
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			
9/7/2019	220.00	0.10	73.90	220.00	0.05	0.05	0.18	0.05	MWD	TOTAL DIRECTIONAL SERV...			
9/7/2019	315.00	0.00	103.60	315.00	0.07	0.08	0.26	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/7/2019	409.00	0.10	234.10	409.00	0.03	0.03	0.20	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/7/2019	504.00	0.10	222.50	504.00	-0.08	-0.08	0.07	0.02	MWD	TOTAL DIRECTIONAL SERV...			
9/8/2019	599.00	0.20	322.40	599.00	-0.01	-0.01	-0.08	0.25	MWD	TOTAL DIRECTIONAL SERV...			
9/8/2019	694.00	0.30	263.40	694.00	0.10	0.09	-0.43	0.27	MWD	TOTAL DIRECTIONAL SERV...			
9/8/2019	789.00	0.40	247.70	789.00	-0.05	-0.06	-0.98	0.14	MWD	TOTAL DIRECTIONAL SERV...			
9/8/2019	884.00	0.60	243.80	883.99	-0.39	-0.41	-1.74	0.21	MWD	TOTAL DIRECTIONAL SERV...			
9/8/2019	986.00	0.60	235.60	985.99	-0.92	-0.95	-2.66	0.08	MWD	TOTAL DIRECTIONAL SERV...			
9/9/2019	1,091.00	0.80	222.80	1,090.98	-1.76	-1.79	-3.61	0.24	MWD	TOTAL DIRECTIONAL SERV...			
9/9/2019	1,186.00	0.90	219.90	1,185.97	-2.81	-2.85	-4.54	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,281.00	1.00	211.10	1,280.96	-4.08	-4.14	-5.45	0.19	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,375.00	0.80	205.50	1,374.94	-5.37	-5.43	-6.15	0.23	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,469.00	0.50	37.20	1,468.94	-5.63	-5.70	-6.19	1.38	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,565.00	0.90	35.00	1,564.93	-4.69	-4.74	-5.50	0.42	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,660.00	0.90	30.60	1,659.92	-3.44	-3.49	-4.69	0.07	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,755.00	0.90	40.00	1,754.91	-2.24	-2.28	-3.83	0.16	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,850.00	0.80	39.90	1,849.90	-1.17	-1.20	-2.93	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	1,944.00	0.80	38.90	1,943.89	-0.16	-0.18	-2.10	0.01	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,039.00	0.60	41.90	2,038.88	0.72	0.70	-1.35	0.21	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,134.00	0.50	49.70	2,133.88	1.35	1.34	-0.70	0.13	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,229.00	0.60	47.30	2,228.88	1.95	1.95	-0.02	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,324.00	0.60	53.60	2,323.87	2.57	2.58	0.75	0.07	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,419.00	1.00	322.40	2,418.86	3.52	3.53	0.64	1.24	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,514.00	2.50	306.80	2,513.82	5.45	5.43	-1.52	1.64	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,610.00	3.70	304.00	2,609.68	8.48	8.42	-5.77	1.26	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,705.00	4.70	298.10	2,704.42	12.09	11.96	-11.74	1.15	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,800.00	5.10	296.20	2,799.07	15.86	15.66	-18.96	0.45	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,895.00	5.30	282.60	2,893.69	18.76	18.48	-27.03	1.31	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	2,990.00	5.30	280.60	2,988.28	20.62	20.25	-35.63	0.19	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,085.00	6.00	287.40	3,082.82	23.01	22.54	-44.68	1.02	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,180.00	7.30	296.10	3,177.18	27.25	26.68	-54.84	1.73	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,275.00	8.40	300.00	3,271.29	33.50	32.80	-66.27	1.29	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,370.00	9.40	301.80	3,365.14	41.19	40.36	-78.87	1.09	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,465.00	10.60	297.40	3,458.70	49.44	48.47	-93.22	1.50	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,559.00	11.70	294.80	3,550.92	57.59	56.45	-109.55	1.29	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,654.00	11.50	293.90	3,643.98	65.65	64.33	-126.95	0.28	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,749.00	10.80	293.70	3,737.19	73.24	71.74	-143.76	0.74	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,844.00	11.10	293.80	3,830.46	80.68	79.01	-160.28	0.32	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	3,939.00	11.90	293.40	3,923.55	88.44	86.59	-177.63	0.85	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	4,034.00	11.90	292.50	4,016.51	96.27	94.23	-195.67	0.20	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	4,128.00	11.40	292.80	4,108.57	103.76	101.53	-213.19	0.54	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	4,223.00	10.70	293.20	4,201.81	111.05	108.65	-229.95	0.74	MWD	TOTAL DIRECTIONAL SERV...			
9/10/2019	4,318.00	10.60	295.80	4,295.18	118.49	115.92	-245.92	0.52	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,413.00	10.80	297.80	4,388.53	126.61	123.88	-261.67	0.44	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,508.00	11.70	296.60	4,481.70	135.25	132.34	-278.15	0.98	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,604.00	12.00	297.90	4,575.65	144.46	141.37	-295.67	0.42	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,699.00	11.20	299.50	4,668.71	153.80	150.54	-312.43	0.91	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,794.00	10.70	295.30	4,761.98	162.28	158.85	-328.44	0.99	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,890.00	11.10	291.70	4,856.25	169.68	166.07	-345.08	0.82	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	4,985.00	11.20	293.70	4,949.46	176.95	173.16	-362.03	0.42	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,080.00	10.70	295.00	5,042.73	184.55	180.60	-378.47	0.59	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,176.00	11.00	297.00	5,137.01	192.65	188.52	-394.70	0.50	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,271.00	10.60	297.30	5,230.33	200.93	196.65	-410.54	0.43	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,367.00	11.30	293.70	5,324.58	208.94	204.48	-427.00	1.02	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,461.00	12.30	291.90	5,416.60	216.56	211.91	-444.73	1.13	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,556.00	12.40	291.70	5,509.40	224.30	219.46	-463.59	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,651.00	12.30	291.50	5,602.20	231.98	226.94	-482.48	0.11	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,746.00	12.10	291.30	5,695.05	239.50	234.26	-501.18	0.22	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,842.00	12.00	290.90	5,788.94	246.91	241.48	-519.87	0.14	MWD	TOTAL DIRECTIONAL SERV...			
9/11/2019	5,936.00	12.30	290.20	5,880.83	254.05	248.42	-538.40	0.36	MWD	TOTAL DIRECTIONAL SERV...			
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Report Printed: 12/9/2019													



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Sub-Division DELAWARE BASIN	Region LEA COUNTY CORE	Field Name RATTLESNAKE DBBU	County LEA	State/Province NM
Surface Legal Location 15-26S-35E	API/UWI 3002545736	Latitude (°) 32° 2' 30.25" N	Longitude (°) 103° 20' 56.672" W	Orig KB Elevation (ft) 3,118.80
				Ground Elev MSL (ft) 3,085.80
				KB - GL (ft) 33.00

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company
9/11/2019	6,031.00	12.30	289.10	5,973.65	261.05	255.23	-557.46	0.25	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,126.00	11.80	287.80	6,066.56	267.53	261.51	-576.27	0.60	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,221.00	11.70	294.90	6,159.57	274.74	268.53	-594.25	1.52	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,316.00	11.80	297.10	6,252.58	283.40	277.01	-611.64	0.48	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,411.00	11.70	296.20	6,345.59	292.26	285.69	-628.93	0.22	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,506.00	11.90	295.30	6,438.59	300.88	294.13	-646.43	0.29	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,602.00	11.90	294.60	6,532.52	309.42	302.48	-664.37	0.15	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,697.00	12.00	294.60	6,625.46	317.80	310.67	-682.26	0.11	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,792.00	12.40	297.70	6,718.32	326.84	319.52	-700.27	0.81	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,887.00	12.70	298.70	6,811.05	336.78	329.28	-718.46	0.39	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	6,982.00	12.80	297.90	6,903.71	346.91	339.22	-736.92	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,077.00	12.50	297.50	6,996.40	356.78	348.89	-755.34	0.33	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,172.00	12.40	297.00	7,089.17	366.35	358.27	-773.55	0.15	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,267.00	12.00	296.00	7,182.02	375.49	367.23	-791.51	0.48	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,362.00	11.50	295.00	7,275.03	384.01	375.56	-808.97	0.57	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,457.00	10.90	294.10	7,368.22	391.85	383.23	-825.75	0.66	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,551.00	11.90	297.60	7,460.37	400.15	391.35	-842.46	1.29	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,646.00	12.40	299.20	7,553.24	409.85	400.86	-860.04	0.63	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,741.00	12.20	299.10	7,646.06	419.89	410.72	-877.71	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/11/2019	7,836.00	11.40	298.20	7,739.05	429.38	420.04	-894.76	0.86	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	7,931.00	9.10	298.30	7,832.53	437.54	428.04	-909.65	2.42	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,026.00	8.40	296.50	7,926.42	444.33	434.69	-922.48	0.79	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,120.00	7.00	295.70	8,019.57	450.00	440.24	-933.78	1.49	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,215.00	6.00	295.00	8,113.96	454.71	444.85	-943.50	1.06	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,310.00	5.20	294.70	8,208.50	458.69	448.75	-951.91	0.84	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,404.00	3.40	293.70	8,302.24	461.66	451.65	-958.33	1.92	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,499.00	2.90	291.80	8,397.09	463.73	453.67	-963.14	0.54	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,594.00	2.50	291.60	8,491.99	465.43	455.33	-967.30	0.42	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,688.00	2.10	289.40	8,585.91	466.80	456.66	-970.83	0.44	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,783.00	1.60	286.60	8,680.86	467.78	457.61	-973.74	0.53	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,878.00	1.30	284.40	8,775.83	468.46	458.26	-976.06	0.32	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	8,972.00	1.10	281.10	8,869.81	468.91	458.70	-977.98	0.23	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,067.00	0.90	273.60	8,964.80	469.15	458.92	-979.62	0.25	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,162.00	0.70	268.10	9,059.79	469.20	458.95	-980.94	0.23	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,256.00	0.60	266.00	9,153.78	469.15	458.90	-982.01	0.11	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,351.00	0.50	247.60	9,248.78	468.97	458.70	-982.89	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,445.00	0.60	237.80	9,342.77	468.56	458.28	-983.68	0.15	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,540.00	0.50	228.90	9,437.77	468.03	457.75	-984.41	0.14	MWD	TOTAL DIRECTIONAL SERV...
9/12/2019	9,635.00	0.30	223.10	9,532.76	467.58	457.29	-984.90	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/13/2019	9,729.00	0.20	36.10	9,626.76	467.53	457.25	-984.97	0.53	MWD	TOTAL DIRECTIONAL SERV...
9/13/2019	9,822.00	1.00	19.90	9,719.76	468.43	458.14	-984.60	0.87	MWD	TOTAL DIRECTIONAL SERV...
9/13/2019	9,919.00	1.20	22.20	9,816.74	470.15	459.88	-983.92	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/13/2019	10,014.00	1.20	10.10	9,911.72	472.05	461.78	-983.37	0.27	MWD	TOTAL DIRECTIONAL SERV...
9/13/2019	10,109.00	1.40	5.80	10,006.70	474.18	463.91	-983.08	0.23	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,204.00	1.70	3.20	10,101.66	476.74	466.47	-982.89	0.32	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,298.00	2.10	9.50	10,195.61	479.83	469.56	-982.52	0.48	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,393.00	2.60	14.10	10,290.53	483.62	473.37	-981.71	0.56	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,488.00	1.10	36.60	10,385.48	486.43	476.19	-980.64	1.72	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,582.00	1.10	53.00	10,479.46	487.69	477.46	-979.38	0.33	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,677.00	1.00	41.90	10,574.44	488.84	478.62	-978.10	0.24	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,772.00	1.10	38.10	10,669.43	490.16	479.96	-976.99	0.13	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,867.00	1.20	18.20	10,764.41	491.82	481.62	-976.11	0.43	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	10,961.00	1.50	13.40	10,858.38	493.94	483.75	-975.52	0.34	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,056.00	0.80	20.10	10,953.36	495.77	485.59	-975.00	0.75	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,151.00	0.60	37.90	11,048.36	496.78	486.60	-974.47	0.31	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,245.00	0.70	354.10	11,142.35	497.74	487.56	-974.23	0.53	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,340.00	0.80	328.60	11,237.34	498.88	488.70	-974.63	0.36	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,434.00	0.80	271.80	11,331.34	499.47	489.28	-975.63	0.81	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,529.00	1.20	232.10	11,426.32	498.90	488.69	-977.08	0.82	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,623.00	0.80	232.90	11,520.31	497.91	487.69	-978.38	0.43	MWD	TOTAL DIRECTIONAL SERV...
9/14/2019	11,718.00	0.80	229.70	11,615.30	497.09	486.87	-979.41	0.05	MWD	TOTAL DIRECTIONAL SERV...
9/15/2019	11,813.00	1.00	255.10	11,710.29	496.47	486.22	-980.72	0.46	MWD	TOTAL DIRECTIONAL SERV...
9/15/2019	11,907.00	1.00	253.50	11,804.27	496.04	485.78	-982.30	0.03	MWD	TOTAL DIRECTIONAL SERV...
9/15/2019	12,002.00	0.60	250.60	11,899.26	495.65	485.38	-983.56	0.42	MWD	TOTAL DIRECTIONAL SERV...
9/15/2019	12,052.00	0.50	255.20	11,949.26	495.51	485.24	-984.02	0.22	MWD	TOTAL DIRECTIONAL SERV...
9/17/2019	12,124.00	0.60	303.40	12,021.26	495.65	485.36	-984.64	0.64	MWD	TOTAL DIRECTIONAL SERV...
9/17/2019	12,187.00	2.20	359.30	12,084.24	497.04	486.75	-984.93	3.06	MWD	TOTAL DIRECTIONAL SERV...
9/18/2019	12,282.00	15.90	8.50	12,177.84	511.78	501.52	-983.02	14.46	MWD	TOTAL DIRECTIONAL SERV...
9/18/2019	12,377.00	27.40	4.30	12,265.99	546.53	536.30	-979.45	12.21	MWD	TOTAL DIRECTIONAL SERV...
9/18/2019	12,471.00	40.30	5.00	12,343.89	598.56	588.38	-975.16	13.73	MWD	TOTAL DIRECTIONAL SERV...
9/18/2019	12,566.00	52.20	5.60	12,409.47	666.69	656.58	-968.79	12.53	MWD	TOTAL DIRECTIONAL SERV...
9/18/2019	12,660.00	61.80	0.60	12,460.63	745.24	735.18	-964.72	11.14	MWD	TOTAL DIRECTIONAL SERV...
9/18/2019	12,755.00	69.40	357.20	12,499.85	831.67	821.60	-966.46	8.64	MWD	TOTAL DIRECTIONAL SERV...



Directional Survey

DELAWARE BASIN UNRESTRICTED

Well Name: ARENA ROJA FED UNIT 15-10 4H

Sub-Division DELAWARE BASIN	Region LEA COUNTY CORE	Field Name RATTLESNAKE DBBU	County LEA	State/Province NM		
Surface Legal Location 15-26S-35E	API/UWI 3002545736	Latitude (°) 32° 2' 30.25" N	Longitude (°) 103° 20' 56.672" W	Orig KB Elevation (ft) 3,118.80	Ground Elev MSL (ft) 3,085.80	KB - GL (ft) 33.00

Survey Data

Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company
9/20/2019	12,849.00	76.20	359.40	12,527.64	921.39	911.30	-969.09	7.57	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	12,944.00	80.80	359.70	12,546.57	1,014.46	1,004.36	-969.82	4.85	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,038.00	82.60	0.40	12,560.14	1,107.47	1,097.37	-969.74	2.05	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,133.00	85.10	1.00	12,570.32	1,201.89	1,191.81	-968.58	2.71	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,228.00	89.60	1.40	12,574.71	1,296.71	1,286.66	-966.59	4.76	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,323.00	88.80	1.00	12,576.04	1,391.66	1,381.63	-964.61	0.94	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,418.00	90.20	0.60	12,576.86	1,486.62	1,476.62	-963.28	1.53	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,512.00	90.10	3.70	12,576.62	1,580.50	1,570.54	-959.75	3.30	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,607.00	91.40	1.90	12,575.37	1,675.32	1,665.41	-955.11	2.34	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,701.00	91.10	358.60	12,573.32	1,769.27	1,759.37	-954.70	3.52	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,796.00	91.00	359.30	12,571.58	1,864.26	1,854.34	-956.44	0.74	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,891.00	91.60	359.50	12,569.43	1,959.23	1,949.31	-957.44	0.67	MWD	TOTAL DIRECTIONAL SERV...
9/20/2019	13,986.00	89.40	358.20	12,568.60	2,054.21	2,044.28	-959.34	2.69	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,080.00	89.30	358.20	12,569.66	2,148.19	2,138.23	-962.30	0.11	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,175.00	88.60	358.00	12,571.41	2,243.15	2,233.16	-965.45	0.77	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,270.00	91.40	359.20	12,571.41	2,338.13	2,328.12	-967.77	3.21	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,365.00	90.20	357.80	12,570.08	2,433.10	2,423.07	-970.25	1.94	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,460.00	91.70	359.20	12,568.50	2,528.07	2,518.02	-972.74	2.16	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,555.00	91.80	359.20	12,565.60	2,623.03	2,612.97	-974.07	0.11	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,649.00	91.50	359.20	12,562.90	2,716.99	2,706.92	-975.38	0.32	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,744.00	90.90	358.70	12,560.91	2,811.96	2,801.88	-977.12	0.82	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,839.00	89.80	357.20	12,560.33	2,906.93	2,896.82	-980.52	1.96	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	14,934.00	89.80	358.10	12,560.66	3,001.88	2,991.74	-984.41	0.95	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,029.00	89.40	358.20	12,561.32	3,096.86	3,086.68	-987.48	0.43	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,124.00	89.20	358.20	12,562.48	3,191.83	3,181.63	-990.46	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,219.00	92.60	0.40	12,560.99	3,286.80	3,276.59	-991.62	4.26	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,314.00	92.50	0.60	12,556.76	3,381.68	3,371.49	-990.80	0.24	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,408.00	92.30	0.60	12,552.83	3,475.58	3,465.41	-989.81	0.21	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,503.00	91.30	0.80	12,549.84	3,570.51	3,560.35	-988.65	1.07	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,598.00	90.40	1.00	12,548.43	3,665.46	3,655.33	-987.16	0.97	MWD	TOTAL DIRECTIONAL SERV...
9/21/2019	15,692.00	89.60	0.80	12,548.43	3,759.43	3,749.31	-985.68	0.88	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	15,787.00	89.30	1.10	12,549.35	3,854.39	3,844.30	-984.11	0.45	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	15,882.00	89.00	0.20	12,550.75	3,949.36	3,939.28	-983.03	1.00	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	15,976.00	89.90	0.90	12,551.66	4,043.33	4,033.27	-982.13	1.21	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,071.00	90.00	2.00	12,551.74	4,138.27	4,128.24	-979.72	1.16	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,166.00	90.50	2.30	12,551.33	4,233.16	4,223.17	-976.16	0.61	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,260.00	90.40	359.20	12,550.59	4,327.12	4,317.15	-974.93	3.30	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,355.00	92.30	359.80	12,548.35	4,422.09	4,412.11	-975.76	2.10	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,450.00	92.60	0.60	12,544.29	4,516.99	4,507.02	-975.43	0.90	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,544.00	89.10	357.60	12,542.89	4,610.95	4,600.98	-976.91	4.90	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,639.00	89.00	358.20	12,544.47	4,705.91	4,695.90	-980.39	0.64	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,734.00	89.00	358.30	12,546.13	4,800.87	4,790.84	-983.29	0.11	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,829.00	88.10	358.00	12,548.53	4,895.82	4,885.76	-986.35	1.00	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	16,923.00	89.80	358.30	12,550.25	4,989.78	4,979.69	-989.39	1.84	MWD	TOTAL DIRECTIONAL SERV...
9/22/2019	17,018.00	89.80	359.80	12,550.58	5,084.77	5,074.67	-990.96	1.58	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,113.00	91.10	358.40	12,549.84	5,179.77	5,169.66	-992.45	2.01	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,208.00	91.90	358.80	12,547.35	5,274.72	5,264.59	-994.77	0.94	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,302.00	90.90	357.10	12,545.05	5,368.66	5,358.50	-998.14	2.10	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,396.00	91.60	0.60	12,543.00	5,462.62	5,452.44	-1,000.02	3.80	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,491.00	91.20	0.10	12,540.68	5,557.58	5,547.41	-999.44	0.67	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,586.00	91.80	0.60	12,538.20	5,652.53	5,642.38	-998.86	0.82	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,680.00	92.00	1.10	12,535.08	5,746.45	5,736.32	-997.47	0.57	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,775.00	92.60	1.80	12,531.27	5,841.31	5,831.21	-995.07	0.97	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,870.00	91.30	359.70	12,528.03	5,936.22	5,926.14	-993.82	2.60	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	17,965.00	90.40	357.90	12,526.62	6,031.20	6,021.10	-995.81	2.12	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	18,059.00	87.40	357.20	12,528.43	6,125.12	6,114.99	-999.83	3.28	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	18,153.00	90.70	358.50	12,529.99	6,219.06	6,208.89	-1,003.35	3.77	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	18,248.00	90.80	359.60	12,528.74	6,314.05	6,303.87	-1,004.93	1.16	MWD	TOTAL DIRECTIONAL SERV...
9/23/2019	18,342.00	91.30	0.50	12,527.02	6,408.03	6,397.85	-1,004.85	1.10	MWD	TOTAL DIRECTIONAL SERV...
9/24/2019	18,437.00	91.10	0.20	12,525.03	6,502.99	6,492.83	-1,004.27	0.38	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	18,549.00	90.30	2.40	12,523.66	6,614.91	6,604.79	-1,001.73	2.09	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	18,644.00	89.40	359.10	12,523.91	6,709.87	6,699.76	-1,000.48	3.60	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	18,739.00	91.70	358.30	12,523.00	6,804.85	6,794.73	-1,002.64	2.56	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	18,834.00	90.90	358.10	12,520.84	6,899.81	6,889.66	-1,005.62	0.87	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	18,929.00	90.60	355.50	12,519.60	6,994.69	6,984.49	-1,010.92	2.75	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	19,023.00	90.20	353.90	12,518.94	7,088.37	7,078.08	-1,019.61	1.75	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	19,118.00	90.90	355.60	12,518.03	7,183.05	7,172.68	-1,028.30	1.94	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	19,213.00	91.40	358.30	12,516.13	7,277.94	7,267.51	-1,033.35	2.89	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	19,307.00	90.70	358.40	12,514.40	7,371.90	7,361.46	-1,036.06	0.75	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	19,402.00	90.40	0.00	12,513.49	7,466.90	7,456.44	-1,037.38	1.71	MWD	TOTAL DIRECTIONAL SERV...
9/25/2019	19,497.00	89.10	0.00	12,513.91	7,561.89	7,551.44	-1,037.38	1.37	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	19,592.00	90.50	2.50	12,514.24	7,656.83	7,646.41	-1,035.31	3.02	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	19,686.00	91.30	4.90	12,512.76	7,750.54	7,740.19	-1,029.25	2.69	MWD	TOTAL DIRECTIONAL SERV...



Well Name: ARENA ROJA FED UNIT 15-10 4H

Sub-Division DELAWARE BASIN	Region LEA COUNTY CORE	Field Name RATTLESNAKE DBBU		County LEA	State/Province NM	
Surface Legal Location 15-26S-35E	API/UWI 3002545736	Latitude (°) 32° 2' 30.25" N	Longitude (°) 103° 20' 56.672" W	Orig KB Elevation (ft) 3,118.80	Ground Elev MSL (ft) 3,085.80	KB - GL (ft) 33.00

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
9/26/2019	19,781.00	90.90	5.80	12,510.94	7,845.01	7,834.76	-1,020.39	1.04	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	19,876.00	89.50	3.40	12,510.60	7,939.61	7,929.44	-1,012.77	2.92	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	19,971.00	89.20	4.90	12,511.68	8,034.28	8,024.18	-1,005.90	1.61	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	20,065.00	87.80	5.20	12,514.14	8,127.79	8,117.78	-997.63	1.52	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	20,160.00	87.40	5.40	12,518.12	8,222.20	8,212.30	-988.86	0.47	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	20,254.00	88.20	7.50	12,521.73	8,315.41	8,305.63	-978.31	2.39	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	20,319.00	87.80	7.50	12,524.00	8,379.73	8,370.03	-969.83	0.62	MWD	TOTAL DIRECTIONAL SERV...
9/26/2019	20,369.00	87.80	7.50	12,525.92	8,429.19	8,419.57	-963.31	0.00	BIT	

