



Directional Survey

Well Name SALADO DRAW EA 19 FED P6 006H		Lease Salado Draw EA 19 Fed P6		Field Name WILDCAT (HOBBS)		Business Unit Mid-Continent	
Ground Elevation (ft)	Original RKB (ft)	Current RKB Elevation 3,237.60 12/15/2015			Mod Line Elevation (ft)	Water Depth (ft)	
3,205.00	3,237.60						

Wellbore Name Original Hole		Parent Wellbore Original Hole		Mud Kick Off Depth (ft)		Vertical Section Direction (°)	
Northing (Y) (ft)		Easting (X) (ft)		UTM Grid Zone			
				8,697.0		178.70	

Date 2/1/2016	Definitive? Y	Description MWD		Planned? N			
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	EW Tie in (ft) 0.00		

Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
182	0.40	93.30	182.00	0.04	0.63	0.05	0.22	Magn MWD	Rig	0.22	0.64	51.26	N
275	0.40	57.30	275.00	0.12	1.23	-0.09	0.27	Magn MWD	Rig	0.00	1.24	-38.71	N
368	0.70	45.60	367.99	0.69	1.91	-0.65	0.34	Magn MWD	Rig	0.32	2.03	-12.58	N
461	1.20	44.50	460.98	1.79	3.00	-1.72	0.54	Magn MWD	Rig	0.54	3.49	-1.18	N
557	1.70	43.50	556.95	3.53	4.68	-3.43	0.52	Magn MWD	Rig	0.52	5.87	-1.04	N
649	1.70	46.80	648.91	5.46	6.62	-5.31	0.11	Magn MWD	Rig	0.00	8.58	3.59	N
742	1.90	43.30	741.86	7.53	8.68	-7.33	0.25	Magn MWD	Rig	0.22	11.49	-3.76	N
834	1.70	40.40	833.82	9.67	10.61	-9.43	0.24	Magn MWD	Rig	-0.22	14.36	-3.15	N
962	1.30	39.40	961.77	12.24	12.76	-11.95	0.31	Magn MWD	Phoenix Directional	-0.31	17.69	-0.78	N
1,143	1.90	320.00	1,142.72	16.13	12.14	-15.85	1.16	Magn MWD	Phoenix Directional	0.33	20.19	155.03	N
1,321	2.30	312.60	1,320.60	20.81	7.61	-20.63	0.27	Magn MWD	Phoenix Directional	0.22	22.15	-4.16	N
1,498	2.50	305.50	1,497.44	25.45	1.85	-25.40	0.20	Magn MWD	Phoenix Directional	0.11	25.52	-4.01	N
1,675	1.10	216.60	1,674.38	26.33	-2.30	-26.38	1.53	Magn MWD	Phoenix Directional	-0.79	26.43	-50.23	N
1,853	1.40	206.30	1,852.33	23.01	-4.28	-23.10	0.21	Magn MWD	Phoenix Directional	0.17	23.40	-5.79	N
2,030	1.30	201.50	2,029.29	19.20	-5.98	-19.33	0.09	Magn MWD	Phoenix Directional	-0.06	20.11	-2.71	N
2,207	1.30	147.80	2,206.25	15.63	-5.64	-15.76	0.66	Magn MWD	Phoenix Directional	0.00	16.62	-30.34	N
2,384	1.30	146.20	2,383.20	12.27	-3.46	-12.34	0.02	Magn MWD	Phoenix Directional	0.00	12.75	-0.90	N
2,561	1.30	143.90	2,560.16	8.98	-1.16	-9.00	0.03	Magn MWD	Phoenix Directional	0.00	9.05	-1.30	N
2,738	1.30	145.20	2,737.11	5.71	1.17	-5.68	0.02	Magn MWD	Phoenix Directional	0.00	5.82	0.73	N
2,916	1.40	138.70	2,915.06	2.41	3.76	-2.33	0.10	Magn MWD	Phoenix Directional	0.06	4.47	-3.65	N
3,093	1.40	141.90	3,092.01	-0.91	6.52	1.06	0.04	Magn MWD	Phoenix Directional	0.00	6.58	1.81	N
3,270	1.50	139.20	3,268.95	-4.37	9.37	4.58	0.07	Magn MWD	Phoenix Directional	0.06	10.34	-1.53	N
3,448	1.90	133.30	3,446.87	-8.15	13.04	8.45	0.25	Magn MWD	Phoenix Directional	0.22	15.38	-3.31	N
3,625	1.90	138.40	3,623.78	-12.36	17.12	12.75	0.10	Magn MWD	Phoenix Directional	0.00	21.12	2.88	N
3,802	1.70	137.40	3,800.69	-16.49	20.85	16.96	0.11	Magn MWD	Phoenix Directional	-0.11	26.58	-0.56	N
3,980	1.30	119.50	3,978.63	-19.43	24.39	19.97	0.34	Magn MWD	Phoenix Directional	-0.22	31.18	-10.06	N
4,157	2.30	141.00	4,155.54	-23.17	28.37	23.81	0.67	Magn MWD	Phoenix Directional	0.56	36.64	12.15	N



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Survey Data

MD (ft)	Incl (°)	Azm (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
4,335	2.40	135.00	4,333.39	-28.59	33.26	29.33	0.15	Magn MWD	Phoenix Directional	0.06	43.85	-3.37	N
4,512	3.40	134.80	4,510.16	-34.91	39.60	35.79	0.58	Magn MWD	Phoenix Directional	0.56	52.79	-0.11	N
4,682	3.40	136.30	4,679.86	-42.10	46.66	43.15	0.05	Magn MWD	Phoenix Directional	0.00	62.85	0.88	N
4,790	3.00	139.10	4,787.69	-46.55	50.73	47.69	0.40	Magn MWD	Phoenix Directional	-0.37	68.85	2.59	N
4,967	2.80	134.60	4,964.47	-53.09	56.84	54.37	0.17	Magn MWD	Phoenix Directional	-0.11	77.77	-2.54	N
5,144	2.80	133.30	5,141.26	-59.09	63.06	60.51	0.04	Magn MWD	Phoenix Directional	0.00	86.42	-0.73	N
5,322	1.90	160.40	5,319.11	-64.85	67.22	66.36	0.79	Magn MWD	Phoenix Directional	-0.51	93.40	15.22	N
5,499	0.60	196.30	5,496.07	-68.51	67.94	70.03	0.82	Magn MWD	Phoenix Directional	-0.73	96.48	20.28	N
5,677	0.50	197.90	5,674.06	-70.14	67.44	71.65	0.06	Magn MWD	Phoenix Directional	-0.06	97.30	0.90	N
5,854	0.50	227.10	5,851.05	-71.40	66.64	72.89	0.14	Magn MWD	Phoenix Directional	0.00	97.66	16.50	N
6,031	0.30	205.60	6,028.05	-72.34	65.87	73.82	0.14	Magn MWD	Phoenix Directional	-0.11	97.84	-12.15	N
6,208	0.30	216.00	6,205.04	-73.14	65.40	74.60	0.03	Magn MWD	Phoenix Directional	0.00	98.11	5.88	N
6,385	1.20	135.90	6,382.03	-74.84	66.42	76.33	0.67	Magn MWD	Phoenix Directional	0.51	100.06	-45.25	N
6,563	1.20	138.80	6,559.99	-77.58	68.94	79.13	0.03	Magn MWD	Phoenix Directional	0.00	103.79	1.63	N
6,740	1.10	149.30	6,736.96	-80.44	71.03	82.03	0.13	Magn MWD	Phoenix Directional	-0.06	107.31	5.93	N
6,917	1.80	155.30	6,913.90	-84.43	73.06	86.06	0.40	Magn MWD	Phoenix Directional	0.40	111.65	3.39	N
7,095	0.90	227.40	7,091.86	-87.91	73.20	89.55	0.98	Magn MWD	Phoenix Directional	-0.51	114.39	40.51	N
7,272	1.30	232.50	7,268.82	-90.07	70.58	91.65	0.23	Magn MWD	Phoenix Directional	0.23	114.43	2.88	N
7,450	0.20	283.50	7,446.81	-91.23	68.68	92.77	0.67	Magn MWD	Phoenix Directional	-0.62	114.19	28.65	N
7,628	0.30	261.10	7,624.80	-91.23	67.91	92.75	0.08	Magn MWD	Phoenix Directional	0.06	113.73	-12.58	N
7,805	0.40	185.90	7,801.80	-91.92	67.39	93.42	0.25	Magn MWD	Phoenix Directional	0.06	113.98	-42.49	N
7,982	0.70	128.80	7,978.79	-93.21	68.17	94.73	0.33	Magn MWD	Phoenix Directional	0.17	115.48	-32.26	N
8,160	1.50	195.70	8,156.77	-96.13	68.39	97.66	0.78	Magn MWD	Phoenix Directional	0.45	117.98	37.58	N
8,337	1.80	182.80	8,333.69	-101.14	67.63	102.65	0.27	Magn MWD	Phoenix Directional	0.17	121.67	-7.29	N
8,514	1.70	177.60	8,510.61	-106.54	67.60	108.05	0.11	Magn MWD	Phoenix Directional	-0.06	126.18	-2.94	N
8,639	1.50	184.20	8,635.56	-110.02	67.56	111.53	0.22	Magn MWD	Phoenix Directional	-0.16	129.11	5.28	N
8,707	3.00	152.00	8,703.51	-112.48	68.33	114.00	2.80	Magn MWD	Phoenix Directional	2.21	131.61	-47.35	N
8,751	9.10	135.60	8,747.25	-115.99	71.31	117.58	14.27	Magn MWD	Phoenix Directional	13.86	136.15	-37.27	N
8,795	18.70	136.60	8,789.91	-123.62	78.60	125.37	21.82	Magn MWD	Phoenix Directional	21.82	146.49	2.27	N
8,840	25.80	143.30	8,831.54	-136.73	89.43	138.72	16.73	Magn MWD	Phoenix Directional	15.78	163.38	14.89	N



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Survey Data

MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
8.884	33.20	150.50	8.869.82	-154.92	101.10	157.18	18.62	Magn MWD	Phoenix Directional	16.82	184.99	16.36	N
8.928	36.80	159.90	8.905.88	-177.81	111.57	180.29	14.71	Magn MWD	Phoenix Directional	8.18	209.91	21.36	N
8.973	44.30	169.70	8.940.09	-205.99	119.03	208.64	21.83	Magn MWD	Phoenix Directional	16.67	237.91	21.78	N
9.017	46.00	179.60	8.971.15	-236.98	121.90	239.68	16.40	Magn MWD	Phoenix Directional	3.86	266.49	22.50	N
9.061	46.80	182.80	9.001.50	-268.83	121.22	271.51	5.57	Magn MWD	Phoenix Directional	1.82	294.89	7.27	N
9.106	49.20	184.10	9.031.61	-302.20	119.20	304.83	5.75	Magn MWD	Phoenix Directional	5.33	324.86	2.89	N
9.150	52.30	185.40	9.059.45	-336.15	116.37	338.71	7.41	Magn MWD	Phoenix Directional	7.05	355.73	2.95	N
9.194	56.00	185.60	9.085.21	-371.65	112.95	374.11	8.42	Magn MWD	Phoenix Directional	8.41	388.43	0.45	N
9.239	58.90	185.00	9.109.42	-409.41	109.45	411.79	6.54	Magn MWD	Phoenix Directional	6.44	423.79	-1.33	N
9.283	63.10	185.10	9.130.75	-447.74	106.07	450.03	9.55	Magn MWD	Phoenix Directional	9.55	460.13	0.23	N
9.327	65.60	184.90	9.149.79	-487.25	102.61	489.45	5.70	Magn MWD	Phoenix Directional	5.68	497.93	-0.45	N
9.371	70.80	184.00	9.166.13	-527.96	99.45	530.08	11.97	Magn MWD	Phoenix Directional	11.82	537.25	-2.05	N
9.410	77.60	183.50	9.176.74	-565.39	97.00	567.44	17.48	Magn MWD	Phoenix Directional	17.44	573.65	-1.28	N
9.488	86.20	182.60	9.187.72	-642.43	92.90	644.37	11.08	Magn MWD	Phoenix Directional	11.03	649.11	-1.15	N
9.576	86.30	182.40	9.193.48	-730.16	89.07	731.99	0.25	Magn MWD	Phoenix Directional	0.11	735.57	-0.23	N
9.665	88.90	182.20	9.197.20	-819.00	85.50	820.73	2.93	Magn MWD	Phoenix Directional	2.92	823.45	-0.22	N
9.754	90.20	182.30	9.197.90	-907.92	82.01	909.55	1.46	Magn MWD	Phoenix Directional	1.46	911.62	0.11	N
9.842	91.60	182.10	9.196.52	-995.85	78.63	997.37	1.61	Magn MWD	Phoenix Directional	1.59	998.95	-0.23	N
9.931	89.60	178.50	9.195.59	-1,084.82	78.16	1,086.32	4.63	Magn MWD	Phoenix Directional	-2.25	1,087.63	-4.04	N
10.019	90.80	179.20	9.195.28	-1,172.80	79.93	1,174.31	1.58	Magn MWD	Phoenix Directional	1.36	1,175.52	0.80	N
10.108	90.00	176.10	9.194.66	-1,261.71	83.58	1,263.28	3.60	Magn MWD	Phoenix Directional	-0.90	1,264.48	-3.48	N
10.197	93.00	177.80	9.192.33	-1,350.54	88.31	1,352.20	3.87	Magn MWD	Phoenix Directional	3.37	1,353.43	1.91	N
10.285	93.60	180.20	9.187.26	-1,438.38	89.85	1,440.04	2.81	Magn MWD	Phoenix Directional	0.68	1,441.18	2.73	N
10.374	92.80	180.40	9.182.29	-1,527.24	89.38	1,528.87	0.93	Magn MWD	Phoenix Directional	-0.90	1,529.85	0.22	N
10.463	92.50	181.10	9.178.18	-1,616.13	88.22	1,617.72	0.85	Magn MWD	Phoenix Directional	-0.34	1,618.54	0.79	N
10.552	93.50	181.80	9.173.52	-1,704.98	85.97	1,706.49	1.37	Magn MWD	Phoenix Directional	1.12	1,707.15	0.79	N
10.640	91.40	181.40	9.169.76	-1,792.86	83.51	1,794.29	2.43	Magn MWD	Phoenix Directional	-2.39	1,794.80	-0.45	N
10.729	92.10	181.50	9.167.04	-1,881.79	81.26	1,883.15	0.79	Magn MWD	Phoenix Directional	0.79	1,883.54	0.11	N
10.818	91.40	181.60	9.164.32	-1,970.72	78.86	1,972.00	0.79	Magn MWD	Phoenix Directional	-0.79	1,972.29	0.11	N
10.906	90.00	181.10	9.163.25	-2,058.68	76.78	2,059.89	1.69	Magn MWD	Phoenix Directional	-1.59	2,060.11	-0.57	N



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Survey Data

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10,995	90.00	180.60	9,163.25	2,147.67	75.46	2,148.83	0.56	Magn MWD	Phoenix Directional	0.00	2,149.00	-0.56	N
11,083	92.60	181.10	9,161.25	-2,235.63	74.18	2,236.74	3.01	Magn MWD	Phoenix Directional	2.95	2,236.86	0.57	N
11,172	92.20	180.20	9,157.53	-2,324.55	73.15	2,325.61	1.11	Magn MWD	Phoenix Directional	-0.45	2,325.70	1.01	N
11,260	88.80	179.80	9,156.76	-2,412.53	73.15	2,413.57	3.89	Magn MWD	Phoenix Directional	-3.86	2,413.64	-0.45	N
11,349	89.60	179.40	9,158.00	-2,501.52	73.77	2,502.55	1.00	Magn MWD	Phoenix Directional	0.90	2,502.61	-0.45	N
11,438	89.50	178.30	9,158.70	-2,590.50	75.56	2,591.54	1.24	Magn MWD	Phoenix Directional	-0.11	2,591.60	-1.24	N
11,526	90.30	178.90	9,158.85	-2,678.47	77.71	2,679.54	1.14	Magn MWD	Phoenix Directional	0.91	2,679.60	0.68	N
11,615	91.70	179.00	9,157.30	-2,767.44	79.34	2,768.53	1.58	Magn MWD	Phoenix Directional	1.57	2,768.58	0.11	N
11,703	89.90	178.40	9,156.07	-2,855.40	81.34	2,856.51	2.16	Magn MWD	Phoenix Directional	-2.05	2,856.56	-0.68	N
11,792	89.30	177.90	9,156.69	-2,944.35	84.21	2,945.51	0.88	Magn MWD	Phoenix Directional	-0.67	2,945.56	-0.56	N
11,880	90.00	176.80	9,157.23	-3,032.26	88.28	3,033.48	1.48	Magn MWD	Phoenix Directional	0.80	3,033.54	-1.25	N
11,969	91.40	175.70	9,156.14	-3,121.06	94.10	3,122.39	2.00	Magn MWD	Phoenix Directional	1.57	3,122.47	-1.24	N
12,057	91.50	176.90	9,153.92	-3,208.84	99.77	3,210.28	1.37	Magn MWD	Phoenix Directional	0.11	3,210.39	1.36	N
12,146	89.20	178.20	9,153.37	-3,297.75	103.58	3,299.25	2.97	Magn MWD	Phoenix Directional	-2.58	3,299.38	1.46	N
12,235	89.10	177.80	9,154.69	-3,386.69	106.68	3,388.24	0.46	Magn MWD	Phoenix Directional	-0.11	3,388.37	-0.45	N
12,323	90.00	180.80	9,155.38	-3,474.67	107.76	3,476.22	3.58	Magn MWD	Phoenix Directional	1.02	3,476.34	3.41	N
12,412	91.20	180.50	9,154.45	-3,563.65	106.75	3,565.16	1.39	Magn MWD	Phoenix Directional	1.35	3,565.25	-0.34	N
12,500	91.10	180.20	9,152.69	-3,651.63	106.21	3,653.10	0.36	Magn MWD	Phoenix Directional	-0.11	3,653.18	-0.34	N
12,589	90.20	179.30	9,151.68	-3,740.63	106.60	3,742.08	1.43	Magn MWD	Phoenix Directional	-1.01	3,742.15	-1.01	N
12,677	90.40	177.90	9,151.22	-3,828.60	108.75	3,830.08	1.61	Magn MWD	Phoenix Directional	0.23	3,830.14	-1.59	N
12,766	92.50	178.50	9,148.96	-3,917.52	111.54	3,919.04	2.45	Magn MWD	Phoenix Directional	2.36	3,919.11	0.67	N
12,855	90.70	177.70	9,146.48	-4,006.43	114.49	4,008.00	2.21	Magn MWD	Phoenix Directional	-2.02	4,008.07	-0.90	N
12,943	88.50	177.40	9,147.09	-4,094.34	118.26	4,095.97	2.52	Magn MWD	Phoenix Directional	-2.50	4,096.05	-0.34	N
13,032	93.70	179.00	9,145.39	-4,183.25	121.05	4,184.92	6.11	Magn MWD	Phoenix Directional	5.84	4,185.00	1.80	N
13,121	91.50	177.90	9,141.35	-4,272.12	123.46	4,273.82	2.76	Magn MWD	Phoenix Directional	-2.47	4,273.90	-1.24	N
13,210	89.90	181.10	9,140.26	-4,361.09	124.23	4,362.79	4.02	Magn MWD	Phoenix Directional	-1.80	4,362.86	3.60	N
13,299	91.60	183.30	9,139.10	-4,450.01	120.82	4,451.61	3.12	Magn MWD	Phoenix Directional	1.91	4,451.65	2.47	N
13,387	90.60	182.60	9,137.41	-4,537.88	116.29	4,539.35	1.39	Magn MWD	Phoenix Directional	-1.14	4,539.37	-0.80	N
13,476	90.80	181.60	9,136.32	-4,626.81	113.03	4,628.18	1.15	Magn MWD	Phoenix Directional	0.22	4,628.19	-1.12	N
13,565	91.80	180.70	9,134.30	-4,715.77	111.24	4,717.08	1.51	Magn MWD	Phoenix Directional	1.12	4,717.08	-1.01	N



Directional Survey

Well Name SALADO DRAW EA 19 FED P6 006H		Lease Salado Draw EA 19 Fed P6	Field Name WILDCAT (HOBBS)	Business Unit Mid-Continent	
Ground Elevation (ft) 3,205.00	Original RKB (ft) 3,237.60	Current RKB Elevation 3,237.60, 12/15/2015		Mud Line Elevation (ft)	Water Depth (ft)

Survey Data

MD (ft)	Incl (°)	Azm (°)	TVD (ft)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
13,654	90.10	179.80	9,132.82	-4,804.75	110.85	4,808.03	2.18	Magn MWD	Phoenix Directional	-1.91	4,808.03	-1.01	N
13,685	90.50	179.60	9,132.66	-4,835.75	111.02	4,837.02	1.44	Magn MWD	Phoenix Directional	1.29	4,837.02	-0.65	N
13,742	90.50	179.60	9,132.16	-4,892.75	111.41	4,894.01	0.00	Extrap	Phoenix Directional	0.00	4,894.01	0.00	N