



Directional Survey

Well Name SALADO DRAW EA 19 FED P6 005H	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)

Wellbore Name Original Hole	Parent Wellbore Original Hole	Min Kick Off Depth (RKB) 8,703.0	Vertical Section Direction (°) 185.99
Northing (Y) (ft)	Easting (X) (ft)	UTM Grid Zone	

Date 1/30/2016	Definitive? Y	Description MWD	Planned? N
MD Tie In (RKB)	TVD Tie In (RKB)	Inclination Tie In (°)	Azimuth Tie In (°)
		NSTie In (ft)	EW Tie In (ft)

Survey Data

MD (RKB)	Incl (°)	Azm (°)	TVD (ftRKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unuse d data
182.47	0.50	64.20	182.47	0.35	0.72	-0.42	0.27	Magn MWD	Rig	0.27	0.80	35.18	N
275.77	0.70	51.90	275.76	0.88	1.53	-1.03	0.25	Magn MWD	Rig	0.21	1.76	-13.18	N
368.72	0.80	47.30	368.70	1.67	2.46	-1.91	0.13	Magn MWD	Rig	0.11	2.97	-4.95	N
461.93	1.20	50.30	461.90	2.73	3.68	-3.10	0.43	Magn MWD	Rig	0.43	4.59	3.22	N
557.63	1.80	50.50	557.57	4.33	5.62	-4.89	0.63	Magn MWD	Rig	0.63	7.09	0.21	N
649.68	1.90	61.20	649.57	5.98	8.07	-6.79	0.39	Magn MWD	Rig	0.11	10.04	11.62	N
742.18	1.60	61.20	742.03	7.34	10.54	-8.40	0.32	Magn MWD	Rig	-0.32	12.85	0.00	N
834.7	1.90	60.30	834.50	8.72	13.01	-10.03	0.33	Magn MWD	Rig	0.32	15.66	-0.97	N
962	1.90	60.90	961.73	10.80	16.68	-12.48	0.02	Magn MWD	Phoenix Directional	0.00	19.87	0.47	N
1,143	1.40	346.90	1,142.67	14.41	18.81	-16.29	1.12	Magn MWD	Phoenix Directional	-0.28	23.69	158.01	N
1,321	1.60	350.60	1,320.61	18.98	17.91	-20.74	0.12	Magn MWD	Phoenix Directional	0.11	26.09	2.08	N
1,498	1.60	328.00	1,497.55	23.51	16.19	-25.07	0.35	Magn MWD	Phoenix Directional	0.00	28.55	-12.77	N
1,675	1.80	333.00	1,674.47	28.09	13.62	-29.35	0.14	Magn MWD	Phoenix Directional	0.11	31.21	2.82	N
1,853	2.70	269.90	1,852.35	30.57	8.16	-31.25	1.39	Magn MWD	Phoenix Directional	0.51	31.64	-35.45	N
2,030	3.20	265.20	2,029.12	30.15	-0.93	-29.89	0.31	Magn MWD	Phoenix Directional	0.28	30.16	-2.66	N
2,207	4.50	269.70	2,205.72	29.70	-12.80	-28.20	0.75	Magn MWD	Phoenix Directional	0.73	32.34	2.54	N
2,384	5.60	269.60	2,382.03	29.60	-28.38	-26.48	0.62	Magn MWD	Phoenix Directional	0.62	41.01	-0.06	N
2,561	5.80	268.80	2,558.15	29.35	-45.96	-24.40	0.12	Magn MWD	Phoenix Directional	0.11	54.53	-0.45	N
2,738	6.50	269.70	2,734.13	29.11	-64.92	-22.18	0.40	Magn MWD	Phoenix Directional	0.40	71.15	0.51	N
2,916	5.40	271.90	2,911.17	29.34	-83.36	-20.48	0.63	Magn MWD	Phoenix Directional	-0.62	88.38	1.24	N
3,093	4.00	267.00	3,087.57	29.29	-97.85	-18.92	0.82	Magn MWD	Phoenix Directional	-0.79	102.14	-2.77	N
3,271	4.20	262.60	3,265.12	28.13	-110.52	-16.44	0.21	Magn MWD	Phoenix Directional	0.11	114.04	-2.47	N
3,448	3.60	259.10	3,441.71	26.24	-122.40	-13.33	0.36	Magn MWD	Phoenix Directional	-0.34	125.18	-1.98	N
3,625	3.10	259.70	3,618.40	24.34	-132.57	-10.37	0.28	Magn MWD	Phoenix Directional	-0.28	134.78	0.34	N
3,803	3.70	270.00	3,798.09	23.48	-143.05	-8.42	0.48	Magn MWD	Phoenix Directional	0.34	144.96	5.79	N
3,980	4.20	272.30	3,972.67	23.74	-155.23	-7.41	0.30	Magn MWD	Phoenix Directional	0.28	157.04	1.30	N
4,158	3.40	272.80	4,150.28	24.25	-167.02	-6.69	0.45	Magn MWD	Phoenix Directional	-0.45	168.77	0.28	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 date
4.335	3.80	276.30	4,326.93	25.15	-178.09	-6.43	0.26	Magn MWD	Phoenix Directional	0.23	179.86	1.98	N
4.512	3.60	265.70	4,503.56	25.38	-189.46	-5.47	0.40	Magn MWD	Phoenix Directional	-0.11	191.15	-5.99	N
4.689	3.90	265.80	4,680.18	24.52	-201.01	-3.41	0.17	Magn MWD	Phoenix Directional	0.17	202.50	0.06	N
4.793	4.00	268.90	4,783.93	24.20	-208.16	-2.34	0.23	Magn MWD	Phoenix Directional	0.10	209.56	2.98	N
4.970	4.10	267.50	4,960.49	23.80	-220.65	-0.64	0.08	Magn MWD	Phoenix Directional	0.06	221.93	-0.79	N
5.147	4.50	278.90	5,137.00	24.60	-233.84	-0.06	0.53	Magn MWD	Phoenix Directional	0.23	235.13	6.44	N
5.325	4.30	279.10	5,314.47	26.74	-247.32	-0.78	0.11	Magn MWD	Phoenix Directional	-0.11	248.76	0.11	N
5.502	4.40	279.90	5,490.96	28.95	-260.56	-1.60	0.07	Magn MWD	Phoenix Directional	0.06	262.17	0.45	N
5.680	4.20	281.30	5,668.46	31.40	-273.68	-2.67	0.13	Magn MWD	Phoenix Directional	-0.11	275.48	0.79	N
5.857	4.00	278.40	5,845.01	33.58	-286.15	-3.53	0.16	Magn MWD	Phoenix Directional	-0.11	288.11	-1.64	N
6.034	3.90	278.40	6,021.59	35.36	-298.21	-4.04	0.06	Magn MWD	Phoenix Directional	-0.06	300.30	0.00	N
6.211	3.80	277.30	6,198.19	36.98	-309.98	-4.43	0.07	Magn MWD	Phoenix Directional	-0.06	312.18	-0.62	N
6.389	3.80	279.50	6,375.80	38.70	-321.65	-4.93	0.08	Magn MWD	Phoenix Directional	0.00	323.97	1.24	N
6.566	4.00	277.50	6,552.39	40.48	-333.55	-5.45	0.14	Magn MWD	Phoenix Directional	0.11	336.00	-1.13	N
6.743	3.70	278.50	6,728.99	42.13	-345.32	-5.86	0.17	Magn MWD	Phoenix Directional	-0.17	347.88	0.56	N
6.921	4.30	270.10	6,906.55	42.99	-357.68	-5.43	0.47	Magn MWD	Phoenix Directional	0.34	360.25	-4.72	N
7.098	4.40	275.60	7,083.05	43.66	-371.07	-4.70	0.24	Magn MWD	Phoenix Directional	0.06	373.63	3.11	N
7.275	4.10	276.60	7,259.56	45.05	-384.11	-4.72	0.17	Magn MWD	Phoenix Directional	-0.17	386.75	0.56	N
7.453	4.30	276.50	7,437.08	46.54	-397.06	-4.85	0.11	Magn MWD	Phoenix Directional	0.11	399.78	-0.06	N
7.631	3.50	282.20	7,614.67	48.44	-409.00	-5.50	0.50	Magn MWD	Phoenix Directional	-0.45	411.86	3.20	N
7.808	4.10	271.00	7,791.28	49.69	-420.61	-5.53	0.54	Magn MWD	Phoenix Directional	0.34	423.54	-6.33	N
7.986	4.30	275.40	7,968.80	50.43	-433.62	-4.91	0.21	Magn MWD	Phoenix Directional	0.11	436.54	2.47	N
8.163	3.50	262.80	8,145.39	50.38	-445.58	-3.61	0.66	Magn MWD	Phoenix Directional	-0.45	448.42	-7.12	N
8.340	3.70	262.10	8,322.04	48.92	-456.60	-1.00	0.12	Magn MWD	Phoenix Directional	0.11	459.21	-0.40	N
8.518	3.30	266.80	8,499.71	47.84	-467.41	1.19	0.28	Magn MWD	Phoenix Directional	-0.22	469.85	2.64	N
8.646	2.50	262.60	8,627.55	47.28	-473.85	2.43	0.65	Magn MWD	Phoenix Directional	-0.63	476.21	-3.28	N
8.751	8.60	213.90	8,732.04	40.46	-480.51	9.91	6.85	Magn MWD	Phoenix Directional	5.81	482.21	-46.38	N
8.795	17.20	208.40	8,774.90	31.99	-485.45	18.84	19.72	Magn MWD	Phoenix Directional	19.55	486.50	-12.50	N
8.840	23.60	210.20	8,817.05	18.34	-493.15	33.23	14.29	Magn MWD	Phoenix Directional	14.22	493.49	4.00	N
8.884	27.40	210.80	8,856.76	2.02	-502.77	50.46	8.66	Magn MWD	Phoenix Directional	8.64	502.78	1.36	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
8.928	31.70	210.40	8.895.03	-16.65	513.81	70.18	9.78	Magn MWD	Phoenix Directional	9.77	514.08	-0.91	N
8.973	34.40	208.90	8.932.74	-37.98	-525.94	92.66	6.27	Magn MWD	Phoenix Directional	6.00	527.31	-3.33	N
9.017	36.10	202.20	8.968.69	-60.88	-536.85	116.57	9.60	Magn MWD	Phoenix Directional	3.86	540.29	-15.23	N
9.061	40.50	198.10	9.003.21	-86.48	-546.19	143.00	11.54	Magn MWD	Phoenix Directional	10.00	553.00	-9.32	N
9.106	43.50	196.10	9.036.65	-115.25	-555.03	172.55	7.30	Magn MWD	Phoenix Directional	6.67	566.87	-4.44	N
9.150	47.20	192.30	9.067.58	-145.59	-562.67	203.52	10.41	Magn MWD	Phoenix Directional	8.41	581.20	-8.64	N
9.194	50.70	191.00	9.096.47	-178.09	-569.36	236.53	8.26	Magn MWD	Phoenix Directional	7.95	596.56	-2.95	N
9.239	55.70	186.90	9.123.42	-213.66	-574.92	272.49	13.29	Magn MWD	Phoenix Directional	11.11	613.34	-9.11	N
9.283	60.90	181.90	9.146.55	-250.96	-577.75	309.88	15.26	Magn MWD	Phoenix Directional	11.82	629.90	-11.36	N
9.328	68.10	176.80	9.165.92	-291.53	-577.23	350.17	18.98	Magn MWD	Phoenix Directional	16.00	646.67	-11.33	N
9.372	74.50	174.10	9.180.02	-333.05	-573.91	391.12	15.66	Magn MWD	Phoenix Directional	14.55	663.54	-6.14	N
9.412	81.84	174.98	9.188.21	-371.99	-570.19	429.46	18.48	Magn MWD	Phoenix Directional	18.35	680.80	2.20	N
9.450	84.48	174.64	9.192.74	-409.56	-566.78	466.47	7.00	Magn MWD	Phoenix Directional	6.95	699.27	-0.89	N
9.500	89.41	173.61	9.195.40	-459.21	-561.67	515.32	10.07	Magn MWD	Phoenix Directional	9.86	725.50	-2.06	N
9.589	91.85	172.90	9.194.42	-547.59	-551.21	602.12	2.86	Magn MWD	Phoenix Directional	2.74	776.97	-0.80	N
9.678	91.63	173.79	9.191.72	-635.95	-540.91	688.92	1.03	Magn MWD	Phoenix Directional	-0.25	834.87	1.00	N
9.766	91.14	174.08	9.189.59	-723.43	-531.61	774.95	0.65	Magn MWD	Phoenix Directional	-0.56	897.75	0.33	N
9.855	91.08	177.04	9.187.87	-812.13	-524.72	862.46	3.33	Magn MWD	Phoenix Directional	-0.07	966.90	3.33	N
9.944	91.23	182.00	9.186.07	-901.08	-523.98	960.84	5.57	Magn MWD	Phoenix Directional	0.17	1,042.36	5.57	N
10.032	91.11	182.76	9.184.28	-988.99	-527.63	1,038.65	0.87	Magn MWD	Phoenix Directional	-0.14	1,120.93	0.86	N
10.121	91.14	182.00	9.182.53	-1,077.89	-531.33	1,127.46	0.85	Magn MWD	Phoenix Directional	0.03	1,201.73	-0.85	N
10.209	91.26	179.76	9.180.69	-1,165.86	-532.68	1,215.08	2.55	Magn MWD	Phoenix Directional	0.14	1,281.78	-2.55	N
10.298	90.80	179.26	9.179.09	-1,254.84	-531.92	1,303.50	0.76	Magn MWD	Phoenix Directional	-0.52	1,362.92	-0.56	N
10.387	90.55	182.46	9.178.04	-1,343.81	-533.25	1,392.12	3.61	Magn MWD	Phoenix Directional	-0.28	1,445.75	3.60	N
10.475	90.40	181.97	9.177.31	-1,431.74	-536.65	1,479.93	0.58	Magn MWD	Phoenix Directional	-0.17	1,529.02	-0.56	N
10.564	91.29	180.77	9.176.00	-1,520.71	-538.78	1,568.63	1.68	Magn MWD	Phoenix Directional	1.00	1,613.33	-1.35	N
10.652	92.62	180.24	9.172.99	-1,608.65	-539.56	1,656.17	1.63	Magn MWD	Phoenix Directional	1.51	1,696.72	-0.60	N
10.741	90.58	177.76	9.170.51	-1,697.59	-538.00	1,744.46	3.61	Magn MWD	Phoenix Directional	-2.29	1,780.80	-2.79	N
10.829	90.31	175.81	9.169.83	-1,785.44	-533.07	1,831.32	2.24	Magn MWD	Phoenix Directional	-0.31	1,863.32	-2.22	N
10.918	89.20	175.13	9.170.21	-1,874.16	-526.04	1,918.83	1.46	Magn MWD	Phoenix Directional	-1.25	1,946.59	-0.76	N



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Survey Data

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11,006	87.84	175.10	9,172.48	-1,961.81	-518.55	2,005.21	1.55	Magn MWD	Phoenix Directional	-1.55	2,029.19	-0.03	N
11,095	90.34	175.23	9,173.89	-2,050.48	-511.05	2,092.61	2.81	Magn MWD	Phoenix Directional	2.81	2,113.20	0.15	N
11,184	90.22	177.79	9,173.46	-2,139.30	-505.63	2,180.39	2.88	Magn MWD	Phoenix Directional	-0.13	2,198.25	2.88	N
11,272	90.77	181.09	9,172.70	-2,227.28	-504.77	2,267.80	3.80	Magn MWD	Phoenix Directional	0.63	2,283.77	3.75	N
11,361	90.65	182.76	9,171.59	-2,316.22	-507.76	2,356.56	1.88	Magn MWD	Phoenix Directional	-0.13	2,371.23	1.88	N
11,449	90.71	182.49	9,170.55	-2,404.13	-511.79	2,444.41	0.31	Magn MWD	Phoenix Directional	0.07	2,458.00	-0.31	N
11,538	90.59	182.73	9,169.54	-2,493.03	-515.84	2,533.25	0.30	Magn MWD	Phoenix Directional	-0.13	2,545.84	0.27	N
11,626	90.34	184.94	9,168.83	-2,580.82	-521.73	2,621.18	2.53	Magn MWD	Phoenix Directional	-0.28	2,633.03	2.51	N
11,715	89.94	183.26	9,168.61	-2,669.59	-528.09	2,710.12	1.94	Magn MWD	Phoenix Directional	-0.45	2,721.32	-1.89	N
11,803	90.06	182.01	9,168.61	-2,757.50	-532.14	2,797.97	1.43	Magn MWD	Phoenix Directional	0.14	2,808.37	-1.42	N
11,892	89.97	182.61	9,168.59	-2,846.42	-535.88	2,886.80	0.90	Magn MWD	Phoenix Directional	-0.10	2,896.42	0.90	N
11,981	89.82	179.45	9,168.75	-2,935.39	-537.63	2,975.46	3.78	Magn MWD	Phoenix Directional	-0.17	2,984.21	-3.78	N
12,070	93.94	180.67	9,165.83	-3,024.32	-537.73	3,063.92	4.83	Magn MWD	Phoenix Directional	4.83	3,071.75	1.37	N
12,158	88.95	180.72	9,163.61	-3,112.25	-538.79	3,151.49	5.67	Magn MWD	Phoenix Directional	-5.67	3,158.55	0.06	N
12,247	87.81	177.24	9,166.13	-3,201.19	-537.21	3,239.77	4.11	Magn MWD	Phoenix Directional	-1.28	3,245.95	-3.91	N
12,336	87.81	176.15	9,169.53	-3,289.98	-532.08	3,327.54	1.22	Magn MWD	Phoenix Directional	0.00	3,332.72	-1.22	N
12,425	87.29	178.25	9,173.33	-3,378.78	-527.74	3,415.41	2.43	Magn MWD	Phoenix Directional	-0.58	3,419.75	2.36	N
12,514	89.23	179.81	9,176.04	-3,467.72	-526.23	3,503.70	2.80	Magn MWD	Phoenix Directional	2.18	3,507.42	1.75	N
12,603	90.03	180.24	9,176.61	-3,556.72	-526.27	3,592.22	1.02	Magn MWD	Phoenix Directional	0.90	3,595.44	0.48	N
12,692	90.71	172.99	9,176.04	-3,645.50	-521.02	3,679.97	8.18	Magn MWD	Phoenix Directional	0.76	3,682.55	-8.15	N
12,781	90.83	168.95	9,174.84	-3,733.37	-507.06	3,765.90	4.54	Magn MWD	Phoenix Directional	0.13	3,767.65	-4.54	N
12,869	90.83	174.01	9,173.56	-3,820.36	-494.02	3,851.06	5.75	Magn MWD	Phoenix Directional	0.00	3,852.17	5.75	N
12,958	90.83	174.40	9,172.27	-3,908.90	-485.04	3,938.17	0.44	Magn MWD	Phoenix Directional	0.00	3,938.88	0.44	N
13,047	90.83	179.45	9,170.98	-3,997.73	-480.27	4,026.02	5.67	Magn MWD	Phoenix Directional	0.00	4,026.48	5.67	N
13,136	90.37	185.10	9,170.05	-4,086.62	-483.80	4,114.80	6.37	Magn MWD	Phoenix Directional	-0.52	4,115.16	6.35	N
13,224	90.46	187.65	9,169.41	-4,174.07	-493.57	4,202.79	2.90	Magn MWD	Phoenix Directional	0.10	4,203.15	2.90	N
13,313	90.18	185.36	9,168.92	-4,262.49	-503.65	4,291.77	2.59	Magn MWD	Phoenix Directional	-0.31	4,292.14	-2.57	N
13,401	90.55	181.49	9,168.36	-4,350.31	-508.91	4,379.67	4.42	Magn MWD	Phoenix Directional	0.42	4,379.98	-4.40	N
13,490	90.65	180.71	9,167.42	-4,439.29	-510.62	4,468.34	0.88	Magn MWD	Phoenix Directional	0.11	4,468.56	-0.88	N
13,579	90.55	178.64	9,166.49	-4,528.28	-510.11	4,556.79	2.33	Magn MWD	Phoenix Directional	-0.11	4,556.92	-2.33	N



Directional Survey

Well Name SALADO DRAW EA 19 FED P6 005H		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 (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Method	Survey Company	Build (°/100ft)	Depart (ft)	Turn (°/100ft)	Unused data
13,667	90.68	176.80	9,165.55	-4,616.20	-506.61	4,643.86	2.10	Magn MWD	Phoenix Directional	0.15	4,643.92	-2.09	N
13,756	91.20	177.29	9,164.09	-4,705.07	-502.02	4,731.77	0.80	Magn MWD	Phoenix Directional	0.58	4,731.78	0.55	N
13,845	91.51	179.64	9,161.98	-4,794.01	-499.64	4,819.97	2.66	Magn MWD	Phoenix Directional	0.35	4,819.97	2.64	N
13,903	91.51	182.47	9,160.45	-4,851.97	-500.71	4,877.73	4.88	Magn MWD	Phoenix Directional	0.00	4,877.74	4.88	N
13,928	91.51	182.47	9,159.79	-4,876.94	-501.78	4,902.68	0.00	Magn MWD	Phoenix Directional	0.00	4,902.69	0.00	N