



Wellbore Details

SEP 26 2018

RECEIVED

Well Name HH SO 8 P2 13H	Lease HH SO 8 P2	Field Name Purple Sage	Business Unit Mid-Continent
Ground Elevation (ft) 3,246.00	Original RKB Elevation (ft) 3,274.00	Current RKB Elevation 3,274.00, 5/12/2017	Mud Line Elevation (ft)
Current KB to Ground (ft) 28.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Current KB to Tubing Head (ft)

Logs				
Type	Logging Company	Date	Planned?	Cased?
Wellbore	Job	Depth Top (MD) (ftKB)	Bottom Depth (ftKB)	
Comment				

Wellbores			
Wellbore Name Original Hole	Parent Wellbore Original Hole	Directional Type Horizontal	Start Depth (MD) (ftKB)
Alt. Wellbore Identifier	TAML Classification N/A	TAML Functionality	Casing Configuration Class 1
Bottom Hole Legal Location	Wellbore UWI 300154393300	Wellbore ChevNo PJ8437-00	Vertical Section Direction (°) 356.41

Wellbore Sections						
Hole Size (in)	Start Date	Act Top (ftKB)	Act Btm (ftKB)	Prop Top (ftKB)	Prop Btm (ftKB)	

Kick Offs & Key Depths					
Date	Type	Point or Interval	Top Depth (ftKB)	Depth Top (TVD) (ftKB)	Method Open-hole

Last 5 PBTD's					
Type	Date	PBTD (ftKB)	Depth (TVD) (ftKB)	Method	Com

Geologic Horizons						
Formation Name	Prog Top (TVD SS) Override (ft(lev))	Prog Top (TVD) (ftKB)	Prog Btm (TVD SS) Override (ft(lev))	Prog Btm (TVD) (ftKB)	Drill Top MD (ftKB)	Drill Btm MD (ftKB)

Directional Surveys					
Description MWD	Date 7/20/2017	Definitive? N	Planned? N	Job Drill and Suspend, 5/12/2017 18:00	
Azimuth Tie In (°) 0.00	MD Tie In (ftKB) 0.00	Inclination Tie In (°) 0.00	NSTie In (ft)	EW Tie In (ft)	TVD Tie In (ftKB)
Comment					

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/23/2017	174.5	0.60	73.00	174.50	0.21	0.27	0.87	0.34	Magn MWD	
7/23/2017	266.5	0.70	62.00	266.49	0.56	0.67	1.83	0.17	Magn MWD	
7/23/2017	359.5	1.20	87.00	359.48	0.78	0.99	3.30	0.69	Magn MWD	
7/17/2017	403.9	1.60	90.00	403.86	0.74	1.01	4.39	0.92	Magn MWD	
7/17/2017	497	0.99	95.37	496.94	0.53	0.94	6.49	0.67	Magn MWD	Phoenix Directional
7/17/2017	593	1.59	102.08	592.92	0.04	0.58	8.62	0.64	Magn MWD	Phoenix Directional
7/17/2017	685	2.33	111.30	684.86	-1.09	-0.36	11.61	0.87	Magn MWD	Phoenix Directional
7/17/2017	778	2.06	126.25	777.79	-2.96	-2.04	14.72	0.68	Magn MWD	Phoenix Directional
7/17/2017	871	1.95	173.79	870.74	-5.61	-4.60	16.24	1.74	Magn MWD	Phoenix Directional
7/17/2017	967	2.24	203.25	966.68	-8.91	-7.95	15.67	1.15	Magn MWD	Phoenix Directional
7/17/2017	1,061	3.79	265.12	1,060.57	-10.62	-9.90	11.85	3.59	Magn MWD	Phoenix Directional
7/17/2017	1,156	4.17	286.85	1,155.35	-9.49	-9.17	5.42	1.63	Magn MWD	Phoenix Directional
7/17/2017	1,250	4.20	284.63	1,249.10	-7.22	-7.31	-1.19	0.18	Magn MWD	Phoenix Directional
7/17/2017	1,345	5.88	274.66	1,343.73	-5.43	-6.03	-9.40	1.99	Magn MWD	Phoenix Directional
7/17/2017	1,440	7.45	274.94	1,438.08	-3.82	-5.11	-20.39	1.65	Magn MWD	Phoenix Directional
7/17/2017	1,535	8.04	275.57	1,532.21	-1.85	-3.93	-33.14	0.63	Magn MWD	Phoenix Directional
7/17/2017	1,630	8.66	275.59	1,626.21	0.35	-2.59	-46.87	0.65	Magn MWD	Phoenix Directional
7/17/2017	1,724	10.28	273.60	1,718.92	2.53	-1.37	-62.28	1.76	Magn MWD	Phoenix Directional
7/17/2017	1,819	12.88	269.28	1,811.98	4.12	-0.97	-81.33	2.88	Magn MWD	Phoenix Directional
7/17/2017	1,913	14.34	269.40	1,903.34	5.25	-1.23	-103.45	1.55	Magn MWD	Phoenix Directional
7/18/2017	2,008	13.64	269.85	1,995.52	6.54	-1.38	-126.42	0.75	Magn MWD	Phoenix Directional
7/18/2017	2,103	13.23	268.81	2,087.92	7.66	-1.64	-148.49	0.50	Magn MWD	Phoenix Directional
7/18/2017	2,197	13.37	269.01	2,179.40	8.61	-2.05	-170.11	0.16	Magn MWD	Phoenix Directional
7/18/2017	2,292	13.57	270.01	2,271.79	9.81	-2.24	-192.23	0.32	Magn MWD	Phoenix Directional
7/18/2017	2,387	13.69	270.46	2,364.11	11.30	-2.14	-214.62	0.17	Magn MWD	Phoenix Directional



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Current KB to Ground (ft) 28.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Current KB to Tubing Head (ft)	

Survey Data

Date	MD (RKB)	Incl (°)	Azm (°)	TVD (RKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/18/2017	2,481	14.34	269.36	2,455.32	12.68	-2.18	-237.38	0.75	Magn MWD	Phoenix Directional
7/18/2017	2,576	14.79	267.63	2,547.26	13.55	-2.82	-261.26	0.66	Magn MWD	Phoenix Directional
7/18/2017	2,765	14.64	267.18	2,730.06	14.38	-4.99	-309.22	0.10	Magn MWD	Phoenix Directional
7/18/2017	2,860	15.07	267.05	2,821.89	14.68	-6.22	-333.55	0.45	Magn MWD	Phoenix Directional
7/18/2017	2,955	14.78	266.79	2,913.68	14.90	-7.53	-357.98	0.31	Magn MWD	Phoenix Directional
7/18/2017	3,049	14.80	266.53	3,004.57	15.01	-8.93	-381.93	0.07	Magn MWD	Phoenix Directional
7/18/2017	3,144	15.15	266.73	3,096.34	15.10	-10.37	-406.44	0.37	Magn MWD	Phoenix Directional
7/18/2017	3,334	15.90	267.81	3,279.41	15.87	-12.78	-457.24	0.42	Magn MWD	Phoenix Directional
7/18/2017	3,429	14.85	269.14	3,371.01	16.77	-13.46	-482.41	1.17	Magn MWD	Phoenix Directional
7/18/2017	3,523	12.19	268.38	3,462.39	17.69	-13.92	-504.38	2.84	Magn MWD	Phoenix Directional
7/19/2017	3,616	11.24	267.91	3,553.46	18.26	-14.53	-523.25	1.03	Magn MWD	Phoenix Directional
7/19/2017	3,710	10.50	265.95	3,645.77	18.43	-15.47	-540.95	0.88	Magn MWD	Phoenix Directional
7/19/2017	3,805	10.17	266.09	3,739.23	18.32	-16.65	-557.95	0.35	Magn MWD	Phoenix Directional
7/19/2017	3,900	10.61	266.17	3,832.67	18.23	-17.81	-575.05	0.46	Magn MWD	Phoenix Directional
7/19/2017	3,995	8.09	263.23	3,926.40	17.83	-19.18	-590.42	2.70	Magn MWD	Phoenix Directional
7/19/2017	4,089	5.48	263.79	4,019.73	17.25	-20.45	-601.45	2.78	Magn MWD	Phoenix Directional
7/19/2017	4,184	3.00	255.57	4,114.47	16.58	-21.56	-608.37	2.68	Magn MWD	Phoenix Directional
7/19/2017	4,279	3.07	251.95	4,209.33	15.48	-22.96	-613.19	0.21	Magn MWD	Phoenix Directional
7/20/2017	4,374	3.00	260.58	4,304.20	14.59	-24.16	-618.06	0.49	Magn MWD	Phoenix Directional
7/20/2017	4,468	2.30	286.47	4,398.10	14.99	-24.03	-622.30	1.46	Magn MWD	Phoenix Directional
7/20/2017	4,563	2.32	282.13	4,493.03	16.16	-23.08	-626.01	0.19	Magn MWD	Phoenix Directional
7/20/2017	4,658	1.35	271.91	4,587.98	16.79	-22.64	-629.01	1.07	Magn MWD	Phoenix Directional
7/20/2017	4,753	1.19	251.29	4,682.95	16.64	-22.92	-631.06	0.51	Magn MWD	Phoenix Directional
7/20/2017	4,847	1.30	250.80	4,776.93	16.10	-23.58	-632.99	0.12	Magn MWD	Phoenix Directional
7/20/2017	5,037	1.01	6.08	4,966.91	17.17	-22.63	-634.85	1.03	Magn MWD	Phoenix Directional
7/20/2017	5,132	1.03	12.30	5,061.90	18.81	-20.96	-634.58	0.12	Magn MWD	Phoenix Directional
7/20/2017	5,226	1.04	7.72	5,155.88	20.46	-19.29	-634.28	0.09	Magn MWD	Phoenix Directional
7/20/2017	5,321	1.10	357.47	5,250.87	22.22	-17.53	-634.21	0.21	Magn MWD	Phoenix Directional
7/21/2017	5,416	0.95	348.30	5,345.85	23.91	-15.84	-634.41	0.23	Magn MWD	Phoenix Directional
7/21/2017	5,510	1.05	342.48	5,439.84	25.52	-14.26	-634.82	0.15	Magn MWD	Phoenix Directional
7/22/2017	5,605	0.72	343.35	5,534.82	26.95	-12.86	-635.26	0.35	Magn MWD	Phoenix Directional
7/22/2017	5,700	0.60	334.66	5,629.82	27.99	-11.84	-635.64	0.16	Magn MWD	Phoenix Directional
7/22/2017	5,794	0.45	325.35	5,723.81	28.76	-11.09	-636.06	0.18	Magn MWD	Phoenix Directional
7/22/2017	5,889	0.26	344.02	5,818.81	29.29	-10.57	-636.33	0.23	Magn MWD	Phoenix Directional
7/22/2017	5,984	0.26	310.51	5,913.81	29.65	-10.23	-636.56	0.16	Magn MWD	Phoenix Directional
7/22/2017	6,079	0.36	308.70	6,008.81	30.00	-9.90	-636.95	0.11	Magn MWD	Phoenix Directional
7/22/2017	6,174	0.54	288.16	6,103.81	30.37	-9.57	-637.61	0.25	Magn MWD	Phoenix Directional
7/22/2017	6,268	0.70	259.66	6,197.80	30.47	-9.54	-638.60	0.36	Magn MWD	Phoenix Directional
7/22/2017	6,363	1.00	218.56	6,292.79	29.78	-10.29	-639.68	0.69	Magn MWD	Phoenix Directional
7/22/2017	6,458	1.07	199.80	6,387.78	28.36	-11.77	-640.50	0.36	Magn MWD	Phoenix Directional
7/23/2017	6,553	1.36	196.83	6,482.76	26.49	-13.69	-641.13	0.31	Magn MWD	Phoenix Directional
7/23/2017	6,647	1.72	189.52	6,576.72	24.07	-16.15	-641.69	0.44	Magn MWD	Phoenix Directional
7/23/2017	6,742	1.63	179.75	6,671.68	21.33	-18.90	-641.92	0.31	Magn MWD	Phoenix Directional
7/23/2017	6,837	1.48	172.25	6,766.65	18.76	-21.47	-641.74	0.27	Magn MWD	Phoenix Directional
7/23/2017	6,932	1.62	171.54	6,861.61	16.19	-24.01	-641.38	0.15	Magn MWD	Phoenix Directional
7/24/2017	7,026	1.39	162.86	6,955.58	13.76	-26.42	-640.85	0.34	Magn MWD	Phoenix Directional
7/24/2017	7,121	1.41	153.30	7,050.55	11.57	-28.56	-639.98	0.25	Magn MWD	Phoenix Directional
7/17/2017	7,216	1.82	156.42	7,145.51	9.07	-30.99	-638.86	0.44	Magn MWD	Phoenix Directional
7/17/2017	7,406	2.04	136.69	7,335.41	3.64	-36.22	-635.33	0.37	Magn MWD	Phoenix Directional
7/17/2017	7,501	1.78	124.74	7,430.35	1.42	-38.29	-632.96	0.50	Magn MWD	Phoenix Directional
7/17/2017	7,597	1.54	122.14	7,526.31	-0.26	-39.82	-630.64	0.26	Magn MWD	Phoenix Directional
7/17/2017	7,692	1.65	120.83	7,621.28	-1.77	-41.20	-628.38	0.12	Magn MWD	Phoenix Directional
7/17/2017	7,787	1.16	115.57	7,716.25	-3.02	-42.32	-626.34	0.53	Magn MWD	Phoenix Directional
7/17/2017	7,882	0.81	119.09	7,811.23	-3.85	-43.06	-624.89	0.37	Magn MWD	Phoenix Directional
7/17/2017	7,977	0.70	117.13	7,906.23	-4.51	-43.65	-623.78	0.12	Magn MWD	Phoenix Directional
7/17/2017	8,072	0.48	49.11	8,001.22	-4.56	-43.66	-622.97	0.72	Magn MWD	Phoenix Directional
7/17/2017	8,166	0.65	44.82	8,095.22	-3.97	-43.02	-622.29	0.19	Magn MWD	Phoenix Directional



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Survey Data										
Date	MD (ft)	Incl (°)	Azm (°)	TVD (ft)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/17/2017	8,261	0.65	19.26	8,190.21	-3.12	-42.13	-621.74	0.30	Magn MWD	Phoenix Directional
7/17/2017	8,450	0.60	358.28	8,379.20	-1.14	-40.13	-621.41	0.12	Magn MWD	Phoenix Directional
7/17/2017	8,545	0.69	344.99	8,474.19	-0.08	-39.08	-621.58	0.18	Magn MWD	Phoenix Directional
7/17/2017	8,734	0.73	328.17	8,663.18	2.10	-36.96	-622.51	0.11	Magn MWD	Phoenix Directional
7/17/2017	8,829	0.77	323.14	8,758.17	3.16	-35.93	-623.21	0.08	Magn MWD	Phoenix Directional
7/17/2017	8,888	0.76	308.93	8,817.17	3.76	-35.37	-623.75	0.32	Magn MWD	Phoenix Directional
9/29/2017	9,015	0.81	308.26	8,944.15	4.93	-34.28	-625.11	0.04	Magn MWD	Phoenix Directional
9/29/2017	9,110	0.94	294.53	9,039.14	5.74	-33.54	-626.35	0.26	Magn MWD	Phoenix Directional
9/30/2017	9,204	2.80	356.78	9,133.10	8.40	-30.93	-627.18	2.66	Magn MWD	Phoenix Directional
9/30/2017	9,298	2.69	348.95	9,226.99	12.88	-26.47	-627.73	0.42	Magn MWD	Phoenix Directional
9/30/2017	9,393	6.85	352.89	9,321.64	20.75	-18.66	-628.86	4.39	Magn MWD	Phoenix Directional
9/30/2017	9,487	13.57	0.22	9,414.10	37.37	-2.05	-629.51	7.27	Magn MWD	Phoenix Directional
9/30/2017	9,581	18.98	0.11	9,504.30	63.65	24.28	-629.44	5.76	Magn MWD	Phoenix Directional
9/30/2017	9,676	20.65	359.11	9,593.67	95.80	56.48	-629.67	1.79	Magn MWD	Phoenix Directional
10/1/2017	9,770	33.41	357.52	9,677.23	138.41	99.09	-631.05	13.60	Magn MWD	Phoenix Directional
10/2/2017	9,817	42.84	358.99	9,714.17	167.37	128.06	-631.89	20.16	Magn MWD	Phoenix Directional
10/2/2017	9,865	50.03	0.78	9,747.23	202.06	162.81	-631.93	15.22	Magn MWD	Phoenix Directional
10/3/2017	9,912	56.50	1.82	9,775.32	239.57	200.45	-631.06	13.88	Magn MWD	Phoenix Directional
10/9/2017	9,959	62.93	2.26	9,799.01	279.94	240.99	-629.61	13.70	Magn MWD	Phoenix Directional
10/9/2017	10,006	68.50	2.79	9,818.34	322.52	283.77	-627.72	11.90	Magn MWD	Phoenix Directional
10/9/2017	10,054	69.25	2.09	9,835.63	367.04	328.50	-625.82	2.07	Magn MWD	Phoenix Directional
10/9/2017	10,085	71.21	2.74	9,846.12	396.06	357.65	-624.59	6.62	Magn MWD	Phoenix Directional
10/9/2017	10,131	73.46	2.72	9,860.08	439.62	401.43	-622.50	4.89	Magn MWD	Phoenix Directional
10/9/2017	10,171	76.66	1.96	9,870.39	478.05	440.04	-620.92	8.21	Magn MWD	Phoenix Directional
10/9/2017	10,218	83.66	0.67	9,878.42	524.16	486.30	-619.87	15.14	Magn MWD	Phoenix Directional
10/9/2017	10,266	87.31	1.40	9,882.19	571.85	534.14	-619.00	7.75	Magn MWD	Phoenix Directional
10/9/2017	10,360	91.15	359.00	9,883.46	665.61	628.10	-618.68	4.82	Magn MWD	Phoenix Directional
10/9/2017	10,455	86.10	356.30	9,885.74	760.52	722.96	-622.57	6.03	Magn MWD	Phoenix Directional
10/9/2017	10,550	83.68	354.45	9,894.20	855.12	817.26	-630.19	3.20	Magn MWD	Phoenix Directional
10/9/2017	10,645	93.08	358.82	9,896.88	949.95	911.93	-635.75	10.91	Magn MWD	Phoenix Directional
10/9/2017	10,739	92.44	358.81	9,892.36	1,043.76	1,005.80	-637.69	0.68	Magn MWD	Phoenix Directional
10/9/2017	10,834	91.74	359.02	9,888.89	1,138.60	1,100.72	-639.49	0.77	Magn MWD	Phoenix Directional
10/9/2017	10,929	87.59	357.46	9,889.45	1,233.53	1,195.65	-642.41	4.67	Magn MWD	Phoenix Directional
10/9/2017	11,023	86.94	357.80	9,893.93	1,327.40	1,289.46	-646.29	0.78	Magn MWD	Phoenix Directional
10/9/2017	11,118	93.00	1.80	9,893.98	1,422.17	1,384.40	-646.62	7.64	Magn MWD	Phoenix Directional
10/9/2017	11,213	82.84	359.39	9,897.43	1,516.72	1,479.20	-645.63	10.99	Magn MWD	Phoenix Directional
10/9/2017	11,308	88.15	358.50	9,904.89	1,611.30	1,573.85	-647.38	5.67	Magn MWD	Phoenix Directional
10/9/2017	11,402	88.80	358.14	9,907.39	1,705.22	1,667.78	-650.13	0.79	Magn MWD	Phoenix Directional
10/9/2017	11,497	89.92	357.30	9,908.45	1,800.18	1,762.70	-653.91	1.47	Magn MWD	Phoenix Directional
10/9/2017	11,592	94.34	358.69	9,904.92	1,895.06	1,857.55	-657.23	4.88	Magn MWD	Phoenix Directional
10/9/2017	11,686	96.51	358.13	9,896.03	1,988.57	1,951.08	-659.83	2.38	Magn MWD	Phoenix Directional
10/9/2017	11,781	97.41	0.01	9,884.52	2,082.76	2,045.37	-661.36	2.18	Magn MWD	Phoenix Directional
10/9/2017	11,876	92.16	4.11	9,876.59	2,176.92	2,139.92	-657.94	7.00	Magn MWD	Phoenix Directional
10/9/2017	11,971	93.87	6.83	9,871.60	2,270.59	2,234.34	-648.90	3.38	Magn MWD	Phoenix Directional
10/9/2017	12,066	87.17	2.11	9,870.73	2,364.57	2,328.97	-641.51	8.63	Magn MWD	Phoenix Directional
10/9/2017	12,160	87.28	359.08	9,875.29	2,458.20	2,422.84	-640.53	3.22	Magn MWD	Phoenix Directional
10/9/2017	12,255	89.61	0.75	9,877.86	2,552.98	2,517.80	-640.67	3.02	Magn MWD	Phoenix Directional
10/9/2017	12,350	88.18	359.24	9,879.70	2,647.77	2,612.78	-640.68	2.19	Magn MWD	Phoenix Directional
10/9/2017	12,445	88.74	358.98	9,882.25	2,742.63	2,707.73	-642.16	0.65	Magn MWD	Phoenix Directional
10/9/2017	12,539	90.59	358.56	9,882.80	2,836.54	2,801.70	-644.18	2.02	Magn MWD	Phoenix Directional
10/9/2017	12,619	94.03	358.14	9,879.57	2,916.42	2,881.59	-646.48	4.33	Magn MWD	Phoenix Directional
10/9/2017	12,714	88.10	355.13	9,877.81	3,011.35	2,976.36	-652.05	7.00	Magn MWD	Phoenix Directional
10/9/2017	12,809	91.01	358.05	9,878.55	3,106.32	3,071.17	-657.70	4.34	Magn MWD	Phoenix Directional
10/9/2017	12,904	88.43	357.34	9,879.01	3,201.29	3,166.08	-661.52	2.82	Magn MWD	Phoenix Directional
10/9/2017	12,998	90.34	358.54	9,880.02	3,295.25	3,260.01	-664.90	2.40	Magn MWD	Phoenix Directional
10/9/2017	13,093	93.39	0.31	9,876.93	3,390.05	3,354.94	-665.85	3.71	Magn MWD	Phoenix Directional
10/9/2017	13,188	96.00	3.64	9,869.15	3,484.26	3,449.54	-662.59	4.44	Magn MWD	Phoenix Directional



Wellbore Details

Well Name HH SO 8 P2 13H	Lease HH SO 8 P2	Field Name Purple Sage	Business Unit Mid-Continent	
Ground Elevation (ft) 3,246.00	Original RKB Elevation (ft) 3,274.00	Current RKB Elevation 3,274.00, 5/12/2017	Mud Line Elevation (ft)	Water Depth (ft)
Current KB to Ground (ft) 28.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Current KB to Tubing Head (ft)	

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
10/9/2017	13,283	94.65	3.19	9,860.33	3,578.14	3,543.96	-656.96	1.50	Magn MWD	Phoenix Directional
10/9/2017	13,377	92.63	359.68	9,854.37	3,671.57	3,637.72	-654.62	4.30	Magn MWD	Phoenix Directional
10/9/2017	13,472	90.70	359.19	9,851.61	3,766.40	3,732.67	-655.55	2.10	Magn MWD	Phoenix Directional
10/9/2017	13,567	91.04	358.67	9,850.16	3,861.29	3,827.65	-657.33	0.65	Magn MWD	Phoenix Directional
10/9/2017	13,661	89.10	357.61	9,850.05	3,955.25	3,921.59	-660.38	2.35	Magn MWD	Phoenix Directional
10/9/2017	13,756	90.31	357.98	9,850.54	4,050.21	4,016.52	-664.03	1.33	Magn MWD	Phoenix Directional
10/9/2017	13,842	91.46	358.35	9,849.21	4,136.16	4,102.46	-666.79	1.40	Magn MWD	Phoenix Directional
10/9/2017	13,937	95.08	0.11	9,843.79	4,230.87	4,197.28	-668.06	4.24	Magn MWD	Phoenix Directional
10/9/2017	14,032	91.46	359.93	9,838.37	4,325.51	4,292.11	-668.03	3.82	Magn MWD	Phoenix Directional
10/9/2017	14,158	89.47	0.18	9,837.35	4,451.25	4,418.10	-667.91	1.59	Magn MWD	Phoenix Directional
10/9/2017	14,221	90.08	0.42	9,837.60	4,514.10	4,481.10	-667.58	1.04	Magn MWD	Phoenix Directional
10/9/2017	14,316	89.13	0.81	9,838.25	4,608.84	4,576.09	-666.56	1.08	Magn MWD	Phoenix Directional
10/9/2017	14,411	88.26	0.41	9,840.42	4,703.56	4,671.06	-665.55	1.01	Magn MWD	Phoenix Directional
10/9/2017	14,506	86.78	358.27	9,844.53	4,798.34	4,765.95	-666.64	2.74	Magn MWD	Phoenix Directional
10/9/2017	14,696	92.29	359.54	9,846.07	4,988.08	4,955.83	-670.27	2.98	Magn MWD	Phoenix Directional
10/9/2017	14,790	91.32	0.14	9,843.11	5,081.86	5,049.79	-670.53	1.21	Magn MWD	Phoenix Directional
10/9/2017	14,885	87.96	359.21	9,843.70	5,176.69	5,144.77	-671.07	3.67	Magn MWD	Phoenix Directional
10/9/2017	14,979	87.99	359.29	9,847.03	5,270.52	5,238.70	-672.30	0.09	Magn MWD	Phoenix Directional
10/9/2017	15,074	87.95	358.62	9,850.39	5,365.36	5,333.62	-674.03	0.71	Magn MWD	Phoenix Directional
10/9/2017	15,169	92.69	359.01	9,849.86	5,460.25	5,428.58	-675.99	5.01	Magn MWD	Phoenix Directional
10/9/2017	15,264	91.23	359.72	9,846.61	5,555.07	5,523.51	-677.05	1.71	Magn MWD	Phoenix Directional
10/9/2017	15,359	88.24	359.41	9,847.05	5,649.91	5,618.50	-677.77	3.16	Magn MWD	Phoenix Directional
10/23/2017	15,467	89.36	0.12	9,849.31	5,757.70	5,726.47	-678.21	1.23	Magn MWD	Phoenix Directional
10/23/2017	15,562	86.17	359.42	9,853.02	5,852.45	5,821.38	-678.59	3.44	Magn MWD	Phoenix Directional
10/23/2017	15,656	85.60	358.18	9,859.76	5,946.12	5,915.12	-680.55	1.45	Magn MWD	Phoenix Directional
10/23/2017	15,751	85.85	359.57	9,866.84	6,040.77	6,009.83	-682.41	1.48	Magn MWD	Phoenix Directional
10/23/2017	15,846	86.02	358.49	9,873.58	6,135.43	6,104.58	-684.02	1.15	Magn MWD	Phoenix Directional
10/24/2017	15,940	82.87	358.51	9,882.68	6,228.91	6,198.09	-686.47	3.35	Magn MWD	Phoenix Directional
10/24/2017	16,035	89.10	0.66	9,889.33	6,323.48	6,292.81	-687.15	6.94	Magn MWD	Phoenix Directional
10/24/2017	16,130	89.78	0.35	9,890.25	6,418.24	6,387.80	-686.31	0.79	Magn MWD	Phoenix Directional
10/24/2017	16,225	89.22	357.43	9,891.08	6,513.13	6,482.76	-688.15	3.13	Magn MWD	Phoenix Directional
10/24/2017	16,319	87.20	356.50	9,894.02	6,607.08	6,576.58	-693.12	2.37	Magn MWD	Phoenix Directional
10/24/2017	16,414	91.85	1.25	9,894.81	6,701.93	6,671.51	-694.98	7.00	Magn MWD	Phoenix Directional
10/24/2017	16,509	89.22	3.42	9,893.92	6,796.41	6,766.41	-691.11	3.59	Magn MWD	Phoenix Directional
10/24/2017	16,604	88.60	1.56	9,895.73	6,890.85	6,861.30	-686.99	2.06	Magn MWD	Phoenix Directional
10/24/2017	16,698	93.44	5.20	9,894.05	6,984.10	6,955.08	-681.45	6.44	Magn MWD	Phoenix Directional
10/25/2017	16,793	91.09	3.29	9,890.30	7,078.13	7,049.73	-674.43	3.19	Magn MWD	Phoenix Directional
10/25/2017	16,888	89.16	1.09	9,890.09	7,172.63	7,144.65	-670.80	3.08	Magn MWD	Phoenix Directional
10/25/2017	16,983	88.80	358.11	9,891.78	7,267.46	7,239.62	-671.46	3.16	Magn MWD	Phoenix Directional
10/25/2017	17,077	90.53	1.19	9,892.33	7,361.29	7,333.60	-672.03	3.76	Magn MWD	Phoenix Directional
10/25/2017	17,172	90.62	2.53	9,891.38	7,455.86	7,428.55	-668.95	1.41	Magn MWD	Phoenix Directional
10/25/2017	17,267	86.87	1.62	9,893.46	7,550.35	7,523.44	-665.51	4.06	Magn MWD	Phoenix Directional
10/26/2017	17,362	89.22	2.75	9,896.70	7,644.81	7,618.31	-661.89	2.74	Magn MWD	Phoenix Directional
10/26/2017	17,457	90.78	0.29	9,896.70	7,739.42	7,713.27	-659.37	3.07	Magn MWD	Phoenix Directional
10/26/2017	17,551	86.56	356.94	9,898.88	7,833.29	7,807.18	-661.64	5.73	Magn MWD	Phoenix Directional
10/26/2017	17,646	89.02	356.98	9,902.55	7,928.21	7,901.97	-666.67	2.59	Magn MWD	Phoenix Directional
10/26/2017	17,741	88.46	355.45	9,904.64	8,023.18	7,996.74	-672.94	1.71	Magn MWD	Phoenix Directional
10/26/2017	17,836	90.25	358.57	9,905.71	8,118.15	8,091.58	-677.90	3.79	Magn MWD	Phoenix Directional
10/26/2017	17,932	84.05	1.43	9,910.48	8,213.79	8,187.41	-677.90	7.11	Magn MWD	Phoenix Directional
10/26/2017	18,027	85.13	359.77	9,919.43	8,308.11	8,281.98	-676.92	2.08	Magn MWD	Phoenix Directional
10/27/2017	18,122	88.57	1.79	9,924.65	8,402.67	8,376.80	-675.62	4.20	Magn MWD	Phoenix Directional
10/29/2017	18,218	91.60	1.64	9,924.51	8,498.25	8,472.75	-672.75	3.16	Magn MWD	Phoenix Directional
10/29/2017	18,313	88.85	359.51	9,924.14	8,592.98	8,567.73	-671.80	3.66	Magn MWD	Phoenix Directional
10/29/2017	18,408	86.55	358.55	9,927.95	8,687.80	8,662.63	-673.40	2.62	Magn MWD	Phoenix Directional
10/29/2017	18,503	87.82	359.62	9,932.62	8,782.58	8,757.50	-674.92	1.75	Magn MWD	Phoenix Directional
10/29/2017	18,597	88.99	1.32	9,935.23	8,876.30	8,851.46	-674.15	2.19	Magn MWD	Phoenix Directional
10/30/2017	18,692	89.02	3.82	9,936.88	8,970.73	8,946.34	-669.89	2.63	Magn MWD	Phoenix Directional



Wellbore Details

Well Name HH SO 8 P2 13H	Lease HH SO 8 P2	Field Name Purple Sage	Business Unit Mid-Continent	
Ground Elevation (ft) 3,246.00	Original RKB Elevation (ft) 3,274.00	Current RKB Elevation 3,274.00, 5/12/2017	Mud Line Elevation (ft)	Water Depth (ft)
Current KB to Ground (ft) 28.00	Current KB to Mud Line (ft)	Current KB to Csg Flange (ft)	Current KB to Tubing Head (ft)	

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
10/30/2017	18,787	87.09	2.34	9,940.11	9,065.03	9,041.14	-664.78	2.56	Magn MWD	Phoenix Directional
10/30/2017	18,881	90.56	3.17	9,942.04	9,158.42	9,135.00	-660.27	3.80	Magn MWD	Phoenix Directional
10/30/2017	18,976	89.27	358.35	9,942.18	9,253.11	9,229.96	-659.01	5.25	Magn MWD	Phoenix Directional
10/30/2017	19,071	89.83	357.49	9,942.92	9,348.07	9,324.89	-662.46	1.08	Magn MWD	Phoenix Directional
10/30/2017	19,165	90.00	357.95	9,943.06	9,442.05	9,418.82	-666.20	0.52	Magn MWD	Phoenix Directional
10/30/2017	19,260	88.04	356.56	9,944.69	9,537.02	9,513.69	-670.74	2.53	Magn MWD	Phoenix Directional
10/30/2017	19,354	92.33	0.29	9,944.38	9,630.92	9,607.61	-673.33	6.05	Magn MWD	Phoenix Directional
10/30/2017	19,449	91.60	359.00	9,941.13	9,725.71	9,702.55	-673.92	1.56	Magn MWD	Phoenix Directional
10/30/2017	19,543	91.18	358.27	9,938.85	9,819.61	9,796.50	-676.15	0.90	Magn MWD	Phoenix Directional
10/31/2017	19,638	89.83	356.33	9,938.01	9,914.59	9,891.38	-680.63	2.49	Magn MWD	Phoenix Directional
10/31/2017	19,732	89.55	355.18	9,938.52	10,008.58	9,985.12	-687.59	1.26	Magn MWD	Phoenix Directional
10/31/2017	19,826	90.14	356.48	9,938.77	10,102.57	10,078.87	-694.42	1.52	Magn MWD	Phoenix Directional
10/31/2017	19,921	90.22	359.56	9,938.47	10,197.52	10,173.80	-697.70	3.24	Magn MWD	Phoenix Directional
10/31/2017	20,015	86.97	359.65	9,940.78	10,291.34	10,267.76	-698.35	3.46	Magn MWD	Phoenix Directional
10/31/2017	20,110	91.23	2.19	9,942.27	10,386.00	10,362.70	-696.83	5.22	Magn MWD	Phoenix Directional
11/1/2017	20,205	90.45	1.07	9,940.88	10,480.60	10,457.65	-694.12	1.44	Magn MWD	Phoenix Directional
11/1/2017	20,299	89.89	1.25	9,940.60	10,574.27	10,551.63	-692.22	0.63	Magn MWD	Phoenix Directional
11/1/2017	20,394	91.65	4.18	9,939.32	10,668.67	10,646.50	-687.72	3.60	Magn MWD	Phoenix Directional
11/1/2017	20,458	90.36	3.25	9,938.20	10,732.14	10,710.36	-683.58	2.48	Magn MWD	Phoenix Directional
11/1/2017	20,507	90.36	3.25	9,937.89	10,780.79	10,759.28	-680.80	0.00	Magn MWD	Phoenix Directional

Zones

Zone Name	Top (ftKB)	Btm (ftKB)	Zone Comp Method	Completion ChevNo	Completion UWI	Completion License No.
Wolfcamp D	10,453.0	20,337.0	Proppant Frac	PJ8437-00-01	30015439330001	