

Wellbore Details

SEP 26 2018



RECEIVED

Well Name HH SO 8 P2 21H	Lease HH SO 8 P2	Field Name Purple Sage	Business Unit Mid-Continent	
Ground Elevation (ft) 3,245.00	Original RKB Elevation (ft) 3,273.00	Current RKB Elevation 3,273.00, 4/7/2017	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)	

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 300154392700	Wellbore ChevNo PJ8439-00	Vertical Section Direction (°) 360.00

Wellbore Sections					
Start Date	End 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 2/15/2018	Definitive? N	Planned? N	Job Drill and Suspend, 5/17/2017 06:00	
Azimuth Tie In (°)	MD Tie In (ftKB)	Inclination Tie In (°)	NSTie In (ft)	EW Tie In (ft)	TVD Tie In (ftKB)

Comment					
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Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
5/18/2017	164	0.80	136.20	163.99	-0.83	-0.83	0.79	0.49		
5/18/2017	267	0.50	124.20	266.99	-1.60	-1.60	1.66	0.32		
5/18/2017	357	2.10	108.20	356.96	-2.33	-2.33	3.55	1.81		
5/18/2017	454	2.10	122.20	453.90	-3.84	-3.84	6.75	0.53		
5/20/2017	497	1.87	105.61	496.87	-4.44	-4.44	8.09	1.43	Magn MWD	Phoenix Directional
5/20/2017	686	2.97	111.73	685.70	-7.09	-7.09	15.61	0.60	Magn MWD	Phoenix Directional
5/20/2017	872	3.03	119.32	871.45	-11.28	-11.28	24.37	0.22	Magn MWD	Phoenix Directional
5/20/2017	1,061	0.93	159.54	1,060.33	-15.16	-15.16	29.26	1.27	Magn MWD	Phoenix Directional
5/20/2017	1,251	0.93	72.46	1,250.31	-16.14	-16.14	31.27	0.67	Magn MWD	Phoenix Directional
5/20/2017	1,440	1.25	26.59	1,439.28	-13.84	-13.84	33.66	0.48	Magn MWD	Phoenix Directional
5/20/2017	1,629	0.46	11.98	1,628.26	-11.25	-11.25	34.74	0.43	Magn MWD	Phoenix Directional
5/21/2017	1,818	3.88	254.27	1,817.12	-12.24	-12.24	28.74	2.18	Magn MWD	Phoenix Directional
5/21/2017	2,007	4.43	255.28	2,005.62	-15.83	-15.83	15.52	0.29	Magn MWD	Phoenix Directional
5/21/2017	2,197	4.98	261.51	2,194.98	-18.91	-18.91	0.27	0.39	Magn MWD	Phoenix Directional
5/21/2017	2,291	6.47	275.22	2,288.52	-19.03	-19.03	-9.04	2.14	Magn MWD	Phoenix Directional
5/21/2017	2,386	8.39	284.83	2,382.72	-16.77	-16.77	-21.07	2.40	Magn MWD	Phoenix Directional
5/21/2017	2,481	8.56	285.12	2,476.68	-13.15	-13.15	-34.60	0.18	Magn MWD	Phoenix Directional
5/21/2017	2,576	8.71	284.14	2,570.60	-9.55	-9.55	-48.40	0.22	Magn MWD	Phoenix Directional
5/21/2017	2,670	9.72	276.50	2,663.39	-6.92	-6.92	-63.19	1.69	Magn MWD	Phoenix Directional
5/21/2017	2,765	10.04	275.33	2,756.98	-5.24	-5.24	-79.40	0.40	Magn MWD	Phoenix Directional
5/21/2017	2,860	10.29	274.21	2,850.49	-3.85	-3.85	-96.11	0.34	Magn MWD	Phoenix Directional
5/21/2017	2,954	10.28	273.52	2,942.98	-2.72	-2.72	-112.85	0.13	Magn MWD	Phoenix Directional
5/21/2017	3,143	10.84	272.27	3,128.78	-0.98	-0.98	-147.44	0.32	Magn MWD	Phoenix Directional
5/21/2017	3,238	11.31	271.90	3,222.01	-0.31	-0.31	-165.68	0.50	Magn MWD	Phoenix Directional
5/21/2017	3,332	11.68	270.84	3,314.13	0.13	0.13	-184.41	0.45	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 (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
5/21/2017	3,427	11.58	269.95	3,407.18	0.26	0.26	-203.56	0.22	Magn MWD	Phoenix Directional
5/21/2017	3,522	10.65	269.28	3,500.39	0.15	0.15	-221.87	0.99	Magn MWD	Phoenix Directional
5/21/2017	3,617	10.76	269.07	3,593.74	-0.11	-0.11	-239.52	0.12	Magn MWD	Phoenix Directional
5/21/2017	3,712	10.37	268.62	3,687.13	-0.46	-0.46	-256.93	0.42	Magn MWD	Phoenix Directional
5/21/2017	3,806	9.41	266.25	3,779.73	-1.16	-1.16	-273.06	1.11	Magn MWD	Phoenix Directional
5/22/2017	3,901	9.74	266.12	3,873.41	-2.22	-2.22	-288.82	0.35	Magn MWD	Phoenix Directional
5/22/2017	3,996	9.77	267.31	3,967.03	-3.14	-3.14	-304.89	0.21	Magn MWD	Phoenix Directional
5/22/2017	4,091	9.48	270.11	4,060.70	-3.50	-3.50	-320.77	0.58	Magn MWD	Phoenix Directional
5/22/2017	4,185	9.50	269.87	4,153.41	-3.50	-3.50	-336.27	0.05	Magn MWD	Phoenix Directional
5/22/2017	4,280	9.37	268.17	4,247.13	-3.77	-3.77	-351.83	0.32	Magn MWD	Phoenix Directional
5/22/2017	4,375	9.36	269.10	4,340.86	-4.14	-4.14	-367.29	0.16	Magn MWD	Phoenix Directional
5/22/2017	4,470	9.46	271.33	4,434.58	-4.08	-4.08	-382.82	0.40	Magn MWD	Phoenix Directional
5/22/2017	4,564	9.77	276.36	4,527.26	-3.01	-3.01	-398.47	0.95	Magn MWD	Phoenix Directional
5/22/2017	4,659	9.85	274.35	4,620.87	-1.51	-1.51	-414.58	0.37	Magn MWD	Phoenix Directional
5/22/2017	4,754	10.16	273.20	4,714.43	-0.42	-0.42	-431.05	0.39	Magn MWD	Phoenix Directional
5/22/2017	4,849	10.17	271.75	4,807.94	0.30	0.30	-447.80	0.27	Magn MWD	Phoenix Directional
5/22/2017	4,944	10.35	271.24	4,901.42	0.74	0.74	-464.71	0.21	Magn MWD	Phoenix Directional
5/22/2017	5,039	10.57	270.54	4,994.84	1.01	1.01	-481.96	0.27	Magn MWD	Phoenix Directional
5/23/2017	5,133	10.82	269.66	5,087.21	1.04	1.04	-499.40	0.32	Magn MWD	Phoenix Directional
5/23/2017	5,228	11.03	268.97	5,180.49	0.82	0.82	-517.40	0.26	Magn MWD	Phoenix Directional
5/23/2017	5,323	10.52	270.44	5,273.81	0.73	0.73	-535.16	0.61	Magn MWD	Phoenix Directional
5/23/2017	5,417	10.15	270.91	5,366.29	0.92	0.92	-552.03	0.40	Magn MWD	Phoenix Directional
5/23/2017	5,512	10.10	270.77	5,459.81	1.17	1.17	-568.73	0.06	Magn MWD	Phoenix Directional
5/23/2017	5,607	9.19	267.98	5,553.46	1.01	1.01	-584.64	1.08	Magn MWD	Phoenix Directional
5/23/2017	5,702	7.87	266.83	5,647.41	0.39	0.39	-598.71	1.40	Magn MWD	Phoenix Directional
5/23/2017	5,791	7.27	264.18	5,735.63	-0.52	-0.52	-610.40	0.78	Magn MWD	Phoenix Directional
5/23/2017	5,891	6.71	261.84	5,834.89	-1.99	-1.99	-622.48	0.63	Magn MWD	Phoenix Directional
5/23/2017	5,986	5.41	261.65	5,929.36	-3.43	-3.43	-632.40	1.37	Magn MWD	Phoenix Directional
5/23/2017	6,080	3.48	266.24	6,023.07	-4.26	-4.26	-639.63	2.09	Magn MWD	Phoenix Directional
5/23/2017	6,175	2.03	265.58	6,117.96	-4.58	-4.58	-644.19	1.53	Magn MWD	Phoenix Directional
5/23/2017	6,270	1.21	258.34	6,212.92	-4.91	-4.91	-646.85	0.89	Magn MWD	Phoenix Directional
5/23/2017	6,365	0.62	243.43	6,307.91	-5.35	-5.35	-648.29	0.66	Magn MWD	Phoenix Directional
5/23/2017	6,459	0.46	203.00	6,401.90	-5.92	-5.92	-648.89	0.43	Magn MWD	Phoenix Directional
5/23/2017	6,554	0.29	205.90	6,496.90	-6.49	-6.49	-649.15	0.18	Magn MWD	Phoenix Directional
5/23/2017	6,649	0.60	184.66	6,591.90	-7.20	-7.20	-649.29	0.36	Magn MWD	Phoenix Directional
5/23/2017	6,743	0.43	185.20	6,685.89	-8.04	-8.04	-649.36	0.18	Magn MWD	Phoenix Directional
5/23/2017	6,838	0.33	182.66	6,780.89	-8.67	-8.67	-649.41	0.11	Magn MWD	Phoenix Directional
5/23/2017	6,933	0.35	132.97	6,875.89	-9.14	-9.14	-649.21	0.30	Magn MWD	Phoenix Directional
5/23/2017	7,028	0.50	85.47	6,970.89	-9.31	-9.31	-648.58	0.39	Magn MWD	Phoenix Directional
5/23/2017	7,123	0.90	82.11	7,065.88	-9.17	-9.17	-647.43	0.42	Magn MWD	Phoenix Directional
5/23/2017	7,217	1.51	95.98	7,159.86	-9.20	-9.20	-645.47	0.71	Magn MWD	Phoenix Directional
5/23/2017	7,312	1.70	97.70	7,254.82	-9.52	-9.52	-642.83	0.21	Magn MWD	Phoenix Directional
5/23/2017	7,407	1.71	87.81	7,349.78	-9.65	-9.65	-640.01	0.31	Magn MWD	Phoenix Directional
5/23/2017	7,502	1.77	95.29	7,444.74	-9.73	-9.73	-637.14	0.25	Magn MWD	Phoenix Directional
5/23/2017	7,596	1.79	96.91	7,538.69	-10.04	-10.04	-634.23	0.06	Magn MWD	Phoenix Directional
5/23/2017	7,691	1.94	97.37						Magn MWD	Phoenix Directional
5/23/2017	7,786	1.99	97.05	7,728.59	-10.81	-10.81	-628.01	0.11	Magn MWD	Phoenix Directional
5/23/2017	7,881	1.80	99.40	7,823.54	-11.25	-11.25	-624.91	0.22	Magn MWD	Phoenix Directional
5/23/2017	7,976	1.56	99.72	7,918.50	-11.71	-11.71	-622.16	0.25	Magn MWD	Phoenix Directional
5/23/2017	8,071	1.49	98.91	8,013.46	-12.12	-12.12	-619.66	0.08	Magn MWD	Phoenix Directional
5/23/2017	8,166	1.64	115.45	8,108.43	-12.90	-12.90	-617.22	0.50	Magn MWD	Phoenix Directional
5/23/2017	8,261	1.60	126.87	8,203.39	-14.28	-14.28	-614.93	0.34	Magn MWD	Phoenix Directional
5/23/2017	8,323	1.56	134.92	8,265.37	-15.39	-15.39	-613.64	0.36	Magn MWD	Phoenix Directional
5/23/2017	8,453	0.67	162.72	8,395.34	-17.37	-17.37	-612.16	0.78	Magn MWD	Phoenix Directional
5/23/2017	8,500	1.49	327.22	8,442.34	-17.12	-17.12	-612.41	4.56	Magn MWD	Phoenix Directional
5/23/2017	8,548	4.27	339.62	8,490.27	-14.92	-14.92	-613.37	5.90	Magn MWD	Phoenix Directional
5/23/2017	8,595	7.93	349.05	8,537.00	-10.09	-10.09	-614.59	8.05	Magn MWD	Phoenix Directional



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Survey Data										
Date	MD (RKB)	Incl (°)	Azm (°)	TVD (RKB)	VS (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Method	Survey Company
5/23/2017	8,643	12.14	355.06	8,584.25	-1.81	-1.81	-615.66	9.03	Magn MWD	Phoenix Directional
5/23/2017	8,690	17.62	355.50	8,629.66	10.21	10.21	-616.64	11.66	Magn MWD	Phoenix Directional
5/23/2017	8,738	23.31	354.66	8,674.61	26.93	26.93	-618.10	11.87	Magn MWD	Phoenix Directional
5/23/2017	8,785	31.17	354.67	8,716.37	48.33	48.33	-620.10	16.72	Magn MWD	Phoenix Directional
5/23/2017	8,833	37.17	355.20	8,756.06	75.17	75.17	-622.47	12.52	Magn MWD	Phoenix Directional
5/23/2017	8,880	42.66	355.21	8,792.10	105.21	105.21	-624.99	11.68	Magn MWD	Phoenix Directional
5/23/2017	8,928	49.53	355.93	8,825.37	139.67	139.67	-627.64	14.35	Magn MWD	Phoenix Directional
5/23/2017	8,975	53.33	356.46	8,854.66	176.33	176.33	-630.08	8.13	Magn MWD	Phoenix Directional
5/23/2017	9,023	56.45	357.70	8,882.27	215.54	215.54	-632.07	6.83	Magn MWD	Phoenix Directional
5/23/2017	9,054	58.09	358.07	8,899.03	241.60	241.60	-633.03	5.38	Magn MWD	Phoenix Directional
1/28/2018	9,097	59.33	359.58	8,921.36	278.34	278.34	-633.78	4.16	Magn MWD	Phoenix Directional
1/28/2018	9,144	63.49	358.69	8,943.85	319.59	319.59	-634.41	9.01	Magn MWD	Phoenix Directional
1/28/2018	9,191	68.63	358.84	8,962.91	362.52	362.52	-635.33	10.94	Magn MWD	Phoenix Directional
1/28/2018	9,239	71.68	359.43	8,979.21	407.66	407.66	-636.01	6.46	Magn MWD	Phoenix Directional
1/28/2018	9,334	78.38	359.18	9,003.73	499.38	499.38	-637.13	7.06	Magn MWD	Phoenix Directional
1/28/2018	9,428	88.39	359.50	9,014.55	592.63	592.63	-638.20	10.65	Magn MWD	Phoenix Directional
1/28/2018	9,523	88.83	359.03	9,016.85	687.59	687.59	-639.42	0.68	Magn MWD	Phoenix Directional
1/28/2018	9,618	92.81	359.99	9,015.49	782.56	782.56	-640.23	4.31	Magn MWD	Phoenix Directional
1/28/2018	9,712	92.17	359.93	9,011.41	876.47	876.47	-640.30	0.68	Magn MWD	Phoenix Directional
1/28/2018	9,807	92.13	0.20	9,007.85	971.40	971.40	-640.19	0.29	Magn MWD	Phoenix Directional
1/28/2018	9,901	92.54	359.36	9,004.02	1,065.32	1,065.32	-640.55	0.99	Magn MWD	Phoenix Directional
1/28/2018	9,996	90.50	359.59	9,001.50	1,160.28	1,160.28	-641.42	2.16	Magn MWD	Phoenix Directional
1/29/2018	10,090	89.73	358.23	9,001.31	1,254.26	1,254.26	-643.21	1.66	Magn MWD	Phoenix Directional
1/29/2018	10,185	89.31	357.89	9,002.10	1,349.20	1,349.20	-646.42	0.57	Magn MWD	Phoenix Directional
1/29/2018	10,279	88.97	358.02	9,003.51	1,443.13	1,443.13	-649.78	0.39	Magn MWD	Phoenix Directional
1/29/2018	10,374	90.30	357.93	9,004.12	1,538.07	1,538.07	-653.13	1.40	Magn MWD	Phoenix Directional
1/29/2018	10,469	90.07	358.74	9,003.81	1,633.03	1,633.03	-655.89	0.89	Magn MWD	Phoenix Directional
1/29/2018	10,564	90.75	359.53	9,003.13	1,728.01	1,728.01	-657.33	1.10	Magn MWD	Phoenix Directional
1/29/2018	10,754	92.91	0.96	8,997.07	1,917.90	1,917.90	-656.52	1.36	Magn MWD	Phoenix Directional
1/29/2018	10,846	93.77	1.84	8,991.70	2,009.71	2,009.71	-654.27	1.34	Magn MWD	Phoenix Directional
1/29/2018	10,939	94.39	2.30	8,985.09	2,102.41	2,102.41	-650.92	0.83	Magn MWD	Phoenix Directional
1/29/2018	11,031	92.67	1.56	8,979.42	2,194.18	2,194.18	-647.83	2.03	Magn MWD	Phoenix Directional
1/29/2018	11,124	89.50	359.80	8,977.66	2,287.14	2,287.14	-646.73	3.90	Magn MWD	Phoenix Directional
1/29/2018	11,216	87.80	359.04	8,979.83	2,379.11	2,379.11	-647.66	2.02	Magn MWD	Phoenix Directional
1/29/2018	11,309	92.87	0.49	8,979.29	2,472.08	2,472.08	-648.04	5.67	Magn MWD	Phoenix Directional
1/29/2018	11,494	93.01	1.48	8,969.80	2,656.80	2,656.80	-644.87	0.54	Magn MWD	Phoenix Directional
1/29/2018	11,586	88.87	358.90	8,968.29	2,748.76	2,748.76	-644.56	5.30	Magn MWD	Phoenix Directional
1/29/2018	11,679	87.41	357.69	8,971.31	2,841.67	2,841.67	-647.33	2.04	Magn MWD	Phoenix Directional
1/29/2018	11,774	86.63	357.26	8,976.25	2,936.45	2,936.45	-651.51	0.94	Magn MWD	Phoenix Directional
1/29/2018	11,868	85.66	357.75	8,982.57	3,030.14	3,030.14	-655.59	1.16	Magn MWD	Phoenix Directional
1/29/2018	11,962	88.11	359.28	8,987.67	3,123.96	3,123.96	-658.02	3.07	Magn MWD	Phoenix Directional
1/29/2018	12,057	87.05	357.85	8,991.68	3,218.84	3,218.84	-660.40	1.87	Magn MWD	Phoenix Directional
1/29/2018	12,151	85.79	357.17	8,997.55	3,312.57	3,312.57	-664.47	1.52	Magn MWD	Phoenix Directional
1/29/2018	12,246	86.34	357.77	9,004.07	3,407.25	3,407.25	-668.66	0.86	Magn MWD	Phoenix Directional
1/29/2018	12,340	87.84	357.92	9,008.85	3,501.06	3,501.06	-672.19	1.60	Magn MWD	Phoenix Directional
1/29/2018	12,434	89.55	359.72	9,010.99	3,595.01	3,595.01	-674.12	2.64	Magn MWD	Phoenix Directional
1/29/2018	12,528	89.45	359.88	9,011.81	3,689.01	3,689.01	-674.45	0.20	Magn MWD	Phoenix Directional
1/29/2018	12,622	89.07	358.88	9,013.02	3,782.99	3,782.99	-675.47	1.14	Magn MWD	Phoenix Directional
1/29/2018	12,716	89.53	359.50	9,014.17	3,876.97	3,876.97	-676.79	0.82	Magn MWD	Phoenix Directional
1/29/2018	12,811	91.73	358.80	9,013.12	3,971.95	3,971.95	-678.20	2.43	Magn MWD	Phoenix Directional
1/29/2018	12,905	92.61	358.53	9,009.57	4,065.86	4,065.86	-680.39	0.98	Magn MWD	Phoenix Directional
1/29/2018	12,999	91.82	359.33	9,005.93	4,159.77	4,159.77	-682.14	1.20	Magn MWD	Phoenix Directional
1/29/2018	13,094	91.02	359.87	9,003.58	4,254.74	4,254.74	-682.81	1.02	Magn MWD	Phoenix Directional
1/29/2018	13,189	91.09	359.57	9,001.83	4,349.72	4,349.72	-683.27	0.32	Magn MWD	Phoenix Directional
1/31/2018	13,283	90.50	359.08	9,000.52	4,443.70	4,443.70	-684.38	0.82	Magn MWD	Phoenix Directional
1/31/2018	13,378	90.90	358.61	8,999.36	4,538.68	4,538.68	-686.29	0.65	Magn MWD	Phoenix Directional
1/31/2018	13,473	90.50	358.07	8,998.20	4,633.63	4,633.63	-689.05	0.71	Magn MWD	Phoenix Directional



Wellbore Details

Well Name HH SO 8 P2 21H	Lease HH SO 8 P2	Field Name Purple Sage	Business Unit Mid-Continent	
Ground Elevation (ft) 3,245.00	Original RKB Elevation (ft) 3,273.00	Current RKB Elevation 3,273.00, 4/7/2017	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 (ft)	Incl (°)	Azm (°)	TVD (ft)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company	
1/31/2018	13,567	89.68	358.65	8,998.06	4,727.59	4,727.59	-691.74	1.07	Magn MWD	Phoenix Directional	
1/31/2018	13,662	89.10	0.63	8,999.07	4,822.58	4,822.58	-692.33	2.17	Magn MWD	Phoenix Directional	
1/31/2018	13,756	89.84	0.26	8,999.94	4,916.57	4,916.57	-691.60	0.88	Magn MWD	Phoenix Directional	
1/31/2018	13,850	88.79	0.06	9,001.06	5,010.56	5,010.56	-691.34	1.14	Magn MWD	Phoenix Directional	
1/31/2018	13,944	89.50	359.94	9,002.46	5,104.55	5,104.55	-691.34	0.77	Magn MWD	Phoenix Directional	
1/31/2018	14,039	91.49	359.23	9,001.64	5,199.54	5,199.54	-692.03	2.22	Magn MWD	Phoenix Directional	
1/31/2018	14,134	92.15	359.10	8,998.63	5,294.48	5,294.48	-693.41	0.71	Magn MWD	Phoenix Directional	
1/31/2018	14,228	93.76	0.28	8,993.78	5,388.35	5,388.35	-693.92	2.12	Magn MWD	Phoenix Directional	
2/1/2018	14,322	93.48	0.02	8,987.84	5,482.16	5,482.16	-693.68	0.41	Magn MWD	Phoenix Directional	
2/1/2018	14,417	91.93	1.69	8,983.36	5,577.04	5,577.04	-692.26	2.40	Magn MWD	Phoenix Directional	
2/1/2018	14,511	90.81	1.03	8,981.11	5,670.98	5,670.98	-690.03	1.38	Magn MWD	Phoenix Directional	
2/1/2018	14,606	89.71	0.37	8,980.68	5,765.97	5,765.97	-688.87	1.35	Magn MWD	Phoenix Directional	
2/1/2018	14,700	88.61	0.11	8,982.06	5,859.96	5,859.96	-688.47	1.20	Magn MWD	Phoenix Directional	
2/1/2018	14,795	88.95	359.71	8,984.08	5,954.94	5,954.94	-688.62	0.55	Magn MWD	Phoenix Directional	
2/1/2018	14,889	89.93	0.05	8,985.00	6,048.93	6,048.93	-688.82	1.10	Magn MWD	Phoenix Directional	
2/1/2018	14,983	90.04	0.23	8,985.03	6,142.93	6,142.93	-688.59	0.22	Magn MWD	Phoenix Directional	
2/1/2018	15,078	89.13	359.58	8,985.71	6,237.93	6,237.93	-688.75	1.18	Magn MWD	Phoenix Directional	
2/1/2018	15,172	88.47	359.40	8,987.68	6,331.90	6,331.90	-689.58	0.73	Magn MWD	Phoenix Directional	
2/1/2018	15,266	89.75	0.55	8,989.14	6,425.89	6,425.89	-689.63	1.83	Magn MWD	Phoenix Directional	
2/1/2018	15,360	89.58	0.55	8,989.69	6,519.88	6,519.88	-688.72	0.18	Magn MWD	Phoenix Directional	
2/1/2018	15,455	89.76	359.57	8,990.24	6,614.88	6,614.88	-688.62	1.05	Magn MWD	Phoenix Directional	
2/2/2018	15,550	89.87	0.04	8,990.55	6,709.88	6,709.88	-688.95	0.51	Magn MWD	Phoenix Directional	
2/2/2018	15,644	88.10	359.89	8,992.21	6,803.86	6,803.86	-689.00	1.89	Magn MWD	Phoenix Directional	
2/2/2018	15,738	88.25	359.12	8,995.21	6,897.81	6,897.81	-689.82	0.83	Magn MWD	Phoenix Directional	
2/2/2018	15,833	87.92	358.79	8,998.38	6,992.74	6,992.74	-691.55	0.49	Magn MWD	Phoenix Directional	
2/2/2018	15,927	87.88	0.04	9,001.82	7,086.67	7,086.67	-692.51	1.33	Magn MWD	Phoenix Directional	
2/2/2018	16,022	88.16	359.82	9,005.11	7,181.61	7,181.61	-692.62	0.37	Magn MWD	Phoenix Directional	
2/2/2018	16,116	88.36	1.08	9,007.96	7,275.56	7,275.56	-691.88	1.36	Magn MWD	Phoenix Directional	
2/2/2018	16,211	88.35	1.66	9,010.69	7,370.50	7,370.50	-689.61	0.61	Magn MWD	Phoenix Directional	
2/2/2018	16,305	87.98	0.69	9,013.70	7,464.43	7,464.43	-687.69	1.10	Magn MWD	Phoenix Directional	
2/2/2018	16,400	85.86	358.85	9,018.80	7,559.28	7,559.28	-688.07	2.95	Magn MWD	Phoenix Directional	
2/3/2018	16,494	87.54	358.92	9,024.21	7,653.10	7,653.10	-689.89	1.79	Magn MWD	Phoenix Directional	
2/3/2018	16,589	87.59	359.14	9,028.25	7,748.00	7,748.00	-691.50	0.24	Magn MWD	Phoenix Directional	
2/3/2018	16,683	89.36	1.21	9,030.75	7,841.96	7,841.96	-691.21	2.90	Magn MWD	Phoenix Directional	
2/3/2018	16,778	90.08	0.49	9,031.22	7,936.95	7,936.95	-689.80	1.07	Magn MWD	Phoenix Directional	
2/3/2018	16,873	90.59	359.87	9,030.66	8,031.94	8,031.94	-689.50	0.85	Magn MWD	Phoenix Directional	
2/4/2018	16,968	90.99	359.37	9,029.35	8,126.93	8,126.93	-690.13	0.67	Magn MWD	Phoenix Directional	
2/4/2018	17,062	90.81	358.23	9,027.87	8,220.90	8,220.90	-692.10	1.23	Magn MWD	Phoenix Directional	
2/4/2018	17,157	90.92	356.84	9,026.44	8,315.80	8,315.80	-696.19	1.47	Magn MWD	Phoenix Directional	
2/5/2018	17,252	90.18	358.96	9,025.53	8,410.72	8,410.72	-699.67	2.36	Magn MWD	Phoenix Directional	
2/5/2018	17,347	87.59	359.44	9,027.38	8,505.69	8,505.69	-700.99	2.77	Magn MWD	Phoenix Directional	
2/5/2018	17,441	87.42	0.16	9,031.47	8,599.60	8,599.60	-701.32	0.79	Magn MWD	Phoenix Directional	
2/5/2018	17,536	88.50	359.86	9,034.85	8,694.54	8,694.54	-701.31	1.18	Magn MWD	Phoenix Directional	
2/5/2018	17,631	89.61	2.83	9,036.42	8,789.49	8,789.49	-699.08	3.34	Magn MWD	Phoenix Directional	
2/5/2018	17,726	89.67	1.31	9,037.01	8,884.42	8,884.42	-695.64	1.60	Magn MWD	Phoenix Directional	
2/5/2018	17,821	89.04	359.93	9,038.08	8,979.40	8,979.40	-694.62	1.60	Magn MWD	Phoenix Directional	
2/5/2018	17,915	88.05	359.00	9,040.47	9,073.37	9,073.37	-695.49	1.44	Magn MWD	Phoenix Directional	
2/5/2018	18,010	89.36	0.84	9,042.62	9,168.34	9,168.34	-695.63	2.38	Magn MWD	Phoenix Directional	
2/6/2018	18,104	89.31	1.00	9,043.71	9,262.32	9,262.32	-694.12	0.18	Magn MWD	Phoenix Directional	
2/6/2018	18,199	89.30	1.42	9,044.86	9,357.29	9,357.29	-692.11	0.44	Magn MWD	Phoenix Directional	
2/6/2018	18,294	91.30	2.83	9,044.36	9,452.22	9,452.22	-688.59	2.58	Magn MWD	Phoenix Directional	
2/6/2018	18,388	92.43	1.81	9,041.30	9,546.09	9,546.09	-684.79	1.62	Magn MWD	Phoenix Directional	
2/6/2018	18,483	93.93	1.96	9,036.04	9,640.89	9,640.89	-681.67	1.59	Magn MWD	Phoenix Directional	
2/6/2018	18,577	91.15	1.29	9,031.87	9,734.75	9,734.75	-679.00	3.04	Magn MWD	Phoenix Directional	
2/6/2018	18,672	89.36	359.82	9,031.45	9,829.73	9,829.73	-678.08	2.44	Magn MWD	Phoenix Directional	
2/6/2018	18,767	88.61	359.15	9,033.13	9,924.71	9,924.71	-678.94	1.06	Magn MWD	Phoenix Directional	
2/7/2018	18,861	90.35	0.02	9,033.98	10,018.70	10,018.70	-679.62	2.07	Magn MWD	Phoenix Directional	



Wellbore Details

Well Name HH SO 8 P2 21H		Lease HH SO 8 P2		Field Name Purple Sage		Business Unit Mid-Continent	
Ground Elevation (ft) 3,245.00		Original RKB Elevation (ft) 3,273.00		Current RKB Elevation 3,273.00, 4/7/2017		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
2/8/2018	18,956	91.96	1.32	9,032.07	10,113.67	10,113.67	-678.51	2.18	Magn MWD	Phoenix Directional
2/8/2018	19,051	90.73	0.46	9,029.84	10,208.63	10,208.63	-677.03	1.58	Magn MWD	Phoenix Directional
2/8/2018	19,146	91.42	0.68	9,028.06	10,303.61	10,303.61	-676.09	0.76	Magn MWD	Phoenix Directional
2/8/2018	19,240	92.87	359.79	9,024.54	10,397.54	10,397.54	-675.70	1.81	Magn MWD	Phoenix Directional
2/8/2018	19,335	91.83	358.73	9,020.64	10,492.45	10,492.45	-676.93	1.56	Magn MWD	Phoenix Directional
2/8/2018	19,430	89.55	358.03	9,019.50	10,587.40	10,587.40	-679.61	2.51	Magn MWD	Phoenix Directional
2/8/2018	19,452	89.88	358.08	9,019.61	10,609.39	10,609.39	-680.36	1.52	Magn MWD	Phoenix Directional
2/8/2018	19,502	89.88	358.08	9,019.71	10,659.36	10,659.36	-682.04	0.00	Magn MWD	Phoenix Directional

Zones						
Zone Name	Top (ftKB)	Btm (ftKB)	Zone Comp Method	Completion ChevNo	Completion UWI	Completion License No.
Wolfcamp A			Proppant Frac	PJ8439-00-01	30015439270001	