



Wellbore Details

MAR 01 2019

Well Name HH SO 10 P3 23H	Lease HH SO 10 P3	Field Name Purple Sage	DISTRICT - ARTESIA O.C.D. Mid-Continent	
Ground Elevation (ft) 3,278.00	Original RKB Elevation (ft) 3,307.00	Current RKB Elevation 3,307.00, 3/24/2017	Mud Line Elevation (ft)	Water Depth (ft)
Current KB to Ground (ft) 29.00	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 300154393200	Wellbore ChevNo PJ8433-00	Vertical Section Direction (°) 178.60

Wellbore Sections

Hole Size (in)	Start Date	End Date	Act Top (ftKB)	Act Btm (ftKB)	Prop Top (ftKB)	Prop Btm (ftKB)
24	3/1/2017 07:00	3/1/2017 13:00	29.0	150.0	19,500.0	
17 1/2	3/25/2017 03:15	3/25/2017 06:00	150.0	457.0	0.0	450.0
12 1/4	3/28/2017 06:15	4/9/2017 09:00	457.0	9,325.0	450.0	9,300.0
8 1/2	7/3/2017 15:30	7/16/2017 12:00	9,325.0	19,465.0	9,300.0	19,500.0

Kick-Offs & Key Depths

Date 4/7/2017	Type Kick Off	Point or Interval Point	Top Depth (ftKB) 8,518	Depth Top (TVD) (ftKB) 8,501.7	Method Open-hole
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Last 5 PBTD's

Type	Date	PBTD (ftKB)	Depth (TVD) (ftKB)	Method	Com
	11/22/2018	19,240	9,161.6	Deepest depth reached w/ CT	

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 7/12/2017	Definitive? N	Planned? N	Job Drill and Suspend, 3/24/2017 20:00
Azimuth Tie In (°)	MD Tie In (ftKB)	Inclination Tie In (°)	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
3/26/2017	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Magn MWD	
3/26/2017	171	0.40	304.40	171.00	-0.35	0.34	-0.49	0.23	Magn MWD	
3/26/2017	267	0.90	199.40	266.99	0.16	-0.18	-1.02	1.12	Magn MWD	
3/26/2017	433	1.00	205.40	432.97	2.67	-2.72	-2.07	0.08	Magn MWD	
3/26/2017	502	1.37	189.10	501.96	4.02	-4.08	-2.46	0.72	Magn MWD	
3/26/2017	597	1.45	202.26	596.93	6.24	-6.31	-3.10	0.35	Magn MWD	
3/26/2017	721	1.81	207.13	720.88	9.39	-9.51	-4.58	0.31	Magn MWD	
3/26/2017	783	2.03	209.82	782.84	11.19	-11.33	-5.58	0.38	Magn MWD	
3/26/2017	876	1.29	124.71	875.81	13.22	-13.36	-5.54	2.48	Magn MWD	
3/26/2017	971	1.27	128.02	970.79	14.52	-14.62	-3.83	0.08	Magn MWD	
3/26/2017	1,066	1.13	146.96	1,065.77	15.98	-16.05	-2.49	0.44	Magn MWD	
3/26/2017	1,161	0.92	166.55	1,160.76	17.53	-17.58	-1.80	0.43	Magn MWD	
3/26/2017	1,256	0.79	144.79	1,255.75	18.82	-18.85	-1.24	0.37	Magn MWD	
3/26/2017	1,351	0.91	155.93	1,350.73	20.06	-20.08	-0.56	0.21	Magn MWD	
3/26/2017	1,446	0.68	148.33	1,445.73	21.24	-21.25	0.04	0.27	Magn MWD	
3/26/2017	1,542	0.57	200.32	1,541.72	22.18	-22.18	0.18	0.58	Magn MWD	
3/26/2017	1,636	0.67	108.33	1,635.72	22.80	-22.79	0.54	0.95	Magn MWD	
3/26/2017	1,731	1.76	93.97	1,730.69	23.12	-23.07	2.52	1.18	Magn MWD	
3/26/2017	1,825	1.19	76.72	1,824.66	23.06	-22.94	4.91	0.76	Magn MWD	
3/26/2017	1,919	1.54	35.34	1,918.64	21.84	-21.69	6.59	1.08	Magn MWD	
3/26/2017	2,014	2.30	58.75	2,013.59	19.87	-19.66	8.96	1.13	Magn MWD	
3/26/2017	2,109	3.26	68.02	2,108.47	17.97	-17.66	13.09	1.11	Magn MWD	
3/26/2017	2,204	1.24	52.26	2,203.40	16.41	-16.02	16.41	2.20	Magn MWD	



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			Current KB to Tubing Head (ft)

Survey Data

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3/26/2017	2,298	1.47	212.23	2,297.39	16.81	-16.41	16.57	2.84	Magn MWD	
3/26/2017	2,393	3.30	197.39	2,392.30	20.42	-20.05	15.11	2.02	Magn MWD	
3/26/2017	2,488	4.67	190.37	2,487.07	26.79	-26.47	13.59	1.53	Magn MWD	
3/26/2017	2,583	6.30	188.77	2,581.63	35.71	-35.42	12.10	1.72	Magn MWD	
3/26/2017	2,678	6.22	187.98	2,676.07	45.92	-45.67	10.59	0.12	Magn MWD	
3/26/2017	2,773	6.65	189.43	2,770.47	56.40	-56.20	8.98	0.48	Magn MWD	
3/26/2017	2,868	6.81	188.04	2,864.81	67.36	-67.20	7.29	0.24	Magn MWD	
3/26/2017	2,963	6.25	182.92	2,959.20	78.07	-77.94	6.24	0.85	Magn MWD	
3/26/2017	3,059	5.32	173.93	3,054.71	87.72	-87.59	6.44	1.35	Magn MWD	
3/26/2017	3,154	5.37	173.12	3,149.30	96.53	-96.38	7.44	0.10	Magn MWD	
3/26/2017	3,249	5.30	172.15	3,243.88	105.32	-105.14	8.57	0.12	Magn MWD	
3/26/2017	3,344	5.56	172.89	3,338.46	114.26	-114.05	9.74	0.28	Magn MWD	
3/26/2017	3,439	5.46	168.20	3,433.02	123.28	-123.04	11.23	0.49	Magn MWD	
3/26/2017	3,534	5.00	148.71	3,527.63	131.32	-131.01	14.31	1.92	Magn MWD	
3/26/2017	3,629	5.12	148.20	3,622.26	138.56	-138.15	18.69	0.13	Magn MWD	
3/26/2017	3,723	5.35	149.16	3,715.87	146.00	-145.47	23.15	0.26	Magn MWD	
3/26/2017	3,817	5.80	150.45	3,809.42	154.00	-153.37	27.74	0.50	Magn MWD	
3/26/2017	3,912	5.60	151.38	3,903.95	162.35	-161.61	32.33	0.23	Magn MWD	
3/26/2017	4,006	5.40	149.82	3,997.52	170.31	-169.46	36.75	0.27	Magn MWD	
3/26/2017	4,101	5.62	149.12	4,092.08	178.28	-177.32	41.38	0.24	Magn MWD	
3/26/2017	4,196	5.82	150.41	4,186.61	186.57	-185.50	46.15	0.25	Magn MWD	
3/26/2017	4,290	4.84	153.47	4,280.20	194.36	-193.19	50.27	1.09	Magn MWD	
3/26/2017	4,385	4.16	160.60	4,374.91	201.27	-200.03	53.21	0.93	Magn MWD	
3/26/2017	4,478	4.26	161.36	4,467.66	207.77	-206.48	55.43	0.12	Magn MWD	
3/26/2017	4,572	4.34	162.76	4,561.39	214.53	-213.19	57.60	0.14	Magn MWD	
3/26/2017	4,666	4.11	162.73	4,655.14	221.19	-219.80	59.65	0.24	Magn MWD	
3/26/2017	4,761	4.17	161.49	4,749.89	227.77	-226.33	61.76	0.11	Magn MWD	
3/26/2017	4,855	4.29	161.51	4,843.63	234.40	-232.90	63.96	0.13	Magn MWD	
3/26/2017	4,949	4.46	167.06	4,937.36	241.34	-239.80	65.90	0.49	Magn MWD	
3/26/2017	5,043	4.57	165.87	5,031.07	248.57	-246.99	67.63	0.15	Magn MWD	
3/26/2017	5,138	4.92	164.98	5,125.74	256.22	-254.60	69.61	0.38	Magn MWD	
3/26/2017	5,233	5.10	166.91	5,220.38	264.32	-262.64	71.62	0.26	Magn MWD	
3/26/2017	5,329	5.42	165.59	5,315.98	272.91	-271.19	73.71	0.36	Magn MWD	
3/26/2017	5,424	5.49	165.48	5,410.55	281.71	-279.94	75.97	0.07	Magn MWD	
3/26/2017	5,518	5.66	165.31	5,504.10	290.60	-288.77	78.27	0.18	Magn MWD	
3/26/2017	5,614	5.37	168.90	5,599.66	299.63	-297.76	80.34	0.47	Magn MWD	
3/26/2017	5,709	4.26	171.60	5,694.32	307.52	-305.61	81.71	1.19	Magn MWD	
3/26/2017	5,804	2.19	174.15	5,789.16	312.83	-310.91	82.41	2.18	Magn MWD	
3/26/2017	5,898	0.87	168.52	5,883.13	315.32	-313.40	82.74	1.41	Magn MWD	
3/26/2017	5,992	0.77	173.43	5,977.12	316.66	-314.72	82.95	0.13	Magn MWD	
3/26/2017	6,086	1.23	178.75	6,071.10	318.29	-316.36	83.04	0.50	Magn MWD	
3/26/2017	6,181	1.33	201.19	6,166.08	320.33	-318.41	82.67	0.53	Magn MWD	
3/26/2017	6,276	1.53	213.61	6,261.05	322.39	-320.49	81.57	0.39	Magn MWD	
3/26/2017	6,370	1.60	223.32	6,355.02	324.35	-322.49	79.97	0.29	Magn MWD	
3/26/2017	6,465	1.80	234.62	6,449.98	326.13	-324.32	77.85	0.41	Magn MWD	
4/3/2017	6,560	2.07	220.98	6,544.92	328.23	-326.48	75.50	0.56	Magn MWD	
4/3/2017	6,655	2.28	219.07	6,639.85	330.93	-329.24	73.19	0.23	Magn MWD	
4/3/2017	6,750	2.01	226.07	6,734.79	333.50	-331.86	70.80	0.40	Magn MWD	
4/4/2017	6,844	1.97	213.08	6,828.73	335.94	-334.36	68.73	0.48	Magn MWD	
4/4/2017	6,939	2.01	207.98	6,923.67	338.74	-337.20	67.06	0.19	Magn MWD	
4/4/2017	7,034	2.06	210.41	7,018.61	341.64	-340.15	65.41	0.10	Magn MWD	
4/4/2017	7,129	1.97	218.27	7,113.55	344.35	-342.90	63.53	0.31	Magn MWD	
4/4/2017	7,224	2.21	218.73	7,208.49	347.01	-345.61	61.38	0.25	Magn MWD	
4/4/2017	7,318	2.38	224.15	7,302.42	349.76	-348.43	58.88	0.29	Magn MWD	
4/4/2017	7,413	2.38	225.03	7,397.33	352.50	-351.23	56.11	0.04	Magn MWD	
4/4/2017	7,506	2.24	217.12	7,490.26	355.25	-354.05	53.65	0.37	Magn MWD	
4/5/2017	7,601	2.54	204.92	7,585.18	358.59	-357.44	51.64	0.62	Magn MWD	



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Survey Data

Date	MD (ftKB)	Incl. (°)	Azm. (°)	TVD. (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
4/5/2017	7,696	2.34	208.30	7,680.09	362.16	-361.05	49.84	0.26	Magn MWD	
4/5/2017	7,791	2.04	199.38	7,775.02	365.43	-364.36	48.36	0.48	Magn MWD	
4/5/2017	7,886	2.47	187.48	7,869.95	369.03	-367.98	47.53	0.67	Magn MWD	
4/5/2017	7,981	2.39	186.84	7,964.86	373.02	-371.98	47.03	0.09	Magn MWD	
4/5/2017	8,076	1.73	178.54	8,059.80	376.41	-375.38	46.83	0.76	Magn MWD	
4/5/2017	8,171	1.39	173.09	8,154.77	378.99	-377.96	47.00	0.39	Magn MWD	
4/6/2017	8,266	0.84	179.40	8,249.75	380.83	-379.80	47.15	0.59	Magn MWD	
4/6/2017	8,361	0.22	197.31	8,344.74	381.70	-380.67	47.10	0.67	Magn MWD	
4/7/2017	8,465	0.37	213.13	8,448.74	382.17	-381.14	46.86	0.16	Magn MWD	
4/7/2017	8,560	2.18	170.96	8,543.72	384.21	-383.18	46.97	2.02	Magn MWD	
4/7/2017	8,655	8.12	178.53	8,638.29	392.72	-391.68	47.43	6.28	Magn MWD	
4/7/2017	8,702	12.43	181.80	8,684.53	401.09	-400.06	47.36	9.25	Magn MWD	
4/7/2017	8,749	16.25	182.62	8,730.05	412.71	-411.69	46.90	8.14	Magn MWD	
4/7/2017	8,844	27.70	178.39	8,818.01	448.17	-447.16	46.91	12.16	Magn MWD	
4/7/2017	8,889	34.05	177.67	8,856.61	471.25	-470.22	47.72	14.13	Magn MWD	
4/8/2017	8,939	40.21	178.18	8,896.46	501.41	-500.37	48.80	12.34	Magn MWD	
4/8/2017	8,987	47.13	179.59	8,931.16	534.53	-533.49	49.42	14.56	Magn MWD	
4/9/2017	9,033	53.18	180.76	8,960.62	569.82	-568.79	49.29	13.30	Magn MWD	
4/9/2017	9,081	57.07	180.94	8,988.06	609.16	-608.15	48.71	8.11	Magn MWD	
4/9/2017	9,128	59.98	180.38	9,012.59	649.22	-648.23	48.25	6.27	Magn MWD	
4/9/2017	9,175	62.67	178.48	9,035.15	690.44	-689.46	48.67	6.73	Magn MWD	
4/9/2017	9,222	64.29	177.91	9,056.13	732.49	-731.49	50.00	3.61	Magn MWD	
4/9/2017	9,272	65.22	177.61	9,077.46	777.71	-776.68	51.76	1.94	Magn MWD	
7/3/2017	9,359	66.04	176.49	9,113.36	856.93	-855.82	55.84	1.50	Magn MWD	
7/3/2017	9,454	66.76	176.22	9,151.39	943.92	-942.70	61.38	0.80	Magn MWD	
7/3/2017	9,549	73.54	176.80	9,183.63	1,033.16	-1,031.84	66.81	7.16	Magn MWD	
7/4/2017	9,644	72.60	176.93	9,211.29	1,124.00	-1,122.58	71.78	1.00	Magn MWD	
7/4/2017	9,739	75.86	177.60	9,237.11	1,215.39	-1,213.89	76.13	3.50	Magn MWD	
7/4/2017	9,834	79.64	178.53	9,257.26	1,308.20	-1,306.66	79.26	4.09	Magn MWD	
7/4/2017	9,928	82.72	178.87	9,271.67	1,401.08	-1,399.51	81.37	3.30	Magn MWD	
7/4/2017	10,023	84.08	178.69	9,282.59	1,495.45	-1,493.86	83.38	1.44	Magn MWD	
7/4/2017	10,118	87.08	179.29	9,289.91	1,590.15	-1,588.55	85.05	3.22	Magn MWD	
7/4/2017	10,213	88.83	180.01	9,293.30	1,685.07	-1,683.48	85.63	1.99	Magn MWD	
7/4/2017	10,308	88.27	179.09	9,295.71	1,780.02	-1,778.45	86.37	1.13	Magn MWD	
7/4/2017	10,403	87.83	179.10	9,298.94	1,874.97	-1,873.38	87.87	0.46	Magn MWD	
7/4/2017	10,498	87.77	179.98	9,302.59	1,969.88	-1,968.30	88.63	0.93	Magn MWD	
7/4/2017	10,593	87.26	178.67	9,306.70	2,064.78	-2,063.21	89.75	1.48	Magn MWD	
7/4/2017	10,688	87.10	179.24	9,311.38	2,159.67	-2,158.07	91.48	0.62	Magn MWD	
7/4/2017	10,783	86.61	179.01	9,316.59	2,254.52	-2,252.92	92.93	0.57	Magn MWD	
7/5/2017	10,877	86.44	179.30	9,322.29	2,348.34	-2,346.74	94.31	0.36	Magn MWD	
7/5/2017	10,972	88.87	177.05	9,326.18	2,443.25	-2,441.60	97.34	3.48	Magn MWD	
7/5/2017	11,065	88.92	176.14	9,327.97	2,536.17	-2,534.41	102.86	0.98	Magn MWD	
7/5/2017	11,157	88.73	176.73	9,329.86	2,628.08	-2,626.22	108.58	0.67	Magn MWD	
7/5/2017	11,250	88.77	176.90	9,331.88	2,721.02	-2,719.05	113.75	0.19	Magn MWD	
7/5/2017	11,342	88.24	175.56	9,334.28	2,812.91	-2,810.82	119.79	1.57	Magn MWD	
7/5/2017	11,435	87.92	175.81	9,337.40	2,905.73	-2,903.50	126.79	0.44	Magn MWD	
7/5/2017	11,528	87.45	175.24	9,341.16	2,998.52	-2,996.14	134.04	0.79	Magn MWD	
7/5/2017	11,620	87.76	176.11	9,345.00	3,090.32	-3,087.80	140.97	1.00	Magn MWD	
7/5/2017	11,715	86.27	175.35	9,349.95	3,185.07	-3,182.40	148.03	1.76	Magn MWD	
7/5/2017	11,809	87.83	174.45	9,354.79	3,278.75	-3,275.90	156.38	1.92	Magn MWD	
7/5/2017	11,904	90.00	175.00	9,356.59	3,373.51	-3,370.48	165.11	2.36	Magn MWD	
7/5/2017	11,999	89.71	174.74	9,356.83	3,468.30	-3,465.10	173.60	0.41	Magn MWD	
7/5/2017	12,093	89.85	176.27	9,357.19	3,562.16	-3,558.80	180.97	1.63	Magn MWD	
7/5/2017	12,188	92.47	178.90	9,355.26	3,657.11	-3,653.68	184.97	3.91	Magn MWD	
7/5/2017	12,283	89.91	177.48	9,353.29	3,752.08	-3,748.61	187.97	3.08	Magn MWD	
7/6/2017	12,378	88.24	174.90	9,354.82	3,846.97	-3,843.37	194.28	3.23	Magn MWD	
7/6/2017	12,473	88.34	176.38	9,357.66	3,941.80	-3,938.05	201.50	1.56	Magn MWD	



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Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/6/2017	12,567	90.00	178.99	9,359.02	4,035.77	-4,031.95	205.30	3.29	Magn MWD	
7/6/2017	12,661	89.24	178.18	9,359.64	4,129.76	-4,125.92	207.62	1.18	Magn MWD	
7/6/2017	12,756	90.51	179.32	9,359.85	4,224.76	-4,220.90	209.69	1.80	Magn MWD	
7/6/2017	12,852	90.74	179.76	9,358.80	4,320.74	-4,316.89	210.46	0.52	Magn MWD	
7/6/2017	12,946	89.91	179.41	9,358.27	4,414.72	-4,410.88	211.14	0.96	Magn MWD	
7/6/2017	13,041	90.00	179.46	9,358.35	4,509.71	-4,505.88	212.08	0.11	Magn MWD	
7/6/2017	13,136	90.29	180.09	9,358.11	4,604.69	-4,600.87	212.45	0.73	Magn MWD	
7/6/2017	13,231	88.55	178.30	9,359.07	4,699.67	-4,695.85	213.79	2.63	Magn MWD	
7/6/2017	13,326	90.82	179.75	9,359.59	4,794.66	-4,790.83	215.40	2.84	Magn MWD	
7/6/2017	13,420	92.84	179.68	9,356.59	4,888.59	-4,884.78	215.87	2.15	Magn MWD	
7/6/2017	13,515	92.69	180.21	9,352.00	4,983.45	-4,979.66	215.96	0.58	Magn MWD	
7/6/2017	13,609	93.56	180.71	9,346.88	5,077.26	-5,073.52	215.21	1.07	Magn MWD	
7/6/2017	13,704	92.11	179.36	9,342.18	5,172.11	-5,168.40	215.15	2.08	Magn MWD	
7/7/2017	13,799	90.52	180.25	9,340.00	5,267.06	-5,263.37	215.47	1.92	Magn MWD	
7/7/2017	13,894	90.14	180.27	9,339.45	5,362.02	-5,358.37	215.04	0.40	Magn MWD	
7/7/2017	13,989	89.54	178.92	9,339.72	5,457.00	-5,453.36	215.71	1.56	Magn MWD	
7/7/2017	14,084	88.76	179.53	9,341.13	5,551.99	-5,548.34	217.00	1.04	Magn MWD	
7/7/2017	14,179	87.61	178.21	9,344.14	5,646.93	-5,643.27	218.87	1.84	Magn MWD	
7/7/2017	14,275	86.29	178.65	9,349.25	5,742.80	-5,739.10	221.50	1.45	Magn MWD	
7/7/2017	14,370	85.80	179.11	9,355.80	5,837.57	-5,833.85	223.35	0.71	Magn MWD	
7/7/2017	14,465	88.15	178.70	9,360.81	5,932.43	-5,928.70	225.16	2.51	Magn MWD	
7/7/2017	14,560	88.33	178.15	9,363.73	6,027.38	-6,023.61	227.77	0.61	Magn MWD	
7/9/2017	14,648	91.57	178.06	9,363.81	6,115.37	-6,111.55	230.68	3.68	Magn MWD	
7/9/2017	14,743	92.99	177.20	9,360.03	6,210.27	-6,206.39	234.61	1.75	Magn MWD	
7/9/2017	14,838	93.32	176.35	9,354.80	6,305.08	-6,301.10	239.94	0.96	Magn MWD	
7/9/2017	14,933	94.40	176.55	9,348.40	6,399.80	-6,395.70	245.81	1.16	Magn MWD	
7/9/2017	15,027	95.50	176.84	9,340.29	6,493.39	-6,489.19	251.21	1.21	Magn MWD	
7/9/2017	15,121	96.54	177.97	9,330.43	6,586.85	-6,582.58	255.44	1.63	Magn MWD	
7/9/2017	15,216	93.06	177.94	9,322.49	6,681.50	-6,677.17	258.82	3.66	Magn MWD	
7/9/2017	15,311	93.94	177.62	9,316.69	6,776.31	-6,771.92	262.50	0.99	Magn MWD	
7/9/2017	15,406	91.62	178.26	9,312.08	6,871.19	-6,866.74	265.91	2.53	Magn MWD	
7/9/2017	15,501	94.40	178.41	9,307.09	6,966.04	-6,961.56	268.66	2.93	Magn MWD	
7/9/2017	15,596	93.13	178.30	9,300.85	7,060.84	-7,056.31	271.38	1.34	Magn MWD	
7/9/2017	15,691	91.85	179.98	9,296.72	7,155.74	-7,151.21	272.81	2.22	Magn MWD	
7/9/2017	15,786	91.88	180.45	9,293.63	7,250.65	-7,246.15	272.45	0.50	Magn MWD	
7/9/2017	15,880	91.62	179.37	9,290.76	7,344.58	-7,340.11	272.60	1.18	Magn MWD	
7/10/2017	15,974	90.80	178.43	9,288.78	7,438.55	-7,434.07	274.40	1.33	Magn MWD	
7/10/2017	16,069	92.73	179.70	9,285.85	7,533.50	-7,529.01	275.95	2.43	Magn MWD	
7/10/2017	16,164	93.82	178.40	9,280.42	7,628.34	-7,623.83	277.52	1.78	Magn MWD	
7/10/2017	16,259	92.71	180.34	9,275.01	7,723.17	-7,718.67	278.57	2.35	Magn MWD	
7/10/2017	16,354	92.52	179.88	9,270.68	7,818.04	-7,813.57	278.38	0.52	Magn MWD	
7/10/2017	16,449	92.82	180.27	9,266.25	7,912.90	-7,908.46	278.26	0.52	Magn MWD	
7/10/2017	16,544	92.74	178.51	9,261.65	8,007.78	-8,003.34	279.27	1.85	Magn MWD	
7/10/2017	16,639	93.95	178.69	9,256.10	8,102.61	-8,098.15	281.59	1.29	Magn MWD	
7/10/2017	16,734	92.97	179.78	9,250.37	8,197.43	-8,192.97	282.85	1.54	Magn MWD	
7/10/2017	16,829	91.55	179.71	9,246.62	8,292.34	-8,287.89	283.27	1.50	Magn MWD	
7/10/2017	16,924	90.54	178.03	9,244.89	8,387.32	-8,382.85	285.15	2.06	Magn MWD	
7/10/2017	17,018	90.27	177.86	9,244.23	8,481.31	-8,476.79	288.52	0.34	Magn MWD	
7/10/2017	17,113	89.29	179.09	9,244.59	8,576.30	-8,571.75	291.05	1.66	Magn MWD	
7/11/2017	17,208	89.70	179.05	9,245.43	8,671.30	-8,666.73	292.59	0.43	Magn MWD	
7/11/2017	17,303	92.08	180.93	9,243.95	8,766.25	-8,761.71	292.61	3.19	Magn MWD	
7/11/2017	17,398	92.39	181.34	9,240.25	8,861.08	-8,856.62	290.73	0.54	Magn MWD	
7/11/2017	17,493	91.00	180.18	9,237.44	8,955.97	-8,951.57	289.47	1.91	Magn MWD	
7/11/2017	17,588	91.36	179.56	9,235.48	9,050.92	-9,046.55	289.68	0.75	Magn MWD	
7/11/2017	17,682	94.13	182.22	9,230.98	9,144.72	-9,140.41	288.23	4.08	Magn MWD	
7/11/2017	17,776	94.46	180.71	9,223.94	9,238.34	-9,234.11	285.83	1.64	Magn MWD	
7/11/2017	17,871	92.25	179.49	9,218.38	9,333.14	-9,328.94	285.67	2.66	Magn MWD	



Wellbore Details

Well Name HH SO 10 P3 23H	Lease HH SO 10 P3	Field Name Purple Sage	Business Unit Mid-Continent
Ground Elevation (ft) 3,278.00	Original RKB Elevation (ft) 3,307.00	Current RKB Elevation 3,307.00, 3/24/2017	Mud Line Elevation (ft) Water Depth (ft)
Current KB to Ground (ft) 29.00	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
7/11/2017	17,966	92.59	178.00	9,214.37	9,428.05	-9,423.83	287.74	1.61	Magn MWD	
7/11/2017	18,061	94.75	177.76	9,208.29	9,522.84	-9,518.57	291.25	2.29	Magn MWD	
7/11/2017	18,156	92.89	179.27	9,201.96	9,617.62	-9,613.32	293.71	2.52	Magn MWD	
7/11/2017	18,251	92.68	180.74	9,197.34	9,712.48	-9,708.20	293.70	1.56	Magn MWD	
7/12/2017	18,347	90.08	180.61	9,195.03	9,808.38	-9,804.16	292.57	2.71	Magn MWD	
7/12/2017	18,441	91.13	182.26	9,194.04	9,902.25	-9,898.12	290.21	2.08	Magn MWD	
7/12/2017	18,536	92.55	181.22	9,190.99	9,997.06	-9,993.02	287.33	1.85	Magn MWD	
7/12/2017	18,631	93.48	180.12	9,185.99	10,091.86	-10,087.88	286.22	1.52	Magn MWD	
7/12/2017	18,726	93.36	178.89	9,180.32	10,186.68	-10,182.71	287.04	1.30	Magn MWD	
7/12/2017	18,821	93.17	178.21	9,174.91	10,281.53	-10,277.52	289.44	0.74	Magn MWD	
7/12/2017	18,917	92.09	177.48	9,170.51	10,377.41	-10,373.35	293.05	1.36	Magn MWD	
7/12/2017	19,012	92.25	177.86	9,166.91	10,472.33	-10,468.20	296.91	0.43	Magn MWD	
7/12/2017	19,107	91.85	176.66	9,163.51	10,567.24	-10,563.03	301.44	1.33	Magn MWD	
7/12/2017	19,202	90.27	176.37	9,161.75	10,662.16	-10,657.84	307.22	1.69	Magn MWD	
7/12/2017	19,297	89.87	175.61	9,161.64	10,757.06	-10,752.60	313.86	0.90	Magn MWD	
7/12/2017	19,393	89.49	174.19	9,162.17	10,852.86	-10,848.22	322.39	1.53	Magn MWD	
7/12/2017	19,414	89.75	174.22	9,162.31	10,873.80	-10,869.11	324.51	1.25	Magn MWD	
7/12/2017	19,465	89.75	174.22	9,162.54	10,924.65	-10,919.85	329.65	0.00	Extrap.	

Zones

Zone Name	Top (ftKB)	Botm (ftKB)	Zone Comp Method	Completion ChevNo	Completion LWI #	Completion License No.
Wolfcamp A	9,554.0	19,291.0	Proppant Frac	PJ8433-00-01	30015439320001	