



HOBBS OCD

Directional Survey

JAN 10 2020

DELAWARE BASIN UNRESTRICTED

Well Name: JAYHAWK 7-6 FED FEE COM 16H

RECEIVED

Sub-Division DELAWARE BASIN		Region LEA COUNTY CORE		Field Name RATTLESNAKE DBBU		County LEA		State/Province NM					
Surface Legal Location 7-26S-34E		API/UWI 3002545540		Latitude (°) 32° 3' 8.487" N		Longitude (°) 103° 30' 26.563" W		Orig KB Elevation (ft) 3,397.50		Ground Elev MSL (ft) 3,372.50		KB - GL (ft) 25.00	
Wellbores													
Parent Wellbore				SAP Well ID				Vertical Section Direction (°) 358.65					
Kick Offs & Key Depths													
Date 6/1/2019				Type CURVE				Top Depth (ftKB) 12,300.0					
Date 6/3/2019				Type CURVE				Top Depth (ftKB) 12,402.5					
Actual Deviation Survey COMPOSITE OH, Proposed? No				Definitive? No		Proposed? No		Proposed Deviation Survey COMPOSITE WELL PLAN - OH, Proposed? Yes					
Deviation Survey													
Date 2/13/2019				Description COMPOSITE OH									
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													
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company			
2/13/2019	185.00	1.00	150.80	184.99	-1.43	-1.41	0.79	0.54	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	276.00	1.10	142.90	275.98	-2.84	-2.80	1.70	0.19	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	368.00	1.30	149.60	367.96	-4.47	-4.40	2.76	0.27	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	459.00	1.40	142.80	458.93	-6.27	-6.18	3.96	0.21	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	550.00	1.30	147.40	549.90	-8.05	-7.93	5.19	0.16	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	643.00	1.40	147.00	642.88	-9.92	-9.78	6.37	0.11	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	734.00	1.50	141.00	733.85	-11.81	-11.63	7.73	0.20	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	825.00	1.40	139.40	824.82	-13.62	-13.40	9.20	0.12	MWD	TOTAL DIRECTIONAL SERV...			
2/13/2019	881.00	1.50	139.90	880.80	-14.72	-14.48	10.12	0.18	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	961.00	1.40	149.80	960.78	-16.39	-16.13	11.28	0.34	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,053.00	1.50	149.60	1,052.75	-18.43	-18.14	12.46	0.11	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,145.00	2.10	182.70	1,144.70	-21.16	-20.86	12.99	1.28	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,237.00	2.40	185.00	1,236.63	-24.76	-24.46	12.74	0.34	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,329.00	3.30	197.60	1,328.52	-29.18	-28.91	11.77	1.19	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,421.00	3.60	201.10	1,420.35	-34.35	-34.13	9.93	0.40	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,515.00	3.40	196.00	1,514.18	-39.74	-39.56	8.10	0.39	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,609.00	5.00	202.10	1,607.92	-46.16	-46.03	5.79	1.76	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,703.00	6.90	202.60	1,701.41	-55.08	-55.04	2.08	2.02	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,797.00	7.00	203.80	1,794.72	-65.42	-65.50	-2.40	0.19	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,892.00	8.40	202.10	1,888.86	-77.03	-77.22	-7.35	1.49	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	1,985.00	8.80	201.10	1,980.82	-89.84	-90.15	-12.46	0.46	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,080.00	8.70	201.20	2,074.71	-103.19	-103.63	-17.68	0.11	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,174.00	8.60	198.60	2,167.64	-116.36	-116.92	-22.49	0.43	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,268.00	8.50	197.60	2,260.60	-129.54	-130.20	-26.83	0.19	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,363.00	8.40	194.90	2,354.57	-142.84	-143.60	-30.74	0.43	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,457.00	9.60	193.60	2,447.41	-157.00	-157.86	-34.35	1.29	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,552.00	10.10	191.50	2,541.01	-172.78	-173.72	-37.87	0.65	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,646.00	10.20	195.70	2,633.54	-188.77	-189.81	-41.77	0.79	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,741.00	10.30	202.80	2,727.03	-204.56	-205.74	-47.34	1.33	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,835.00	10.00	203.20	2,819.55	-219.66	-220.98	-53.81	0.33	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	2,929.00	9.60	199.30	2,912.18	-234.41	-235.88	-59.61	0.82	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,023.00	9.70	196.10	3,004.85	-249.30	-250.89	-64.40	0.58	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,117.00	9.70	198.80	3,097.51	-264.29	-265.99	-69.15	0.48	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,211.00	10.30	195.70	3,190.08	-279.76	-281.58	-73.97	0.86	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,305.00	9.40	201.60	3,282.70	-294.86	-296.81	-79.07	1.44	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,399.00	9.40	200.20	3,375.44	-309.07	-311.15	-84.55	0.24	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,493.00	9.40	197.10	3,468.17	-323.49	-325.69	-89.46	0.54	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,587.00	9.40	195.00	3,560.91	-338.14	-340.44	-93.70	0.36	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,681.00	9.50	192.60	3,653.64	-353.04	-355.43	-97.38	0.43	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,775.00	8.30	196.90	3,746.50	-367.01	-369.49	-101.05	1.46	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,869.00	6.80	200.00	3,839.69	-378.64	-381.21	-104.92	1.65	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	3,963.00	6.80	190.30	3,933.03	-389.27	-391.92	-107.82	1.22	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	4,057.00	6.90	190.00	4,028.36	-400.26	-402.96	-109.80	0.11	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	4,151.00	6.90	185.50	4,119.68	-411.40	-414.14	-111.32	0.57	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	4,245.00	7.00	183.90	4,212.99	-422.71	-425.47	-112.25	0.23	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	4,340.00	6.90	194.50	4,307.29	-433.96	-436.77	-114.07	1.35	MWD	TOTAL DIRECTIONAL SERV...			
5/25/2019	4,433.00	6.00	203.40	4,399.71	-443.75	-446.64	-117.40	1.44	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	4,528.00	4.80	205.20	4,494.28	-451.82	-454.80	-121.06	1.28	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	4,621.00	3.80	189.10	4,587.02	-458.33	-461.36	-123.21	1.68	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	4,715.00	3.20	146.50	4,680.86	-463.61	-466.62	-122.25	2.77	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	4,809.00	1.70	113.60	4,774.78	-466.42	-469.37	-119.53	2.13	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	4,903.00	2.10	116.50	4,868.73	-467.82	-470.70	-116.71	0.44	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	4,997.00	1.30	141.70	4,962.69	-469.47	-472.30	-114.51	1.15	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,091.00	1.40	133.20	5,056.66	-471.13	-473.92	-113.01	0.24	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,186.00	1.00	108.00	5,151.64	-472.22	-474.98	-111.37	0.69	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,280.00	0.90	108.90	5,245.63	-472.75	-475.47	-109.90	0.11	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,374.00	0.70	86.40	5,339.62	-472.98	-475.67	-108.62	0.39	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,468.00	1.00	76.70	5,433.61	-472.79	-475.45	-107.25	0.35	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,562.00	1.40	22.30	5,527.59	-471.57	-474.20	-106.02	1.23	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,656.00	1.70	9.60	5,621.55	-469.14	-471.76	-105.35	0.48	MWD	TOTAL DIRECTIONAL SERV...			
5/26/2019	5,750.00	1.50	7.30	5,715.52	-466.56	-469.16	-104.96	0.22	MWD	TOTAL DIRECTIONAL SERV...			



Directional Survey

DELAWARE BASIN UNRESTRICTED

Well Name: JAYHAWK 7-6 FED FEE COM 16H

Sub-Division	Region	Field Name	County	State/Province
DELAWARE BASIN	LEA COUNTY CORE	RATTLESNAKE DBBU	LEA	NM
Surface Legal Location	API/UWI	Latitude (°)	Longitude (°)	Orig KB Elevation (ft)
7-26S-34E	3002545540	32° 3' 8.487" N	103° 30' 26.563" W	3,397.50
				Ground Elev MSL (ft)
				3,372.50
				KB - GL (ft)
				25.00

Survey Data										
Date	MD (ft)	Incl (°)	Azm (°)	TVD (ft)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
5/26/2019	5,844.00	1.90	351.20	5,809.48	-463.80	-466.40	-105.04	0.66	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	5,938.00	2.00	355.00	5,903.42	-460.62	-463.23	-105.42	0.17	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,032.00	2.10	348.30	5,997.36	-457.28	-459.91	-105.92	0.28	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,126.00	1.90	350.70	6,091.31	-454.05	-456.68	-106.52	0.23	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,220.00	2.00	352.60	6,185.25	-450.87	-453.52	-106.98	0.13	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,314.00	1.60	343.50	6,279.20	-447.98	-450.63	-107.57	0.52	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,408.00	1.50	337.30	6,373.17	-445.56	-448.24	-108.41	0.21	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,502.00	1.20	341.50	6,467.14	-443.48	-446.17	-109.20	0.34	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,596.00	1.00	342.90	6,561.13	-441.75	-444.46	-109.75	0.21	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,690.00	0.80	345.60	6,655.12	-440.32	-443.04	-110.16	0.22	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,785.00	0.60	326.10	6,750.11	-439.25	-441.98	-110.60	0.32	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,879.00	0.60	316.90	6,844.10	-438.47	-441.21	-111.21	0.10	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	6,973.00	0.50	322.70	6,938.10	-437.77	-440.53	-111.80	0.12	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,067.00	0.30	331.10	7,032.10	-437.22	-439.99	-112.16	0.22	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,161.00	0.40	297.10	7,126.09	-436.85	-439.62	-112.57	0.24	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,255.00	0.50	328.40	7,220.09	-436.34	-439.13	-113.09	0.26	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,349.00	0.60	315.10	7,314.09	-435.64	-438.44	-113.67	0.16	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,444.00	0.60	305.30	7,409.08	-434.98	-437.80	-114.42	0.11	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,538.00	0.60	307.90	7,503.08	-434.38	-437.21	-115.21	0.03	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,632.00	0.50	310.80	7,597.07	-433.79	-436.64	-115.91	0.11	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,726.00	0.60	262.10	7,691.07	-433.57	-436.44	-116.71	0.49	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,820.00	0.50	250.60	7,785.06	-433.75	-436.65	-117.59	0.16	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	7,914.00	0.40	199.50	7,879.06	-434.19	-437.09	-118.08	0.42	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	8,009.00	0.50	178.40	7,974.06	-434.91	-437.82	-118.18	0.20	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	8,103.00	0.60	183.00	8,068.05	-435.81	-438.72	-118.20	0.12	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	8,197.00	0.90	202.70	8,162.05	-436.98	-439.89	-118.51	0.42	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	8,291.00	1.10	201.20	8,256.03	-438.49	-441.41	-119.12	0.21	MWD	TOTAL DIRECTIONAL SERV...
5/26/2019	8,386.00	0.90	205.70	8,351.02	-439.99	-442.94	-119.77	0.23	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	8,480.00	1.00	201.90	8,445.01	-441.40	-444.36	-120.40	0.13	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	8,574.00	1.10	196.60	8,538.99	-443.02	-445.99	-120.96	0.15	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	8,668.00	1.20	196.10	8,632.97	-444.81	-447.80	-121.49	0.11	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	8,762.00	1.00	193.40	8,726.95	-446.54	-449.54	-121.95	0.22	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	8,856.00	0.20	290.90	8,820.95	-447.28	-450.28	-122.30	1.11	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	8,950.00	0.30	346.00	8,914.95	-446.97	-449.98	-122.51	0.26	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,044.00	0.20	10.70	9,008.95	-446.57	-449.58	-122.54	0.15	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,138.00	0.10	37.20	9,102.95	-446.35	-449.36	-122.46	0.13	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,232.00	0.20	231.40	9,196.95	-446.38	-449.40	-122.54	0.32	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,327.00	0.20	188.40	9,291.95	-446.65	-449.66	-122.69	0.15	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,422.00	0.30	195.20	9,386.94	-447.05	-450.07	-122.78	0.11	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,516.00	0.50	193.70	9,480.94	-447.68	-450.70	-122.94	0.21	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,610.00	0.40	187.60	9,574.94	-448.40	-451.43	-123.08	0.12	MWD	TOTAL DIRECTIONAL SERV...
5/27/2019	9,704.00	0.30	150.90	9,668.94	-448.94	-451.97	-123.01	0.26	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	9,798.00	0.40	52.10	9,762.94	-448.97	-451.98	-122.63	0.57	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	9,894.00	0.50	51.70	9,858.93	-448.51	-451.51	-122.04	0.10	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	9,988.00	0.70	50.10	9,952.93	-447.91	-450.89	-121.27	0.21	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,082.00	0.90	40.50	10,046.92	-447.00	-449.96	-120.35	0.26	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,176.00	0.60	9.30	10,140.91	-445.97	-448.92	-119.79	0.53	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,270.00	0.40	256.70	10,234.91	-445.55	-448.51	-120.03	0.89	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,363.00	0.60	226.60	10,327.91	-445.95	-448.91	-120.70	0.35	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,457.00	0.90	230.60	10,421.90	-446.73	-449.72	-121.63	0.32	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,551.00	1.40	235.30	10,515.88	-447.82	-450.84	-123.15	0.54	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,645.00	1.70	250.80	10,609.84	-448.88	-451.96	-125.41	0.55	MWD	TOTAL DIRECTIONAL SERV...
5/28/2019	10,739.00	2.20	266.00	10,703.79	-449.39	-452.54	-128.52	0.76	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	10,833.00	2.50	274.50	10,797.71	-449.26	-452.51	-132.37	0.49	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	10,927.00	1.50	273.70	10,891.65	-448.94	-452.27	-135.64	1.06	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,021.00	0.60	315.20	10,985.64	-448.48	-451.84	-137.21	1.20	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,115.00	0.80	315.90	11,079.63	-447.64	-451.02	-138.02	0.21	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,209.00	0.90	311.70	11,173.62	-446.65	-450.05	-139.03	0.13	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,303.00	1.30	305.70	11,267.60	-445.51	-448.94	-140.44	0.44	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,397.00	1.90	289.90	11,361.57	-444.30	-447.79	-142.77	0.79	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,491.00	2.30	266.60	11,455.50	-443.80	-447.37	-146.12	0.99	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,586.00	2.60	260.70	11,550.42	-444.17	-447.83	-150.15	0.41	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,680.00	2.70	244.70	11,644.32	-445.36	-449.12	-154.26	0.79	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,774.00	3.30	228.20	11,738.19	-448.02	-451.87	-158.28	1.11	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,867.00	4.50	225.90	11,830.97	-452.23	-456.19	-162.89	1.30	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	11,962.00	4.30	228.90	11,925.69	-457.04	-461.13	-168.25	0.32	MWD	TOTAL DIRECTIONAL SERV...
5/29/2019	12,056.00	4.30	228.80	12,019.43	-461.55	-465.77	-173.56	0.01	MWD	TOTAL DIRECTIONAL SERV...
5/30/2019	12,171.00	4.20	230.60	12,134.11	-466.91	-471.28	-180.06	0.14	MWD	TOTAL DIRECTIONAL SERV...
6/1/2019	12,333.00	2.10	232.10	12,295.86	-472.33	-476.87	-186.98	1.30	MWD	TOTAL DIRECTIONAL SERV...
6/1/2019	12,427.00	2.40	63.90	12,389.83	-472.53	-477.06	-186.57	4.76	MWD	TOTAL DIRECTIONAL SERV...
6/1/2019	12,521.00	11.30	18.10	12,483.11	-463.00	-467.42	-181.93	10.40	MWD	TOTAL DIRECTIONAL SERV...
6/1/2019	12,615.00	21.60	19.80	12,573.14	-438.11	-442.32	-173.19	10.97	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	12,709.00	34.80	18.30	12,655.80	-396.53	-400.39	-158.84	14.06	MWD	TOTAL DIRECTIONAL SERV...



Directional Survey

DELAWARE BASIN UNRESTRICTED

Well Name: JAYHAWK 7-6 FED FEE COM 16H

Sub-Division	Region	Field Name	County	State/Province		
DELAWARE BASIN	LEA COUNTY CORE	RATTLESNAKE DBBU	LEA	NM		
Surface Legal Location	API/UWI	Latitude (°)	Longitude (°)	Orig KB Elevation (ft)	Ground Elev MSL (ft)	KB - GL (ft)
7-26S-34E	3002545540	32° 3' 8.487" N	103° 30' 26.563" W	3,397.50	3,372.50	25.00

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
6/2/2019	12,803.00	47.30	14.90	12,726.56	-337.87	-341.30	-141.47	13.50	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	12,897.00	60.40	10.20	12,781.91	-264.32	-267.35	-125.27	14.50	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	12,991.00	73.20	7.60	12,818.87	-179.47	-182.16	-112.03	13.85	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	13,086.00	79.80	5.70	12,841.03	-88.05	-90.46	-101.36	7.21	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	13,180.00	87.80	2.50	12,851.18	4.89	2.66	-94.70	9.16	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	13,274.00	88.80	358.60	12,853.97	98.78	96.60	-93.80	4.28	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	13,368.00	90.30	358.40	12,854.71	192.78	190.56	-96.26	1.61	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	13,462.00	90.20	358.70	12,854.30	286.77	284.53	-98.64	0.34	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	13,593.00	90.00	359.80	12,854.07	417.77	415.52	-100.36	0.85	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	13,687.00	88.60	358.00	12,855.22	511.75	509.49	-102.16	2.43	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	13,781.00	87.90	357.90	12,858.09	605.70	603.38	-105.52	0.75	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	13,874.00	90.20	358.30	12,859.63	698.68	696.31	-108.60	2.51	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	13,968.00	89.90	358.70	12,859.55	792.68	790.28	-111.06	0.53	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	14,062.00	90.70	359.40	12,859.06	886.67	884.26	-112.62	1.13	MWD	TOTAL DIRECTIONAL SERV...
6/3/2019	14,157.00	88.20	355.50	12,859.97	981.62	979.14	-116.85	4.88	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,251.00	89.40	356.60	12,861.94	1,075.50	1,072.89	-123.32	1.73	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,345.00	92.40	359.40	12,860.46	1,169.46	1,166.80	-126.60	4.37	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,439.00	92.20	358.00	12,856.69	1,263.38	1,260.70	-128.73	1.50	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,532.00	90.60	355.30	12,854.41	1,356.29	1,353.50	-134.16	3.37	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,626.00	89.70	354.40	12,854.17	1,450.08	1,447.12	-142.60	1.35	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,721.00	89.90	355.10	12,854.50	1,544.86	1,541.72	-151.29	0.77	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,815.00	90.70	357.60	12,854.01	1,638.77	1,635.52	-157.28	2.79	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	14,909.00	90.60	1.50	12,852.94	1,732.74	1,729.49	-158.02	4.15	MWD	TOTAL DIRECTIONAL SERV...
6/4/2019	15,003.00	87.90	359.30	12,854.17	1,826.67	1,823.47	-157.36	3.70	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	15,098.00	87.30	0.30	12,858.15	1,921.57	1,918.38	-157.69	1.23	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	15,192.00	87.20	358.60	12,862.66	2,015.44	2,012.27	-158.59	1.81	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	15,286.00	89.20	358.10	12,865.61	2,109.39	2,106.18	-161.30	2.19	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	15,380.00	89.00	358.40	12,867.09	2,203.38	2,200.12	-164.17	0.38	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	15,474.00	91.60	359.30	12,866.60	2,297.37	2,294.09	-166.05	2.93	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	15,568.00	91.30	357.90	12,864.22	2,391.33	2,388.03	-168.35	1.52	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	15,662.00	91.60	359.90	12,861.84	2,485.30	2,481.98	-170.15	2.15	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	15,756.00	91.90	0.70	12,858.97	2,579.21	2,575.93	-169.66	0.91	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	15,850.00	92.50	1.30	12,855.36	2,673.07	2,669.85	-168.02	0.90	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	15,944.00	89.30	0.20	12,853.88	2,766.98	2,763.81	-166.79	3.60	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,038.00	90.50	358.10	12,854.05	2,860.97	2,857.80	-168.19	2.57	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,132.00	87.50	1.00	12,855.69	2,954.92	2,951.76	-168.93	4.44	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,226.00	91.90	1.10	12,856.18	3,048.81	3,045.72	-167.20	4.68	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,321.00	90.70	0.20	12,854.03	3,143.73	3,140.69	-166.13	1.58	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,415.00	89.40	357.60	12,853.94	3,237.72	3,234.66	-167.93	3.09	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,509.00	92.50	359.70	12,852.38	3,331.69	3,328.60	-170.15	3.98	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	16,603.00	92.00	358.50	12,848.69	3,425.61	3,422.52	-171.62	1.38	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	16,697.00	90.80	1.30	12,846.40	3,519.55	3,516.48	-171.79	3.24	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	16,791.00	89.20	0.20	12,846.40	3,613.48	3,610.46	-170.56	2.07	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	16,885.00	89.00	1.50	12,847.87	3,707.40	3,704.44	-169.16	1.40	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	16,979.00	89.10	357.30	12,849.43	3,801.36	3,798.40	-170.14	4.47	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	17,074.00	91.90	3.60	12,848.60	3,896.25	3,893.34	-169.40	7.26	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	17,168.00	93.90	3.70	12,843.85	3,989.77	3,987.02	-163.42	2.13	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,262.00	91.70	2.10	12,839.26	4,083.39	4,080.78	-158.68	2.89	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,356.00	90.10	359.20	12,837.78	4,177.30	4,174.75	-157.61	3.52	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,449.00	90.10	358.50	12,837.62	4,270.30	4,267.73	-159.48	0.75	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,544.00	90.60	0.20	12,837.04	4,365.29	4,362.72	-160.55	1.87	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,638.00	88.70	359.40	12,837.61	4,459.26	4,456.71	-160.88	2.19	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,732.00	87.70	359.40	12,840.56	4,553.21	4,550.66	-161.87	1.06	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,826.00	87.30	359.40	12,844.66	4,647.11	4,644.56	-162.85	0.43	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	17,920.00	88.60	358.80	12,848.03	4,741.05	4,738.49	-164.33	1.52	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,014.00	91.30	0.20	12,848.11	4,835.02	4,832.48	-165.15	3.24	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,108.00	93.10	1.90	12,844.50	4,928.87	4,926.38	-163.43	2.63	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,202.00	88.80	358.70	12,842.94	5,022.78	5,020.33	-162.94	5.70	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,296.00	87.70	358.00	12,845.81	5,116.73	5,114.25	-165.64	1.39	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,390.00	88.80	358.00	12,848.68	5,210.68	5,208.15	-168.92	1.17	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,484.00	87.00	356.60	12,852.13	5,304.59	5,301.97	-173.34	2.43	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,578.00	88.30	356.70	12,855.98	5,398.45	5,395.73	-178.83	1.39	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,672.00	91.70	357.30	12,855.98	5,492.39	5,489.59	-183.75	3.67	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,767.00	91.30	356.00	12,853.49	5,587.30	5,584.39	-189.30	1.43	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	18,861.00	88.70	353.70	12,853.49	5,681.08	5,678.00	-197.74	3.69	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	18,955.00	91.60	356.60	12,853.25	5,774.88	5,771.64	-205.68	4.36	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	19,049.00	92.40	358.30	12,849.97	5,868.80	5,865.49	-209.86	2.00	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	19,143.00	91.50	359.10	12,846.77	5,962.75	5,959.41	-211.99	1.28	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	19,237.00	89.70	358.70	12,845.78	6,056.74	6,053.38	-213.80	1.96	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	19,331.00	92.00	1.10	12,844.39	6,150.69	6,147.36	-213.96	3.54	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	19,428.00	88.40	360.00	12,844.05	6,247.62	6,244.33	-213.03	3.88	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	19,522.00	89.50	1.30	12,845.77	6,341.54	6,338.31	-211.96	1.81	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	19,616.00	91.20	3.00	12,845.20	6,435.36	6,432.23	-208.44	2.56	MWD	TOTAL DIRECTIONAL SERV...



Well Name: JAYHAWK 7-6 FED FEE COM 16H

Sub-Division	Region	Field Name		County	State/Province	
DELAWARE BASIN	LEA COUNTY CORE	RATTLESNAKE DBBU		LEA	NM	
Surface Legal Location	API/UWI	Latitude (")	Longitude (")	Orig KB Elevation (ft)	Ground Elev MSL (ft)	KB - GL (ft)
7-26S-34E	3002545540	32° 3' 8.487" N	103° 30' 26.563" W	3,397.50	3,372.50	25.00

Survey Data										
Date	MD (ftKB)	Incl (")	Azm (")	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS ("/100ft)	Survey Tool	Survey Company
6/15/2019	19,710.00	91.70	3.30	12,842.82	6,529.04	6,526.06	-203.28	0.62	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	19,804.00	92.00	3.00	12,839.79	6,622.70	6,619.87	-198.11	0.45	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	19,898.00	92.30	2.90	12,836.26	6,716.37	6,713.68	-193.28	0.34	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	19,992.00	90.20	357.10	12,834.21	6,810.28	6,807.61	-193.28	6.56	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	20,085.00	91.10	358.80	12,833.15	6,903.26	6,900.54	-196.61	2.07	MWD	TOTAL DIRECTIONAL SERV...
6/15/2019	20,179.00	90.20	358.60	12,832.09	6,997.25	6,994.51	-198.74	0.98	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,273.00	89.50	357.50	12,832.33	7,091.24	7,088.45	-201.94	1.39	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,367.00	88.50	356.40	12,833.97	7,185.19	7,182.30	-206.94	1.58	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,462.00	90.50	357.90	12,834.80	7,280.14	7,277.17	-211.66	2.63	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,556.00	91.50	357.90	12,833.16	7,374.12	7,371.10	-215.10	1.06	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,650.00	92.80	359.10	12,829.63	7,468.05	7,464.99	-217.56	1.88	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,744.00	92.70	358.60	12,825.12	7,561.94	7,558.87	-219.45	0.54	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	20,839.00	92.30	0.20	12,820.98	7,656.84	7,653.77	-220.44	1.73	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	20,933.00	91.80	1.50	12,817.62	7,750.70	7,747.69	-219.05	1.48	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,027.00	91.10	0.20	12,815.24	7,844.60	7,841.65	-217.65	1.57	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,119.00	91.10	1.20	12,813.47	7,936.53	7,933.63	-216.53	1.09	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,214.00	89.70	359.60	12,812.81	8,031.47	8,028.62	-215.87	2.24	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,308.00	89.70	0.60	12,813.30	8,125.44	8,122.61	-215.70	1.06	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,404.00	89.40	0.50	12,814.06	8,221.39	8,218.61	-214.78	0.33	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,499.00	89.80	0.50	12,814.72	8,316.33	8,313.60	-213.95	0.42	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	21,595.00	90.90	360.00	12,814.13	8,412.29	8,409.60	-213.53	1.26	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	21,690.00	91.50	0.10	12,812.14	8,507.24	8,504.57	-213.45	0.64	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	21,784.00	91.40	0.20	12,809.76	8,601.18	8,598.54	-213.21	0.15	MWD	TOTAL DIRECTIONAL SERV...
6/19/2019	21,879.00	90.20	0.20	12,808.44	8,696.13	8,693.53	-212.87	1.26	MWD	TOTAL DIRECTIONAL SERV...
6/19/2019	21,974.00	91.10	359.60	12,807.36	8,791.10	8,788.52	-213.04	1.14	MWD	TOTAL DIRECTIONAL SERV...
6/19/2019	22,068.00	91.40	0.40	12,805.31	8,885.06	8,882.50	-213.04	0.91	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,162.00	91.60	358.60	12,802.85	8,979.01	8,976.46	-213.86	1.93	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,256.00	89.50	356.00	12,801.95	9,072.97	9,070.34	-218.29	3.56	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,351.00	89.30	358.00	12,802.94	9,167.92	9,165.20	-223.26	2.12	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,444.00	89.60	358.90	12,803.83	9,260.91	9,258.16	-225.77	1.02	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,538.00	92.00	3.10	12,802.52	9,354.79	9,352.11	-224.14	5.15	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,632.00	90.50	3.80	12,800.47	9,448.44	9,445.91	-218.48	1.76	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,727.00	89.90	3.90	12,800.14	9,543.05	9,540.70	-212.10	0.64	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	22,821.00	89.10	2.20	12,800.96	9,636.76	9,634.56	-207.10	2.00	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	22,916.00	88.40	3.50	12,803.03	9,731.48	9,729.41	-202.38	1.55	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	23,010.00	88.10	3.40	12,805.90	9,825.11	9,823.20	-196.72	0.34	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	23,063.00	87.60	3.00	12,807.89	9,877.90	9,876.08	-193.77	1.21	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	23,113.00	87.60	3.00	12,809.98	9,927.72	9,925.97	-191.15	0.00	BIT	