



Directional Survey

ZIA HILLS 25E 401H

Wellbore Name Original Hole				Parent Wellbore Original Hole				Vertical Section Direction (°) 179.60		
Date 7/1/2018			As Ran No			Description SURVEY			Proposed? No	
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		EWTie In (ft) 0.00
Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
7/1/2018	205.00	0.60	228.00	205.00	0.71	-0.72	-0.80	0.29	IncAzi-MWD	MS Energy Services
7/1/2018	392.00	0.60	227.00	391.99	2.03	-2.04	-2.24	0.01	IncAzi-MWD	MS Energy Services
7/2/2018	581.00	0.40	209.30	580.98	3.27	-3.29	-3.29	0.13	IncAzi-MWD	MS Energy Services
7/2/2018	770.00	0.90	222.60	769.97	4.93	-4.96	-4.62	0.27	IncAzi-MWD	MS Energy Services
7/2/2018	864.00	1.30	246.00	863.95	5.89	-5.94	-6.09	0.63	IncAzi-MWD	MS Energy Services
7/4/2018	1,066.00	0.80	246.00	1,065.91	7.38	-7.44	-9.47	0.25	IncAzi-MWD	MS Energy Services
7/4/2018	1,255.00	8.30	84.00	1,254.31	6.57	-6.55	2.92	4.80	IncAzi-MWD	MS Energy Services
7/4/2018	1,444.00	8.60	81.00	1,441.26	3.13	-2.91	30.44	0.28	IncAzi-MWD	MS Energy Services
7/4/2018	1,633.00	10.80	77.70	1,627.55	-2.64	3.07	61.70	1.20	IncAzi-MWD	MS Energy Services
7/4/2018	1,822.00	13.30	77.80	1,812.37	-10.74	11.44	100.26	1.32	IncAzi-MWD	MS Energy Services
7/4/2018	1,917.00	16.10	77.60	1,904.25	-15.71	16.58	123.81	2.95	IncAzi-MWD	MS Energy Services
7/4/2018	2,011.00	16.80	76.50	1,994.40	-21.50	22.55	149.75	0.82	IncAzi-MWD	MS Energy Services
7/4/2018	2,105.00	16.50	77.80	2,084.46	-27.31	28.54	176.01	0.51	IncAzi-MWD	MS Energy Services
7/4/2018	2,199.00	16.40	77.20	2,174.61	-32.89	34.30	201.99	0.21	IncAzi-MWD	MS Energy Services
7/4/2018	2,294.00	15.20	82.70	2,266.03	-37.26	38.85	227.43	2.02	IncAzi-MWD	MS Energy Services
7/4/2018	2,388.00	15.10	83.90	2,356.76	-39.96	41.72	251.82	0.35	IncAzi-MWD	MS Energy Services
7/4/2018	2,482.00	14.30	82.50	2,447.68	-42.61	44.54	275.51	0.93	IncAzi-MWD	MS Energy Services
7/4/2018	2,576.00	14.30	82.50	2,538.77	-45.48	47.57	298.53	0.00	IncAzi-MWD	MS Energy Services
7/4/2018	2,671.00	14.40	82.80	2,630.80	-48.33	50.58	321.88	0.13	IncAzi-MWD	MS Energy Services
7/4/2018	2,766.00	14.10	84.20	2,722.88	-50.82	53.23	345.11	0.48	IncAzi-MWD	MS Energy Services
7/4/2018	2,860.00	13.90	85.30	2,814.09	-52.74	55.31	367.76	0.35	IncAzi-MWD	MS Energy Services
7/4/2018	2,954.00	13.00	83.90	2,905.51	-54.64	57.36	389.52	1.02	IncAzi-MWD	MS Energy Services
7/4/2018	3,049.00	13.90	84.50	2,997.90	-56.71	59.59	411.50	0.96	IncAzi-MWD	MS Energy Services
7/4/2018	3,144.00	13.90	86.00	3,090.12	-58.45	61.48	434.25	0.38	IncAzi-MWD	MS Energy Services
7/5/2018	3,238.00	13.40	85.80	3,181.47	-59.88	63.06	456.37	0.53	IncAzi-MWD	MS Energy Services
7/5/2018	3,333.00	14.40	84.20	3,273.68	-61.72	65.06	479.10	1.13	IncAzi-MWD	MS Energy Services
7/5/2018	3,428.00	14.50	83.50	3,365.68	-64.09	67.60	502.67	0.21	IncAzi-MWD	MS Energy Services
7/5/2018	3,522.00	14.10	83.30	3,456.77	-66.60	70.27	525.74	0.43	IncAzi-MWD	MS Energy Services
7/5/2018	3,616.00	13.70	83.00	3,548.01	-69.14	72.96	548.16	0.43	IncAzi-MWD	MS Energy Services
7/5/2018	3,711.00	14.80	83.70	3,640.09	-71.68	75.67	571.38	1.17	IncAzi-MWD	MS Energy Services
7/5/2018	3,805.00	14.80	84.50	3,730.97	-73.98	78.14	595.27	0.22	IncAzi-MWD	MS Energy Services
7/5/2018	3,899.00	14.40	84.60	3,821.94	-76.06	80.39	618.86	0.43	IncAzi-MWD	MS Energy Services
7/5/2018	3,994.00	13.80	84.50	3,914.07	-78.10	82.58	641.89	0.63	IncAzi-MWD	MS Energy Services
7/5/2018	4,089.00	13.30	86.60	4,006.43	-79.68	84.32	664.08	0.74	IncAzi-MWD	MS Energy Services
7/5/2018	4,184.00	12.80	87.90	4,098.98	-80.56	85.35	685.51	0.61	IncAzi-MWD	MS Energy Services
7/5/2018	4,278.00	14.40	85.20	4,190.34	-81.77	86.71	707.56	1.83	IncAzi-MWD	MS Energy Services
7/5/2018	4,373.00	15.60	84.90	4,282.10	-83.72	88.84	732.06	1.27	IncAzi-MWD	MS Energy Services
7/5/2018	4,467.00	15.10	87.50	4,372.75	-85.21	90.49	756.88	0.90	IncAzi-MWD	MS Energy Services
7/5/2018	4,562.00	14.30	88.20	4,464.64	-85.95	91.40	780.97	0.86	IncAzi-MWD	MS Energy Services
7/5/2018	4,621.00	14.30	88.20	4,521.81	-86.30	91.86	795.53	0.00	IncAzi-MWD	MS Energy Services
7/5/2018	4,751.00	12.40	88.78	4,648.29	-86.89	92.66	825.54	1.47	IncAzi-MWD	MS Energy Services
7/5/2018	4,836.00	12.10	88.73	4,731.35	-87.16	93.05	843.57	0.35	IncAzi-MWD	MS Energy Services
9/26/2018	4,895.00	12.10	88.73	4,789.04	-87.35	93.33	855.93	0.00	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	4,958.00	12.04	85.46	4,850.65	-87.92	93.99	869.08	1.09	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,052.00	14.06	81.65	4,942.22	-90.21	96.43	890.16	2.33	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,147.00	14.58	79.86	5,034.27	-93.83	100.21	913.34	0.72	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,241.00	14.07	79.04	5,125.35	-97.93	104.46	936.21	0.58	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,336.00	13.28	77.61	5,217.65	-102.31	109.00	958.20	0.90	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,431.00	14.21	77.38	5,309.93	-107.04	113.89	980.24	0.98	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,526.00	15.89	79.76	5,401.67	-111.73	118.75	1,004.42	1.88	IncAzi-MWD	PHEONIX DIRECTIONAL



Directional Survey

ZIA HILLS 25E 401H

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
9/26/2018	5,620.00	16.03	79.52	5,492.05	-116.20	123.40	1,029.84	0.16	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,714.00	15.04	79.40	5,582.61	-120.64	128.00	1,054.59	1.05	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,808.00	13.70	77.63	5,673.67	-125.10	132.63	1,077.46	1.50	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,903.00	14.44	78.48	5,765.82	-129.72	137.41	1,100.05	0.81	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	5,997.00	15.14	79.26	5,856.70	-134.19	142.03	1,123.60	0.77	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,091.00	14.93	76.91	5,947.49	-139.05	147.06	1,147.45	0.69	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,186.00	15.03	82.57	6,039.26	-143.25	151.43	1,171.59	1.54	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,280.00	15.34	82.33	6,129.98	-146.31	154.66	1,196.00	0.34	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,374.00	15.17	80.57	6,220.67	-149.81	158.34	1,220.45	0.52	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,468.00	15.12	79.16	6,311.40	-153.97	162.66	1,244.62	0.40	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,562.00	15.15	84.93	6,402.15	-157.19	166.05	1,268.90	1.60	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,657.00	14.48	83.61	6,493.99	-159.44	168.47	1,293.07	0.79	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,751.00	14.30	83.28	6,585.04	-161.94	171.14	1,316.28	0.21	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,845.00	13.28	81.58	6,676.33	-164.73	174.08	1,338.49	1.17	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	6,939.00	14.66	84.65	6,767.55	-167.26	176.77	1,361.01	1.67	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	7,033.00	15.05	84.20	6,858.41	-169.43	179.11	1,385.00	0.43	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	7,127.00	13.40	83.26	6,949.52	-171.79	181.62	1,407.96	1.77	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	7,221.00	15.28	85.68	7,040.59	-173.84	183.83	1,431.13	2.10	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	7,315.00	14.64	85.21	7,131.40	-175.59	185.76	1,455.32	0.69	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	7,409.00	16.22	84.97	7,222.01	-177.56	187.90	1,480.23	1.68	IncAzi-MWD	PHEONIX DIRECTIONAL
9/26/2018	7,503.00	13.92	83.82	7,312.78	-179.76	190.27	1,504.56	2.47	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	7,650.00	13.92	83.82	7,455.46	-183.32	194.08	1,539.71	0.00	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	7,691.00	15.30	84.14	7,495.13	-184.33	195.16	1,550.00	3.37	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	7,785.00	14.59	84.36	7,585.95	-186.59	197.59	1,574.12	0.76	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	7,880.00	12.60	84.45	7,678.29	-188.62	199.77	1,596.34	2.09	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	7,974.00	14.14	82.86	7,769.73	-190.89	202.19	1,617.94	1.68	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,068.00	13.31	83.19	7,861.05	-193.44	204.90	1,640.08	0.89	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,162.00	11.80	83.09	7,952.80	-195.74	207.34	1,660.36	1.61	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,256.00	12.74	80.31	8,044.65	-198.50	210.24	1,680.12	1.18	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,350.00	12.04	80.13	8,136.46	-201.79	213.66	1,700.00	0.75	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,445.00	10.72	80.74	8,229.59	-204.78	216.78	1,718.48	1.40	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,539.00	9.70	81.21	8,322.10	-207.28	219.40	1,734.94	1.09	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,633.00	7.88	80.53	8,414.99	-209.45	221.67	1,749.12	1.94	IncAzi-MWD	PHEONIX DIRECTIONAL



Directional Survey

ZIA HILLS 25E 401H

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
9/27/2018	8,727.00	6.15	78.34	8,508.29	-211.45	223.75	1,760.41	1.86	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,822.00	5.22	79.92	8,602.82	-213.17	225.53	1,769.65	0.99	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	8,916.00	4.45	83.06	8,696.48	-214.31	226.72	1,777.48	0.87	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	9,010.00	3.32	81.50	8,790.27	-215.11	227.56	1,783.79	1.21	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	9,104.00	2.54	76.42	8,884.14	-215.96	228.46	1,788.51	0.87	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	9,198.00	0.96	90.79	8,978.10	-216.42	228.93	1,791.32	1.73	IncAzi-MWD	PHEONIX DIRECTIONAL
9/27/2018	9,292.00	0.20	257.81	9,072.09	-216.37	228.89	1,791.94	1.23	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,482.00	9.32	179.65	9,261.25	-200.89	213.40	1,791.71	4.88	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,529.00	13.81	170.33	9,307.29	-191.54	204.06	1,792.68	10.32	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,576.00	17.86	167.73	9,352.50	-178.94	191.48	1,795.16	8.75	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,623.00	21.18	166.42	9,396.79	-163.62	176.18	1,798.68	7.12	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,670.00	25.81	165.64	9,439.88	-145.41	158.01	1,803.21	9.87	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,717.00	29.93	165.58	9,481.42	-124.10	136.73	1,808.67	8.77	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,764.00	29.89	166.79	9,522.16	-101.30	113.97	1,814.27	1.29	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,811.00	28.54	169.37	9,563.18	-78.83	91.53	1,819.02	3.93	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,858.00	29.96	171.24	9,604.19	-56.17	68.90	1,822.88	3.59	IncAzi-MWD	PHEONIX DIRECTIONAL
9/28/2018	9,905.00	31.75	170.71	9,644.54	-32.34	45.09	1,826.66	3.85	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	9,999.00	39.18	169.57	9,721.05	21.41	-8.59	1,836.04	7.94	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,046.00	43.04	169.70	9,756.45	51.84	-38.99	1,841.60	8.21	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,093.00	47.48	168.57	9,789.53	84.66	-71.76	1,847.90	9.60	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,141.00	52.70	168.32	9,820.31	120.77	-107.82	1,855.28	10.88	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,188.00	57.18	167.84	9,847.30	158.45	-145.45	1,863.23	9.57	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,234.00	61.64	167.86	9,870.71	197.21	-184.15	1,871.56	9.70	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,281.00	66.64	167.28	9,891.20	238.56	-225.44	1,880.66	10.70	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,328.00	72.59	166.06	9,907.56	281.48	-268.29	1,890.83	12.89	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,375.00	78.74	165.85	9,919.20	325.71	-312.44	1,901.87	13.09	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,423.00	84.51	167.67	9,926.18	371.99	-358.65	1,912.74	12.59	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,470.00	89.11	170.34	9,928.80	418.10	-404.70	1,921.68	11.31	IncAzi-MWD	PHEONIX DIRECTIONAL
9/29/2018	10,517.00	89.78	171.31	9,929.26	464.55	-451.09	1,929.18	2.51	IncAzi-MWD	PHEONIX DIRECTIONAL
9/30/2018	10,610.00	90.22	173.34	9,929.26	556.80	-543.25	1,941.60	2.23	IncAzi-MWD	PHEONIX DIRECTIONAL
9/30/2018	10,704.00	89.72	172.73	9,929.30	650.18	-636.56	1,953.00	0.84	IncAzi-MWD	PHEONIX DIRECTIONAL
9/30/2018	10,799.00	88.93	172.01	9,930.42	744.41	-730.71	1,965.61	1.13	IncAzi-MWD	PHEONIX DIRECTIONAL
9/30/2018	10,893.00	89.13	171.58	9,932.01	837.53	-823.73	1,979.02	0.50	IncAzi-MWD	PHEONIX DIRECTIONAL



Directional Survey

ZIA HILLS 25E 401H

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
10/2/2018	11,004.00	90.48	174.53	9,932.39	947.79	-933.90	1,992.44	2.92	IncAzi-MWD	PHEONIX DIRECTIONAL
10/2/2018	11,098.00	90.17	176.75	9,931.86	1,041.56	-1,027.63	1,999.59	2.38	IncAzi-MWD	PHEONIX DIRECTIONAL
10/3/2018	11,288.00	89.58	181.03	9,932.27	1,231.50	-1,217.54	2,003.27	2.27	IncAzi-MWD	PHEONIX DIRECTIONAL
10/3/2018	11,382.00	89.94	181.31	9,932.67	1,325.46	-1,311.52	2,001.35	0.49	IncAzi-MWD	PHEONIX DIRECTIONAL
10/3/2018	11,477.00	89.30	180.95	9,933.30	1,420.43	-1,406.50	1,999.47	0.77	IncAzi-MWD	PHEONIX DIRECTIONAL
10/3/2018	11,572.00	88.49	178.58	9,935.13	1,515.40	-1,501.48	1,999.86	2.64	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	11,644.00	88.49	178.58	9,937.03	1,587.36	-1,573.43	2,001.65	0.00	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	11,666.00	90.11	179.06	9,937.30	1,609.36	-1,595.42	2,002.10	7.68	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	11,760.00	90.31	179.09	9,936.95	1,703.36	-1,689.41	2,003.62	0.22	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	11,855.00	90.36	180.79	9,936.40	1,798.35	-1,784.40	2,003.72	1.79	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	11,949.00	89.55	180.83	9,936.47	1,892.33	-1,878.39	2,002.39	0.86	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,043.00	90.09	181.10	9,936.77	1,986.30	-1,972.38	2,000.80	0.64	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,138.00	88.85	180.89	9,937.64	2,081.27	-2,067.36	1,999.15	1.32	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,232.00	89.80	180.71	9,938.75	2,175.24	-2,161.34	1,997.84	1.03	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,326.00	89.58	180.62	9,939.26	2,269.22	-2,255.33	1,996.75	0.25	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,420.00	90.31	180.77	9,939.35	2,363.20	-2,349.33	1,995.61	0.79	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,515.00	89.64	180.45	9,939.39	2,458.19	-2,444.32	1,994.60	0.78	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,609.00	91.18	180.06	9,938.72	2,552.17	-2,538.31	1,994.18	1.69	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,703.00	90.95	179.69	9,936.97	2,646.16	-2,632.30	1,994.39	0.46	IncAzi-MWD	PHEONIX DIRECTIONAL
10/4/2018	12,798.00	89.72	178.93	9,936.42	2,741.15	-2,727.29	1,995.53	1.52	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	12,893.00	89.75	179.35	9,936.86	2,836.15	-2,822.27	1,996.96	0.44	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	12,987.00	89.27	179.18	9,937.66	2,930.14	-2,916.26	1,998.16	0.54	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,082.00	89.30	179.00	9,938.85	3,025.13	-3,011.24	1,999.67	0.19	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,177.00	91.74	179.07	9,937.98	3,120.11	-3,106.22	2,001.27	2.57	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,271.00	91.52	178.51	9,935.31	3,214.07	-3,200.16	2,003.25	0.64	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,365.00	90.61	177.53	9,933.56	3,308.01	-3,294.09	2,006.50	1.42	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,459.00	90.48	177.27	9,932.67	3,401.94	-3,387.98	2,010.77	0.31	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,554.00	91.01	180.71	9,931.43	3,496.91	-3,482.95	2,012.44	3.66	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,648.00	89.58	180.04	9,930.95	3,590.90	-3,576.94	2,011.83	1.68	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,743.00	90.98	180.15	9,930.48	3,685.89	-3,671.94	2,011.67	1.48	IncAzi-MWD	PHEONIX DIRECTIONAL
10/5/2018	13,837.00	90.11	179.43	9,929.59	3,779.89	-3,765.93	2,012.01	1.20	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	13,932.00	90.25	178.73	9,929.29	3,874.88	-3,860.92	2,013.54	0.75	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,026.00	92.07	178.44	9,927.39	3,968.84	-3,954.87	2,015.86	1.96	IncAzi-MWD	PHEONIX DIRECTIONAL



Directional Survey

ZIA HILLS 25E 401H

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
10/6/2018	14,121.00	91.12	177.41	9,924.74	4,063.76	-4,049.76	2,019.30	1.47	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,216.00	90.42	178.64	9,923.47	4,158.72	-4,144.70	2,022.57	1.49	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,310.00	91.04	180.40	9,922.27	4,252.70	-4,238.68	2,023.36	1.98	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,405.00	90.51	181.23	9,920.99	4,347.67	-4,333.66	2,022.01	1.04	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,499.00	92.72	181.96	9,918.34	4,441.57	-4,427.58	2,019.39	2.48	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,594.00	92.80	181.92	9,913.76	4,536.38	-4,522.42	2,016.18	0.09	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,688.00	91.62	181.26	9,910.14	4,630.25	-4,616.31	2,013.57	1.44	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,783.00	91.31	180.92	9,907.71	4,725.19	-4,711.26	2,011.77	0.48	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,877.00	90.84	180.63	9,905.94	4,819.15	-4,805.23	2,010.50	0.59	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	14,972.00	88.46	179.47	9,906.52	4,914.14	-4,900.22	2,010.41	2.79	IncAzi-MWD	PHEONIX DIRECTIONAL
10/6/2018	15,066.00	88.15	179.05	9,909.31	5,008.10	-4,994.18	2,011.63	0.56	IncAzi-MWD	PHEONIX DIRECTIONAL
10/7/2018	15,161.00	88.18	178.66	9,912.35	5,103.04	-5,089.11	2,013.52	0.41	IncAzi-MWD	PHEONIX DIRECTIONAL
10/7/2018	15,170.00	88.32	179.05	9,912.62	5,112.04	-5,098.10	2,013.70	4.58	IncAzi-MWD	PHEONIX DIRECTIONAL
10/7/2018	15,255.00	87.76	179.69	9,915.53	5,196.98	-5,183.05	2,014.64	1.00	IncAzi-MWD	PHEONIX DIRECTIONAL
10/7/2018	15,349.00	90.50	180.63	9,916.96	5,290.96	-5,277.02	2,014.37	3.08	IncAzi-MWD	PHEONIX DIRECTIONAL
10/7/2018	15,443.00	87.70	178.33	9,918.44	5,384.93	-5,370.99	2,015.23	3.85	IncAzi-MWD	PHEONIX DIRECTIONAL
10/7/2018	15,538.00	92.22	179.58	9,918.50	5,479.90	-5,465.95	2,016.96	4.94	IncAzi-MWD	PHEONIX DIRECTIONAL
10/8/2018	15,612.00	91.82	179.48	9,915.89	5,553.85	-5,539.90	2,017.57	0.56	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	15,709.00	92.04	178.98	9,912.63	5,650.80	-5,636.84	2,018.87	0.56	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	15,763.00	91.82	179.48	9,910.81	5,704.76	-5,690.80	2,019.59	1.01	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	15,803.00	91.59	179.09	9,909.62	5,744.74	-5,730.78	2,020.09	1.13	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	15,897.00	90.36	178.87	9,908.02	5,838.72	-5,824.75	2,021.77	1.33	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	15,991.00	89.52	179.96	9,908.12	5,932.72	-5,918.74	2,022.73	1.46	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,086.00	90.95	181.12	9,907.73	6,027.70	-6,013.73	2,021.83	1.94	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,180.00	90.92	180.75	9,906.19	6,121.67	-6,107.71	2,020.30	0.39	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,274.00	90.53	180.44	9,905.01	6,215.64	-6,201.70	2,019.32	0.53	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,368.00	90.14	180.34	9,904.46	6,309.63	-6,295.69	2,018.68	0.43	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,462.00	91.93	180.16	9,902.76	6,403.61	-6,389.67	2,018.27	1.91	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,557.00	92.52	179.48	9,899.07	6,498.53	-6,484.60	2,018.57	0.95	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,652.00	92.13	179.36	9,895.22	6,593.45	-6,579.52	2,019.53	0.43	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,746.00	91.56	179.47	9,892.19	6,687.41	-6,673.46	2,020.49	0.62	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	16,935.00	90.95	179.54	9,888.05	6,876.36	-6,862.41	2,022.12	0.32	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	17,029.00	90.17	179.78	9,887.13	6,970.35	-6,956.40	2,022.68	0.87	IncAzi-MWD	PHEONIX DIRECTIONAL



Directional Survey

ZIA HILLS 25E 401H

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Method	Survey Company
10/9/2018	17,124.00	89.83	179.72	9,887.13	7,065.35	-7,051.40	2,023.09	0.36	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	17,218.00	88.91	179.22	9,888.16	7,159.35	-7,145.39	2,023.96	1.11	IncAzi-MWD	PHEONIX DIRECTIONAL
10/9/2018	17,282.00	88.91	179.22	9,889.38	7,223.33	-7,209.37	2,024.83	0.00	Projection	PHEONIX DIRECTIONAL

```

H      HEADER  INFORMAT-----
H      COMPANY :      ConocoPhi MCBU      -      Permian-P: Gold      Data
H      FIELD   :      Planning  -      NM      East      State      Zone      -
H      SITE    :      ZIA      HILLS      25E      FEDERAL      COM      401H
H      WELL    :      ZIA      HILLS      25E      FEDERAL      COM      401H
H      WELLPATH ZIA      HILLS      25E      FEDERAL      COM      401H
H      DEPTHUNT ft
H      SURVDATE #####
H-----
H      WELL    INFORMATION
H      WELL    EW      MAP      :      718973.3
H      WELL    NS      MAP      :      371759.3
H      DATUM    ELEVN   :      3161.11
H      VSECT    ANGLE   :      179.6
H      VSECT    NORTH   :      0
H      VSECT    EAST    :      0
H-----
H      SURVEY  TYPE      INFORMATION
H      205 -      4836 WELLBORE SECTION      -1 :      MWD+IFR1+MS_COP
H      4958 -      17281 PHOENIX MWD      SURVEYS :      MWD
H-----
SURVEY  LIST
MD      INC      AZI      TVD      NS      EW
4836      12.1      88.73      4731.4      74.27      849.35
4958      12.04      85.46      4850.71      75.56      874.82
5052      14.06      81.65      4942.28      78      895.89
5147      14.58      79.86      5034.33      81.78      919.08
5241      14.07      79.04      5125.4      86.03      941.94
5336      13.28      77.61      5217.71      90.57      963.94
5431      14.21      77.38      5309.99      95.46      985.97
5526      15.89      79.76      5401.73      100.32      1010.15
5620      16.03      79.52      5492.1      104.97      1035.58
5714      15.04      79.4      5582.67      109.57      1060.33
5808      13.7      77.63      5673.73      114.2      1083.19
5903      14.44      78.48      5765.88      118.97      1105.79
5997      15.14      79.26      5856.76      123.6      1129.33
6091      14.93      76.91      5947.54      128.63      1153.19
6186      15.03      82.57      6039.32      133      1177.32
6280      15.34      82.33      6130.04      136.23      1201.73
6374      15.17      80.57      6220.73      139.91      1226.19
6468      15.12      79.16      6311.46      144.23      1250.36
6562      15.15      84.93      6402.21      147.62      1274.64
6657      14.48      83.61      6494.05      150.04      1298.81
6751      14.3      83.28      6585.1      152.71      1322.01
6845      13.28      81.58      6676.39      155.64      1344.22
6939      14.66      84.65      6767.61      158.33      1366.75
7033      15.05      84.2      6858.47      160.68      1390.73

```

7127	13.4	83.26	6949.58	163.19	1413.69
7221	15.28	85.68	7040.65	165.4	1436.86
7315	14.64	85.21	7131.46	167.33	1461.05
7409	16.22	84.97	7222.07	169.47	1485.97
7503	13.92	83.82	7312.83	171.84	1510.29
7597	14.99	83.23	7403.85	174.49	1533.6
7691	15.3	84.14	7494.59	177.19	1558.01
7785	14.59	84.36	7585.41	179.62	1582.13
7880	12.6	84.45	7677.74	181.8	1604.36
7974	14.14	82.86	7769.19	184.21	1625.95
8068	13.31	83.19	7860.51	186.92	1648.09
8162	11.8	83.09	7952.26	189.36	1668.38
8256	12.74	80.31	8044.11	192.26	1688.14
8350	12.04	80.13	8135.92	195.69	1708.01
8445	10.72	80.74	8229.05	198.81	1726.5
8539	9.7	81.21	8321.56	201.43	1742.95
8633	7.88	80.53	8414.45	203.7	1757.13
8727	6.15	78.34	8507.75	205.78	1768.42
8822	5.22	79.92	8602.28	207.56	1777.66
8916	4.45	83.06	8695.94	208.75	1785.49
9010	3.32	81.5	8789.73	209.59	1791.8
9104	2.54	76.42	8883.6	210.48	1796.52
9198	0.96	90.79	8977.56	210.96	1799.33
9292	0.2	257.81	9071.55	210.92	1799.96
9388	1.24	268.43	9167.54	210.85	1798.76
9435	4.14	195.65	9214.49	209.2	1797.79
9482	9.32	179.65	9261.16	203.76	1797.36
9529	13.81	170.33	9307.2	194.42	1798.32
9576	17.86	167.73	9352.4	181.84	1800.8
9623	21.18	166.42	9396.7	166.54	1804.32
9670	25.81	165.64	9439.79	148.37	1808.86
9717	29.93	165.58	9481.33	127.09	1814.32
9764	29.89	166.79	9522.07	104.33	1819.91
9811	28.54	169.37	9563.09	81.9	1824.66
9858	29.96	171.24	9604.1	59.26	1828.52
9905	31.75	170.71	9644.44	35.45	1832.3
9952	35.31	170.3	9683.62	9.85	1836.59
9999	39.18	169.57	9721.02	-18.15	1841.57
10046	43.04	169.7	9756.43	-48.54	1847.13
10093	47.48	168.57	9789.51	-81.31	1853.43
10141	52.7	168.32	9820.29	-117.37	1860.8
10188	57.18	167.84	9847.28	-155	1868.75
10234	61.64	167.86	9870.69	-193.71	1877.08
10281	66.64	167.28	9891.18	-234.99	1886.19
10328	72.59	166.06	9907.54	-277.84	1896.35
10375	78.74	165.85	9919.17	-322	1907.4
10423	84.51	167.67	9926.16	-368.2	1918.26

10470	89.11	170.34	9928.78	-414.25	1927.21
10516	89.78	171.31	9929.22	-459.66	1934.54
10610	90.22	173.34	9929.22	-552.81	1947.1
10704	89.72	172.73	9929.27	-646.12	1958.49
10799	88.93	172.01	9930.39	-740.27	1971.11
10893	89.13	171.58	9931.98	-833.29	1984.52
11004	90.48	174.53	9932.36	-943.46	1997.94
11098	90.17	176.75	9931.83	-1037.18	2005.09
11193	89.64	178.77	9931.99	-1132.11	2008.8
11288	89.58	181.03	9932.63	-1227.1	2008.96
11382	89.94	181.31	9933.03	-1321.08	2007.04
11477	89.3	180.95	9933.66	-1416.05	2005.17
11572	88.49	178.58	9935.49	-1511.03	2005.56
11666	90.11	179.06	9936.64	-1605	2007.5
11760	90.31	179.09	9936.29	-1698.99	2009.01
11855	90.36	180.79	9935.74	-1793.98	2009.11
11949	89.55	180.83	9935.81	-1887.97	2007.78
12043	90.09	181.1	9936.11	-1981.96	2006.2
12138	88.85	180.89	9936.99	-2076.94	2004.55
12232	89.8	180.71	9938.09	-2170.92	2003.24
12326	89.58	180.62	9938.6	-2264.91	2002.15
12420	90.31	180.77	9938.69	-2358.9	2001.01
12515	89.64	180.45	9938.73	-2453.9	2000
12609	91.18	180.06	9938.06	-2547.89	1999.58
12703	90.95	179.69	9936.31	-2641.87	1999.78
12798	89.72	178.93	9935.76	-2736.86	2000.93
12893	89.75	179.35	9936.2	-2831.85	2002.35
12987	89.27	179.18	9937	-2925.84	2003.56
13082	89.3	179	9938.19	-3020.82	2005.07
13177	91.74	179.07	9937.32	-3115.8	2006.67
13271	91.52	178.51	9934.65	-3209.74	2008.65
13365	90.61	177.53	9932.9	-3303.66	2011.9
13459	90.48	177.27	9932.01	-3397.56	2016.16
13554	91.01	180.71	9930.77	-3492.52	2017.84
13648	89.58	180.04	9930.29	-3586.52	2017.22
13743	90.98	180.15	9929.83	-3681.51	2017.06
13837	90.11	179.43	9928.93	-3775.51	2017.41
13932	90.25	178.73	9928.63	-3870.49	2018.93
14026	92.07	178.44	9926.73	-3964.44	2021.26
14121	91.12	177.41	9924.09	-4059.34	2024.69
14216	90.42	178.64	9922.81	-4154.27	2027.97
14310	91.04	180.4	9921.61	-4248.26	2028.75
14405	90.51	181.23	9920.33	-4343.24	2027.4
14499	92.72	181.96	9917.68	-4437.16	2024.79
14594	92.8	181.92	9913.1	-4531.99	2021.58
14688	91.62	181.26	9909.48	-4625.89	2018.97
14783	91.31	180.92	9907.05	-4720.84	2017.16

14877	90.84	180.63	9905.29	-4814.81	2015.89
14972	88.46	179.47	9905.87	-4909.8	2015.81
15066	88.15	179.05	9908.65	-5003.75	2017.02
15161	88.18	178.66	9911.69	-5098.68	2018.92
15255	87.76	179.69	9915.02	-5192.61	2020.27
15349	90.5	180.63	9916.45	-5286.59	2020.01
15443	87.7	178.33	9917.92	-5380.56	2020.86
15538	92.22	179.58	9917.99	-5475.52	2022.59
15612	91.82	179.48	9915.38	-5549.47	2023.2
15709	92.04	178.98	9912.11	-5646.41	2024.5
15803	91.59	179.09	9909.14	-5740.35	2026.09
15897	90.36	178.87	9907.54	-5834.32	2027.76
15991	89.52	179.96	9907.63	-5928.31	2028.72
16086	90.95	181.12	9907.25	-6023.3	2027.82
16180	90.92	180.75	9905.71	-6117.27	2026.29
16274	90.53	180.44	9904.52	-6211.26	2025.31
16368	90.14	180.34	9903.97	-6305.26	2024.67
16462	91.93	180.16	9902.27	-6399.24	2024.26
16557	92.52	179.48	9898.59	-6494.16	2024.56
16652	92.13	179.36	9894.73	-6589.08	2025.52
16746	91.56	179.47	9891.71	-6683.03	2026.48
16840	91.29	179.89	9889.37	-6777	2027.01
16935	90.95	179.54	9887.51	-6871.98	2027.48
17029	90.17	179.78	9886.59	-6965.97	2028.04
17124	89.83	179.72	9886.59	-7060.97	2028.45
17218	88.91	179.22	9887.63	-7154.96	2029.32
17227	88.91	179.22	9887.8	-7163.95	2029.44
17281	88.91	179.22	9888.82	-7217.94	2030.18

3001