



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/13/2020, Rpt #25
Plan Days: 27.94, DFS: 17.86
100.00% WI, Progress: 2,090 ft

Time Log					
Start Time	Dur (hr)	Phase	Activity	Com	UE Time (hr)
20:30	3.50	PRODCSG, DRILL, 3/13/2020 06:00	DRLRS	Drill Lateral Section F/ 13,503' - T/ 14,106'. AROP = 172 fph MW = 10.8 ppg Pump 25 ppb LCM sweeps every other stand. Lost 529 bbls of mud due to drilling activities.	

Unscheduled Events	
Event Reference No. 13	Event Description Troubleshott problem with MWD signal.
Event Reference No. 14	Event Description Muster all personnel in Tornado Shelter due to Tornado Warning.

Drill String/BHA			
BHA #9, Rotary Steerable			
Bit Run 1	Drill Bit 6 3/4in, GT53DHE, 13436408	Make Halliburton	IADC Bit Dull 1-3-WT-S-X-I-NO-TD
TFA (incl Noz) (in²) 0.45			
Nozzles (1/32") 11/11/11/11/10	String Length (ft) 20,628.00	Weight of String in Air (1000lbf) 346	BHA ROP (ft/hr) 183.8

Survey Data										
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)
12,083	89.70	348.08	11,356.93	1,376.55	403.72	1,208.31	2.23	1,434.53	-1.86	1.23
12,178	89.28	344.13	11,357.77	1,468.75	380.91	1,303.21	4.18	1,517.34	-0.44	-4.16
12,272	89.59	344.87	11,358.70	1,559.32	355.80	1,397.19	0.85	1,599.40	0.33	0.79
12,367	89.80	343.36	11,359.21	1,650.69	329.79	1,492.19	1.60	1,683.31	0.22	-1.59
12,461	89.87	343.13	11,359.48	1,740.70	302.70	1,586.18	0.26	1,766.82	0.07	-0.24
12,556	89.80	343.07	11,359.75	1,831.60	275.08	1,681.18	0.10	1,852.14	-0.07	-0.06
12,650	89.73	341.29	11,360.13	1,921.08	246.31	1,775.14	1.90	1,936.81	-0.07	-1.89
12,745	89.42	341.74	11,360.84	2,011.18	216.19	1,870.06	0.58	2,022.76	-0.33	0.47
12,839	89.73	343.49	11,361.54	2,100.88	188.11	1,964.04	1.89	2,109.28	0.33	1.86
12,934	89.87	343.37	11,361.87	2,191.93	161.02	2,059.04	0.19	2,197.84	0.15	-0.13
13,029	89.76	343.80	11,362.18	2,283.06	134.17	2,154.04	0.47	2,287.00	-0.12	0.45
13,217	90.45	346.03	11,361.83	2,464.57	85.25	2,341.98	1.24	2,466.04	0.37	1.19
13,406	90.35	346.52	11,360.51	2,648.17	40.41	2,530.79	0.26	2,648.47	-0.05	0.26
13,501	90.49	346.51	11,359.81	2,740.54	18.25	2,625.68	0.15	2,740.60	0.15	-0.01
13,595	90.32	344.15	11,359.15	2,831.47	-5.55	2,719.63	2.52	2,831.48	-0.18	-2.51
13,689	90.39	344.21	11,358.57	2,921.91	-31.17	2,813.63	0.10	2,922.08	0.07	0.06
13,784	90.42	344.40	11,357.90	3,013.36	-56.87	2,908.62	0.20	3,013.90	0.03	0.20
13,878	90.04	344.67	11,357.52	3,103.96	-81.94	3,002.61	0.50	3,105.04	-0.40	0.29
13,973	90.63	345.20	11,356.96	3,195.69	-106.63	3,097.59	0.83	3,197.47	0.62	0.56
14,067	89.73	343.96	11,356.67	3,286.31	-131.62	3,191.57	1.63	3,288.94	-0.96	-1.32

Last Casing String					
Casing Description Drilling Liner 1	OD (in) 7 5/8	Weight/Length (lb/ft) 29.70	String Grade L-80	Top Connection TSH 513	Set Depth (MD) (ftOTH) 10182



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/14/2020, Rpt #26
Plan Days: 27.94, DFS: 18.86
100.00% WI, Progress: 3,458 ft

Jobs															
Primary Wellbore Affected Original Hole		Job Category Drill		Primary Job Type Drill and Suspend		SBU Drilling Well Category D9		Directional Type Horizontal		Well Type Oil Producer					
Business Unit Mid-Continent		Area Delaware Basin		County/ Parish Ward		State/Province Texas		Latitude (°) 31° 36' 44.96" N		Longitude (°) 103° 16' 14.495" W					
Directions To Well Midland: Get on I-20W. Take exit 66 TX-115/FM1927 towards Pyote/Kermitt for 0.3 m. Turn right (North) onto TX-115N. Travel 0.3 m and turn left onto HWY 2355/3rd St. Travel 9.64 m and turn right off HWY 2355 by Plains Oil Tank Farm (white tanks), onto lease road – rig sign is out. Travel North for 1.55 m and turn left (West) – rig sign is out. Travel 0.2 m and turn left (South). Travel 0.15 m and pad is on the right.															
Daily Operations															
Status at Reporting Time 04:00 hrs: Drilling Lateral Section @ 18,350'						Projected Operations Drill Production Lateral Section. SIF: WAH									
Operations Summary Drill 6-3/4" lateral section F/ 14,106' - T/ 14,266'. Cycle pumps & re-log 6-3/4" hole F/ 14,198' - T/ 14,266'. Drill lateral F/ 14,266' - T/ 17,598'.						Comments IFO: No incidents, Spills, or Near Misses H2S Potential: Green Past 24 hr Goal: Drilling lateral @ 17,410'. Goal Status: Achieved Upcoming 24 hr Goal: Drilling lateral @ 20,715'. Forecasted 72 hr EAR Checklist items on WAR University Pad: N/A MOC: MOC-19-0171 Use of cement head in lieu of FOSV MOC-19-074E Utilization of auto-fill float equipment in MCBU MOC-19-0987 Testing BOPE to 6,650 psi vs 5,000 psi as per EAR checklist MOC-20-0093 Ballooning Verification									
Target Formation 3rd Bone Spring				Target Depth (MD) (ftOTH) 21,943		Time Log Total Hours (hr) 24.00			Drilling Hours (hr) 17.39						
Depth Start (MD) (ftOTH) 14,129				Start Depth (TVD) (ftOTH) 11,356.9		Depth End (MD) (ftOTH) 17,598			End Depth (TVD) (ftOTH) 11,408.8						
Cum Time Log Days From Spud (days) 18.86				Avg ROP (ft/hr) 198.9		Cum Problem Time Hours (hr) 38.00			Cum Percent Problem Time (%) 7.48						
Mud Checks															
Fluids Vendor QMax		Depth (MD) (ftOTH) 15,550.0		Mud/Brine Type NAF		Fluid Density (lb/gal) 10.85		pH		Funnel Viscosity (s/qt) 56		PV Calc (cP) 16		YP Calc (lb/100ft²) 10	
Chlorides (mg/L) 40,000		Gel 10 sec (lb/100ft²) 8.0		Gel 10 min (lb/100ft²) 13.0		Gel 30 min (lb/100ft²) 16.0		API Filtrate (cc/30min)		API Filter Cake (1/32")		High Gravity Solids (%) 7.0		Low Gravity Solids (%) 8.4	
Fluids Vendor QMax		Depth (MD) (ftOTH) 16,900.0		Mud/Brine Type NAF		Fluid Density (lb/gal) 10.70		pH		Funnel Viscosity (s/qt) 55		PV Calc (cP) 14		YP Calc (lb/100ft²) 10	
Chlorides (mg/L) 44,000		Gel 10 sec (lb/100ft²) 7.0		Gel 10 min (lb/100ft²) 12.0		Gel 30 min (lb/100ft²) 16.0		API Filtrate (cc/30min)		API Filter Cake (1/32")		High Gravity Solids (%) 7.5		Low Gravity Solids (%) 6.3	
Time Log															
Start Time	Dur (hr)	Phase		Activity	Com					UE Time (hr)					
00:00	0.75	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill Lateral Section F/ 14,106' - T/ 14,266'. AROP = 213.3 fph MW = 10.8 ppg Pump 25 ppb LCM sweeps every other stand.										
00:45	0.75	PRODCSG, DRILL, 3/13/2020 06:00		LOGREPEAT	Cycle mud pumps per Schlumberger DDRO. Re-log 6-3/4" hole section F/ 14,198' - T/ 14,266'.					0.75					
01:30	4.50	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill Lateral Section F/ 14,266' - T/ 15,054'. AROP = 175.1 fph MW = 10.8 ppg Pump 25 ppb LCM sweeps every other stand.										
06:00	6.75	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill Lateral Section F/ 15,054' - T/ 15,927'. AROP = 129.3 fph MW = 10.8 ppg Pump 25 ppb LCM sweeps every other stand.										
12:45	11.25	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill Lateral Section F/ 15,927' - T/ 17,598'. AROP = 148.5 fph MW = 10.8 ppg down to 10.7 ppg Pump 25 ppb LCM sweep every other stand. Lost 216 bbls of mud due to drilling activities.										
Unscheduled Events															
Event Reference No. 15		Event Description Recycle mud pumps per Schlumberger DDRO. Re-log 6-3/4" hole section F/ 14,198' - T/ 14,266'.													
Drill String/BHA															
BHA #9, Rotary Steerable															
Bit Run 1	Drill Bit 6 3/4in, GT53DHE, 13436408			Make Halliburton			IADC Bit Dull 1-3-WT-S-X-I-NO-TD			TFA (incl Noz) (in²) 0.45					
Nozzles (1/32") 11/11/11/11/10				String Length (ft) 20,628.00		Weight of String in Air (1000lbf) 346			BHA ROP (ft/hr) 183.8						
Well Name WAR University 18 22/24 0024TB				Lease WAR University 18 22/24				Field Name Phantom		Business Unit Mid-Continent					
County/ Parish Ward				State/Province Texas				Original Spud Date 10/21/2019 01:30		Surface UWI 4247537933					
Rig/Unit Contractor Patterson UTI				Rig/Unit # / Name 270				Rig/Unit Start Date 10/20/2019 11:00		Rig/Unit End Date 3/19/2020 13:00					
Report # 26, 3/14/2020 Company Confidential - Restricted															



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/14/2020, Rpt #26
Plan Days: 27.94, DFS: 18.86
100.00% WI, Progress: 3,458 ft

Survey Data										
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)
14,162	89.80	344.59	11,357.06	3,377.75	-157.37	3,286.57	0.67	3,381.41	0.07	0.66
14,257	89.73	344.57	11,357.45	3,469.33	-182.63	3,381.56	0.08	3,474.13	-0.07	-0.02
14,352	89.80	344.67	11,357.84	3,560.93	-207.82	3,476.54	0.13	3,566.98	0.07	0.11
14,446	89.90	345.67	11,358.08	3,651.79	-231.88	3,570.51	1.07	3,659.15	0.11	1.06
14,541	89.25	344.96	11,358.79	3,743.69	-255.97	3,665.47	1.01	3,752.43	-0.68	-0.75
14,636	89.18	343.90	11,360.09	3,835.19	-281.46	3,760.45	1.12	3,845.50	-0.07	-1.12
14,730	88.73	344.34	11,361.80	3,925.59	-307.18	3,854.44	0.67	3,937.59	-0.48	0.47
14,825	88.87	344.56	11,363.79	4,017.09	-332.64	3,949.41	0.27	4,030.84	0.15	0.23
14,920	89.11	345.88	11,365.47	4,108.93	-356.87	4,044.36	1.41	4,124.40	0.25	1.39
15,108	88.83	344.61	11,368.85	4,290.70	-404.74	4,232.26	0.69	4,309.74	-0.15	-0.68
15,202	89.11	344.79	11,370.54	4,381.35	-429.54	4,326.23	0.35	4,402.36	0.30	0.19
15,296	89.31	344.70	11,371.83	4,472.03	-454.27	4,420.21	0.23	4,495.04	0.21	-0.10
15,391	89.00	342.48	11,373.23	4,563.14	-481.11	4,515.19	2.36	4,588.44	-0.33	-2.34
15,486	89.49	342.77	11,374.49	4,653.80	-509.47	4,610.16	0.60	4,681.61	0.52	0.31
15,580	89.83	342.66	11,375.04	4,743.55	-537.40	4,704.15	0.38	4,773.90	0.36	-0.12
15,675	90.18	342.52	11,375.04	4,834.20	-565.83	4,799.13	0.40	4,867.20	0.37	-0.15
15,769	90.11	343.38	11,374.80	4,924.07	-593.39	4,893.12	0.92	4,959.69	-0.07	0.91
15,864	89.21	341.24	11,375.36	5,014.57	-622.25	4,988.08	2.44	5,053.03	-0.95	-2.25
15,958	89.01	343.01	11,376.82	5,104.02	-651.10	5,082.03	1.89	5,145.38	-0.21	1.88
16,053	88.83	343.05	11,378.61	5,194.87	-678.82	5,177.00	0.19	5,239.03	-0.19	0.04
16,147	89.21	343.51	11,380.22	5,284.88	-705.86	5,270.99	0.63	5,331.81	0.40	0.49
16,242	88.93	342.83	11,381.76	5,375.80	-733.37	5,365.97	0.77	5,425.59	-0.29	-0.72
16,336	88.97	342.91	11,383.48	5,465.61	-761.05	5,459.94	0.10	5,518.34	0.04	0.09
16,430	89.07	342.90	11,385.09	5,555.44	-788.68	5,553.92	0.11	5,611.15	0.11	-0.01
16,524	89.28	343.37	11,386.45	5,645.39	-815.94	5,647.90	0.55	5,704.05	0.22	0.50
16,618	89.00	343.16	11,387.86	5,735.40	-843.01	5,741.89	0.37	5,797.02	-0.30	-0.22
16,712	88.80	343.29	11,389.66	5,825.38	-870.13	5,835.87	0.25	5,890.01	-0.21	0.14
16,902	88.90	342.76	11,393.47	6,007.07	-925.59	6,025.82	0.28	6,077.96	0.05	-0.28
16,997	88.90	342.61	11,395.30	6,097.75	-953.86	6,120.78	0.16	6,171.90	0.00	-0.16
17,186	88.97	343.01	11,398.81	6,278.27	-1,009.71	6,309.73	0.21	6,358.95	0.04	0.21
17,280	88.76	343.05	11,400.67	6,368.16	-1,037.14	6,403.70	0.23	6,452.07	-0.22	0.04
17,469	88.32	342.90	11,405.49	6,548.82	-1,092.46	6,592.62	0.25	6,639.32	-0.23	-0.08
17,563	88.66	343.21	11,407.97	6,638.71	-1,119.85	6,686.58	0.49	6,732.50	0.36	0.33
Last Casing String										
Casing Description Drilling Liner 1				OD (in) 7 5/8	Weight/Length (lb/ft) 29.70	String Grade L-80	Top Connection TSH 513		Set Depth (MD) (ftOTH) 10182	



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/15/2020, Rpt #27
Plan Days: 27.94, DFS: 19.86
100.00% WI, Progress: 3,020 ft

Jobs															
Primary Wellbore Affected Original Hole		Job Category Drill		Primary Job Type Drill and Suspend		SBU Drilling Well Category D9		Directional Type Horizontal		Well Type Oil Producer					
Business Unit Mid-Continent		Area Delaware Basin		County/ Parish Ward		State/Province Texas		Latitude (°) 31° 36' 44.96" N		Longitude (°) 103° 16' 14.495" W					
Directions To Well Midland: Get on I-20W. Take exit 66 TX-115/FM1927 towards Pyote/Kermit for 0.3 m. Turn right (North) onto TX-115N. Travel 0.3 m and turn left onto HWY 2355/3rd St. Travel 9.64 m and turn right off HWY 2355 by Plains Oil Tank Farm (white tanks), onto lease road – rig sign is out. Travel North for 1.55 m and turn left (West) – rig sign is out. Travel 0.2 m and turn left (South). Travel 0.15 m and pad is on the right.															
Daily Operations															
Status at Reporting Time 04:00 hrs: Drilling Lateral Section @ 21,200'						Projected Operations Drill production lateral to TD. Perform cleanup cycle. Flow check. TOH to surface. R/U & RIH w/ production casing. SIF: WAH									
Operations Summary Drill 6-3/4" lateral section F/ 17,598' - T/ 19,307'. Cycle pump 3X for survey. Drill lateral section F/ 19,307' - T/ 20,628'.						Comments IFO: No incidents, Spills, or Near Misses H2S Potential: Green Past 24 hr Goal: Drilling lateral @ 20,715'. Goal Status: Not Achieved Upcoming 24 hr Goal: TOH @ 10,000' to run casing. Forecasted 72 hr EAR Checklist items on WAR University Pad: N/A MOC: MOC-19-0171 Use of cement head in lieu of FOSV MOC-19-074E Utilization of auto-fill float equipment in MCBU MOC-19-0987 Testing BOPE to 6,650 psi vs 5,000 psi as per EAR checklist MOC-20-0093 Ballooning Verification									
Target Formation 3rd Bone Spring		Target Depth (MD) (ftOTH) 21,943		Time Log Total Hours (hr) 24.00		Drilling Hours (hr) 16.48									
Depth Start (MD) (ftOTH) 17,598		Start Depth (TVD) (ftOTH) 11,408.8		Depth End (MD) (ftOTH) 20,628		End Depth (TVD) (ftOTH) 11,464.9									
Cum Time Log Days From Spud (days) 19.86		Avg ROP (ft/hr) 183.2		Cum Problem Time Hours (hr) 39.00		Cum Percent Problem Time (%) 7.33									
Mud Checks															
Fluids Vendor QMax		Depth (MD) (ftOTH) 18,700.0		Mud/Brine Type NAF		Fluid Density (lb/gal) 10.70		pH		Funnel Viscosity (s/qt) 55		PV Calc (cP) 15		YP Calc (lb/100ft²) 10	
Chlorides (mg/L) 44,000		Gel 10 sec (lb/100ft²) 7.0		Gel 10 min (lb/100ft²) 12.0		Gel 30 min (lb/100ft²) 16.0		API Filtrate (cc/30min)		API Filter Cake (1/32")		High Gravity Solids (%) 6.9		Low Gravity Solids (%) 7.3	
Fluids Vendor QMax		Depth (MD) (ftOTH) 20,200.0		Mud/Brine Type NAF		Fluid Density (lb/gal) 10.70		pH		Funnel Viscosity (s/qt) 58		PV Calc (cP) 15		YP Calc (lb/100ft²) 11	
Chlorides (mg/L) 45,000		Gel 10 sec (lb/100ft²) 8.0		Gel 10 min (lb/100ft²) 12.0		Gel 30 min (lb/100ft²) 15.0		API Filtrate (cc/30min)		API Filter Cake (1/32")		High Gravity Solids (%) 7.5		Low Gravity Solids (%) 6.2	
Time Log															
Start Time	Dur (hr)	Phase		Activity	Com						UE Time (hr)				
00:00	11.25	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill 6-3/4" Lateral Section F/ 17,598' - T/ 19,307'. AROP = 151.9 fph MW = 10.7 ppg Pump 25 ppb LCM sweep every other stand.										
11:15	0.75	PRODCSG, DRILL, 3/13/2020 06:00		DDSRVY	Cycle mud pumps 3X for MWD survey per Schlumberger.						0.75				
12:00	3.75	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill Lateral Section F/ 19,307' - T/ 19,687'. AROP = 101.3 fph MW = 10.7 ppg										
15:45	0.25	PRODCSG, DRILL, 3/13/2020 06:00		HESDWN	Suspend drilling ops due to lightening storm. Circulate while waiting on weather hazard to clear.						0.25				
16:00	8.00	PRODCSG, DRILL, 3/13/2020 06:00		DRLRS	Drill Lateral Section F/ 19,687' - T/ 20,628'. AROP = 117.6 fph MW = 10.7 ppg Lost 255 bbls of mud due to drilling activities.										
Unscheduled Events															
Event Reference No. 16		Event Description Cycle mud pumps 3X per Schlumberger DDRO. Obtain MWD survey and continue drilling.													
Event Reference No. 17		Event Description Suspend drilling ops due to lightening storm. Circulate while waiting on weather hazard to clear.													
Drill String/BHA															
BHA #9, Rotary Steerable															
Bit Run 1	Drill Bit 6 3/4in, GT53DHE, 13436408			Make Halliburton			IADC Bit Dull 1-3-WT-S-X-I-NO-TD			TFA (incl Noz) (in²) 0.45					
Nozzles (1/32") 11/11/11/11/10			String Length (ft) 20,628.00			Weight of String in Air (1000lbf) 346			BHA ROP (ft/hr) 183.8						
Survey Data															
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)					
17,658	88.63	343.41	11,410.21	6,729.68	-1,147.12	6,781.55	0.21	6,826.75	-0.03	0.21					
17,848	88.63	343.49	11,414.76	6,911.76	-1,201.23	6,971.50	0.04	7,015.36	0.00	0.04					
Well Name WAR University 18 22/24 0024TB				Lease WAR University 18 22/24				Field Name Phantom				Business Unit Mid-Continent			
County/ Parish Ward				State/Province Texas				Original Spud Date 10/21/2019 01:30				Surface UWI 4247537933			
Rig/Unit Contractor Patterson UTI				Rig/Unit # / Name 270				Rig/Unit Start Date 10/20/2019 11:00				Rig/Unit End Date 3/19/2020 13:00			
Report # 27, 3/15/2020 Company Confidential - Restricted															



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/15/2020, Rpt #27
Plan Days: 27.94, DFS: 19.86
100.00% WI, Progress: 3,020 ft

Survey Data										
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)
17,942	88.80	343.03	11,416.86	7,001.75	-1,228.30	7,065.47	0.52	7,108.67	0.18	-0.49
18,037	88.84	344.40	11,418.82	7,092.92	-1,254.93	7,160.45	1.44	7,203.08	0.04	1.44
18,227	87.91	343.09	11,424.21	7,275.24	-1,308.09	7,350.36	0.85	7,391.90	-0.49	-0.69
18,322	88.29	343.21	11,427.36	7,366.11	-1,335.61	7,445.31	0.42	7,486.22	0.40	0.13
18,512	89.84	346.11	11,430.46	7,549.30	-1,385.86	7,635.23	1.73	7,675.45	0.82	1.53
18,701	89.29	345.40	11,431.89	7,732.48	-1,432.36	7,824.11	0.48	7,864.02	-0.29	-0.38
18,796	89.22	345.04	11,433.13	7,824.33	-1,456.60	7,919.06	0.39	7,958.75	-0.07	-0.38
18,985	89.18	345.25	11,435.77	8,006.99	-1,505.05	8,107.99	0.11	8,147.21	-0.02	0.11
19,080	89.63	345.89	11,436.75	8,098.99	-1,528.72	8,202.93	0.82	8,242.00	0.47	0.67
19,269	87.59	342.03	11,441.34	8,280.53	-1,580.91	8,391.83	2.31	8,430.10	-1.08	-2.04
19,364	88.63	343.02	11,444.47	8,371.10	-1,609.42	8,486.76	1.51	8,524.41	1.09	1.04
19,554	89.14	345.85	11,448.17	8,554.08	-1,660.39	8,676.69	1.51	8,713.73	0.27	1.49
19,648	89.04	345.71	11,449.66	8,645.18	-1,683.48	8,770.61	0.18	8,807.57	-0.11	-0.15
19,838	89.11	345.53	11,452.73	8,829.21	-1,730.66	8,960.49	0.10	8,997.23	0.04	-0.09
19,933	89.18	345.88	11,454.15	8,921.26	-1,754.11	9,055.42	0.38	9,092.07	0.07	0.37
20,027	89.52	345.80	11,455.22	9,012.39	-1,777.11	9,149.35	0.37	9,185.93	0.36	-0.09
20,122	89.14	345.71	11,456.33	9,104.47	-1,800.48	9,244.28	0.41	9,280.79	-0.40	-0.09
20,217	89.28	345.77	11,457.64	9,196.53	-1,823.88	9,339.21	0.16	9,375.64	0.15	0.06
20,311	88.97	346.01	11,459.07	9,287.68	-1,846.79	9,433.14	0.42	9,469.51	-0.33	0.26
20,406	89.14	345.60	11,460.64	9,379.77	-1,870.09	9,528.06	0.47	9,564.38	0.18	-0.43
20,501	89.11	343.85	11,462.09	9,471.40	-1,895.11	9,623.03	1.84	9,659.13	-0.03	-1.84
Last Casing String										
Casing Description Drilling Liner 1				OD (in) 7 5/8	Weight/Length (lb/ft) 29.70	String Grade L-80	Top Connection TSH 513	Set Depth (MD) (ftOTH) 10182		



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/16/2020, Rpt #28
Plan Days: 27.94, DFS: 20.86
100.00% WI, Progress: 1,264 ft

Time Log					
Start Time	Dur (hr)	Phase	Activity	Com	UE Time (hr)
22:00	1.00	PRODCSG, DRILL, 3/16/2020 09:45	MONITOR	Shut in the well. Lined up through chokes going to Trip Tank: Follow Rig Specific Procedure for General Ballooning Guidelines Rev 2.1 SICP = 0 psi, SIDPP = 0 psi 1st Bleed Off for 5 minutes (11.9 BPH) SICP: 0 psi Initial Trip Tank Volume = 25.04 bbls / Final Trip Tank Volume 26.03 bbls (0.99 bbls returned or 11.9 BPH) Closed the choke: SICP: 0 psi 2nd Bleed Off for 5 minutes (7.3 BPH) SICP: 0 psi Initial Trip Tank Volume = 26.03 bbls / Final Trip Tank Volume 26.64 bbls (0.61 bbls returned or 7.3 BPH) Closed the choke: SICP: 0 psi 3rd Bleed Off for 15 minutes SICP: 0 psi Initial Trip Tank Volume = 26.64 bbls / Final Trip Tank Volume 27.41 bbls (0.77 bbls returned or 9.24 BPH) After 10 mins: Trip Tank Vol; 27.83 bbls (0.42 bbls or 5.0 BPH) After 15 mins: Trip Tank Vol: 28.05 bbls (0.22 bbls or 2.6 BPH) Closed the choke; SICP: 0 psi Ballooning confirmed: Good to TOH.	
23:00	1.00	PRODCSG, DRILL, 3/16/2020 09:45	TOHPMP	Pump out of the hole F/ 21,895' - T/ 21,040'. 180 gpm 1,550 psi	

Drill String/BHA

BHA #9, Rotary Steerable

Bit Run 1	Drill Bit 6 3/4in, GT53DHE, 13436408	Make Halliburton	IADC Bit Dull 1-3-WT-S-X-I-NO-TD	TFA (incl Noz) (in²) 0.45
Nozzles (1/32") 11/11/11/11/10		String Length (ft) 20,628.00	Weight of String in Air (1000lbf) 346	BHA ROP (ft/hr) 183.8

Survey Data

MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)
20,690	88.01	343.79	11,466.84	9,652.85	-1,947.76	9,811.97	0.58	9,847.40	-0.58	-0.03
20,784	87.87	341.23	11,470.22	9,742.44	-1,975.99	9,905.88	2.73	9,940.81	-0.15	-2.72
20,879	87.36	340.17	11,474.17	9,832.02	-2,007.36	10,000.66	1.24	10,034.85	-0.54	-1.12
21,068	87.80	341.57	11,482.15	10,010.42	-2,069.24	10,189.25	0.78	10,222.05	0.23	0.74
21,163	88.25	341.50	11,485.43	10,100.48	-2,099.31	10,284.13	0.48	10,316.34	0.47	-0.07
21,258	88.63	341.58	11,488.01	10,190.56	-2,129.38	10,379.02	0.41	10,410.65	0.40	0.08
21,353	89.15	341.72	11,489.85	10,280.71	-2,159.28	10,473.94	0.57	10,505.02	0.55	0.15
21,543	89.29	341.56	11,492.44	10,461.02	-2,219.12	10,663.80	0.11	10,693.80	0.07	-0.08
21,732	89.46	341.33	11,494.50	10,640.19	-2,279.26	10,852.64	0.15	10,881.57	0.09	-0.12
21,855	89.59	341.78	11,495.52	10,756.86	-2,318.18	10,975.54	0.38	11,003.82	0.11	0.37
21,895	89.59	341.78	11,495.81	10,794.86	-2,330.68	11,015.52	0.00	11,043.60	0.00	0.00

Last Casing String

Casing Description Drilling Liner 1	OD (in) 7 5/8	Weight/Length (lb/ft) 29.70	String Grade L-80	Top Connection TSH 513	Set Depth (MD) (ftOTH) 10182
--	------------------	--------------------------------	----------------------	---------------------------	---------------------------------



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/17/2020, Rpt #29
Plan Days: 27.94, DFS: 21.86
100.00% WI, Progress: 0 ft

Jobs

Primary Wellbore Affected
Original Hole

Job Category
Drill

Primary Job Type
Drill and Suspend

SBU Drilling Well Category
D9

Directional Type
Horizontal

Well Type
Oil Producer

Business Unit
Mid-Continent

Area
Delaware Basin

County/ Parish
Ward

State/Province
Texas

Latitude (°)
31° 36' 44.96" N

Longitude (°)
103° 16' 14.495" W

Directions To Well
Midland: Get on I-20W. Take exit 66 TX-115/FM1927 towards Pyote/Kermite for 0.3 m. Turn right (North) onto TX-115N. Travel 0.3 m and turn left onto HWY 2355/3rd St. Travel 9.64 m and turn right off HWY 2355 by Plains Oil Tank Farm (white tanks), onto lease road – rig sign is out. Travel North for 1.55 m and turn left (West) – rig sign is out. Travel 0.2 m and turn left (South). Travel 0.15 m and pad is on the right.

Daily Operations

Status at Reporting Time
04:00 hrs: Running 5" casing @ 5,368'

Operations Summary
TOH F/ 21,040' T/ surface, L/D Production BHA #9, R/U & run 5" production casing T/ 644'

Projected Operations
Run & cement 5-1/2" x 5" production casing

Comments
IFO: No incidents, Spills, or Near Misses
H2S Potential: Green

Past 24 hr Goal: RIH w/ production casing @ 12,500'.

Goal Status: Not Achieved

Upcoming 24 hr Goal: Performing pre-cement job circulation

Forecasted 72 hr EAR Checklist items on WAR University Pad:

PROD 6-3/4" OH, 5-1/2" CSG:
WSEA [5-D]: Casing shoe depth
WSEA [10-H]: Barrier Test: Pressure Test Casing Hanger/Pack-Off
WSEA [10-I]: Barrier Test: Inflow Test Production Shoe Track
WSEA [10-K]: Barrier Test: BPV
WSEA [12-D]: Cementing Operations: TOC @ 9,700'

MOC:

MOC-19-0171 Use of cement head in lieu of FOSV
MOC-19-074E Utilization of auto-fill float equipment in MCBU
MOC-19-0987 Testing BOPE to 6,650 psi vs 5,000 psi as per EAR checklist
MOC-20-0093 Ballooning Verification

Target Formation
3rd Bone Spring

Target Depth (MD) (ftOTH)
21,943

Time Log Total Hours (hr)
24.00

Drilling Hours (hr)

Depth Start (MD) (ftOTH)
21,895

Start Depth (TVD) (ftOTH)

Depth End (MD) (ftOTH)
21,895

End Depth (TVD) (ftOTH)

Cum Time Log Days From Spud (days)
21.86

Avg ROP (ft/hr)

Cum Problem Time Hours (hr)
39.00

Cum Percent Problem Time (%)
6.72

Mud Checks

Fluids Vendor
QMax

Depth (MD) (ftOTH)
21,895.0

Mud/Brine Type
NAF

Fluid Density (lb/gal)
11.00

pH

Funnel Viscosity (s/qt)
58

PV Calc (cP)
17

YP Calc (lb/100ft²)
10

Chlorides (mg/L)
44,000

Gel 10 sec (lb/100ft²)
8.0

Gel 10 min (lb/100ft²)
13.0

Gel 30 min (lb/100ft²)
16.0

API Filtrate (cc/30min)

API Filter Cake (1/32")
8.2

High Gravity Solids (%)
7.0

Low Gravity Solids (%)

Fluids Vendor
QMax

Depth (MD) (ftOTH)
21,895.0

Mud/Brine Type
NAF

Fluid Density (lb/gal)
11.00

pH

Funnel Viscosity (s/qt)
59

PV Calc (cP)
16

YP Calc (lb/100ft²)
10

Chlorides (mg/L)
43,000

Gel 10 sec (lb/100ft²)
7.0

Gel 10 min (lb/100ft²)
12.0

Gel 30 min (lb/100ft²)
16.0

API Filtrate (cc/30min)

API Filter Cake (1/32")
7.7

High Gravity Solids (%)
8.0

Low Gravity Solids (%)

Time Log

Start Time

Dur (hr)

Phase

Activity

Com

UE Time (hr)

00:00

1.50

PRODCSG, DRILL,
3/16/2020 09:45

TOHPMP

Pump out of the hole F/ 21,040' T/ 19,518'

180 gpm
1,550 psi

01:30

0.50

PRODCSG, DRILL,
3/16/2020 09:45

CC

CC 1XBU

02:00

0.50

PRODCSG, DRILL,
3/16/2020 09:45

MONITOR

Flow check - well static

02:30

3.75

PRODCSG, DRILL,
3/16/2020 09:45

TOHPMP

Pump out of the hole F/ 19,518' T/ 16,199'

180 gpm
1,550 psi

06:15

2.25

PRODCSG, DRILL,
3/16/2020 09:45

REAM

Back ream F/ 16,199' T/ 14,202'

08:30

1.00

PRODCSG, DRILL,
3/16/2020 09:45

TOH

TOH at a restricted speed due to wet pipe F/ 14,202' T/ 13,352'

09:30

5.25

PRODCSG, DRILL,
3/16/2020 09:45

REAM

Back ream F/ 13,352' T/ 10,801'

14:45

0.50

PRODCSG, DRILL,
3/16/2020 09:45

TOH

TOH at a restricted speed due to wet pipe F/ 10,801' T/ 10,016'

15:15

0.25

PRODCSG, DRILL,
3/16/2020 09:45

MONITOR

Flow check - well static

15:30

0.25

PRODCSG, DRILL,
3/16/2020 09:45

RCD

Remove RCD assembly & install trip nipple

15:45

0.50

PRODCSG, DRILL,
3/16/2020 09:45

TOH

TOH at a restricted speed due to wet pipe F/ 10,016' T/ 9,101'

16:15

0.25

PRODCSG, DRILL,
3/16/2020 09:45

CC

Pump 30 bbl slug

16:30

2.75

PRODCSG, DRILL,
3/16/2020 09:45

TOH

TOH F/ 9,101' T/ 149'

19:15

0.25

PRODCSG, DRILL,
3/16/2020 09:45

MONITOR

Flow check - well static

19:30

1.75

PRODCSG, DRILL,
3/16/2020 09:45

BHAPU/LD

Performed PJSM w/ SLB Directional Driller. L/D Production BHA #9

Well Name
WAR University 18 22/24 0024TB

Lease
WAR University 18 22/24

Field Name
Phantom

Business Unit
Mid-Continent

County/ Parish
Ward

State/Province
Texas

Original Spud Date
10/21/2019 01:30

Surface UWI
4247537933

Rig/Unit Contractor
Patterson UTI

Rig/Unit # / Name
270

Rig/Unit Start Date
10/20/2019 11:00

Rig/Unit End Date
3/19/2020 13:00



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/17/2020, Rpt #29
Plan Days: 27.94, DFS: 21.86
100.00% WI, Progress: 0 ft

Time Log										
Start Time	Dur (hr)	Phase	Activity	Com						UE Time (hr)
21:15	1.25	PRODCSG, CSGCMT, 3/17/2020 21:15	CSGR/U	Clear floor for casing run. PJSM w/ Express Casing Crew & Halliburton RSI. R/U casing running equipment. Elevators and pipe calipered. Completed elevator change out log. Verified by DSR Nick Glann.						
22:30	1.50	PRODCSG, CSGCMT, 3/17/2020 21:15	CSGRUN	Run 5" 18# P-110-IC Wedge 521 Production Casing T/ 644' 2 joint shoe track Notified Becky w/ TXRRC @ 1200 hrs on 17-Mar-2020 of intent to run and cement casing						
Drill String/BHA										
BHA #<stringno>, <des>										
Bit Run	Drill Bit			Make		IADC Bit Dull			TFA (incl Noz) (in²)	
Nozzles (1/32")		String Length (ft)			Weight of String in Air (1000lbf)			BHA ROP (ft/hr)		
Survey Data										
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)
21,895	89.59	341.78	11,495.81	10,794.86	-2,330.68	11,015.52	0.00	11,043.60	0.00	0.00
Last Casing String										
Casing Description Drilling Liner 1				OD (in) 7 5/8	Weight/Length (lb/ft) 29.70	String Grade L-80	Top Connection TSH 513		Set Depth (MD) (ftOTH) 10182	



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/18/2020, Rpt #30
Plan Days: 27.94, DFS: 22.86
100.00% WI, Progress: 0 ft

Jobs											
Primary Wellbore Affected Original Hole		Job Category Drill		Primary Job Type Drill and Suspend		SBU Drilling Well Category D9		Directional Type Horizontal		Well Type Oil Producer	
Business Unit Mid-Continent		Area Delaware Basin		County/ Parish Ward		State/Province Texas		Latitude (°) 31° 36' 44.96" N		Longitude (°) 103° 16' 14.495" W	
Directions To Well Midland: Get on I-20W. Take exit 66 TX-115/FM1927 towards Pyote/Kermite for 0.3 m. Turn right (North) onto TX-115N. Travel 0.3 m and turn left onto HWY 2355/3rd St. Travel 9.64 m and turn right off HWY 2355 by Plains Oil Tank Farm (white tanks), onto lease road – rig sign is out. Travel North for 1.55 m and turn left (West) – rig sign is out. Travel 0.2 m and turn left (South). Travel 0.15 m and pad is on the right.											
Daily Operations											
Status at Reporting Time 04:00 hrs: Cementing Production Casing						Projected Operations Obtain CIP, check floats, perform inflow test, R/D cementers, install & test pack-off, install BPV, & prep to skid					
Operations Summary Run production casing & commence pre-job circulation						Comments IFO: No incidents, Spills, or Near Misses H2S Potential: Green					
						Past 24 hr Goal: Performing pre-cement job circulation					
						Goal Status: Achieved					
						Upcoming 24 hr Goal: P/U BHA on 22TB					
						Forecasted 72 hr EAR Checklist items on WAR University Pad:					
PROD 6-3/4" OH, 5-1/2" CSG: WSEA [10-H]: Barrier Test: Pressure Test Casing Hanger/Pack-Off WSEA [10-I]: Barrier Test: Inflow Test Production Shoe Track WSEA [10-K]: Barrier Test: BPV WSEA [12-D]: Cementing Operations: TOC @ 9,700'						MOC: MOC-19-0171 Use of cement head in lieu of FOSV MOC-19-074E Utilization of auto-fill float equipment in MCBU MOC-19-0987 Testing BOPE to 6,650 psi vs 5,000 psi as per EAR checklist MOC-20-0093 Ballooning Verification					
Target Formation 3rd Bone Spring		Target Depth (MD) (ftOTH) 21,943		Time Log Total Hours (hr) 24.00				Drilling Hours (hr)			
Depth Start (MD) (ftOTH) 21,895		Start Depth (TVD) (ftOTH)		Depth End (MD) (ftOTH) 21,895				End Depth (TVD) (ftOTH)			
Cum Time Log Days From Spud (days) 22.86		Avg ROP (ft/hr)		Cum Problem Time Hours (hr) 39.00				Cum Percent Problem Time (%) 6.45			
Mud Checks											
Fluids Vendor QMax		Depth (MD) (ftOTH) 21,895.0		Mud/Brine Type NAF		Fluid Density (lb/gal) 11.00		pH		Funnel Viscosity (s/qt) 59	
Chlorides (mg/L) 41,000		Gel 10 sec (lb/100ft²) 8.0		Gel 10 min (lb/100ft²) 13.0		Gel 30 min (lb/100ft²) 16.0		API Filtrate (cc/30min)		API Filter Cake (1/32") 7.8	
Fluids Vendor QMax		Depth (MD) (ftOTH) 21,895.0		Mud/Brine Type NAF		Fluid Density (lb/gal) 11.00		pH		Funnel Viscosity (s/qt) 53	
Chlorides (mg/L) 40,000		Gel 10 sec (lb/100ft²) 7.0		Gel 10 min (lb/100ft²) 11.0		Gel 30 min (lb/100ft²) 14.0		API Filtrate (cc/30min)		API Filter Cake (1/32") 7.9	
Time Log											
Start Time	Dur (hr)	Phase		Activity	Com					UE Time (hr)	
00:00	22.00	PRODCSG, CSGCMT, 3/17/2020 21:15		CSGRUN	Run 5" 18# P-110-IC Wedge 521 x 5-1/2" 20# P-110-ICY TXP BTC Production Casing F/ 644' T/ 21,882'. Pick up FMC landing joint, fluted hanger, and pup. Make up to the last joint of casing and land out the hanger in the wellhead as per FMC wellhead installation procedure. 2 joint shoe track Notified Becky w/ TXRRC @ 1200 hrs on 17-Mar-2020 of intent to run and cement casing Ref. EAR Casing/Liner Shoe Depth WSEA #5-D Notes: Held shut-in drill @ 0245 hrs Marker joint @ 10,574' Run HAL SuperFill autofill float equipment						
22:00	2.00	PRODCSG, CSGCMT, 3/17/2020 21:15		CC	Rig up SLB cement head. Perform pre-job circulation with 1.5 times the production casing displacement volume (665 bbls) @ 140 gpm while R/D Express casing equipment and crew. Rig up SLB cementer's trucks and lines. Ramp up to 140 gpm to control losses. At 140 gpm, encountering losses @ 24 bph						
Drill String/BHA											
BHA #<stringno>, <des>											
Bit Run	Drill Bit			Make			IADC Bit Dull			TFA (incl Noz) (in²)	
Nozzles (1/32")			String Length (ft)			Weight of String in Air (1000lbf)			BHA ROP (ft/hr)		
Survey Data											
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)	
21,895	89.59	341.78	11,495.81	10,794.86	-2,330.68	11,015.52	0.00	11,043.60	0.00	0.00	
Last Casing String											
Casing Description Production Casing				OD (in) 5	Weight/Length (lb/ft) 18.00	String Grade P-110-IC	Top Connection Wedge 521		Set Depth (MD) (ftOTH) 21882		
Well Name WAR University 18 22/24 0024TB				Lease WAR University 18 22/24			Field Name Phantom			Business Unit Mid-Continent	
County/ Parish Ward				State/Province Texas			Original Spud Date 10/21/2019 01:30			Surface UWI 4247537933	
Rig/Unit Contractor Patterson UTI				Rig/Unit # / Name 270			Rig/Unit Start Date 10/20/2019 11:00			Rig/Unit End Date 3/19/2020 13:00	



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/19/2020, Rpt #31
Plan Days: 27.94, DFS: 23.41
100.00% WI, Progress: 0 ft

Jobs					
Primary Wellbore Affected Original Hole	Job Category Drill	Primary Job Type Drill and Suspend	SBU Drilling Well Category D9	Directional Type Horizontal	Well Type Oil Producer
Business Unit Mid-Continent	Area Delaware Basin	County/ Parish Ward	State/Province Texas	Latitude (°) 31° 36' 44.96" N	Longitude (°) 103° 16' 14.495" W

Directions To Well
Midland: Get on I-20W. Take exit 66 TX-115/FM1927 towards Pyote/Kermitt for 0.3 m. Turn right (North) onto TX-115N. Travel 0.3 m and turn left onto HWY 2355/3rd St. Travel 9.64 m and turn right off HWY 2355 by Plains Oil Tank Farm (white tanks), onto lease road – rig sign is out. Travel North for 1.55 m and turn left (West) – rig sign is out. Travel 0.2 m and turn left (South). Travel 0.15 m and pad is on the right.

Daily Operations	
Status at Reporting Time Rig released to 22TB	Projected Operations Skid & R/U on 22TB
Operations Summary Pre-job circulation, perform production cement job, conduct inflow test, WOC, install & test packoff, install BPV, N/D BOP	Comments IFO: No incidents, Spills, or Near Misses H2S Potential: Green **Final Report** MOC: MOC-19-0171 Use of cement head in lieu of FOSV MOC-19-074E Utilization of auto-fill float equipment in MCBU MOC-19-0987 Testing BOPE to 6,650 psi vs 5,000 psi as per EAR checklist MOC-20-0093 Ballooning Verification

Target Formation 3rd Bone Spring	Target Depth (MD) (ftOTH) 21,943	Time Log Total Hours (hr) 13.00	Drilling Hours (hr)
Depth Start (MD) (ftOTH) 21,895	Start Depth (TVD) (ftOTH)	Depth End (MD) (ftOTH) 21,895	End Depth (TVD) (ftOTH)
Cum Time Log Days From Spud (days) 23.41	Avg ROP (ft/hr)	Cum Problem Time Hours (hr) 39.00	Cum Percent Problem Time (%) 6.32

Mud Checks							
Fluids Vendor QMax	Depth (MD) (ftOTH) 21,895.0	Mud/Brine Type NAF	Fluid Density (lb/gal) 11.00	pH	Funnel Viscosity (s/qt) 52	PV Calc (cP) 16	YP Calc (lb/100ft²) 8
Chlorides (mg/L) 38,000	Gel 10 sec (lb/100ft²) 6.0	Gel 10 min (lb/100ft²) 10.0	Gel 30 min (lb/100ft²) 13.0	API Filtrate (cc/30min)	API Filter Cake (1/32")	High Gravity Solids (%) 8.0	Low Gravity Solids (%) 8.0

Time Log					
Start Time	Dur (hr)	Phase	Activity	Com	UE Time (hr)
00:00	2.50	PRODCSG, CSGCMT, 3/17/2020 21:15	CC	Perform pre-job circulation with 1.5 times the production casing displacement volume (665 bbls) @ 168 gpm while R/D Express casing equipment and crew. Rig up SLB cementer's trucks and lines. Experiencing losses of 30 bph @ 168 gpm	
02:30	0.50	PRODCSG, CSGCMT, 3/19/2020 02:30	CMTR/U	Performed PJSM w/ SLB cementers and rig up surface equipment during the circulation. After pre-job circulation was completed, rigged up cement lines to cement head and pressure test lines.	
03:00	5.00	PRODCSG, CSGCMT, 3/19/2020 02:30	CMTCSG	Pump primary cement job on Production casing as per Drilling Program/OPDP Preload bottom plug Pump spacer Mix and pump Lead cement Mix and pump Tail cement Drop top plug. Verified by DSR Nick Glann Displace cement w/ 20 bbls acid, followed by 421 bbls FW Bump plug with 500 psi over FCP. FCP = 3,600 psi. Check floats. 6 bbls bled back. Plug in place @ 0745 hrs Float = Good Tail cement 50 psi CS 4 hrs 18 min Note: No cement or spacer to surface Lost circulation 200 bbls into displacement TOC @ 4,099' using lift pressure	
08:00	0.50	PRODCSG, CSGCMT, 3/19/2020 02:30	MONITOR	Conduct 30 min inflow/negative test. Record as per MCBU DC-SOP D011. Test verified by DSR Hunter Broome Differential pressure across the shoe = 2,429 psi Bled back 10 gal in 30 min from thermal expansion. Good test Ref. EAR Barrier Test WSEA # 10-I	
08:30	3.50	PRODCSG, CSGCMT, 3/19/2020 02:30	WOC	Wait on cement for 50 psi CS. R/D cement iron while WOC.	
12:00	0.25	PRODCSG, CSGCMT, 3/19/2020 02:30	CMTR/D	R/D SLB cement head & L/D FMC landing joint	
12:15	0.25	PRODCSG, CSGCMT, 3/19/2020 02:30	WHDTST	Install packoff as per FMC procedures. Test to 6,650 psi for 15 minutes. Initial pressure: 6,650 psi. Final pressure: 6,650 psi. 0% pressure drop. Perform 50,000 overpull test for one minute. Test was good. Ref. EAR Barrier Test WSEA # 10-H	
12:30	0.25	PRODCSG, BOP, 3/19/2020 12:30	WHDBPV	Install H-type BPV inside mandrel hanger as per FMC wellhead installation procedures. Approximately 7.25 left-hand (counter-clockwise) turns required to set. Verified by DSR Hunter Broome. BPV Serial #: 09520. BPV Test Date: 02-Mar-2020 Confirmed BPV set and shop-tested within 21 days by DSR Hunter Broome. L/D FMC BPV running tool. Ref. EAR Barrier Test WSEA # 10-K	
12:45	0.25	PRODCSG, BOP, 3/19/2020 12:30	BOPN/D	N/D BOP stack Rig released to well 22TB @ 1300 hrs	

--	--	--	--

Well Name WAR University 18 22/24 0024TB	Lease WAR University 18 22/24	Field Name Phantom	Business Unit Mid-Continent
County/ Parish Ward	State/Province Texas	Original Spud Date 10/21/2019 01:30	Surface UWI 4247537933
Rig/Unit Contractor Patterson UTI	Rig/Unit # / Name 270	Rig/Unit Start Date 10/20/2019 11:00	Rig/Unit End Date 3/19/2020 13:00



MCBU 'Outside' Drilling Report

WAR University 18 22/24 0024TB

3/19/2020, Rpt #31
Plan Days: 27.94, DFS: 23.41
100.00% WI, Progress: 0 ft

Drill String/BHA										
BHA #<stringno>, <des>										
Bit Run	Drill Bit				Make		IADC Bit Dull		TFA (incl Noz) (in²)	
Nozzles (1/32")		String Length (ft)			Weight of String in Air (1000lbf)			BHA ROP (ft/hr)		
Survey Data										
MD (ftOTH)	Incl (°)	Azm (°)	TVD (ftOTH)	NS (ft)	EW (ft)	VS (ft)	DLS (°/100ft)	Depart (ft)	Build (°/100ft)	Turn (°/100ft)
21,895	89.59	341.78	11,495.81	10,794.86	-2,330.68	11,015.52	0.00	11,043.60	0.00	0.00
Last Casing String										
Casing Description Production Casing				OD (in) 5	Weight/Length (lb/ft) 18.00	String Grade P-110-IC	Top Connection Wedge 521		Set Depth (MD) (ftOTH) 21882	
Cement										
Production Casing, Planned?-N, 21882ftOTH										
Description Production Casing Cement		Type Casing		Vendor Schlumberger			Cement Evaluation Results Acceptable: TOC @ 4,099'			
Stage # 1										
Comment Pump primary cement job on Production casing as per Drilling Program/OPDP										
Preload bottom plug Pump spacer Mix and pump Lead cement Mix and pump Tail cement Drop top plug. Verified by DSR Nick Glann Displace cement w/ 20 bbls acid, followed by 421 bbls FW Bump plug with 500 psi over FCP. FCP = 3,600 psi. Check floats. 6 bbls bled back. Plug in place @ 0800 hrs Float = Good Tail cement 50 psi CS 4 hrs 18 min										
Note: No cement or spacer to surface Lost circulation 200 bbls into displacement TOC @ 4,099' using lift pressure										
Top Depth (ftOTH) 4,099.0	Bottom Depth (ftOTH) 21,882.2		Final Pump Pressure (psi) 3,600.0	Plug Bump Pressure (psi) 4,141.0	Full Return? N	Vol Cement Ret (bbl) 0.0	Evaluation Method Lift Pressure	Technical Result Success		
Fluid Type Spacer	Class		Quantity (sacks)	Volume Pumped (bbl) 80.0	Density (lb/gal) 11.30	Yield (ft³/sack)	Fluid Mix Ratio (gal/sack)	Excess (%)		
Fluid Description Mudpush Express Spacer										
Fluid Type Lead	Class C		Quantity (sacks) 1,904	Volume Pumped (bbl) 624.0	Density (lb/gal) 13.20	Yield (ft³/sack) 1.84	Fluid Mix Ratio (gal/sack) 9.84	Excess (%) 50.0		
Fluid Description Class C D903 cmt 94.0 lb/sk, D047 Anti Foam 0.02 gal/sk, D065 Dispersant 0.2%, D154 Extender 5.0%, D208 Viscosifier 0.06%, D255 Fluid Loss 0.4%, D800 Retarder 0.3%										
Fluid Type Tail	Class H		Quantity (sacks) 93	Volume Pumped (bbl) 36.0	Density (lb/gal) 15.00	Yield (ft³/sack) 2.18	Fluid Mix Ratio (gal/sack) 9.53	Excess (%) 50.0		
Fluid Description Class H D909 cmt 94.0 lb/sk, D047 Anti Foam 0.02 gal/sk, D065 Dispersant 0.05%, D208 Viscosifier 0.05%, D255 Fluid Loss 0.5%, D800 Retarder 0.35%										
Fluid Type Displacement	Class		Quantity (sacks)	Volume Pumped (bbl) 441.0	Density (lb/gal) 8.33	Yield (ft³/sack)	Fluid Mix Ratio (gal/sack)	Excess (%)		
Fluid Description Fresh Water w/ 1st 20 bbls containing Acetic Acid 5.0 gal/bbl & Corrosion Inhibitor 0.2 gal/bbl										