

## EP WELLS DAILY OPERATIONS REPORT

Report 44

08/19/2017

Company	PERMIAN
Well Type	Development
Well	UNIVERSITY 19 PW UNIT 1504H
Wellbore	UNIVERSITY 19 PW UNIT 1504H ST01
WBS No/API No	30265014 / 4230133171.01

## Event Summary

Event Type	Completion only	Event Start Date	04/28/2017	Days on Location	43.00
Objective	Install Completion	Original Spud Date	02/02/2017		
Est. Days	25.00	Contractor	PERMIAN WELL SVC		
Work Unit	PERMIAN COMPLETIONS	Days To Release			
		Rig Phone/FAX No.			

## Well Status

Supervisor	Nick Morrison	Measured Depth(ft)	
Engineer	Bobby Ramos	TVD(ft)	
Other Supervisor	Ben Dickinson	24 Hr Progress(ft)	
Depth Ref/Grd Elev/Water Depth(ft)	DFE: 2,761.75 / 2,736.10	Hole size(in)	
THF Datum			
Daily NPT(hr/%)	5.27/21.94	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	2,352,380/4,757,442.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.49	LOT/FIT EMW(ppg)	
Daily Cost	17,719	Lithology	
		Formation/MD Top	

## HSE Summary

Last Incident	Date	Days	Last Incident	Date	Days	KPI's	
LWC RWC MTC FAC Last casing pressure test			PSI NII HPI <b>GOAL ZERO DAYS</b> <b>PS BARRIER EVENT</b> <b>PS barrier bowtie review</b>			TRCF LWCF Safety Cards - Safe Safety Card - Unsafe SSE% Last casing pressure(psi)	
Safety Comments:							

## HSE Drills

Drills/Tests	Date	Days Since Last		
Last Derrick Inspection Last BOP function test Last BOP Test Next BOP Test			JSA's/Toolbox Talks Days Since Last Drill	42

## Operations Summary

24 Hour Summary
Trouble shoot WL hang up in frac stack. Perform visual inspection of WL equipment and frac stack: ALL CLEAR Run 3.781 GR through tree. 4 Passes: ALL CLEAR 0330 resume zipper frac operations Frac stages 9, 10 WL stages 10, 11
Update Since Report Time
24 Hour Forecast
Cont. Frac Operations

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	1.67	FRAC	WLF			0		Standby for GR from Keane WL shop. WL Prep GR BHA and standby.
1:40	0.13	FRAC	WLF			0		Valve team shut LMV. Open UMW and bleed off trapped pressure.
1:48	0.20	FRAC	WLF			0		2 GR AOL. 3.625" and 3.781" from Keane Shop. MU 3.781" GR. OSR verify OD. BHA total length 22 ft 11 inches. Safety Pause: Discuss GR operations with WL, FB and wellhead personnel.
2:00	0.08	FRAC	WLF			0		PU lube and PCE. 53 ft lube 8 ft tool trap + BOPS PU GR BHA and swing over to 1504.
2:05	0.17	FRAC	WLF			0		Stab 1504 and WL bump up. Reset WL digital depth to -50 ft
2:15	0.10	FRAC	WLF			0		RIH and tag out at 9 ft WL digital depth on LMV POOH to -50 WL digital depth. ALL CLEAR NO HANG UPS
2:21	0.23	FRAC	WLF			0		Discuss with WL engineer, decide to zero bottom of BHA at BOP bottoms. Also decide to shut UMW.
2:35	0.33	FRAC	WLF			0		Break off lube and BOPS, swing back. Double check measurement from bottom of lube to bottom of BOPS Measured ~8ft Pick up lube/BOPS and BHA. Swing back to 1504. Zero bottom of BHA at bottom of the BOPS.
2:55	0.17	FRAC	WLF			0		1st pass, RIH and tag @ 15.8' WL digital (UMV) POOH- ALL CLEAR NO HANG UPS
3:05	0.08	FRAC	WLF			0		2nd pass, RIH and tag @ 15.3' WL digital (UMV) POOH- ALL CLEAR NO HANG UPS
3:10	0.05	FRAC	WLF			0		3rd pass, RIH and tag @ 15.2' WL digital (UMV) POOH- ALL CLEAR NO HANG UPS
3:13	0.03	FRAC	WLF			0		4th pass, RIH and tag @ 15.2' WL digital (UMV) POOH- ALL CLEAR NO HANG UPS
3:15	0.12	FRAC	WLF			0		SAFETY PAUSE: Discuss measuring from bottom of BOPS to UMW. Also discuss UNCAAP and returning back to zipper frac operations.
3:22	0.38	FRAC	WLF			0		Measure from bottom of BOPS to middle of UMW. ~16 ft Break off lube and BOPS, swing over and drop out.
3:45	0.25	FRAC	SAF			0		Frac UNCAAP SAFETY PAUSE: Frac discuss return to zipper frac operations. Review UNCAAP safe work process.
4:00	0.33	FRAC	OPO			0		Standby for other pad operations
4:20	0.25	FRAC	FRP			0		Valve team line out valves to frac 1504.
4:35	0.10	FRAC	FRP			0		Frac pressure test to 1504 UMW. Low 5000 psi, High 9500 psi. TEST GOOD Bleed back and equalize.
4:41	3.15	FRAC	FRT			0		Stage 9 Summary University 19 PW Unit 1504H Interval 18918 - 19053 Open Well Pressure 4,180 psi Max Treating Pressure 9,435 psi Max Slurry Rate 49.8 bpm Average Treating Pressure 8,913 psi Average Slurry Rate 42.8 bpm Breakdown Pressure 9,193 psi Breakdown Rate 9.0 bpm Breakdown Volume 7,980 gal Avg HHP 9,350 hp Final ISIP 5,234 psi Frac Gradient 0.886 psi/ft Pad Volume 20,622 gal Main Body Volume 257,712 gal Flush Volume 28,602 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 425,520 lbs Proppant in Formation 425,520 lbs

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Avg Proppant Concentration 2.11 lb/gal Max Proppant Concentration 3.00 lb/gal Load to Recover 6,327 bbls Load to Recover w/o Acid 6,315 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 6,044 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 191 bbls pump down rate 10.0 bpm Max pump down pressure 6,229 psi Fluid Temp 72.0 ?F Total Pump Time 3:06 hr:min Pumps Lost During Job 1 Treatment Start Time 4:44 0:00 0:00 Treatment End Time 7:50 0:00 3:06 Diverter Slurry bbls Proppant pumped at 0.5PPA increments from 0.5PPA-3.0PPA. All proppant placed. 500gal of 15% HCl was placed and two 20# gel sweeps were pumped at 40 bbls each prior to flush. -The primary FR pump was lost during the stage as we were unable to control its rate, the backup pump on the blender was used. Pump 1085 was taken out for mechanical issue
7:50	0.40	FRAC	OPO			0		Other pad operations
8:14	0.37	FRAC	WLT			0		Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools. Stab lubricator. Fill lubricator. Pressure test lubricator to 8000 psi Open well with 4800 psi. RIH.
8:36	1.02	FRAC	WLT			0		"Stage #10 Plug and Perf RIH with (4) 1' Keane guns: 2.75" OD HSC at 6SPF with 60* phased perforating guns and Downhole Technology Boss Hog composite frac plug. Tie into liner top @ . Bring on pumps at 11300'. Pump down as follows: 3 bpm @ 4777 psi 6 bpm @ 4908 psi 10 bpm @ 5630 psi Max:10 bpm. Max: 6238 psi Set plug @ 18898 ft Pump down volume: 178 bbl" Lost commincation with guns after plug set. *****KEANE WL NPT LOST COMMINCATION WITH GUNS***
9:37	1.55	FRAC	WLT			1		POOH. Shut in well with 4800 psi Break lubricator. Lay down guns. trouble shoot gun mis run. the quick change between the bart tool and the guns was missing Oring. change out guns and Oring. Grease Zipper manifold on the 1504 and 1505.
11:10	0.52	FRAC	WLT			1		Pick up lubricator. Check well head for debris and or edges that toolstring can catch on. Stab lubricator. Fill lubricator. Pressure test lubricator to 8000 psi Open well with 4800 psi. RIH.
11:41	1.22	FRAC	WLT			1		"Stage #10 Perf RIH with (4) 1' Keane guns: 2.75" OD HSC at 6SPF with 60* phased perforating guns and. Tie into liner top @ . Bring on pumps at 11280'. Pump down as follows: 3 bpm @ 4417 psi 6 bpm @ 4740 psi 10 bpm @ 5235 psi 12 bpm @ 5799 psi Max:13.5 bpm. Max: 8000 psi  Perforate as follows: 18874' - 18875' 18829' - 18830'

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								18785' - 18786' 18740' - 18741' Stabilized pressure after perforating: 4782 psi Pump down volume: 377 bbl" *****KEANE LOST COMMUNICATION WITH GUNS ENDS****
12:54	0.75	FRAC	WLT			0		POOH
13:39	1.05	FRAC	OPO			0		Wait at 200 ft for frac
14:42	0.13	FRAC	WLF			0		Grease UNM Shut in well with 4394 psi Break lubricator. Grease LMV. All shots fired. Drop ball. MU night cap. LD tools and lub. Secure crown and wing valves. Handover from WL to frac.
14:50	0.33	FRAC	WLF			0		Other pad operations
15:10	0.75	FRAC	WLF			1		Pump maintenance *****NPT KEANE FRAC*****
15:55	0.23	FRAC	FRT			0		Pressure test to 9000 psi hold for 5 min. Test good. Bleed back to 5000 psi. Open well with 4320 psi.
16:09	2.22	FRAC	FRT			0		Start frac 1504 Stage 10
18:22	0.23	FRAC	FRT			0		Cut sand go to flush.
18:36	1.23	FRAC	FRT			1		*** NPT WEATHER *** Shut down due to weather
19:50	0.97	FRAC	FRT			0		Resume frac operations on 1504 stage 10.  Stage 10 Summary University 19 PW Unit 1504H Interval 18740 - 18875 Open Well Pressure 4,320 psi Max Treating Pressure 9,424 psi Max Slurry Rate 53.1 bpm Average Treating Pressure 8,887 psi Average Slurry Rate 46.5 bpm Breakdown Pressure 8,376 psi Breakdown Rate 9.2 bpm Breakdown Volume 17,136 gal Avg HHP 10,129 hp Final ISIP 5,445 psi Frac Gradient 0.904 psi/ft Pad Volume 28,056 gal Main Body Volume 320,502 gal Flush Volume 53,928 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 421,120 lbs Proppant in Formation 421,120 lbs Avg Proppant Concentration 1.82 lb/gal Max Proppant Concentration 3.00 lb/gal Load to Recover 8,196 bbls Load to Recover w/o Acid 8,184 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 7,539 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 565 bbls pump down rate 13.5 bpm Max pump down pressure 8,055 psi Fluid Temp 72.0 ?F Total Pump Time 3:24 hr:min Pumps Lost During Job 1 Treatment Start Time 16:09 19:50 0:00 Treatment End Time 18:35 20:48 3:24 Diverter Slurry bbls Proppant pumped at 0.5PPA increments from 0.5PPA-3.0PPA. All proppant placed. - 500gal of 15% HCl was placed and two 20# gel sweeps were

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								pumped at 40 bbls each prior to flush. - Pump 508760 was taken out for fluid end maintenance. -We shut down during 3lbs proppant due to lightening in the area.
20:48	0.12	FRAC	FWL			0		End frac 1504 stage 10. Valve team shut UMW and bleed off. Frac HO to WL
20:55	1.50	FRAC	OPO			0		Standby for other pad operations.
22:25	0.08	FRAC	WLT			0		WL PU lube and PCE + new guns and plug. Swing over and stab onto 1504. Valve team line out valves for pump down.
22:30	0.07	FRAC	WLT			0		Send boost and fill lube. Pressure test 1000 psi, 8000 psi. TEST GOOD Bleed back and equalize.
22:34	1.18	FRAC	WLT			0		Valve team open UMW. WL start perf 1504 Stage 11  "Stage #Stage 11 Plug and Perf RIH with (4) 1' Keane guns: 2.75" OD HSC at 6SPF with 60* phased perforating guns and Downhole Technology Boss Hog composite frac plug. Tie into liner top @ 10881. Pump down as follows: 3 bpm @ 4500 psi 6 bpm @ 4700 psi 11 bpm @ 5400 psi Max:11 bpm. Max: 6250 psi  Set plug @ 18718 ft UP 2ft Perforate as follows: 18696' - 18697' 18651' - 18652' 18607' - 18608' 18562' - 18563' Stabilized pressure after perforating: 4622 psi Pump down volume: 171 bbl"
23:45	0.25	FRAC	WLT			0		WL POOH
<b>Total</b>	<b>24.00</b>							

## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.75	FRAC	WLT			0	WL POOH
0:45		FRAC	WLT			0	WL @ 200' wait on frac

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NPT Summary										
Start Date/Time	Responsible Company	NPT Code	Failure MD (ft)	Ops Code	Type*	Equipment Type	Net time (hr)	Gross time (hr)	Severity	Status
08/19/2017 09:37	KEANE FRAC LP	Perforation		WLT	EN	Elect W/line Perforating Equip	3.28	3.28	1	OPEN
<b>Description:</b> LOST COMMUNICATION WITH GUNS						<b>Title:</b> LOST COMMUNICATION WITH GUNS				
08/19/2017 15:10		Stimulation		WLF	EN	Frac Pump	0.75	0.75	1	OPEN
<b>Description:</b> Pump maintenance						<b>Title:</b> Pump maintenance				
08/19/2017 18:36				FRT	EN		0.00	1.23	1	
<b>Description:</b> Shut down due to lightning and storms						<b>Title:</b> *** NPT WEATHER ***				
08/19/2017 18:36	SHELL	Wait On Weather		FRT	N		1.23	1.23	1	OPEN
<b>Description:</b> Shut down due to weather						<b>Title:</b> WOW				
<b>Total</b>							<b>5.27</b>	<b>6.50</b>		