

## EP WELLS DAILY OPERATIONS REPORT

Report 50

08/25/2017

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	49.00
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	Tommy Hurdle	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/%)	2.58/10.76	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	3,685,950/4,757,442.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.77	LOT/FIT EMW(ppg)	
Daily Cost	234,565	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	48

## Operations Summary

24 Hour Summary
Frac Stg 23. Perf & Frac Stg 24, 25. Perf Stg 26
Update Since Report Time
24 Hour Forecast
Continue Frac Ops

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	0.75	FRAC	FRT			1		***Continue NPT on KEANE*** Parts arrived on location. Install and calibrate. Prime up and pressure test to 9500 psi. Test Good. ***END NPT***
0:45	0.15	FRAC	FRP			0		Equalize and open well @ 4901 psi.
0:54	2.38	FRAC	FRT			0		<p>Stage 23 Summary University 19 PW Unit 1504H Interval 16426 - 16561</p> <p>Open Well Pressure 4,386 psi Max Treating Pressure 9,426 psi Max Slurry Rate 56.6 bpm Average Treating Pressure 8,541 psi Average Slurry Rate 45.1 bpm Breakdown Pressure 7,026 psi Breakdown Rate 9.2 bpm Breakdown Volume 16,506 gal Avg HHP 9,441 hp Final ISIP 5,473 psi Frac Gradient 0.907 psi/ft Pad Volume 28,434 gal Main Body Volume 311,640 gal Flush Volume 67,746 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 420,260 lbs Proppant in Formation 420,260 lbs Avg Proppant Concentration 2.33 lb/gal Max Proppant Concentration 3.50 lb/gal Load to Recover 7,541 bbls Load to Recover w/o Acid 7,529 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 7,328 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 121 bbls pump down rate 10.0 bpm Max pump down pressure 5,975 psi Fluid Temp 72.0 ?F Total Pump Time 3:17 hr:min Pumps Lost During Job 0 Treatment Start Time 15:47 17:39 0:54 Treatment End Time 16:30 18:01 3:17 Diverter Slurry bbls Proppant pumped as 0.5PPA steps from 0.5-3.5PPA. All proppant placed. - 500gal of 15% HCl was placed and two 20# gel sweeps were pumped at 40 bbls each prior to flush. - After displacing HCl, we flushed the wellbore and shut down for bad weather conditions. - After resuming operations we noticed the inline densometer wasn't working. After cutting proppant, the E-tech informed us that it would be necessary to shut down operations to perform repairs needed to the inline densometer.</p>
3:17	0.02	FRAC	FWL			0		SIW @ 5110 psi. Bleed off pressure and HO to WL.
3:18	0.28	FRAC	FWL			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 4900 psi. RIH to 200' conduct checks.
3:35	1.25	FRAC	WLT			0		"Stage #24 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. Bring on pumps at 11500'. Pump down as follows: 3bpm @ 4600psi @11500 6bpm @ 4700psi @11600 12bpm @ 5300psi @11700 12bpm w/ 6300psi @

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Set plug @ 16406ft Perforate as follows: 16382' - 16383' 16337' - 16338' 16293' - 16294' 16247' - 16248' Stabilized pressure after perf: 4840psi Pump down volume: bbl"
4:50	1.33	FRAC	WLT			0		POOH
6:10	0.33	FRAC	WLF			0		Break off lubricator/BOP's. Moved BOP's to the 1503H. Break off lubricator form BOP's and N/U nightcap on the BOP's. Lowered Perf guns out of lubricator and confirmed all shots fired. Drop ball, N/U nightcap and close crown valve. L/D perf guns and lubricator. Greased LMV and UMW - Grease time 10 minutes.
6:30	0.50	FRAC	WLF			0		Held Pre-Tower Safety Meeting. Covered focus areas - SSE, Barrier Ownership, Hands Free and DROPS. After pre-tower crews held respective TBT for their areas. Then conducted their handovers.
7:00	2.80	FRAC	OPO			0		Other Pad Ops
9:48	1.40	FRAC	WLF			0		align valves, pressure test to 9500 psi. Had to change out loe torque valve. Re pressure test change out swing. Pressure test to 9500 psi. Test good. Took 14 minutes to LD WL on 1503 so they can regen WL unit during frac. Equalize to 4500 psi, Open well with 4196 psi.
11:12	2.05	FRAC	FRT			0		Stage 24 Summary University 19 PW Unit 1504H Interval 16248 - 16383 Open Well Pressure 4,196 psi Max Treating Pressure 9,289 psi Max Slurry Rate 58.3 bpm Average Treating Pressure 8,795 psi Average Slurry Rate 50.2 bpm Breakdown Pressure 7,025 psi Breakdown Rate 9.4 bpm Breakdown Volume 16,758 gal Avg HHP 10,821 hp Final ISIP 5,248 psi Frac Gradient 0.887 psi/ft Pad Volume 16,968 gal Main Body Volume 205,506 gal Flush Volume 27,132 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 423,440 lbs Proppant in Formation 423,440 lbs Avg Proppant Concentration 2.74 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 5,013 bbls Load to Recover w/o Acid 5,001 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 4,801 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 120 bbls pump down rate 11.5 bpm Max pump down pressure 6,300 psi Fluid Temp 72.0 ?F Total Pump Time 2:01 hr:min Pumps Lost During Job 0 Treatment Start Time 11:13 0:00 0:00 Treatment End Time 13:14 0:00 2:01 Diverter Slurry bbls Proppant pumped as 0.5PPA - 2.50PPA steps from 2.50 to 4.0PPA. All proppant placed. 500gal of 15% HCl was placed and two 20# gel sweeps were pumped at 40 bbls each prior to flush.Grease 04 Zipper

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								-
13:15	0.27	FRAC	FWL			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 4950 psi. RIH.
13:31	1.00	FRAC	WLT			0		"Stage #25 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 @ 10,881 . Bring on pumps at 11200'. Pump down as follows: 3 bpm @ 4641 psi 6 bpm @ 5885 psi 10 bpm @ 5452 psi 12 bpm @ psi Max:10 bpm. Max: 58992 psi  Set plug @ 16228 ft Perforate as follows: 16200' - 16201' 16157' - 16158' 16115' - 16116' 16070' - 16071' Stabilized pressure after perforating: 4363 psi Pump down volume: 119 bbl"
14:31	1.07	FRAC	WLT			0		POOH to 200'
15:35	0.38	FRAC	OPO			0		Wait at 200 ft for frac
15:58	0.15	FRAC	WLF			0		Grease UMW Shut in well with 4600 psi Break lubricator. All shots fired. Drop ball. MU night cap. LD tools and lub. Grease wing valve Secure crown and wing valves. Handover from WL to frac.
16:07	0.30	FRAC	WLF			0		Other pad Operations
16:25	0.35	FRAC	WLF			0		Align valves, pressure test to 9500 psi.
16:46	2.17	FRAC	FRT			0		Stage 25 Summary University 19 PW Unit 1504H Interval 16070 - 16205 Open Well Pressure 4,267 psi Max Treating Pressure 9,329 psi Max Slurry Rate 57.4 bpm Average Treating Pressure 8,718 psi Average Slurry Rate 46.1 bpm Breakdown Pressure 6,932 psi Breakdown Rate 9.6 bpm Breakdown Volume 16,506 gal Avg HHP 9,850 hp Final ISIP 5,321 psi Frac Gradient 0.893 psi/ft Pad Volume 16,800 gal Main Body Volume 205,254 gal Flush Volume 27,132 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 429,980 lbs Proppant in Formation 429,980 lbs Avg Proppant Concentration 2.77 lb/gal Max Proppant Concentration 3.50 lb/gal Load to Recover 5,006 bbls Load to Recover w/o Acid 4,994 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 4,795 bbls 20# Linear Fluid Pumped 80 bbls

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								20# Crosslink Fluid Pumped 0 bbls Pump down volume 119 bbls pump down rate 10.0 bpm Max pump down pressure 5,992 psi Fluid Temp 72.0 ?F Total Pump Time 2:10 hr:min Pumps Lost During Job 0 Treatment Start Time 16:46 0:00 0:00 Treatment End Time 18:56 0:00 2:10 Diverter Slurry bbls Proppant pumped as a ramp from 0.50PPA - 2.50PPA. Then staged as steps from 2.50 to 4.0PPA. All proppant placed. - 500gal of 15% HCl was placed and two 20# gel sweeps were pumped at 40 bbls each prior to flush. - .
18:56	0.07	FRAC	FWL			0		Shut in well @ 4100 psi. Bleed off pressure and HO to WL. Held AAR to discuss frac stage.
19:00	0.20	FRAC	FWL			0		Other Pad Ops
19:12	0.30	FRAC	FWL			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 4800 psi. RIH to 200' conduct checks.
19:30	0.92	FRAC	WLT			0		"Stage #26 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. Bring on pumps at 11500'. Pump down as follows: 3bpm @ 4480psi @11500 6bpm @ 4600psi @11600 11.5bpm @ 5200psi @11700 11.5bpm w/ 6200psi @  Set plug @ 16050ft Perforate as follows: 16026' - 16027' 15981' - 15982' 15937' - 15938' 15892' - 15893' Stabilized pressure after perf: 4800psi Pump down volume: 103 bbl"
20:25	1.00	FRAC	WLT			0		POOH
21:25	0.42	FRAC	WLF			0		Bump up and SIW @ 4200 psi. Bled off pressure and break lubricator/BOP's. Lowered Perf guns out of lubricator and confirmed all shots fired. Drop ball, N/U nightcap and close crown valve. L/D perf guns and P/U next set of guns for next run. Greased Crown and Hyd valve - grease time 15 min. HO to Frac
21:50	0.33	FRAC	WLF			0		Other Pad ops
22:10	1.00	FRAC	FRP			1		***STRAT NPT KEANE FRAC*** - Wait on sand  ***END NPT***
23:10	0.10	FRAC	FRP			1		Prime up and equalize. Open well @ 4170 psi.
23:16	0.73	FRAC	FRT			1		Start Stg 26 Frac
<b>Total</b>	<b>24.00</b>							

## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00		FRAC	FRT			1	

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## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
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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
08/25/2017 22:10	KEANE FRAC LP	Wait On Equipment		FRP	EN	Sand Control Equipment	1.00	1.00		OPEN
Description: Wait on sand						Title: WOE				
Total							1.00	1.00		