

## EP WELLS DAILY OPERATIONS REPORT

Report 51

08/26/2017

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	50.00
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/%)	0/0	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	3,980,781/4,757,442.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.84	LOT/FIT EMW(ppg)	
Daily Cost	294,831	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:							

## Drills

Drill Category	Drill Type	Detection (sec)	Complete (sec)	Crew drilled	Pass / Fail	PIC	Comments
Pumping/Stimulation	Surface leak downstream of tree (clear or solids)	20.00	200.00	Night	Pass	Tommy Hurdle	***Held Well Control Drill

## HSE Drills

Drills/Tests	Date	Days Since Last		
Last Derrick Inspection			JSA's/Toolbox Talks	
Last BOP function test			Days Since Last Drill	49
Last BOP Test				
Next BOP Test				

## Operations Summary

24 Hour Summary
Frac Stg 26. Perf & Frac Stg 27, 28, 29. Perf Stg 30
Update Since Report Time
24 Hour Forecast

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Continue Frac Ops

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	1.17	FRAC	FRT			0		Stage 26 Summary University 19 PW Unit 1504H Interval 15892 - 16027 Open Well Pressure 4,170 psi Max Treating Pressure 9,373 psi Max Slurry Rate 61.1 bpm Average Treating Pressure 8,830 psi Average Slurry Rate 50.8 bpm Breakdown Pressure 7,326 psi Breakdown Rate 10.0 bpm Breakdown Volume 16,632 gal Avg HHP 10,994 hp Final ISIP 5,628 psi Frac Gradient 0.920 psi/ft Pad Volume 18,690 gal Main Body Volume 192,150 gal Flush Volume 35,868 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 420,000 lbs Proppant in Formation 420,000 lbs Avg Proppant Concentration 3.22 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 4,678 bbls Load to Recover w/o Acid 4,666 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 4,483 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 103 bbls pump down rate 11.5 bpm Max pump down pressure 6,200 psi Fluid Temp 72.0 ?F Total Pump Time 1:52 hr:min Pumps Lost During Job 0 Treatment Start Time 23:18 0:00 0:00 Treatment End Time 1:10 0:00 1:52 Diverter Slurry bbls Proppant pumped as a ramp from 0.50PPA - 3.00PPA. Then staged as steps from 3.00 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.
1:10	0.08	FRAC	FWL			0		SIW @ 5111 psi. Bleed off pressure and HO to WL. Held aar to discuss frac stage.
1:15	0.50	FRAC	OPO			0		Other Pad Ops
1:45	1.17	FRAC	OPO			0		Re-head WL.
2:55	0.25	FRAC	FWL			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 4600 psi. RIH to 200' conduct checks.
3:10	1.00	FRAC	WLT			0		"Stage #27 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 11600'. Pump down as follows: 3bpm @ 4300psi @11600 6bpm @ 4680psi @11700 11.5bpm @ 5290psi @11800 11.5bpm w/ 6500psi @  Set plug @ 15872ft Perforate as follows: 15848' - 15849' 15803' - 15804' 15759' - 15760' 15714' - 15715' Stabilized pressure after perf: 4600psi

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Pump down volume: 98bbl"
4:10	0.92	FRAC	WLT			0		POOH
5:05	0.25	FRAC	WLF			0		Bump up and SIW @ 4400 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 UMW and LMV valve - grease time 10 min. HO to Frac
5:20	2.67	FRAC	FRP			0		Planned Pump maintenance and Swap out blender. Rig Acid and FR transports back up, Bucket test.
8:00	0.28	FRAC	FRT			0		Prime up. Equalize to 4700 psi. Open well with 4032 psi
8:17	1.82	FRAC				0		<p>Stage 27 Summary University 19 PW Unit 1504H</p> <p>Interval 15714 - 15849</p> <p>Open Well Pressure 4,032 psi</p> <p>Max Treating Pressure 9,131 psi</p> <p>Max Slurry Rate 56.9 bpm</p> <p>Average Treating Pressure 8,825 psi</p> <p>Average Slurry Rate 53.2 bpm</p> <p>Breakdown Pressure 6,944 psi</p> <p>Breakdown Rate 10.0 bpm</p> <p>Breakdown Volume 16,002 gal</p> <p>Avg HHP 11,507 hp</p> <p>Final ISIP 5,581 psi</p> <p>Frac Gradient 0.916 psi/ft</p> <p>Pad Volume 15,960 gal</p> <p>Main Body Volume 180,264 gal</p> <p>Flush Volume 26,334 gal</p> <p>30/50 AZ Sand Pumped 0 lbs</p> <p>100 Mesh Sand Pumped 420,980 lbs</p> <p>Proppant in Formation 420,980 lbs</p> <p>Avg Proppant Concentration 3.22 lb/gal</p> <p>Max Proppant Concentration 4.00 lb/gal</p> <p>Load to Recover 4,390 bbls</p> <p>Load to Recover w/o Acid 4,378 bbls</p> <p>15% HCL Spearhead 504 gal</p> <p>Slickwater Fluid Pumped 4,200 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p> <p>20# Crosslink Fluid Pumped 0 bbls</p> <p>Pump down volume 98 bbls</p> <p>pump down rate 11.5 bpm</p> <p>Max pump down pressure 6,500 psi</p> <p>Fluid Temp 72.0 ?F</p> <p>Total Pump Time 1:49 hr:min</p> <p>Pumps Lost During Job 1</p> <p>Treatment Start Time 8:17 0:00 0:00</p> <p>Treatment End Time 10:06 0:00 1:49</p> <p>Diverter Slurry bbls</p> <p>Proppant pumped as a ramp from 0.50PPA - 3.50PPA. Then staged as 0.5PPA steps from 3.5 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.</p>
10:06	0.27	FRAC	FWL			0		<p>Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools.</p> <p>Stab lubricator. Fill lubricator.</p> <p>Pressure test lubricator to 8000 psi</p> <p>Open well with 4800 psi. RIH.</p>
10:22	1.00	FRAC	WLT			0		<p>"Stage #28 Plug and Perf</p> <p>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 @ 11874. Bring on pumps at 11400'. Pump down as follows:</p> <p>3 bpm @ 4400 psi</p> <p>6 bpm @ 4700 psi</p> <p>10 bpm @ 5200 psi</p> <p>12 bpm @ psi</p> <p>Max:10 bpm. Max: 6724 psi</p>

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Set plug @ 15690 ft Perforate as follows: 15670' - 15671' 15625' - 15626' 15581' - 15582' 15536' - 15537' Stabilized pressure after perforating: 4541 psi Pump down volume: 99 bbl"
11:22	0.68	FRAC	WLT			0		POOH to 200'
12:03	0.80	FRAC	OPO			0		Wait at 200 ft for frac
12:51	0.13	FRAC	WLF			0		Shut in well with 4300 psi Break lubricator. All shots fired. Drop ball. MU night cap. LD tools and lub. Secure crown and wing valves. Handover from WL to frac.
12:59	0.27	FRAC	WLF			0		Other pad Operations
13:15	0.70	FRAC	WLF			0		Fuel up frac fleet, align valves, Pressure test to 9500 psi. equalize to 4500 psi. Open well with 3992 psi.
13:57	1.82	FRAC	FRT			0		Stage 28 Summary University 19 PW Unit 1504H Interval 15536 - 15671 Open Well Pressure 3,992 psi Max Treating Pressure 9,230 psi Max Slurry Rate 53.5 bpm Average Treating Pressure 8,858 psi Average Slurry Rate 50.6 bpm Breakdown Pressure 6,705 psi Breakdown Rate 9.4 bpm Breakdown Volume 15,876 gal Avg HHP 10,986 hp Final ISIP 5,408 psi Frac Gradient 0.901 psi/ft Pad Volume 15,876 gal Main Body Volume 179,172 gal Flush Volume 26,376 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 420,332 lbs Proppant in Formation 420,332 lbs Avg Proppant Concentration 3.19 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 4,294 bbls Load to Recover w/o Acid 4,282 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 4,174 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 99 bbls pump down rate 9.0 bpm Max pump down pressure 5,900 psi Fluid Temp 72.0 ?F Total Pump Time 1:49 hr:min Pumps Lost During Job 0 Treatment Start Time 13:57 0:00 0:00 Treatment End Time 15:46 0:00 1:49 Diverter Slurry bbls Proppant pumped as a ramp from 0.50PPA - 3.50PPA. Then staged as 0.5PPA steps from 3.5 to 4.0PPA. All proppant placed. 500gal of 15% HCl was placed. Two 40 Bbl, 20# gel sweeps with a 20 Bbl spacer were run prior to flush.  Shut in well with 5066 psi
15:46	0.43	FRAC	FWL			0		Other pad operations
16:12	0.30	FRAC	FWL			0		Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools.

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Stab lubricator. Fill lubricator. Pressure test lubricator to 8000 psi Open well with 4400 psi. RIH.
16:30	0.85	FRAC	WLT			0		"Stage #29 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 11400'. Pump down as follows: 3 bpm @ 4100 psi 6 bpm @ 4300 psi 10 bpm @ 4400 psi 12 bpm @ psi Max:10 bpm. Max: 6303 psi  Set plug @ 15516 ft Perforate as follows: 15492' - 15493' 15447' - 15448' 15403' - 15404' 15358' - 15359' Stabilized pressure after perforating: 4580 psi Pump down volume: 91 bbl"
17:21	1.07	FRAC	WLT			0		POOH
18:25	0.25	FRAC	WLT			0		Bump up and SIW @ 3900 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 10 min. HO to Frac
18:40	0.25	FRAC	WLT			0		Other Pad Ops
18:55	0.35	FRAC	FRP			0		Prime up and pressure test to 9500 - Test Good.
19:16	1.72	FRAC	FRT			0		Stage 29 Summary University 19 PW Unit 1504H Interval 15358 - 15493 Open Well Pressure 3,745 psi Max Treating Pressure 9,366 psi Max Slurry Rate 58.1 bpm Average Treating Pressure 8,977 psi Average Slurry Rate 52.3 bpm Breakdown Pressure 7,012 psi Breakdown Rate 10.8 bpm Breakdown Volume 16,380 gal Avg HHP 11,507 hp Final ISIP 5,649 psi Frac Gradient 0.922 psi/ft Pad Volume 16,716 gal Main Body Volume 175,728 gal Flush Volume 29,484 gal 30/50 AZ Sand Pumped 0 lbs 100 Mesh Sand Pumped 418,680 lbs Proppant in Formation 418,680 lbs Avg Proppant Concentration 3.42 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 4,275 bbls Load to Recover w/o Acid 4,263 bbls 15% HCL Spearhead 504 gal Slickwater Fluid Pumped 4,092 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 91 bbls pump down rate 10.0 bpm Max pump down pressure 6,303 psi Fluid Temp 72.0 ?F Total Pump Time 1:43 hr:min Pumps Lost During Job 1 Treatment Start Time 19:16 0:00 0:00

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Wellbore UNIVERSITY 19 PW UNIT 1504H ST01

## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Treatment End Time 20:59 0:00 1:43 Diverter Slurry bbls Proppant pumped as a ramp from 0.50PPA - 4.00PPA. Then ran at 4.00 PPA for the rest of the stage. All proppant placed. - 500gal of 15% HCl was placed. - Two 40 Bbl, 20# gel sweeps with a 20 Bbl spacer were run prior to flush.
20:59	0.10	FRAC	FWL			0		SIW @ 5095 psi. Bleed off pressure and HO to WL. Held aar to discuss frac stage.
21:05	0.25	FRAC	OPO			0		Other Pad Ops
21:20	1.17	FRAC	OPO			0		Re-head WL
22:30	0.25	FRAC	FWL			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 4200 psi. RIH to 200' conduct checks.
22:45	1.25	FRAC	WLT			0		"Stage #30 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 11600'. Pump down as follows: 3bpm @ 4000psi @11600 6bpm @ 4100psi @11700 11.5bpm @ 5200psi @11800 11.5bpm w/ 6600psi @  Set plug @ 15338ft Perforate as follows: 15314' - 15315' 15271' - 15272' 15230' - 15231' 15186' - 15187' Stabilized pressure after perf: 4900psi Pump down volume: 85bbl"  ***Held Well Control Drill in the middle of operations to simulate live response. Discussed pressure release from wellhead and response.***
<b>Total</b>	<b>24.00</b>							

## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.25	FRAC	WLT			0	Finish Stg 30 Perforation
0:15	1.08	FRAC	WLT			0	POOH
1:20	0.33	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 10 min. HO to Frac
1:40	0.92	FRAC	WLF			0	Other Pad Ops
2:35	0.17	FRAC	FRP			0	Prime up and pressure test to 9500 psi. - Test Good. Equalize and open well @ 3612 psi.
2:45		FRAC	FRT			0	