

## EP WELLS DAILY OPERATIONS REPORT

Report 21

10/29/2017

Company	PERMIAN
Well Type	Development
Well	UNIVERSITY 19 PW UNIT 1406H
Wellbore	UNIVERSITY 19 PW UNIT 1406H
WBS No/API No	30266570 / 4230133213.00

## Event Summary

Event Type	Completion only	Event Start Date	09/03/2017	Days on Location	21.00
Objective	Install Completion	Original Spud Date	04/30/2017		
Est. Days	31.00	Contractor	PERMIAN WELL SVC		
Work Unit	PERMIAN COMPLETIONS	Days To Release			
		Rig Phone/FAX No.			

## Well Status

Supervisor	Tommy Hurdle	Measured Depth(ft)	
Engineer	Alex Villegas	TVD(ft)	
Other Supervisor	Tine Grega	24 Hr Progress(ft)	
Depth Ref/Grd Elev/Water Depth(ft)	DFE: 2,793.00 / 2,767.00	Hole size(in)	
THF Datum			
Daily NPT(hr/%)	3.50/14.58	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	2,158,849/4,377,702.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.49	LOT/FIT EMW(ppg)	
Daily Cost	153,922	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	20

## Operations Summary

24 Hour Summary
Frac stages
Perf stages
Update Since Report Time
24 Hour Forecast
Continue zipper frac

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	2.73	FRAC	FRT			0		Wait on pad operations
2:44	0.20	FRAC	WLT			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi 5 min low and 10 min high. Open well with 4600 psi. RIH to 200' conduct checks.
2:56	0.75	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 ball-drop frac plug. Tie into liner top @11069". Pump down as follows: 3bpm @ 4400psi11380 6bpm @ 4900psi11600 9bpm @ 5700psi11700 9bpm @ 7200psi  Set plug @ 15128ft Perforate as follows: 15104' - 15105' 15060' - 15061' 15016' - 15017' 14972' - 14972' Stabilized pressure after perf: 5702psi Pump down volume: 65bbl" POOH
3:41	0.57	FRAC	WLT			0		POOH. Held pause at 1000' for surface. Discuss coming off the well.
4:15	0.17	FRAC	WLT			0		Bump up and SIW @ 4650 psi. Bled off pressure and break lubricator/BOP's. Lowered Perf guns out of lubricator and confirmed all shots fired. N/U nightcap and close crown valve. L/D perf guns and P/U next set of guns for next run. Greased LMV valve - grease time 10 min. HO to Frac
4:25	1.08	FRAC	WLT			0		Wait on pad operations 05:30 - 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.
5:30	3.50	FRAC	WLT			1		Frac Waiting on fuel.
9:00	0.50	FRAC	WLT			0		Other Pad Ops
9:30	0.50	FRAC	FRP			0		Finish Greasing zipper. Prime and equalize. Open well @ 4738 psi.
10:00	1.72	FRAC	FRT			0		Stage 26 Summary University 19 PW Unit 1406H Interval 14972 - 15105 Open Well Pressure 4,730 psi Max Treating Pressure 9,485 psi Max Slurry Rate 53.9 bpm Average Treating Pressure 8,892 psi Average Slurry Rate 43.5 bpm Breakdown Pressure 7,801 psi Breakdown Rate 10.1 bpm Breakdown Volume 168 gal Avg HHP 9,480 hp Final ISIP 5,683 psi Frac Gradient 0.919 psi/ft Pad Volume 1,176 gal Main Body Volume 150,822 gal Flush Volume 29,232 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 164,840 lbs 100 M Sand Pumped 255,300 lbs Proppant in Formation 420,140 lbs Avg Proppant Concentration 3.67 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 3,656 bbls

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								Load to Recover w/o Acid 3,656 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,511 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 65 bbls pump down rate 9.0 bpm Max pump down pressure 7,200 psi Fluid Temp 72.0 ?F Total Pump Time 1:34 hr:min Pumps Lost During Job 0 Treatment Start Time 10:00 0:00 0:00 Treatment End Time 11:34 0:00 1:34 Diverter Slurry bbls - Proppant was pumped as a ramp from 0.50 PPA to 4.0 PPA, followed by a 4.0 PPA hold. - Two 20# gel sweeps 40 bbls each were pumped prior to flush. - Did not run 15% HCl this stage - Ran ball in place plug -We ran one load of 40/70 sand during 4PPA. It was sand that was miss-loaded on the truck and blown off into our sand hog before the mistake was discovered by the loading facility. This caused a pressure spike to 9485 and an 8 bpm pressure drop.  Time for Prop on Perfs 17.0 minutes Time between Stages (TBF) 5:39 Hours/min
11:43	0.03	FRAC	FWL			0		SIW @ 5226psi. Bleed off pressure HO to WL. Held Pause to discuss AAR on frac stage.
11:45	0.33	FRAC	FWL			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 4750 psi. RIH to 200' conduct checks.
12:05	0.67	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 @11069. Bring on pumps at 11600'. Pump down as follows: 3bpm @ 4300psi @11600 6bpm @ 4700psi @11700 10bpm @ 4900psi @11800 10bpm w/ 6810psi @  Set plug @ 14952ft Perforate as follows: 14925' - 14926' 14886' - 14887' 14840' - 14841' 14796' - 14797' Stabilized pressure after perf: 5600psi Pump down volume: 59bbl"
12:45	0.92	FRAC	WLT			0		POOH. Held Pause @ 1000' from surface.
13:40	0.17	FRAC	WLF			0		Bump up and SIW @ 4500 psi. Bled off pressure and break lubricator/BOP's. Lowered Perf guns out of lubricator and confirmed all shots fired. N/U nightcap and close crown valve. L/D perf guns and P/U next set of guns for next run. Greased UMW and Wing valve - grease time 5 min. HO to Frac
13:50	2.75	FRAC	OPO			0		Other Pad Ops
16:35	0.07	FRAC	FRP			0		Prime and equalize. Open well @ 4080 psi.
16:39	1.52	FRAC	FRT			0		Stage 27 Summary University 19 PW Unit 1406H Interval 14796 - 14929 Open Well Pressure 4,880 psi Max Treating Pressure 9,428 psi Max Slurry Rate 57.9 bpm Average Treating Pressure 8,846 psi

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Average Slurry Rate 48.3 bpm Breakdown Pressure 8,513 psi Breakdown Rate 10.3 bpm Breakdown Volume 252 gal Avg HHP 10,472 hp Final ISIP 5,265 psi Frac Gradient 0.883 psi/ft Pad Volume 1,008 gal Main Body Volume 153,384 gal Flush Volume 26,082 gal 100 MAZ Sand Pumped 46,900 lbs 100 M Brown Sand Pumped 183,700 lbs 100 M Sand Pumped 189,520 lbs Proppant in Formation 420,120 lbs Avg Proppant Concentration 3.54 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 3,711 bbls Load to Recover w/o Acid 3,711 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,572 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 59 bbls pump down rate 10.0 bpm Max pump down pressure 6,810 psi Fluid Temp 72.0 ?F Total Pump Time 1:31 hr:min Pumps Lost During Job 0 Treatment Start Time 16:39 0:00 0:00 Treatment End Time 18:10 0:00 1:31 Diverter Slurry bbls - Proppant was pumped as a ramp from 0.50 PPA to 4.0 PPA, followed by a 4.0 PPA hold. - Two 20# gel sweeps 40 bbls each were pumped prior to flush. - Did not run 15% HCl this stage - Ran ball in place plug.  Time for Prop on Perfs 19.0 minutes Time between Stages (TBF) :59 Hours/min  1730 - 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.
18:10	0.35	FRAC	WLF			0		SIW @ 5150 psi. Bleed off pressure and HO to WL. Held pause to discuss AAR.
18:31	0.20	FRAC	WLF			0		"Stage 28 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 ball-drop frac plug. Tie into liner top @11069". Pump down as follows: 3bpm @ 4300psi11380 6bpm @ 4800psi11600 9bpm @ 5100psi11700 9bpm @ 5800psi  Set plug @ 14776ft Perforate as follows: 14752' - 14753' 14708' - 14709' 14664' - 14665' 14620' - 14621' Stabilized pressure after perf: 5100psi Pump down volume: 59bbl" POOH
18:43	1.43	FRAC	WLF			0		POOH. Held pause at 1000' for surface. Discuss coming off the well.

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
20:09	0.15	FRAC	WLF			0		Bump up and SIW @ 4700 psi. Bled off pressure and break lubricator/BOP's. Lowered Perf guns out of lubricator and confirmed all shots fired. N/U nightcap and close crown valve. L/D perf guns and P/U next set of guns for next run. Greased LMV valve - grease time 10 min. HO to Frac
20:18	2.45	FRAC	WLF			0		Wait on pad operations
22:45	0.25	FRAC	FRT			0		Prime and pressure test to 9500 psi - Test Good. Bleed down to equalize. Open well @ 4508 psi.
23:00	1.00	FRAC	FRT			0		Frac stage # 28
<b>Total</b>	<b>24.00</b>							

## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.42	FRAC	FRT			0	<p>Stage 28 Summary University 19 PW Unit 1406H</p> <p>Interval 14620 - 14753</p> <p>Open Well Pressure 4,048 psi</p> <p>Max Treating Pressure 9,272 psi</p> <p>Max Slurry Rate 56.0 bpm</p> <p>Average Treating Pressure 8,799 psi</p> <p>Average Slurry Rate 46.0 bpm</p> <p>Breakdown Pressure 8,010 psi</p> <p>Breakdown Rate 8.2 bpm</p> <p>Breakdown Volume 252 gal</p> <p>Avg HHP 9,920 hp</p> <p>Final ISIP 5,305 psi</p> <p>Frac Gradient 0.886 psi/ft</p> <p>Pad Volume 1,134 gal</p> <p>Main Body Volume 145,866 gal</p> <p>Flush Volume 25,956 gal</p> <p>100 MAZ Sand Pumped 0 lbs</p> <p>100 M Brown Sand Pumped 138,260 lbs</p> <p>100 M Sand Pumped 279,740 lbs</p> <p>Proppant in Formation 418,000 lbs</p> <p>Avg Proppant Concentration 3.73 lb/gal</p> <p>Max Proppant Concentration 4.00 lb/gal</p> <p>Load to Recover 3,532 bbls</p> <p>Load to Recover w/o Acid 3,532 bbls</p> <p>15% HCL Spearhead 0 gal</p> <p>Slickwater Fluid Pumped 3,393 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p> <p>20# Crosslink Fluid Pumped 0 bbls</p> <p>Pump down volume 59 bbls</p> <p>pump down rate 9.0 bpm</p> <p>Max pump down pressure 5,800 psi</p> <p>Fluid Temp 72.0 ?F</p> <p>Total Pump Time 1:26 hr:min</p> <p>Pumps Lost During Job 1</p> <p>Treatment Start Time 22:59 0:00 0:00</p> <p>Treatment End Time 0:25 0:00 1:26</p> <p>Diverter Slurry bbls</p> <p>- Proppant was pumped as a ramp from 0.50 PPA to 4.0 PPA, followed by a 4.0 PPA hold.</p> <p>- Two 20# gel sweeps 40 bbls each were pumped prior to flush.</p> <p>- Did not run 15% HCL this stage</p> <p>- Ran ball in place plug. Lost pump 10086 to mechanical issues</p>
0:25	0.08	FRAC	FRT			0	SIW @ 5000 psi. Bleed off well and HO to WL. Held pause to discuss AAR on frac stage
0:30	1.15	FRAC	FRT			0	Retie rope socket and grease zipper manifold
1:39	0.33	FRAC	WLT			0	<p>Pick up lubricator. Remove night cap. PU guns/plug.</p> <p>Stab lubricator. Fill lubricator.</p> <p>PT lubricator to 1k-8kpsi 5 min low and 10 min high. Open well with</p>

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## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
							4500 psi. RIH to 200' conduct checks.
1:59	0.68	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 ball-drop frac plug. Tie into liner top @11069". Pump down as follows: 3bpm @ 4300psi11380 6bpm @ 4500psi11600 9bpm @ 5700psi  Set plug @ 14600ft Perforate as follows: 14576' - 14577' 14532' - 14533' 14488' - 14489' 14443' - 14444' Stabilized pressure after perf: 5100psi Pump down volume: 53bbl"
2:40	2.83	FRAC	WLT			0	Wait on pad operations
5:30	0.50	FRAC	WLT			0	0530 - 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.

## 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
10/29/2017 05:30	KEANE FRAC TX LLC	Wait On Equipment/ Materials		WLT	N		3.50	3.50	1	OPEN
<b>Description:</b> Fuel transport broke down. Ran out of fuel on location. Wait for new transport to arrive.						<b>Title:</b> No fuel on location				
<b>Total</b>							<b>3.50</b>	<b>3.50</b>		