

## EP WELLS DAILY OPERATIONS REPORT

Report 19

11/22/2017

Company	PERMIAN
Well Type	Development
Well	UNIVERSITY 19 PW UNIT 1404H
Wellbore	UNIVERSITY 19 PW UNIT 1404H
WBS No/API No	30266568 / 4230133215.00

## Event Summary

Event Type	Completion only	Event Start Date	10/31/2017	Days on Location	19.00
Objective	Install Completion	Original Spud Date	06/17/2017		
Est. Days	65.00	Contractor	PERMIAN WELL SVC		
Work Unit	PERMIAN COMPLETIONS	Days To Release			
		Rig Phone/FAX No.			

## Well Status

Supervisor	Andrew Veroba	Measured Depth(ft)	
Engineer	Bobby Ramos	TVD(ft)	
Other Supervisor	Hank Persaud / Brett Oldenkamp	24 Hr Progress(ft)	
Depth Ref/Grd Elev/Water Depth(ft)	DFE: 2,800.10 / 2,772.10	Hole size(in)	
THF Datum			
Daily NPT(hr/%)	1.25/7.01	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	3,247,514/5,029,301.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.65	LOT/FIT EMW(ppg)	
Daily Cost	289,012	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:							
Total hours: 1058							

## 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	18

## Operations Summary

24 Hour Summary
Update Since Report Time
24 Hour Forecast



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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	1.25	FRAC	FWL			1		Allow wireline truck to regen.
1:15	1.92	FRAC	FWL			0		<p>Pickup and set on well press. test and open well 4500 psi. perf. stage 39</p> <p>22:10 Handover from frac to WL.</p> <p>22:10 Pick up lubricator. Remove night cap. PU tools.</p> <p>22:15 Stab lubricator. Fill lubricator.</p> <p>22:20 PT lubricator to 8000psi</p> <p>22:30 Open well with 4550psi.</p> <p>02:00 "Stage #35 Plug and Perf had to pull out short, regen truck 3 hours down</p> <p>RIH with (4) 1' Keane guns: 2.75" OD HSC at 6SPF with 60* phased perforating guns and Boss Hog composite ball-drop frac plug. Tie into liner top @10966'. Pump down as follows:</p> <p>3bpm @ 3966psi11600</p> <p>6bpm @ 4224psi11700</p> <p>9bpm @ 4958psi11800</p> <p>10bpm @ 6143psi</p> <p>bpm @ psi</p> <p>10bpm @ 6755psi</p> <p>Set plug @ 14169ft</p> <p>Perforate as follows:</p> <p>14158' - 14159'</p> <p>14113' - 14114'</p> <p>14068' - 14069'</p> <p>14023' - 14024'</p> <p>Stabilized pressure after perf: 5045psi</p> <p>Pump down volume: 52bbl"</p> <p>02:20 POOH</p> <p>03:00 Shut in well with 4500psi. Bleed off.</p> <p>03:05 Break lubricator. All shots fired. Drop ball. MU night cap. LD tools and lub. Secure crown and wing valves.</p> <p>03:10 Handover from WL to frac.</p>
3:10	3.07	FRAC	FWL			0		<p>Prime up and pressure test lines 9500 psi. Frac stage 39 open w/ 4254 psi. on well.</p> <p>Stage 39 Summary University 19 PW Unit 1404H</p> <p>Interval 14023 - 14159</p> <p>Open Well Pressure 4,285 psi</p> <p>Max Treating Pressure 9,418 psi</p> <p>Max Slurry Rate 61.1 bpm</p> <p>Average Treating Pressure 8,709 psi</p> <p>Average Slurry Rate 38.7 bpm</p> <p>Breakdown Pressure 6,878 psi</p> <p>Breakdown Rate 8.0 bpm</p> <p>Breakdown Volume 294 gal</p> <p>Avg HHP 8,261 hp</p> <p>Final ISIP 5,187 psi</p> <p>Frac Gradient 0.879 psi/ft</p> <p>Pad Volume 1,050 gal</p> <p>Main Body Volume 232,092 gal</p> <p>Flush Volume 25,620 gal</p> <p>100 MAZ Sand Pumped 140,160 lbs</p> <p>100 M Brown Sand Pumped 0 lbs</p> <p>100 M Sand Pumped 280,640 lbs</p> <p>Proppant in Formation 420,800 lbs</p> <p>Avg Proppant Concentration 2.38 lb/gal</p> <p>Max Proppant Concentration 3.50 lb/gal</p> <p>Load to Recover (incl. pumpdown) 5,578 bbls</p> <p>Load to Recover w/o Acid 5,578 bbls</p> <p>15% HCL Spearhead 0 gal</p> <p>Slickwater Fluid Pumped 5,446 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p> <p>20# Crosslink Fluid Pumped 0 bbls</p> <p>Pump down volume 52 bbls</p> <p>pump down rate 10.0 bpm</p>



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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Max pump down pressure 6,795 psi Fluid Temp 72.0 Total Pump Time 2:33 hr:min Pumps Lost During Job 0 Treatment Start Time 3:41 0:00 0:00 Treatment End Time 6:14 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.5 PPA then a 3.5 PPA, and a 4.0 PPA step. - Ran two 40 bbl shots of gel with a 20 bbl spacer. - Ran NO 15% HCl this stage - This stage utilized a ball in seat plug. - We cut sand at 141,000 lbs 3.50 PPA step and staged a full wellbore volume flush of 687 Bbls After max psi came up to 9418 and rate was down to 24.7 bpm. After flush we came back in with 0.50 PPA Step, then a 1.0 PPA, 1.50 PPA, 2.0 PPA, 2.50 PPA, 3.0 PPA, 3.50 PPA, and 4.0 PPA steps. - We had problems with the bio pump, we ran an extra 12 gallons of Bio which will be 100% discounted.  Time for Prop on Perfs 14.0 minutes Time between Stages (TBF) 5:33 Hours/min
6:14	0.33	FRAC	WLT			0		Handover from frac to WL Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 8kpsi. Open well with 5000 psi.
6:34	1.62	FRAC	WLT			0		Stage 40 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 @ 10966'. Pump down as follows: 3bpm @ 4600 psi, 11600' 6bpm @ 4700 psi, 11680' 9bpm @ 5700 psi, 11750' Set plug @ 10,966ft Perforate as follows: 13,978' - 13,979' 13,933' - 13,934' 13,888' - 13,889' 13,843' - 13,844' Stabilized pressure after perf: 5135psi Pump down volume: 44 bbl POOH, hold pause at 1000' to discuss coming off well
8:11	0.23	FRAC	WLT			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. N/U nightcap and close crown valve. L/D perf guns. Greased UMV and LMV - grease time 10 min. HO to Frac.
8:25	1.50	FRAC	FRT			0		Prime and pressure test to 9500 psi. Good test. Equalize and open well. Stage 40 Summary University 19 PW Unit 1404H Interval 13843 - 13979 Open Well Pressure 4,211 psi Max Treating Pressure 9,320 psi Max Slurry Rate 61.2 bpm Average Treating Pressure 8,721 psi Average Slurry Rate 56.9 bpm Breakdown Pressure 8,276 psi Breakdown Rate 17.8 bpm Breakdown Volume 798 gal Avg HHP 12,162 hp Final ISIP 5,123 psi Frac Gradient 0.873 psi/ft Pad Volume 1,134 gal Main Body Volume 166,782 gal Flush Volume 25,578 gal 100 MAZ Sand Pumped 327,140 lbs 100 M Brown Sand Pumped 94,820 lbs



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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								100 M Sand Pumped 0 lbs Proppant in Formation 421,960 lbs Avg Proppant Concentration 3.21 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,015 bbls Load to Recover w/o Acid 4,015 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,891 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 44 bbls pump down rate 9.0 bpm Max pump down pressure 5,600 psi Fluid Temp 72.0 ?F Total Pump Time 1:20 hr:min Pumps Lost During Job 0 Treatment Start Time 8:35 0:00 0:00 Treatment End Time 9:55 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.5 PPA then a 3.5 PPA, and a 4.0 PPA step. - Ran two 40 bbl shots of gel with a 20 bbl spacer. - Ran NO 15% HCl this stage - This stage utilized a ball in seat plug. - Ran too much bio again, we will discount the 6 gallons of bio of extra bio at 100%  Time for Prop on Perfs 12.0 minutes Time between Stages (TBF) 2:23 Hours/min
9:55	0.28	FRAC	WLT			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 8kpsi. Open well with 5011 psi. RIH
10:12	1.63	FRAC	WLT			0		Stage 41 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 @ 10966'. Pump down as follows: 3bpm @ 4600 psi, 11600' 6bpm @ 4700 psi, 11700' 9bpm @ 4900 psi, 11780'  Set plug @ 13,818ft Perforate as follows: 13,798' – 13,799' 13,753' – 13,754' 13,708' – 13,709' 13,663' – 13,664' Stabilized pressure after perf: 4860psi Pump down volume: 39 bbl POOH
11:50	0.22	FRAC	WLT			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. N/U nightcap and close crown valve. L/D perf guns. Greased wing. HO to Frac.
12:03	1.45	FRAC	FRT			0		Stage 41 Summary University 19 PW Unit 1404H Interval 13663 - 13799 Open Well Pressure 4,237 psi Max Treating Pressure 9,161 psi Max Slurry Rate 61.2 bpm Average Treating Pressure 8,665 psi Average Slurry Rate 52.7 bpm Breakdown Pressure 7,997 psi Breakdown Rate 15.0 bpm Breakdown Volume 714 gal Avg HHP 11,192 hp Final ISIP 5,011 psi



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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Frac Gradient 0.864 psi/ft Pad Volume 840 gal Main Body Volume 168,420 gal Flush Volume 25,284 gal 100 MAZ Sand Pumped 370,980 lbs 100 M Brown Sand Pumped 47,960 lbs 100 M Sand Pumped 0 lbs Proppant in Formation 418,940 lbs Avg Proppant Concentration 3.13 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,049 bbls Load to Recover w/o Acid 4,049 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,930 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 39 bbls pump down rate 9.0 bpm Max pump down pressure 4,900 psi Fluid Temp 72.0 ?F Total Pump Time 1:26 hr:min Pumps Lost During Job 1 Treatment Start Time 12:04 0:00 0:00 Treatment End Time 13:30 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.5 PPA then a 3.5 PPA, and a 4.0 PPA step. - Ran two 40 bbl shots of gel with a 20 bbl spacer. - Ran NO 15% HCl this stage - This stage utilized a ball in seat plug. - lost pump 2 due to cracked thread cap - Ran a bucket test to fix bio issue, filled two 5 gallon buckets for a total of 10 gallons which will be 100% discounted from ticket.  Time for Prop on Perfs 12.0 minutes Time between Stages (TBF) 2:09 Hours/min
13:30	0.35	FRAC	WLT			0		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 8kpsi. Open well with 4600 psi. RIH.
13:51	1.57	FRAC	WLT			0		Stage 42 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 @ 10966'. Pump down as follows: 3bpm @ 4465 psi, 11600' 6bpm @ 4746 psi, 11700' 9bpm @ 5100 psi, 11760'  Set plug @ 13,638ft Perforate as follows: 13,618' – 13,619' 13,573' – 13,574' 13,528' – 13,529' 13,483' – 13,484' Stabilized pressure after perf: 4850psi Pump down volume: 37 bbl POOH
15:25	0.25	FRAC	WLT			0		Bump up and SIW @ 4623 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. Greased crown valve - grease time 10 min. HO to Frac.
15:40	0.33	FRAC	FRT			0		Perform blender maintenance (densitometer).
16:00	0.33	FRAC	FRT			0		Prime pumps. Noted issue with one pump, isolate and continue. Pressure test to 9500 psi.



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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
16:20	1.50	FRAC	FRT			0		Stage 42 Summary University 19 PW Unit 1404H Interval 13483 - 13619 Open Well Pressure 4,105 psi Max Treating Pressure 9,101 psi Max Slurry Rate 64.1 bpm Average Treating Pressure 8,384 psi Average Slurry Rate 56.6 bpm Breakdown Pressure 8,040 psi Breakdown Rate 14.4 bpm Breakdown Volume 546 gal Avg HHP 11,631 hp Final ISIP 5,186 psi Frac Gradient 0.879 psi/ft Pad Volume 462 gal Main Body Volume 167,958 gal Flush Volume 25,578 gal 100 MAZ Sand Pumped 93,160 lbs 100 M Brown Sand Pumped 324,460 lbs 100 M Sand Pumped 0 lbs Proppant in Formation 417,620 lbs Avg Proppant Concentration 3.16 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,036 bbls Load to Recover w/o Acid 4,036 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,919 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 37 bbls pump down rate 9.0 bpm Max pump down pressure 5,200 psi Fluid Temp 72.0 ?F Total Pump Time 1:19 hr:min Pumps Lost During Job 0 Treatment Start Time 16:28 0:00 0:00 Treatment End Time 17:47 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.5 PPA then a 3.5 PPA, and a 4.0 PPA step. - Ran two 40 bbl shots of gel with a 20 bbl spacer. - Ran NO 15% HCl this stage - This stage utilized a ball in seat plug.  Time for Prop on Perfs 13.0 minutes Time between Stages (TBF) 2:58 Hours/min
17:50		FRAC	GRS			0		
<b>Total</b>	<b>17.83</b>							

## 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
11/21/2017 22:05	RWLS LLC	Perforation		FWL	EN	Elect W/line Perforating Equip	3.17	3.17	1	OPEN
<b>Description:</b> Found guns shorted out on way in hole, had to let truck regen once out.							<b>Title:</b> WL Short in guns and regen truck			
							<b>Total</b>	<b>3.17</b>	<b>3.17</b>	