

## EP WELLS DAILY OPERATIONS REPORT

Report 24

12/06/2017

Company	PERMIAN
Well Type	Development
Well	UNIVERSITY 19 D 0904H
Wellbore	UNIVERSITY 19 D 0904H
WBS No/API No	30266560 / 4230133226.00

## Event Summary

Event Type	Completion only	Event Start Date	10/31/2017	Days on Location	24.00
Objective	Install Completion	Original Spud Date	06/19/2017		
Est. Days	65.00	Contractor	PERMIAN WELL SVC		
Work Unit	PERMIAN COMPLETIONS	Days To Release			
		Rig Phone/FAX No.			

## Well Status

Supervisor	WW Horton	Measured Depth(ft)	
Engineer	Bobby Ramos	TVD(ft)	
Other Supervisor	John Bevans	24 Hr Progress(ft)	
Depth Ref/Grd Elev/Water Depth(ft)	DFE: 2,799.10 / 2,771.10	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	2,585,644/3,746,244.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.69	LOT/FIT EMW(ppg)	
Daily Cost	219,594	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	23

## Operations Summary

24 Hour Summary
frac stages 31-33
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	3.10	FRAC	FWL			0		Conduct pump Maintenance and wait on other pad operations
3:06	0.20	FRAC	FWL			0		Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools. 0312 Stab lubricator. Fill lubricator. 0314 Pressure test lubricator to 8000 psi 0318 Open well with 4400 psi. RIH.
3:18	1.42	FRAC	WLT			0		"Stage #31 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 @ 10990'. Bring on pumps at 11450'. Pump down as follows: 3 bpm @ 3700 psi 6 bpm @ 4400 psi11500 10 bpm @ 4600 psi11550 Max:10 bpm. Max: 7108 psi.  Set plug @ 13106' Perforate as follows: 13081' - 13082' 13036' - 13037' 12991' - 12992' 12946' - 12947' Stabilized pressure after perforating: 5200 psi Pump down volume: 28 bbl" 0410 POOH
4:43	0.15	FRAC	WLF			0		0443 Shut in well with 4500 psi. Bleed off. 0446 Break lubricator. All shots fired. MU night cap. LD tools. Secure crown and wing valves. 0452 Handover from WL to Frac.
4:52	0.50	FRAC	WLF			0		Frac Prep
5:22	1.55	FRAC	FRT			0		Stage 31 Summary University 19 D 0904H Interval 12946 - 13082 Open Well Pressure 4,578 psi Max Treating Pressure 9,159 psi Max Slurry Rate 60.7 bpm Average Treating Pressure 8,396 psi Average Slurry Rate 49.4 bpm Breakdown Pressure 7,750 psi Breakdown Rate 9.5 bpm Breakdown Volume 332 gal Avg HHP 10,166 hp Final ISIP 5,553 psi Frac Gradient 0.100 psi/ft Pad Volume 3,377 gal Main Body Volume 182,923 gal Flush Volume 24,654 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 38,140 lbs 100 M Sand Pumped 382,600 lbs Proppant in Formation 420,740 lbs Avg Proppant Concentration 2.83 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,383 bbls Load to Recover w/o Acid 4,383 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 4,275 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 28 bbls pump down rate 10.0 bpm Max pump down pressure 7,108 psi Fluid Temp 72.0 ?F Total Pump Time 1:30 hr:min Pumps Lost During Job 0 Treatment Start Time 5:22

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Treatment End Time 6:52 Diverter Slurry bbls  - Proppant was pumped with a ramp of 0.50 - 3.0 PPA, then steps of 3.0 PPA, 3.50 PPA, and 4.00 PPA - Did not pump acid this stage. - Ran 2 shots of gel with a 20 bbl spacer. - A ball in place plug was utilized  Time for Prop on Perfs 23.5 minutes Time between Stages (TBF) 0:43 Hours/min
6:55	2.67	FRAC	FWL			0		Hand over from Frac to WL. Wait on other pad ops
9:35	0.03	FRAC	FWL			0		Remove night cap. PU tools.
9:37	0.08	FRAC	FWL			0		Stab lubricator. Fill lubricator.
9:42	0.12	FRAC	FWL			0		Pressure test lubricator to 8000 psi. Good test.
9:49	0.85	FRAC	WLT			0		Stage #32 Plug and Perf Open well with 4700 psi and RIH with (4) 2' Keane guns: 2.75" OD HSC at 6SPF with 60" phased perforating guns and Downhole Technology Boss Hog composite "Ball in Place" frac plug. Tie into liner top @ 10850. Bring on pumps at 11700". Pump down as follows: 3 bpm @ 4600 psi at 11700' 6 bpm @ 4800 psi at 11800' 10 bpm @ 5600 psi at 11900' Max rate: 10 bpm. Max pressure: 6079 psi  Set plug @ 12926 ft w/ 2 bpm pumping Perforate as follows: 12901' - 12902' 12856' - 12857' 12814' - 12815' + 3 for collar 12766' - 12767' Stabilized pressure after perforating: 4570 psi Pump down volume: 26 bbls
10:40	0.62	FRAC	WLT			0		POOH with Wireline.
11:17	0.13	FRAC	WLT			0		Bump up. Grease UM valve.
11:25	0.22	FRAC	WLT			0		Shut in well with 4650 psi. Bleed off. Break lubricator. All shots fired. MU night cap. Secure crown and wing valves. Grease LM valve.
11:38	0.67	FRAC	WLF			0		Handover from WL to Frac. Wait other other pad ops. Wait on sand.
12:18	1.47	FRAC	FRT			0		Equalize and open well with 4478 psi. Begin stage 32 frac. Stage 32 Summary University 19 D 0904H Interval 12766 - 12902 Open Well Pressure 4,478 psi Max Treating Pressure 9,237 psi Max Slurry Rate 60.3 bpm Average Treating Pressure 8,045 psi Average Slurry Rate 53.0 bpm Breakdown Pressure 7,876 psi Breakdown Rate 18.4 bpm Breakdown Volume 588 gal Avg HHP 10,451 hp Final ISIP 5,576 psi Frac Gradient 0.100 psi/ft Pad Volume 504 gal Main Body Volume 171,864 gal Flush Volume 24,612 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 145,240 lbs 100 M Sand Pumped 275,020 lbs

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Proppant in Formation 420,260 lbs Avg Proppant Concentration 2.99 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,118 bbls Load to Recover w/o Acid 4,118 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 4,012 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 26 bbls pump down rate 10.0 bpm Max pump down pressure 6,079 psi Fluid Temp 72.0 ?F Total Pump Time 1:26 hr:min Pumps Lost During Job 0 Treatment Start Time 12:19 Treatment End Time 13:45 Diverter Slurry bbls  - Proppant was pumped with a ramp of 0.50 - 4.0 PPA and then staged 4.00 PPA - Did not pump acid this stage. - Ran 2 shots of gel with a 20 bbl spacer. - A ball in place plug was utilized - Due to wet proppant causing partial blockage of the chutes we were unable to maintain 4.0 PPA and dropped back to a 3.0 PPA, then a 3.5 PPA step to complete the stage.  Time for Prop on Perfs 16.0 minutes Time between Stages (TBF) 1:01 Hours/min
13:46	3.18	FRAC	FWL			0		Handover from Frac to WL. Wait on other pad ops.
16:57	0.05	FRAC	FWL			0		Remove night cap. PU tools.
17:00	0.07	FRAC	FWL			0		Stab lubricator. Fill lubricator.
17:04	0.10	FRAC	FWL			0		Pressure test lubricator to 8000 psi. Good test.
17:10	0.78	FRAC	WLT			0		Stage #33 Plug and Perf Open well with 4429 psi and RIH with (4) 2' Keane guns: 2.75" OD HSC at 6SPF with 60* phased perforating guns and Downhole Technology Boss Hog composite "Ball in Place" frac plug. Tie into liner top @ 10990. Bring on pumps at 11500". Pump down as follows: 3 bpm @ 4515 psi at 11500' 6 bpm @ 4665 psi at 11600' 9 bpm @ 5960 psi at 11800' Max rate: 9 bpm. Max pressure: 6375 psi  Set plug @ 12746 ft w/ 2 bpm pumping Perforate as follows: 12721' - 12722' 12676' - 12677' 12631' - 12632' 12586' - 12587' Stabilized pressure after perforating: 5140 psi Pump down volume: 24 bbls
17:57	1.62	FRAC	WLT			0		POOH with Wireline. Bump up. Grease Wing /Upper Hydro. valve. Shut in well with 4400 psi. Bleed off. Break lubricator. All shots fired. MU night cap. Secure crown and wing valves. Handover from WL to frac. Wait on other pad ops.
19:34	1.37	FRAC	FRT			0		Prime and pressure test frac. Stage 33 Summary University 19 D 0904H Interval 12586 - 12722 Open Well Pressure 4,452 psi Max Treating Pressure 9,071 psi

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## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
							9bpm            psi 9bpm            psi  Max Pressure        7609        psi Total Fluid to recover    21        bbls  Plug set @    12566        Minus 1' Boss Hog Composite Frac Plug/ Ball in place plug Plug OD   3.65 in Pre-set Tension        1570        lbs Post-set Tension       1200        lbs  Pre-Perf Pressure        5630        psi  Perforation Summary: (4 count) 1' Keane Guns: 2.75" OD HSC at 6 spf @ 60 deg phasing  12541' - 12542'        6 shots 12496' - 12497'        6 shots 12448' - 12449'        6 shots        Minus 3' 12406' - 12407'        6 shots  Post-Perf Pressure        5475        psi WL POOH        0:57 Bump up. grease crown. valve. Shut in well with 4600 psi. Bleed off. Break lubricator. All shots fired. MU night cap. Secure crown and wing valve
1:43	0.50	FRAC	WLF			0	Prime and pressure test frac.
2:13	1.43	FRAC	WLT			0	Stage 34 Summary        University 19 D 0904H Interval    12406 - 12542 Open Well Pressure        4,718        psi Max Treating Pressure        9,030        psi Max Slurry Rate        60.7 bpm Average Treating Pressure    8,241        psi Average Slurry Rate        51.6 bpm Breakdown Pressure        8,674        psi Breakdown Rate        9.8        bpm Breakdown Volume        378        gal Avg HHP        10,422        hp Final ISIP        5,566        psi Frac Gradient        0.911        psi/ft Pad Volume        4,620        gal Main Body Volume        152,922        gal Flush Volume        24,486        gal 100 M AZ Sand Pumped        0        lbs 100 M Brown Sand Pumped        0        lbs 100 M Sand Pumped        420,420        lbs Proppant in Formation        420,420        lbs Avg Proppant Concentration        3.59 lb/gal Max Proppant Concentration        4.00 lb/gal Load to Recover (incl. pumpdown)        3,662        bbls Load to Recover w/o Acid        3,662        bbls 15% HCL Spearhead        0        gal Slickwater Fluid Pumped        3,561        bbls 20# Linear Fluid Pumped        80        bbls 20# Crosslink Fluid Pumped        0        bbls Pump down volume        21        bbls pump down rate        9.0        bpm Max pump down pressure        7,609        psi Fluid Temp        72.0        ?F Total Pump Time        1:23        hr:min Pumps Lost During Job        0 Treatment Start Time        2:14 0:00 0:00 Treatment End Time        3:37 0:00 0:00 Diverter Slurry        bbls

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## 06.00 Update

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							<ul style="list-style-type: none"><li>- Proppant was pumped with a ramp of 0.50 - 4.0 PPA and then staged 4.00 PPA</li><li>- Did not pump acid this stage.</li><li>- Ran 2 shots of gel with a 20 bbl spacer.</li><li>- A ball in place plug was utilized</li></ul> <p>Time for Prop on Perfs 23.0 minutes Time between Stages (TBF) 0:45 Hours/min Shut in well w/ 5375 psi.</p>
3:39		FRAC	WLT			0	Handover from Frac to WL. Wait on other pad ops.