

EP WELLS DAILY OPERATIONS REPORT

Report 21

12/03/2017

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	21.00
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	Andrew Veroba	Measured Depth(ft)	
Engineer	Bobby Ramos	TVD(ft)	
Other Supervisor	M. Hank Persaud / Brett Oldenkamp	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	1,846,510/3,746,244.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.49	LOT/FIT EMW(ppg)	
Daily Cost	272,364	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 GOAL ZERO DAYS PS BARRIER EVENT PS barrier bowtie review			TRCF LWCF Safety Cards - Safe Safety Card - Unsafe SSE% Last casing pressure(psi)
Safety Comments:						
Total hours: 1178						

HSE Drills

Drills/Tests	Date	Days Since Last	JSA's/Toolbox Talks Days Since Last Drill
Last Derrick Inspection Last BOP function test Last BOP Test Next BOP Test			20

Operations Summary

24 Hour Summary
Frac stages 21-24.
Update Since Report Time
Frac stage 25.
24 Hour Forecast
Frac stages 25-27.

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	0.58	FRAC	WLF			0		WOCO.
0:35	1.50	FRAC	FRT			0		Stage 21 Summary University 19 D 0904H Interval 14746 - 14882 Open Well Pressure 4,423 psi Max Treating Pressure 9,255 psi Max Slurry Rate 61.0 bpm Average Treating Pressure 8,664 psi Average Slurry Rate 54.6 bpm Breakdown Pressure 7,724 psi Breakdown Rate 9.4 bpm Breakdown Volume 307 gal Avg HHP 11,594 hp Final ISIP 5,602 psi Frac Gradient 0.914 psi/ft Pad Volume 2,352 gal Main Body Volume 170,502 gal Flush Volume 25,872 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 111,740 lbs 100 M Sand Pumped 308,040 lbs Proppant in Formation 419,780 lbs Avg Proppant Concentration 3.14 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,118 bbls Load to Recover w/o Acid 4,113 bbls 15% HCL Spearhead 200 gal Slickwater Fluid Pumped 3,975 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 58 bbls pump down rate 10.0 bpm Max pump down pressure 6,580 psi Fluid Temp 72.0 ?F Total Pump Time 1:26 hr:min Pumps Lost During Job 0 Treatment Start Time 0:38 0:00 0:00 Treatment End Time 2:04 0:00 0:00 Diverter Slurry bbls - Proppant was pumped with a ramp of 0.50 - 3.00 PPA, then steps of 3.00 PPA, 3.50 PPA, 4.00 PPA. - Ran 300 gal of 15% HCl - Ran 2 shots of gel with a 20 bbl spacer. - A ball in place plug was utilized. Time for Prop on Perfs 17.0 minutes Time between Stages (TBF) 0:37 Hours/min
2:05	0.25	FRAC	FWL			0		WOCO.
2:20	0.23	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
2:34	1.60	FRAC	WLT			0		Open well with 5100 psi. RIH. "Stage #22 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 @ 4300 psi 6 bpm @ 4900 psi 10 bpm @ 5000 psi Max:10 bpm. Max: 6650 psi. Set plug @ 14726' Perforate as follows:

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								14701' - 14702' 14656' - 14657' 14611' - 14612' 14566' - 14567' Stabilized pressure after perforating: 5250 psi Pump down volume: 58 bbl" POOH Shut in well with 4700 psi. Bleed off.
4:10	0.17	FRAC	WLF			0		Break lubricator. All shots fired. MU night cap. LD tools and stand lubricator. Secure crown and wing valves. Handover from WL to Frac.
4:20	1.62	FRAC	WLF			0		WOCO.
5:57	1.32	FRAC	WLF			0		Perform maintenance on pumps 3 and 11 while wireline moves off 910 well, performs re-head and moves onto the 903 well.
7:16	0.80	FRAC	WLF			0		Well handed over from wireline with 200 ft gun check. Maintenance near completion. Prime pumps and pressure test. Leak in bleed down line valves, were greased yesterday on same issue. Change out valves and re-test. Equalize and open well.
8:04	1.48	FRAC	FRT			0		Stage 22 Summary University 19 D 0904H Interval 14566 - 14702 Open Well Pressure 4,301 psi Max Treating Pressure 8,971 psi Max Slurry Rate 61.1 bpm Average Treating Pressure 8,596 psi Average Slurry Rate 55.4 bpm Breakdown Pressure 8,644 psi Breakdown Rate 18.6 bpm Breakdown Volume 252 gal Avg HHP 11,672 hp Final ISIP 5,486 psi Frac Gradient 0.905 psi/ft Pad Volume 1,638 gal Main Body Volume 179,844 gal Flush Volume 25,914 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 0 lbs 100 M Sand Pumped 420,860 lbs Proppant in Formation 420,860 lbs Avg Proppant Concentration 2.87 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,340 bbls Load to Recover w/o Acid 4,340 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 4,202 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 58 bbls pump down rate 10.0 bpm Max pump down pressure 6,653 psi Fluid Temp 72.0 ?F Total Pump Time 1:28 hr:min Pumps Lost During Job 1 Treatment Start Time 8:04 0:00 0:00 Treatment End Time 9:32 0:00 0:00 Diverter Slurry bbls - Proppant was pumped with a ramp of 0.50 - 3.0 PPA, then steps of 3.0 PPA, 3.5 PPA, and 4.00 PPA. - Did not run acid this stage. - Ran 2 shots of gel with a 20 bbl spacer. - A ball in place plug was utilized. Pump 10086 was taken out for mechanical issues during the stage

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								Time for Prop on Perfs 14.0 minutes Time between Stages (TBF) 2:08 Hours/min
9:33	0.40	FRAC	FWL			0		Wait on concurrent operations. Grease UMV and rig wireline off the 903 well.
9:57	0.22	FRAC	FWL			0		Hoist gun/plug into lubricator. Remove night cap. Stab and fill lubricator. Pressure test PCE to 8kpsi.
10:10	1.47	FRAC	WLT			0		Open well with 5000 psi and RIH. Conduct switch checks at 200'. Stage 23 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-in-place frac plug. Tie into liner top @ 10,990'. Bring on pumps at 11,445'. Pump down as follows: 3bpm @ 4597 psi 6bpm @ 4930 psi 10bpm @ 5300 psi Max pressure = 5900 Set plug @ 14,546ft Perforate as follows: 14,521' - 14,522' 14,476' - 14,477' 14,431' - 14,432' 14,386' - 14,387' Stabilized pressure after perf: 5106 psi Pump down volume: 58 bbl POOH.
11:38	0.12	FRAC	GRS			0		Bump up and grease UMV
11:45	0.17	FRAC	WLF			0		SIW @ 4600 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 setting tool. Greased LMV. Ready for frac.
11:55	3.00	FRAC	WLF			0		Wait on concurrent operations.
14:55	1.23	FRAC	FRT			0		Stage 23 Summary University 19 D 0904H Interval 14386 - 14522 Open Well Pressure 4,254 psi Max Treating Pressure 9,182 psi Max Slurry Rate 60.5 bpm Average Treating Pressure 8,470 psi Average Slurry Rate 55.5 bpm Breakdown Pressure 8,474 psi Breakdown Rate 14.4 bpm Breakdown Volume 336 gal Avg HHP 11,522 hp Final ISIP 5,390 psi Frac Gradient 0.896 psi/ft Pad Volume 1,596 gal Main Body Volume 172,158 gal Flush Volume 25,704 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 0 lbs 100 M Sand Pumped 415,680 lbs Proppant in Formation 415,680 lbs Avg Proppant Concentration 2.98 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,157 bbls Load to Recover w/o Acid 4,157 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 4,019 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 58 bbls pump down rate 10.0 bpm Max pump down pressure 5,900 psi Fluid Temp 72.0 ?F

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Total Pump Time 1:14 hr:min Pumps Lost During Job 0 Treatment Start Time 14:55 0:00 0:00 Treatment End Time 16:09 0:00 0:00 Diverter Slurry bbls - Proppant was pumped with a ramp of 0.50 - 3.50 PPA, then steps of 3.50 PPA, and 4.00 PPA. - Did not run 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 15.0 minutes Time between Stages (TBF) 0:37 Hours/min
16:09	0.25	FRAC	FWL			0		SIW and wait on concurrent operations. Grease and rig wireline off the 903 well.
16:24	0.17	FRAC	FWL			0		Hoist gun/plug into lubricator. Remove night cap. Stab and fill lubricator. Pressure test PCE to 8kpsi.
16:34	2.00	FRAC	WLT			0		Open well with 5150 psi and RIH. Conduct switch checks at 200'. 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 ball-in-place frac plug. Tie into liner top @ 10,990'. Bring on pumps at 11,600'. Pump down as follows: 3bpm @ 5100 psi 6bpm @ 5200 psi 10bpm @ 5800 psi Max pressure = 6200 Set plug @ 14,366ft Perforate as follows: 14,341' – 14,342' 14,296' – 14,297' 14,251' – 14,252' 14,206' – 14,207' Stabilized pressure after perf: 5300 psi Pump down volume: 54 bbl POOH.
18:34	0.15	FRAC	WLF			0		Shut in well with 4750 psi. Bleed off. Break lubricator. All shots fired. MU night cap. LD tools. Secure crown and wing valves. Handover from WL to Frac.
18:43	2.53	FRAC	WLF			0		WOCO.
21:15	1.08	FRAC	FRP			0		Continue maintenance from re-head. Prime. Pressure test to 9,500 psi.
22:20	1.37	FRAC	FRT			0		Stage 24 Summary University 19 D 0904H Interval 14206 - 14342 Open Well Pressure 4,260 psi Max Treating Pressure 9,242 psi Max Slurry Rate 60.7 bpm Average Treating Pressure 8,593 psi Average Slurry Rate 53.3 bpm Breakdown Pressure 7,436 psi Breakdown Rate 9.4 bpm Breakdown Volume 328 gal Avg HHP 11,226 hp Final ISIP 5,536 psi Frac Gradient 0.909 psi/ft Pad Volume 1,987 gal Main Body Volume 160,159 gal Flush Volume 25,620 gal 100 MAZ Sand Pumped 94,020 lbs 100 M Brown Sand Pumped 0 lbs

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								100 M Sand Pumped 325,600 lbs Proppant in Formation 419,620 lbs Avg Proppant Concentration 3.33 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 3,867 bbls Load to Recover w/o Acid 3,867 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,733 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 54 bbls pump down rate 10.0 bpm Max pump down pressure 6,200 psi Fluid Temp 72.0 ?F Total Pump Time 1:22 hr:min Pumps Lost During Job 0 Treatment Start Time 22:20 0:00 0:00 Treatment End Time 23:42 0:00 0:00 Diverter Slurry bbls - Proppant was pumped with a ramp of 0.50 - 3.50 PPA, then steps of 3.50 PPA, 4.00 PPA. - Did not run 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 17.0 minutes Time between Stages (TBF) 0:52 Hours/min
23:42	0.22	FRAC	FWL			0		WOCO.
23:55	0.08	FRAC	FWL			0		Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools.
Total	24.00							

06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.13	FRAC	FWL			0	Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools.
0:08	1.72	FRAC	WLT			0	Open well with 4750 psi. RIH. "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 @ 10990'. Bring on pumps at 11550'. Pump down as follows: 3 bpm @ 4300 psi 6 bpm @ 4500 psi 10 bpm @ 5000 psi Max:10 bpm. Max: 6000 psi. Set plug @ 14186' Perforate as follows: 14161' - 14162' 14116' - 14117' 14071' - 14072' 14026' - 14027' Stabilized pressure after perforating: 4750 psi Pump down volume: 45 bbl" POOH Shut in well with 4250 psi. Bleed off.
1:51	0.13	FRAC	WLF			0	Break lubricator. All shots fired. MU night cap. LD tools and stand lubricator. Secure crown and wing valves. Handover from WL to Frac.

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06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
1:59		FRAC	WLF			0	WOCO.