

EP WELLS DAILY OPERATIONS REPORT

Report 22

12/04/2017

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	22.00
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	2,069,936/3,746,244.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.55	LOT/FIT EMW(ppg)	
Daily Cost	208,073	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:	1076					

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			21

Operations Summary

24 Hour Summary
Frac stages 25-27.
Update Since Report Time
Frac stage 28.
24 Hour Forecast
Frac stages 28-30.

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	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.
1:59	2.40	FRAC	WLF			0		WOCO.
4:23	1.53	FRAC	FRT			0		Stage 25 Summary University 19 D 0904H Interval 14026 - 14162 Open Well Pressure 3,914 psi Max Treating Pressure 9,224 psi Max Slurry Rate 59.7 bpm Average Treating Pressure 8,713 psi Average Slurry Rate 49.6 bpm Breakdown Pressure 7,443 psi Breakdown Rate 9.4 bpm Breakdown Volume 328 gal Avg HHP 10,592 hp Final ISIP 5,409 psi Frac Gradient 0.898 psi/ft Pad Volume 1,680 gal Main Body Volume 166,102 gal Flush Volume 25,620 gal 100 MAZ Sand Pumped 188,400 lbs 100 M Brown Sand Pumped 0 lbs 100 M Sand Pumped 230,200 lbs Proppant in Formation 418,600 lbs Avg Proppant Concentration 3.15 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,000 bbls Load to Recover w/o Acid 4,000 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,875 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 45 bbls pump down rate 10.0 bpm Max pump down pressure 6,013 psi Fluid Temp 72.0 ?F Total Pump Time 1:28 hr:min Pumps Lost During Job 0 Treatment Start Time 4:24 0:00 0:00 Treatment End Time 5:52 0:00 0:00 Diverter Slurry bbls

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								- Proppant was pumped with a ramp of 0.50 - 3.50 PPA, then steps of 3.50 PPA, 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 16.0 minutes Time between Stages (TBF) 0:37 Hours/min
5:55	0.52	FRAC	FWL			0		SIW and wait on concurrent operations. Grease and rig wireline off the 903 well.
6:26	0.20	FRAC	FWL			0		Hoist gun/plug into lubricator. Remove night cap. Stab and fill lubricator. Pressure test PCE to 8kpsi.
6:38	2.03	FRAC	WLT			0		Open well with 4700 psi and RIH. Conduct switch checks at 200'. 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-in-place frac plug. Tie into liner top @ 10,990'. Bring on pumps at 11,520'. Pump down as follows: 3bpm @ 4838 psi 6bpm @ 4985 psi 10bpm @ 5547 psi Max pressure = 5919 Set plug @ 14,006ft Perforate as follows: 13,981' – 13,982' 13,936' – 13,937' 13,891' – 13,892' 13,846' – 13,847' Stabilized pressure after perf: 4739 psi Pump down volume: 47 bbl POOH.
8:40	0.18	FRAC	GRS			0		Bump up and grease UMW
8:51	0.15	FRAC	WLF			0		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 and setting tool. Greased LMV. Ready for frac.
9:00	4.02	FRAC	WLF			0		Wait on concurrent operations.
13:01	0.70	FRAC	FRP			0		Wireline gun check done on 903 well. Handover to frac. Complete maintenance on pumps. Prime pumps and equalize. Open well.
13:43	1.67	FRAC	FRT			0		Stage 26 Summary University 19 D 0904H Interval 13846 - 13982 Open Well Pressure 3,942 psi Max Treating Pressure 9,325 psi Max Slurry Rate 61.0 bpm Average Treating Pressure 8,682 psi Average Slurry Rate 50.8 bpm Breakdown Pressure 7,788 psi Breakdown Rate 9.6 bpm Breakdown Volume 294 gal Avg HHP 10,810 hp Final ISIP 5,335 psi Frac Gradient 0.892 psi/ft Pad Volume 1,260 gal Main Body Volume 177,912 gal Flush Volume 25,452 gal 100 M AZ Sand Pumped 283,720 lbs 100 M Brown Sand Pumped 0 lbs 100 M Sand Pumped 141,300 lbs Proppant in Formation 425,020 lbs Avg Proppant Concentration 2.95 lb/gal Max Proppant Concentration 3.50 lb/gal Load to Recover (incl. pumpdown) 4,283 bbls

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Load to Recover w/o Acid 4,283 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 4,156 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 47 bbls pump down rate 10.0 bpm Max pump down pressure 5,319 psi Fluid Temp 72.0 ?F Total Pump Time 1:35 hr:min Pumps Lost During Job 0 Treatment Start Time 13:45 0:00 0:00 Treatment End Time 15:20 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, and 3.5 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 15.0 minutes Time between Stages (TBF) 2:04 Hours/min
15:23	2.28	FRAC	FWL			0		SIW. Wireline not able to come off due to wind, see well 903 report. Wait on concurrent operations.
17:40	0.20	FRAC	FWL			0		Hoist gun/plug into lubricator. Remove night cap. Stab and fill lubricator. Pressure test PCE to 8kpsi.
17:52	1.95	FRAC	WLT			0		Open well with 4650 psi. RIH. "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 @ 10990'. Bring on pumps at 11800'. Pump down as follows: 3 bpm @ 4000 psi 6 bpm @ 4600 psi 10 bpm @ 5000 psi Max:10 bpm. Max: 6650 psi. Set plug @ 13826' Perforate as follows: 13801' - 13802' 13756' - 13757' 13711' - 13712' 13666' - 13667' Stabilized pressure after perforating: 5050 psi Pump down volume: 42 bbl" POOH Shut in well with 4500 psi. Bleed off.
19:49	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.
19:57	0.27	FRAC	WLF			0		WOCO.
20:13	0.28	FRAC	WLF			0		Frac prep.
20:30	1.33	FRAC	FRT			0		Stage 27 Summary University 19 D 0904H Interval 13666 - 13802 Open Well Pressure 4,271 psi Max Treating Pressure 9,290 psi Max Slurry Rate 60.4 bpm Average Treating Pressure 8,485 psi Average Slurry Rate 56.4 bpm Breakdown Pressure 7,481 psi

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Breakdown Rate 9.1 bpm Breakdown Volume 416 gal Avg HHP 11,729 hp Final ISIP 5,582 psi Frac Gradient 0.913 psi/ft Pad Volume 756 gal Main Body Volume 163,393 gal Flush Volume 25,284 gal 100 M AZ Sand Pumped 41,960 lbs 100 M Brown Sand Pumped 0 lbs 100 M Sand Pumped 378,220 lbs Proppant in Formation 420,180 lbs Avg Proppant Concentration 3.22 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 3,932 bbls Load to Recover w/o Acid 3,932 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,810 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 42 bbls pump down rate 10.0 bpm Max pump down pressure 6,635 psi Fluid Temp 72.0 ?F Total Pump Time 1:19 hr:min Pumps Lost During Job 0 Treatment Start Time 20:31 0:00 0:00 Treatment End Time 21:50 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, 3.50 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 14.0 minutes Time between Stages (TBF) 0:45 Hours/min
21:50	2.17	FRAC	FWL			0		WOCO.
Total	24.00							

06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.07	FRAC	FWL			0	WOCO.
0:04	0.18	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
0:15	1.75	FRAC	WLT			0	Open well with 4650 psi. RIH. "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 frac plug. Tie into liner top @ 10990'. Bring on pumps at 11500'. Pump down as follows: 3 bpm @ 4400 psi 6 bpm @ 4600 psi 10 bpm @ 4900 psi Max:10 bpm. Max: 6250 psi. Set plug @ 13646' Perforate as follows:

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06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
							13621' - 13622' 13576' - 13577' 13531' - 13532' 13486' - 13487' Stabilized pressure after perforating: 4550 psi Pump down volume: 38 bbl" POOH
2:00		FRAC	WLF			0	*** Start NPT (WOW) at 0200 *** High wind speeds. *** End NPT (WOW) at