

EP WELLS DAILY OPERATIONS REPORT

Report 13

10/21/2017

Company	PERMIAN
Well Type	Development
Well	UNIVERSITY 19 PW UNIT 1406H
Wellbore	UNIVERSITY 19 PW UNIT 1406H
WBS No/API No	4230133213 / 4230133213.00

Event Summary

Event Type	Completion only	Event Start Date	09/03/2017	Days on Location	13.00
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	Nick Morrison	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/%)	17.00/70.83	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	635,663/4,377,702.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.15	LOT/FIT EMW(ppg)	
Daily Cost	291,337	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:							

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	12

Operations Summary

24 Hour Summary
Frac stages 4 thru 7 WL stages 5 thru 7
Update Since Report Time
POOH with perf stage 4
24 Hour Forecast
Continue frac operations

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	0.20	FRAC	WLF			0		Other pad operations
0:12	0.03	FRAC	FRT			0		Align valves prime up. equalize to 5200 psi. Open well with 4414 psi.
0:14	2.62	FRAC	FRT			0		<p>Stage 4 Summary University 19 PW Unit 1406H</p> <p>Interval 18848 - 18982</p> <p>Open Well Pressure 4,407 psi</p> <p>Max Treating Pressure 9,514 psi</p> <p>Max Slurry Rate 48.7 bpm</p> <p>Average Treating Pressure 9,051 psi</p> <p>Average Slurry Rate 38.0 bpm</p> <p>Breakdown Pressure 5,911 psi</p> <p>Breakdown Rate 6.0 bpm</p> <p>Breakdown Volume 168 gal</p> <p>Avg HHP 8,430 hp</p> <p>Final ISIP 5,933 psi</p> <p>Frac Gradient 0.940 psi/ft</p> <p>Pad Volume 2,520 gal</p> <p>Main Body Volume 221,676 gal</p> <p>Flush Volume 28,686 gal</p> <p>100 M AZ Sand Pumped 314,520 lbs</p> <p>100 M Brown Sand Pumped 105,960 lbs</p> <p>100 M Sand Pumped 0 lbs</p> <p>Proppant in Formation 420,480 lbs</p> <p>Avg Proppant Concentration 2.29 lb/gal</p> <p>Max Proppant Concentration 3.00 lb/gal</p> <p>Load to Recover 5,426 bbls</p> <p>Load to Recover w/o Acid 5,418 bbls</p> <p>15% HCL Spearhead 336 gal</p> <p>Slickwater Fluid Pumped 5,190 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p> <p>20# Crosslink Fluid Pumped 0 bbls</p> <p>Pump down volume 148 bbls</p> <p>pump down rate 9.0 bpm</p> <p>Max pump down pressure 6,300 psi</p> <p>Fluid Temp 72.0 ?F</p> <p>Total Pump Time 2:34 hr:min</p> <p>Pumps Lost During Job 0</p> <p>Treatment Start Time 0:17 0:00 0:00</p> <p>Treatment End Time 2:51 0:00 2:34</p> <p>Diverter Slurry bbls</p> <p>- Proppant was pumped as a ramp from 0.50 PPA to 2.0 PPA, then as steps at 2.5 PPA, 3.0 PPA, and 2.0 PPA</p> <p>- Two 20# gel sweeps 40 bbls each were pumped prior to flush.</p> <p>- Ran one 350 gal shot of 15% HCl</p> <p>- Ran ball in place plug</p> <p>Time for Prop on Perfs 45.0 minutes</p> <p>Time between Stages (TBF) 0:42 Hours/min</p>
2:51	0.20	FRAC	FWL			0		Other pad operations
3:03	0.43	FRAC	FWL			0		Rehead WL. Start greasing zipper manifold
3:29	0.40	FRAC				0		Continue to grease zipper manifold Pick up lubricator. Remove night cap. PU tools. Stab lubricator.
3:53	0.20	FRAC	FWL			0		Pressure test lubricator to 8500 psi Open well with 4800 psi. RIH.
4:05	1.00	FRAC	WLT			0		<p>"Stage #5 Plug and Perf. Ball in place plug</p> <p>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 11400'. Pump down as follows:</p> <p>3 bpm @ 4700 psi</p> <p>6 bpm @ 5200 psi</p> <p>9 bpm @ 5700 psi</p> <p>12 bpm @ psi</p>

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								Max:9 bpm. Max: 6700 psi Set plug @ 18828 ft. Ball in place. 2 bpm @ 5130 set plug pressure increase to 5500 psi. good ball seat. Perforate as follows: 18804' - 18805' 18760' - 18761' 18716' - 18717' 18672' - 18673' Stabilized pressure after perforating: 5400 psi Pump down volume: 141 bbl"
5:05	0.82	FRAC	WLT			0		POOH
5:54	0.55	FRAC	OPO			0		Wait at 200 ft for frac
6:27	0.15	FRAC	WLF			0		Shut in well with 4550 psi Break lubricator. All shots fired. MU night cap. LD tools and lub. Secure crown and wing valves. Grease LMV. Handover from WL to frac.
6:36	0.40	FRAC	WLF			0		Other Pad Ops
7:00	1.00	FRAC	FRP			1		Wait on sand to arrive on location
8:00	0.10	FRAC	FRP			1		Prime up and equalize. Open well @ 4357 psi.
8:06	2.65	FRAC	FRT			1		Stage 5 Summary University 19 PW Unit 1406H Interval 18672 - 18805 Open Well Pressure 4,357 psi Max Treating Pressure 4,227 psi Max Slurry Rate 49.7 bpm Average Treating Pressure 9,014 psi Average Slurry Rate 37.4 bpm Breakdown Pressure 7,276 psi Breakdown Rate 8.0 bpm Breakdown Volume 588 gal Avg HHP 8,263 hp Final ISIP 5,278 psi Frac Gradient 0.884 psi/ft Pad Volume 1,134 gal Main Body Volume 209,580 gal Flush Volume 30,198 gal 100 MAZ Sand Pumped 421,480 lbs 100 M Brown Sand Pumped 0 lbs 100 M Sand Pumped 0 lbs Proppant in Formation 421,480 lbs Avg Proppant Concentration 2.47 lb/gal Max Proppant Concentration 3.00 lb/gal Load to Recover 5,131 bbls Load to Recover w/o Acid 5,124 bbls 15% HCL Spearhead 294 gal Slickwater Fluid Pumped 4,903 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 141 bbls pump down rate 9.0 bpm Max pump down pressure 6,900 psi Fluid Temp 72.0 ?F Total Pump Time 2:38 hr:min Pumps Lost During Job 0 Treatment Start Time 8:07 0:00 0:00 Treatment End Time 10:45 0:00 2:38 Diverter Slurry bbls - Proppant was pumped as a ramp from 0.50 PPA to 2.0 PPA, then as steps at 2.5 PPA, 3.0 PPA, and 3.5 PPA - Two 20# gel sweeps 40 bbls each were pumped prior to flush. - Ran one 350 gal shot of 15% HCl - Ran ball in place plug

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Time for Prop on Perfs 20.0 minutes Time between Stages (TBF) 1:29 Hours/min
10:45	0.02	FRAC	FWL			1		SIW @ 5123 psi. Bled off pressure HO to WL. Held pause to discuss AAR for stage.
10:46	0.15	FRAC	OPO			1		Other Pad Ops
10:55	0.42	FRAC	OPO			1		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 5120 psi. RIH to 200' conduct checks.
11:20	1.17	FRAC	WLT			1		"Stage #6 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 11500'. Pump down as follows: 3bpm @ 4900psi @11500 6bpm @ 5200psi @11550 9bpm @ 5689psi @11600 9bpm w/ 7091psi Set plug @ 18652ft Perforate as follows: 18625' - 18626' 18584' - 18585' 18540' - 18541' 18496' - 18497' Stabilized pressure after perf: 5800psi Pump down volume: 207bbl"
12:30	1.00	FRAC	WLT			1		POOH and wait @ 1000' for frac.
13:30	0.83	FRAC	OPO			1		Wait for frac to finish stage. Held pause with WL to discuss coming off the well.
14:20	0.33	FRAC	WLF			1		Bump up and SIW @ 5020 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 - grease time 10 min. HO to Frac
14:40	0.33	FRAC	WLF			1		Other Pad Ops
15:00	0.13	FRAC	FRP			1		Prime and equalize. Open well @ 4752 psi.
15:08	2.23	FRAC	FRT			1		Stage 6 Summary University 19 PW Unit 1406H Interval 18496 - 18629 Open Well Pressure 4,752 psi Max Treating Pressure 9,359 psi Max Slurry Rate 51.0 bpm Average Treating Pressure 9,062 psi Average Slurry Rate 40.5 bpm Breakdown Pressure 7,388 psi Breakdown Rate 8.0 bpm Breakdown Volume 168 gal Avg HHP 8,995 hp Final ISIP 5,277 psi Frac Gradient 0.884 psi/ft Pad Volume 966 gal Main Body Volume 199,542 gal Flush Volume 30,576 gal 100 M AZ Sand Pumped 227,040 lbs 100 M Brown Sand Pumped 193,380 lbs 100 M Sand Pumped 0 lbs Proppant in Formation 420,420 lbs Avg Proppant Concentration 2.60 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 4,958 bbls

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Load to Recover w/o Acid 4,951 bbls 15% HCL Spearhead 294 gal Slickwater Fluid Pumped 4,664 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 207 bbls pump down rate 9.0 bpm Max pump down pressure 7,091 psi Fluid Temp 72.0 ?F Total Pump Time 2:14 hr:min Pumps Lost During Job 0 Treatment Start Time 15:08 0:00 0:00 Treatment End Time 17:22 0:00 2:14 Diverter Slurry bbls - Proppant was pumped as a ramp from 0.50 PPA to 2.5 PPA, then as steps at 2.5 PPA, 3.0 PPA, 3.5 PPA and 4 PPA - Two 20# gel sweeps 40 bbls each were pumped prior to flush. - Ran one 300 gal shot of 15% HCl - Ran ball in place plug Time for Prop on Perfs 22.0 minutes Time between Stages (TBF) 0:50 Hours/min
17:22	0.02	FRAC	FWL			1		SIW @ 5072 psi. Bled pressure off and HO to WL. Held pause to discuss AAR for stage.
17:23	0.12	FRAC	OPO			1		Other Pad Ops.
17:30	0.42	FRAC	FWL			1		Pick up lubricator. Remove night cap. PU guns/plug. Stab lubricator. Fill lubricator. PT lubricator to 1k-8kpsi. Open well with 4940 psi. RIH to 200' conduct checks. 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.
17:55	0.98	FRAC	WLT			1		"Stage #7 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 @ . Bring on pumps at 11300'. Pump down as follows: 3 bpm @ 4700 psi 6 bpm @ 5300 psi 9 bpm @ 5650 psi 12 bpm @ psi Max:9 bpm. Max: 6700 psi Set plug @ 18476 ft Perforate as follows: 18452' - 18453' 18405' - 18406' 18364' - 18365' 18320' - 18321' Stabilized pressure after perforating: 5300 psi Pump down volume: 125 bbl"
18:54	0.77	FRAC	WLT			1		POOH
19:40	0.78	FRAC	WLT			1		Wait at 200 ft for frac
20:27	0.12	FRAC	WLF			1		Shut in well with 4600 psi Break lubricator. All shots fired. Grease crown valve and HCR - 9 mins. MU night cap. LD tools and lub. Secure crown and wing valves. Handover from WL to frac.
20:34	0.37	FRAC	OPO			1		Other Pad Ops.

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
20:56	0.05	FRAC	FRP			1		Prime and equalize. Open well @ 4313 psi.
20:59	1.83	FRAC	WLF			1		Stage 7 Summary University 19 PW Unit 1406H Interval 18320 - 18453 Open Well Pressure 4,513 psi Max Treating Pressure 9,362 psi Max Slurry Rate 53.2 bpm Average Treating Pressure 8,529 psi Average Slurry Rate 45.8 bpm Breakdown Pressure 7,662 psi Breakdown Rate 12.0 bpm Breakdown Volume 504 gal Avg HHP 9,574 hp Final ISIP 5,576 psi Frac Gradient 0.910 psi/ft Pad Volume 2,688 gal Main Body Volume 183,612 gal Flush Volume 28,350 gal 100 M AZ Sand Pumped 47,220 lbs 100 M Brown Sand Pumped 327,180 lbs 100 M Sand Pumped 46,020 lbs Proppant in Formation 420,420 lbs Avg Proppant Concentration 2.87 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover 4,497 bbls Load to Recover w/o Acid 4,492 bbls 15% HCL Spearhead 198 gal Slickwater Fluid Pumped 4,287 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 125 bbls pump down rate 9.0 bpm Max pump down pressure 6,700 psi Fluid Temp 72.0 ?F Total Pump Time 1:49 hr:min Pumps Lost During Job 0 Treatment Start Time 21:00 0:00 0:00 Treatment End Time 22:49 0:00 1:49 Diverter Slurry bbls - Proppant was pumped as a ramp from 0.50 PPA to 2.5 PPA, then as steps at 2.5 PPA, 3.0 PPA, 3.5 PPA and 4 PPA - Two 20# gel sweeps 40 bbls each were pumped prior to flush. - Ran one 200 gal shot of 15% HCl - Ran ball in place plug Time for Prop on Perfs 27.0 minutes Time between Stages (TBF) 0:35 Hours/min
22:49	0.15	FRAC	FWL			1		Other pad operations
22:58	0.57	FRAC	WLT			1		Rehead WL, Grease crown valve, Hydraulic valve and Zipper manifold
23:32	0.47	FRAC	FWL			1		Handover from frac to wireline. Pick up lubricator. Remove night cap. PU tools. Stab lubricator. Fill lubricator. Pressure test lubricator to 8000 psi Open well with 4850 psi. RIH.
Total	24.00							

06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.70	FRAC	WLT			0	"Stage #8 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 @ . Bring on pumps at 11400'. Pump down as

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06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
							follows: 3 bpm @ 4740 psi 6 bpm @ 5200 psi 9 bpm @ 5700 psi 12 bpm @ psi Max:9 bpm. Max: 6300 psi Set plug @ 18298 ft Perforate as follows: 18276' - 18277' 18232' - 18233' 18188' - 18189' 18144' - 18145' Stabilized pressure after perforating: 5364 psi Pump down volume: 120 bbl"
0:42	0.80	FRAC	WLT			0	POOH
1:30	0.37	FRAC	OPO			0	Wait at 200 ft for frac
1:52	0.10	FRAC	WLF			0	Shut in well with 4750 psi Break lubricator. All shots fired. Drop ball. MU night cap. LD tools and lub. Secure crown and wing valves. Handover from WL to frac.
1:58	0.40	FRAC	WLF			0	Other pad operations
2:22	0.45	FRAC	FRP			0	Fueling frac equipment
2:49		FRAC				0	Prime up equalize to 5000 psi. Open well with 4462 psi. Frac stage 8