

## EP WELLS DAILY OPERATIONS REPORT

Report 9

11/12/2017

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	9.00
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	John Bevans	Measured Depth(ft)	
Engineer	Bobby Ramos	TVD(ft)	
Other Supervisor	WW Horton	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/%)	0/0	Last Casing MD	
Days Ahd(-) Bhnd(+)(50/50)		Next Casing MD	
Actual cost to date/AFE	696,229/5,029,301.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.14	LOT/FIT EMW(ppg)	
Daily Cost	224,026	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)	1
Safety Comments:							
Personal - 87							
Man Hrs - 912							

## 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	8

## Operations Summary

24 Hour Summary
Frac Stages 4, 5, 6
Update Since Report Time
24 Hour Forecast
Continue Frac Ops

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## Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
0:00	1.12	FRAC	WLT			0		Complete stage 3 frac. See 11/11/17 report for details.
1:07	0.72	FRAC	WLT			0		Hand over to WL. Wait on other pad ops.
1:50	0.08	FRAC	WLT			0		Pick up lubricator. Remove night cap. PU tools.
1:55	0.05	FRAC	WLT			0		Stab lubricator. Fill lubricator.
1:58	0.10	FRAC	WLT			0		Pressure test lubricator to 8000 psi. Good test.
2:04	1.27	FRAC	WLT			0		<p>Stage #4 Plug and Perf</p> <p>Open well with 4204 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 frac plug. Tie into liner top @ 10996. Bring on pumps at 11750'. Pump down as follows:</p> <p>3 bpm @ 4149 psi at 11750'</p> <p>6 bpm @ 4667 psi at 11850'</p> <p>9 bpm @ 5064 psi at 11950'</p> <p>Max rate:9 bpm. Max pressure: 5865 psi</p> <p>Set plug @ 20459 ft</p> <p>Perforate as follows:</p> <p>20434' - 20435'</p> <p>20389' - 20390'</p> <p>20344' - 20345'</p> <p>20299' - 20300'</p> <p>Stabilized pressure after perforating: 4054 psi</p> <p>Pump down volume: 183 bbls</p>
3:20	1.00	FRAC	WLT			0		POOH
4:20	0.13	FRAC	WLF			0		At 200' wait on frac.
4:28	0.07	FRAC	WLT			0		Bump up and shut in well with 4050 psi. Bleed off.
4:32	0.30	FRAC	WLT			0		Break lubricator. All shots fired. Drop ball. MU night cap. Secure crown and wing valves. Grease lower master and and 7" hydraulic.
4:50	0.50	FRAC	WLF			0		Wait on other pad ops.
5:20	0.67	FRAC	WLF			0		Hold safety meeting w/ day crew. Review job scope and JSA's. Equalize and open well w/ 3855 psi. Begin stage 4 frac.
6:00	1.75	FRAC	WLF			0		<p>Stage 4 Summary University 19 PW Unit 1404H</p> <p>Interval 20299 - 20435</p> <p>Open Well Pressure 3,855 psi</p> <p>Max Treating Pressure 9,208 psi</p> <p>Max Slurry Rate 59.1 bpm</p> <p>Average Treating Pressure 8,749 psi</p> <p>Average Slurry Rate 50.8 bpm</p> <p>Breakdown Pressure 3,847 psi</p> <p>Breakdown Rate 7.0 bpm</p> <p>Breakdown Volume 252 gal</p> <p>Avg HHP 10,893 hp</p> <p>Final ISIP 5,151 psi</p> <p>Frac Gradient 0.876 psi/ft</p> <p>Pad Volume 20,538 gal</p> <p>Main Body Volume 233,843 gal</p> <p>Flush Volume 29,526 gal</p> <p>100 MAZ Sand Pumped 0 lbs</p> <p>100 M Brown Sand Pumped 46,580 lbs</p> <p>100 M Sand Pumped 379,120 lbs</p> <p>Proppant in Formation 425,700 lbs</p> <p>Avg Proppant Concentration 2.43 lb/gal</p> <p>Max Proppant Concentration 3.50 lb/gal</p> <p>Load to Recover (incl. pumpdown) 5,751 bbls</p> <p>Load to Recover w/o Acid 5,744 bbls</p> <p>15% HCL Spearhead 281 gal</p> <p>Slickwater Fluid Pumped 5,481 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p>

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								20# Crosslink Fluid Pumped 0 bbls Pump down volume 183 bbls pump down rate 9.0 bpm Max pump down pressure 5,865 psi Fluid Temp 72.0 ?F Total Pump Time 2:22 hr:min Pumps Lost During Job 0 Treatment Start Time 5:22 0:00 0:00 Treatment End Time 7:44 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 2.0 PPA, then steps at 2.0 PPA, 2.5PPA, 3.0 PPA, and 3.5 PPA - Ran two 40 bbl shots of gel with a 20 bbl spacer. -Ran 300 gal. of 15% HCl this stage  Time for Prop on Perfs 43.0 minutes Time between Stages (TBF) :53 Hours/min
7:45	3.08	FRAC	WLF			0		Waiting on other pad opps.
10:50	1.43	FRAC	WLF			0		Rehead wireline
12:16	0.23	FRAC	WLF			0		Line out valves, WL PU lube and PCE plus new guns and plug. Swing over. WL stab on University 19 PW 1404H and fill lube. Start PT, low 1K, high 8k. Test good. Bleed back to equalizing pressure. Valve team open UMW @ 3900 psi
12:30	2.42	FRAC	WLF			0		WL Start perf University 1404H Stage 5 Tie into liner top at 10966 ft Initial WHP 3900 psi  Pumpdown Pressures 3bpm 3800 psi 6bpm 4000 psi 9bpm 4500 psi 9bpm 5700 psi 12bpm psi  Max Pressure 6184 psi Total Fluid to recover 163 bbls  Plug set @ 20279 ft Boss Hog Composite Frac Plug/ Ball in place plug Plug OD 3.65 in Pre-set Tension 2522 lbs Post-set Tension 2200 lbs  Pre-Perf Pressure 4750 psi  Perforation Summary: (4 count) 1' Keane Guns: 2.75" OD HSC at 6 spf @ 60 deg phasing  20254' - 20255' 6 shots 20209' - 20210' 6 shots 20164' - 20165' 6 shots 20119' - 20120' 6 shots  Post-Perf Pressure 5100 psi WL POOH 13:21
14:55	0.70	FRAC	WLF			0		WL at surface, valve team shut UMW @ 4800 psi, End WL Perf University 19 PW 1404H Stage 5
15:37	1.97	FRAC	WLF			0		Stage 5 Summary University 19 PW Unit 1404H Interval 20119 - 20255 Open Well Pressure 3,646 psi Max Treating Pressure 9,206 psi Max Slurry Rate 54.6 bpm

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Average Treating Pressure 8,732 psi Average Slurry Rate 44.6 bpm Breakdown Pressure 6,990 psi Breakdown Rate 8.5 bpm Breakdown Volume 378 gal Avg HHP 9,545 hp Final ISIP 5,394 psi Frac Gradient 0.896 psi/ft Pad Volume 2,100 gal Main Body Volume 184,162 gal Flush Volume 29,316 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 406,560 lbs 100 M Sand Pumped 14,000 lbs Proppant in Formation 420,560 lbs Avg Proppant Concentration 2.88 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,548 bbls Load to Recover w/o Acid 4,543 bbls 15% HCL Spearhead 202 gal Slickwater Fluid Pumped 4,300 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 163 bbls pump down rate 9.0 bpm Max pump down pressure 6,184 psi Fluid Temp 72.0 ?F Total Pump Time 1:58 hr:min Pumps Lost During Job 0 Treatment Start Time 15:37 0:00 0:00 Treatment End Time 17:35 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 2.5 PPA, then steps at 2.5 PPA, 3.0PPA, 3.0 PPA, 3.5 PPA and 4.0 PPA - Ran two 40 bbl shots of gel with a 20 bbl spacer. -Ran 300 gal. of 15% HCl this stage - This stage utilized a ball in seat plug.  Time for Prop on Perfs 23.0 minutes Time between Stages (TBF) :49 Hours/min
17:35	0.65	FRAC	FWL			0		Stand by for other pad ops.
18:14	0.03	FRAC	FWL			0		Handover from Frac to Wireline. Remove night cap. PU tools.
18:16	0.08	FRAC	WLT			0		Stab lubricator. Fill lubricator.
18:21	0.08	FRAC	WLT			0		Pressure test lubricator to 8000 psi. Good test.
18:26	1.37	FRAC	WLT			0		Stage #6 Plug and Perf Open well with 4127 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 @ 10966. Bring on pumps at 11750'. Pump down as follows: 3 bpm @ 4110 psi at 11750' 6 bpm @ 4587 psi at 11850' 9 bpm @ 4753 psi at 11980' Max rate:10 bpm. Max pressure: 5865 psi  Set plug @ 20094 ft w/ 2 bbls pumping Perforate as follows: 20074' - 20075' 20029' - 20030' 19984' - 19985' 19939' - 19940' Stabilized pressure after perforating: 4750 psi Pump down volume: 181 bbls

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
19:48	0.90	FRAC	WLT			0		POOH with Wireline.
20:42	0.10	FRAC	WLT			0		At 200' Wait on other pad ops.
20:48	0.20	FRAC	WLT			0		Shut in well with 3700 psi. Bleed off. Break lubricator. All shots fired. MU night cap. Secure crown valve. Grease 7" hydraulic and 3" wing valves.
21:00	1.08	FRAC	WLF			0		PAUSE to tighten chain on logger drum.
22:05	1.78	FRAC	FRT			0		Equalize and open well with 3782 psi. Begin Stage 6 frac. Stage 6 Summary Interval 19939 - 20075 Open Well Pressure 3,782 psi Max Treating Pressure 9,203 psi Max Slurry Rate 59.4 bpm Average Treating Pressure 8,665 psi Average Slurry Rate 47.4 bpm Breakdown Pressure 5,540 psi Breakdown Rate 7.0 bpm Breakdown Volume 126 gal Avg HHP 10,067 hp Final ISIP 5,045 psi Frac Gradient 0.866 psi/ft Pad Volume 2,016 gal Main Body Volume 177,013 gal Flush Volume 29,316 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 47,060 lbs 100 M Sand Pumped 374,520 lbs Proppant in Formation 421,580 lbs Avg Proppant Concentration 3.02 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,396 bbls Load to Recover w/o Acid 4,391 bbls 15% HCL Spearhead 193 gal Slickwater Fluid Pumped 4,130 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 181 bbls pump down rate 10.0 bpm Max pump down pressure 5,865 psi Fluid Temp 72.0 ?F Total Pump Time 1:47 hr:min Pumps Lost During Job 0 Treatment Start Time 22:05 Treatment End Time 23:52 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 2.5 PPA, then steps at 2.5 PPA, 3.0PPA, 3.5 PPA and 4.0 PPA - Ran two 40 bbl shots of gel with a 20 bbl spacer. -Ran 200 gal. of 15% HCL this stage - This stage utilized a ball in seat plug.  Time for Prop on Perfs 24.0 minutes Time between Stages (TBF) 1:20 Hours/min
23:52	0.13	FRAC	FWL			0		Wait on other pad ops.
<b>Total</b>	<b>24.00</b>							

## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.20	FRAC	FWL			0	Wait on other pad ops.
0:12	0.12	FRAC	WLT			0	Handover from Frac to Wireline. Remove night cap. PU tools, swing

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## 06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
							over and stab lubricator. Fill lubricator.
0:19	0.08	FRAC	WLT			0	Pressure test lubricator to 8000 psi. Good test.
0:24	1.10	FRAC	WLT			0	<p>Stage #7 Plug and Perf</p> <p>Open well with 4207 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 @ 10966. Bring on pumps at 11750'. Pump down as follows:</p> <p>3 bpm @ 4135 psi at 11750 6 bpm @ 4883 psi at 11850' 9 bpm @ 5506 psi at 11950' 10 bpm @ 6557 psi at 14500 Max rate: 10 bpm. Max pressure: 6934 psi</p> <p>Set plug @ 19919 ft w/ 2 bpm pumping Perforate as follows: 19894' - 19895' 19849' - 19850' 19804' - 19805' 19759' - 19760' Stabilized pressure after perforating: 5161 psi Pump down volume: 176 bbls</p>
1:30	0.92	FRAC	WLT			0	POOH with Wireline.
2:25		FRAC	WLT			0	At 200' wait on other pad ops.