

EP WELLS DAILY OPERATIONS REPORT

Report 10

11/13/2017

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	10.00
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	971,427/5,029,301.00	Current MW / BH EMW(ppg)	/
Actual divided by AFE	0.19	LOT/FIT EMW(ppg)	
Daily Cost	275,198	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:							
Personal - 82							
Man Hrs - 887							

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	9

Operations Summary

24 Hour Summary
Frac Stages 7, 8, 9, 10
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	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 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</p> <p>Perforate as follows:</p> <p>19894' - 19895' 19849' - 19850' 19804' - 19805' 19759' - 19760'</p> <p>Stabilized pressure after perforating: 5161 psi Pump down volume: 176 bbls</p>
1:30	0.92	FRAC	WLT			0		POOH with Wireline.
2:25	1.33	FRAC	WLT			0		At 200' wait on other pad ops.
3:45	1.25	FRAC	WLT			0		Bump up and shut in well with 4105 psi. Bleed off and break lubricator. All shots fired. MU night cap. LD tools and re-head WL. Grease crown valve.
5:00	0.60	FRAC	FRP			0		Prime & pressure test frac, open well WHP 3611#
5:36	1.85	FRAC	FRT			0		<p>Stage 7 Summary University 19 PW Unit 1404H</p> <p>Interval 19759 - 19895</p> <p>Open Well Pressure 3,611 psi</p> <p>Max Treating Pressure 9,234 psi</p> <p>Max Slurry Rate 57.8 bpm</p> <p>Average Treating Pressure 8,559 psi</p> <p>Average Slurry Rate 47.0 bpm</p> <p>Breakdown Pressure 6,463 psi</p> <p>Breakdown Rate 7.0 bpm</p> <p>Breakdown Volume 210 gal</p> <p>Avg HHP 9,860 hp</p> <p>Final ISIP 5,406 psi</p> <p>Frac Gradient 0.897 psi/ft</p> <p>Pad Volume 1,218 gal</p> <p>Main Body Volume 181,087 gal</p> <p>Flush Volume 29,106 gal</p> <p>100 MAZ Sand Pumped 0 lbs</p> <p>100 M Brown Sand Pumped 88,920 lbs</p> <p>100 M Sand Pumped 330,100 lbs</p> <p>Proppant in Formation 419,020 lbs</p> <p>Avg Proppant Concentration 2.90 lb/gal</p> <p>Max Proppant Concentration 4.00 lb/gal</p> <p>Load to Recover (incl. pumpdown) 4,488 bbls</p> <p>Load to Recover w/o Acid 4,483 bbls</p> <p>15% HCL Spearhead 193 gal</p> <p>Slickwater Fluid Pumped 4,227 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p> <p>20# Crosslink Fluid Pumped 0 bbls</p> <p>Pump down volume 176 bbls</p> <p>pump down rate 10.0 bpm</p> <p>Max pump down pressure 6,934 psi</p> <p>Fluid Temp 72.0 ?F</p>

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								<p>Total Pump Time 1:48 hr:min Pumps Lost During Job 0 Treatment Start Time 5:37 0:00 0:00 Treatment End Time 7:25 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.0 PPA, then 3.0PPA, 3.5 PPA and 4.0 PPA steps. - 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.</p> <p>Time for Prop on Perfs 22.0 minutes Time between Stages (TBF) 1:50 Hours/min</p>
7:27	0.57	FRAC	FWL			0		<p>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 @ 4400 psi</p>
8:01	2.18	FRAC	WLT			0		<p>WL Start perf University 1404H Stage 8 Tie into liner top at 10966 ft Initial WHP 4400 psi</p> <p>Pumpdown Pressures 3bpm 4250 psi 6bpm 4500 psi 9bpm 5000 psi 9bpm 5900 psi 10bpm psi</p> <p>Max Pressure 6484 psi Total Fluid to recover 171 bbls</p> <p>Plug set @ 19739 ft Boss Hog Composite Frac Plug/ Ball in place plug Plug OD 3.65 in Pre-set Tension 2500 lbs Post-set Tension 2210 lbs</p> <p>Pre-Perf Pressure 4900 psi</p> <p>Perforation Summary: (4 count) 1' Keane Guns: 2.75" OD HSC at 6 spf @ 60 deg phasing</p> <p>19714' - 19715' 6 shots 19669' - 19670' 6 shots 19624' - 19625' 6 shots 19582' - 19583' 6 shots</p> <p>Post-Perf Pressure 4435 psi WL POOH 9:02</p>
10:12	0.20	FRAC	WLF			0		WL at surface, valve team shut UMW @ 4100 psi, End WL Perf University 19 PW 1404H Stage 8
10:24	0.37	FRAC	FRP			0		Prime & pressure test frac, open well WHP 3898#
10:46	2.35	FRAC	FRT			0		<p>Stage 8 Summary University 19 PW Unit 1404H Interval 19579 - 19715 Open Well Pressure 3,898 psi Max Treating Pressure 9,288 psi Max Slurry Rate 58.1 bpm Average Treating Pressure 8,690 psi Average Slurry Rate 47.7 bpm Breakdown Pressure 7,212 psi Breakdown Rate 9.9 bpm Breakdown Volume 294 gal Avg HHP 10,160 hp</p>

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Final ISIP 5,520 psi Frac Gradient 0.907 psi/ft Pad Volume 1,050 gal Main Body Volume 216,275 gal Flush Volume 29,064 gal 100 M AZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 160,640 lbs 100 M Sand Pumped 260,160 lbs Proppant in Formation 420,800 lbs Avg Proppant Concentration 2.74 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 5,320 bbls Load to Recover w/o Acid 5,318 bbls 15% HCL Spearhead 101 gal Slickwater Fluid Pumped 5,067 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 171 bbls pump down rate 9.0 bpm Max pump down pressure 6,484 psi Fluid Temp 72.0 ?F Total Pump Time 2:06 hr:min Pumps Lost During Job 0 Treatment Start Time 10:59 0:00 0:00 Treatment End Time 13:05 0:00 0:00 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.0 PPA, then 3.0PPA hold. During the 3.0 PPA hold, one of the blender screws froze up. The crew worked on it for 920 Bbls when the decision was made to cut sand and work on the screws while they weren't running. We ran a sweep until the crew got the screws running. Our sweep was one wellbore and 30 bbls(571 Bbls.). We got back in to sand with a 446 Bbl 0.5 to 3.0 PPA ramp, then a 3.0 PPA hold and 3.5 PPA and 4.0 PPA steps. - 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 20.0 minutes Time between Stages (TBF) 1:05 Hours/min
13:07	0.67	FRAC	FRT			0		Oil states Grease HMV & CV 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 @ 4600 psi
13:47	2.10	FRAC	FRT			0		WL Start perf University 1404H Stage 9 Tie into liner top at 10966 ft Initial WHP 4900 psi Pumpdown Pressures 3bpm 4200 psi 6bpm 4500 psi 9bpm 4900 psi 9bpm 5900 psi 10bpm psi Max Pressure 5921 psi Total Fluid to recover 121 bbls Plug set @ 19559 ft Boss Hog Composite Frac Plug/ Ball in place plug Plug OD 3.65 in Pre-set Tension 2480 lbs Post-set Tension 2061 lbs Pre-Perf Pressure 5300 psi2258

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Perforation Summary: (4 count) 1' Keane Guns: 2.75" OD HSC at 6 spf @ 60 deg phasing 19534' - 19535' 6 shots 19489' - 19490' 6 shots 19444' - 19445' 6 shots 19399' - 19400' 6 shots Post-Perf Pressure 5273 psi WL POOH 14:46
15:53	0.08	FRAC	FRT			0		WL at surface, valve team shut UMW @ 4500 psi, End WL Perf University 19 PW 1404H Stage 9 Bleed off pressure. WL break off lube and PCE, swing back. Drop out and check fire. All shots fired Stab night cap. WL lay down spent tools. Rack back lube and PCE.
15:58	0.62	FRAC	FRT			0		Prime & pressure test frac, open well WHP 33962#
16:35	1.67	FRAC	FRT			0		Frac Stage 9 Stage 9 Summary University 19 PW Unit 1404H Interval 19399 - 19535 Open Well Pressure 3,962 psi Max Treating Pressure 9,263 psi Max Slurry Rate 56.7 bpm Average Treating Pressure 8,692 psi Average Slurry Rate 45.8 bpm Breakdown Pressure 6,891 psi Breakdown Rate 9.3 bpm Breakdown Volume 336 gal Avg HHP 9,757 hp Final ISIP 5,067 psi Frac Gradient 0.868 psi/ft Pad Volume 714 gal Main Body Volume 161,154 gal Flush Volume 28,980 gal 100 MAZ Sand Pumped 0 lbs 100 M Brown Sand Pumped 141,220 lbs 100 M Sand Pumped 280,900 lbs Proppant in Formation 422,120 lbs Avg Proppant Concentration 3.37 lb/gal Max Proppant Concentration 4.00 lb/gal Load to Recover (incl. pumpdown) 4,018 bbls Load to Recover w/o Acid 4,018 bbls 15% HCL Spearhead 0 gal Slickwater Fluid Pumped 3,757 bbls 20# Linear Fluid Pumped 80 bbls 20# Crosslink Fluid Pumped 0 bbls Pump down volume 181 bbls pump down rate 9.0 bpm Max pump down pressure 6,821 psi Fluid Temp 72.0 ?F Total Pump Time 1:39 hr:min Pumps Lost During Job 0 Treatment Start Time 16:35 Treatment End Time 18:14 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.5 PPA, then 3.5PPA hold and a 4.0 PPA step. - Ran two 40 bbl shots of gel with a 20 bbl spacer. - Ran NO 15% HCl this stage - This stage utilized a ball in seat plug. Time for Prop on Perfs 21.0 minutes

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Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Time between Stages (TBF) :46 Hours/min
18:15	0.42	FRAC	FWL			0		Hand over from Frac to Wireline. Remove night cap. PU tools.
18:40	0.12	FRAC	FWL			0		Stab lubricator. Fill lubricator.
18:47	0.08	FRAC	FWL			0		Pressure test lubricator to 8000 psi. Good test.
18:52	1.17	FRAC	WLT			0		<p>Stage #10 Plug and Perf</p> <p>Open well with 4319 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 11650'. Pump down as follows:</p> <p>3 bpm @ 4201 psi at 11650'</p> <p>6 bpm @ 4348 psi at 11750'</p> <p>9 bpm @ 4930 psi at 11850'</p> <p>10 bpm @ 5876 psi at 12100'</p> <p>Max rate: 10 bpm. Max pressure: 6346 psi</p> <p>Set plug @ 19379 ft w/ 2 bpm pumping</p> <p>Perforate as follows:</p> <p>19354' - 19355'</p> <p>19309' - 19310'</p> <p>19264' - 19265'</p> <p>19216' - 19217'</p> <p>Stabilized pressure after perforating: 5161 psi</p> <p>Pump down volume: 154 bbls</p>
20:02	1.03	FRAC	WLT			0		POOH with Wireline.
21:04	1.60	FRAC	WLF			0		Shut in well with 4150 psi. Bleed off. Break lubricator. All shots fired. MU night cap. Grease crown valve. Re-head WL.
22:40	0.30	FRAC	FRT			0		Handover to frac. Prime up and test from pump maintenance.
22:58	1.03	FRAC	FRT			0		<p>Equalize and open well w/ 3877 psi. Begin Stage #10 Frac.</p> <p>Stage 10 Summary</p> <p>Interval 19219 - 19355</p> <p>Open Well Pressure 3,877 psi</p> <p>Max Treating Pressure 9,223 psi</p> <p>Max Slurry Rate 52.5 bpm</p> <p>Average Treating Pressure 8,586 psi</p> <p>Average Slurry Rate 41.9 bpm</p> <p>Breakdown Pressure 4,280 psi</p> <p>Breakdown Rate 5.0 bpm</p> <p>Breakdown Volume 294 gal</p> <p>Avg HHP 8,817 hp</p> <p>Final ISIP 5,301 psi</p> <p>Frac Gradient 0.888 psi/ft</p> <p>Pad Volume 840 gal</p> <p>Main Body Volume 158,424 gal</p> <p>Flush Volume 28,812 gal</p> <p>100 MAZ Sand Pumped 0 lbs</p> <p>100 M Brown Sand Pumped 239,760 lbs</p> <p>100 M Sand Pumped 179,920 lbs</p> <p>Proppant in Formation 419,680 lbs</p> <p>Avg Proppant Concentration 3.41 lb/gal</p> <p>Max Proppant Concentration 4.00 lb/gal</p> <p>Load to Recover (incl. pumpdown) 3,926 bbls</p> <p>Load to Recover w/o Acid 3,926 bbls</p> <p>15% HCL Spearhead 0 gal</p> <p>Slickwater Fluid Pumped 3,692 bbls</p> <p>20# Linear Fluid Pumped 80 bbls</p> <p>20# Crosslink Fluid Pumped 0 bbls</p> <p>Pump down volume 154 bbls</p> <p>pump down rate 10.0 bpm</p> <p>Max pump down pressure 6,346 psi</p> <p>Fluid Temp 72.0 ?F</p> <p>Total Pump Time 1:48 hr:min</p>

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Time Summary

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Rig Rate	Description
								Pumps Lost During Job 0 Treatment Start Time 22:59 Treatment End Time 0:47 Diverter Slurry bbls -Proppant was pumped as a ramp from 0.50 PPA to 3.5 PPA, then 3.5PPA hold and a 4.0 PPA step. - Ran two 40 bbl shots of gel with a 20 bbl spacer. - Ran NO 15% HCl this stage - This stage utilized a ball in seat plug. Time for Prop on Perfs 20.0 minutes Time between Stages (TBF) 2:03 Hours/min
Total	24.00							

06.00 Update

Start	Hours	PH	OPN	Detail	Drilled Depth (ft)	NPT level	Description
0:00	0.80	FRAC	FRT			0	Complete Stage 10 frac. See 11/13/17 for details.
0:48	0.43	FRAC	FWL			0	Shut in well w/ 5111 psi. Handover to Wireline. Stand by for other pad ops
1:14	0.07	FRAC	FWL			0	Remove night cap. PU tools.
1:18	0.10	FRAC	FWL			0	Stab lubricator. Fill lubricator.
1:24	0.15	FRAC	FWL			0	Pressure test lubricator to 8000 psi. Good test.
1:33	1.12	FRAC	WLT			0	Stage #11 Plug and Perf Open well with 4474 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 @ 10996. Bring on pumps at 11700". Pump down as follows: 3 bpm @ 4339 psi at 11700' 6 bpm @ 4733 psi at 11800' 9 bpm @ 5208 psi at 11900' 10 bpm @ 5560 psi at 13350' Max rate: 10 bpm. Max pressure: 5822 psi Set plug @ 19199 ft w/ 2 bpm pumping Perforate as follows: 19174' - 19175' 19129' - 19130' 19084' - 19085' 19040' - 19041' Stabilized pressure after perforating: 5000 psi Pump down volume: 149 bbls
2:40	1.00	FRAC	WLT			0	POOH with Wireline.
3:40	0.30	FRAC	WLT			0	Grease UM valve. Shut in well with 4300 psi. Bleed off. Break lubricator. All shots fired. MU night cap. Secure crown and wing valves. Grease LM valve.
3:58	0.45	FRAC	WLF			0	Wait on other pad ops.
4:25		FRAC	FRT			0	Equalize and open well w/ 4080 psi. Begin Stage 11 frac.