

Completion Report

Agave Oil & Gas, LLC

Haas 1-29

Niobrara - 1 Intervals



LOS Field Ticket # 109278

Intervals 1 - 1



Company Name: Agave Oil & Gas, LLC

Service Company Name: Liberty Oilfield Services

Prepared by: Brian Stanley
701-339-1910
Crystal Salyers
303-518-7411

Completion Date: June 17, 2017





Well Information

Customer	Customer Name	Agave Oil & Gas, LLC
	Customer Contact	Neal Hageman
	Customer Address	201 Pecan Street, Suite 100, Fort Worth, TX 76102
LOS	LOS District	Denver-Julesburg
	LOS Sales Contact	Jim Reagan / Tony Losacano
	LOS Operations Contact	Tim Hohn / Jeff Brady
	LOS Address	950 17th Street, Suite 2000, Denver, CO 80202
	LOS Field Ticket Number	02-201703-43
	LOS Engineer	Brian Stanley
	Contact	701-339-1910
	LOS Engineer	Crystal Salyers
	Contact	303-518-7411
Well Info	State	Colorado
	County	Elbert
	Field / Prospect	Wildcat
	Basin	Denver-Julesburg
	Formation	Niobrara
	BHST	170 F
	Well Name	Haas 1-29
	API	05-039-06677
	AFE	N/A
	Well Location	1939' FSL 1747' FEL NWSE-S29-T7S-R62W
	Latitude	39.40961
	Longitude	-104.3545
	Max Pressure	6,000
Completion	Completion Type	Cemented, Plug & Perf
	Well Type	Vertical
	Number of Intervals	1
	Main Fluid Type	Fresh Water / HCl-15 / LibertyFR / 25# Linear Guar / 25# Justice / 20# Justice
	Main Proppant Type	40/70 White / 30/50 White
	Completion Date	6/17/2017
	Pad Name	Haas



Well Completion Summary

06/17/17

Customer	Customer Name	Agave Oil & Gas, LLC	
	Attention	Neal Hageman	
	Remit to Address	950 17th Street, Suite 2000, Denver, CO 80202	
Well	Well Name and Number	Haas 1-29	
	API / AFE	05-039-06677 / N/A	
Project	Project Description	170°F Niobrara Cemented, Plug & Perf Fresh Water / HCl-15 / LibertyFR / 25#	
	LOS Field Ticket Number	02-201703-43	
	LOS Field Ticket Total	\$282,546.67	
Signatories	Customer Representatives	Joel Mazza	
	LOS Engineers	Brian Stanley and Crystal Salyers	
Well Design		Design Completion Percentage	
Design Clean Job Volume (bbl)		6,824 bbl	Clean Treating Fluid 97.0%
Design Proppant Mass (lb)		500,750 lb	Proppant Mass (BOL) 103.0%
Personnel and Time Information		Personnel and Time Information	
LOS Crew		Revolution	Pump Time for Prop Frac (min) 151 min
Start Frac Date		06/16/17	Pump Time Wireline Pumpdown (min) 0 min
End Frac Date		06/17/17	LOS Down Time (min) 46 min
Total LOS HorsePower Hours (Mhhp*hr)		7.850 Mhhp*hr	Third-Party Down Time (min) 1,181 min
Maxima and Averages		Pressure Analysis	
Average Treating Pressure (psi)		2,896 psi	Initial ISIP (psi) 2,005 psi
Maximum Wellhead Pressure (psi)		3,673 psi	Initial FG (psi/ft) 0.724 psi/ft
Average Slurry Rate (bpm)		50.0 bpm	Final ISIP (psi) 1,611 psi
Maximum Wellhead Rate (bpm)		51.5 bpm	Final FG (psi/ft) 0.667 psi/ft
Total Fluid Volumes		Total Fluid Volumes by Fluid Type	
Pump Down Volume (bbl)		0 bbl	Fresh Water Volume 30 bbl
Total Clean Volume (bbl)		6,620 bbl	HCl-15 Volume 38 bbl
Total Slurry Volume (bbl)		7,355 bbl	LibertyFR Volume 896 bbl
			HCl-7.5 Volume 106 bbl
			25# Linear Guar Volume 218 bbl
			25# Justice Volume 4,816 bbl
			20# Justice Volume 516 bbl
Chemicals Billed for Total Job		Total Proppant Pumped (BOL Weight)	
LIBERTY CLEAN OUT FLUID G		17 GAL	WHITE SAND 40/70 181,840 lb
AQUACAR 714 (14% GLUT/QUAT BIOCIDES)		79 GAL	WHITE SAND 30/50 333,860 lb
CSA-23 (CLAY STABILITY ADDITIVE)		277 GAL	Proppant Handling & Storage 515,700 lb
FRP-E3-8 (FRICTION REDUCER)		38 GAL	
SFT-82 (GREEN MICELLAR DISPERSION)		251 GAL	
HCL-15 (15% HCl Acid)		2,944 GAL	
LGA-3J (Guar Slurry)		1,542 GAL	
SAFE-BFH (HIGH PH BUFFER)		108 GAL	
XLB-88 (Instant Borate Crosslinker)		297 GAL	
BLE-18 (Low Temp Encap Breaker)		100 LB	
BLR-18 (Raw AP Breaker)		35 LB	NC WHITE SAND 40/70
BHE-18 (High Temp Encap Breaker)		110 LB	NC WHITE SAND 30/50
Chemicals Billed on Stages		Chemicals Billed on PumpDown	
HCL-15 Volume For Frac Use		2,944 GAL	
ACI-97 Volume For Frac Use		12 gal	
ASF-67 Volume For Frac Use		12 gal	
Aquacar 714 Volume For Frac Use		79 gal	
CSA-23 Volume For Frac Use		277 gal	
SFT-82 Volume For Frac Use		251 gal	
FRP-E3-8 Volume For Frac Use		38 gal	
BHE-18 Volume For Frac Use		110 lbs	
BLE-18 Volume For Frac Use		100 lbs	
LGA-3J Volume For Frac Use		1,542 gal	
SAFE-BFH Volume For Frac Use		108 gal	
XLB-88 Volume For Frac Use		297 gal	
Liberty Clean Out Fluid Volume For Frac Use		17 GAL	
BLR-18 Volume For Frac Use		35 lbs	



TimeTracker

Agave Oil & Gas LLC Haas Pad

Engineer	QAQC	Supervisor	CustomerRep	Well	Stage	Type	Date/Time	Party	Main Event	Time	Complete	MHHP	LOS/3rd	Minutes	Notes
Brian Stanley	Ron Smith	Larance Eyman	Joel Mazza	Haas 1-29	1	Single	6/15/17 8:00	LOS	Rig UP	NP			LOS	375	Rig up with double crew
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/15/17 14:15	LOS	Rig UP	NP			LOS	584	Done rigging up front and backside. Wait to flood/bucket test/prime up & pressure test in AM.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/15/17 23:59	LOS	Rig UP	NP			LOS	273	
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 4:32	LOS	Prime UP	NP			LOS	148	Arrive back on location, begin flooding chems, install pop-off due to customer stated 6k working pressure maxx
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 7:00	LOS	Bucket Test	NP			LOS	65	Bucket test blender LA's, route LA4/Bio in recirc to hydro suction manifold.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 8:05	LOS	Prime UP	NP			LOS	15	Roll all 8 pumps and catch good prime.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 8:20	LOS	Pressure Test/SetPops	PUMP			LOS	44	Pressure test pumps and standing iron. Working on fixing weeping D ring on discharge crush cap.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 9:04	LOS	Frac	NPT/DT			LOS	42	Come up to rate, displace acid, perform stepdown test, come back up to rate and send 0.25ppa scour. Formation locked up. Attempt to surge.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 9:46	Customer	Screen out	PUMP		1.66	3rd	24	Attempt to flow back and get back into it
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 10:10	LOS	Frac	NPT/DT			LOS	4	Attempt to get back into it, immediately locked up.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 10:14	Customer	Screen out	NPT/DT			3rd	825	Customer has requested a switch to 25# gel system and has released crew until 6am. Plan is to re-perforate and try and establish injection with 25# linear system in lieu of Slickwater.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/16/17 23:59	Customer	Screen out	NPT/DT			3rd	356	
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/17/17 5:55	LOS	Frac	PUMP	Yes	7.85	LOS	151	Pumped to completion. Customer requested we drop gel to 20# system and ramp up to 5# to conserve fluid.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/17/17 8:26	LOS	5, 10 and 15 min SIP	NP			LOS	15	Customer requested 5, 10, 15.
Brian Stanley	Ron Smith	Mike Garza	Joel Mazza	Haas 1-29	1	Single	6/17/17 8:41	LOS	Rig Down	NP			LOS		Rig down with double crew.

BHST: 170 F

Well Name: Haas 1-29

Max Pressure

Max HHP

Number of Intervals: 1

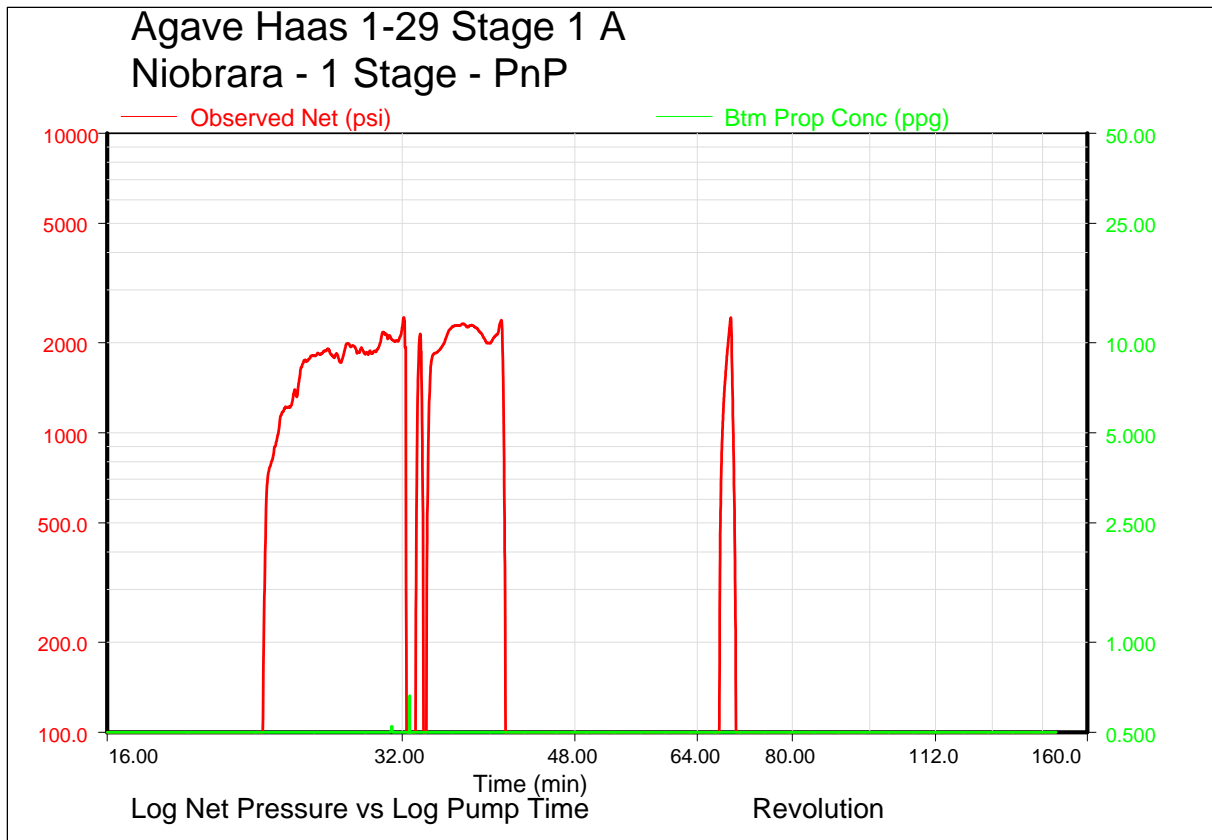
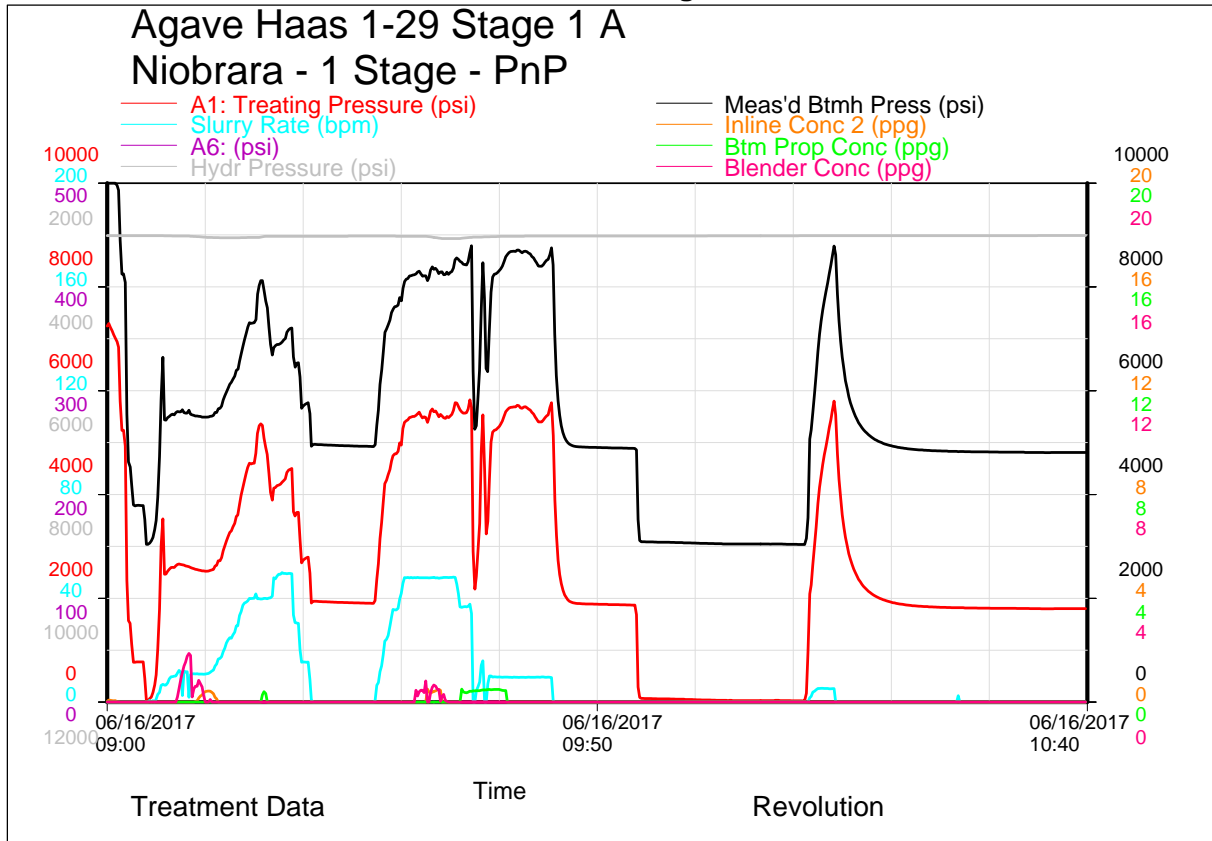
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6,000 psi

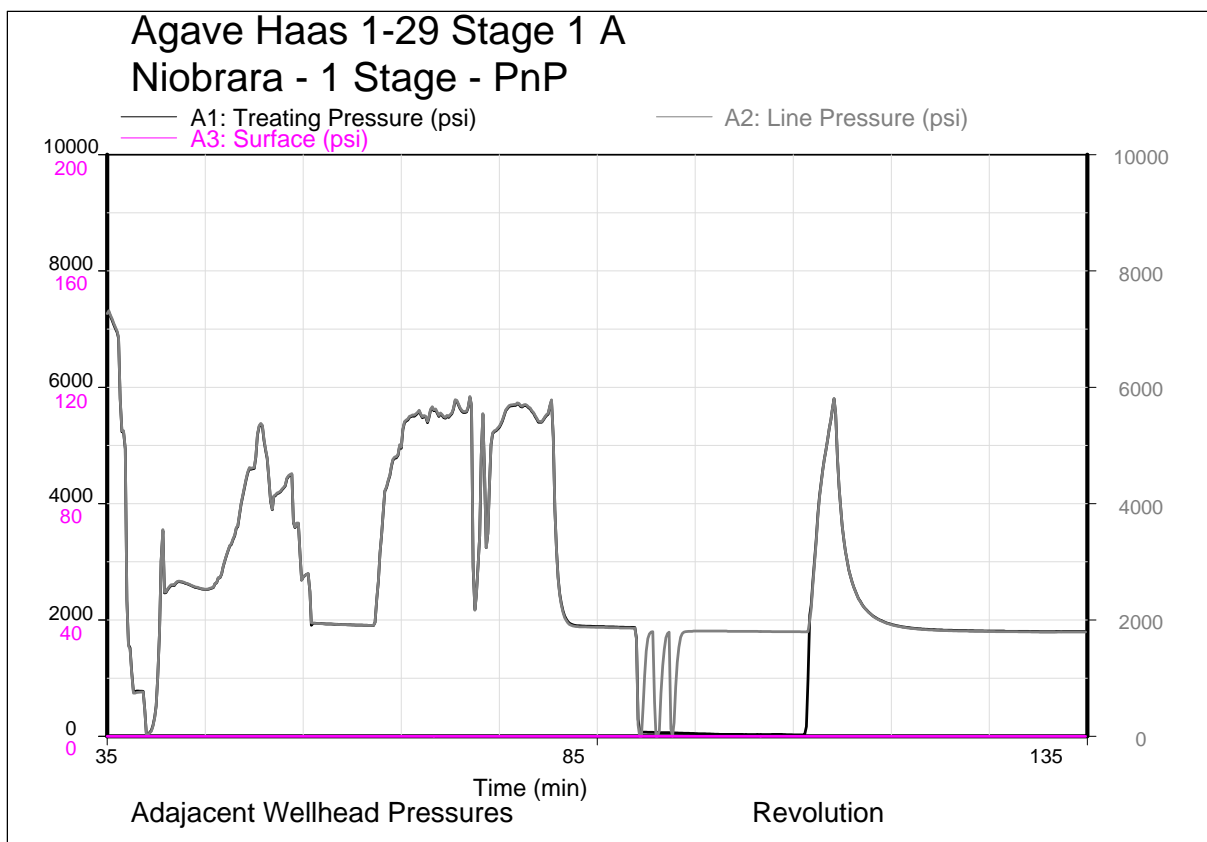
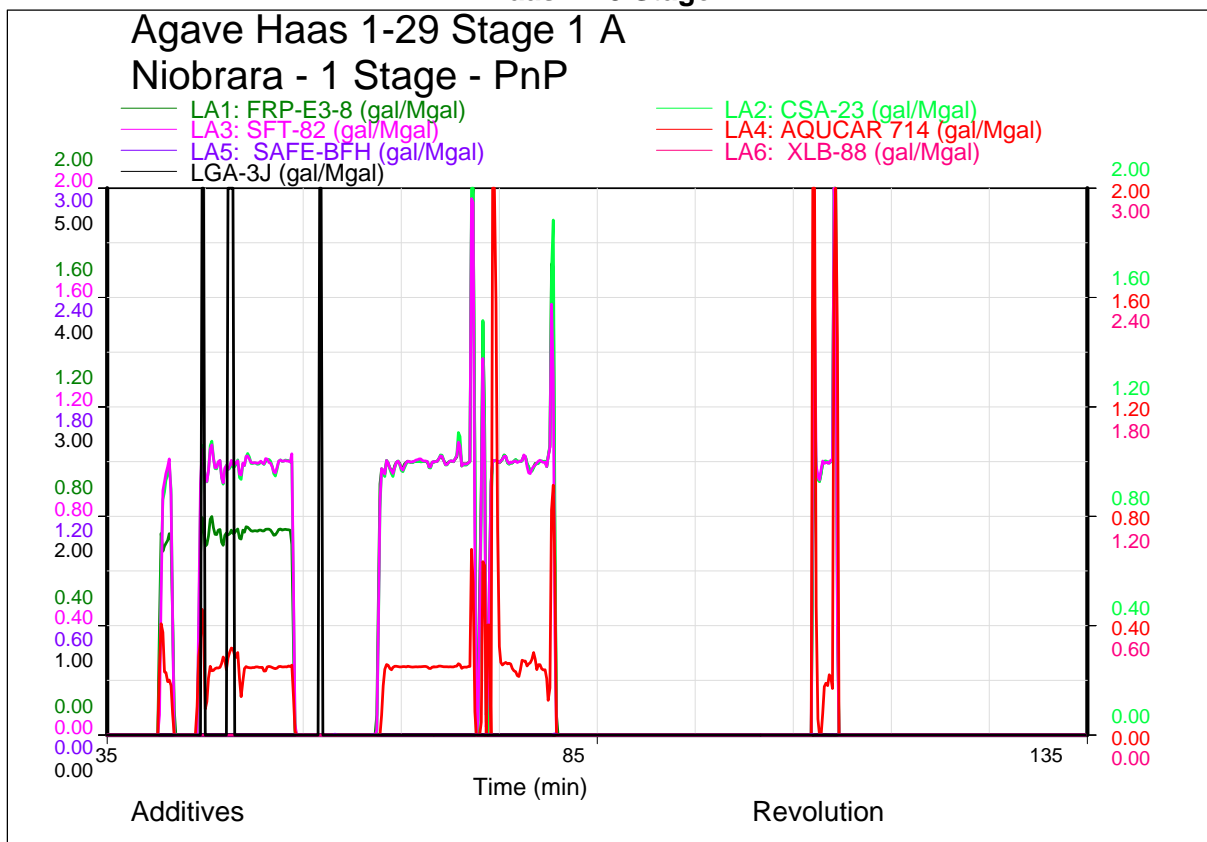
7,353 hhp

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Haas 1-29 Stage 1

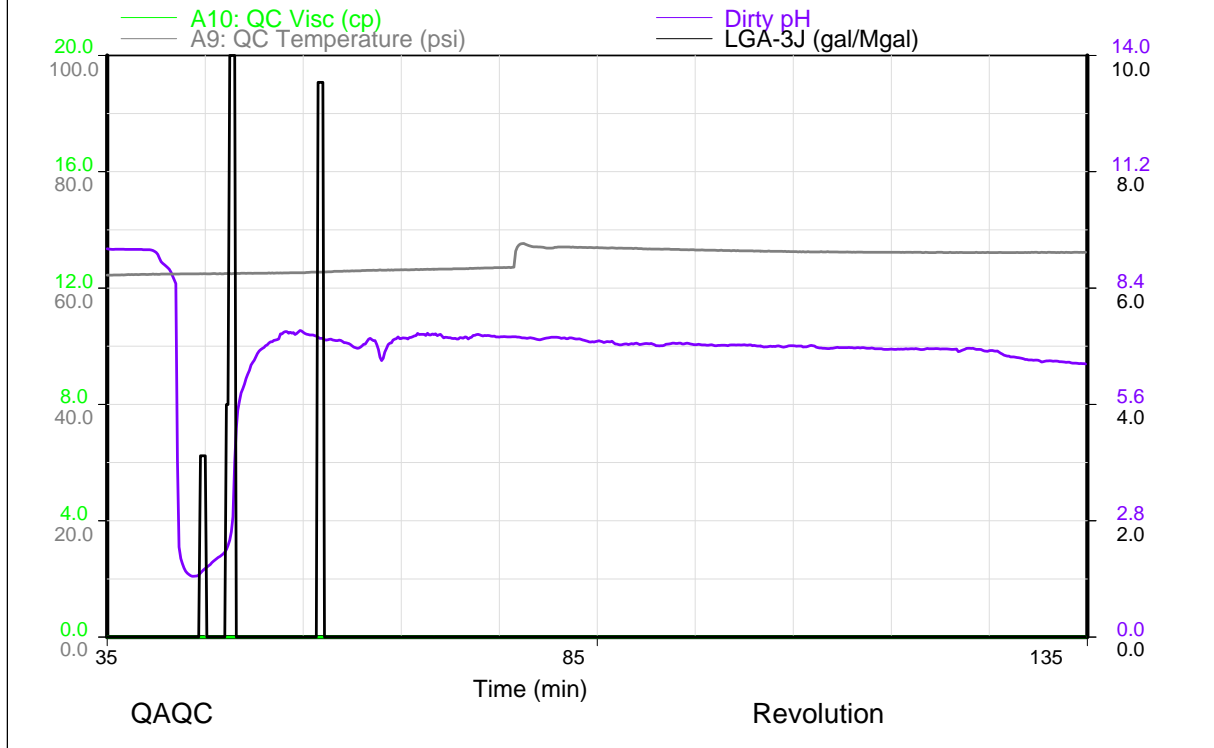


Haas 1-29 Stage 1

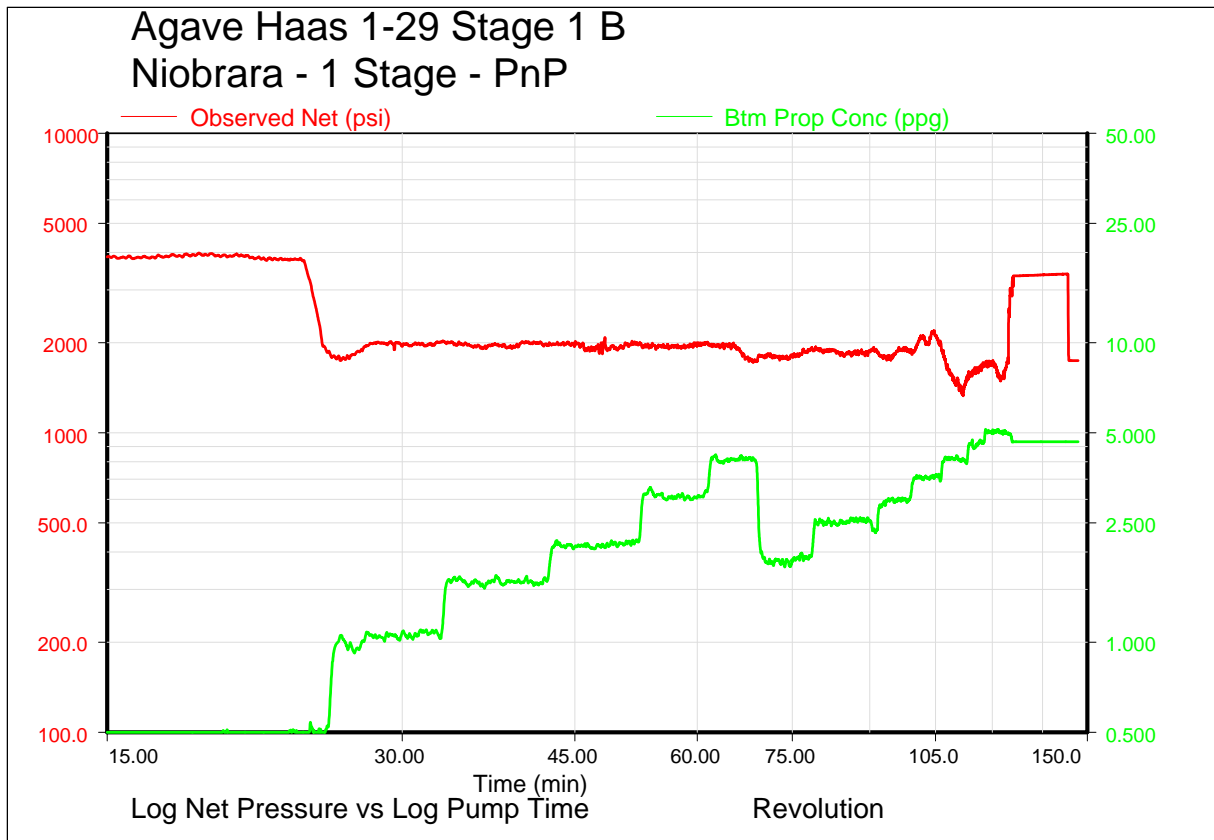
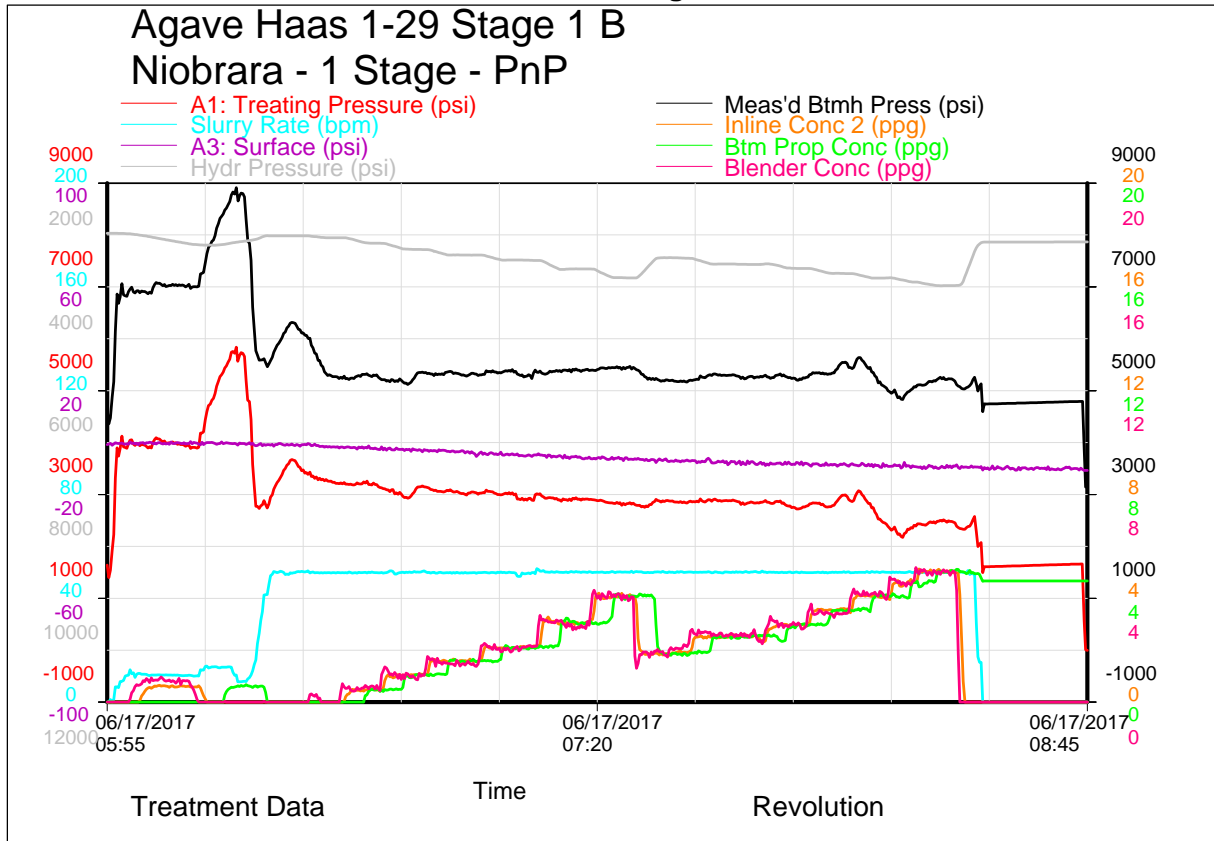


Haas 1-29 Stage 1

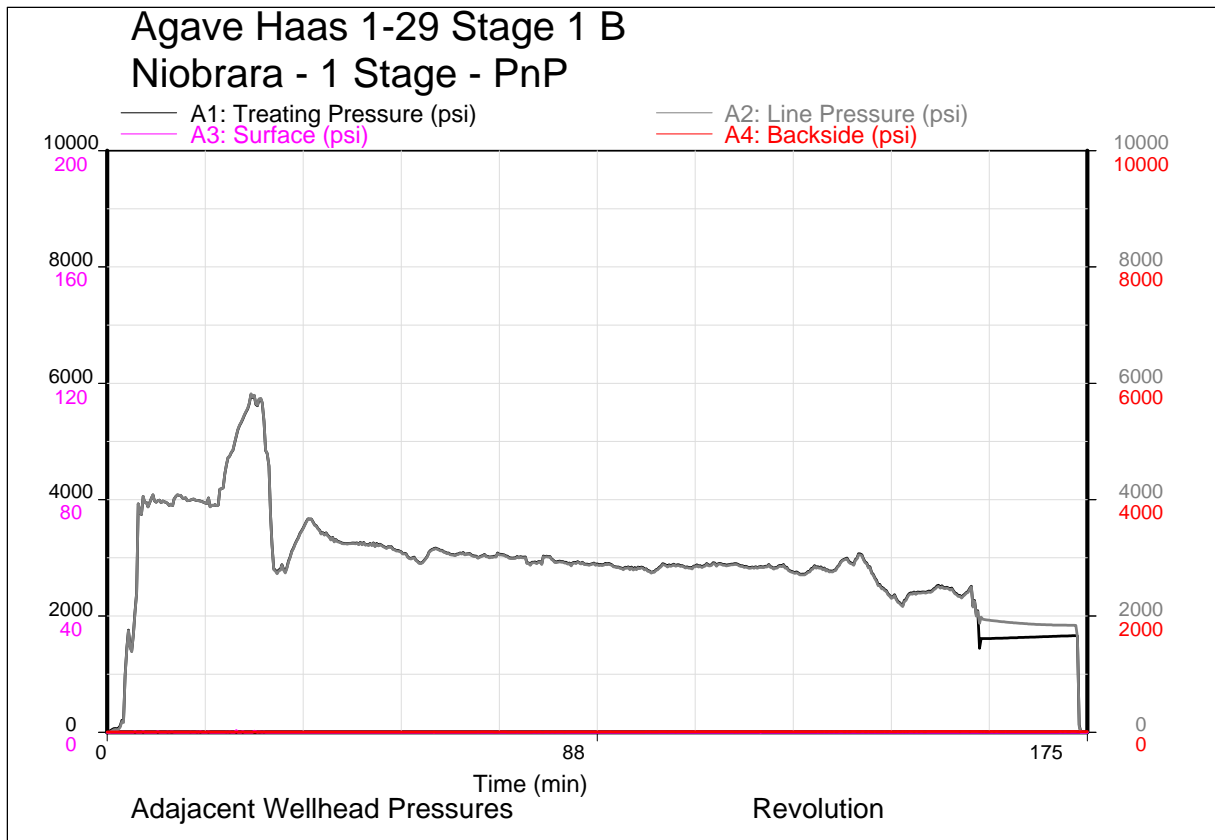
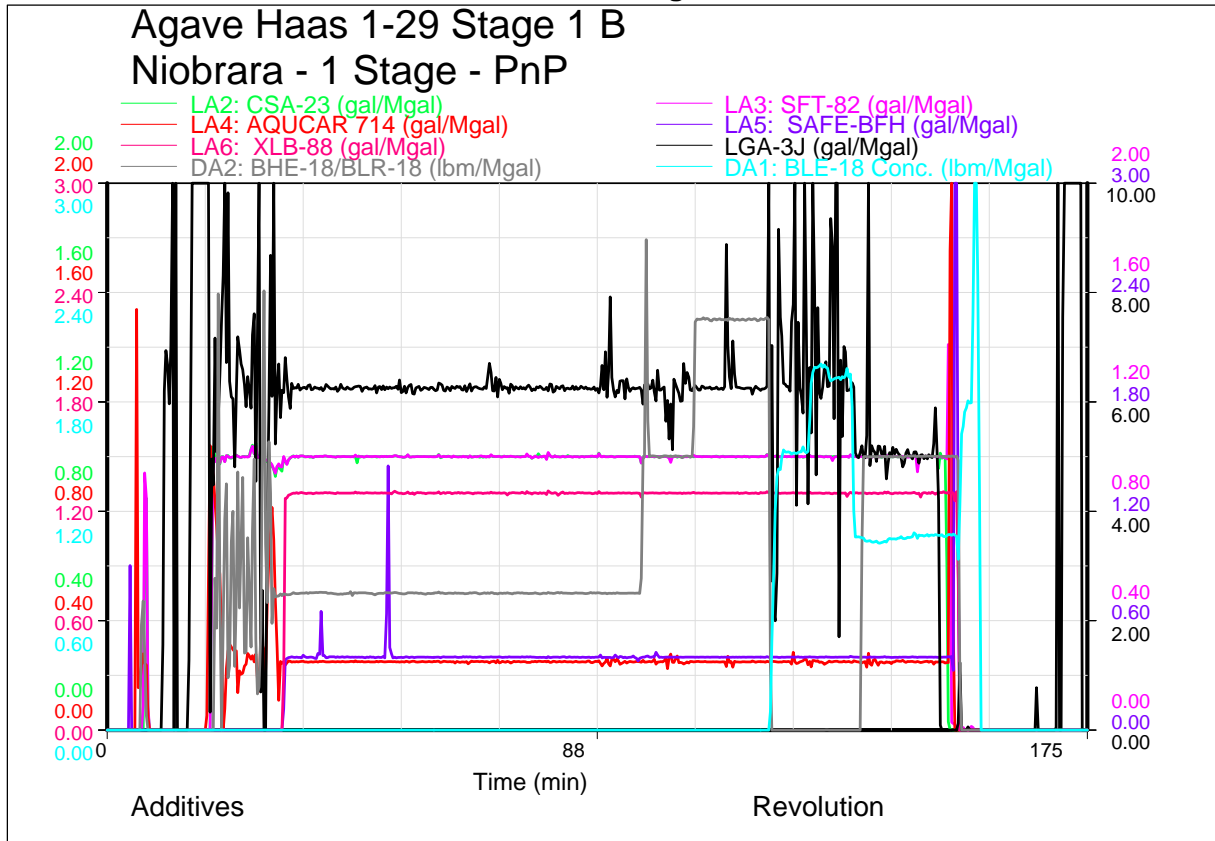
Agave Haas 1-29 Stage 1 A Niobrara - 1 Stage - PnP



Haas 1-29 Stage 1B



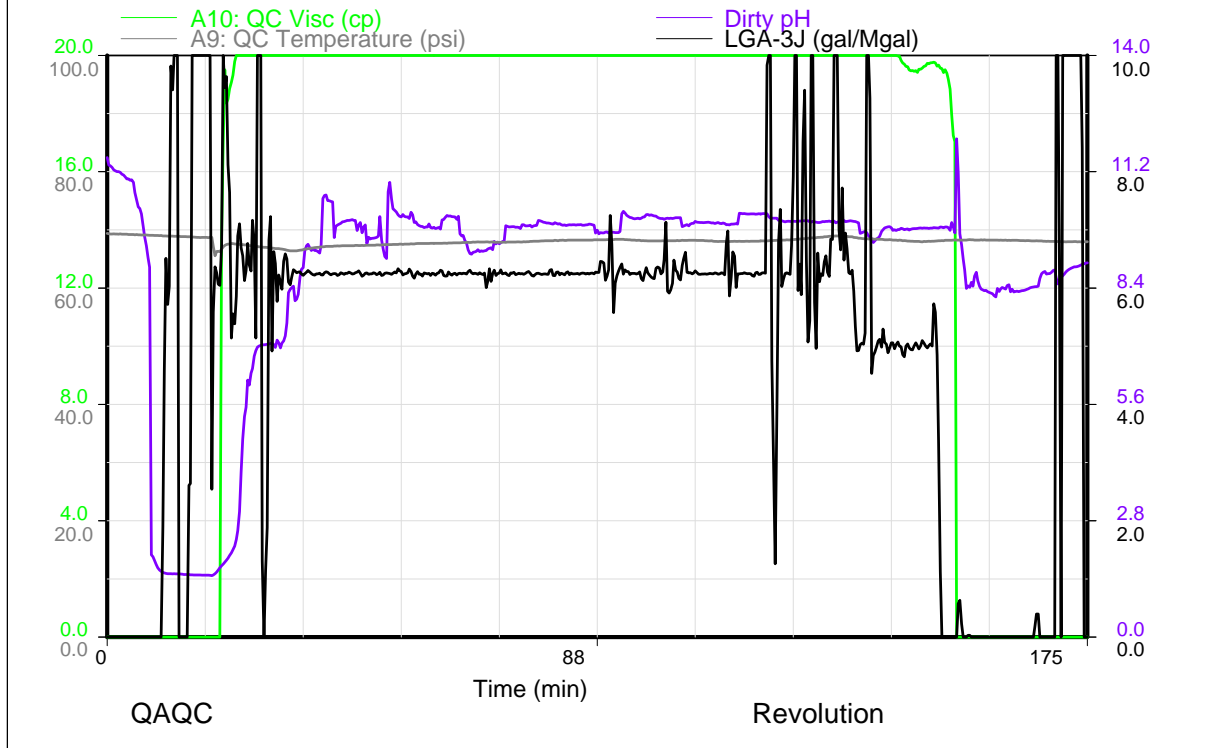
Haas 1-29 Stage 1B



Haas 1-29 Stage 1B

Agave Haas 1-29 Stage 1 B

Niobrara - 1 Stage - PnP





Stage Summary

INTERVAL #	FLUID VOLUMES									PROPPANT MASSES				PROPPANT MASSES				Time
	Fresh Water Vol	HCl-15 Vol	LibertyFR Vol	HCl-7.5 Vol	25# Linear Guar Vol	25# Justice Vol	20# Justice Vol	TOTAL FLUID	Design vs. Actual Fluid	40/70 White Actual Weight	30/50 White Actual Weight	TOTAL PROP	Design vs. Actual Proppant	40/70 White Screw	30/50 White Screw	TOTAL PROP	Design vs. Actual Proppant	Frac Pump Time
	(BBL)	(BBL)	(BBL)	(BBL)	(BBL)	(BBL)	(BBL)	(BBL)	(% Complete)	(LBS)	(LBS)	(LBS)	(% Complete)	(LBS)	(LBS)	(LBS)	(% Complete)	(MIN)
1	30	38	896	106	218	4,816	516	6,620	97%	181,840	333,860	515,700	103%	182,772	340,654	523,426	105%	151



Pressure Summary

INTERVAL #	OPERATIONS PRESSURE ANALYSIS			MAXIMA		AVERAGES					INITIAL STEPDOWN ANALYSIS				INITIAL SHUT-IN PRESSURES			FINAL SHUT-IN PRESSURES					
	MAXIMUM OPERATING	GLOBAL OVERTrip	PRESSURE TEST	Pressure	Rate	Pressure	Rate	Visc.	Temp.	pH	INJECTION RATE	NWB FRICTION	PERF. FRICTION	Perfs Open	ISIP	BHISIP	FG	ISIP	BHISIP	5min SIP	10min SIP	15min SIP	FG
	(PSI)	(PSI)	(PSI)	(PSI)	(BPM)	(PSI)	(BPM)	(cP)	(F)		(BPM)	(PSI)	(PSI)	(#)	(PSI)	(PSI)	(PSI/FT)	(PSI)	(PSI)	(PSI)	(PSI)	(PSI)	(PSI/FT)
1	6,000	6,000	7,350	3,673	51.5	2,896	50.0	20.0	70.0	9.79	50.2	1,371	1,109	16	2,005	4,991	0.724	1,611	4,597	1,621	1,637	1,653	0.667



Chemical Summary

INTERVAL #	Category	HCL-15	ACI-97	ASF-67	Aquar 714	CSA-23	SFT-82	FRP-E3-8	BHE-18	BLE-18	LGA-3J	SAFE-BFH	XLB-88	Liberty Clean Out Fluid	BLR-18
1	StageTicket	2,944	12	12	79	277	251	38	110	100	1,542	108	297	17	35
Total	NoCharge	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TotalTicket	2,944	12	12	79	277	251	38	110	100	1,542	108	297	17	35
	JobDifference	-56	0	0	11	6	-20	3	-10	18	88	18	6	17	-8
	JobVariance	-1.9%	-1.1%	-1.1%	16.7%	2.3%	-7.3%	8.3%	-8.4%	22.6%	6.3%	20.6%	2.0%	0.0%	-18.4%

30/50 White Proppant Summary

[illegible]

June 17, 2017

40/70 White Proppant BOL Summary

40/70 White									
Delivered: 181,840			-6,790	On Location: 0		StgPmpd: 0	Total Design: 175,050		
SI Number	Date	Facility	Vendor BOL	BOL Weight	Left on Location	Box (MB) Number	Well	Stage	Comment
1,001	6/14 11:34	RFI	157493	26,600		1449			
1,002	6/14 11:34	RFI		26,600		1436			
1,003	6/14 11:34	RFI	157490	27,800		1472			
1,004	6/14 11:34	RFI		27,800		1445			
1,005	6/14 11:34	RFI	157492	26,310		633			
1,006	6/14 11:34	RFI		26,310		679			
1,007	6/14 11:34	RFI	157502	20,420		1450			

40/70 White Proppant Summary

Total Delivered									181,840
Left On Location									0
Amount Pumped On Haas 1-29									181,840
TOTAL PUMPED									181,840



Agave Oil & Gas LLC

**Haas #1-29
Single Stage 20# Borate Design**

Neal Hageman

02-201703-43



LOS District	DJ Basin
LOS Sales Contact	Reagan/Frey/Losacano
Proposal Generated By	Ryan Frey
LOS Operations Contact	Tim Hohn

Field / Prospect	
Well/Project Name	Haas #1-29
AFE # / API	05-039-06677
Well Location	NWSE 29 7S62W 6 PM
Well Coordinates	39.40961/-104.3545
State, County	Elbert, CO
Well Acreage	

Completion Type	Plug and Perf
Lateral Length	Vertical
Formation	Niobrara
Cemented/Open Hole	Cemented
Number of Stages	1
Main Fluid Type	Hybrid



Agave Oil & Gas LLC
Haas #1-29

Stage	Step	STAGE TYPE	PPA	FLUID	Proppant		CLEAN VOLUME			SLURRY VOLUME			PROPPANT		Water Concentrat	ADDITIVES Concentrations									
#	#			TYPE	TYPE	Pump rate (BPM)	STAGE (GAL)	(BBL)	CUM. (BBL)	STAGE (GAL)	(BBL)	CUM. (BBL)	STAGE (LBS)	CUM (LBS)	BLR-18 (Raw AP Breaker)	BLE-18 (Low Temp Encap Breaker)	XLB-88 (Instant Borate Crosslinker)	SAFE-BFH (HIGH PH BUFFER)	LGA-3J (Guar Slurry)	HCL-15 (15% HCl Acid)	SFT-82 (GREEN MICELLAR DISPERSION)	FRP-E3-8 (FRICTION REDUCER)	CSA-23 (CLAY STABILITY ADDITIVE)	AQUACAR 714 (1% GLUT/QUAT BIOCIDES)	
1	1	Acid		15% HCL		12	1,000	24	24	1000	24	24	0	0						1,000.00		1.00	0.75	1.00	0.25
1	2	Pad	0.25	Liberty FR	WHITE SAND 40/70	50	12,000	286	310	12000	286	310	0	0								1.00	0.75	1.00	0.25
1	3	PLF		Liberty FR		50	3,000	71	381	3034	72	382	750	750								1.00	0.75	1.00	0.25
1	4	Pad		Liberty FR		50	12,000	286	667	12000	286	667	0	750								1.00	0.75	1.00	0.25
1	5	PLF	0.5	Liberty FR	WHITE SAND 40/70	50	2,000	48	714	2045	49	716	1,000	1,750								1.00	0.75	1.00	0.25
1	6	Pad		Liberty FR		50	12,000	286	1,000	12000	286	1,002	0	1,750								1.00	0.75	1.00	0.25
1	7	PLF	0.5	Liberty FR	WHITE SAND 40/70	50	4,000	95	1,095	4090	97	1,099	2,000	3,750								1.00	0.75	1.00	0.25
1	8	Pad		20# Linear Gel		50	19,650	468	1,563	19650	468	1,567	0	3,750					5.00			1.00		1.00	0.25
1	9	PLF	1	20# Linear Gel	WHITE SAND 40/70	50	11,950	285	1,848	12491	297	1,865	11,950	15,700					5.00			1.00		1.00	0.25
1	10	PLF	1.5	20# Linear Gel	WHITE SAND 40/70	50	17,500	417	2,264	18688	445	2,309	26,250	41,950					5.00			1.00		1.00	0.25
1	11	PLF	2	20# Linear Gel	WHITE SAND 40/70	50	17,500	417	2,681	19084	454	2,764	35,000	76,950					5.00			1.00		1.00	0.25
1	12	PLF	3	20# Linear Gel	WHITE SAND 40/70	50	15,300	364	3,045	17377	414	3,178	45,900	122,850					5.00			1.00		1.00	0.25
1	13	PLF	4	20# Linear Gel	WHITE SAND 40/70	50	13,050	311	3,356	15412	367	3,545	52,200	175,050					5.00			1.00		1.00	0.25
1	14	PLF	2	20# Xlink Gel	WHITE SAND 30/50	50	17,500	417	3,773	19084	454	3,999	35,000	210,050		1.00	1.30	0.60	5.00			1.00		1.00	0.25
1	15	PLF	2.5	20# Xlink Gel	WHITE SAND 30/50	50	21,800	519	4,292	24266	578	4,577	54,500	264,550		1.00	1.30	0.60	5.00			1.00		1.00	0.25
1	16	PLF	3	20# Xlink Gel	WHITE SAND 30/50	50	27,275	649	4,941	30977	738	5,314	81,825	346,375		1.00	1.30	0.60	5.00			1.00		1.00	0.25
1	17	PLF	3.5	20# Xlink Gel	WHITE SAND 30/50	50	23,950	570	5,511	27743	661	5,975	83,825	430,200		1.00	1.30	0.60	5.00			1.00		1.00	0.25
1	18	PLF	4	20# Xlink Gel	WHITE SAND 30/50	50	17,450	415	5,927	20608	491	6,465	69,800	500,000	15.00	1.00	1.30	0.60	5.00			1.00		1.00	0.25
1	19	Flush		Liberty FR		50	6,700	160	6,086	6700	160	6,625	0	500,000								0.75		1.00	0.25
1	20	Shut Down				0	0	0	6,086	0	0	6,625	0	500,000											

Total						255,625	6,086	278,248	6,625	500,000	262	108	140	65	1015	1000	255	39	255	64
Total Job																				

Proppant name	S.G.	Total Pounds	Proppant name	S.G.	Total Pounds
WHITE SAND 40/70	2.65	175,050			
WHITE SAND 30/50	2.65	324,950			

Pump Time: 2hr 14min

Fluid System	Total Gals	Fluid System	Total Gals
Liberty Cleanout Fluid	-	20# Xlink Gel	107,975
Liberty FR	51,700		-
Treated Water	-		-
15% HCL	1,000		-
20# Linear Gel	94,950		-

General Definitions for Quoted Items - Slick water treatment

Frac Spread: The above specified total reflects the total charges for a minimum frac spread which would include the following: (1) Three hours of stage time (includes fracture treatment); (2) frac pumps capable of quoted rate. Maximum pressure is 9,500psi; (3) one blender; (4) one hydration unit; (5) three chemical trucks; (6) one iron truck; (7) three sand storage units; (8) water suction manifold and frac manifold; (9) two densimeters and two mechanical pop-up valves; (10) one data acquisition and control van; (11) Realtime FracproPT BH Calculations; (12) two supervisors; one e-tech, one mechanic and one engineer; (13) all applicable surcharges except for and excluding winter, slickwater with ceramic and fuel surcharges; and (14) one injection for perf/plug pump down. However, the total charges paid by Company to Contractor will increase in the event that additional equipment, employees or services/work are provided to Company beyond those contemplated in the immediately preceding sentence.

Spread Standby Charge: The frac standby charge specified above shall apply and be payable by the Company to Contractor in all cases where the Contractor is in readiness to begin or resume operations, work or other services for the Company, but Contractor is waiting on orders from the Company to resume operations or waiting on 3rd party operations. This hourly charge shall be prorated by Contractor in fifteen (15) minute increments for all additional hourly charges to be paid by Company to Contractor.

Spread Additional Hours Charge: The frac spread additional hours charge specified above shall apply and be payable by the Company to the Contractor in all cases when cumulative pump time for the stage exceeds 180 minutes (excluding the time for one perforating gun pump-down injection if included) for plug&perf design. In such event, the frac spread additional hours charge shall be paid by the Company to the Contractor for all time in excess of such three (3) hour period which additional hourly charge shall be prorated by Contractor in fifteen (15) minute increments for all additional hourly charges to be paid by Company to Contractor.

Frac-Spread Rig-Up Charge: The frac spread rig-up charge specified above shall be payable to Contractor by Company for each unit provided by Contractor to Company for the first stage of each of Company's wells for which Contractor performs services or work for the Company hereunder and Contractor shall invoice the Company for such amount on the first invoice for the first stage of such well.

Winter Surcharge: The winter surcharge specified above shall be paid by the Company to Contractor for each stage of any well for which Contractor provides work or services to the Company hereunder during the period commencing on October 1st at 0:00 AM CST and ending at 11:59 PM CST on March 31st of each year.

Routine Maintenance: 45 minutes of maintenance is allowed between stages when more than one well is treated on the same pad and will not count against LOS downtime.

LABORATORY REPORT

Agave Oil & Gas

Haas 1-29

June 12, 2017

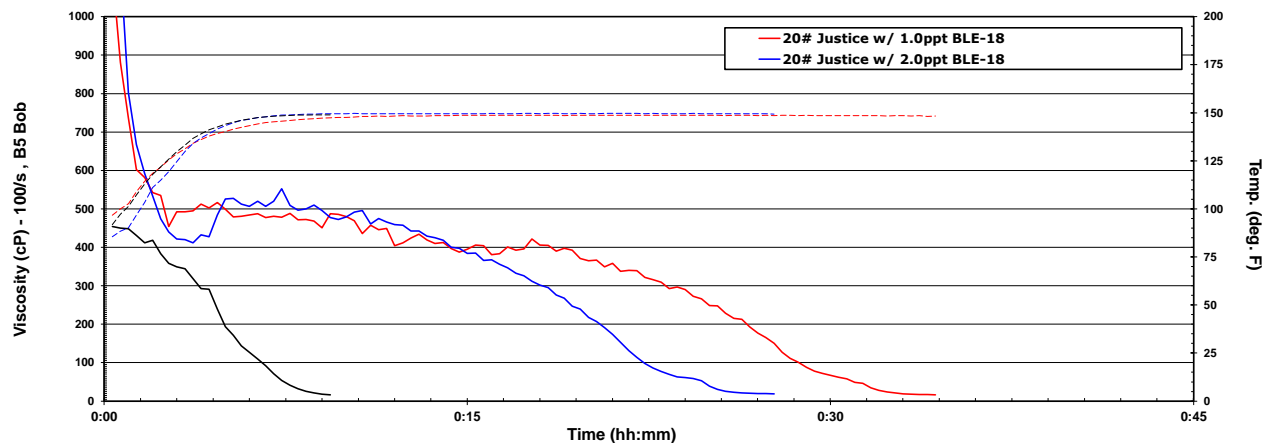
Submitted by: Scott Arnold

Prepared for: Agave Oil & Gas

Liberty Oilfield Services
Henderson Laboratory
9540 E 104th Ave.
Henderson, CO 80640

Testing Date(s): June 1, 2017

FLUID RHEOLOGY REPORT



FLUID FORMULATION

Additive Summary

	20# Justice w/ 1.0ppt BLE-18	20# Justice w/ 2.0ppt BLE-18	20# Justice w/ 1.0ppt BLE-18 and 1.0ppt BLR-18
LGA-33 (Guar slurry)	qpt 5.00	5.00	5.00
CSA-23 (Clay Stability Additive)	qpt 1.00	1.00	1.00
BLE-18 (Low Temp Breaker)	ppt 1.00	2.00	1.00
BLR-18 (Raw Breaker)	ppt X	X	1.00
XLB-88 (Instant Borate X-linker)	qpt 1.30	1.30	1.30
Aquacarb 714	qpt 0.25	0.25	0.25
Safe-BFH	qpt 0.40	0.40	0.40
SFT-82	qpt 1.00	1.00	1.00

Water Analysis

	Treated
Temp deg F	73.6
SG mg/L	1.000
SG @ 60F mg/L	1.003
pH	7.49
Chloride Cl- mg/L	13
Potassium K+ mg/L	143
Sodium Na+ mg/L	152
Bicarbonates HCO3- mg/L	366
Iron Fe2+ mg/L	NIL
Total Iron Fe2+ & Fe3+ mg/L	1
Calcium Ca 2+ mg/L	40
Sulfates SO4(2-) mg/L	NIL
Total Hardness mg/L	60
Reducing Agents P / NP	NP
Phosphates PO4(3-) mg/L	6
TDS mg/L	2,992

Test Specifications

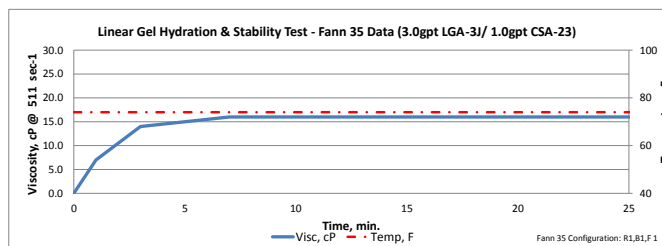
	20# Justice w/ 1.0ppt BLE- 18	20# Justice w/ 2.0ppt BLE- 18	w/ 1.0ppt BLE- 18 and 1.0ppt BLR-18
Temperature, Deg F:	150	150	150
Temperature Ramp?:	No	No	No
Bob Size:	B5	B5	B5
Shear Rate:	100/s	100/s	100/s
API Shear Scan:	No	No	No

Base Gel Summary

	20# Justice w/ 1.0ppt BLE- 18	20# Justice w/ 2.0ppt BLE- 18	w/ 1.0ppt BLE- 18 and 1.0ppt BLR-18
Target Viscosity, cP:	16.0	16.0	16.0
Initial Hydration Time, min:	7.0	7.0	7.0
Initial Viscosity, cP:	16.0	16.0	16.0
Gel Adjustment, qpt:	NT	NT	NT
Adjusted Hydrated, cP:	NT	NT	NT
Water Source:	source	source	source

pH Summary

	20# Justice w/ 1.0ppt BLE- 18	20# Justice w/ 2.0ppt BLE- 18	w/ 1.0ppt BLE- 18 and 1.0ppt BLR-18
Base Fluid pH:	8.18	8.18	8.18
Buffered pH:	10.48	10.48	10.48
X-link pH:	9.92	9.92	9.92
End pH:	9.61	9.61	9.61



LABORATORY REPORT



Agave Oil & Gas

Haas 1-29

June 16, 2017

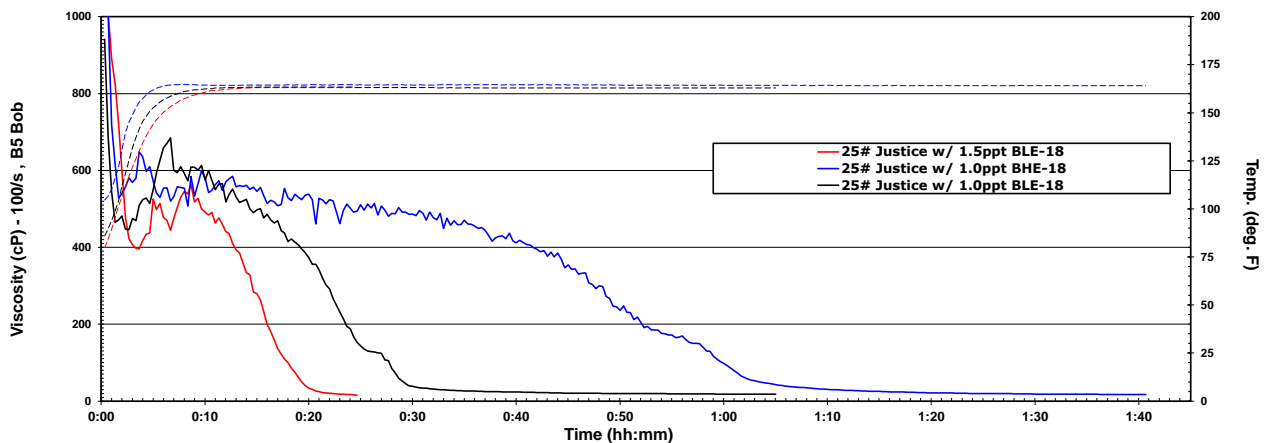
Submitted by: Irma Vazquez
Scott Arnold

Prepared for: Agave Oil & Gas

Liberty Oilfield Services
Henderson Laboratory
9540 E 104th Ave.
Henderson, CO 80640

Testing Date(s): June 1, 2017

FLUID RHEOLOGY REPORT



FLUID FORMULATION

Additive Summary

	25# Justice w/ 1.5ppt BLE-18	25# Justice w/ 1.0ppt BHE-18	25# Justice w/ 1.0ppt BLE-18
LGA-33 (Guar slurry)	qpt 6.25	6.25	6.25
CSA-23 (Clay Stability Additive)	qpt 1.00	1.00	1.00
BLE-18 (Low Temp Breaker)	ppt 1.50	X	1.00
BLR-18 (Raw Breaker)	ppt X	X	X
XLB-88 (Instant Borate X-linker)	qpt 1.30	1.30	1.30
Aquacar 714 (Biocide)	qpt 0.25	0.25	0.25
Safe-BFH (High pH buffer)	qpt 0.35	0.30	0.35
SFT-82 (Surfactant)	qpt 1.00	1.00	1.00
BHE-18 (High Temp Breaker)	ppt X	1.00	X

Water Analysis

	Treated
Temp deg F	73.6
SG mg/L	1.000
SG @ 60F mg/L	1.003
pH	7.49
Chloride Cl- mg/L	13
Potassium K+ mg/L	143
Sodium Na+ mg/L	152
Bicarbonates HCO3- mg/L	366
Iron Fe2+ mg/L	NIL
Total Iron Fe2+ & Fe3+ mg/L	1
Calcium Ca 2+ mg/L	40
Sulfates SO4(2-) mg/L	NIL
Total Hardness mg/L	60
Reducing Agents P / NP	NP
Phosphates PO4(3-) mg/L	6
TDS mg/L	2,992

Test Specifications

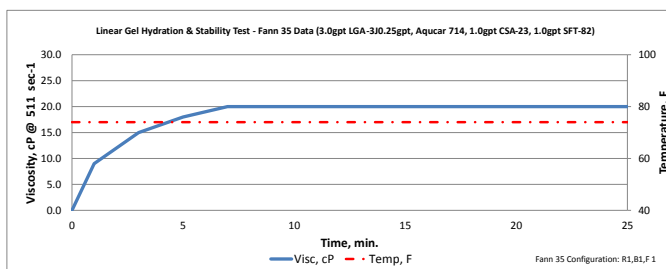
	25# Justice w/ 1.5ppt BLE- 18	25# Justice w/ 1.0ppt BHE- 18	25# Justice w/ 1.0ppt BLE- 18
Temperature, Deg F:	165	165	165
Temperature Ramp?:	No	No	No
Bob Size:	B5	B5	B5
Shear Rate:	100/s	100/s	100/s
API Shear Scan:	No	No	No

Base Gel Summary

Target Viscosity, cP:	21.0	21.0	21.0
Initial Hydration Time, min:	7.0	7.0	7.0
Initial Viscosity, cP:	20.0	20.0	20.0
Gel Adjustment, qpt:	NT	NT	NT
Adjusted Hydrated, cP:	NT	NT	NT
Water Source:	source	source	source

pH Summary

Base Fluid pH:	8.17	8.21	8.28
Buffered pH:	10.52	10.55	10.53
X-link pH:	9.67	9.55	10.05
End pH:	9.48	9.50	9.51





On-Site QC Report

Customer: Agave
Well: Haas 1-29
Date Submitted: 06/15/17

Submitted by: Crystal Salyers

On-Site Fluid Rheology

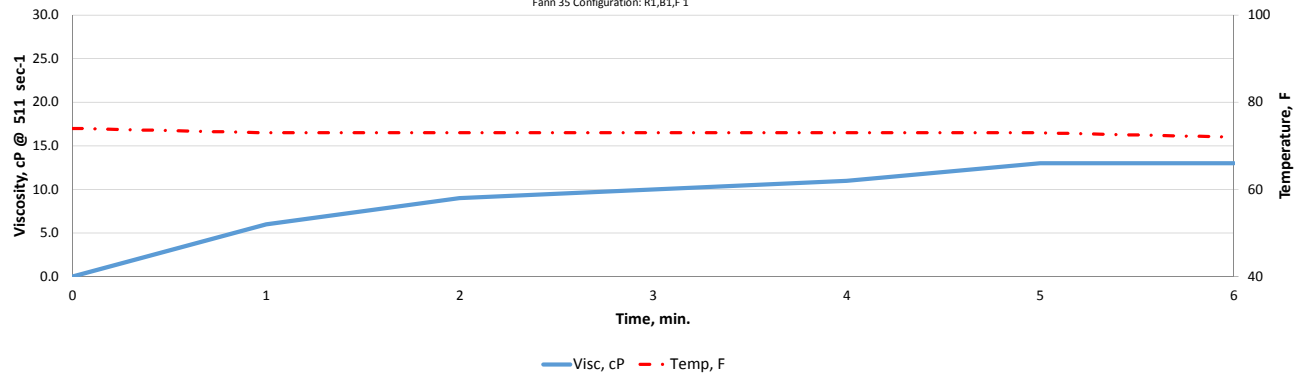
Fluid Adds		20#	
Product Name	Function	Conc.	Unit
Aquacur 714	Biocide	0.25	gpt
CSA-23	Clay Stabilizer	1.00	gpt
SFT-82	Surfactant	1.00	gpt
FRP-E3-8	Friction Reducer	0.75	gpt
LGA-3J	Guar Slurry	5.00	gpt
Safe-BFH	High pH Buffer	0.40	gpt
XLB-88	Instant Borate Crosslinker	1.30	gpt
	#N/A		gpt

Fluid Properties	
Source Water pH	8.20
Hydration Time, min	6
Linear Visc, cP @ 511/s	13
Linear pH	8.28
Linear Temp, °F	72.8
Buffer pH	10.70
X-linked pH	9.75
X-link Time, min:sec	0:10
Vortex Closure, min:sec	0:06
Crown Time, min:sec	0:10
2 inch lip, min:sec	0:35

Avg. Water Analysis	
Temp, °F	74.1
pH	8.20
Total Hardness, mg/l	NT
Total Iron, mg/l	NT
Chlorides, mg/l	NT
Alkalinity, mg/l	NT
Sulfates, mg/l	NT
Specific Gravity	1.000

Linear Gel Hydration/Stability Test - Fann35 Data

Fann 35 Configuration: R1,B1,F 1



On-Site Fluid Rheology

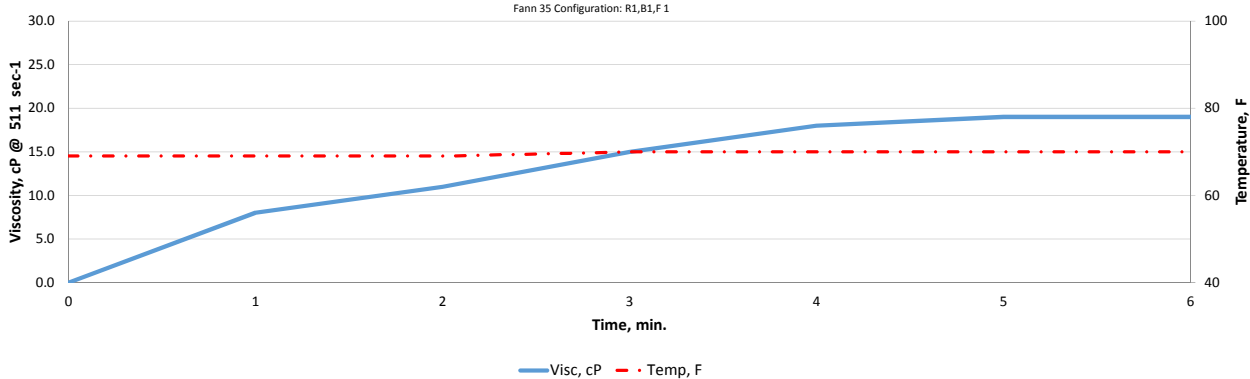
Fluid Adds		25#	
Product Name	Function	Conc.	Unit
Aquacar 714	Biocide	0.25	gpt
CSA-23	Clay Stabilizer	1.00	gpt
SFT-82	Surfactant	1.00	gpt
FRP-E3-8	Friction Reducer	0.75	gpt
LGA-3J	Guar Slurry	6.25	gpt
Safe-BFH	High pH Buffer	0.40	gpt
XLB-88	Instant Borate Crosslinker	1.63	gpt
	#N/A		gpt

Fluid Properties	
Source Water pH	8.05
Hydration Time, min	6
Linear Visc, cP @ 511/s	19
Linear pH	7.54
Linear Temp, °F	71
Buffer pH	10.48
X-linked pH	9.52
X-link Time, min:sec	0:10
Vortex Closure, min:sec	0:03
Crown Time, min:sec	0:08
2 inch lip, min:sec	0:30

Avg. Water Analysis	
Temp, °F	66.7
pH	8.05
Total Hardness, mg/l	200
Total Iron, mg/l	NT
Chlorides, mg/l	11
Alkalinity, mg/l	NT
Sulfates, mg/l	70
Specific Gravity	1.002

Linear Gel Hydration/Stability Test - Fann35 Data

Fann 35 Configuration: R1,B1,F 1



PER STAGE FLUID RHEOLOGY

Int	Stage	PPA	Clean			Dirty	XL
			Temp	Visc	pH	pH	Time
1	1	0.25	67	21	9.86		
1	2	0.5	68	23	9.88		
1	3	1	67	20	9.62		
1	4	1.5	68	21	10.05		
1	5	2	69	22	10.23		
1	6	3	69	20	10.15		
1	7	4	69	24	9.94		
1	8	4.5	70	18	9.79		
1	9	5	70	14	9.91		

On-Site Live-Load Proppant Sieves

Mesh Size	30/50	
Mover #		
Bin #	663	
Sieves	Grams	% Sieve
20		
30	1.56	1.56%
40	77.58	77.36%
45	15.38	15.34%
50	3.65	3.64%
70	2.11	2.10%
Pan		

Totals 100.28 100.00%
% Retained 96.34%

Mesh Size	30/50	
Mover #		
Bin #	1140	
Sieves	Grams	% Sieve
20		
30	1.45	1.45%
40	76.98	76.89%
45	16.47	16.45%
50	3.98	3.98%
70	1.24	1.24%
Pan		

Totals 100.12 100.00%
% Retained 97.31%

Mesh Size	30/50	
Mover #		
Bin #	766	
Sieves	Grams	% Sieve
20		
30	1.87	1.86%
40	76.51	75.96%
45	16.65	16.53%
50	3.59	3.56%
70	2.11	2.09%
Pan		

Totals 100.73 100.00%
% Retained 96.05%

Mesh Size	30/50	
Mover #		
Bin #	820	
Sieves	Grams	% Sieve
20		
30	1.58	1.57%
40	77.32	76.91%
45	17.25	17.16%
50	3.14	3.12%
70	1.24	1.23%
Pan		

Totals 100.53 100.00%
% Retained 97.19%

Mesh Size	30/50	
Mover #		
Bin #	482	
Sieves	Grams	% Sieve
20		
30	2.14	2.13%
40	74.69	74.50%
45	16.57	16.53%
50	4.21	4.20%
70	2.65	2.64%
Pan		

Totals 100.26 100.00%
% Retained 95.22%

Mesh Size	30/50	
Mover #		
Bin #	1149	
Sieves	Grams	% Sieve
20		
30	1.68	1.66%
40	76.58	75.83%
45	16.54	16.38%
50	3.54	3.51%
70	2.65	2.62%
Pan		

Totals 100.99 100.00%
% Retained 95.71%

Mesh Size	30/50	
Mover #		
Bin #	529	
Sieves	Grams	% Sieve
20		
30	1.84	1.84%
40	76.58	76.75%
45	15.99	16.03%
50	3.83	3.84%
70	1.54	1.54%
Pan		

Totals 99.78 100.00%
% Retained 96.61%

Mesh Size	30/50	
Mover #		
Bin #	726	
Sieves	Grams	% Sieve
20		
30	1.87	1.87%
40	77.35	77.36%
45	16.54	16.54%
50	3.58	3.58%
70	0.65	0.65%
Pan		

Totals 99.99 100.00%
% Retained 97.48%

Mesh Size	30/50	
Mover #		
Bin #	484	
Sieves	Grams	% Sieve
20		
30	1.62	1.62%
40	76.58	76.61%
45	17.54	17.55%
50	2.65	2.65%
70	1.57	1.57%
Pan		

Totals 99.96 100.00%
% Retained 96.81%

Mesh Size	30/50	
Mover #		
Bin #	551	
Sieves	Grams	% Sieve
20		
30	1.66	1.66%
40	77.58	77.37%
45	16.87	16.82%
50	3.91	3.90%
70	0.25	0.25%
Pan		

Totals 100.27 100.00%
% Retained 98.10%

Mesh Size	30/50	
Mover #		
Bin #	697	
Sieves	Grams	% Sieve
20		
30	1.83	1.82%
40	76.29	75.95%
45	17.54	17.46%
50	3.54	3.52%
70	1.25	1.24%
Pan		

Totals 100.45 100.00%
% Retained 96.93%

Mesh Size	30/50	
Mover #		
Bin #	617	
Sieves	Grams	% Sieve
20		
30	1.62	1.63%
40	77.21	77.57%
45	16.4	16.48%
50	2.95	2.96%
70	1.35	1.36%
Pan		

Totals 99.53 100.00%
% Retained 97.02%

Mesh Size	30/50	
Mover #		
Bin #	466	
Sieves	Grams	% Sieve
20		
30	1.45	1.45%
40	76.38	76.22%
45	17.25	17.21%
50	2.68	2.67%
70	2.45	2.44%
Pan		

Totals 100.21 100.00%
% Retained 96.11%

On-Site Live-Load Proppant Sieves

Mesh Size		40/70
Mover #		
Bin #		1436
Sieves	Grams	% Sieve
30		
40	2.56	2.56%
50	76.33	76.46%
60	16.25	16.28%
70	3.45	3.46%
100	1.24	1.24%
Pan		

Totals 99.83 100.00%
 % Retained 96.19%

Mesh Size		40/70
Mover #		
Bin #		1449
Sieves	Grams	% Sieve
30		
40	2.74	2.73%
50	77.21	76.88%
60	16.25	16.18%
70	2.58	2.57%
100	1.65	1.64%
Pan		

Totals 100.43 100.00%
 % Retained 95.63%

Mesh Size		40/70
Mover #		
Bin #		1472
Sieves	Grams	% Sieve
30		
40	2.54	2.53%
50	76.98	76.54%
60	17.22	17.12%
70	2.59	2.58%
100	1.25	1.24%
Pan		

Totals 100.58 100.00%
 % Retained 96.23%

Mesh Size		40/70
Mover #		
Bin #		1445
Sieves	Grams	% Sieve
30		
40	3.11	3.10%
50	75.95	75.69%
60	16.54	16.48%
70	3.21	3.20%
100	1.54	1.53%
Pan		

Totals 100.35 100.00%
 % Retained 95.37%

Mesh Size		40/70
Mover #		
Bin #		633
Sieves	Grams	% Sieve
30		
40	2.74	2.73%
50	76.25	75.99%
60	16.84	16.78%
70	2.94	2.93%
100	1.57	1.56%
Pan		

Totals 100.34 100.00%
 % Retained 95.70%

Mesh Size		40/70
Mover #		
Bin #		679
Sieves	Grams	% Sieve
30		
40	3.54	3.54%
50	74.58	74.64%
60	15.68	15.69%
70	3.58	3.58%
100	2.54	2.54%
Pan		

Totals 99.92 100.00%
 % Retained 93.92%

Mesh Size		40/70
Mover #		
Bin #		1450
Sieves	Grams	% Sieve
30		
40	2.68	2.69%
50	75.66	76.07%
60	16.35	16.44%
70	3.54	3.56%
100	1.23	1.24%
Pan		

Totals 99.46 100.00%
 % Retained 96.07%