



Great Western Operating Company, LLC

SURFACE POST JOB REPORT

JOB PURPOSE: PRIMARY

Tower LD 19-259HC 05-001-10300
S:21 T:1S R:67W Adams CO

CallSheet #: 75391
Proposal #: 50632



Attention: Great Western Operating Company LLC,
Great Western Operating Company, LLC
1001 17TH STREET, SUITE 2000 | DENVER, CO 80202

Dear Great Western Operating Company LLC,

Thank you for the opportunity to provide cementing services on this well. American Cementing strives to achieve complete customer satisfaction. If you have any questions regarding the services or data provided, please contact American Cementing at any time.

Sincerely,

Jason Creel

Field Engineer | (307) 256-0306 | Jason.creel@americancementing.com

Field Office 1716 E Allison Rd, Cheyenne, WY 82007
Phone: (307) 638-5585

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1 Job Details & Summary

1.1 Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Top (ft)	Bottom (ft)	Excess (%)
Open Hole	Outer	n/a	13.5	n/a	0	2007	40
Casing	Inner	9.625	8.921	36	0	2007	

1.2 Equipment / People

Unit Type	Unit
Field Storage Silo	CTS-454
Field Storage Silo	CTS-442
Pneumatic Trailer	CTF-018
Pneumatic Trailer	FTF-031
Light Duty Pickups	LDV-5223
Cement Pump	CPF-184

1.3 Timing

Event	Date/Time
Call Out	11/9/2020 13:00
Depart Facility	11/9/2020 15:00
On Location	11/9/2020 17:30
Rig Up Iron	11/9/2020 19:00
Job Started	11/9/2020 21:20
Job Completed	11/9/2020 23:55
Rig Down Iron	11/10/2020 01:00
Depart Location	11/10/2020 01:30

1.4 Casing Equipment

Type	Description	Qty	MD	TVD
Bow Spring Centralizers	9.625"	19		
Landing/Float Collar	9.625"	1	1962	1961
Float Shoe	9.625"	1	2007	2006

• 1.4.1 Casing Equipment-Centralizer Depths

Surface Centralizers, 40.99, 83.04, 167.31, 287.5, 407.66, 527.34, 646.87, 766.08, 884.81, 1005.54, 1126.29, 1246.49, 1372.85, 1499.24, 1625.67, 1752.07, 1878.51, 1920.62, 1990.8

1.5 General Job Information

Metrics	Value
Well Fluid Density	8.4 lb/gal
Well Fluid Type	Water
Rig Circulation Vol	300 bbls
Rig Circulation Time	0.5 hours
Calculated Displacement	152 bbls
Actual Displacement	142 bbls
Total Spacer to Surface	20 bbls
Total CMT to Surface	32 bbls
Well Topped Out	No

1.6 Job Details

Metrics	Value
Flare Prior to Job	No
Flare During Job	No
Flare at End of Job	No
Well Full Prior to Job	Yes
Well Fluid Density Into Well	8.4 lb/gal
Well Fluid Density Out of Well	8.4 lb/gal

1.7 Job Details (cont.)

Metrics	Value
BHCT	86 °F
BHST	110 °F
Ambient Temperature	26 °F

1.8 Circulation

Lost Circulation Experienced
No

1.9 Job Execution Information

Job	Fluid	Product	Function	Density (lb/gal)	Yield (ft ³ /sk)	Water Rq. (gal/sk)	Water Rq. (gal/bbl)	Volume (sks)	Volume (bbl)	Volume (cu.ft)	Top (ft)
1	1	Fresh Water	Spacer	8.34			42.00		20.00		0
1	2	ACem S100.3.XC	Primary	14.50	1.39	6.81		1000.00	248.00	1390	0
1	3	Fresh Water	Displacement Final	8.34			42.00		152.00		0

1.10 Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	2	Primary	ACem S100.3.XC	ASTM TYPE III	Cement	100.00	%
1	2	Primary	ACem S100.3.XC	STATIC FREE	Other	0.01	%BWOB

2 Job Logs

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
1	Arrive On Location	11/9/2020	18:30					Crew Arrived on Location/ Checked and verified mix water and cement.
2	Safety Meeting	11/9/2020	18:30					Pre Rig Up Safety Meeting with Crew
3	Rig Up	11/9/2020	19:00					Crew Rigged up Treating equipment and lines.
4	Waiting	11/9/2020	21:15					Waiting on Rig Crew To Run Casing
5	Safety Meeting	11/9/2020	21:20					Safety Meeting with Rig Crew, and Company Representative
6	Prime Up	11/9/2020	21:20	8.34	4	5	113	Prime up Pump and Lines
7		11/9/2020	21:21	8.34	0.5	0.5	2500	Pressure Test Lines to 2500 psi
8		11/9/2020	21:25	8.34	4	20	113	Pump 20 bbls of Fresh Water with Blue Dye/ Full Returns
9	Pump Cement	11/9/2020	21:34	14.5	4	10	300	Pump First 10 bbls of Cement at 14.5 ppg/ 1000 sks (1.39 Yield, 6.8 gps, 162 Mix Water.)/ 248 bbls/ From Silo 26/Wet Sample Taken And Verified/Full Returns.
10	Rate Change	11/9/2020	21:37	14.5	5	10	300	Rate changed to 5 bpm
11	Pump Cement	11/9/2020	21:45	14.5	5	50	350	Pumped 50 bbls of Cement Away/ From Silo 26/Wet Sample Taken and Verified / Full Returns
12	Pump Cement	11/9/2020	21:55	14.5	5	100	360	Pumped 100 bbls of Cement Away/From Silo 26/ Wet Sample Taken and Verified / Full Returns
13	Silo Change	11/9/2020	22:00	14.5	5	120	360	Changed From Silo 26 to Silo 6
14	Pump Cement	11/9/2020	22:10	14.5	5	150	390	Pumped 150 bbls of Cement Away/From Silo 2 /Full Returns
15	Pump Cement	11/9/2020	22:15	14.5	5	200	390	Pumped 200 bbls of Cement Away/From Silo 2 /Full Returns
16	Shutdown	11/9/2020	22:25					Shutdown to Drop Top Plug/ Shutdown at 248 bbls of Cement Away
17	Pump Displacement	11/9/2020	22:27	8.4	4	10	200	Pump First 10 bbls of Displacement/ Wash Pump and Lines on Top of Plug
18	Rate Change	11/9/2020	22:29	8.4	5	10	250	Changed Rate to 5 bpm
19	Pump Displacement	11/9/2020	22:40	8.4	5	50	310	Pumped 50 bbls of Displacement Away/ Chemicals throughout/ Full Returns
20	Spacer to Surface	11/9/2020	22:47	8.4	5	90	300	Blue Dyed Spacer to Surface/ Full Returns
21	Pump Displacement	11/9/2020	22:49	8.4	5	100	100	Pumped 100 bbls of Displacement Away/ Chemicals Throughout/ Full Returns
22	Cement to Surface	11/9/2020	22:53	8.4	5	120	600	Cement To Surface at 120 bbls Pumped Away/ Full Returns. 32bbl Cement to Surface
23	Rate Change	11/9/2020	22:53	8.4	4	130	730	Slowed Rate to 4 bpm to Reduce Pressure/ Full Returns
24	Rate Change	11/9/2020	22:58	8.4	3	140	900	Slowed Rate to 3 bpm to Land the Plug
25	Pump Displacement	11/9/2020	23:01	8.4	3	152	1095	Pumped 150 bbls of Displacement Away/ Chemicals Throughout / Full Returns
26	Land Plug	11/9/2020	23:01	8.4	3	152	1661	Landed the Plug at 152 bbls of Displacement Pumped/ FCP was 850 psi and Took it to 1661 psi
27	Casing Test	11/9/2020	23:01				1558	Began 30 Min Casing Test/ Starting Pressure was psi 1558. Released Pressure. Cement Head Bowl was leaking around the threads. Removed Head and tightened the Bowl.



Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
27	Casing Test	11/9/2020	23:22				1558	Pressured to 1558
28	Casing Test	11/9/2020	23:32				1504	10 Min Point of Casing Test/ Pressure was 1504psi
29	Casing Test	11/9/2020	23:42				1470	20 Min Point of Casing Test/ Pressure was 1470psi
30	Casing Test	11/9/2020	23:52				1435	30 Min Point of Casing Test/ Pressure was 1435psi. Casing Test Failed. Will re-test casing following end of cement job on next well.
31	Check Floats	11/9/2020	23:54					Check Floats, 3/4 bbl Back
32	Safety Meeting	11/10/2020	00:05					Pre Rig Down Safety Meeting with Crew
33	Rig Down	11/10/2020	01:00					Crew Rigged Down Treating Equipment
34	Depart Location	11/10/2020	01:30					Crew Departed Location
35	End Job	11/10/2020	01:30					After the Job Crew Tested Pump on location to 2000psi and Dropped instantly, Pump was not holding pressure, even being capped at every end. Getting a different pump for next well.
36	Casing Test	11/10/2020	23:32				1636	Rigged up second cement pump to wellhead. Began 30 min casing test/starting pressure was psi 1636.
37	Casing Test	11/10/2020	23:45				1623	10 min pressure is 1623
38	Casing Test	11/10/2020	23:55				1610	20 min pressure is 1610
39	Casing Test	11/11/2020	00:02				1601	30 min pressure is 1601
40	Rig Down	11/11/2020	00:03					Rig down, leave location.
35	End Job	11/10/2020	01:30					Crew Departed Location

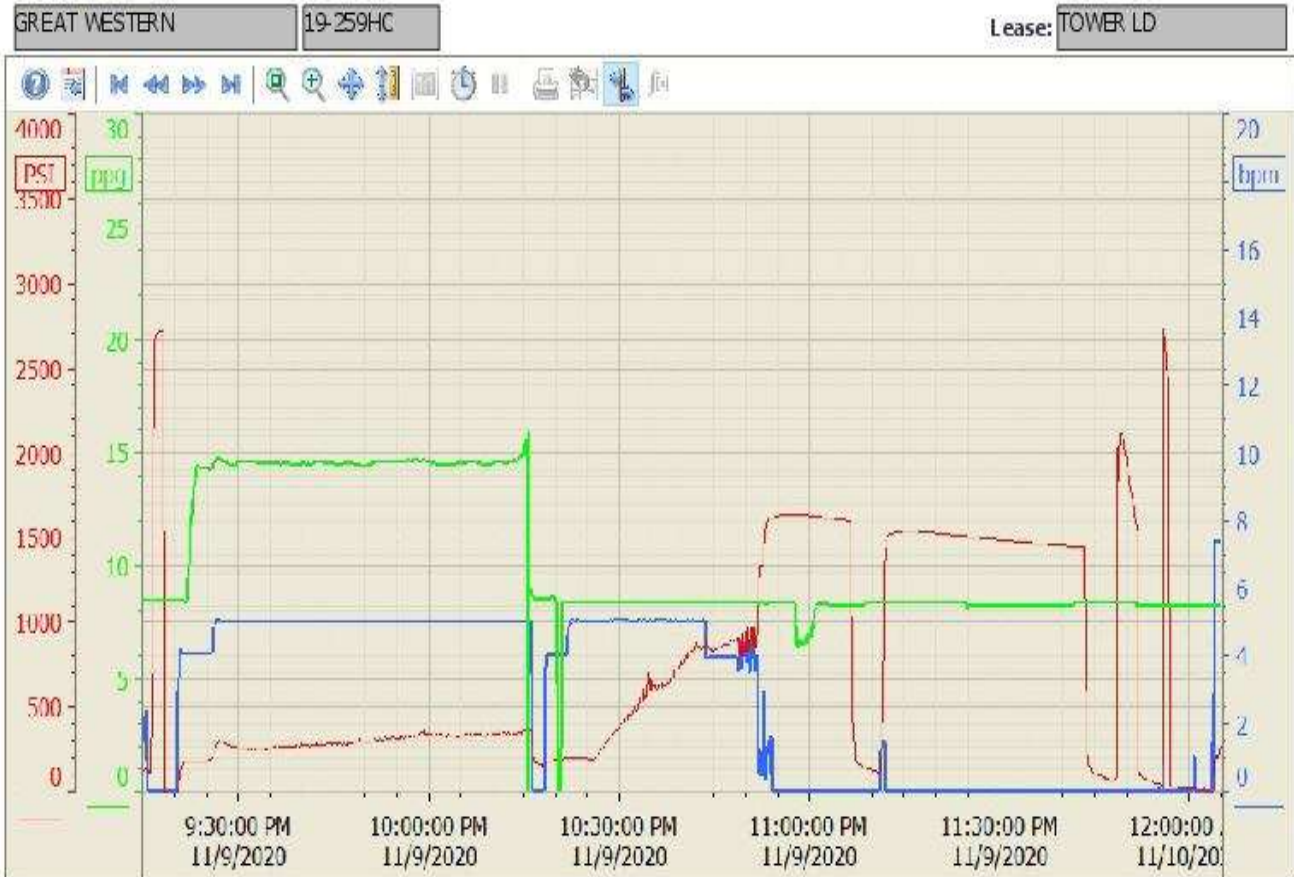
3 Water Analysis

Metrics	Value	Recommended
Water Source	None	
Temperature	80 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	180	0-1000
Total Hardness	120 mg/L	0-500 mg/L
Carbonates	0 mg/L	0-100 mg/L
Sulfates	>200 mg/L	0-1500 mg/L
Potassium	0 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

4 Pump Diagrams

Primary cement job with initial pressure test (failed)

Summary Trend

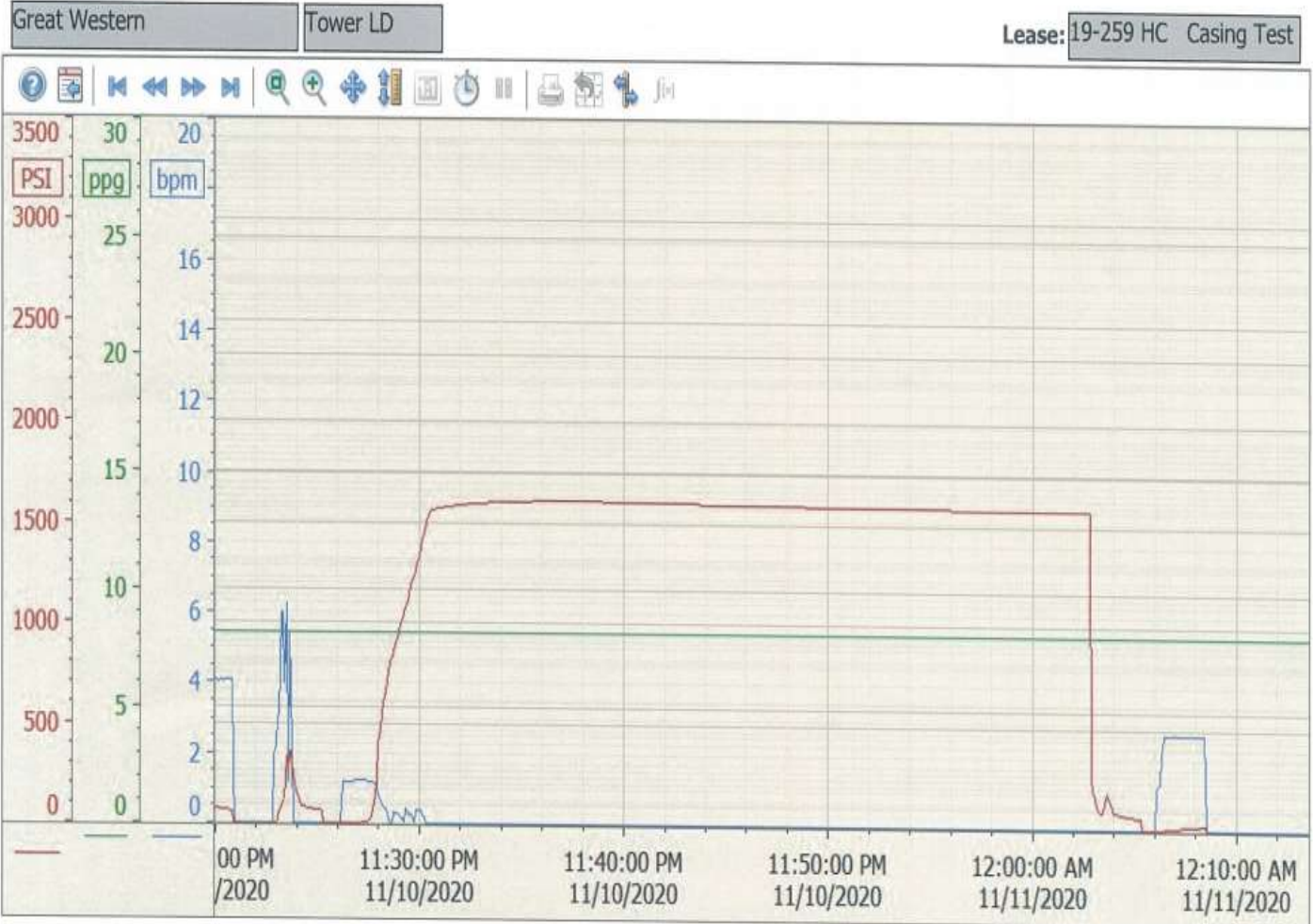


11/10/2020 1:25:22 A

4 Pump Diagrams

Follow-up pressure test (successful)

Summary Trend



11/11/2020 12:45:14