



Great Western Operating Company, LLC

SURFACE POST JOB REPORT

JOB PURPOSE: PRIMARY

Tower LD 19-102HNX 05-001-10309
S:21 T:1S R:67W Adams CO

CallSheet #: 75342
Proposal #: 50602



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

Table of Contents

1 Job Details & Summary	3
1.1 Geometry	3
1.2 Equipment / People	3
1.3 Timing	3
1.4 Casing Equipment	3
• 1.4.1 Casing Equipment-Centralizer Depths	3
1.5 General Job Information	4
1.6 Job Details	4
1.7 Job Details (cont.)	4
1.8 Circulation	4
1.9 Job Execution Information	4
1.10 Job Fluid Details	4
2 Job Logs	5
3 Water Analysis	6
4 Pump Diagrams	7

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	2029	30
Casing	Inner	9.625	8.921	36	0	2029	0

1.2 Equipment / People

Unit Type	Unit
Bulk Trailer	CTF-009
Field Storage Silo	CTS-449
Pneumatic Trailer	FUF-308
Cement Pump	CPF-184
Light Duty Pickups	LDV-5223

1.3 Timing

Event	Date/Time
Call Out	11/3/2020 03:00
Depart Facility	11/3/2020 04:00
On Location	11/3/2020 05:30
Rig Up Iron	11/3/2020 05:40
Job Started	11/3/2020 10:11
Job Completed	11/3/2020 11:59
Rig Down Iron	11/3/2020 12:10
Depart Location	11/3/2020 13:00

1.4 Casing Equipment

Type	Description	Qty	MD	TVD
Bow Spring Centralizers	9.625"	19		
Landing/Float Collar	9.625"	1	1985	1985
Float Shoe	9.625"	1	2029	2029

• 1.4.1 Casing Equipment-Centralizer Depths

Surface Centralizers, 40.55, 82.7, 166.31, 292.4, 418.6, 544.54, 671.55, 797.55, 924.51, 1050.52, 1173.97, 1299.68, 1421.1, 1541.58, 1661.7, 1782.33, 1902.94, 1943.2, 2012.8

1.5 General Job Information

Metrics	Value
Well Fluid Density	8.4 lb/gal
Well Fluid Type	Water
Rig Circulation Vol	357 bbls
Rig Circulation Time	12/30/1899 12:30:00 AM hours
Calculated Displacement	153.4 bbls
Actual Displacement	153.4 bbls
Total Spacer to Surface	20 bbls
Total CMT to Surface	10 bbls
Well Topped Out	No
Top Out Volume	0 bbls

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	70 °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		930.00	230.29	1292.70	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	%

2 Job Logs

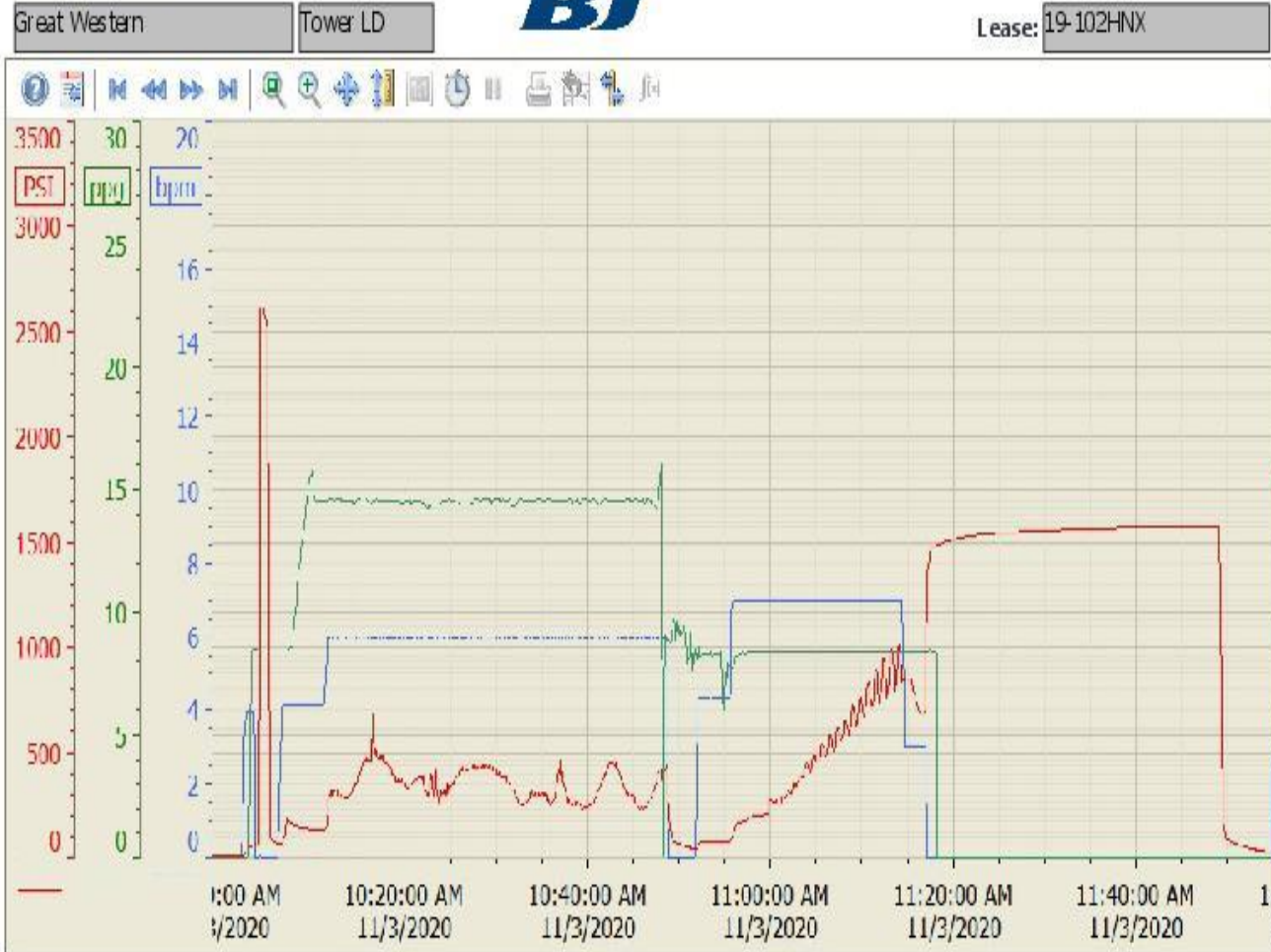
Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
1	Callout	11/3/2020	03:00					Crew called out, requested on location at 08:00
2	Safety Meeting	11/3/2020	03:45					Talked with the American Cementing Crew about the hazards of driving to location.
3	Depart For Location	11/3/2020	04:00					Crew departed for location
4	Arrive On Location	11/3/2020	05:30					Crew arrived on location and talked about the hazards of spotting in equipment.
5	Safety Meeting	11/3/2020	05:35					Talked with crew about the hazards of rigging up water bulk and iron lines.
6	Rig Up Iron	11/3/2020	05:40					Crew rigged up
7	Waiting	11/3/2020	06:00					Waited for rig to finish Running casing and to circulating the well.
8	Safety Meeting	11/3/2020	09:53					Talked with American Cementing Crew and rig Crews about the hazards of pumping the job.
9	Fill Lines	11/3/2020	10:11	8.33	5	5	50	Pump 5 bbls water ahead to fill lines for the pressure test.
10	Shutdown	11/3/2020	10:13	8.33			0	Shutdown to line out valves for pressure test
11	Pressure Test Lines	11/3/2020	10:14	8.33			2700	Pressure Test AC lines to 2500 PSI.
12	Pump Spacer	11/3/2020	10:15	8.33	4	20	200	Pump 20 bbls water spacer with blue dye
13	Pump Cement	11/3/2020	10:20	14.5	6	0	350	Mix and Pump 930 total sacks of ACem Cement at 14.5 lb/gal, 1.39 cuft/sk and 6.81 gals/sk from Silo 12 and Silo 6. Pump first 10 bbls at 4 bpm, then bring rate up to 6 bpm.
14	Pump Cement	11/3/2020	10:23	14.5	6	134	400	Switch to Silo 6 with 134 bbls away.
15	Shutdown	11/3/2020	10:55	14.5	0	230	0	Shutdown to drop top plug and line out valves for displacement.
16	Pump Displacement	11/3/2020	11:00	8.33	7	0	250	Pump 153.4 bbls water displacement with Biocide and O2 scavenger.
17	Pump Displacement	11/3/2020	11:10	8.33	7	50	400	50bbls away.
18	Pump Displacement	11/3/2020	11:20	8.33	7	114	800	Blue dye to surface
19	Slow Pump Rate	11/3/2020	11:23	8.33	3	143	1000	Slow rate to land the plug.
20	Pump Displacement	11/3/2020	11:24	8.33	3	144	850	Cement to Surface
21	Land Plug	11/3/2020	11:27	8.33	0	153.4	1545	Land plug, bring pressure up to 1545 psi for 30 min casing test. FCP was 850 psi
22	Test Casing	11/3/2020	11:37	8.33	0	153.4	1558	10 min into casing test.
23	Test Casing	11/3/2020	11:47	8.33	0	153.4	1571	20 min into casing test.
24	Test Casing	11/3/2020	11:57	8.33	0	153.4	1571	30 min into casing test.
25	Check Floats	11/3/2020	11:59					Floats held with 1 bbl back
26	Safety Meeting	11/3/2020	12:05					Talked with AC Crew about the hazards of rigging down.
27	Rig Down Iron	11/3/2020	12:10					Rig Down
28	Safety Meeting	11/3/2020	12:50					Talked with AC Crew about the hazards of driving back to the yard.
29	Depart Location	11/3/2020	13:00					Job Completed, no issues. Crew Departed Location.

3 Water Analysis

Metrics	Value	Recommended
Water Source	None	
Temperature	78 °F	50-80 °F
pH Level	7	5.5-8.5
Chlorides	0 mg/L	0-3000 mg/L
Total Alkalinity	120	0-1000
Total Hardness	25 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	25 mg/L	0-300 mg/L

4 Pump Diagrams

Summary Trend



11/3/2020 12:00:14 P