Great Western Operating Company, LLC
SURFACE POST JOB REPORT
JOB PURPOSE: PRIMARY

Tower LD 19-262HN 05-001-10311
S:21 T:1S R:67W Adams CO

CallSheet #: 75409
Proposal #: 50634

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	2024	40
Casing	Inner	9.625	8.921	36	0	2024	0

1.2 Equipment / People

Unit Type	Unit
Field Storage Silo	CTS-454
Field Storage Silo	CTS-442
Cement Pump	CPF-074
Light Duty Pickups	LDV-5223
Light Duty Pickups	LDV-3105

1.3 Timing

Event	Date/Time
Call Out	11/11/2020 16:30
Depart Facility	11/11/2020 18:00
On Location	11/11/2020 19:30
Rig Up Iron	11/11/2020 20:00
Job Started	11/11/2020 23:45
Job Completed	11/12/2020 03:27
Rig Down Iron	11/12/2020 03:35
Depart Location	11/12/2020 04:30

1.4 Casing Equipment

Type	Description	Qty	MD	TVD
Bow Spring Centralizers	9.625”	20		
Landing/Float Collar	9.625”	1	1979	1979
Float Shoe	9.625”	1	2024	2024

- ### 1.4.1 Casing Equipment-Centralizer Depths

Surface Centralizers, 38.5, 78.7, 158.62, 278.49, 399.12, 518.97, 639.13, 889.54, 1010.25, 1136.63, 1263.01, 1389.4, 1515.77, 1642.15, 1768.53, 1894.87, 1936.99, 2007.8

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	30 hours
Calculated Displacement	153 bbls
Actual Displacement	153 bbls
Total Spacer to Surface	20 bbls
Total CMT to Surface	37 bbls
Well Topped Out	N/A
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	22 °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	247.62	1390	0
1	3	Fresh Water	Displacement Final	8.34			42.00		153.00		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	lb/sk

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	11/11/2020	16:30					Crew called out, requested on location at 21:30
2	Safety Meeting	11/11/2020	17:50					Talked with the American Cementing Crew about the hazards of driving to location.
3	Depart For Location	11/11/2020	18:00					Crew departed for location
4	Arrive On Location	11/11/2020	19:30					Crew arrived on location and talked about the hazards of spotting in equipment.
5	Safety Meeting	11/11/2020	19:45					Talked with crew about the hazards of rigging up water bulk and iron lines.
6	Rig Up Iron	11/11/2020	20:00					Crew rigged up
7	Waiting	11/11/2020	21:00					Waited for rig to finish Running casing and to circulating the well. The Pre-job air temperature was 29 Degrees F.
8	Safety Meeting	11/11/2020	23:30					Talked with American Cementing Crew and rig Crews about the hazards of pumping the job.
9	Fill Lines	11/11/2020	23:45	8.33	4.1	5	100	Pump 5 bbls water ahead to fill lines for the pressure test.
10	Shutdown	11/11/2020	11:47	8.33			0	Shutdown to line out valves for pressure test
11	Pressure Test Lines	11/11/2020	11:48	8.33			3850	Pressure Test AC lines to 2500 PSI for 10 min.
12	Pump Spacer	11/12/2020	00:09	8.33	5	20	100	Pump 20 bbls water spacer with blue dye
13	Pump Cement	11/12/2020	00:14	14.5	5	0	350	Mix and Pump 1000 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.
14	Shutdown	11/12/2020	00:25	14.5	0	68	166	Shutdown due to poor delivery from silo 26 for 2 minutes. Bring air pressure on silo back up to 20psi and come back online.
15	Pump Cement	11/12/2020	00:27	14.5	5	68	276	Pump remaining cement from silo 26 and correct density.
16	Pump Cement	11/12/2020	00:40	14.5	5	124	215	Switch to Silo 6 with 124 bbls away.
17	Shutdown	11/12/2020	00:48	14.5	0	157	166	Shutdown due to poor delivery from silo 6 for 1 minutes. Purge bulk line down, batch up tub and come back online.
18	Shutdown	11/12/2020	00:51	14.5	0	164	210	Shutdown due to poor delivery from silo 6 for 1 minutes. Purge bulk line down, batch up tub and come back online.
19	Shutdown	11/12/2020	00:56	14.5	0	177	223	Shutdown due to poor delivery from silo 6 for 1 minutes. Purge bulk line down and batch up tub to correct density.
20	Pump Cement	11/12/2020	00:57	14.5	5	177	272	Come back online for the remaining cement at 3 - 5 bpm to maintain density.
21	Slow Pump Rate	11/12/2020	01:02	14.5	3.3	215	197	Slow rate to 3.3 bpm to maintain density while blowing down the remaining cement in silo 6
22	Shutdown	11/12/2020	01:08	14.5	0	248	0	Shutdown to drop top plug and line out valves for displacement.
23	Pump Displacement	11/12/2020	01:13	8.33	5	0	195	Pump 153 bbls water displacement with Biocide and O2 scavenger.
24	Pump Displacement	11/12/2020	01:26	8.33	5	50	370	50bbls away.
25	Pump Displacement	11/12/2020	01:32	8.33	5	96	603	Blue dye to surface
26	Pump Displacement	11/12/2020	01:39	8.33	5	116	791	Cement to surface

Line	Event	Date (MM/DD/YY)	Time (HH:MM)	Density (lb/gal)	Pump Rate (bpm)	Pump Volume (bbls)	Pipe Pressure (psi)	Comment
27	Slow Pump Rate	11/12/2020	01:49	8.33	3	143	779	Slow Rate to 3 bpm
28	Land Plug	11/12/2020	01:50	8.33	0	153	1627	Land plug, bring pressure up to 1627 psi for 30 min casing test. FCP was 853 psi
29	Test Casing	11/12/2020	02:00	8.33	0	153	1590	10 min into casing test.
30	Test Casing	11/12/2020	02:10	8.33	0	153	1534	20 min into casing test.
31	Check Floats	11/12/2020	02:17					Floats held with 1 bbl back. Pressure did not meet casing test standards.
32	Test Casing	11/12/2020	02:55	8.33	0	1	1667	Rig up circulating swage and 2nd pump truck to test casing again. Pump 1 bbls at 1 bpm to pressure up casing. Starting pressure was 1667
33	Test Casing	11/12/2020	03:05	8.33	0	1	1675	10 min into casing test.
34	Test Casing	11/12/2020	03:15	8.33	0	1	1675	20 min into casing test.
35	Test Casing	11/12/2020	03:25	8.33	0	1	1693	30 min into casing test.
36	Check Floats	11/12/2020	03:27					Floats held with 1 bbl back to the truck.
37	Safety Meeting	11/12/2020	03:30					Talked with AC Crew about the hazards of rigging down.
38	Rig Down Iron	11/12/2020	03:35					Rig Down
39	Safety Meeting	11/12/2020	04:15					Talked with AC Crew about the hazards of driving back to the yard.
40	Depart Location	11/12/2020	04:30					Job Completed, no issues. Crew Departed Location.

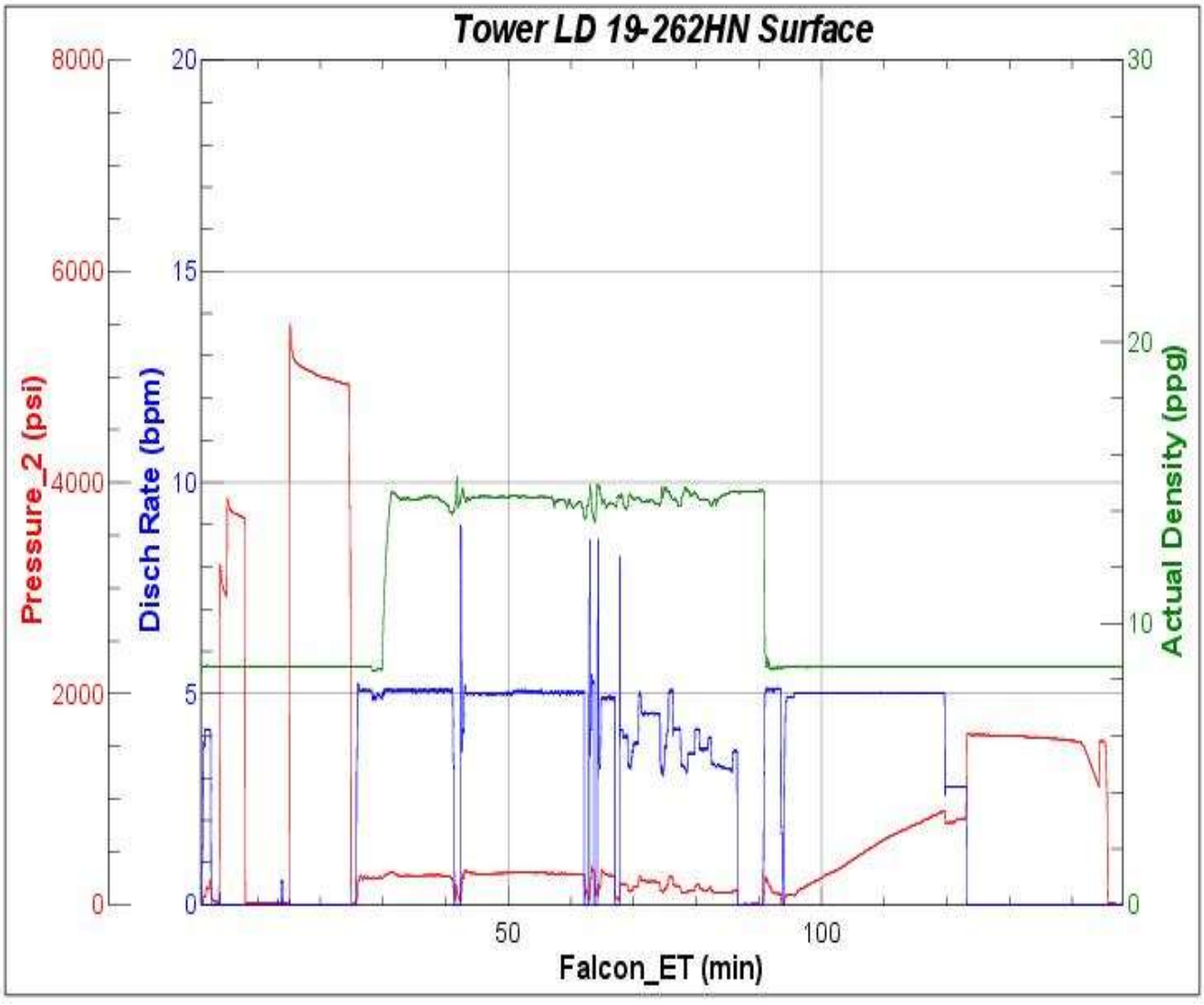
3 Water Analysis

Metrics	Value	Recommended
Water Source	None	
Temperature	75 °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	50 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

Initial casing test failed – see next page for chart of follow-up test.

JobMaster Program Version 5.01C1
Job Number:
Customer: Great Western
Well Name: Tower LD 19-262HN



Follow-Up Casing Test Successful.