

Cement Post Job Report

Great Western Operating Company, LLC
1801 Broadway, Suite 500
Denver, CO 80202

Kodak North FD 28-122HC
05-123-43497
S:26 T:6N R:67W
Weld, CO

Prepared For:

Mr. Matt Mount
mmount@gwogco.com
(303) 398-0373

Job Completion Data:

1/8/2017
CallSheet #: 442
Proposal #: 12770

Submitted by:

Lucas Albrighton
(720) 884-6033
lucasalbrighton@altcem.com





Dear Mr. Matt Mount,

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

Sincerely,

Lucas Albrighton

Field Office

**1716 East Allison Rd., Cheyenne WY, 82007
Phone: (307) 638-5585**

Sales Office

**475 17th St. Suite 460 Denver Co., 80202
Phone: (303) 296-1158**



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Job Details & Summary

Geometry

Type	Function	OD (in)	ID (in)	Weight (lb/ft)	Thread	Top (ft)	Bottom (ft)	Excess (%)
Casing	Outer	9.625	8.921	36	n/a	0	1534	0
Open Hole	Outer	n/a	8.5	n/a	n/a	1534	7000	10
Open Hole	Outer	n/a	8.5	n/a	n/a	7000	15015	5
Casing	Inner	5.5	4.892	17	n/a	0	15015	0

Equipment / People

Unit Type	Unit	Power Unit	Employee #1	Mileage
Field Bin	603		Orner, Lance	120
Field Bin	601		Bueghly, Steve	120
Bulk Trailer	509	212	Hamilton, Daniel	120
Cement Pump	101	201	Draney, Chance	120
Light Duty Pickups	5		Hyde, Andrew	120
Plug Container	1312196			120

Timing

Event	Date/Time
Call Out	1/8/2017 00:30
Depart Facility	1/8/2017 02:30
On Location	1/8/2017 05:30
Rig Up Iron	1/8/2017 06:00
Job Started	1/8/2017 14:12
Job Completed	1/8/2017 16:46
Rig Down Iron	1/8/2017 17:00
Depart Location	1/8/2017 18:30

General Job Information

Metrics	Value
Well Fluid Density	10.1 lb/gal
Well Fluid Type	OBM
Rig Circulation Vol	623 bbls
Rig Circulation Time	1.5 hours
Calculated Displacement	347 bbls
Actual Displacement	347 bbls
Total Spacer to Surface	50 bbls
Total CMT to Surface	15 bbls
Well Topped Out	N/A
Top Out Volume	0 bbls



Well Fluid Details

Metrics	Value
Plastic Viscosity	27
Yield Point	7
10 sec. SGS	4
10 min. SGS	5
30 min. SGS	6
Filtrate	10.2
Flow Line Temp.	57

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	10.1 lb/gal
Well Fluid Density Out of Well	10.1 lb/gal

Job Details (cont.)

Metrics	Value
BHCT	215 °F
BHST	215 °F

Circulation

Lost Circulation Experienced
No

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)	Top (ft)
1	1	CD Spacer - OBM	Spacer	11.00			32.65		50.00	0
1	2	ALTCem P100-X2	Lead	13.20	1.77	9.55		1011.00	319.28	0
1	3	ALTCem P50-X1	Tail	13.50	1.48	7.41		1307.00	343.55	7000
1	4	MMCR Water	Displacement	8.33			41.89		20.00	14112
1	5	3% KCl	Displacement	8.33			41.99		310.00	777
1	6	Water	DisplacementFinal	8.33			41.99		19.00	0



Job Fluid Details

Job	Fluid	Type	Fluid	Product	Function	Conc.	Uom
1	1	Spacer	CD Spacer - OBM	ASR-20	StrengthRetgression	179.10	lb/bbl
1	1	Spacer	CD Spacer - OBM	AR-10	Retarder	0.89	lb/bbl
1	1	Spacer	CD Spacer - OBM	AR-30	Retarder	1.19	lb/bbl
1	1	Spacer	CD Spacer - OBM	ASF-20	Surfactant	0.50	gal/bbl
1	1	Spacer	CD Spacer - OBM	ASF-80	Surfactant	0.50	gal/bbl
1	1	Spacer	CD Spacer - OBM	AVS-10	Viscosifier	0.80	lb/bbl
1	2	Lead	ALTCem P100-X2	AC3-10	Cement	100.00	%
1	2	Lead	ALTCem P100-X2	ADF-11	Defoamer	0.30	%BWOB
1	2	Lead	ALTCem P100-X2	AFL-50	FluidLoss	0.50	%BWOB
1	2	Lead	ALTCem P100-X2	AR-10	Retarder	0.30	%BWOB
1	2	Lead	ALTCem P100-X2	AR-30	Retarder	0.40	%BWOB
1	2	Lead	ALTCem P100-X2	AVS-20	Viscosifier	0.10	%BWOB
1	3	Tail	ALTCem P50-X1	ACG-10	Cement	50.00	%
1	3	Tail	ALTCem P50-X1	AFA-10	Extender	50.00	%
1	3	Tail	ALTCem P50-X1	ADF-11	Defoamer	0.30	%BWOB
1	3	Tail	ALTCem P50-X1	AFL-50	FluidLoss	0.20	%BWOB
1	3	Tail	ALTCem P50-X1	AR-10	Retarder	0.40	%BWOB
1	3	Tail	ALTCem P50-X1	AR-31	Retarder	0.05	%BWOB
1	3	Tail	ALTCem P50-X1	AVS-10	Viscosifier	0.10	%BWOB
1	3	Tail	ALTCem P50-X1	AVS-50	Viscosifier	2.00	%BWOB
1	4	Displacement	MMCR Water	AR-61	Retarder	0.10	gal/bbl
1	4	Displacement	MMCR Water	Biocide	Other	0.01	gal/bbl
1	5	Displacement	3% KCl	Biocide	Other	0.01	gal/bbl
1	6	DisplacementFinal	Water	Biocide	Other	0.01	gal/bbl



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		Call Out	1/8/2017	00:30					ALTCem crew got called out and requested on location at 0600
2		Depart Yard	1/8/2017	02:30					ALTCem crew left yard
3		Arrive On Location	1/8/2017	05:30					ALTCem crew arrived on location
4		Safety Meeting	1/8/2017	05:45					ALTCem crew talked about the hazards of spotting in equipment and rigging up
5		Rig Up	1/8/2017	06:00					Rig up
6		Waiting	1/8/2017	08:00					Wait for casing crew to finish running casing on bottom at 11:45 , 1600 psi, 10 rate, no losses
7		Safety Meeting	1/8/2017	13:30					ALTCem and rig crew talked about the hazards of pumping the job
8		Fill Lines	1/8/2017	14:12	8.33	2	3	230	Pump 3 bbls of water to fill lines
9		Pressure Test	1/8/2017	14:15					Pressure test pumps and lines to 6000 psi
10		Pump Spacer	1/8/2017	14:20	11	6	50	620	Pump 50 bbls of CD spacer at 11 ppg, with 25 gals of ASF-20, 25 gals of ASF-80
11		Pump Lead Cement	1/8/2017	14:30	13.2	8	319	1250	Mix up and pump 1011 sks of ALTCem P100-X2 lead cement at 13.2 ppg, yield 1.77, 9.55 gal/sk, 319 bbls
12		Pump Tail Cement	1/8/2017	15:10	13.5	8	344	1030	Mix up and pump 1307 sks of ALTCem P50-X1 tail cement at 13.5 ppg, yield 1.48, 7.41 gal/sk, 343.5 bbls
13		Shutdown	1/8/2017	16:00					Shutdown to line out manifold to wash pumps and lines to the pit
14		Wash Pumps And Lines	1/8/2017	16:02					Wash pumps and lines
15		Drop Top Plug	1/8/2017	16:04					Company witness plug leave manifold
16		Pump Displacement	1/8/2017	16:05	8.33	12	347	2300	Displace a total of 347 bbls first 20 bbls water with 2 gals of AR-61, biocide, 327 bbls KCL water with biocide
17		Slow Rate	1/8/2017	16:17	8.33	11			Slow rate to 11 bpm couldn't keep up
18		Slow Rate	1/8/2017	16:38	8.33	2	10		Slow rate the last 10 bbls to 2 bpm to bump plug
19		Bump Plug	1/8/2017	16:43					Final circulating Pressure was 3200 psi, took it up to 3700 psi
20		Check Floats	1/8/2017	16:46					Got 4.5 bbls back to the truck
21		Safety Meeting	1/8/2017	16:50					ALTCem crew talked about the hazards of rigging down
22		Rig Down Iron	1/8/2017	17:00					Rig down
23		Depart Location	1/8/2017	18:30					ALTCem crew left location
24		Other	1/8/2017	18:31					15 bbls cement to surface , estimated top of tail 6596 ft



Water Analysis

Metrics	Value	Recommended
Water Source	Upright Rig Tank	
Temperature	70 °F	50-80 °F
pH Level	6	5.5-8.5
Chlorides	56 mg/L	0-3000 mg/L
Total Alkalinity	120	0-1000
Total Hardness	>375 mg/L	0-500 mg/L
Carbonates	140 mg/L	0-100 mg/L
Sulfates	<200 mg/L	0-1500 mg/L
Potassium	250 mg/L	0-3000 mg/L
Iron	0 mg/L	0-300 mg/L

Pump Diagrams

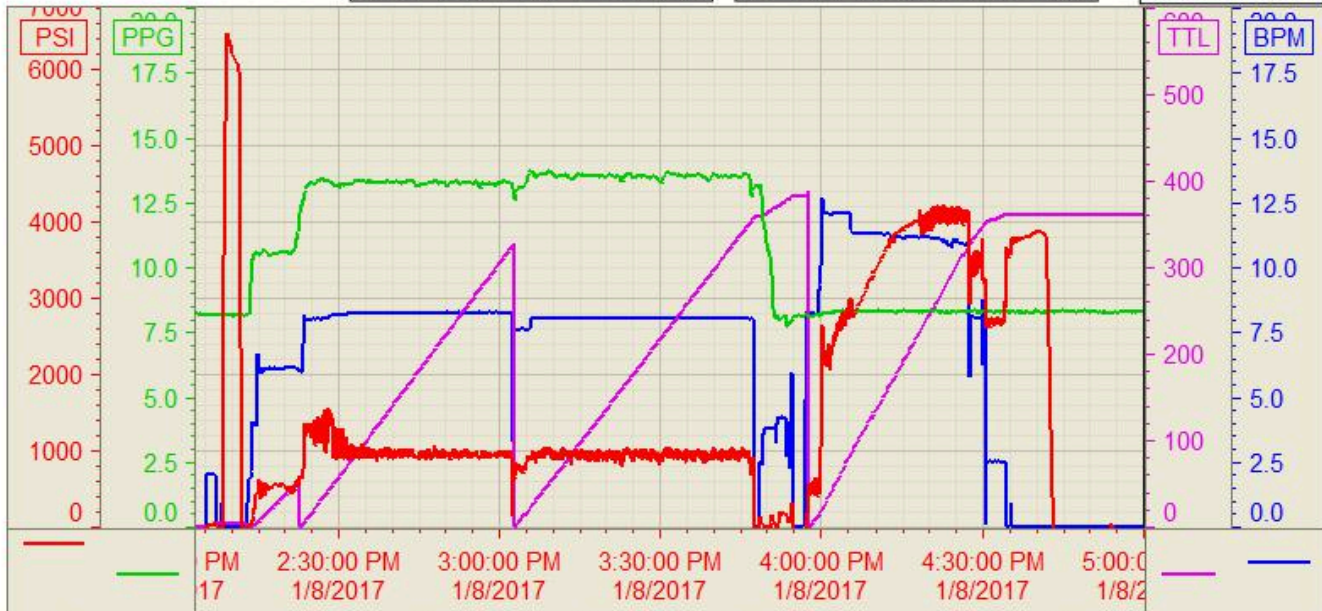
Job Chart

Customer: Great Western
 Well Number: 28-122HC
 Lease Info: Kodak North

Stage	Sacks (sacks)	Water (gal/sack)	Slurry (cu.ft/sack)	Density (ppg)	Total (bbls)
1	0.0	0.0	0.0	8.3	200.0
2	0.0	0.0	0.0	11.0	70.0
3	980.0	9.6	1.8	13.2	400.0
4	7.4	0.0	1.5	13.5	600.0
5	0.0	0.0	0.0	8.3	400.0

Stage	Sacks (sacks)	Water (gal/sack)	Slurry (cu.ft/sack)	Density (ppg)	Total (bbls)
6	0.0	0.0	0.0	8.3	365.8
7	0.0	0.0	0.0	8.3	50.0
8	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	200.0
10	0.0	0.0	0.0	0.0	200.0

Print Date/Time
1/8/2017 5:27:22 PM



Name	Y value	X value/time stamp	Tag name Y
1 PS - Press (PSI)	-34.7	1/8/2017 5:00:02 PM	Cementer\PS_DISCHARGE_PRES
2 Den2 - Discharge Density (PPG)	8.24 i.	1/8/2017 5:00:00 PM i.	Cementer\DENSITY2_ACTUAL_RA
3 Down Hole Total (BBLS)	361.7	1/8/2017 5:00:02 PM	Cementer\DOWNHOLE_FLOW_TC
4 Combined Rate	0.00	1/8/2017 5:00:02 PM	Cementer\Flow_Combined

Source: Control1 5:27:17 PM