



Great Western Operating Company, LLC

OTTESEN LE 09-362HN

API # 05-123-49306

Surface

April 2, 2020

Quote #: QUO-44357-W0X0N8

Execution #: EXC-25587-P3M1N102



Great Western Operating Company, LLC

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

Dear Great Western Operating Company, LLC,

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

Sincerely,
Jason Creel
Field Engineer I | (307) 256-0306 | Jason.Creel@BJServices.com

Field Office
1716 East Allison Rd., Cheyenne WY. 82007 | (307) 638-5585

Sales Office
999 18th St. Suite 1200, Denver, CO. 80202 | (281) 408-2361

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Eric Dewit	RIG	WM 454
DISTRICT	Cheyenne, WY	COUNTY	WELD
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)	GRADE	THREAD
Open Hole	13.50	0.00	0.00	2,016.00	2,016.00	50.00		
Casing	8.92	9.63	36.00	2,016.00	2,016.00		J-55	LTC

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	1,971.37
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	2,816.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	1,600.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Quantity	19.00	Job Pumped Through	Manifold
Centralizers Type	Bow	Top Connection Thread	LTC
Landing Collar Depth (ft)	1,971.37	Top Connection Size	9.625

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Mud Density In (ppg)	8.40
Circulation Prior to Job	Yes	Mud Density Out (ppg)	8.40
Circulation Time (min)	45.00	Solids Present at End of Circulation	No
Circulation Rate (bpm)	8.00	Flare Prior to / during the Cement Job	No
Circulation Volume (bbls)	360.00	Gas Present	No
Lost Circulation Prior to Cement Job	No		

TEMPERATURE

Ambient Temperature (°F)	40.00	Slurry Cement Temperature (°F)	56.00
Mix Water Temperature (°F)	55.00		

FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H ₂ O REQ (gals/sk)	PLN TOP FLD (ft)	LENGTH (ft)	VOL (sk)	VOL (Cu Ft)	VOL (bbls)
Spacer / Pre Flush / Flush	Water	8.3300			0.00				20.0000
Tail Slurry	BJCem S100.3.XC	14.5000	1.3902	6.81	0.00	2,000.00	1075	1491.0000	265.6000
Displacement Final	Water	8.3300			0.00			0.0000	151.4000

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Tail Slurry	BJCem S100.3.XC	CEMENT, ASTM TYPE III	100.0000	PCT

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	152.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	152.00	Amt of Spacer to Surface	0.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	1.00
Bump Plug Pressure (psi)	1,501.00	Total Volume Pumped (bbls)	438.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	Yes - Top-out pumped on 4/8/20
Cement Returns During Job	No	Lost Circulation During Cement Job	Yes

BJ Cementing Event Log

Surface - Cheyenne, WY - Eric Dewit

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	04/01/2020 12:45	Callout					Customer calls with an OL time of 18:45 on 4/1/20 crew gets equipment and materials ready to travel to location
2	04/01/2020 15:45	Depart for Location					Crew leaves yard to travel to location
3	04/01/2020 17:40	Arrive on Location					Arrive on location (rig is running casing) Pre-rig up safety meeting before spotting trucks
4	04/01/2020 17:45	Spot Units					
5	04/01/2020 17:55	Rig Up					Rig up everything except for the rig floor
6	04/01/2020 18:45	Rig					Waiting on rig to finish running casing
7	04/01/2020 20:58	STEACS Briefing					Pre-job safety meeting with BJ crew, Rig crew, and Company man (for the top job and the surface job)
8	04/01/2020 21:15	Other (See comment)					Rig is done running casing and circulates while we top out the Ottesen LE 09-369HNX well
9	04/01/2020 21:54	Rig Up					Done topping out, rig up cement head for the surface
10	04/01/2020 22:08	Other (See comment)	8.3400	2.80	3.00	186.00	Load pumps and lines with 3 bbls of fresh water
11	04/01/2020 22:10	Rig					Waiting on rig (having issues with their rig pump)
12	04/01/2020 22:25	Pressure Test	8.3400	0.00	0.00	2700.00	Test pumps and lines
13	04/01/2020 22:28	Pump Spacer	8.3400	4.10	17.00	217.00	Pump 17 bbls of fresh water + Dye ahead of cement
14	04/01/2020 22:32	Pumping Cement	14.5000	4.10	0.00	310.00	Start pumping 1,075 sks of cement @14.5 ppg
15	04/01/2020 22:38	Rig	14.5000	0.00	24.00	0.00	Had to shut down due to issue with the rig pump
16	04/01/2020 22:40	Pumping Cement	14.5000	5.00		427.00	Start going down hole with cement again
17	04/01/2020 22:50	Service Issue	14.5000	0.00	68.00	0.00	Had to shut down, due to delivery issues from Silo 673
18	04/01/2020 22:53	Pumping Cement	14.5000	2.80		142.00	Had to swap over to Bulk CTF-577 while we tried to solve issue with the silo
19	04/01/2020 23:02	Pumping Cement	14.5000	5.00	95.00	469.00	Increase rate to 5 bbls/min
20	04/01/2020 23:10	Pumping Cement	14.5000	4.10	138.00	274.00	Swapped to silo 664, had to drop rate to maintain good density

Client: Great Western Operating Company, LLC

Well Name / API: OTTESEN LE #09-362HN / 05-123-49306



Quote #: QUO-44357-W0X0N8

Plan #: ORD-25587-P3M1N1

Execution #: EXC-25587-P3M1N102

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
21	04/01/2020 23:24	Service Issue	14.5000	0.00	195.00	0.00	Had to shut down to get density back up to weight (also swapped back to silo 673)
22	04/01/2020 23:25	Pumping Cement	14.5000	4.10		213.00	Start going down hole (getting good product from silo 673 now)
23	04/01/2020 23:39	Pumping Cement	14.5000	2.80	250.00	142.00	Drop rate the last 16 bbls of cement to make sure we hold good density for the shoe
24	04/01/2020 23:44	Drop Top Plug	14.5000	0.00	266.00	0.00	Shut down, wash up pump, and drop the top plug
25	04/01/2020 23:48	Pump Displacement	8.3400	5.00	0.00	199.00	Send plug, start fresh water displacement + Biocide (provided by customer)
26	04/01/2020 23:59	Pump Displacement	8.3400	5.00	50.00	380.00	50 bbls into displacement
27	04/02/2020 00:10	Pump Displacement	8.3400	5.00	100.00	580.00	100 bbls into displacement
28	04/02/2020 00:16	Pump Displacement	8.3400	2.80	132.00	590.00	Drop rate to land the plug
29	04/02/2020 00:23	Land Plug	8.3400	2.80	152.00	1501.00	Land the plug (FCP was 713, bumped up to 1,501) Hold for 30 min casing test, did not get any dye, or cement to surface. Had full returns the entire job.
30	04/02/2020 00:33	Pressure Test	8.3400	0.00	0.00	1486.00	10 min into casing test
31	04/02/2020 00:43	Pressure Test	8.3400	0.00	0.00	1500.00	20 min into casing test
32	04/02/2020 00:53	Check Floats	8.3400	0.00	0.00	1517.00	Floats held, 1 bbl back (final casing test pressure was 1,517)
33	04/02/2020 00:55	STEACS Briefing					Pre-rig down safety meeting
34	04/02/2020 01:05	Rig Down					Rig everything down
35	04/02/2020 02:00	Leave Location					Crew ready to leave location and head back to the yard



JobMaster Program Version 5.00C1

Job Number:

Customer: Great Western

Well Name: Ottesen LE 09-362HN

