



Terra Energy Partners

Well Name: STRAIT BOTTOM RANCH SG 322-22

API #: 05-045-24012

Job Type: Surface

Date Job Completed: 3/23/2020

Quote #: QUO-43846

Execution #: EXC-25421



Terra Energy Partners

Attention: Mr. Lynn Cass | (970) 263-2716 | LCass@terraep.com

Terra Energy Partners | 4828 Loop Central Dr., Suite 900 | Houston, TX 77081

Dear Mr. Cass,

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,

Devon Hanson

Field Engineer | (701) 590-5946 | devon.hanson@bjservices.com

Field Office 28730 US-6, Rifle, CO 81650

Phone: (970) 632-2412

Sales Office 999 18th St. Suite 1200 Denver, CO 80202

Phone: (281) 408-2361

BJ Cementing Treatment Report

SERVICE SUPERVISOR	Francisco Castillo	FORMATION	
CLIENT FIELD REPRESENTATIVE	Darrell Leatherman	RIG	H&P 318
DISTRICT	Rifle, CO	COUNTY	GARFIELD
SERVICE	Cementing	STATE / PROVINCE	CO

WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lb/ft)	MD (ft)	TVD (ft)	EXCESS (%)	GRADE	THREAD
Casing	9.00	9.63	32.30	1,006.00	970.00		H-40	ST&C
Open Hole	13.50	0.00	0.00	1,013.00	970.00	18.00		

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	962.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	3520.00
Top Plug Size	9.625	Max Casing Pressure - Operated (psi)	2816.00
Centralizers Used	Yes	Pipe Movement	None
Centralizers Type	Bow	Job Pumped Through	Manifold
Landing Collar Depth (ft)	956	Top Connection Thread	8RD
Top Connection Size	9.625		

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	6
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	30.00	Flare Prior to / during the Cement Job	No
Circulation Rate (bpm)	9.00	Gas Present	No
Circulation Volume (bbls)	270.00	Mud Density In (ppg)	9.20
Lost Circulation Prior to Cement Job	No	PV Mud In	10

TEMPERATURE

Ambient Temperature (°F)	41.00	Slurry Cement Temperature (°F)	67.00
Mix Water Temperature (°F)	65.00	Flow Line Temperature (°F)	85.00

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	8.30			0.00				20.00
Lead Slurry	BJCem S100	12.30	2.3380	13.43	0.00	500.00	124	289.00	51.40
Tail Slurry	BJCem S100	12.80	2.0761	11.47	500.00	500.00	149	308.00	54.80
Displacement Final	Displacement	8.30			0.00			0.00	74.00

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Lead Slurry	BJCem S100	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Lead Slurry	BJCem S100	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Lead Slurry	BJCem S100	FOAM PREVENTER, FP-25	0.3000	BWOB
Lead Slurry	BJCem S100	IntegraSeal POLI	0.1300	LBS/SK
Lead Slurry	BJCem S100	CEMENT, ASTM TYPE III	100.0000	PCT
Lead Slurry	BJCem S100	Cement Additive, Sodium Metasilicate A-2	2.0000	LBS/SK
Tail Slurry	BJCem S100	CEMENT EXTENDER, GYPSUM, A-10	5.0000	BWOB
Tail Slurry	BJCem S100	ACCELERATOR, SALT, CHLORIDE, CALCIUM, A-7P, PELLETS	2.0000	LBS/SK
Tail Slurry	BJCem S100	IntegraSeal POLI	0.1300	LBS/SK
Tail Slurry	BJCem S100	CEMENT, ASTM TYPE III	100.0000	PCT
Tail Slurry	BJCem S100	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	BJCem S100	Cement Additive, Sodium Metasilicate A-2	2.0000	LBS/SK

TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)
3/23/2020 12:50:00 PM	Water	5.00	20.00	363.00
3/23/2020 1:02:00 PM	BJCem S100	5.80	51.40	633.00
3/23/2020 1:11:00 PM	BJCem S100	5.50	54.80	607.00
3/23/2020 1:24:00 PM	Displacement	9.00	74.00	1151.00

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	363.00	1151.00	688.50
Rate (bpm)	5.00	9.00	6.33

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	24.00
Calculated Displacement Vol (bbls)	74.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	74.00	Amt of Spacer to Surface	20.00
Did Float Hold?	Yes	Pressure Left on Casing (psi)	0.00
Bump Plug	Yes	Amt Bled Back After Job	0.50
Bump Plug Pressure (psi)	965.00	Total Volume Pumped (bbls)	201.00
Were Returns Planned at Surface	Yes	Top Out Cement Spotted	No
Cement Returns During Job	Full	Lost Circulation During Cement Job	No

BJ Cementing Event Log

Surface - Rifle, CO - Francisco Castillo

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	03/23/2020 08:00	Callout					ON LOCATION AT 12:00 HRS
2	03/23/2020 09:00	Depart for Location					LEAVE THE YARD
3	03/23/2020 10:00	Arrive on Location					ON LOCATION, RIG RUNNING CASING, UNABLE TO SPOT TRUCKS AND RIG UP DUE TO TRUCKS IN THE WAY
4	03/23/2020 10:45	Other (See comment)					RIG LAND CASING, CIRCULATE WELL
5	03/23/2020 11:00	Rig Up					RIG UP MEETING, RIG UP
6	03/23/2020 12:15	STEACS Briefing					PRE-JOB SAFETY MEETING
7	03/23/2020 12:48	Pressure Test				3500.00	PRESSURE TEST LINES
8	03/23/2020 12:50	Pump Spacer	8.3400	5.00	20.00	363.00	WATER SPACER
9	03/23/2020 13:02	Pump Lead Cement	12.3000	5.80	52.00	633.00	LEAD 124SKS/52BBLS AT 12.3 PPG
10	03/23/2020 13:11	Pump Tail Cement	12.8000	5.50	55.00	607.00	TAIL 149SKS/55BBLAT AT 12.8 PPG, CALCULATED TOP OF TAIL 413'
11	03/23/2020 13:23	End Pumping					SHUTDOWN, DROP PLUG
12	03/23/2020 13:24	Pump Displacement	8.3400	9.00	64.00	1151.00	DISPLACEMENT FRESH WATER
13	03/23/2020 13:32	Pump Displacement	8.3400	2.50	10.00	353.00	SLOW RATE
14	03/23/2020 13:36	Land Plug				965.00	LAND PLUG, 24 BBLS CEMENT TO SURFACE
15	03/23/2020 13:38	Check Floats					FLOATS HELD. 0.5 BBL FLOW BACK
16	03/23/2020 13:50	Rig Down					RIG DOWN MEETING, RIG DOWN
17	03/23/2020 15:30	Leave Location					LEAVE LOCATION

Client: Terra Energy Partners

Well Name / API: STRAIT BOTTOM RANCH SG 322-22 / 05-045-24012

Well MD: 1000

Quote #: QUO-43846-T3H2R3

Plan #: ORD-25421-W7F0P9

Execution #: EXC-25421-W7F0P902





TERRA 9 5/8 SURFACE

