



# Terra Energy Partners

**Well Name: STRAIT BOTTOM RANCH SG 412-22**

**API #: 05-045-24006**

**Job Type: Production**

**Date Job Completed: 3/28/2020**

**Quote #: QUO-43889**

**Execution #: EXC-25516**



## Terra Energy Partners

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

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

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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](mailto: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

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# BJ Cementing Treatment Report

SERVICE SUPERVISOR	Douglas Diaz	FORMATION	
CLIENT FIELD REPRESENTATIVE	Garrett Wade	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	4.00	4.50	11.60	6,264.00	5,847.00		P-110	
Previous Casing	9.00	9.63	32.30	1,003.00	947.00		H-40	
Open Hole	8.75	0.00	0.00	6,274.00	5,847.00	100.00		

## HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	6,236.50
Top Plug Provided By	BJ	Max Casing Pressure - Rated (psi)	10690.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	8552.00
Centralizers Used	No	Pipe Movement	Reciprocation
Landing Collar Depth (ft)	6,236	Job Pumped Through	Manifold
Top Connection Size	4.5	Top Connection Thread	8 RND

## CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	Flare Prior to / during the Cement Job	No
Circulation Prior to Job	Yes	Gas Present	No
Circulation Time (min)	60.00	Solids Present at End of Circulation	No
Circulation Rate (bpm)	11.00	Lost Circulation Prior to Cement Job	No
Circulation Volume (bbls)	660.00	Mud Density In (ppg)	9.70

## TEMPERATURE

Ambient Temperature (°F)	24.00	Slurry Cement Temperature (°F)	64.00
Mix Water Temperature (°F)	56.00		

## FLUID DETAILS

FLUID TYPE	FLUID NAME	DENSITY (ppg)	YIELD (Cu Ft/sk)	H <sub>2</sub> 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				10.00
Spacer / Pre Flush / Flush	Mud Flush	8.40			0.00				20.00
Spacer / Pre Flush / Flush	Water	8.30			0.00				10.00
Top-Out / Scavenger Slurry	Scavenger	11.00	3.0951	19.21		0.00	91	280.00	49.90
Tail Slurry	Tail Cement	12.50	2.1127	12.04	3,103.00	3,177.00	926	1956.00	348.20
Displacement Final	Displacement	8.30			0.00			0.00	96.90

FLUID TYPE	FLUID NAME	COMPONENT	CONCENTRATION	UOM
Spacer / Pre Flush / Flush	Mud Flush	SPACER SURFACTANT, SS-201	0.5000	GPB
Spacer / Pre Flush / Flush	Mud Flush	MUD REMOVAL, SAPP	10.0000	PPB
Top-Out / Scavenger Slurry	Scavenger	EXTENDER, BENTONITE	8.0000	BWOB
Top-Out / Scavenger Slurry	Scavenger	FOAM PREVENTER, FP-25	0.3000	BWOB
Top-Out / Scavenger Slurry	Scavenger	CEMENT, ASTM TYPE III	65.0000	PCT
Top-Out / Scavenger Slurry	Scavenger	CEMENT, FLY ASH (POZZOLAN)	35.0000	PCT
Top-Out / Scavenger Slurry	Scavenger	Cement Additive, Sodium Metasilicate A-2	0.2000	BWOB
Tail Slurry	Tail Cement	Cement Additive, Sodium Metasilicate A-2	0.3000	BWOB
Tail Slurry	Tail Cement	CEMENT EXTENDER, GYPSUM, A-10	2.0000	BWOB
Tail Slurry	Tail Cement	FLUID LOSS, FL-66	0.7000	BWOB
Tail Slurry	Tail Cement	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	Tail Cement	CEMENT, ASTM TYPE III	100.0000	PCT

## TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)
3/28/2020 4:48:00 AM	Water	6.50	10.00	1213.00
3/28/2020 5:00:00 AM	Mud Flush	7.00	20.00	1324.00
3/28/2020 5:03:00 AM	Water	7.00	10.00	1339.00
3/28/2020 5:06:00 AM	Scavenger	7.00	50.00	1424.00
3/28/2020 5:12:00 AM	Tail Cement	7.00	348.00	1110.00
3/28/2020 6:08:00 AM	Displacement	8.00	97.00	1982.00

## MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	1110.00	1982.00	1398.67
Rate (bpm)	6.50	8.00	7.08

Client: Terra Energy Partners

Well: STRAIT BOTTOM RANCH SG 412-22

Well API: 05-045-24006

Start Date: 3/28/2020

End Date: 3/28/2020

Field Ticket #: FT-25516-D8V5S10202-26147



## DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	97.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	97.00	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	0.75
Bump Plug Pressure (psi)	2433.00	Total Volume Pumped (bbls)	535.00
Were Returned Planned at Surface	No	Top Out Cement Spotted	No
Cement Returns During Job	Partial	Lost Circulation During Cement Job	No

# BJ Cementing Event Log

Long String - Rifle, CO - Douglas Diaz

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	03/27/2020 23:00	Callout					Yard call 2300 on location 0200
2	03/28/2020 00:28	Depart for Location					Leave Rifle shop for location
3	03/28/2020 01:45	Arrive on Location					Arrive on location, rig running casing
4	03/28/2020 01:45	Spot Units					Spot in all equipment
5	03/28/2020 02:20	Rig Up					Pre rig up safety meeting, rig in all equipment and lines on the ground
6	03/28/2020 03:00	Rig					Waiting on rig to finish casing and circulate
7	03/28/2020 04:20	STEACS Briefing					Pre job safety meeting with company man and rig crew
8	03/28/2020 04:28	Rig					Waiting on rig to finish circulating
9	03/28/2020 04:39	Rig					Rig ended circulation, circulated 60 mins @ 11 BBLs/min total of 660 BBLs
10	03/28/2020 04:39	Rig					Waiting on rig to lay down CRT
11	03/28/2020 04:42	Rig Up					Rig up cement head and lines on the floor
12	03/28/2020 04:48	Prime Up	8.3400	6.50	10.00	1213.00	Prime up pump and lines
13	03/28/2020 04:50	Rig					Rig needed to blow down
14	03/28/2020 04:56	Pressure Test				5000.00	Pressure test
15	03/28/2020 05:00	Pump Spacer	8.3400	7.00	20.00	1324.00	Pumping mud flush spacer
16	03/28/2020 05:03	Pump Spacer	8.3400	7.00	10.00	1339.00	Pumping fresh water spacer
17	03/28/2020 05:06	Pumping Cement	11.0000	7.00	0.00	1424.00	Pumping scavenger
18	03/28/2020 05:06	Pumping Cement	11.0000	7.00	50.00	1110.00	Pumping scavenger
19	03/28/2020 05:12	Pump Tail Cement	12.5000	7.00	0.00	1110.00	Pumping tail cement

Client: Terra Energy Partners

Well Name / API: STRAIT BOTTOM RANCH SG 412-22 / 05-045-24006

Well MD: 6280

Quote #: QUO-43889-N0C6M2

Plan #: ORD-25516-D8V5S1

Execution #: EXC-25516-D8V5S102



SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
20	03/28/2020 05:12	Pump Tail Cement	12.5000	7.00	50.00	1000.00	Pumping tail cement
21	03/28/2020 05:20	Pump Tail Cement	12.5000	7.00	100.00	975.00	Pumping tail cement
22	03/28/2020 05:26	Pump Tail Cement	12.5000	7.00	150.00	953.00	Pumping tail cement
23	03/28/2020 05:33	Pump Tail Cement	12.5000	7.00	200.00	989.00	Pumping tail cement
24	03/28/2020 05:41	Pump Tail Cement	12.5000	7.00	250.00	980.00	Pumping tail cement
25	03/28/2020 05:48	Pump Tail Cement	12.5000	7.00	300.00	952.00	Pumping tail cement
26	03/28/2020 05:55	Pump Tail Cement	12.5000	7.00	348.00	945.00	Pumping tail cement
27	03/28/2020 06:01	Wash Pumps and Lines					Washed pump and lines to pit
28	03/28/2020 06:08	Drop Top Plug					Dropped top plug verified by company man
29	03/28/2020 06:08	Pump Displacement	8.3400	7.00	0.00	636.00	Pumping KCL displacement, no returns
30	03/28/2020 06:08	Pump Displacement	8.3400	8.00	50.00	1562.00	Pumping KCL displacement, regained returns @ 40 BBLs away
31	03/28/2020 06:15	Pump Displacement	8.3400	4.00	97.00	1330.00	Pumping KCL displacement, lost returns @ 60 BBLs away
32	03/28/2020 06:22	Land Plug				2433.00	Land plug, FCP 1330 PSI bumped to 2433 PSI
33	03/28/2020 06:22	Check Floats					Bled pressure, floats held, .75 BBLs bled back
34	03/28/2020 06:25	Wash Pumps and Lines					Washed and winterized pump and lines to pit
35	03/28/2020 06:45	Rig Down					Pre rig down safety meeting, rigged down lines and equipment
36	03/28/2020 07:15	Leave Location					Leave location to pick up equipment for surface job



*Terra SG 412-22 Prod (IG CPF-011 3/28/20)*

