



Terra Energy Partners

Well Name: STRAIT BOTTOM RANCH SG 413-22

API #: 05-045-24009

Job Type: Production

Date Job Completed: 4/14/2020

Quote #: QUO-44562

Execution #: EXC-25733



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	Douglas Diaz	FORMATION	
CLIENT FIELD REPRESENTATIVE	Steve Bumgarner	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	6,112.00	5,785.00		P-110	
Open Hole	8.75	0.00	0.00	6,122.00	5,785.00	100.00		
Previous Casing	9.00	9.63	32.30	1,041.00	969.00		H-40	

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	6,081.00
Top Plug Provided By	Non 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)	6,081	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		

TEMPERATURE

Ambient Temperature (°F)	23.00	Slurry Cement Temperature (°F)	57.00
Mix Water Temperature (°F)	47.00		

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				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	2,990.00	3,150.00	918	1939.00	345.30
Displacement Final	Displacement	8.30			0.00			0.00	94.70

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	Cement Additive, Sodium Metasilicate A-2	0.2000	BWOB
Top-Out / Scavenger Slurry	Scavenger	CEMENT, ASTM TYPE III	65.0000	PCT
Top-Out / Scavenger Slurry	Scavenger	FOAM PREVENTER, FP-25	0.3000	BWOB
Top-Out / Scavenger Slurry	Scavenger	EXTENDER, BENTONITE	8.0000	BWOB
Top-Out / Scavenger Slurry	Scavenger	CEMENT, FLY ASH (POZZOLAN)	35.0000	PCT
Tail Slurry	Tail Cement	FLUID LOSS, FL-66	0.7000	BWOB
Tail Slurry	Tail Cement	CEMENT EXTENDER, GYPSUM, A-10	2.0000	BWOB
Tail Slurry	Tail Cement	FOAM PREVENTER, FP-25	0.3000	BWOB
Tail Slurry	Tail Cement	CEMENT, ASTM TYPE III	100.0000	PCT
Tail Slurry	Tail Cement	Cement Additive, Sodium Metasilicate A-2	0.3000	BWOB

TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)
4/14/2020 3:10:00 AM	Water	4.00	10.00	975.00
4/14/2020 3:17:00 AM	Mud Flush	4.00	20.00	1053.00
4/14/2020 3:21:00 AM	Water	4.00	10.00	997.00
4/14/2020 3:23:00 AM	Scavenger	4.00	50.00	720.00
4/14/2020 3:34:00 AM	Tail Cement	4.00	345.00	509.00
4/14/2020 5:08:00 AM	Displacement	4.00	94.00	1170.00

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	509.00	1170.00	904.00
Rate (bpm)	4.00	4.00	4.00

Client: Terra Energy Partners, LLC

Well: STRAIT BOTTOM RANCH SG 413-22

Well API: 05-045-24009

Start Date: 4/14/2020

End Date: 4/14/2020

Field Ticket #: FT-25733-F5R7X80202-62068



DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	94.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	94.00	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)	2250.00	Total Volume Pumped (bbls)	539.00
Were Returns Planned at Surface	Yes	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	04/13/2020 21:00	Callout					Yard call 2200 on location 0100
2	04/13/2020 22:27	Depart for Location					Leave Rifle shop for location
3	04/13/2020 23:08	Arrive on Location					Arrive on location, rig running casing
4	04/13/2020 23:08	Spot Units					Spot in all equipment
5	04/13/2020 23:21	Rig Up					Pre rig up safety meeting, rig in all equipment and lines to the stand pipe
6	04/14/2020 00:00	Rig					Waiting on rig to run casing and circulate
7	04/14/2020 02:47	STEACS Briefing					Pre job safety meeting with company man and rig crew
8	04/14/2020 02:57	Rig					Rig ended circulation, circulated 60 mins @ 11 BBLs/min total of 660 BBLs
9	04/14/2020 02:57	Rig					Waiting on rig to blow down
10	04/14/2020 03:02	Rig Up					Rig up cement head and lines on the floor
11	04/14/2020 03:10	Pump Spacer	8.3400	4.00	10.00	975.00	Pumping fresh water spacer, returns
12	04/14/2020 03:14	Pressure Test				5000.00	Pressure test
13	04/14/2020 03:17	Pump Spacer	8.3400	4.00	20.00	1053.00	Pumping mud flush spacer
14	04/14/2020 03:21	Pump Spacer	8.3400	4.00	10.00	997.00	Pumping fresh water spacer
15	04/14/2020 03:23	Pumping Cement	11.0000	4.00	0.00	720.00	Pumping scavenger
16	04/14/2020 03:23	Pumping Cement	11.0000	4.00	50.00	509.00	Pumping scavenger
17	04/14/2020 03:34	Pump Tail Cement	12.5000	4.00	0.00	509.00	Pumping tail cement
18	04/14/2020 03:34	Pump Tail Cement	12.5000	4.00	50.00	392.00	Pumping tail cement

Client: Terra Energy Partners, LLC

Well Name / API: STRAIT BOTTOM RANCH SG 413-22 / 05-045-24009

Well MD: 6140

Quote #: QUO-44562-K7L2V2

Plan #: ORD-25733-F5R7X8

Execution #: EXC-25733-F5R7X802



SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
19	04/14/2020 03:47	Pump Tail Cement	12.5000	4.00	100.00	336.00	Pumping tail cement
20	04/14/2020 03:59	Pump Tail Cement	12.5000	4.00	150.00	371.00	Pumping tail cement
21	04/14/2020 04:12	Pump Tail Cement	12.5000	4.00	200.00	333.00	Pumping tail cement
22	04/14/2020 04:24	Pump Tail Cement	12.5000	4.00	250.00	346.00	Pumping tail cement
23	04/14/2020 04:37	Pump Tail Cement	12.5000	4.00	300.00	342.00	Pumping tail cement, lost returns @ 270 BBLs pumped
24	04/14/2020 04:48	Pump Tail Cement	12.5000	4.00	345.00	331.00	Pumping tail cement
25	04/14/2020 04:59	Wash Pumps and Lines					Wash pump and lines to pit
26	04/14/2020 05:07	Drop Top Plug					Drop top plug, verified by company man
27	04/14/2020 05:08	Pump Displacement	8.3400	2.00	0.00	80.00	Pumping KCL displacement
28	04/14/2020 05:08	Pump Displacement	8.3400	4.00	50.00	594.00	Pumping KCL displacement
29	04/14/2020 05:21	Pump Displacement	8.3400	3.00	94.00	1170.00	Pumping KCL displacement
30	04/14/2020 05:34	Land Plug				2250.00	Land plug, FCP 1170 PSI bumped to 2250 PSI
31	04/14/2020 05:34	Check Floats					Bled pressure, floats held, 1 BBL bled back
32	04/14/2020 05:39	Rig Down					Pre rig down safety meeting, rigged down cement head and lines on the floor
33	04/14/2020 05:58	Wash Pumps and Lines					Wash and winterize pump and lines to pit
34	04/14/2020 06:20	Rig Down					Rig down all lines and equipment
35	04/14/2020 06:45	Leave Location					Leave location for Rifle shop

