



# Terra Energy Partners

Well Name: STRAIT BOTTOM RANCH SG 412-22

API #: 05-045-24006

Job Type: Surface

Date Job Completed: 3/26/2020

Quote #: QUO-43888

Execution #: EXC-25453



# 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

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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@bjsservices.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

<b>SERVICE SUPERVISOR</b>	Jeff Hernandez	<b>FORMATION</b>	
<b>CLIENT FIELD REPRESENTATIVE</b>	Darrell Leatherman	<b>RIG</b>	H&P 318
<b>DISTRICT</b>	Rifle, CO	<b>COUNTY</b>	GARFIELD
<b>SERVICE</b>	Cementing	<b>STATE / PROVINCE</b>	CO

## WELL GEOMETRY

TYPE	ID (in)	OD (in)	WEIGHT (lbs/ft)	MD (ft)	TVD (ft)	EXCESS (%)	GRADE	THREAD
Open Hole	13.50	13.50		1,013.00	971.00	18.00		
Casing	9.00	9.63	32.30	1,006.00	971.00		H-40	ST&C

## HARDWARE

<b>Bottom Plug Used?</b>	No	<b>Tool Type</b>	Float Collar
<b>Top Plug Used?</b>	No	<b>Max Casing Pressure - Rated (psi)</b>	3,560.00
<b>Top Plug Provided By</b>	Non BJ	<b>Max Casing Pressure - Operated (psi)</b>	2,860.00
<b>Top Plug Size</b>	9.625	<b>Pipe Movement</b>	Reciprocation
<b>Centralizers Used</b>	Yes	<b>Job Pumped Through</b>	Manifold
<b>Centralizers Quantity</b>	12.00	<b>Top Connection Thread</b>	8 rd
<b>Centralizers Type</b>	Rigid	<b>Top Connection Size</b>	9.625
<b>Landing Collar Depth (ft)</b>	956		

## CIRCULATION PRIOR TO JOB

<b>Well Circulated By</b>	Rig	<b>YP Mud In</b>	8
<b>Circulation Prior to Job</b>	Yes	<b>Solids Present at End of Circulation</b>	No
<b>Circulation Time (min)</b>	60.00	<b>10 sec SGS</b>	4.00
<b>Circulation Rate (bpm)</b>	10.00	<b>10 min SGS</b>	12.00
<b>Circulation Volume (bbls)</b>	60.00	<b>30 min SGS</b>	22.00
<b>Lost Circulation Prior to Cement Job</b>	No	<b>Flare Prior to / during the Cement Job</b>	No
<b>PV Mud In</b>	9	<b>Gas Present</b>	No

Client: Terra Energy Partners, LLC

Well: STRAIT BOTTOM RANCH  
SG 412-22

Well API: 05-045-24006

Start Date: 3/26/2020

End Date: 3/26/2020

Field Ticket #: FT-25453-N6Q4W10202-79077



## TEMPERATURE

Ambient Temperature (°F)	50.00	Slurry Cement Temperature (°F)	70.00
Mix Water Temperature (°F)	65.00		

## 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				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	75.20

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

## TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL. (bbls)	PIPE PRESSURE (psi)
3/26/2020 5:24 AM	Water	7.00	20.00	348.00
3/26/2020 5:34 AM	BJCem S100	7.00	51.40	825.00
3/26/2020 5:41 AM	BJCem S100	7.00	54.80	796.00
3/26/2020 5:50 AM	Displacement	6.00	75.20	1,090.00

### MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	348.00	1,090.00	764.75
Rate (bpm)	6.00	7.00	6.75

### DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	40.00
Calculated Displacement Vol (bbls)	75.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	75.00	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	0.25
Bump Plug Pressure (psi)	750.00	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 - Jeff Hernandez

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	03/25/2020 21:00	Callout	0.0000	0.00	0.00	0.00	Call out for Terra surface job on location @ 0230 3-26-20
2	03/25/2020 22:30	Arrive on Location	0.0000	0.00	0.00	0.00	Arrive on location rig still running casing
3	03/26/2020 00:30	Spot Units	0.0000	0.00	0.00	0.00	Spotted all equipment for the job
4	03/26/2020 00:45	Rig Up	0.0000	0.00	0.00	0.00	Held a rig up meeting rig up iron
5	03/26/2020 01:30	Rig	0.0000	0.00	0.00	0.00	Waiting on rig to run casing
6	03/26/2020 05:00	Rig Up	0.0000	0.00	0.00	0.00	Rig up the floor to run the job
7	03/26/2020 05:10	STEACS Briefing	0.0000	0.00	0.00	0.00	Held a safety meeting with rig crew and then held one with bj crew
8	03/26/2020 05:24	Pump Spacer	8.3400	7.00	5.00	650.00	Pump 5 bbl of water to fill line's
9	03/26/2020 05:27	Pressure Test	0.0000	0.00	0.00	3000.00	Test lines to 3000 psi
10	03/26/2020 05:30	Pump Spacer	8.3400	7.00	15.00	754.00	Pumping spacer water
11	03/26/2020 05:34	Pump Lead Cement	12.3000	7.00	51.00	825.00	Pumping Lead Cement
12	03/26/2020 05:41	Pump Tail Cement	12.8000	7.00	55.00	796.00	Pumping Tail Cement
13	03/26/2020 05:50	Drop Top Plug	0.0000	0.00	0.00	0.00	Drop top plug
14	03/26/2020 05:51	Pump Displacement	8.3400	6.00	50.00	558.00	Pump displacement Got cement to surface @ 35 bbl gone so got back 40 bbl of cement to surface
15	03/26/2020 05:58	Land Plug	8.3400	3.00	75.00	1090.00	Bump plug from 400 to 1090 psi
16	03/26/2020 06:03	Check Floats	0.0000	0.00	0.00	0.00	Check Float Bled back .5 bbl
17	03/26/2020 06:08	Rig Down	0.0000	0.00	0.00	0.00	Held a rig down meeting rig down iron
18	03/26/2020 07:00	Leave Location	0.0000	0.00	0.00	0.00	Leave location

Client Name: Terra Energy Partners, LLC

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

Well MD:1,013.00

Quote #: QUO-43888-M6C0S9

Plan #: ORD-25453-N6Q4W1

Execution #: EXC-25453-N6Q4W102



