



Terra Energy Partners

Well Name: STRAIT BOTTOM RANCH SG 13-22

API #: 05-045-24014

Job Type: Production

Date Job Completed: 4/8/2020

Quote #: QUO-44359

Execution #: EXC-25692



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	Jeff Hernandez	FORMATION	
CLIENT FIELD REPRESENTATIVE		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
Open Hole	8.75			6,171.00	5,810.00	100.00		
Previous Casing	9.00	9.63	32.30	1,040.00	969.00		H-40	
Casing	4.00	4.50	11.60	6,142.00	5,810.00		P-110	

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	6,142.00
Top Plug Provided By	BJ	Max Casing Pressure - Rated (psi)	12260.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	10680.00
Centralizers Used	No	Pipe Movement	Reciprocation
Landing Collar Depth (ft)	6,127	Job Pumped Through	Manifold
Top Connection Size	4.5	Top Connection Thread	8rd

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud Out	20
Circulation Prior to Job	Yes	Solids Present at End of Circulation	No
Circulation Time (min)	60.00	10 sec SGS	4
Circulation Rate (bpm)	10.00	10 min SGS	10
Circulation Volume (bbls)	600.00	30 min SGS	14
Lost Circulation Prior to Cement Job	No	Flare Prior to / during the Cement Job	No
PV Mud In	18	Gas Present	No

TEMPERATURE

Ambient Temperature (°F)	60.00	Slurry Cement Temperature (°F)	72.00
Mix Water Temperature (°F)	65.00		

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	3,021.00	3,150.00	918	1939.00	345.30
Displacement Final	Displacement	8.30			0.00			0.00	95.20

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

TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)
4/8/2020 1:50:00 PM	Water	8.00	10.00	785.00
4/8/2020 1:58:00 PM	Mud Flush	8.00	20.00	1485.00
4/8/2020 2:03:00 PM	Water	8.00	10.00	1410.00
4/8/2020 2:07:00 PM	Scavenger	7.50	49.90	968.00
4/8/2020 2:14:00 PM	Tail Cement	7.50	345.30	986.00
4/8/2020 3:18:00 PM	Displacement	9.60	95.20	960.00

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	785.00	1485.00	1099.00
Rate (bpm)	7.50	9.60	8.10

DISPLACEMENT AND END OF JOB SUMMARY

Displaced By	BJ	Amt of Cement Returned / Reversed	0.00
Calculated Displacement Vol (bbls)	95.00	Method Used to Verify Returns	Visual
Actual Displacement Vol (bbls)	95.00	Pressure Left on Casing (psi)	0.00
Did Float Hold?	Yes	Amt Bled Back After Job	0.50
Bump Plug	Yes	Total Volume Pumped (bbls)	534.00
Bump Plug Pressure (psi)	1600.00	Top Out Cement Spotted	No
Were Returns Planned at Surface	Yes	Lost Circulation During Cement Job	No
Cement Returns During Job	Partial		

BJ Cementing Event Log

Long String - Rifle, CO - Jeff Hernandez

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	04/08/2020 06:00	Callout					Call out for Terra Long string job ON location 1030
2	04/08/2020 07:00	Depart for Location					Leave Yard for location
3	04/08/2020 08:00	Arrive on Location					Arrive on location rig still running casing
4	04/08/2020 09:00	Spot Units					Spotted all truck for the job
5	04/08/2020 09:15	Rig Up					Held a rig up meeting then rig up iron
6	04/08/2020 10:30	Rig					Waiting on rig to run casing
7	04/08/2020 13:45	STEACS Briefing					Had a safety meeting with rig hands
8	04/08/2020 13:50	Pump Spacer	8.3400	7.00	10.00	754.00	Pump 10 bbl of water
9	04/08/2020 13:55	Pressure Test				5000.00	Test lines to 5000 psi
10	04/08/2020 13:58	Pump Spacer	8.4500	8.00	20.00	1435.00	Pump 20 bbl of mud flush
11	04/08/2020 14:03	Pump Spacer	8.3400	8.00	10.00	1410.00	Pump 10 bbl of water
12	04/08/2020 14:05	Pump Lead Cement	11.0000	7.50	50.00	968.00	Pumping scav cement
13	04/08/2020 14:14	Pump Tail Cement	12.5000	7.50	50.00	986.00	Pump Tail cement
14	04/08/2020 14:25	Pump Tail Cement	12.5000	7.50	100.00	968.00	Pump Tail Cement
15	04/08/2020 14:34	Pump Tail Cement	12.5000	7.50	150.00	956.00	Pump Tail Cement
16	04/08/2020 14:42	Pump Tail Cement	12.5000	7.50	200.00	965.00	Pump Tail Cement
17	04/08/2020 14:49	Pump Tail Cement	12.5000	5.00	250.00	456.00	Pump Tail Cement
18	04/08/2020 15:03	Pump Tail Cement	12.5000	5.00	345.00	458.00	Pump Tail Cement
19	04/08/2020 15:12	Wash Pumps and Lines					Wash Pumps and Lines

Client: Terra Energy Partners, LLC

Well Name / API: STRAIT BOTTOM RANCH SG 13-22 / 05-045-24014

Well MD: 6171

Quote #: QUO-44359-X8T3Z2

Plan #: ORD-25692-J9R7Z5

Execution #: EXC-25692-J9R7Z502



SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
20	04/08/2020 15:17	Drop Top Plug					Drop top plug
21	04/08/2020 15:18	Pump Displacement	8.3400	9.60	0.00	771.00	Pumping Displacement
22	04/08/2020 15:19	Pump Displacement	8.3400	9.60	50.00	1310.00	Pumping Displacement
23	04/08/2020 15:25	Pump Displacement	8.3400	4.00	85.00	960.00	Pumping Displacement
24	04/08/2020 15:28	Land Plug	8.3400	4.00	95.00	1600.00	Bump plug from 960 to 1600
25	04/08/2020 15:29	Check Floats					Check float bled back .5 bbl
26	04/08/2020 15:33	Rig Down					Held a rig down meeting then rig down iron
27	04/08/2020 17:00	Leave Location					Leave location