



Terra Energy Partners

Well Name: STRAIT BOTTOM RANCH SG 322-22

API #: 05-045-24012

Job Type: Production

Date Job Completed: 3/25/2020

Quote #: QUO-43847

Execution #: EXC-25462



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	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
Open Hole	8.75	0.00	0.00	6,198.00	5,882.00	100.00		
Casing	4.00	4.50	11.60	6,191.00	5,882.00		P-110	
Previous Casing	9.00	9.63	32.30	1,003.00	970.00		H-40	

HARDWARE

Bottom Plug Used?	No	Tool Type	Float Collar
Top Plug Used?	Yes	Tool Depth (ft)	6,191.00
Top Plug Provided By	Non BJ	Max Casing Pressure - Rated (psi)	12260.00
Top Plug Size	4.500	Max Casing Pressure - Operated (psi)	9870.00
Centralizers Used	Yes	Pipe Movement	Reciprocation
Centralizers Quantity	65.00	Job Pumped Through	Manifold
Centralizers Type	Rigid	Top Connection Thread	8 rd
Landing Collar Depth (ft)	6,190	Top Connection Size	4.5

CIRCULATION PRIOR TO JOB

Well Circulated By	Rig	YP Mud In	8
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	12
Circulation Volume (bbls)	600.00	30 min SGS	22
Lost Circulation Prior to Cement Job	No	Flare Prior to / during the Cement Job	No
PV Mud In	9	Gas Present	No

TEMPERATURE

Ambient Temperature (°F)	45.00	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 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	3,099.00	3,135.00	914	1930.00	343.70
Displacement Final	Displacement	8.30			0.00			0.00	96.20

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	CEMENT, ASTM TYPE III	65.0000	PCT
Top-Out / Scavenger Slurry	Scavenger	EXTENDER, BENTONITE	8.0000	BWOB
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	FOAM PREVENTER, FP-25	0.3000	BWOB
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	CEMENT, ASTM TYPE III	100.0000	PCT

TREATMENT SUMMARY

TIME	FLUID	RATE (bpm)	FLUID VOL (bbls)	PIPE PRESS (psi)
3/25/2020 10:20:00 AM	Water	7.00	10.00	890.00
3/25/2020 10:28:00 AM	Mud Flush	7.00	20.00	1385.00
3/25/2020 10:33:00 AM	Water	7.00	10.00	1481.00
3/25/2020 10:34:00 AM	Scavenger	7.00	49.90	1486.00
3/25/2020 10:45:00 AM	Tail Cement	7.00	343.70	1029.00
3/25/2020 11:45:00 AM	Displacement	9.00	96.20	1200.00

MIN / MAX / AVG PRESSURE AND RATES

	MIN	MAX	AVG
Pressure (psi)	890.00	1486.00	1245.17
Rate (bpm)	7.00	9.00	7.33

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	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	0.50
Bump Plug Pressure (psi)	1360.00	Total Volume Pumped (bbls)	528.00
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 - Jeff Hernandez

SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
1	03/25/2020 04:30	Callout					Call out for job Terra on loc @ 0830
2	03/25/2020 08:30	Arrive on Location					Arrive on loc @ 0800 rig still running casing
3	03/25/2020 08:00	Spot Units					Spot all truck for the job
4	03/25/2020 08:15	Rig Up					Held a rig up meeting then rig up location
5	03/25/2020 08:25	STEACS Briefing					Had a safety meeting with crew then had one with rig crew
6	03/25/2020 09:50	Rig Up					Rig up head for the job
7	03/25/2020 10:20	Prime Up	8.3400	7.00	10.00	890.00	Fill line and pump spacer water
8	03/25/2020 10:21	Pressure Test				5000.00	Test lines to 5000psi
9	03/25/2020 10:25	Pump Spacer	8.3400	7.00	20.00	1340.00	Pump mud flush
10	03/25/2020 10:28	Pump Spacer	8.3400	7.00	10.00	1245.00	Pump spacer water
11	03/25/2020 10:32	Pumping Cement	11.0000	7.00	50.00	1481.00	Pump scav Cement
12	03/25/2020 10:34	Pump Tail Cement	12.5000	7.00	0.00	1027.00	Pumping Cement
13	03/25/2020 10:45	Pump Tail Cement	12.5000	7.00	50.00	1041.00	Pumping Cement
14	03/25/2020 10:52	Pump Tail Cement	12.5000	7.00	100.00	1082.00	Pumping cement
15	03/25/2020 11:01	Pump Tail Cement	12.5000	7.00	150.00	1060.00	Pumping Cement
16	03/25/2020 11:08	Pump Tail Cement	12.5000	7.00	200.00	1041.00	Pumping Cement
17	03/25/2020 11:15	Pump Tail Cement	12.5000	7.00	250.00	1023.00	Pumping Cement
18	03/25/2020 11:22	Pump Tail Cement	12.5000	7.00	300.00	1059.00	Pumping Cement

Client: Terra Energy Partners, LLC

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

Well MD: 6198

Quote #: QUO-43847-G2W2C0

Plan #: ORD-25462-K3P3S0

Execution #: EXC-25462-K3P3S002



SEQ	START DATE / TIME	EVENT	DENSITY (ppg)	PUMP RATE (bpm)	PUMP VOL (bbls)	PIPE PRESSURE (psi)	COMMENTS
19	03/25/2020 11:29	Pump Tail Cement	12.5000	7.00	343.00	1042.00	Pumping Cement
20	03/25/2020 11:35	Wash Pumps and Lines					wash pumps and lines
21	03/25/2020 11:40	Drop Top Plug					Drop top plug
22	03/25/2020 11:45	Pump Displacement	8.4500	9.00	50.00	948.00	Pump Displacement
23	03/25/2020 11:51	Pump Displacement	8.4500	9.00	85.00	550.00	Pump Displacement
24	03/25/2020 11:56	Land Plug	8.3400	3.50	95.00	1900.00	Bump plug from 550 to 1550 ps i
25	03/25/2020 11:57	Check Floats					Check float bled back .5 bbl
26	03/25/2020 12:04	Rig Down					Held safety meeting then rig down iron
27	03/25/2020 13:30	Leave Location					Leave location

