

Well Name: FRASER SWD

Well Location: T15S / R28E / SEC 25 /
SESW /

County or Parish/State:

Well Number: 1

Type of Well: INJECTION - DISPOSAL

Allottee or Tribe Name:

Lease Number: NMNM130324

Unit or CA Name:

Unit or CA Number:

US Well Number:

Well Status: Approved Application for
Permit to DrillOperator: MACK ENERGY
CORPORATION**Notice of Intent**

Sundry ID: 2769205

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 01/11/2024

Time Sundry Submitted: 06:49

Date proposed operation will begin: 01/15/2024

Procedure Description: Mack Energy Proposes to change the production string to 7" 26# P-110 set @ 10,415'. Cement lead with Class C 4% PF20+ 4pps PF45+ 125pps PF29, Tail with PVL+ 1.3 (BWOW) PF44+ 5% PF174+ .5% PF606+ .1% PF153+ .4pps PF44.

NOI Attachments

Procedure Description

ARTMECSCNRM73001162024152429001_20240111064904.pdf

Conditions of Approval

Specialist Review

Conditions_of_Approval_20240111091651.pdf

Well Name: FRASER SWD

Well Location: T15S / R28E / SEC 25 /
SESW /

County or Parish/State:

Well Number: 1

Type of Well: INJECTION - DISPOSAL

Allottee or Tribe Name:

Lease Number: NMNM130324

Unit or CA Name:

Unit or CA Number:

US Well Number:

Well Status: Approved Application for
Permit to DrillOperator: MACK ENERGY
CORPORATION**Operator**

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: JERRY SHERRELL

Signed on: JAN 11, 2024 06:49 AM

Name: MACK ENERGY CORPORATION

Title: Production Clerk

Street Address: 11344 Lovington HWY

City: Artesia

State: NM

Phone: (575) 748-1288

Email address: jerrys@mec.com

Field

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:

BLM Point of Contact

BLM POC Name: JENNIFER SANCHEZ

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5756270237

BLM POC Email Address: j1sanchez@blm.gov

Disposition: Approved

Disposition Date: 01/11/2024

Signature: Jennifer Sanchez

Fraser SWD #1 (Revised)

Auger Size
20"**Surface- 120' 13 3/8" 48# J-55**

Stage 1	Slurry	Density	Yield	Mix H2O Gals./sk	# of Sacks	% Excess	Slurry Top
Lead							
Tail	Class C+1%PF1	14.8	1.34	6.323	250	100	Surface

Comments	20bbls Gelled Water. 50 sacks of 11# Scavenger cement.	Cu./Ft Per 100 Lin./ Ft.
----------	--	--------------------------------

Bit Size
12 1/4"**Intermediate- 2,150' 9 5/8"-36#-
J-55**

Stage 1	Slurry	Density	Yield	Mix H2O Gals./sk	# of Sacks	% Excess	Slurry Top
Lead							
Tail	Class C + 1% PF1	14.8	1.34	6.323	700	100	Surface

Comments	20bbls Gelled Water. 50 sacks of 11# Scavenger cement.	Cu./Ft Per Lin./ Ft. 674
----------	--	-----------------------------------

Bit size
8 3/4"**Production- 10,415'
7"-26# P-110**

Stage 1	Slurry	Density	Yield	Mix H2O Gals./sk	# of Sacks	% Excess	Slurry Top
Lead	Class "C" 4% PF20+4 pps PF45+125pps PF29	13.2	1.84	9.914	400	35	Surface
Tail	PVL+1.3 (BWOW) PF44+5%PF174+.5%PF606+.1%P F153+.4ppsPF44	13	1.48	7.577	2,400	35	2,100'

Comments	20bbls Gelled Water. 20bbls Chemical wash. 50 sacks of 11# Scavenger cement.
----------	---

Fraser SWD #1 (Revised)

Stage 2	Slurry	Density	Yield	# of sacks	% Excess	Slurry Top
Lead						
Tail						

Cu./Ft
Per
Lin./ Ft.
2631

Comments:	
-----------	--

Prior to any cement job it is Mack Energy policy to circulate bottoms up 1 time before commencing with cement operations. On wells where hole conditions have been an issue during the drilling and reaming process the number of circulations needs to increase to a minimum of 2 times around.

All production cement figured with an additional 10% for washout unless otherwise noted. Flush is figured with a 40' shoe joint. Do not displace more than 2bbls over calculated flush without prior approval.

Casing Design Well: Fraser SWD #1 (Revised)String Size & Function: 7" in Production XTotal Depth: 10415 ft TVD: 10415 ft

Pressure Gradient for Calculations (While drilling)

Mud weight, collapse: 9.7 #/gal Safety Factor Collapse: 1.125Mud weight, burst: 9.7 #/gal Safety Factor Burst: 1.25Mud weight for joint strength: 9.7 #/gal Safety Factor Joint Strength 1.8BHP @ TD for: collapse: 5253.326 psi Burst: 5253.326 psi, joint strength: 5253.326 psiPartially evacuated hole? Pressure gradient remaining: 10 #/galMax. Shut in surface pressure: 3000 psi

1st segment		10415 ft to 0 ft		Make up Torque ft-lbs			Total ft =
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
<u>7</u> inches	<u>26</u> #/ft	<u>HCP-110</u>	<u>LT&C</u>		<u>8930</u>	<u>8200</u>	<u>8660</u>
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
<u>7,800</u> psi	<u>9,850</u> psi	<u>693,000</u> #		<u>830,000</u> #		<u>6,151</u>	

2nd segment		ft to 0 ft		Make up Torque ft-lbs			Total ft =
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
<u></u> inches	<u></u> #/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
<u></u> psi	<u></u> psi	<u></u> ,000 #		<u></u> ,000 #		<u></u>	

3rd segment		0 ft to 0 ft		Make up Torque ft-lbs			Total ft =
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
<u></u> inches	<u></u> #/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
<u></u> psi	<u></u> psi	<u></u> ,000 #		<u></u> ,000 #		<u></u>	

4th segment		0 ft to 0 ft		Make up Torque ft-lbs			Total ft =
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
<u></u> inches	<u></u> #/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
<u></u> psi	<u></u> psi	<u></u> ,000 #		<u></u> ,000 #		<u></u>	

5th segment		0 ft to 0 ft		Make up Torque ft-lbs			Total ft =
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
<u></u> inches	<u></u> #/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
<u></u> psi	<u></u> psi	<u></u> ,000 #		<u></u> ,000 #		<u></u>	

6th segment		0 ft to 0 ft		Make up Torque ft-lbs			Total ft =
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
<u></u> inches	<u></u> #/ft						
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
<u></u> psi	<u></u> psi	<u></u> ,000 #		<u></u> ,000 #		<u></u>	

Select	1st segment bottom		<u>10415</u>	S.F.	Actual	Desire
	collapse				<u>1.484774</u>	<u>>= 1.125</u>
	burst-b				<u>3.148271</u>	<u>>= 1.25</u>
	burst-t				<u>3.316667</u>	
	Top of segment 1 (ft)		<u>0</u>	S.F.	Actual	Desire
Select	2nd segment from bottom			collapse	<u>#DIV/0!</u>	<u>>= 1.125</u>
	burst-b				<u>0</u>	<u>>= 1.25</u>
	burst-t				<u>0</u>	
	jnt slmgt				<u>3.005177</u>	<u>>= 1.8</u>

Top of segment 2 (ft)		S.F.	Actual	Desire
Select	3rd segment from bottom	collapse	#DIV/0!	>= 1.125
		burst-b	0	>= 1.25
	0 ft to 0 ft	burst-t	0	
	0 0 0 0	jnt strngth	0	>= 1.8
Top of segment 3 (ft)		S.F.	Actual	Desire
Select	4th segment from bottom	collapse	#DIV/0!	>= 1.125
		burst-b	0	>= 1.25
	0 ft to 0 ft	burst-t	0	
	0 0 0 0	jnt strngth	0	>= 1.8
Top of segment 4 (ft)		S.F.	Actual	Desire
Select	5th segment from bottom	collapse	#DIV/0!	>= 1.125
		burst-b	0	>= 1.25
	0 ft to 0 ft	burst-t	0	
	0 0 0 0	jnt strngth	0	>= 1.8
Top of segment 5 (ft)		S.F.	Actual	Desire
Select	6th segment from bottom	collapse	#DIV/0!	>= 1.125
		burst-b	0	>= 1.25
	0 ft to 0 ft	burst-t	0	
	0 0 0 0	jnt strngth	0	>= 1.8
Top of segment 6 (ft)				
		jnt strngth		>= 1.8

use in collapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation: 1,200 ft 518 psi @ 1,200 ft

Top of salt: 2,400 ft fx #1 516

Base of salt: 3,700 ft fx #2 900

TD of intermediate: 4,600 ft fx #3 540

Pressure gradient to be used above each top to be used as a function of depth. ex. psi/ft

fx #1	fx #2	fx #3
0.43	0.75	0.45

- 1) Calculate neutral point for buckling with temperature affects computed also
- 2) Surface burst calculations & kick tolerance in surface pressure for burst
- 3) Do a comparison test to determine which value is lower joint strength or body yield to use in tensile strength calculations
- 4) Raise joint strength safety factor up to next level on page #2
- 5) Sour service what pipe can be used with proper degrading of strength factors and as function of temp

Adjust for best combination of safety factors

S.F. Collapse bottom of segment:	Secondary
S.F. Collapse top of segment:	#DIV/0!
S.F. Burst bottom of segment:	
S.F. Burst top of segment:	
S.F. Joint strength bottom of segment:	634.615
S.F. Joint strength top of segment:	
S.F. Body yield strength bottom of segment:	760.073
S.F. Body yield strength top of segment:	3.59927

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.85159	
calculations for bottom of segment @	10415 ft	
hydrostatic pressure collapse - backside:	5253.33 psi	
Axial load @ bottom of section	0 lbs	previous segments
Axial load factor:	0	load/pipe body yield strength)
Collapse strength reduction factor:	1	Messrs, Westcott, Dunlop, Kemler, 1940
Adjusted collapse rating of segment:	7800 psi	
Actual safety factor	1.48477	adjusted casing rating / actual pressure

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Mack Energy Corporation
LEASE NO.:	NMMN-130324
WELL NAME & NO.:	Fraser SWD 1
SURFACE HOLE FOOTAGE:	0330' FSL & 1550' FWL
LOCATION:	Section 25, T. 15 S., R 28 E., NMPM
COUNTY:	Chaves County, New Mexico

The Gamma Ray and Neutron well logs must be run from total depth to surface and e-mailed to Chris Bolen at aknapowski@blm.gov or hard copy mailed to 2909 West Second Street Roswell, NM 88201 to his attention.

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Chaves and Roosevelt Counties**

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After hours call (575) 627-0205.

A. Hydrogen Sulfide

1. A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet 43 CFR part 3170 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

High Cave/Karst

Possibility of water flows in the Rustler, Queen, Salado, and Artesia Group.
Possibility of lost circulation in the Rustler, Artesia Group, and San Andres.

1. The **13-3/8** inch surface casing shall be set at approximately **250** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt. Excess calculates to negative 26% - Additional cement will be required.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

Production casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

3. The minimum required fill of cement behind the **7** inch production casing is:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
2. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer.**
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. WELL COMPLETION

A NOI sundry with the completion procedure for this well shall be submitted and approved prior to commencing completion work. The procedure will be reviewed to verify that the completion proposal will allow the operator to:

- 1. Properly evaluate the injection zone utilizing open hole logs, swab testing and/or any other method to confirm that hydrocarbons cannot be produced in paying quantities. This evaluation shall be reviewed by the BLM prior to injection commencing.**
- 2. Restrict the injection fluid to the approved formation.**

If off-lease water will be disposed in this well, the operator shall provide proof of right-of-way approval .

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JAM 01112024

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 314949

CONDITIONS

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 314949
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply.	11/3/2024