

Form 3160-5  
(June 2019)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB No. 1004-0137  
Expires: October 31, 2021**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. NMNM57285

6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator EARTHSTONE OPERATING LLC

3a. Address 1400 WOODLOCH FOREST DRIVE SUITE 300, 3b. Phone No. (include area code)  
(281) 298-42404. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
SEC 26/T19S/R34E/NMP

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No. THUNDERBALL 23 FED WCA COM

9. API Well No. 3002550429

10. Field and Pool or Exploratory Area  
SCHARB/WOLFCAMP11. Country or Parish, State  
LEA/NM

## 12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off	
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity	
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other	
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon		
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal		

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

\*\*\*APD CHANGE FOR NAME CHANGE, POOL NAME; SHL, FTP, LTP, BHL, CASING DESIGN (ATTACHED)\*\*\*

NAME

FROM: THUNDERBALL 23 FED WCA COM 7H

TO: THUNDERBALL FED COM 224H

POOL NAME

FROM; (98247) WC-025 G-08 S203435D; WOLF CAMP

TO: (37570) LEA; BONE SPRING

SHL

FROM: B-26-19S-34E; 672 FNL, 1560 FEL

TO: B-26-19S-34E; 617 FNL, 1622 FEL

Continued on page 3 additional information

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
JENNIFER ELROD / Ph: (817) 953-3728Senior Regulatory Technician  
Title

Signature

Date 03/21/2023

**THE SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved

Petroleum Engineer  
Title04/13/2023  
Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office CARLSBAD

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.

(Instructions on page 2)

## GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

## SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13*: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

## Additional Information

### Additional Remarks

#### FTP

FROM: P-23-19S-34E; 100 FSL, 360 FEL

TO: P-23-19S-34E; 100 FSL, 385 FEL

#### LTP

FROM: A-23-19S-34E; 100 FNL, 360 FEL

TO: A-23-19S-34E; 100 FNL, 385 FEL

#### BHL

FROM: A-23-19S-34E; 100 FNL, 360 FEL

TO: A-23-19S-34E; 50 FNL, 385 FEL

#### SURFACE CASING

FROM: 17.5", 13.375", 54.5#, J-55 BTC CSG SET @ 1850'

TO: 14.5", 10.75", 45.5#, HCL80 SET @ 1825'

#### INTERMEDIATE CASING

FROM: 12.25", 9.625", 40# J-55 LT&C SET @ 6040'

TO: 9.875", 8.625", 32# L80 EHC MO-FXL SET @ 5770'

#### PRODUCTION CASING

FROM: 8.75", 5.5", 20# P-110 BTC SET @ 16777'

TO: 7.875", 5.5", 20# HC P-110 RY VARN SET @ 16777'

### Location of Well

0. SHL: NWNE / 672 FNL / 1560 FEL / TWSP: 19S / RANGE: 34E / SECTION: 26 / LAT: 32.6367073 / LONG: -103.52741 ( TVD: 0 feet, MD: 0 feet )

PPP: NESE / 1321 FSL / 360 FEL / TWSP: 19S / RANGE: 34E / SECTION: 23 / LAT: 32.64218 / LONG: -103.52352 ( TVD: 11208 feet, MD: 12915 feet )

PPP: SESE / 100 FSL / 360 FEL / TWSP: 19S / RANGE: 34E / SECTION: 23 / LAT: 32.6388368 / LONG: -103.5235156 ( TVD: 11221 feet, MD: 11694 feet )

BHL: NENE / 100 FNL / 360 FEL / TWSP: 19S / RANGE: 34E / SECTION: 23 / LAT: 32.6528068 / LONG: -103.5235362 ( TVD: 11167 feet, MD: 16777 feet )

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 Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☒ AMENDED REPORT  
WELL NAME AND NUMBER  
POOL; SHL, FTP, LTP, BHL

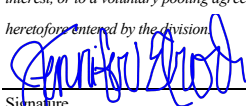
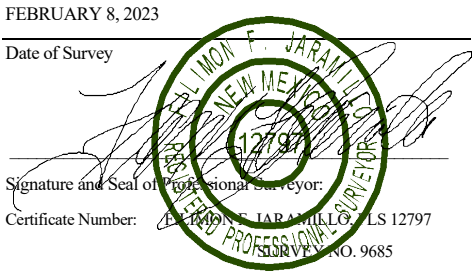
## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-025-50429	<sup>2</sup> Pool Code 37570	<sup>3</sup> Pool Name LEA; BONE SPRING
<sup>4</sup> Property Code 333135	<sup>5</sup> Property Name THUNDERBALL FED COM	<sup>6</sup> Well Number 224H
<sup>7</sup> OGRID No. 331165	<sup>8</sup> Operator Name EARTHSTONE OPERATING, LLC	<sup>9</sup> Elevation 3769.0

<sup>10</sup> Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	26	19 S	34 E		617	NORTH	1622	EAST	LEA

<sup>11</sup> Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	23	19 S	34 E		50	NORTH	385	EAST	LEA
<sup>12</sup> Dedicated Acres 320	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	<p><b>THUNDERBALL FED COM 224H</b> EL. = 3769.0</p> <table border="0"> <tr> <td> <p>GEODETIC COORDINATES NAD 27 NMSP EAST SURFACE LOCATION N. = 596297.07 E. = 748182.87 LAT. = 32.6367346°N LONG. = 103.5271199°W</p> <p>FIRST TAKE POINT 100' FSL, 385' FEL NAD 27 NMSP EAST N. = 597026.23 E. = 749413.32 LAT. = 32.6387129°N LONG. = 103.5231051°W</p> <p>LAST TAKE POINT 100' FNL, 385' FEL NAD 27 NMSP EAST N. = 602108.58 E. = 749368.35 LAT. = 32.6526829°N LONG. = 103.5231252°W</p> <p>BOTTOM OF HOLE NAD 27 NMSP EAST N. = 602158.57 E. = 749367.90 LAT. = 32.6528203°N LONG. = 103.5231254°W</p> </td> <td> <p>GEODETIC COORDINATES NAD 83 NMSP EAST SURFACE LOCATION N. = 596360.47 E. = 789363.27 LAT. = 32.6368582°N LONG. = 103.5276116°W</p> <p>FIRST TAKE POINT 100' FSL, 385' FEL NAD 83 NMSP EAST N. = 597089.66 E. = 790593.72 LAT. = 32.6388367°N LONG. = 103.5235967°W</p> <p>LAST TAKE POINT 100' FNL, 385' FEL NAD 83 NMSP EAST N. = 602172.18 E. = 790548.59 LAT. = 32.6528067°N LONG. = 103.5236174°W</p> <p>BOTTOM OF HOLE NAD 83 NMSP EAST N. = 602222.17 E. = 790548.14 LAT. = 32.6529441°N LONG. = 103.5236177°W</p> </td> </tr> </table> <p>CORNER COORDINATES TABLE NAD 27 NMSP EAST</p> <table border="0"> <tr><td>A - N. = 602212.34</td><td>E. = 749752.36</td></tr> <tr><td>B - N. = 602186.40</td><td>E. = 747113.16</td></tr> <tr><td>C - N. = 596903.73</td><td>E. = 747158.87</td></tr> <tr><td>D - N. = 591623.07</td><td>E. = 747205.00</td></tr> <tr><td>E - N. = 591647.82</td><td>E. = 749845.46</td></tr> <tr><td>F - N. = 594289.35</td><td>E. = 749822.05</td></tr> <tr><td>G - N. = 596930.09</td><td>E. = 749799.11</td></tr> <tr><td>H - N. = 599571.22</td><td>E. = 749775.73</td></tr> </table> <p>CORNER COORDINATES TABLE NAD 83 NMSP EAST</p> <table border="0"> <tr><td>A - N. = 602275.95</td><td>E. = 790932.61</td></tr> <tr><td>B - N. = 602249.98</td><td>E. = 788293.38</td></tr> <tr><td>C - N. = 596967.14</td><td>E. = 788339.25</td></tr> <tr><td>D - N. = 591686.31</td><td>E. = 788385.52</td></tr> <tr><td>E - N. = 591711.08</td><td>E. = 791026.01</td></tr> <tr><td>F - N. = 594352.70</td><td>E. = 791002.52</td></tr> <tr><td>G - N. = 596993.53</td><td>E. = 790979.51</td></tr> <tr><td>H - N. = 599634.74</td><td>E. = 790956.05</td></tr> </table>	<p>GEODETIC COORDINATES NAD 27 NMSP EAST SURFACE LOCATION N. = 596297.07 E. = 748182.87 LAT. = 32.6367346°N LONG. = 103.5271199°W</p> <p>FIRST TAKE POINT 100' FSL, 385' FEL NAD 27 NMSP EAST N. = 597026.23 E. = 749413.32 LAT. = 32.6387129°N LONG. = 103.5231051°W</p> <p>LAST TAKE POINT 100' FNL, 385' FEL NAD 27 NMSP EAST N. = 602108.58 E. = 749368.35 LAT. = 32.6526829°N LONG. = 103.5231252°W</p> <p>BOTTOM OF HOLE NAD 27 NMSP EAST N. = 602158.57 E. = 749367.90 LAT. = 32.6528203°N LONG. = 103.5231254°W</p>	<p>GEODETIC COORDINATES NAD 83 NMSP EAST SURFACE LOCATION N. = 596360.47 E. = 789363.27 LAT. = 32.6368582°N LONG. = 103.5276116°W</p> <p>FIRST TAKE POINT 100' FSL, 385' FEL NAD 83 NMSP EAST N. = 597089.66 E. = 790593.72 LAT. = 32.6388367°N LONG. = 103.5235967°W</p> <p>LAST TAKE POINT 100' FNL, 385' FEL NAD 83 NMSP EAST N. = 602172.18 E. = 790548.59 LAT. = 32.6528067°N LONG. = 103.5236174°W</p> <p>BOTTOM OF HOLE NAD 83 NMSP EAST N. = 602222.17 E. = 790548.14 LAT. = 32.6529441°N LONG. = 103.5236177°W</p>	A - N. = 602212.34	E. = 749752.36	B - N. = 602186.40	E. = 747113.16	C - N. = 596903.73	E. = 747158.87	D - N. = 591623.07	E. = 747205.00	E - N. = 591647.82	E. = 749845.46	F - N. = 594289.35	E. = 749822.05	G - N. = 596930.09	E. = 749799.11	H - N. = 599571.22	E. = 749775.73	A - N. = 602275.95	E. = 790932.61	B - N. = 602249.98	E. = 788293.38	C - N. = 596967.14	E. = 788339.25	D - N. = 591686.31	E. = 788385.52	E - N. = 591711.08	E. = 791026.01	F - N. = 594352.70	E. = 791002.52	G - N. = 596993.53	E. = 790979.51	H - N. = 599634.74	E. = 790956.05	<p><b><sup>17</sup> OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p> 02/17/2023 Signature Date</p> <p>JENNIFER ELROD Printed Name</p> <p>JELROD@EARTHSTONEENERGY.COM E-mail Address</p> <p><b><sup>18</sup> SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>FEBRUARY 8, 2023 Date of Survey</p> <p> Signature and Seal of Professional Surveyor</p> <p>Certificate Number: 12797 Professional Surveyor License No. 9685</p>
	<p>GEODETIC COORDINATES NAD 27 NMSP EAST SURFACE LOCATION N. = 596297.07 E. = 748182.87 LAT. = 32.6367346°N LONG. = 103.5271199°W</p> <p>FIRST TAKE POINT 100' FSL, 385' FEL NAD 27 NMSP EAST N. = 597026.23 E. = 749413.32 LAT. = 32.6387129°N LONG. = 103.5231051°W</p> <p>LAST TAKE POINT 100' FNL, 385' FEL NAD 27 NMSP EAST N. = 602108.58 E. = 749368.35 LAT. = 32.6526829°N LONG. = 103.5231252°W</p> <p>BOTTOM OF HOLE NAD 27 NMSP EAST N. = 602158.57 E. = 749367.90 LAT. = 32.6528203°N LONG. = 103.5231254°W</p>	<p>GEODETIC COORDINATES NAD 83 NMSP EAST SURFACE LOCATION N. = 596360.47 E. = 789363.27 LAT. = 32.6368582°N LONG. = 103.5276116°W</p> <p>FIRST TAKE POINT 100' FSL, 385' FEL NAD 83 NMSP EAST N. = 597089.66 E. = 790593.72 LAT. = 32.6388367°N LONG. = 103.5235967°W</p> <p>LAST TAKE POINT 100' FNL, 385' FEL NAD 83 NMSP EAST N. = 602172.18 E. = 790548.59 LAT. = 32.6528067°N LONG. = 103.5236174°W</p> <p>BOTTOM OF HOLE NAD 83 NMSP EAST N. = 602222.17 E. = 790548.14 LAT. = 32.6529441°N LONG. = 103.5236177°W</p>																																		
	A - N. = 602212.34	E. = 749752.36																																		
B - N. = 602186.40	E. = 747113.16																																			
C - N. = 596903.73	E. = 747158.87																																			
D - N. = 591623.07	E. = 747205.00																																			
E - N. = 591647.82	E. = 749845.46																																			
F - N. = 594289.35	E. = 749822.05																																			
G - N. = 596930.09	E. = 749799.11																																			
H - N. = 599571.22	E. = 749775.73																																			
A - N. = 602275.95	E. = 790932.61																																			
B - N. = 602249.98	E. = 788293.38																																			
C - N. = 596967.14	E. = 788339.25																																			
D - N. = 591686.31	E. = 788385.52																																			
E - N. = 591711.08	E. = 791026.01																																			
F - N. = 594352.70	E. = 791002.52																																			
G - N. = 596993.53	E. = 790979.51																																			
H - N. = 599634.74	E. = 790956.05																																			

Intent ☒ As Drilled ☐

API # 30-025-50429		
Operator Name: EARTHSTONE OPERATING, LLC	Property Name: THUNDERBALL FED COM	Well Number 224H

## Kick Off Point (KOP)

UL B	Section 26	Township 19S	Range 34E	Lot	Feet 617	From N/S NORTH	Feet 1622	From E/W EAST	County LEA
Latitude 32.6368582					Longitude 103.5276116				NAD 83

## First Take Point (FTP)

UL P	Section 23	Township 19S	Range 34E	Lot	Feet 100	From N/S SOUTH	Feet 385	From E/W EAST	County LEA
Latitude 32.6388367					Longitude 103.5235967				NAD 83

## Last Take Point (LTP)

UL A	Section 23	Township 19S	Range 34E	Lot	Feet 100	From N/S NORTH	Feet 385	From E/W EAST	County LEA
Latitude 32.6528067					Longitude 103.5236174				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☐ NOIs this well an infill well? ☐ YES

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API # 30-025-50426		
Operator Name: EARTHSTONE OPERATING, LLC	Property Name: THUNDERBALL FED COM	Well Number 324H

KZ 06/29/2018

## Earthstone Operating, LLC - Thunderball Fed Com 224H

### 1. Geologic Formations

TVD of target	10,421 EOC	Pilot hole depth	#####
MD at TD:	15,989'	Deepest expected fresh water:	45'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1802	Water	
Salado	2115	Salt	
Yates	3494	Salt	
Queen	4704	Salt Water	
Cherry Canyon	5746	Salt Water	
Brushy Canyon	6581	Oil/Gas	
Top BSPG Lime	8211	Oil/Gas	
1st BSPG Ss	9546	Oil/Gas	
2nd BSPG Carb	9864	Oil/Gas	
2nd BSPG SS	10056	Oil/Gas	
Target	10421	Oil/Gas	
0	0	Not Penetrated	
0	0	Not Penetrated	
0	0	Not Penetrated	

### 2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
14.5	0	1825	10.75	45.5	HCL80	BTC	3.52	2.74	12.80
9.875	0	5770	8.625	32	L80 EHC	MO-FXL	1.35	1.37	2.82
7.875	0	15,989	5.5	20	P110-RY	VARN	2.25	2.94	2.53
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

## Earthstone Operating, LLC - Thunderball Fed Com 224H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary?	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

## Earthstone Operating, LLC - Thunderball Fed Com 224H

## 3. Cementing Program

Casing	# Sk	Wt. lb/ gal	Yld ft3/ sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	640	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl <sub>2</sub>
	290	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl <sub>2</sub>
Inter.	400	11.5	2.3	9.6	16	Lead: 35:65:6 C Blend
	80	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl
5.5 Prod	380	11.3	3.05	19	72	Lead: 50:50:10 H Blend
	950	13.5	1.27	5.7	19	Tail: 50:50:2 Class H Blend

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
1 <sup>st</sup> Intermediate	0'	50%
Production	5,270'	25% OH in Lateral (KOP to EOL) – 40% OH in Vertical



## Earthstone Operating, LLC - Thunderball Fed Com 224H

## 4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
---	---

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	x	Tested to:
12-1/4"	13-5/8"	2M	Annular	x	2000 psi
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram	x	3M
			Pipe Ram	x	
			Double Ram		
			Other*		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2.  On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

## Earthstone Operating, LLC - Thunderball Fed Com 224H

## 5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe	FW Gel	8.6 - 8.8	28-34	N/C
Surf csg	9-5/8" Int shoe	Saturated Brine	10 - 10.1	28-34	N/C
9-5/8" Int shoe	Lateral TD	Cut Brine	8.6 - 9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

## 6. Logging and Testing Procedures

Logging, Coring and Testing.	
Y	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
Y	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain.
N	Coring? If yes, explain.

Additional logs planned		Interval
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

**Earthstone Operating, LLC - Thunderball Fed Com 224H****7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	5499 psi at 10371' TVD
Abnormal Temperature	NO 170 Deg. F.

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N H<sub>2</sub>S is present

Y H<sub>2</sub>S Plan attached

**8. Other Facets of Operation**

N	Is it a walking operation?
Y	Is casing pre-set?

x	H <sub>2</sub> S Plan.
x	BOP & Choke Schematics.
x	Directional Plan

**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 215215

CONDITIONS

Operator: Earthstone Operating, LLC 1400 Woodloch Forest; Ste 300 The Woodlands, TX 77380	OGRID: 331165
	Action Number: 215215
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	6/6/2023