Form 3160-5 (June 2019)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 202

UREAU OF LAND MANAGEMENT	

DOK	EAU OF LAND MANAGEMENT			NMNM0057285B
SUNDRY N	NOTICES AND REPORTS ON V	VELLS	6. If Indian, Allottee	or Tribe Name
	form for proposals to drill or to Use Form 3160-3 (APD) for su			
SUBMIT IN	TRIPLICATE - Other instructions on pag	ge 2	7. If Unit of CA/Agre	eement, Name and/or No.
1. Type of Well				
Oil Well Gas V	<u> </u>		8. Well Name and No	THUNDERBALL 23 FED 1BS COM/
2. Name of Operator EARTHSTONE	OPERATING LLC		9. API Well No. 3002	2550424
3a. Address 1400 WOODLOCH FO	REOT BRIVE GOTTE 300,	(include area code	′	
	(281) 298-42	40		NG/1ST BONE SPRING
4. Location of Well (Footage, Sec., T., F SEC 26/T19S/R34E/NMP	R.,M., or Survey Description)		11. Country or Parish LEA/NM	n, State
12. CHE	CK THE APPROPRIATE BOX(ES) TO IN	DICATE NATURE	OF NOTICE, REPORT OR OT	THER DATA
TYPE OF SUBMISSION		TY	PE OF ACTION	
N-4: £ I44	Acidize Deep	oen	Production (Start/Resume)	Water Shut-Off
Notice of Intent		raulic Fracturing	Reclamation	Well Integrity
		Construction	Recomplete	Other
Subsequent Report		and Abandon	Temporarily Abandon	
Final Abandonment Notice		Back	Water Disposal	
completed. Final Abandonment No is ready for final inspection.)	ED 1BS COM 2H pM 114H NL, 1690 FEL 1592 FEL SL, 360 FEL 385 FEL	ts, including reclan	nation, have been completed and	the operator has detennined that the site
14. I hereby certify that the foregoing is	true and correct. Name (Printed/Typed)	0 . 0		
JENNIFER ELROD / Ph: (817) 953	i-3728	Title Senior Re	gulatory Technician	
Signature		Date	02/21/2	2023
	THE SPACE FOR FED	ERAL OR ST	ATE OFICE USE	
Approved by				
CHRISTOPHER WALLS / Ph: (57	5) 234-2234 / Approved	Petro Title	oleum Engineer	03/10/2023 Date
	hed. Approval of this notice does not warrar equitable title to those rights in the subject leaduct operations thereon.		RLSBAD	

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

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 @ 14991'

TO: 7.875", 5.5", 20# HC P-110 RY VARN SET @ 14991'

Location of Well

0. SHL: NWNE / 561 FNL / 1690 FEL / TWSP: 19S / RANGE: 34E / SECTION: 26 / LAT: 32.6370114 / LONG: -103.5278325 (TVD: 0 feet, MD: 0 feet)
PPP: NESE / 1321 FSL / 360 FEL / TWSP: 19S / RANGE: 34E / SECTION: 23 / LAT: 32.64218 / LONG: -103.523526 (TVD: 9652 feet, MD: 11384 feet)
PPP: SESE / 100 FSL / 360 FEL / TWSP: 19S / RANGE: 34E / SECTION: 23 / LAT: 32.6388368 / LONG: -103.5235156 (TVD: 9666 feet, MD: 10163 feet)
BHL: NENE / 100 FNL / 360 FEL / TWSP: 19S / RANGE: 34E / SECTION: 23 / LAT: 32.6528068 / LONG: -103.5235362 (TVD: 9615 feet, MD: 14991 feet)

<u>District I</u>
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
<u>District II</u>
811 S. First St., Artesia, NM 88210

Phone: (575) 748-1283 Fax: (575) 748-9720 <u>District III</u> 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 SHL, FTP, LTP, BHL

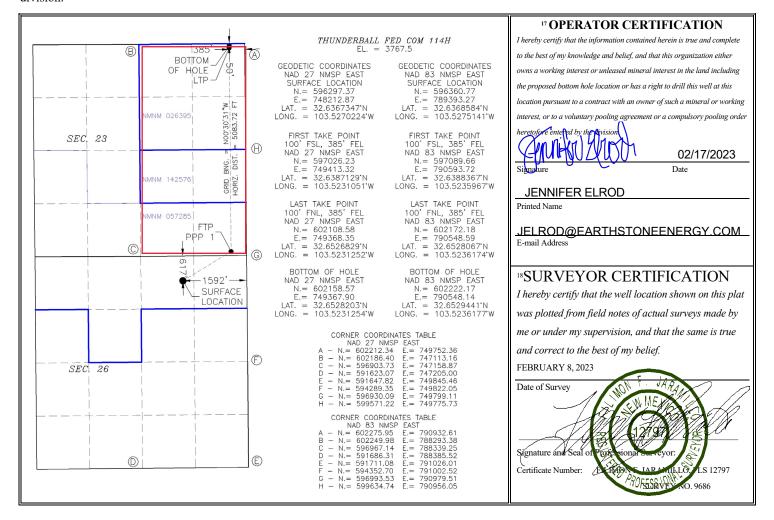
WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Numbe	¹ API Number		³ Pool Name				
30-025-50424		37570	LEA; BONE SPRING				
⁴ Property Code		⁵ Property Name ⁶ Well Number					
333133		THUNDERBALL FED COM 114H					
⁷ OGRID No.		⁸ Operator Name ⁹ Elevation					
331165	EARTHSTONE OPERATING, LLC 3767.5						

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
В	26	19 S	34 E		617	NORTH	1592	EAST	LEA	
	" 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	
12 Dedicated Acres	s 13 Joint	13 Joint or Infill 14 Consolidation Code		n Code	¹⁵ Order No.					
320										

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.



by O			J4 1 111											11
Inten	t X	As Dril	led											
API#	1													
	25-50424													
-	rator Na				_		perty N					_		Well Number
EAF	RTHST	ONE OP	ERATIN	G, LL	С	THU	JNDE	RBA	ALL F	-ED (COM			114H
Kick (Off Point	(KOP)												
UL	Section	Township	Range	Lot	Feet		From N		Feet			n E/W	County	
B Latitu	26	19S	34E		617 Longitu	. d o	NORT	TH	159	2	EAS	ST	NAD NAD	
	336858	4			103.5		5141						83	
Eirct -	Take Poir	+ (ETD)												
	_			1				. 10	I			= 0		
UL P	Section 23	Township 19S	Range 34E	Lot	Feet 100		From N		Feet 385		EAS	n E/W ST	County LEA	
Latitu			<u> </u>		Longitu								NAD	
32.6	338836	7			103.5	5235	967						83	
Last 1	Take Poin	t (LTP)												
UL	Section	Township	Range	Lot	Feet		m N/S	Feet		From		Count	У	
Α	23	19S	34E		100		RTH	385		EAS	Γ	LEA		
Latitu	^{ude} 352806	7			Longitu 103.		:17 <i>4</i>					NAD 83		
JZ.(332000	· 1			100.0	JZ J C	717-					03		
Is this	s well the	defining v	vell for th	e Horiz	zontal S _l	pacing	g Unit?		NO					
Is this	s well an	infill well?		YES	7									
	, wen an			120	_									
		lease prov	ide API if	availab	le, Ope	rator l	Name	and v	vell n	umbei	for I	Definir	ng well fo	r Horizontal
Spaci	ng Unit.													
API#	- 1-025-504	26												
						Dros	orty N	ama						Well Number
	rator Na		ATINIO ''	0			oerty N				1			
EAH	KIHSIU	NE OPERA	41ING, LI	_C		THUNDERBALL FED COM							324H	

KZ 06/29/2018

1. Geologic Formations

TVD of target	9,675' EOC	KOP	9,256'
MD at TD:	15,264	Deepest expected fresh water:	45'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1801	Water	
Salado	2114	Salt	
Yates	3510	Salt	
Queen	4747	Salt Water	
Cherry Canyon	5813	Salt Water	
Brushy Canyon	6666	Oil/Gas	
Top BSPG Lime	8332	Oil/Gas	
1st BSPG Ss	9731	Oil/Gas	
Target	9675	Target Oil/Gas	
0	0	Not Penetrated	
0	0	Not Penetrated	
0	0	Not Penetrated	
0	0	Not Penetrated	
0	0	Not Penetrated	

2. Casing Program

Hole Size	Casing Interval		e Size Casing Interval		Csg. Size (in)	Weight	Grade	Conn.	SF	SF Burst	SF
(in)	From	То	Csg. Size (III)	(lbs)		Collii.	Collapse	SF Buist	Tension		
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	1.59	2.82		
7.875	0	15,264	5.5	20	P110-RY	VARN	2.61	3.41	2.94		
				BLM Mir	nimum Safe	ety 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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Υ
Does casing meet API specifications? If no, attach casing specification sheet.	Υ
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?	Υ
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 rd 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 nd 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?	1.4

3. Cementing Program

Casing	# Sks	Wt. lb/	Yld ft3/ sack	H₂0 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	640	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl2
Suii.	290	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
Inter.	400	11.5	2.3	9.6	16	Lead: 35:65:6 C Blend
mer.	80	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl
5.5 Prod	270	11.3	3.05	19	72	Lead: 50:50:10 H Blend
5.5 F100	900	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 st Intermediate	0'	50%
Production	5,270'	25% OH in Lateral (KOP to EOL) – 40% OH in Vertical

4. Pressure Control Equipment

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	Ту	pe	x	Tested to:		
			Ann	ıular	Χ	2000 psi		
			Blind	Blind Ram				
12-1/4"	13-5/8"	2M	Pipe	Ram		2M		
			Double	e Ram		∠IVI		
			Other*					
			Annular		х	50% testing pressure		
8-3/4"	13-5/8"	13-5/8"	8-3/4" 13-5/8" 3	13-5/8" 3M	Blind Ram		Х	
			Pipe Ram Double Ram		Х	3M		
						JIVI		
			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.

	Formation integrity test will be performed per Onshore Order #2.
Х	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?
Υ	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.

5. Mud Program

	Depth	Type	Weight Viscosity Wa		Water Loss
From	То	Type	(ppg)	Viscosity	Water Loss
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
Υ	CBL	Production casing (If cement not circulated to surface)
Υ	Mud log	Intermediate shoe to TD
N	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4675 psi at 9665' TVD
Abnormal Temperature	NO 155 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 (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S 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	H2S is present
N	H2S Plan attached

8. Other Facets of Operation

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

Х	H2S Plan.
х	BOP & Choke Schematics.
х	Directional Plan

District I
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District III 1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

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 215200

CONDITIONS

Operator:	OGRID:
Earthstone Operating, LLC	331165
1400 Woodloch Forest; Ste 300	Action Number:
The Woodlands, TX 77380	215200
	Action Type:
	[C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By		Condition Date
pkautz	None	6/6/2023