# State of New Mexico Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary

Todd E. Leahy, JD, PhD Deputy Secretary Adrienne Sandoval, Division Director Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-4 or 3160-5 form.

Operator Signature Date: 10/10/2019 Well information:  30-039-05127 YARBOROUGH FEDERAL B #001 ENDURING RESOURCES, LLC Application Type:  P&A Drilling/Casing Change Location Change
Recomplete/DHC (For hydraulic fracturing operations review EPA Underground injection control Guidance #84; Submit Gas Capture Plan form prior to spudding or initiating recompletion operations)  Other:
Conditions of Approval:
<ul> <li>Notify NMOCD 24hrs prior to beginning operations.</li> <li>Add a Mancos plug 4,458-4,358'. OCD Mancos pick @ 4,438'.</li> <li>Adjust Mesaverde top 3,585-3,485'. OCD Mesaverde pick @ 3,535'.</li> <li>Include the Chacra plug as directed in BLM COAs.</li> <li>Place an additional Chacra plug 2,845'-2,745'. OCD Chacra pick @ 2,795'.</li> <li>Add a Fruitland plug 1,885'-1,785'. OCD Fruitland pick @ 1,835'.</li> <li>Add a Kirtland plug 1,665'-1,565'. OCD Kirtland pick @ 1,615'.</li> <li>Adjust the Ojo Alamo plug 1,455'-1,355'. OCD Ojo Alamo pick @ 1,405'.</li> </ul>

NMOCD Approved by Signature

Johnic Anshi

11/12/19 Date Form 3160-5 (June 2015)

# UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED OMB NO. 1004-0137 Expires: January 31, 2018
Lease Serial No. NMNM28737

SUNDRY NOTICES AND REPORTS ON WELLS	
Do not use this form for proposals to drill or to re-enter an	
shandoned well. Use form 3160-3 (APD) for such proposals	

	Do not use thi	s form for proposals to drill or	40 40 00404 00			
	abandoned wel		6. If Indian, Allottee or	Tribe Name		
	SUBMIT IN 1	TRIPLICATE - Other instruction	s on page 2		7. If Unit or CA/Agreen	nent, Name and/or No.
1.	Type of Well  ☑ Oil Well ☐ Gas Well ☐ Oth	ner			8. Well Name and No. YARBOROUGH FE	DERAL B 1
2.	Name of Operator ENDURING RESOURCES LL	Contact: LACEY			9. API Well No. 30-039-05127-00	-S1
38	a. Address 1050 17TH STREET SUITE 2 DENVER, CO 80265		one No. (include area code) 05-636-9743		10. Field and Pool or Ex COUNSELORS	ploratory Area
4.	Location of Well (Footage, Sec., T.	, R., M., or Survey Description)			11. County or Parish, Sta	ate
	Sec 10 T23N R6W NWNW 06 36.244522 N Lat, 107.463455				RIO ARRIBA COI	UNTY, NM
	12. CHECK THE AF	PPROPRIATE BOX(ES) TO INI	DICATE NATURE OF	F NOTICE, I	REPORT, OR OTHE	ER DATA
	TYPE OF SUBMISSION		TYPE OF	ACTION		
	Notice of Intent	☐ Acidize ☐	Deepen	☐ Production	on (Start/Resume)	☐ Water Shut-Off
	_	_	☐ Hydraulic Fracturing	☐ Reclama	tion	☐ Well Integrity
	☐ Subsequent Report		New Construction	☐ Recompl		<b>⊠</b> Other
	☐ Final Abandonment Notice		Plug and Abandon		rily Abandon	
13.		Convert to Injection	Plug Back	☐ Water Di		
	following completion of the involved testing has been completed. Final Abdetermined that the site is ready for fine Enduring Resources attempte cancel the TA/MIT approval.  Enduring Resources now requirement/proposed wellbore diagrams.	d to place this well in TA status b	multiple completion or recorder all requirements, including the state of the state	mpletion in a no ing reclamation	ew interval, a Form 3160-, , have been completed and	4 must be filed once
	This well was on the approved	ACOI per order ACOI-2016-002				
					NOV 1 2 2019	
				D	ISTRICT_III	ugenstation (COP)
14		Electronic Submission #487433 N For ENDURING RESOUL ed to AFMSS for processing by AL	BERTA WETHINGTON	on 10/11/2019	9 (20AMW0038SE)	
_	Name (Printed/Typed) LACEY G	RANILLO	Title PERMIT	TING SPEC	CIALIST	
	Signature (Electronic S	Submission)	Date 10/10/20	019		
		THIS SPACE FOR FEE	DERAL OR STATE (	OFFICE US	SE .	
A	pproved By JOHN HOFFMAN		TitlePETROLE	UM ENGINE	FR	Date 11/12/2019
Con	ditions of approval, if any, are attached	d. Approval of this notice does not warrantiable title to those rights in the subject left operations thereon.	ant or			1 1122010
-		U.S.C. Section 1212, make it a crime for			ke to any department or ag	gency of the United
		statements or representations as to any m		,	7 - 1	

(Instructions on page 2) \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\*



# BLM FLUID MINERALS Geologic Report

Date Completed: 11/7/2019

Well No.	Yarborough Federal B #1		Location	660	FNL	&	530	FWL
Lease No.	NMNM28737		Sec. 10	T23N			R06W	
Operator	Enduring Re	esources	County	Rio Arriba		State	New Mexico	
Total Depth	5550	PBTD 5543	Formation	Mancos (	Gallup)			
Elevation (GL)	6730		Elevation (K	(B) 6741				

<b>Geologic Formations</b>	Est. Top	Est. Bottom	Log Top	Log Bottom	Remarks
San Jose Fm		·	Surface	1405	Surface/Fresh water sands
Nacimiento Fm					Fresh water sands
Ojo Alamo Ss			1405	1610	Aquifer (fresh water)
Kirtland Shale			1610	1834	
Fruitland Fm			1834	2013	Coal/Gas/Possible water
Pictured Cliffs Ss			2013	2090	Gas
Lewis Shale	1		2090	2405	·
Chacra			2405	3536	
Cliff House Ss			3536	3698	Water/Possible gas
Menefee Fm	·		3698	4218	Coal/Ss/Water/Possible O&G
Point Lookout Ss			4218	4438	Probable water/Possible O&G
Mancos Shale			4438	5434	
Gallup	·		5434	PBTD	O&G/Water
Graneros Shale	Ī				
Dakota Ss					O&G/Water

#### Remarks:

#### P&A

- BLM geologist's pick for the top of the Ojo Alamo formation varies from operator's.

 Log analysis of reference well #2 (attached worksheet) indicates the Ojo Alamo sands investigated contain fresh water (≤5,000 ppm TDS).

 Please ensure that the tops of the Gallup, Mancos, Mesaverde (Cliff House), and Pictured Cliffs formations, as well as the entire Ojo Alamo fresh water aquifer identified in this report are isolated by proper placement of cement plugs. This will protect the fresh water sands in this well bore.

#### Reference Well:

1) Same

Fm. Tops

Water

Analysis

2) Hilcorp Energy Bolack E #2 1650' FNL, 1700' FEL Sec. 1, T23N, R06W GL 6776', KB 6788'

Prepared by: Chris Wenman

#### **P&A PROCEDURE**

#### Yarborough Federal B 001

#### Objective:

Permanently plug & abandon the well from 5543' to surface containing 5 cement plugs.

All cement volumes use 100% excess outside casing and 50' excess inside pipe. Stabilizing wellbore fluid will be 8.3 ppg, sufficient to balance all exposed formation pressures. All cement will be ASTM Class G neat yield or equivalent. If casing pressure tests tagging plugs will not be required. Note: Enduring confirmed casing leak between 1908' - 3258'.

#### Prior to Rig:

- 1. Notify BLM & NMOCD
- 2. Note: verify all cement volumes based on actual slurry to be pumped.
- 3. See attached COA's from BLM & NMOCD.

#### Procedure:

- 1. MIRU well servicing rig and cement equipment.
- 2. Check casing, tubing, and bradenhead pressures.
- 3. Removed existing piping on casing valve. RU blow lines from casing valves and begin blowing down casing pressure. Kill well as necessary. Ensure well is dead or on a vacuum.
- 4. ND wellhead and NU BOP. Function test BOP. RU floor and 2-3/8" handling tools.
- TOOH and tally production string and use as workstring.
- P/U 5-1/2" bit and casing scraper on 2 3/8" workstring to 5160'.
- 7. TOOH and LO scraper.
- P/U 5-1/2" CR, TIH and set@ 5148'.
- 9. Pressure test tubing to 1000 psi. Sting out of CR. Load hole, and pressure test casing to 800 psi. If casing does not test, then spot or tag subsequent plugs as appropriate. WOC to be determined on pressure test. Note: Enduring confirmed casing leak between 1908'- 3258'.
- 10. TOOH w/ tubing.
- 11. RU wireline and run CBL from CR to surface to identify TOC. Adjust plugs as necessary for new TOC. Email log copy to BLM and NMOCD.
- 12. TIH open ended to 5148'.
- 13. Plug 1: 5148'-5048' (Gallup Perts 5524'-5198' Gallup top 5434') Mix 18 sacks Class G cement and spot a balanced plug inside casing to cover the Gallup perfs and formation top. PU and reverse circulate tubing clean.
- 14. WOC overnight.
- 15. RIH and tag TOC.
- 16. LO tubing to 4270'.
- 17' Plug 2: 4270'-4170' (Mesaverde top 4220') Mix 18 sacks Class G cement and spot a balanced plug inside casing to cover the Mesaverde top. PU and reverse circulate tubing clean.
- 8. woe (due to previous pressure test failure between 3258'-1908').
- 19. RIH and tag TOC.
- 20. LO tubing to 2013', TOOH w tubing.
- 21. RU WL and perforate@ 2063', RD WL.
- 22. TIH w 5-1/2 CR and set@ 2013'.
- Plug 3: 2063'-1963' (Pictured Cliffs top 2013') Mix 49 sacks Class G cement pumping 31 sxs outside and 18 sxs inside casing to cover the Pictured Cliffs top. PU and reverse circulate tubing clean.

#### WOC overnight.

- 24. RIH and tag to TOC.
- 25. LO tubing to 1120' then TOOH w tubing.
- 26. RU WL and perforate @1170', RD WL.
- 27. TIH w 5-1/2 CR and set@ 1120'.
- 28. Sting out and pressure test casing to 800psi. If casing does not test, then spot or tag subsequent plugs as appropriate. WOC to be determined on pressure test.
- 29' Plug 4: 1170'-1070' (Ojo Alamo top 1120') Mix 49 sacks Class G cement pumping 31 sxs outside and 18 sxs inside casing to cover the Ojo Alamo top. PU and reverse circulate tubing clean.
- 30. LO all tubing.
- 31. RU WL and perforate@ 336', RD WL.
- 32' Plug 5: 336'-0' (Surface shoe 286' and surface) Pump water down casing and up BH to establish injection rate. Mix and pump 130 sxs of class G cement down casing and up BH until good cement returns to surface. If unable to circulate top off cement as necessary.
- 33. ND BOP and cut off wellhead below surface casing flange per regulation. Top off w/cement if needed. Install P&A marker with cement to comply with regulations. RD, MOL and cut off anchors. Restore location per BLM stipulations.

Well Name:	Yarborough Fe		Date Prepared:	8/24/2012
Location:	D-10-23N-06V			
County:	Rio Arriba Cou	inty	Spud Date:	3/22/1958
API#:	30-039-05127		Completion Date:	6/5/1958
Co-ordinates:		344, -107.464033008325	Last Workover Date:	8/20/1981
Elevations:	GROUND:		Re-Entered: _	6/25/1981
	KB:			
Depths (KB):	PBTD:		· · · · · · · · · · · · · · · · · · ·	,
	TD:	5550'		<u> </u>
			VSfore Dealers (DIDDIES)	
·	All depths KB		Surface Casing: (3/22/58)	
Surface Casing		12-1/4"	Drilled 12-1/4" hole to 293'. Set 9-5/8", 32.3# surface casing a	ıt 286'.
9-5/8", 32.3#		0-286	Cemented with 300 sacks; circulated cement to surface.	
Set at 286'		1 1		
300 sacks		TOC at Surface	· · · · · · · · · · · · · · · · · · ·	<u></u>
TOC at surface		. · .	Production Casing: (3/25/58)	
.∵.		<b>I</b> [∴:	Drilled 7-7/8" hole to 5550'. Set 5-1/2", 14# casing at 5549'.	
•••			Cemented with 300 sacks of cement. TOC reported at 3850'	·
:•]		<b>i i</b> ∷.		·
286		<b>K</b> -1	T /0/04/04/	
			Tubing: (8/21/81)	
			Set 2-3/8", 4.7# tubing at 5499'.	
	1 111			
	- I: 111			
	1 111		Rods:	
			Rod data not reported.	
	- 1			
		1		
	1 111		Perforations:	
	1 111	1	(6/5/58) Perforated 5434'- 5456' and 5512'- 5524' with 4 jets/fi	f. Frac'd with 20,000 gal crude oi
			and 30,000# sand	
,			(7/1/81) Perforated 5440'-5458' and 5510'-5524' with 1 spf. F	rac'd with 28,995 gal foam and
		l <u> </u>	37,000# 20/40 sand.	
		7-7/8"	(8/8/81) Perforated 5198'-5210', 5298'-5310', 5316'-5328', 53	
	1 111	286'-5550'	with 2 spf. Frac'd with 21,100 gal foam and 20,000# 20/40	sand.
Production Casing	. 1	· · · · · · · · · · · · · · · · · ·		
5-1/2", 14#	`` <b>   </b>	: TOC at 3850'		
Set at 5549'	:: <b>:</b>	ŀ∴	Initial Test:	
300 sacks	: 1 1 1 1	<b>!</b> . ·	(6/13/58) 24 hr swab test: 37 bbls oil, 0 mcf gas, 0 bbls water	
TOC at 3850'	∴ <b>1</b> 111	[·:	(8/31/81) 24 hr flowing test: 50 bbls oil, 80 mcf gas, 30 bbls w	ater. 38.4° API
	· [	ŀ∵		<u> </u>
	∑}	<b>∤</b> ∵	e	
	: <u>1                                      </u>	<b>l</b> i∙:	Formations:	
	<b>∵1</b>	[:·:	Pictured Cliffs- 2013'	· · · · · · · · · · · · · · · · · · ·
	·		Cliff House- 3536'	
		<b>ŀ</b> ∴	Point Lookout- 4220'	<del> </del>
	:: <b>1</b> []]	• •	Gallup- 5434'	_ ·
	∴ <b>1</b>	<b>!</b> ·:		<del></del>
<u>Tubing</u> 2-3/8"	∵1     [::	<b>.</b>	<del></del>	<del></del>
	::: <b>- </b>	ŀ∴		
Set at 5499'	<del>:</del>	Collum 5100' 5406'	Additional Notes:	···—-
*	의   '	o Gallup 5198'-5406'		
	<u> </u>	o Gallup 5434'-5524'	Well was TA'd 12-30-62, and re-entered 6/25/81.	
	0	o Gallup 5440'-5524'		
	∴.1	<b>l</b> '.'		<del> </del>
	: <b>1</b>	<b>{</b> ::		
5549	· 🚄 - [ • [ • [ • ] • ] •	<b>.</b>		

PBTD-5543 TD- 5550 **Wellbore Schematic** 

# **Enduring Resources** Plug & Abandon Procedure

October 1, 2019

Well:

Yarborough Federal B #1

Location: Sec,T, R:

660' FNL & 530' FWL Sec 10, T23N, 06W

Cnty/State:

Rio Arriba, New Mexico

Lat/Long:

36.2444191,-107.4640427

API:

30-039-05127

Field:

Gallup

**Elevation:** 

GL: 6718'

By:

**Aztec Well Servicing** 

Yarborough Federal B #1

Proposed P&A

Gallup

Surface Plug: 336'-surface 130 sxs, class G

Perf @ 336

Ojo Alamo top @ 1120'

Plug 4: 1170'-1070' 49 sxs, class G CICR @ 1120 Perf @ 1170°

Pictured Cliffs top @ 2013'

Plug 3: 2063'-1963' 49 exs, class G CICR @ 2013' Perf @ 2083'

Mesaverde top @4220'

Plug 2: 4270'-4170' 18 sxs, class G

Plug 1: 5148'-5048' 18 sxs, class G CICR @ 5148\*

Gallup top @ 5434'

API 30-039-05127

PBTD-5543'

TD-5550'

12-1/4" hole 0-286" Surface Casing 9-5/8" 32.3# Set @ 286\* 300 sxs, cement circulated to surface

TOC @3850°

Production tubing 2-3/8" set @ 5499'

Perfs @ 5524'-5198'

Production Casing 5-1/2" 14# set @5549" cemented w 300 sxs TOC @ 3850'

# **SURFACE RECLAMATION PLAN**

Yarborough Federal B 001 API No. 30-039-05127 NMNM-028737

October 2019



**ENDURING RESOURCES IV, LLC** 

200 Energy Court Farmington, New Mexico 87401 Phone: (505) 636-9720

# **Table of Contents**

1	I	Introduction
2	F	Pre-Reclamation Site Inspection
	2.1	Vegetation Community
	2.2	
	2.3	Pre-Reclamation Weed Survey
	2.4	Contaminated Soil and Soil Amendments4
	2.5	
	2.6	Project Area Map4
3	J	Reclamation Techniques6
	3.1	P&A Marker6
	3.2	
	3.3	Topsoil Stripping, Storage, and Replacement
	3.4	Recontouring6
	3	3.4.1 Well Pad6
	3	3.4.2 Access Road
	3	3.4.3 Pipeline Corridor
	3.5	Water Management/Erosion Control Features
	3.6	Seedbed Preparation
	3.7	7 Seeding
	3.8	Negetation Reclamation Standards
	3.9	Noxious and Invasive Weed Control
4	l	Monitoring Requirements8
5	1	Pre-Reclamation Site Photographs9
6	Ī	References
I	ist.	t of Tables
_		e 1. Reclamation Seed Mix

Operator:	Enduring Resources IV, LLC (Enduring)
Well Name and Number:	Yarborough Federal B 001
API Number:	30-039-05127
Legal Location:	Section 10, Township 23N, Range 06W

#### 1 Introduction

This reclamation plan has been prepared to meet the requirements and guidelines of Onshore Oil and Gas Order No. 1, Bureau of Land Management Farmington Field Office's (BLM/FFO) Bare Soil Reclamation Procedure C and supplemental guidance there to including the BLM's Gold Book. This plan describes the final reclamation procedures, any changes if applicable based on the surface managing agency designated final land use plan, and any mitigation measures associated with final reclamation performed by the operator. Final reclamation is considered complete when the success criteria outlined in this plan has been met and a final abandonment notice (FAN) has been received.

Enduring or their appointed contractor would call New Mexico One-Call (or equivalent) to identify the location of any marked or unmarked pipelines or cables located in proximity to the project area or any other areas anticipated to have ground disturbance at least two working days prior to ground disturbance.

Enduring or their appointed contractor would notify the BLM-FFO by phone or email 48 hours in advance of dirt work reclamation activities.

The Enduring Resources IV, LLC contact person for this reclamation plan is:

Andrea Felix Regulatory Manager Enduring Resources IV, LLC 200 Energy Court Farmington, New Mexico 87401 505-636-9741

# 2 Pre-Reclamation Site Inspection

The pre-reclamation site inspection for the Yarborough Federal B 001 was conducted on October 1, 2019 with BLM-FFO Authorized Officer (AO) Randy McKee, Casey Haga, Heather Huntington and Makena Felix with Enduring Resources, and Johnny Stinson with Adobe Contractors, Inc. During the inspection, an inventory of site conditions and equipment was conducted. Reclamation procedures were discussed, including recontouring, silt trap placement, seed mix selection, weed abatement procedures and any additional requirements needed to assist in reclaiming the area to as close to pre-disturbance condition as practicable.

# 2.1 Vegetation Community

The vegetation community that best represents the surrounding project area is sagebrush shrubland.

#### 2.2 Proposed Reclamation Seed Mix

Disturbance will be recontoured and topsoil will be redistributed and prepared for seeding. Ripping, disking, and seeding of the site will be done by Enduring's construction contractor. The seed mix is listed in detail in Table 1 below.

Table 1. Reclamation Seed Mix

Common Name	Scientific Name	Season	Form	PLS lbs/acre1
Winterfat	Krascheninnikovia lanata	Cool	Shrub	2.0
Indian Ricegrass Rimrock	Achnatherum hymenoides	Cool	Bunch	4.0
Fourwing Saltbrush	Atriplex canescens	Cool	Shrub	2.0
Needle and Thread	Hesperostipa Comata	Cool	Bunch	3.0
Sagebrush	Artemesia Tridentata	Cool	Shrub	0.25
Sand Dropseed	Sporobolus cryptandrus	Warm	Bunch	0.5
Blue Grama	Bouteloua gracilis	Warm	Sod Forming	2.0
Galleta	Pleuraphis Jamesii	Warm	Bunch	3.0
Rocky Mtn. bee plant	Cleome Serrulata	Cool	Forb	0.25
Blue flax	Linum Lewisii	Cool	Forb	0.25

Based on 60 pure live seeds (PLS) per square foot, drill seeded; double this rate (120 PLS per square foot) if broadcast or hydro-seeded.

#### 2.3 Pre-Reclamation Weed Survey

No New Mexico Department of Agriculture Class A- or B- listed weed species were identified within the project area.

# 2.4 Contaminated Soil and Soil Amendments

There was slight soil staining around well location equipment. During reclamation, if this soil is deemed contaminated, it will be removed and hauled to an approved landfarm for remediation. Once equipment is removed, further inspection of the soil under these facilities would be conducted to ensure no leaks had occurred contaminating the soil beneath. Soil tests may occur if determined to be necessary.

#### 2.5 Equipment and Facility Removal

- Production equipment including steel tank, above grade fiberglass tank, separator, and artificial lift will be removed from location.
- Ancillary equipment including concrete slabs, fencing, anchors, and flow lines (above ground and/or subterranean) will also be removed and disposed of appropriately or reused.
- Debris and trash will be removed and disposed of at approved facilities.
- Well-connect pipeline will be cut and capped below grade off pad. Meter run, risers and dog leg will be removed and cut and capped below grade.
- There is no below grade tank on location.
- There is no catholic groundbed on location.
- Remove power drop pole with meter and possibly 2 service line poles back to main line.
- The gravel present on location will be stripped and spread over nearby county road as
  practicable. Remaining gravel that cannot be separated from soil adequately for reuse will be
  buried in the cut slope.
- Wellhead will be removed upon plugging and an above ground well monument installed.

#### 2.6 Project Area Map

See project area map on the following page.



# 3 Reclamation Techniques

All activities associated with the abandonment of the Yarborough Federal B 001 well are limited to areas approved in the Application for Permit to Drill (APDs) and/or the Right-of-Way (ROW) Grants.

# 3.1 P.C.A Marker

An above grade steel pipe well monument will be fixed to the top of the wellbore with all information required per regulation legibly welded on the pipe.

# 3.2 Vegetation and Site Clearing

Vegetation that has re-established within the interim reclaimed portions of the disturbance area will be mulched and incorporated into the topsoil as additional organic matter.

# 3.3 Topsoil Stripping, Storage, and Replacement

The upper 6 inches of topsoil (if available) will be stripped following vegetation and site clearing. Topsoil will not be mixed with the underlying subsoil horizons and will be temporarily stockpiled separate from subsoil or other excavated material during recontouring. Topsoil will be spread evenly over sub-soils upon completion of recontouring operations and prior to final seedbed preparation. Spreading shall not be done when the ground or topsoil is to wet to adequately support construction equipment.

#### 3.4 Reconfouring

All disturbed areas related to the Yarborough Federal B 001 will be recontoured to blend with the surrounding landscape, emphasizing, restoration of the existing drainage patterns and landforms to pre-construction condition to the extent practicable.

#### 3.4.1 Well Pad

Prior to recontouring the location, any gravel that can be removed will be spread over the main roadway. The well pad will be contoured to blend with the surrounding landforms removing signs of cut/fill slopes. The fill slope on the western side of the location will be pushed (dozer)/excavated (excavator)/carried (belly scraper) and placed within the cut slope on the eastern side of location. Natural rolling contours will be implemented to break up the surface and aid in removing signs of the well pad once vegetation establishes. One silt trap will be incorporated into the recontoured location as described below in section 3.5.

#### 3.4.2 Access Road

The access road associated with the Yarborough Federal B 001 well will be reclaimed and brought up to grade. Silt traps will be placed along the road where needed. Material from silt traps will be used to bring the reclaimed roadway to grade.

#### 3.4.3 Pipeline Corridor

Well-connect pipeline will be cut and capped below grade off pad and at tie-in. Meter run, risers and dog leg will be removed. Any disturbance from pipe removal or road reclamation to the interim reclaimed pipeline ROW will be promptly repaired.

# 3.5 Water Management/Erosion Control Features

Multiple silt traps will be incorporated into the recontoured location and access road. One large silt trap will be constructed on the eastern side of location to collect water during inclement storm events from one drainage entering the project area from the east. The silt trap will slow the velocity of the channel and serve as a range improvement for livestock and wildlife. The spillway from this silt trap will spill away from loosened soils reclaimed downslope via rolling berms as opposed to cut diversion ditches. Excelsior wattles may be installed in the spillways to prevent cutting and sediment transportation if needed. Additional rolling pocket silt traps will be installed along the reclaimed access road to prevent channeling and rilling. If additional diversions or silt traps are found to be necessary during reclamation dirt work, they will be installed at that time. Ripping and disking would be conducted perpendicular to the recontoured slopes to promote water retention and provide terracing to prevent erosion and rills. Additional erosion control or water management features that may be used, if needed, include (but are not limited to) water bars or rolling dips, check dams, erosion control blankets or geotextiles, and straw wattles.

# 3.6 Seedbed Preparation

Seedbed will be prepped after the location has been contoured and topsoil has been evenly redistributed. Seedbed preparation within compacted areas will include ripping to a minimum depth of 18 inches, unless bed rock is encountered at a shallower depth, and spacing furrows 2 feet apart. Ripping will be conducted perpendicularly in two phases, where practicable. If large clumps/clods result from the ripping process, disking will be conducted perpendicular to slopes in order to provide terracing and minimize runoff and erosion. Final seedbed preparation will consist of raking or harrowing the spread topsoil prior to seeding to promote a firm (but not compacted) seedbed without surface crusting.

# 3.7 Seeding

The seed mix chosen for this project area is listed in Table 1. Seeding will occur immediately following recontouring and seedbed preparation. A disc-type seed drill with two boxes for various seed sizes will be utilized for seeding the disturbed areas of the site. Enduring or its reclamation subcontractor will ensure that perennial grasses and shrubs are planted at the appropriate depth. Intermediate size seeds (such as wheatgrasses and shrubs) will be planted at a depth of 0.5 inch, larger seeds (such as Indian ricegrass) will be planted at a depth of 1 to 2 inches, and small seeds (such as sand dropseed) will be planted at a depth of 0.25 inch. In situations where differing planting depths are not practicable with the equipment being used, the entire mix will be planted no deeper than 0.25 inch. A drag, packer, or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding will be run perpendicular to slopes in order to minimize runoff and erosion.

Drill seeding may be used on well-packed and stable soils that occur on gentler slopes and where tractors and drills can safely operate. Where drill seeding is not practical, the contractor will hand-broadcast seed using a "cyclone" hand seeder or similar broadcast seeder. Galleta and seeds the like may also be broadcast; due to the light fluffy nature of these seeds, they do not seed well through a drill seeder. Broadcast application of seed requires a doubling of the drill-seeding rate. The seed will then be raked into the ground so the seed is planted no deeper than 0.25 inch below the surface.

#### 3.8 Vegetation Reclamation Standards

Reclamation will be deemed successful when a self-sustaining, vigorous, diverse, native (or otherwise accepted) plant community is established on site, with a density meeting required foliar cover in table 2 below. Erosion control will be deemed successful when the aforementioned

vegetation has established and there is no gullying, headcutting, deep or excessive rilling, and slumping (unless intentionally depressed (silt trap) for velocity and volume control).

Table 2. Reclamation Goal for Sagebrush/Grass Community

Functional Group	Percent (%) Foliar Cover	Common Species
Trees/Shrubs/Grasses/Forbs	>35	Utah juniper, Piñon pine; big sagebrush, four-wing saltbush, antelope bitterbrush, alkali sacaton, Western wheatgrass, Indian ricegrass, galleta, sand dropseed, scarlet globemallow, wooly Indian wheat, fleabane, Penstemon spp., buckwheat, threadleaf groundsel.
Invasive/undesirables 10% allowed toward meeting standard of 35%.	≤10	Plants that have the potential to become a dominant species on a site where its presence is a detriment to revegetation efforts or the native plant community.  Examples of invasive species include cheatgrass, Russian thistle, kochia.

#### 3.9 Noxious and Invasive Weed Control

Should any noxious or invasive weeds be documented on any portions of the action area located after earthwork and seeding activities, the BLM-FFO weed coordinator would provide Enduring with specific requirements and instructions for weed treatments, including the period of treatment, list of approved herbicides, required documentation to be submitted to the BLM-FFO after treatment, and any other site-specific instructions that may be applicable.

# 4 Monitoring Requirements

Permit or grant holder is not required to monitor areas reclaimed under Vegetation Reclamation Procedure C. However, Enduring will complete a site assessment of reclamation success on an annual basis to track and confirm successful reclamation of the site in accordance with the success criteria outlined in Table 2 above. When vegetation on the reclaimed site appears to meet the success criteria, Enduring will document that standards have been obtained and submit a Final Abandonment Notice (FAN).



Figure 1. Access road start at main road looking southeasterly.



Figure 2. Access Road end at well pad edge looking northwesterly.



Figure 3. Pipeline tie-in at main line looking southeasterly.





Figure 5. Power lines to location looking southwesterly.

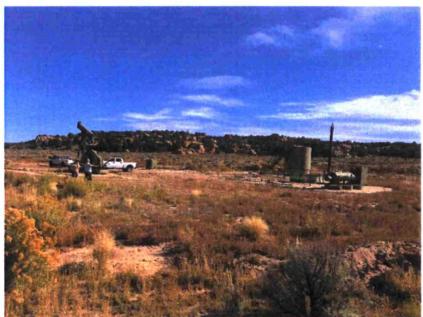


Figure 6. Southwest corner looking northeasterly.

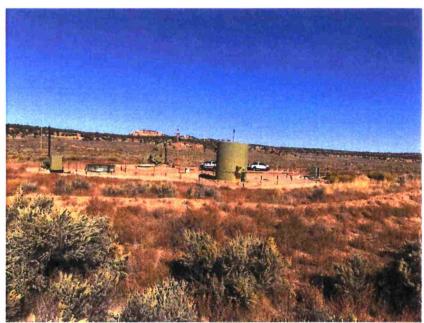


Figure 7. Southeast corner looking northwesterly.

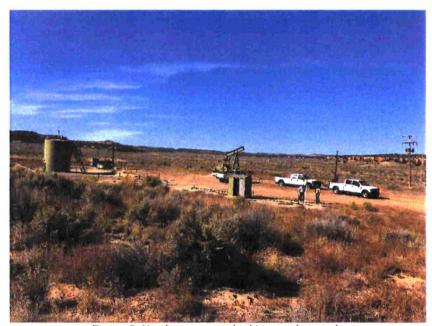


Figure 8. Northeast corner looking southwesterly.

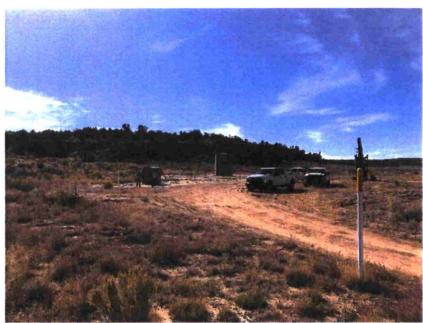


Figure 9. Northwest corner looking southeasterly.

# 6 References

- 43 CFR Part 3160, "Onshore Oil and Gas Order No. 1; Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Approval of Operations," 72 Federal Register 44 (March 2007), pp. 10328-1033
- BLM. 2013a. Farmington Field Office Bare Soil Reclamation Procedures. Available at: http://www.emnrd.state.nm.us/MMD/AML/documents/FFOBareSoilReclamationProcedures 2-1-13.pdf. Accessed October 2019.
- U.S. Department of the Interior U.S. Department of Agriculture (USDI-USDA). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+307/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.