Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.

(515H)

2. Name of Operator

Avant Operating, LLC

9. API Well No.

30-025-53574

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
Title		
Approved by *(Signature)*	Name *(Printed/Typed)*	Date
Title	Office	

Application approval 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.
Conditions of approval, if any, are attached.

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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 08/09/2024

Confidential

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 LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-025-53574	13160	Corbin; Bone Spring, South

4 Property Code	5 Property Name	6 Well Number
335608	EMERALD FEDERAL COM	505H

7 OGRID No.	8 Operator Name	9 Elevation
330396	Avant Operating, LLC	3682.7'

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
P	6	19S	33E		350	SOUTH	1280	EAST	LEA

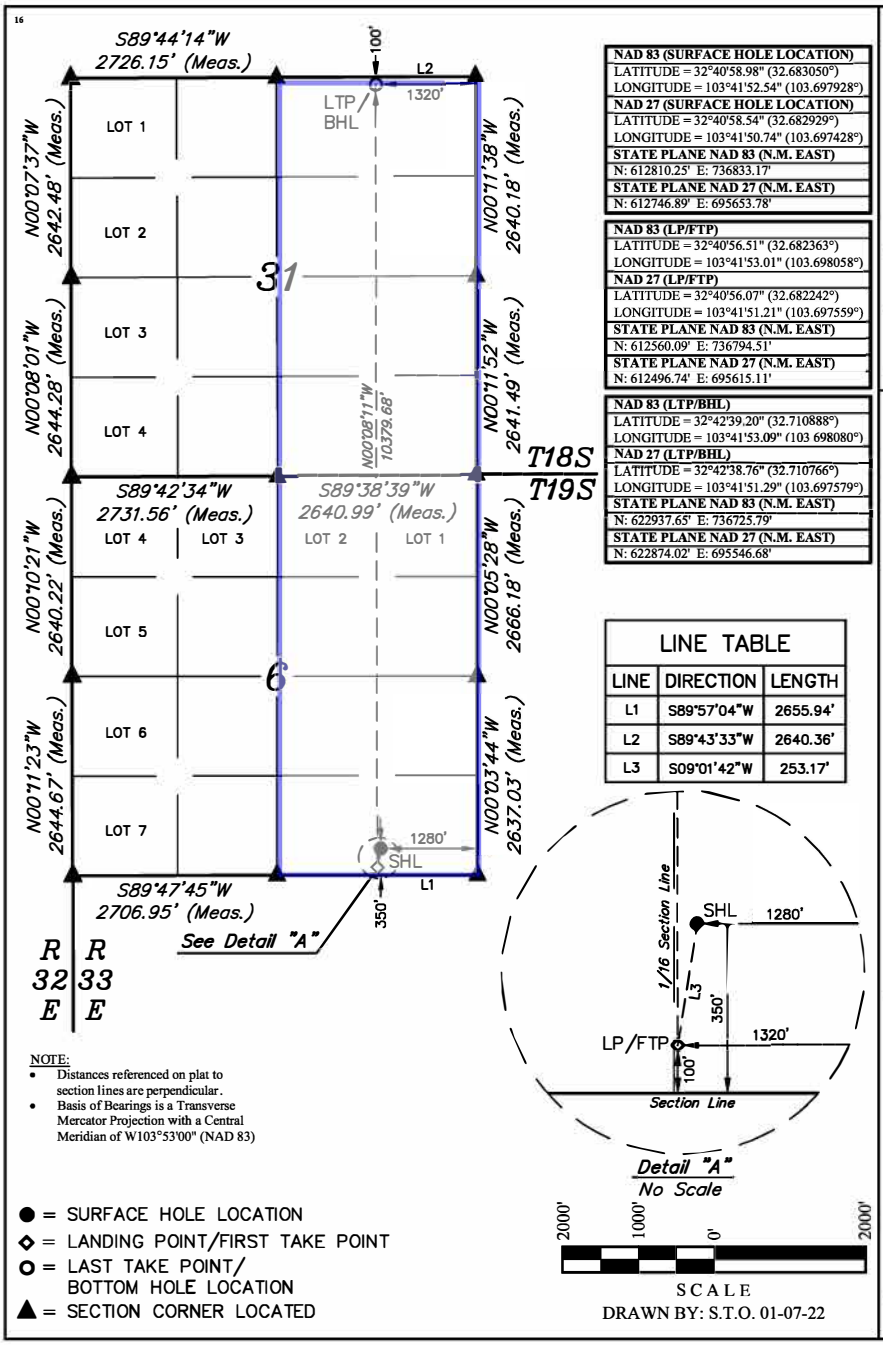
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	31	18S	33E		100	NORTH	1320	EAST	LEA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
641.14			

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.

16



NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°40'58.98" (32.683050°)
LONGITUDE = 103°41'52.54" (103.697928°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°40'58.54" (32.682929°)
LONGITUDE = 103°41'50.74" (103.697428°)
STATE PLANE NAD 83 (N.M. EAST)
N: 612810.25' E: 736833.17'
STATE PLANE NAD 27 (N.M. EAST)
N: 612746.89' E: 695653.78'

NAD 83 (LP/FTP)
LATITUDE = 32°40'56.51" (32.682363°)
LONGITUDE = 103°41'53.01" (103.698058°)
NAD 27 (LP/FTP)
LATITUDE = 32°40'56.07" (32.682242°)
LONGITUDE = 103°41'51.21" (103.697559°)
STATE PLANE NAD 83 (N.M. EAST)
N: 612560.09' E: 736794.51'
STATE PLANE NAD 27 (N.M. EAST)
N: 612496.74' E: 695615.11'

NAD 83 (LTP/BHL)
LATITUDE = 32°42'39.20" (32.710888°)
LONGITUDE = 103°41'53.09" (103 698080°)
NAD 27 (LTP/BHL)
LATITUDE = 32°42'38.76" (32.710766°)
LONGITUDE = 103°41'51.29" (103.697579°)
STATE PLANE NAD 83 (N.M. EAST)
N: 622937.65' E: 736725.79'
STATE PLANE NAD 27 (N.M. EAST)
N: 622874.02' E: 695546.68'

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°57'04"W	2655.94'
L2	S89°43'33"W	2640.36'
L3	S09°01'42"W	253.17'

Detail "A"
No Scale

NOTE:
- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00" (NAD 83)

● = SURFACE HOLE LOCATION
◇ = LANDING POINT/FIRST TAKE POINT
○ = LAST TAKE POINT/ BOTTOM HOLE LOCATION
▲ = SECTION CORNER LOCATED

2000' 1000' 0' 2000'
SCALE
DRAWN BY: S.T.O. 01-07-22

17 OPERATOR CERTIFICATION

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.

Terri Stathem 3/15/2022
Signature Date

Terri Stathem
Printed Name

tstathem@legacyreserves.com
E-mail Address

18 SURVEYOR CERTIFICATION

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.

January 04, 2022
Date of Survey
Signature and Seal of Professional Surveyor:

PAUL BUCHELE NEW MEXICO 23782 PROFESSIONAL SURVEYOR 01-07-22

Certificate Number:

Well Name: EMERALD FEDERAL COM

Well Location: T19S / R33E / SEC 6 / SWSE / 32.68305 / -103.697928

County or Parish/State: LEA / NM

Well Number: 505H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM077002

Unit or CA Name:

Unit or CA Number:

US Well Number:

Operator: AVANT OPERATING LLC

Notice of Intent

Sundry ID: 2807464

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 08/19/2024

Time Sundry Submitted: 03:20

Date proposed operation will begin: 11/26/2024

Procedure Description: Avant Operating, LLC would like to make the following changes to the Emerald Federal Com 505H well (APD ID#10400084367). Avant acquired this APD from Legacy Reserves Operating, LP and the change of operator was approved on 8/14/2024. -Name change from Emerald Federal Com 505H to Emerald Fed Com 515H -SHL change from 350' FSL & 1280' FEL to 350' FSL & 1260' FEL. -BHL change from 100' FNL & 1320 FEL to 100' FNL & 1254' FEL. -Update dedicated acreage to 1302.98 -Updated CTB info. CTB was moved to avoid lizard habitat, revised CTB being approved with new Avant APD for Emerald Federal Com 304H (10400099668) Please see all updated attachments to reflect these changes.

NOI Attachments

Procedure Description

Emerald_Pad_2_Updated_CTB___SUPO_20240819151518.pdf

Emerald_Fed_Com_515H_Updated_Drilling_Info_20240819151430.pdf

Emerald_Federal_Com_515H_C_102__cert_6_7_24____Copy_20240819132429.pdf

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Well Name: EMERALD FEDERAL COM

Well Location: T19S / R33E / SEC 6 / SWSE / 32.68305 / -103.697928

County or Parish/State: LEA / NM

Well Number: 505H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM077002

Unit or CA Name:

Unit or CA Number:

US Well Number:

Operator: AVANT OPERATING LLC

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: MEGHAN TWELE

Signed on: AUG 19, 2024 03:20 PM

Name: AVANT OPERATING LLC

Title: Contract Regulatory Analyst

Street Address: 1515 WYNKOOP ST SUITE 700

City: DENVER **State:** CO

Phone: (720) 339-6880

Email address: MTWELE@OUTLOOK.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

CONFIDENTIAL

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM 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.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No.

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.

2. Name of Operator

9. API Well No.

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool or Exploratory Area

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*

11. Country or Parish, State

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ 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 recomplete 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 perfonned 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 recompletion 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.)

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)*

Title

Signature

Date

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by

Title

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

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 ofthis form to U.S. Department ofthe Interior, Bureau ofLand 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

Location of Well

0. SHL: SWSE / 350 FSL / 1280 FEL / TWSP: 19S / RANGE: 33E / SECTION: 6 / LAT: 32.68305 / LONG: -103.697928 (TVD: 0 feet, MD: 0 feet)

PPP: SENE / 0 FSL / 1320 FWL / TWSP: 18S / RANGE: 33E / SECTION: 31 / LAT: 32.7046 / LONG: -103.698 (TVD: 9700 feet, MD: 18200 feet)

PPP: SESE / 100 FSL / 1320 FWL / TWSP: 19S / RANGE: 33E / SECTION: 6 / LAT: 32.682363 / LONG: -103.698 (TVD: 9700 feet, MD: 10086 feet)

BHL: NWNE / 100 FNL / 1320 FWL / TWSP: 18S / RANGE: 33E / SECTION: 31 / LAT: 32.71088 / LONG: -103.69808 (TVD: 9700 feet, MD: 20463 feet)

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Avant Operating, LLC **SURFACE PLAN PAGE 1**
Emerald Federal Com pad 2
Pad center: 400' FSL & 1260' FEL 6-19S-33e
Lea County, NM

This surface use plan covers the following 10 wells on an 8.594-acre pad. Two wells (503H & 504H) were approved for a smaller pad (4.574 acres) for Legacy. Avant has now acquired Legacy's active and pending wells.

304H	503H	604H
305H	514H	605H
306H	515H	606H
	516H	

1. ROAD DIRECTIONS & DESCRIPTIONS (See MAPS 1 – 5AB)

From the junction of US 285 and US 62/180 in Carlsbad...
Go East 26.6 miles on US 62/180 to NM 243 (≈Mile Post 61.6 on US 62/180)
Then turn left and go North and NE 3.7 miles on paved NM 243
Then turn left and go North 6.1 miles on paved County Road 126A (Maljamar)
Then turn right and go ENE 5.2 miles on a caliche road to a P&A well
Then turn left and go North 3/4 mile on a caliche road
Then turn right and go NE ½ mile on a caliche road
Then turn left and go North 0.6 mile on a caliche road
Then turn right and go East 286.97' cross-country to the west side of the pad

An 815.19' road will be built west to the proposed CTB.

Non-NMDOT and non-county roads will be maintained as needed to Gold Book standards. This includes pulling ditches, preserving the crown, and cleaning cattle guards and culverts. This will be done at least once a year, and more often as needed.

2. ROAD TO BE BUILT OR UPGRADED (See MAPS 4 & 5AB)

The 1102.16' of new resource roads will be crowned and ditched, have a ≤24' wide driving surface, and be surfaced with caliche. Pipelines that are crossed will

be padded. Maximum disturbed width = 30'. Maximum grade = 1%. Maximum cut or fill = 3'. No culvert, cattle guard, or vehicle turn out is needed. Upgrading will consist of filling potholes with caliche as needed.

3. EXISTING WELLS (See MAP 6)

Oil, gas, water, and P & A wells are within 1-mile radii. No SWD or injection well is within a mile.

4. PROPOSED PRODUCTION FACILITIES (See MAPS 7ABCD)

A 300' x 500' central tank battery (CTB) will be built northwest of the well pad. Buried pipelines (flow and gas) will run 2104.95' parallel to roads to the CTB. For each well on the pad, there will be one 4" HDPE flowline, one 4" OD HDPE gas lift feed line, and one 3" OD steel gas lift discharge line. (Central tank battery has moved from its Legacy location to avoid lizard habitat.)

Avant will build a 5239.36' long power line from the pad north and west. Avant will build a 55.04' long power line from the CTB north. Total power lines length = 5294.40'. All power lines 3-phase and raptor safe.

5. WATER SUPPLY (See MAP 8)

Water will be trucked from the existing JR (aka, Gregory Rockhouse Ranch) Water Station on BLM (NMNM-131541) in NWNW 20-18s-32e.

6. CONSTRUCTION MATERIALS & METHODS (See MAPS 9ABCD & 10)

NM One Call (811) will be called before construction starts. Top ≈6" of soil and brush will be stockpiled north and south of the well pad and north of the CTB.

Latter topsoil will be piled no higher than 3 feet and seeded. V-doors will face east. Well pad and CTB will be bermed. Closed loop mud system will be used. Caliche will be hauled from the existing Caviness pit on private land in SWNE 13-19s-31e.

7. WASTE DISPOSAL

All trash will be placed in portable trash cages and hauled to the Lea County landfill. There will be no trash burning. Mud tank contents (drill cuttings, mud, salts, and other chemicals) will be hauled to R360's state approved (NM-01-0006) Halfway landfill on US 62/180. Human waste will be disposed of in chemical toilets and hauled to the Hobbs wastewater treatment plant.

8. ANCILLARY FACILITIES

There will be no airstrip or camp. Camper trailers will be on location for the company man, tool pusher, mud logger, et al.

9. WELL SITE LAYOUT (See MAP 9)

Also see Rig Layout diagram for depictions of the well pad, trash cage, access onto the location, parking, living facilities, and rig orientation.

10. RECLAMATION (See MAP 11ABCD)

A 100' wide swath on the north side of the well pad and 50' wide swath on the south side of the well pad will be interim reclaimed. Once the last well is plugged, then the remainder of the pad, CTB, and new roads will be reclaimed within 6 months of plugging and the power lines will be removed. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread

over disturbed areas and harrowed on the contour. Disturbed areas will be seeded in accordance with BLM requirements. New roads will be blocked. Noxious weeds will be controlled. Land use will be:

30' x 1102.16' roads = 0.76 acres
520' x 720' well pad = 8.59 acres
300' x 500' CTB = 3.44 acres
30' x 2104.95' pipelines = 1.45 acres
+ 30' x 5294.40' power lines = 3.65 acres
17.89 acres short term
- 30' x 2104.95' pipelines = 1.45 acres
- 30' x 5294.40' power lines = 3.65 acres
- 50' x 520' well pad interim reclamation = 0.60 acres
- 100' x 520' well pad interim reclamation = 1.19 acres
11.00 acres long term

11. SURFACE OWNER

All construction will be on BLM. BLM office is the Carlsbad Field Office, 620 E. Greene, Carlsbad NM 88220. Phone is 575 234-5972.

12. OTHER INFORMATION

Legacy on-sited the project July 20, 2021, with Caroline Kaufman of BLM. Avant on-sited the expanded project May 1, 2024, with BLM's Jeff Robertson and Cassandra Aguillard. J. T. Rein Archaeology, LLC inspected the well pads and filed reports NMCRIS-154652 on January 9, 2024, and NMCRIS-155527 on May 13, 2024. He inspected related infrastructure and will file a report for the post-Legacy modifications.

Avant Operating, LLC
Emerald Federal Com pad 2
Pad center: 400' FSL & 1260' FEL 6-19S-33e
Lea County, NM

SURFACE PLAN PAGE 5

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U. S. C. 1001 for the filing of false statements. Executed this 16th day of June 2024.

_____

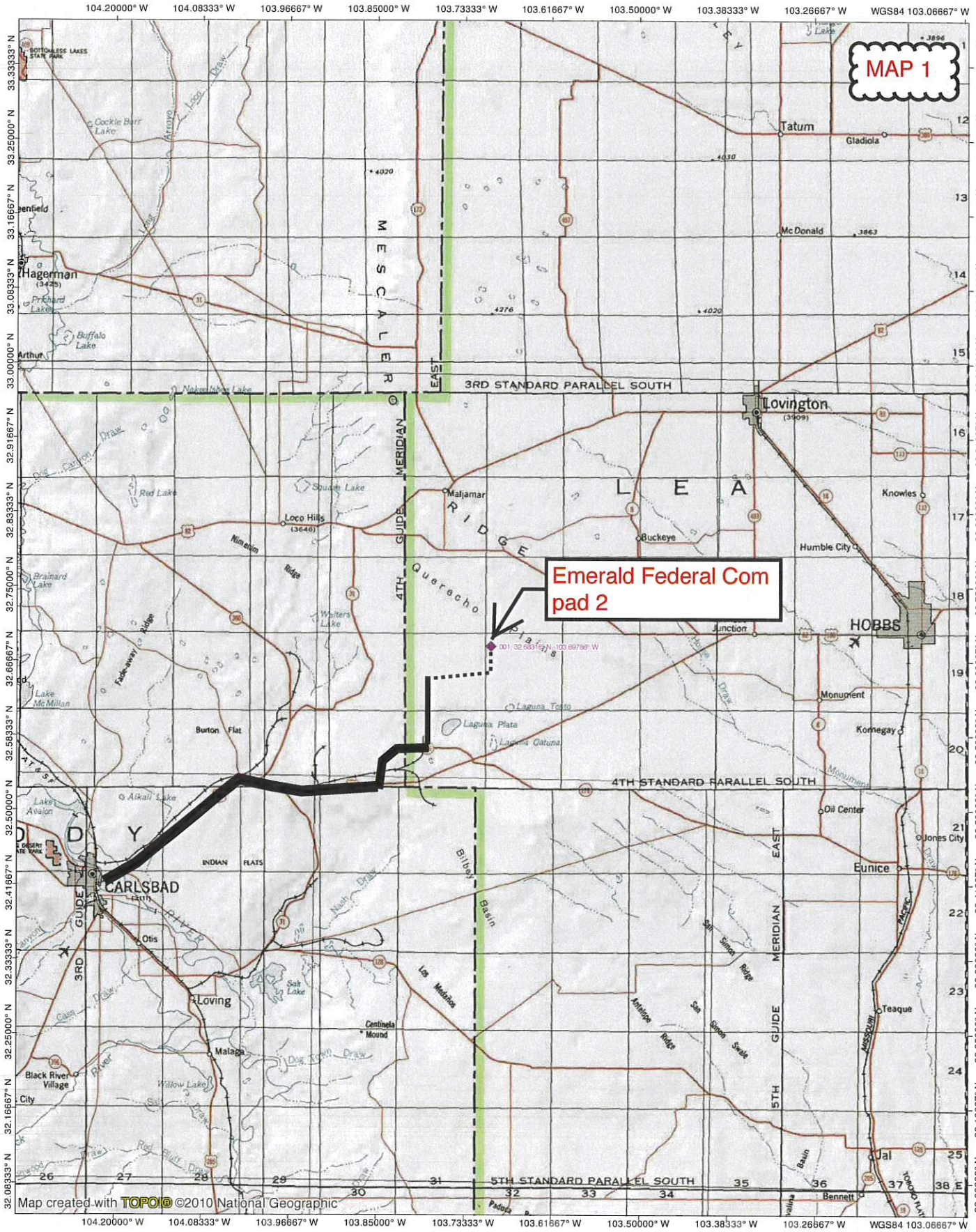
Brian Wood, Consultant
Permits West, Inc.
37 Verano Loop, Santa Fe, NM 87508
(505) 466-8120 FAX: (505) 466-9682 Cellular: (505) 699-2276

Field representative will be:

John Harper, Senior Vice President Assets and Exploration
Avant Operating, LLC
1515 Wynkoop, Suite 700, Denver CO 80202
(720) 746-5045

PERMITS WEST, INC.
PROVIDING PERMITS for LAND USERS

TOPO! map printed on 06/16/24 from "Untitled.tpo"



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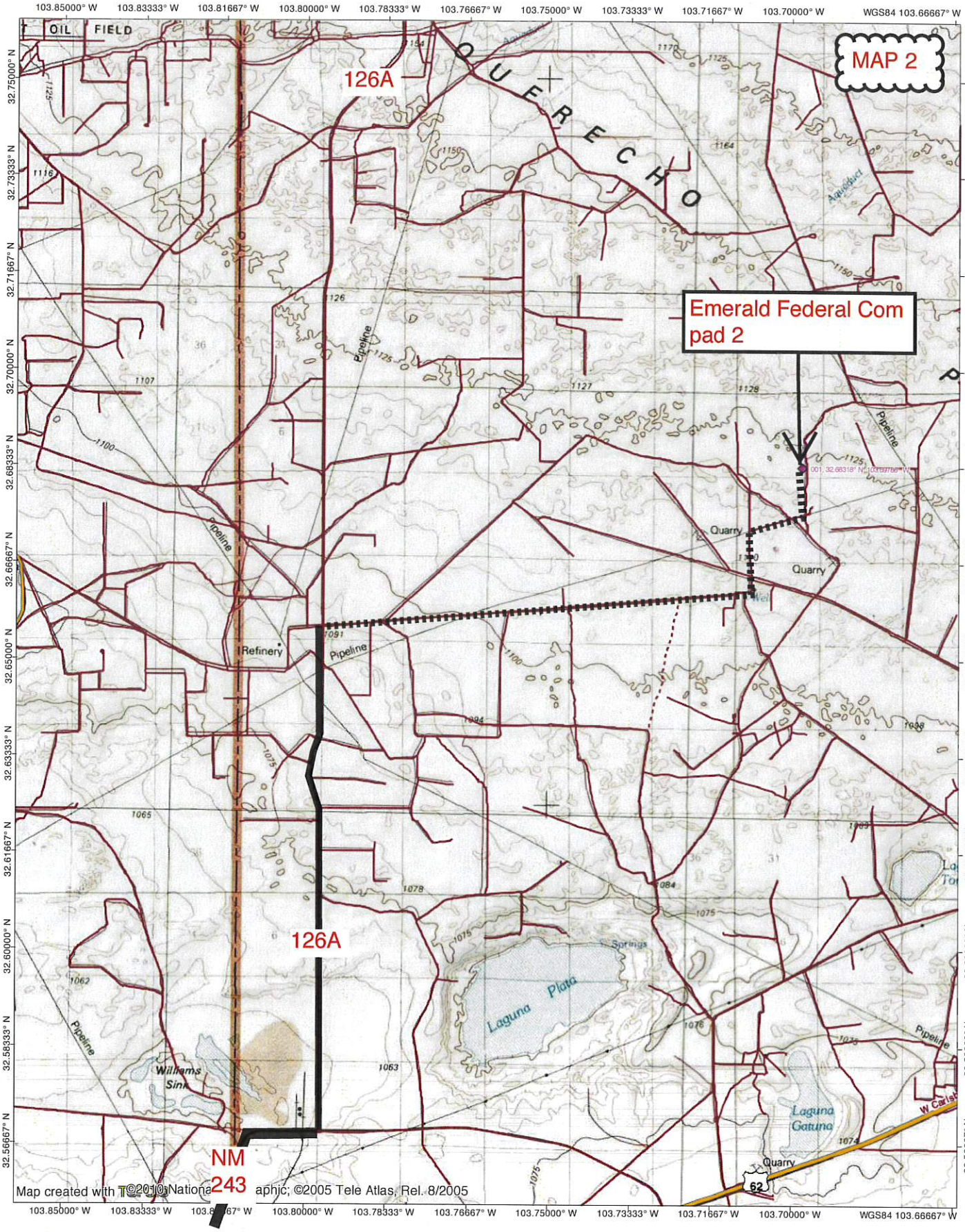

NATIONAL GEOGRAPHIC

0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles
0 1 2 3 4 5 km

TN MN
6°
06/16/24

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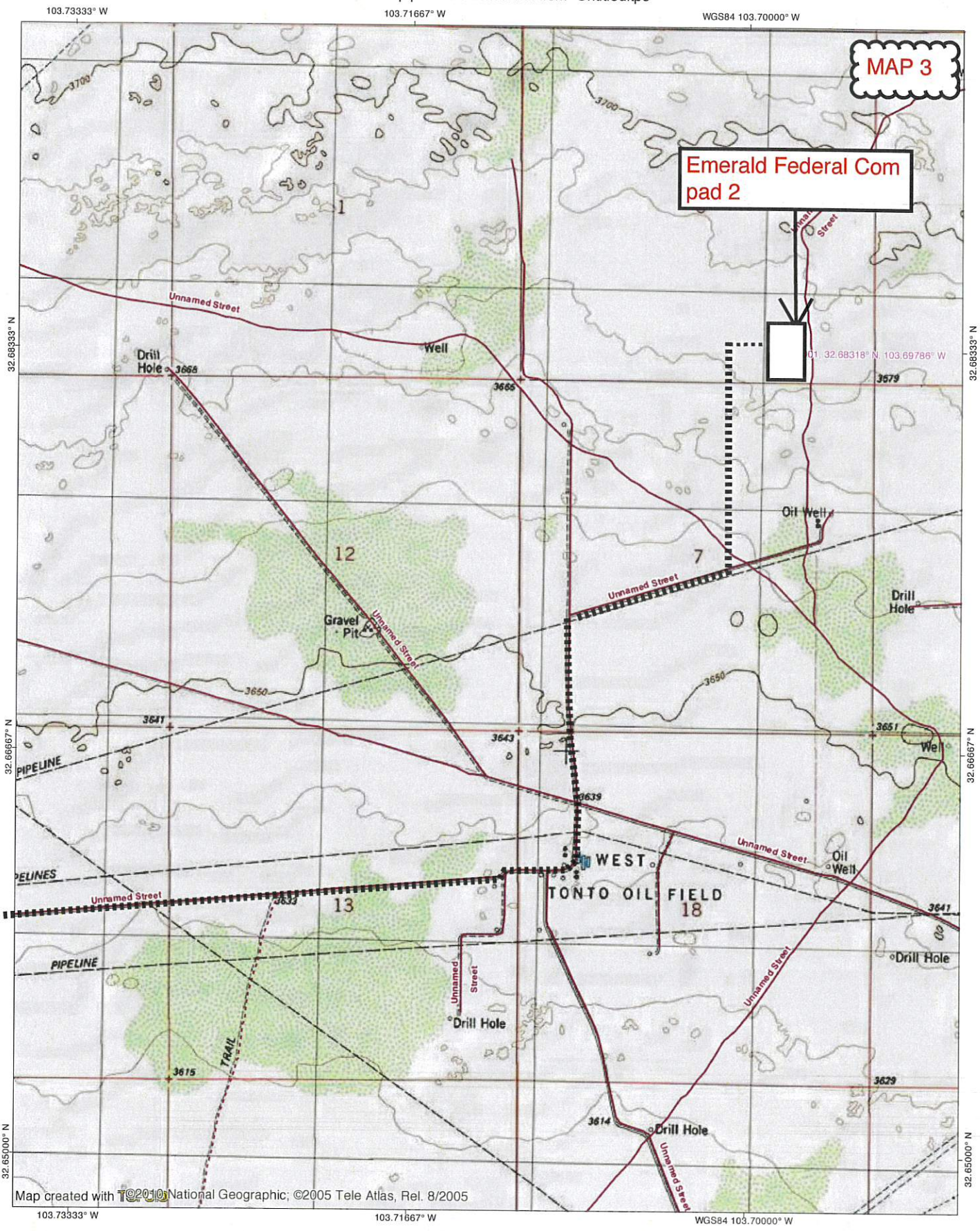

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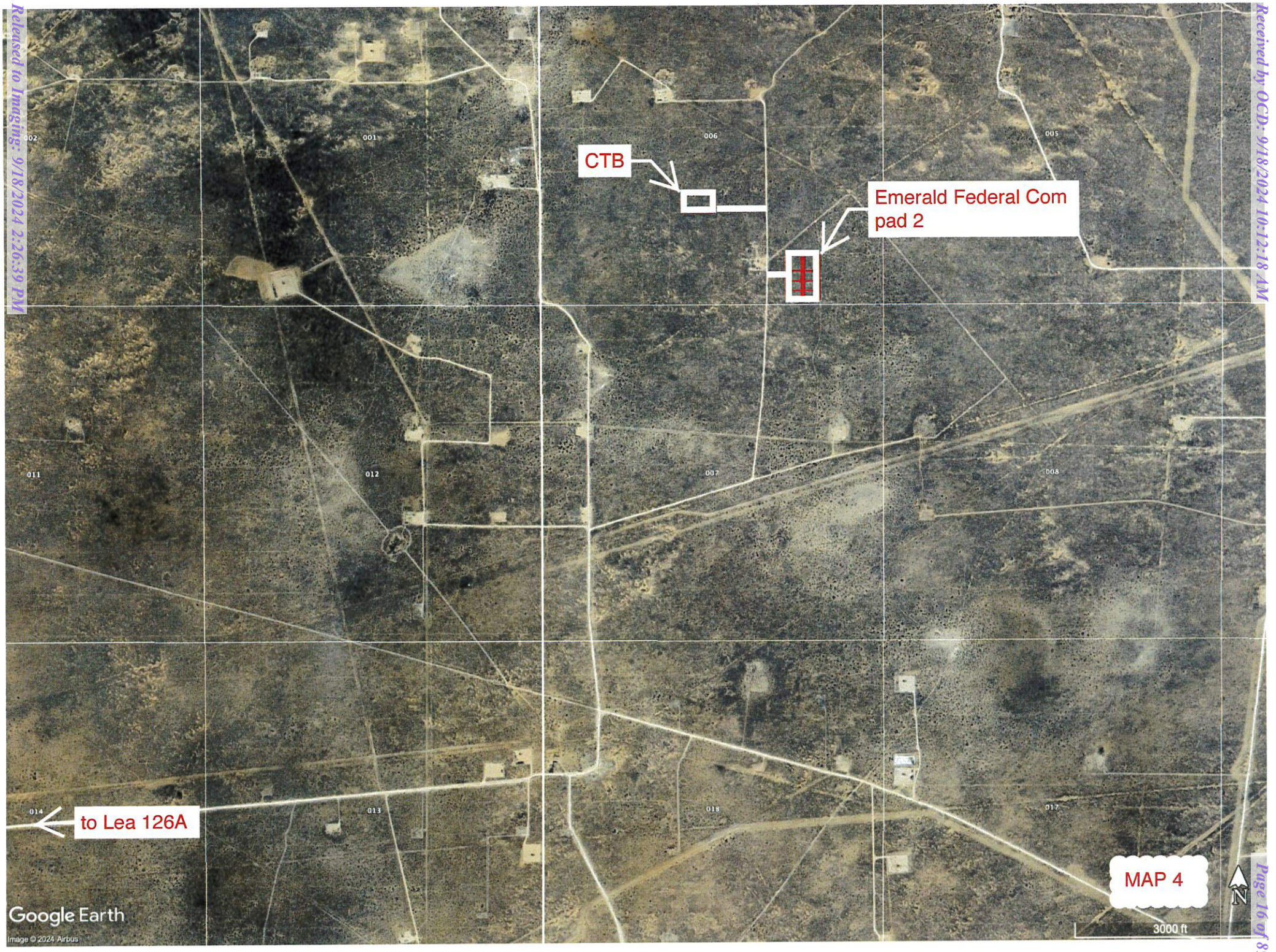
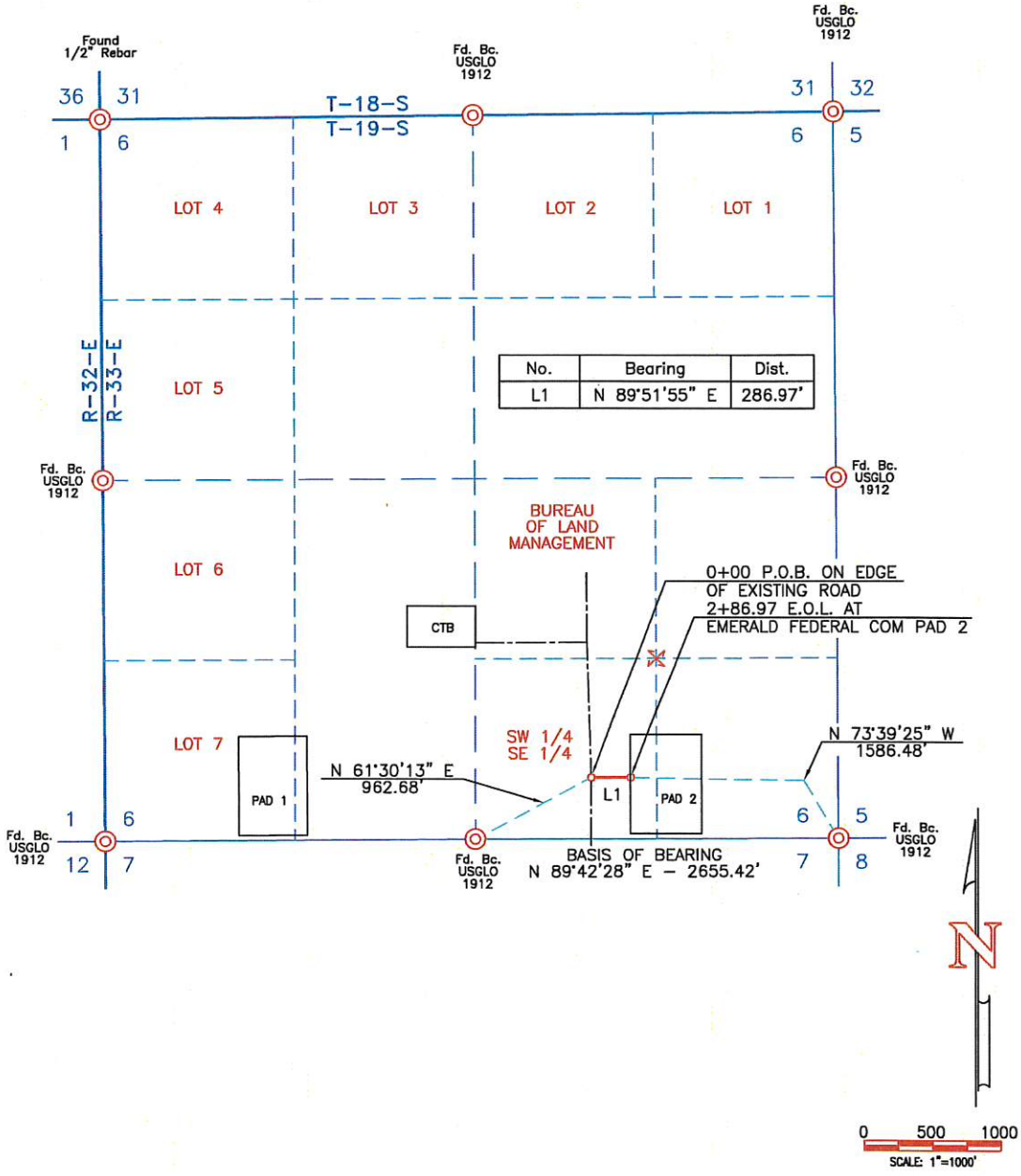


AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2 ACCESS ROAD

SW 1/4 SE 1/4 OF SEC. 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 5A



NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: N 89°42'28" E - 2655.42'
2. ALL BEARINGS AND DISTANCES SHOWN ARE BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.

P.O.B. = POINT OF BEGINNING
E.O.L. = END OF LINE

OWNER	STATION	FEET/RODS/ACRES (30' R.O.W.)
BUREAU OF LAND MANAGEMENT	0+00 TO 2+86.97	286.97 / 17.392 / 0.198

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S. N.M.P.S. #14831 — DATE 6/7/2024

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

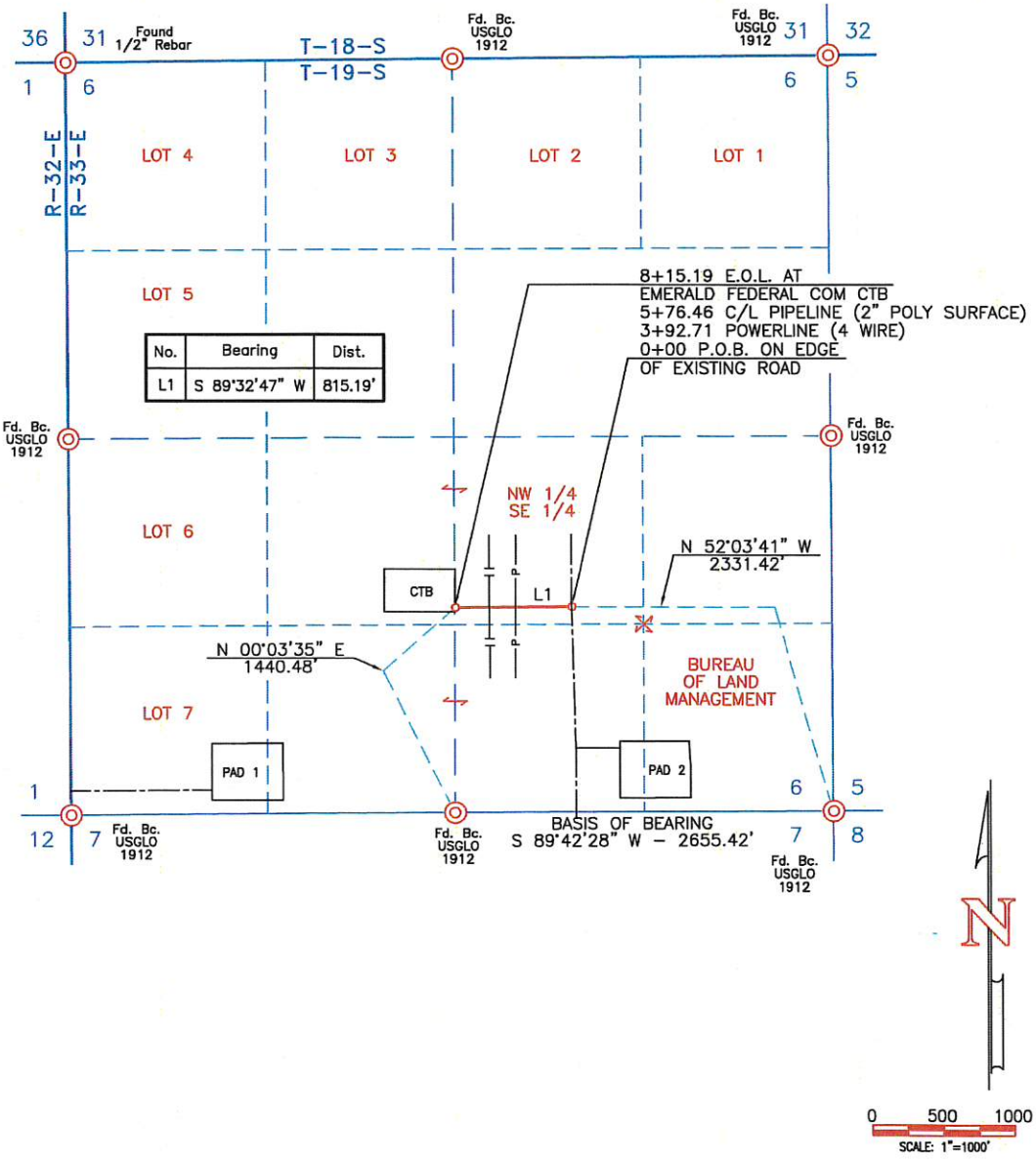
DWG. No. : 11847-A01		Revision: 2
Drawn by: A.A.D.	Date Drawn: 2/12/24	Rev. Date: 5/14/24
Surveyed: 2/7-5/12/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB ACCESS ROAD

NW 1/4 SE 1/4 OF SEC. 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 5B



NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: S 89°42'28" W - 2655.42'
2. ALL BEARINGS AND DISTANCES SHOWN ARE BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S. N.M.P.S. #14831

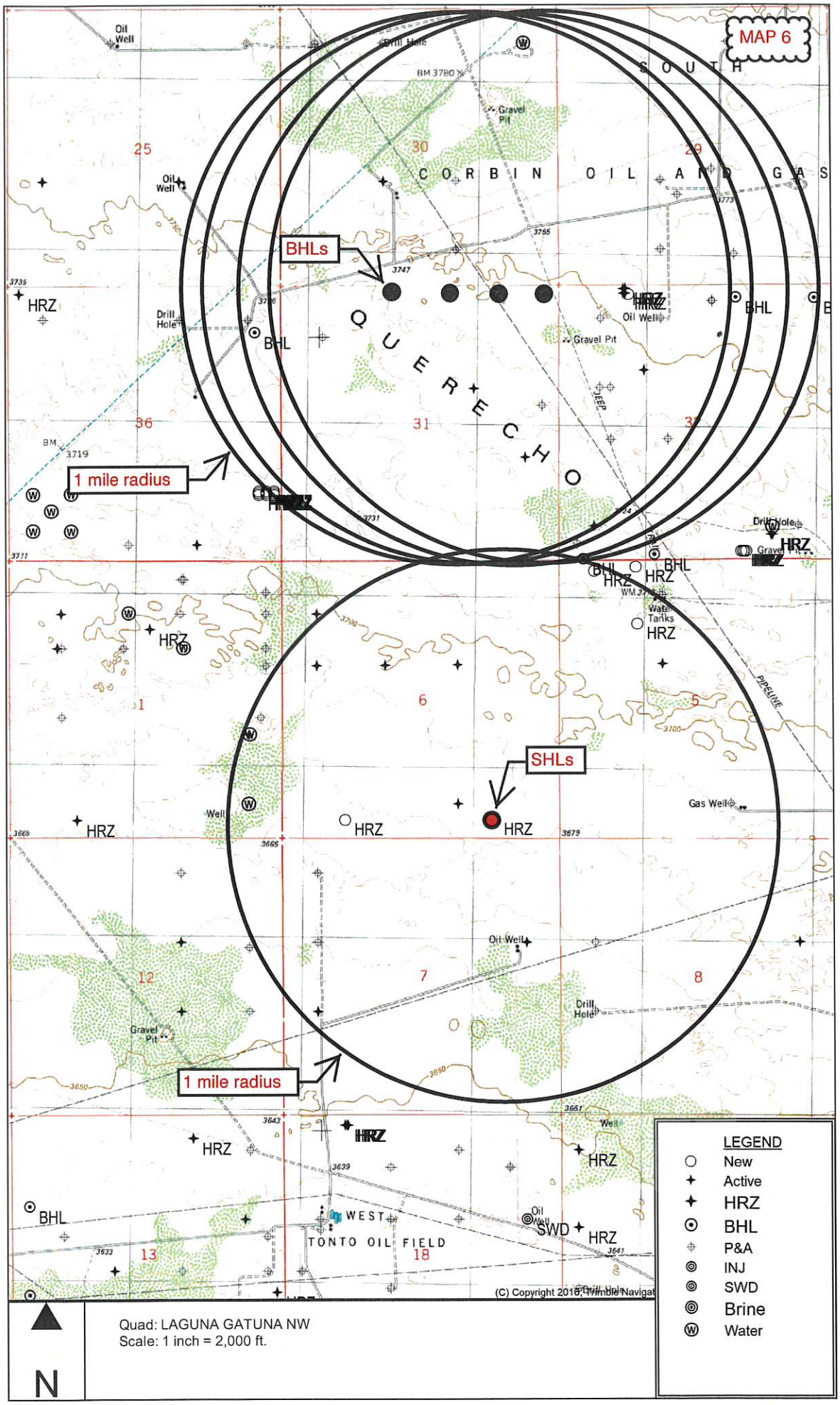
3/7/2024
DATE

P.O.B. = POINT OF BEGINNING
E.O.L. = END OF LINE

OWNER	STATION	FEET/RODS/ACRES (30' R.O.W.)
BUREAU OF LAND MANAGEMENT	0+00 TO 8+15.19	815.19 / 49.405 / 0.561

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11881-A01			Revision: 1
Drawn by: C.B.		Date Drawn: 02/23/24	Rev. Date:
Surveyed: 02/16/24	App by: J.A.V.		Sheet: 1

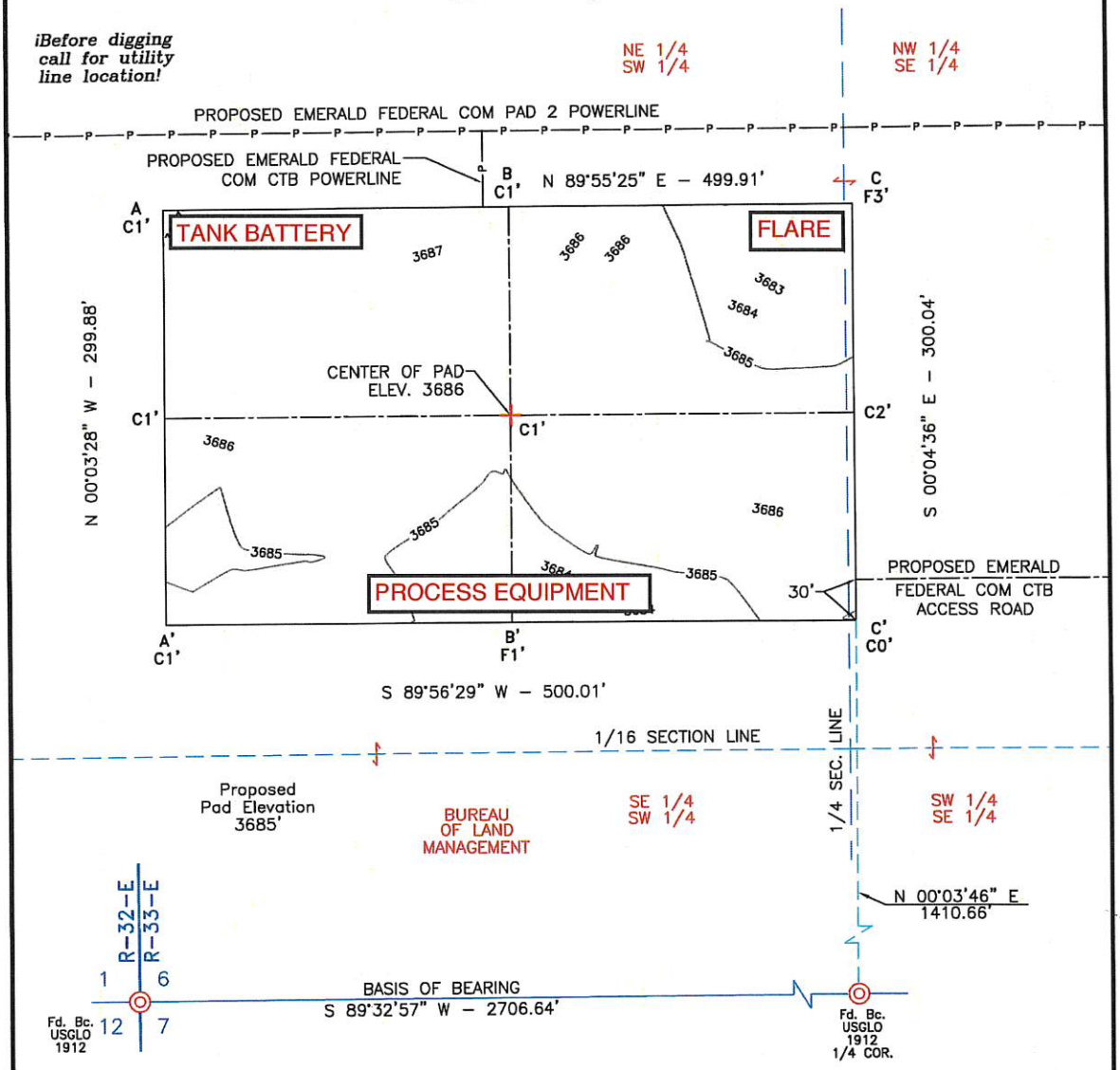

MAP 6
BHLs
1 mile radius
SHLs
1 mile radius
CORBIN OIL AND GAS
QUERECHO
WEST TONTO OIL FIELD
HRZ
BHL
SWD
Oil Well
Gas Well
Drill Hole
Gravel Pit
Water Tanks
PIPELINE
JEEP
(C) Copyright 2016 Trimble Navigat
LEGEND
New
Active
HRZ
BHL
P&A
INJ
SWD
Brine
Water
Quad: LAGUNA GATUNA NW
Scale: 1 inch = 2,000 ft.
N

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB
SECTION 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 7A

iBefore digging call for utility line location!



CENTER OF PAD FOOTAGES	NAD 83
1562' FSL 2470' FWL	LAT: 32.6863849° N LONG: 103.7031776° W

N

0 50 100
SCALE: 1"=100'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: S 89°32'57" W - 2706.64'
2. ALL BEARINGS, DISTANCES & COORDINATES SHOWN ARE BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.
3. CONTRACTOR SHALL CONTACT "ONE-CALL" FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINE OR CABLES ON WELL PAD AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
4. UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
5. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

OWNER	SQ. FT.	ACRES
BUREAU OF LAND MANAGEMENT	149,968	3.443

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

NEW MEXICO 14831 PROFESSIONAL SURVEYOR

JOHN A. VUKONICH P.E./P.S. N.M.P.S. #14831 — DATE 3/7/2024

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

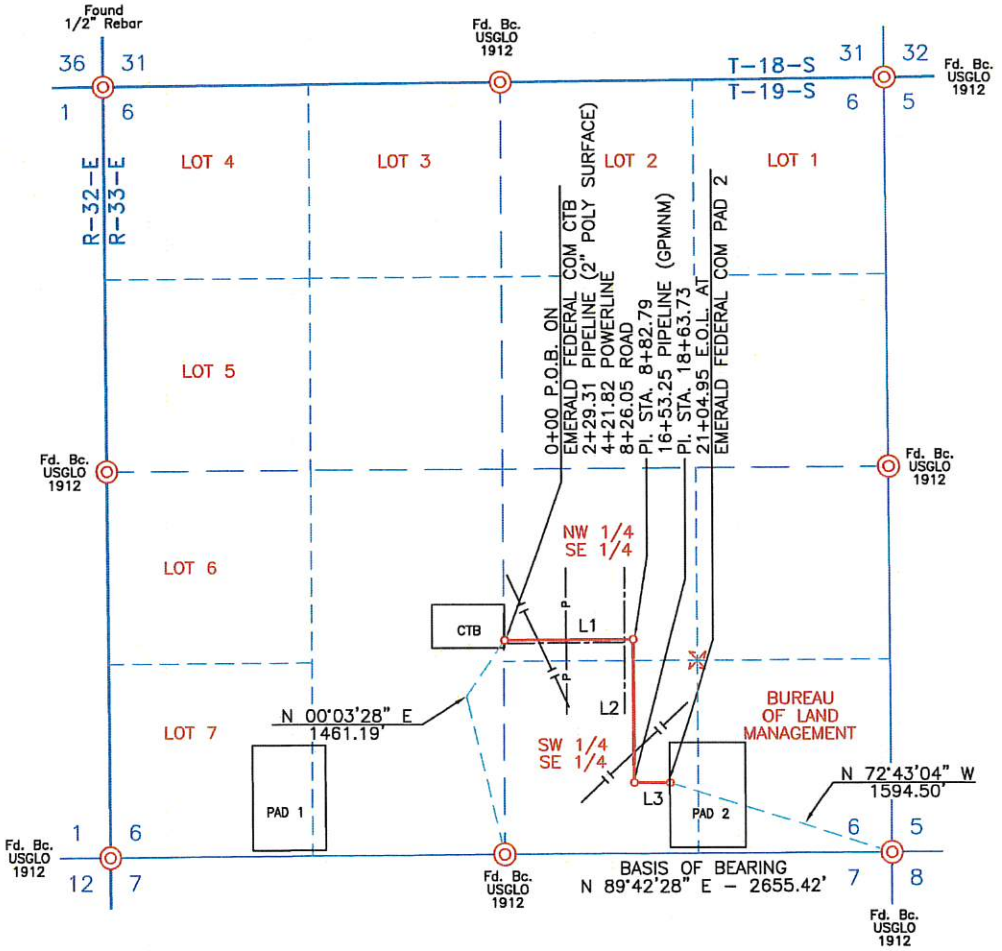
DWG. No. : 11881-CTB		Revision/By:
Drawn by: C.B.	Date Drawn: 2/29/24	Rev. Date:
Surveyed: 2/16-2/27/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB TO PAD 2 PIPELINES

W 1/2 SE 1/4 OF SEC. 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 7B



No.	Bearing	Dist.
L1	N 89°38'30" E	882.79'
L2	S 00°25'58" E	980.94'
L3	N 89°39'39" E	241.22'

0 500 1000
SCALE: 1"=1000'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: N 89°42'28" E - 2655.42'
2. ALL BEARINGS AND DISTANCES SHOWN ARE BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.

P.O.B. = POINT OF BEGINNING
E.O.L. = END OF LINE

OWNER	STATION	FEET/RODS/ACRES (30' R.O.W.)
BUREAU OF LAND MANAGEMENT	0+00 TO 21+04.95	2104.95 / 127.573 / 1.450

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

STATE OF NEW MEXICO 14831 PROFESSIONAL SURVEYOR

JOHN A. VUKONICH P.E./P.S. N.M.P.S. #14831 — DATE 6/7/2024

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

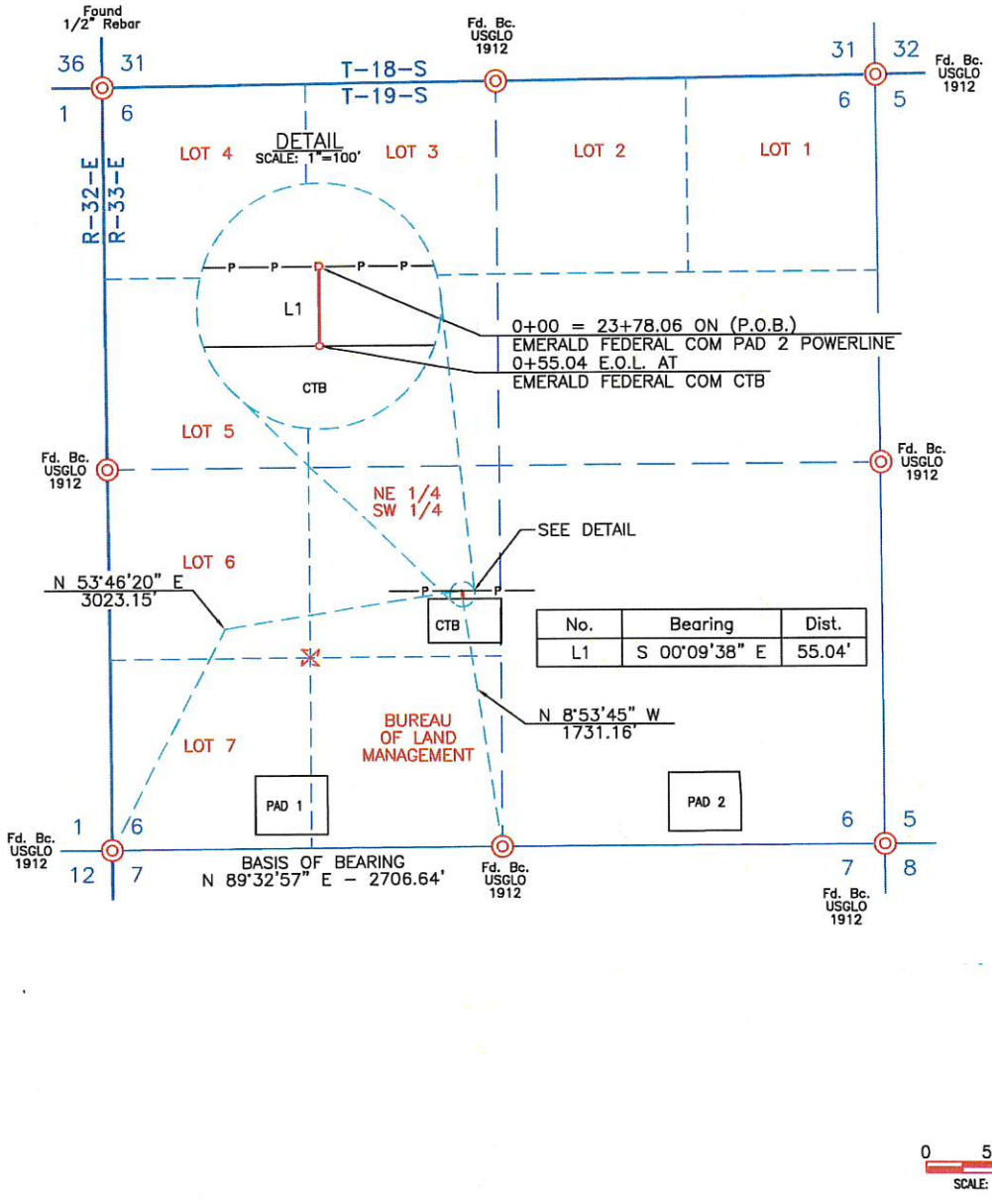
DWG. No. : 11847-P01		Revision: 2
Drawn by: A.A.D.	Date Drawn: 3/14/24	Rev. Date: 5/14/24
Surveyed: 3/7-5/12/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB POWERLINE

NE 1/4 SW 1/4 OF SEC. 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 7C



No.	Bearing	Dist.
L1	S 00°09'38" E	55.04'

0 500 1000
SCALE: 1"=1000'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: N 89°32'47" E - 2706.64'
2. ALL BEARINGS AND DISTANCES SHOWN ARE BASED UPON THE NEW MEXICO COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.

P.O.B. = POINT OF BEGINNING
E.O.L. = END OF LINE

OWNER	STATION	FEET/RODS/ACRES (30' R.O.W.)
BUREAU OF LAND MANAGEMENT	0+00 TO 0+55.04	55.04 / 3.336 / 0.038

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S. NMPS #14831 — DATE 3/7/2024

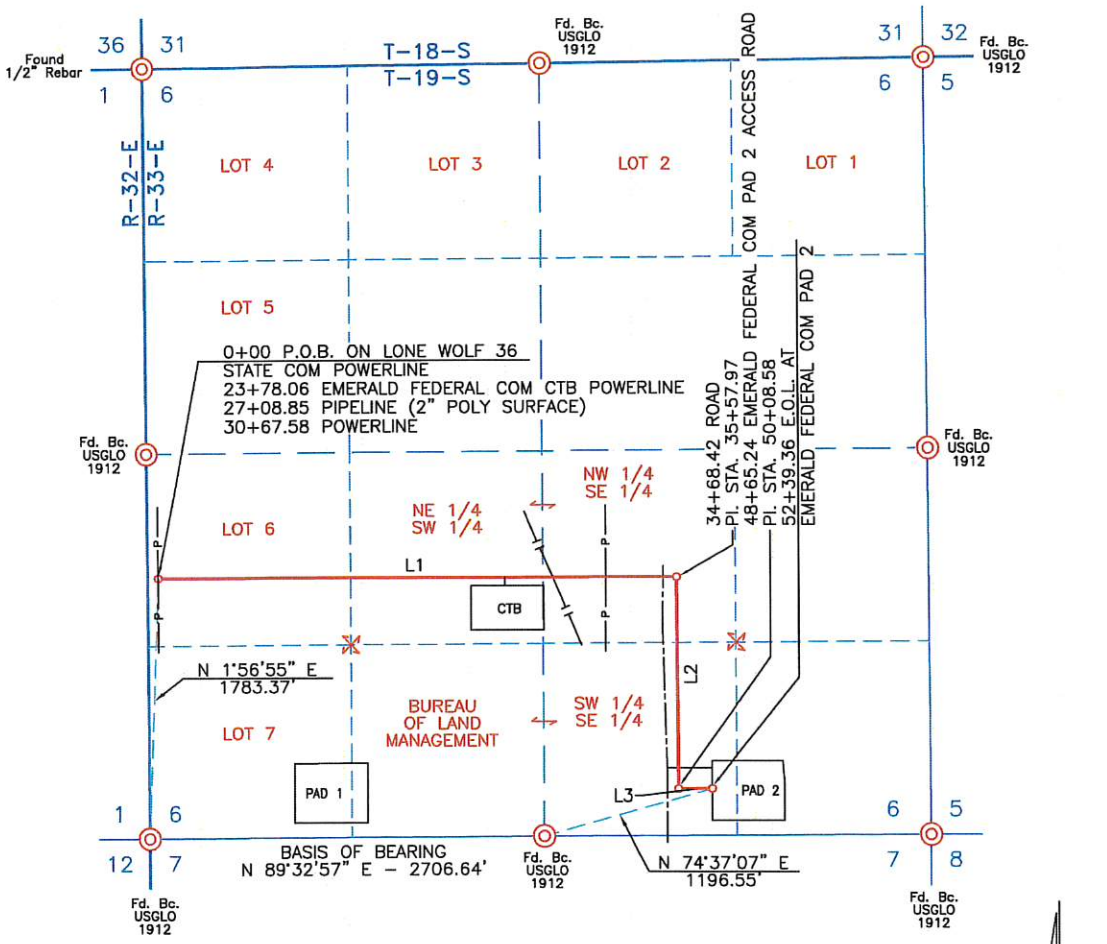
United Field Services Inc.			P.O. Box 3651 Farmington, NM 87499 Office: (505) 334-0408
DWG. No. : 11881-PWR-01			Revision: 1
Drawn by: A.A.D.	Date Drawn: 02/28/24		Rev. Date:
Surveyed: 02/27/24	App by: J.A.V.		Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2 POWERLINE

LOT 6, NE 1/4 SW 1/4, W 1/2 SE 1/4 OF SEC. 6,
T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 7D



No.	Bearing	Dist.
L1	N 89°54'31" E	3557.97'
L2	S 00°25'45" E	1450.61'
L3	N 89°41'35" E	230.78'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: N 89°32'57" E - 2706.64'
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JOHN A. VUKONICH P.E./P.S. N.M.P.S. #14831

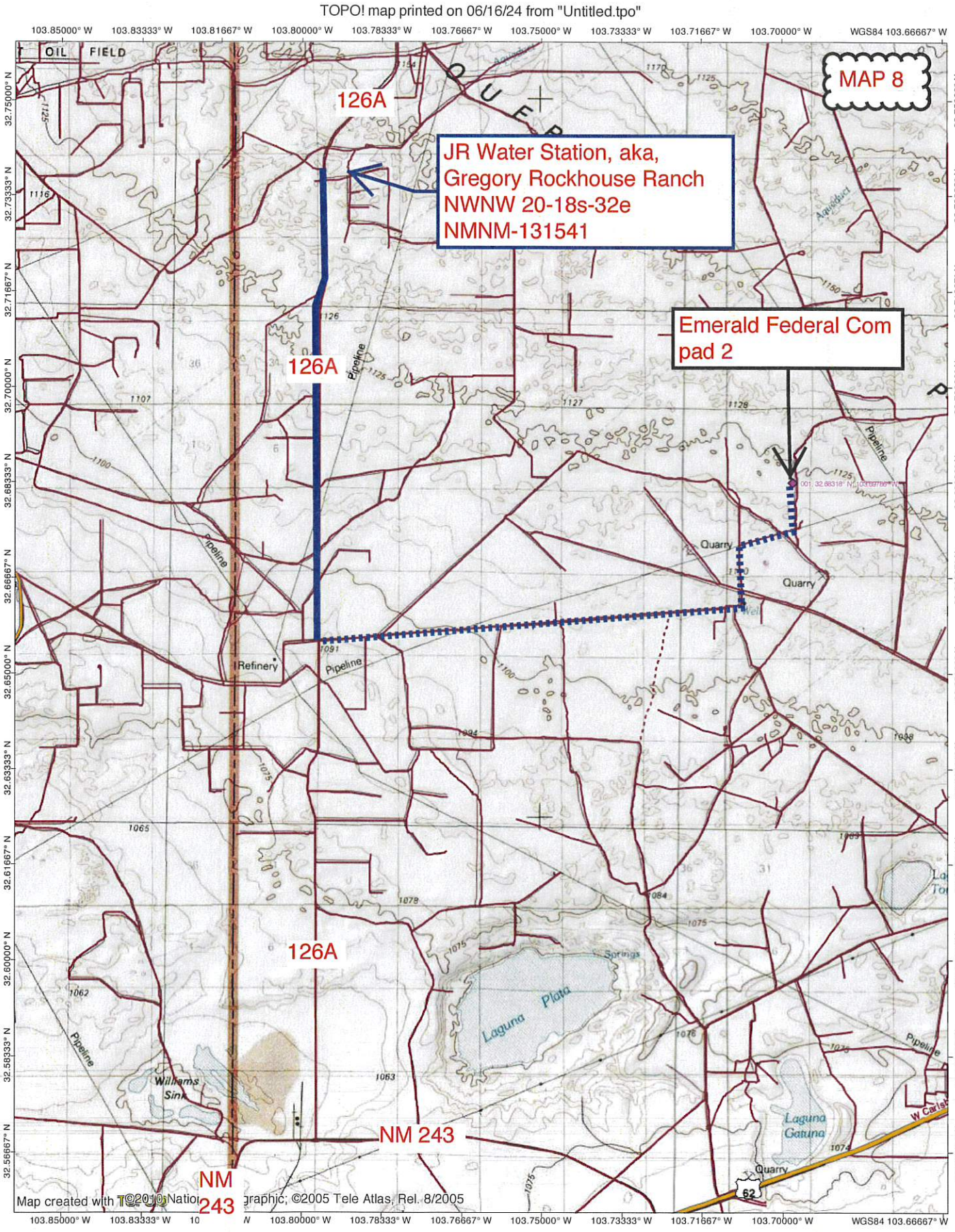
3/8/2024
DATE

P.O.B. = POINT OF BEGINNING
E.O.L. = END OF LINE

OWNER	STATION	FEET/RODS/ACRES (30' R.O.W.)
BUREAU OF LAND MANAGEMENT	0+00 TO 52+39.36	5239.36 / 317.537 / 3.608

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11847-PWR-01			Revision: 1
Drawn by: A.A.D.	Date Drawn: 02/28/24		Rev. Date:
Surveyed: 02/27/24	App by: J.A.V.		Sheet: 1


TOPO! map printed on 06/16/24 from "Untitled.tpo"
MAP 8
126A
JR Water Station, aka,
Gregory Rockhouse Ranch
NWNW 20-18s-32e
NMNM-131541
Emerald Federal Com
pad 2
126A
126A
NM 243
NM 243
Pipeline
Refinery
Quarry
Laguna Plata
Laguna Gatuna
Williams Sink
Springs
Aqueduct
Map created with TOPO! ©2003 National Geographic; ©2005 Tele Atlas, Rel. 8/2005
NATIONAL GEOGRAPHIC
0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles
0 1 2 3 4 5 km
TN MN
6°
06/16/24

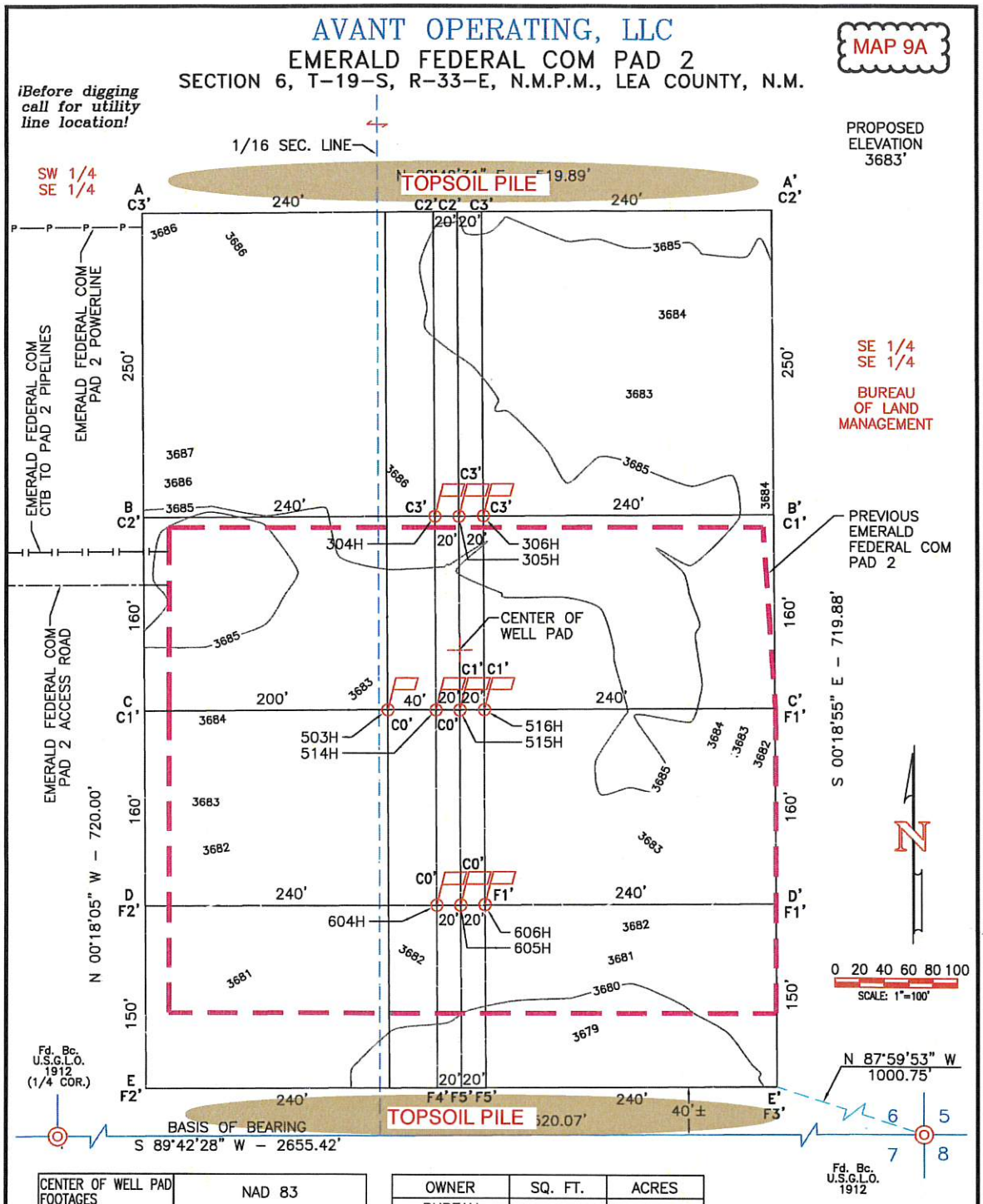
AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2

SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, N.M.

MAP 9A

iBefore digging call for utility line location!



CENTER OF WELL PAD FOOTAGES	NAD 83
400' FSL 1260' FEL	LAT: 32.6831883° N LONG: 103.6978635° W

OWNER	SQ. FT.	ACRES
BUREAU OF LAND MANAGEMENT	374,355	8.594

WELL FLAG	FSL	FEL
304H	510'	1280'
305H	510'	1260'
306H	510'	1240'
503H	350'	1320'
514H	350'	1280'
515H	350'	1260'
516H	350'	1240'
604H	190'	1280'
605H	190'	1260'
606H	190'	1240'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: S 89°42'28" W - 2655.42'
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4. UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
5. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S., N.M.P.S. #14831

6/7/2024
DATE

UNITED FIELD SERVICES INC.
P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

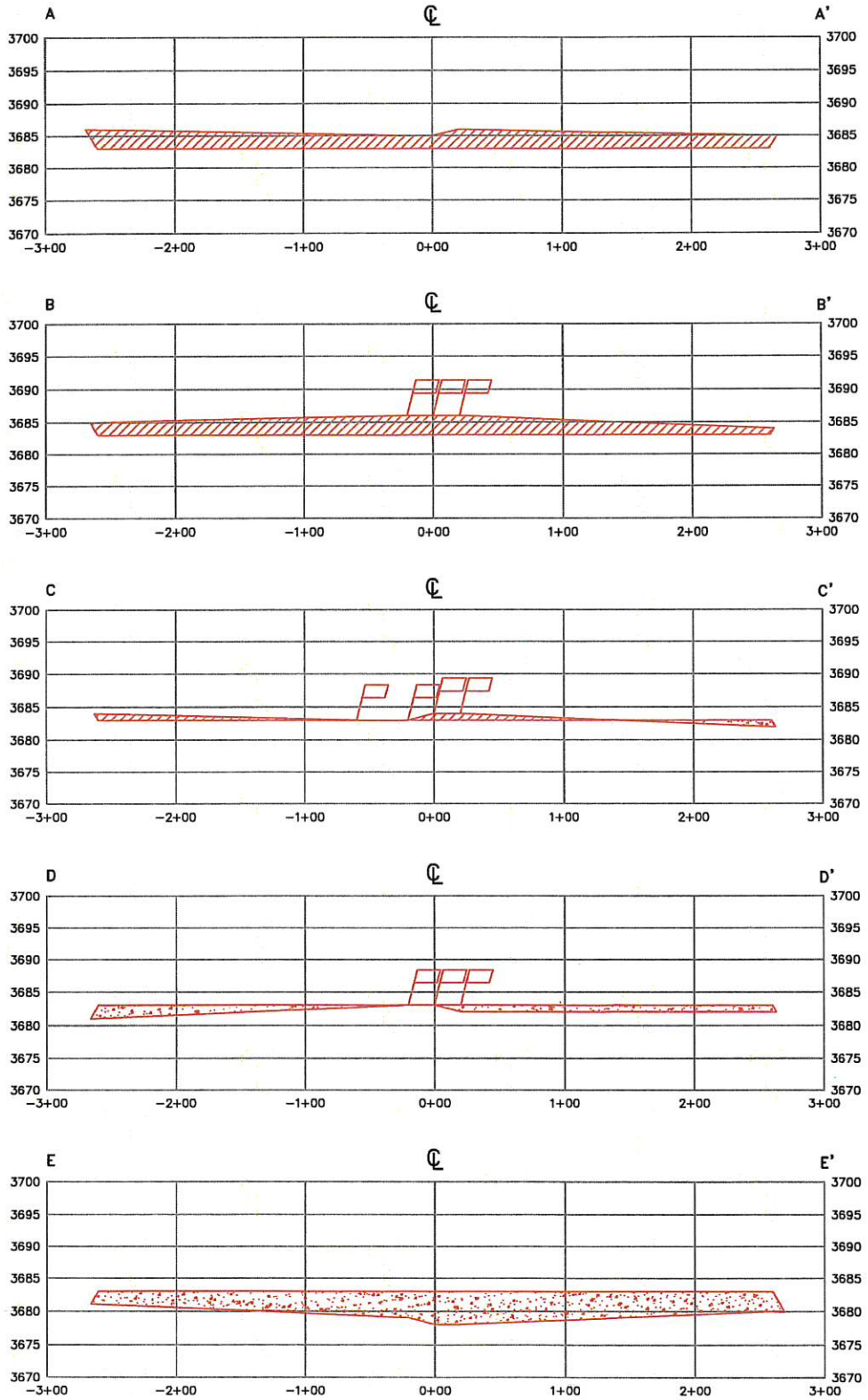
DWG. No. : 11847-PAD-2		Revision/By: 4/C.B.
Drawn by: K.S.	Date Drawn: 11/20/23	Rev. Date: 05/23/24
Surveyed: 10/6/23-5/16/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2

SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, N.M.

MAP 9B



Horizontal Scale: 1" = 100'
Vertical Scale: 1" = 20'

UNITED FIELD SERVICES INC.

P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

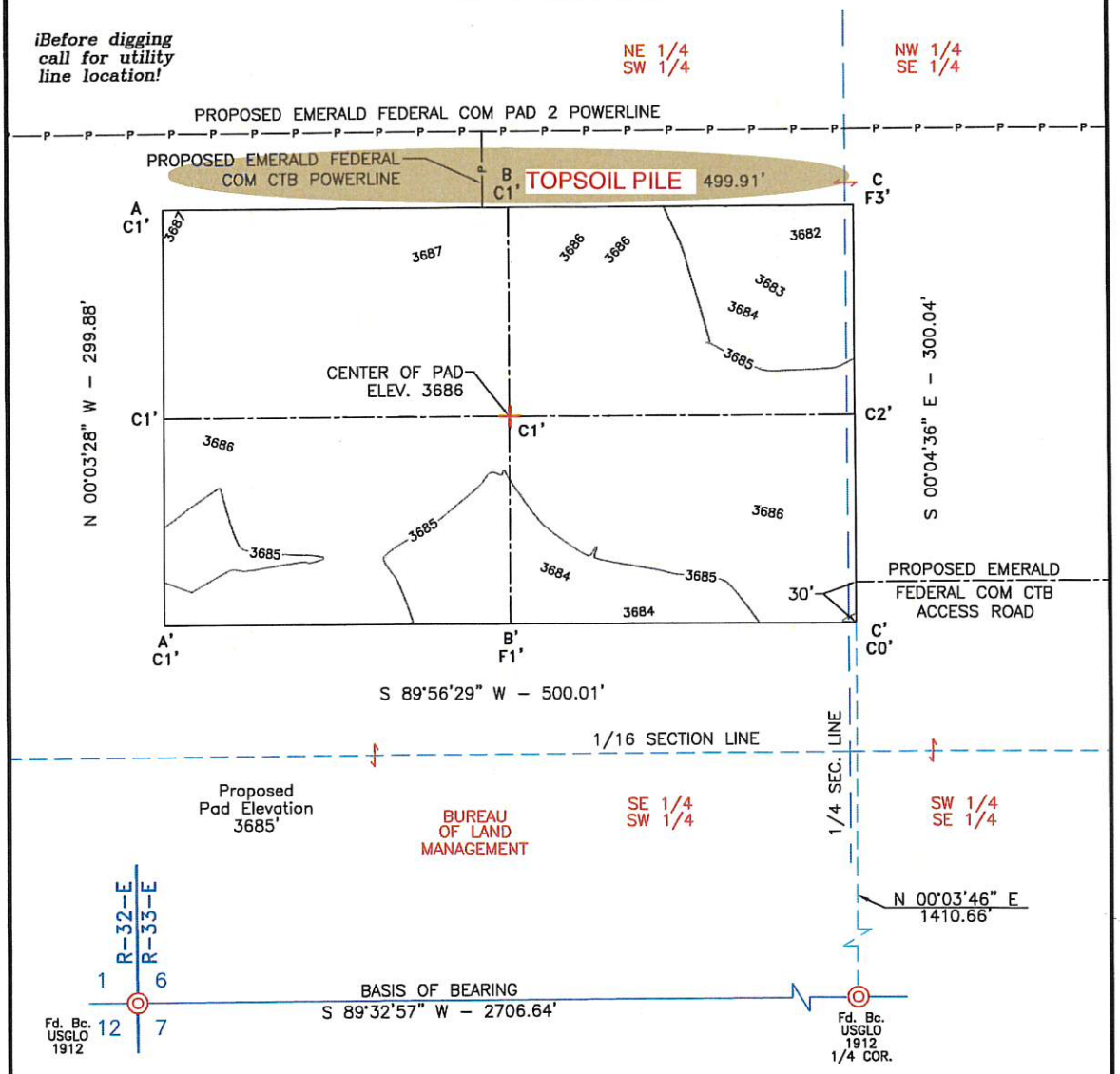
DWG. No. : 11847-PAD-2		Revision/By: 4/C.B.
Drawn by: K.S.	Date Drawn: 11/20/23	Rev. Date: 05/23/24
Surveyed: 10/6/23-5/16/24	App by: J.A.V.	Sheet: 2

AVANT OPERATING, LLC

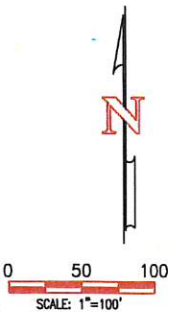
EMERALD FEDERAL COM CTB
SECTION 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 9C

iBefore digging call for utility line location!



CENTER OF PAD FOOTAGES	NAD 83
1562' FSL 2470' FWL	LAT: 32.6863849° N LONG: 103.7031776° W



NOTES:

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5. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

OWNER	SQ. FT.	ACRES
BUREAU OF LAND MANAGEMENT	149,968	3.443

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S. N.M.P.S. #14831 — DATE 3/7/2024

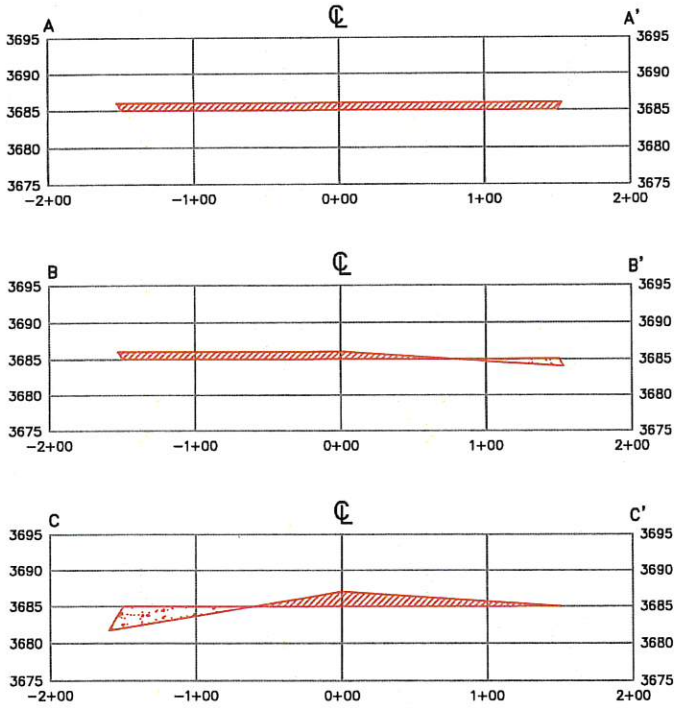
United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11881-CTB		Revision/By:
Drawn by: C.B.	Date Drawn: 2/29/24	Rev. Date:
Surveyed: 2/16-2/27/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB
SECTION 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 9D



Horizontal Scale: 1" = 100'
Vertical Scale: 1" = 20'

United Field Services Inc.

P.O. Box 3651
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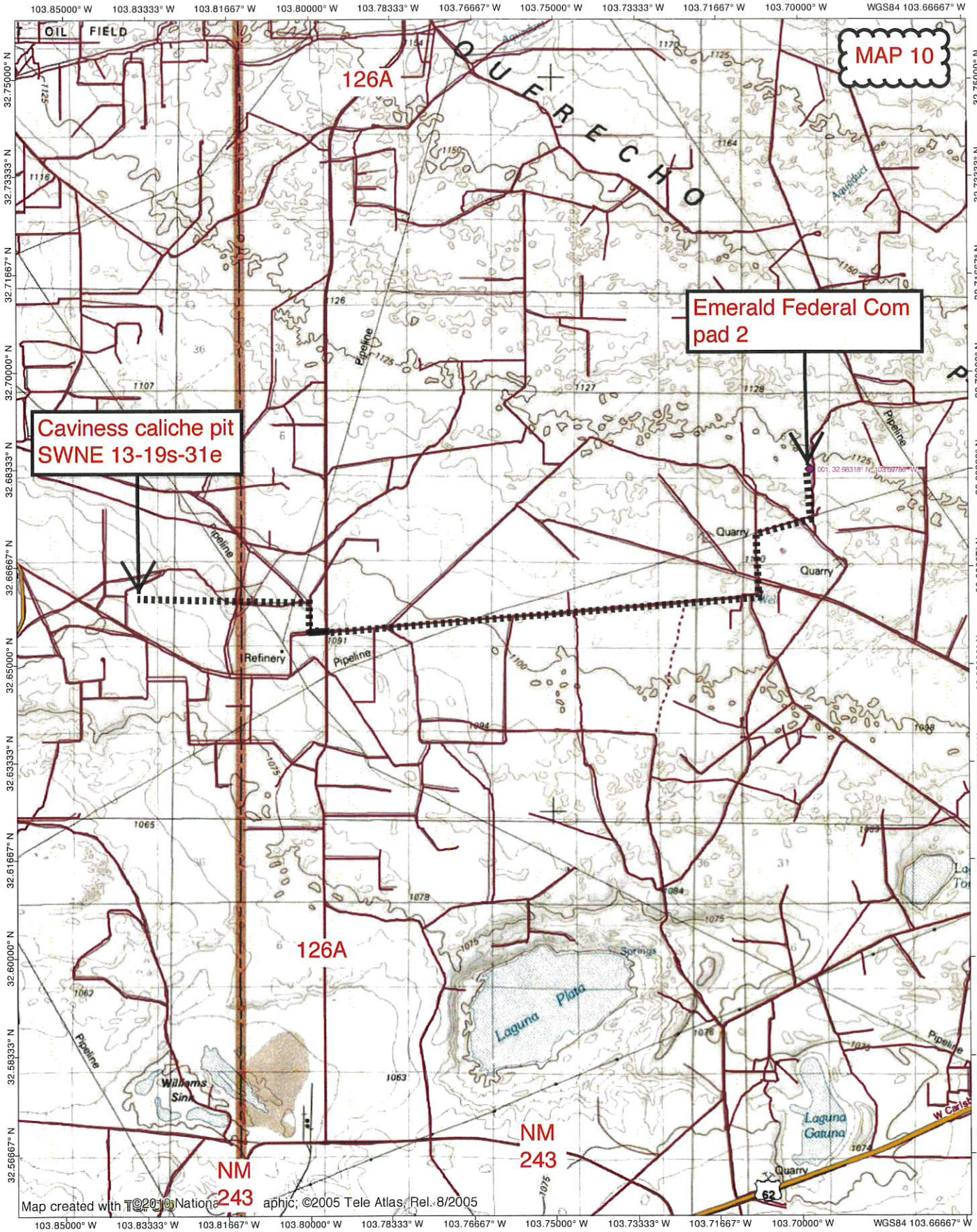
DWG. No. : 11881-CTB		Revision/By:
Drawn by: C.B.	Date Drawn: 2/29/24	Rev. Date:
Surveyed: 2/16-2/27/24	App by: J.A.V.	Sheet: 2

TOPO! map printed on 06/16/24 from "Untitled.tpo"



NATIONAL GEOGRAPHIC

0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles
0 1 2 3 4 5 km

TN MN 6° 06/16/24

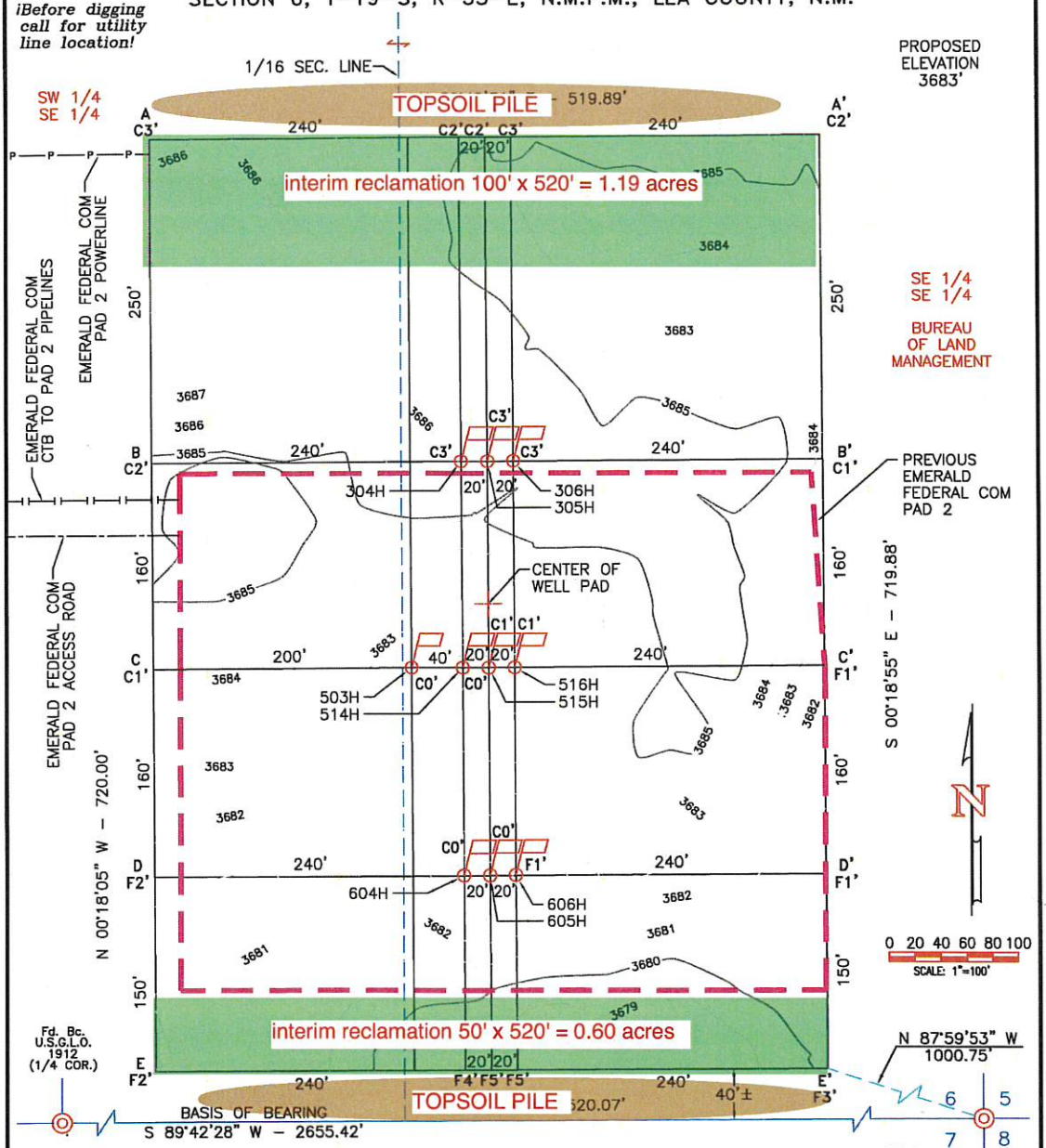
AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2

SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, N.M.

MAP 11A

iBefore digging call for utility line location!



CENTER OF WELL PAD FOOTAGES	NAD 83
400' FSL 1260' FEL	LAT: 32.6831883° N LONG: 103.6978635° W

OWNER	SQ. FT.	ACRES
BUREAU OF LAND MANAGEMENT	374,355	8.594

WELL FLAG	FSL	FEL
304H	510'	1280'
305H	510'	1260'
306H	510'	1240'
503H	350'	1320'
514H	350'	1280'
515H	350'	1260'
516H	350'	1240'
604H	190'	1280'
605H	190'	1260'
606H	190'	1240'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: S 89°42'28" W - 2655.42'
2. ALL BEARINGS, DISTANCES & COORDINATES SHOWN ARE BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.
3. CONTRACTOR SHALL CONTACT "ONE-CALL" FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINE OR CABLES ON WELL PAD AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
4. UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
5. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S., N.M.P.S. #14831

6/7/2024
DATE

UNITED FIELD SERVICES INC.

P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

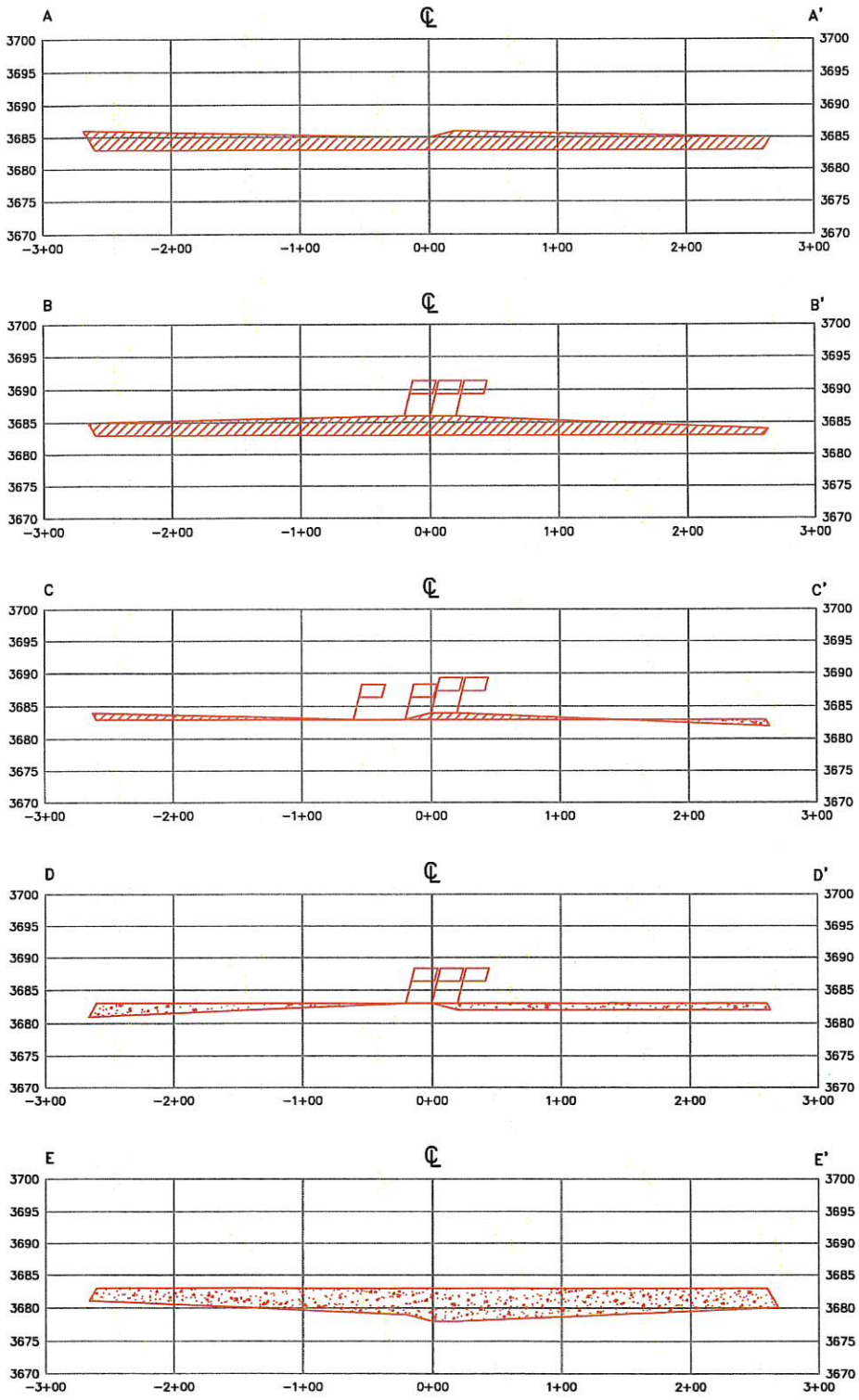
DWG. No. : 11847-PAD-2		Revision/By: 4/C.B.
Drawn by: K.S.	Date Drawn: 11/20/23	Rev. Date: 05/23/24
Surveyed: 10/6/23-5/16/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2

SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, N.M.

MAP 11B



Horizontal Scale: 1" = 100'
Vertical Scale: 1" = 20'

UNITED FIELD SERVICES INC.
P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

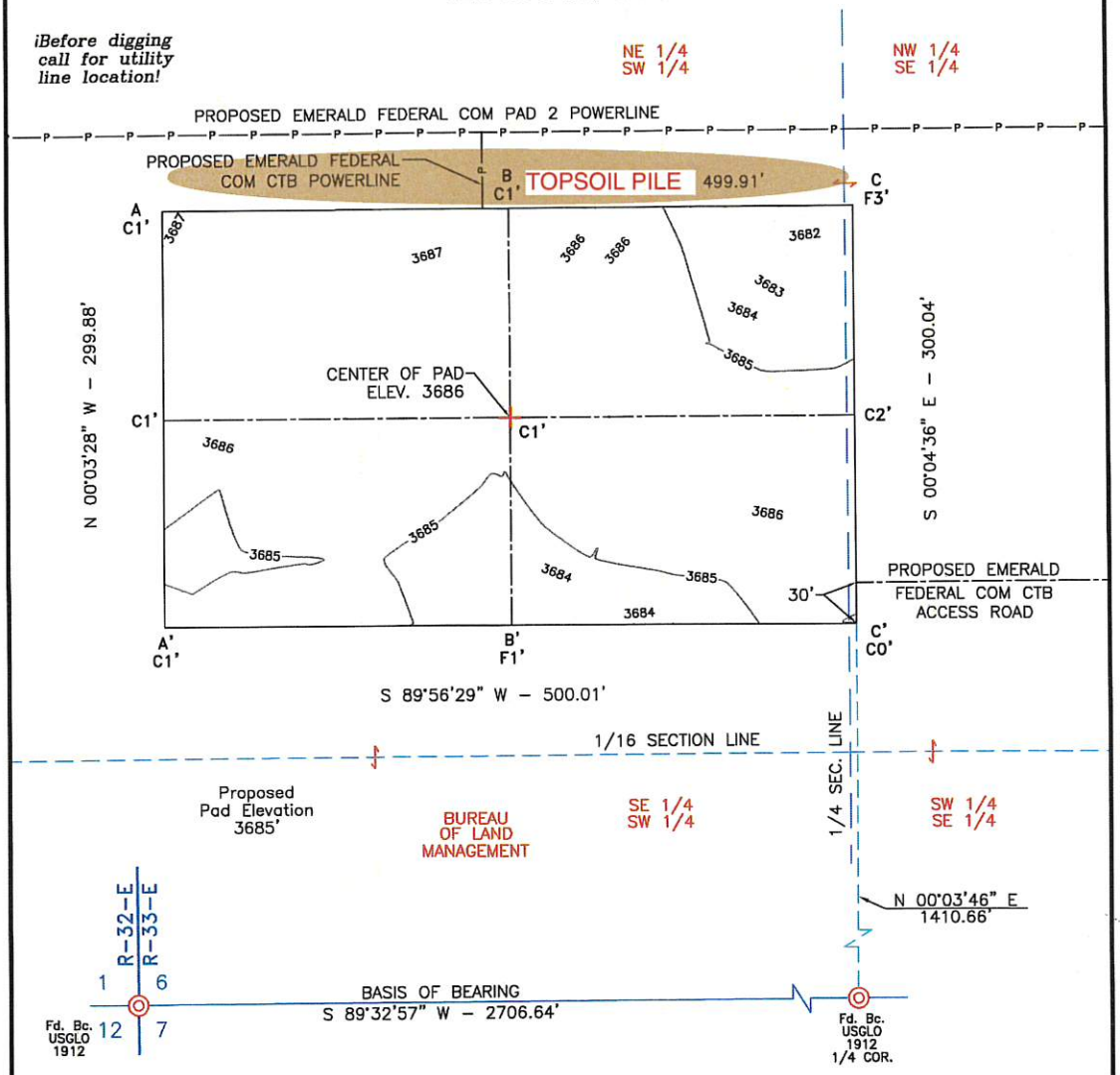
DWG. No. : 11847-PAD-2		Revision/By: 4/C.B.
Drawn by: K.S.	Date Drawn: 11/20/23	Rev. Date: 05/23/24
Surveyed: 10/6/23-5/16/24	App by: J.A.V.	Sheet: 2

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB
SECTION 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 11C

iBefore digging call for utility line location!



CENTER OF PAD FOOTAGES	NAD 83
1562' FSL 2470' FWL	LAT: 32.6863849° N LONG: 103.7031776° W

N

0 50 100
SCALE: 1"=100'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: S 89°32'57" W - 2706.64'
2. ALL BEARINGS, DISTANCES & COORDINATES SHOWN ARE BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.
3. CONTRACTOR SHALL CONTACT "ONE-CALL" FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINE OR CABLES ON WELL PAD AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
4. UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
5. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

OWNER	SQ. FT.	ACRES
BUREAU OF LAND MANAGEMENT	149,968	3.443

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JOHN A. VUKONICH P.E./P.S. N.M.P.S. 14831 — DATE 3/7/2024

NEW MEXICO 14831 PROFESSIONAL SURVEYOR

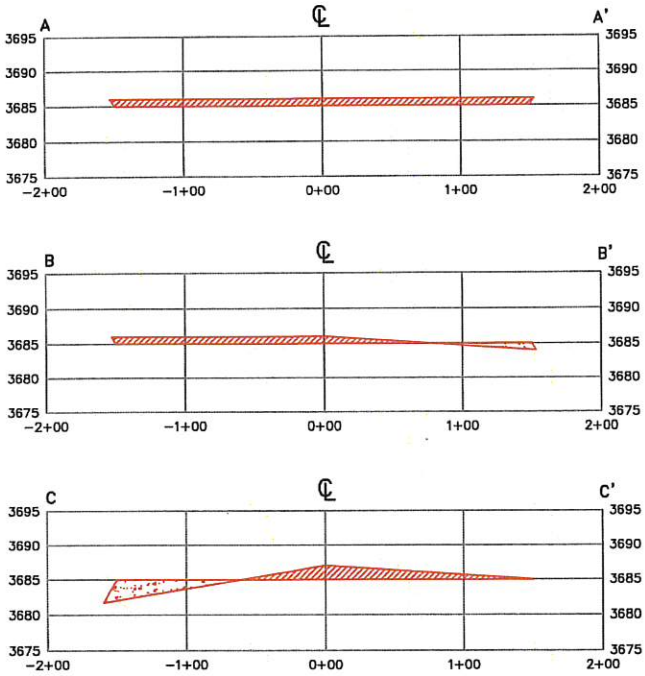
United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11881-CTB		Revision/By:
Drawn by: C.B.	Date Drawn: 2/29/24	Rev. Date:
Surveyed: 2/16-2/27/24	App by: J.A.V.	Sheet: 1

AVANT OPERATING, LLC

EMERALD FEDERAL COM CTB
SECTION 6, T-19-S, R-33-E, N.M.P.M.,
LEA COUNTY, N.M.

MAP 11D



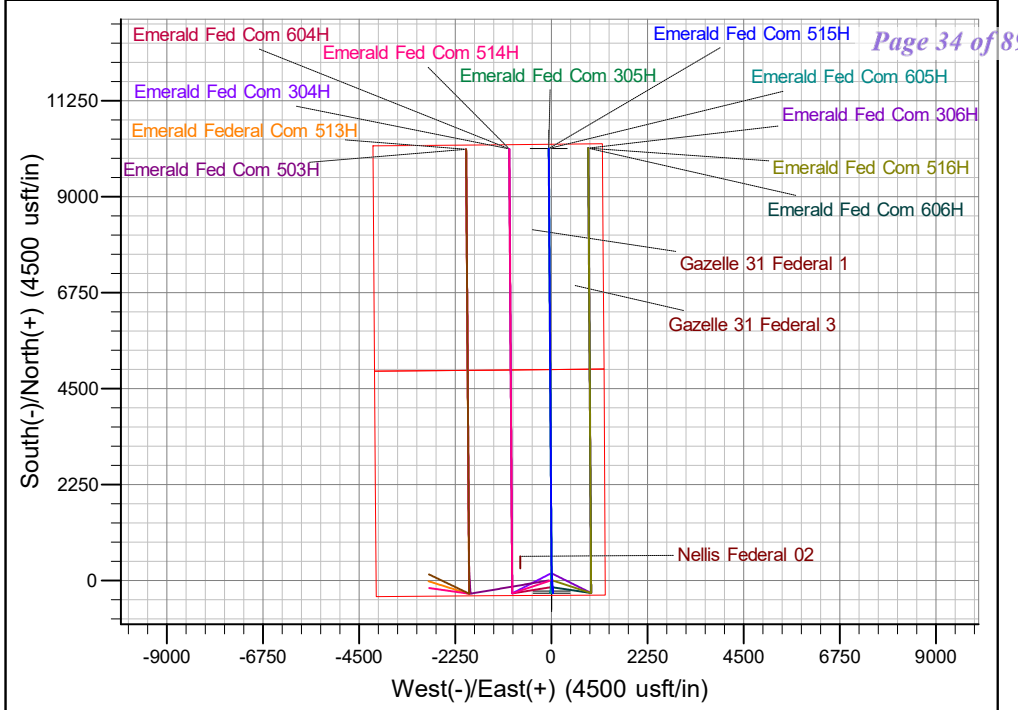
Horizontal Scale: 1" = 100'
Vertical Scale: 1" = 20'

United Field Services Inc.		P.O. Box 3651 Farmington, NM 87499 Office: (505) 334-0408
DWG. No. : 11881-CTB		Revision/By:
Drawn by: C.B.	Date Drawn: 2/29/24	Rev. Date:
Surveyed: 2/16-2/27/24	App by: J.A.V.	Sheet: 2

AVANT NATURAL RESOURCES

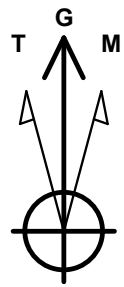
WELL DETAILS: Emerald Fed Com 515H					
Ground Elev: 3683.7		KB: Original Well Elev			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	612810.51	736852.87	32.683051	-103.697864

PROJECT DETAILS: Lea Co., NM (NAD 83)	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level



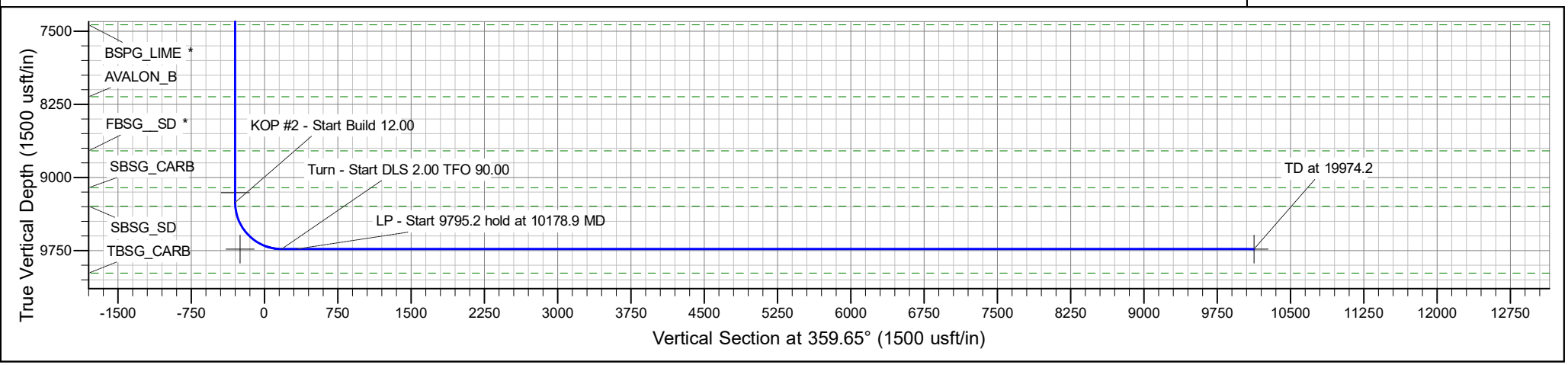
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	KOP - Start Build 2.00
3	2322.1	6.44	172.84	2321.4	-17.9	2.3	2.00	172.84	-18.0	Start 2372.2 hold at 2322.1 MD
4	4694.3	6.44	172.84	4678.6	-282.0	35.4	0.00	0.00	-282.2	Start Drop -2.00
5	5016.3	0.00	0.00	5000.0	-299.9	37.7	2.00	180.00	-300.2	Start 4256.5 hold at 5016.3 MD
6	9272.8	0.00	0.00	9256.5	-299.9	37.7	0.00	0.00	-300.2	KOP #2 - Start Build 12.00
7	10022.8	90.00	356.50	9734.0	176.6	8.6	12.00	356.50	176.6	Turn - Start DLS 2.00 TFO 90.00
8	10178.9	90.00	359.62	9734.0	332.6	3.3	2.00	90.00	332.6	LP - Start 9795.2 hold at 10178.9 MD
9	19974.2	90.00	359.62	9734.0	10127.6	-61.3	0.00	0.00	10127.8	TD at 19974.2



Azimuths to Grid North
True North: -0.34°
Magnetic North: 8.31°

Magnetic Field
Strength: 49685.5nT
Dip Angle: 60.84°
Date: 12/31/2004
Model: IGRF2000



Avant Operating, LLC

Lea Co., NM (NAD 83)
Emerald Pad 2
Emerald Fed Com 515H

OH

Plan: Plan 0.1

Standard Planning Report

24 June, 2024

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Project Lea Co., NM (NAD 83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Emerald Pad 2

Site Position:		**Northing:**	612,970.48 usft	**Latitude:**	32.683491
From:	Lat/Long	**Easting:**	736,832.01 usft	**Longitude:**	-103.697929
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "		

Well Emerald Fed Com 515H

Well Position	**+N/-S**	0.0 usft	**Northing:**	612,810.51 usft	**Latitude:**	32.683051
	+E/-W	0.0 usft	**Easting:**	736,852.87 usft	**Longitude:**	-103.697864
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,683.7 usft
Grid Convergence:		0.34 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2000	12/31/2004	8.66	60.84	49,685.45175380

Design Plan 0.1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.65

Plan Survey Tool Program **Date** 6/24/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,973.7	Plan 0.1 (OH)	B001Mb_MWD+HRGM OWSG MWD + HRGM	

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,322.1	6.44	172.84	2,321.4	-17.9	2.3	2.00	2.00	0.00	172.84	
4,694.3	6.44	172.84	4,678.6	-282.0	35.4	0.00	0.00	0.00	0.00	
5,016.3	0.00	0.00	5,000.0	-299.9	37.7	2.00	-2.00	0.00	180.00	
9,272.8	0.00	0.00	9,256.5	-299.9	37.7	0.00	0.00	0.00	0.00	
10,022.8	90.00	356.50	9,734.0	176.6	8.6	12.00	12.00	0.00	356.50	
10,178.9	90.00	359.62	9,734.0	332.6	3.3	2.00	0.00	2.00	90.00	
19,974.2	90.00	359.62	9,734.0	10,127.6	-61.3	0.00	0.00	0.00	0.00	LTP/BHL - Emerald F

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,460.0	0.00	0.00	1,460.0	0.0	0.0	0.0	0.00	0.00	0.00
RUSTLER									
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,754.0	0.00	0.00	1,754.0	0.0	0.0	0.0	0.00	0.00	0.00
SOLADO									
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
2,100.0	2.00	172.84	2,100.0	-1.7	0.2	-1.7	2.00	2.00	0.00
2,200.0	4.00	172.84	2,199.8	-6.9	0.9	-6.9	2.00	2.00	0.00
2,300.0	6.00	172.84	2,299.5	-15.6	2.0	-15.6	2.00	2.00	0.00
2,322.1	6.44	172.84	2,321.4	-17.9	2.3	-18.0	2.00	2.00	0.00
Start 2372.2 hold at 2322.1 MD									
2,400.0	6.44	172.84	2,398.8	-26.6	3.3	-26.6	0.00	0.00	0.00
2,500.0	6.44	172.84	2,498.2	-37.7	4.7	-37.8	0.00	0.00	0.00
2,600.0	6.44	172.84	2,597.6	-48.9	6.1	-48.9	0.00	0.00	0.00
2,700.0	6.44	172.84	2,696.9	-60.0	7.5	-60.1	0.00	0.00	0.00
2,800.0	6.44	172.84	2,796.3	-71.1	8.9	-71.2	0.00	0.00	0.00
2,900.0	6.44	172.84	2,895.7	-82.3	10.3	-82.3	0.00	0.00	0.00
3,000.0	6.44	172.84	2,995.0	-93.4	11.7	-93.5	0.00	0.00	0.00
3,100.0	6.44	172.84	3,094.4	-104.5	13.1	-104.6	0.00	0.00	0.00
3,200.0	6.44	172.84	3,193.8	-115.7	14.5	-115.7	0.00	0.00	0.00
3,300.0	6.44	172.84	3,293.1	-126.8	15.9	-126.9	0.00	0.00	0.00
3,400.0	6.44	172.84	3,392.5	-137.9	17.3	-138.0	0.00	0.00	0.00
3,460.9	6.44	172.84	3,453.0	-144.7	18.2	-144.8	0.00	0.00	0.00
YATES									
3,500.0	6.44	172.84	3,491.9	-149.1	18.7	-149.2	0.00	0.00	0.00
3,600.0	6.44	172.84	3,591.3	-160.2	20.1	-160.3	0.00	0.00	0.00
3,700.0	6.44	172.84	3,690.6	-171.3	21.5	-171.4	0.00	0.00	0.00
3,800.0	6.44	172.84	3,790.0	-182.4	22.9	-182.6	0.00	0.00	0.00
3,900.0	6.44	172.84	3,889.4	-193.6	24.3	-193.7	0.00	0.00	0.00
4,000.0	6.44	172.84	3,988.7	-204.7	25.7	-204.9	0.00	0.00	0.00
4,100.0	6.44	172.84	4,088.1	-215.8	27.1	-216.0	0.00	0.00	0.00
4,200.0	6.44	172.84	4,187.5	-227.0	28.5	-227.1	0.00	0.00	0.00
4,300.0	6.44	172.84	4,286.8	-238.1	29.9	-238.3	0.00	0.00	0.00
4,400.0	6.44	172.84	4,386.2	-249.2	31.3	-249.4	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	6.44	172.84	4,485.6	-260.4	32.7	-260.6	0.00	0.00	0.00
4,600.0	6.44	172.84	4,584.9	-271.5	34.1	-271.7	0.00	0.00	0.00
4,694.3	6.44	172.84	4,678.6	-282.0	35.4	-282.2	0.00	0.00	0.00
Start Drop -2.00									
4,700.0	6.33	172.84	4,684.3	-282.6	35.5	-282.8	2.00	-2.00	0.00
4,745.9	5.41	172.84	4,730.0	-287.3	36.1	-287.5	2.00	-2.00	0.00
CAPITAN_REEF									
4,800.0	4.33	172.84	4,783.9	-291.8	36.7	-292.0	2.00	-2.00	0.00
4,900.0	2.33	172.84	4,883.7	-297.6	37.4	-297.8	2.00	-2.00	0.00
5,000.0	0.33	172.84	4,983.7	-299.9	37.7	-300.1	2.00	-2.00	0.00
5,016.3	0.00	0.00	5,000.0	-299.9	37.7	-300.2	2.00	-2.00	0.00
Start 4256.5 hold at 5016.3 MD									
5,100.0	0.00	0.00	5,083.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,167.3	0.00	0.00	5,151.0	-299.9	37.7	-300.2	0.00	0.00	0.00
CHERRY_CNYN									
5,200.0	0.00	0.00	5,183.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,300.0	0.00	0.00	5,283.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,400.0	0.00	0.00	5,383.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,500.0	0.00	0.00	5,483.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,600.0	0.00	0.00	5,583.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,700.0	0.00	0.00	5,683.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,784.3	0.00	0.00	5,768.0	-299.9	37.7	-300.2	0.00	0.00	0.00
BRUSHY_CANYON									
5,800.0	0.00	0.00	5,783.7	-299.9	37.7	-300.2	0.00	0.00	0.00
5,900.0	0.00	0.00	5,883.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,000.0	0.00	0.00	5,983.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,100.0	0.00	0.00	6,083.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,200.0	0.00	0.00	6,183.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,300.0	0.00	0.00	6,283.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,400.0	0.00	0.00	6,383.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,500.0	0.00	0.00	6,483.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,583.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,700.0	0.00	0.00	6,683.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,800.0	0.00	0.00	6,783.7	-299.9	37.7	-300.2	0.00	0.00	0.00
6,900.0	0.00	0.00	6,883.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,000.0	0.00	0.00	6,983.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,100.0	0.00	0.00	7,083.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,200.0	0.00	0.00	7,183.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,300.0	0.00	0.00	7,283.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,400.0	0.00	0.00	7,383.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,450.3	0.00	0.00	7,434.0	-299.9	37.7	-300.2	0.00	0.00	0.00
BSPG_LIME *									
7,500.0	0.00	0.00	7,483.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,600.0	0.00	0.00	7,583.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,700.0	0.00	0.00	7,683.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,800.0	0.00	0.00	7,783.7	-299.9	37.7	-300.2	0.00	0.00	0.00
7,900.0	0.00	0.00	7,883.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,000.0	0.00	0.00	7,983.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,100.0	0.00	0.00	8,083.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,188.3	0.00	0.00	8,172.0	-299.9	37.7	-300.2	0.00	0.00	0.00
AVALON_B									
8,200.0	0.00	0.00	8,183.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,300.0	0.00	0.00	8,283.7	-299.9	37.7	-300.2	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,400.0	0.00	0.00	8,383.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,500.0	0.00	0.00	8,483.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,600.0	0.00	0.00	8,583.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,700.0	0.00	0.00	8,683.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,743.3	0.00	0.00	8,727.0	-299.9	37.7	-300.2	0.00	0.00	0.00
FBSG__SD *									
8,800.0	0.00	0.00	8,783.7	-299.9	37.7	-300.2	0.00	0.00	0.00
8,900.0	0.00	0.00	8,883.7	-299.9	37.7	-300.2	0.00	0.00	0.00
9,000.0	0.00	0.00	8,983.7	-299.9	37.7	-300.2	0.00	0.00	0.00
9,100.0	0.00	0.00	9,083.7	-299.9	37.7	-300.2	0.00	0.00	0.00
9,120.3	0.00	0.00	9,104.0	-299.9	37.7	-300.2	0.00	0.00	0.00
SBSG_CARB									
9,172.3	0.00	0.00	9,156.0	-299.9	37.7	-300.2	0.00	0.00	0.00
KOP - Emerald Fed Com 515H									
9,200.0	0.00	0.00	9,183.7	-299.9	37.7	-300.2	0.00	0.00	0.00
9,272.8	0.00	0.00	9,256.5	-299.9	37.7	-300.2	0.00	0.00	0.00
KOP #2 - Start Build 12.00									
9,275.0	0.26	356.50	9,258.7	-299.9	37.7	-300.1	12.00	12.00	0.00
9,300.0	3.26	356.50	9,283.7	-299.2	37.7	-299.4	12.00	12.00	0.00
9,310.4	4.50	356.50	9,294.0	-298.5	37.6	-298.7	12.00	12.00	0.00
SBSG_SD									
9,325.0	6.26	356.50	9,308.6	-297.1	37.5	-297.3	12.00	12.00	0.00
9,350.0	9.26	356.50	9,333.3	-293.7	37.3	-293.9	12.00	12.00	0.00
9,375.0	12.26	356.50	9,357.9	-289.1	37.0	-289.3	12.00	12.00	0.00
9,400.0	15.26	356.50	9,382.2	-283.1	36.7	-283.3	12.00	12.00	0.00
9,425.0	18.26	356.50	9,406.1	-275.9	36.2	-276.1	12.00	12.00	0.00
9,450.0	21.26	356.50	9,429.6	-267.5	35.7	-267.7	12.00	12.00	0.00
9,475.0	24.26	356.50	9,452.7	-257.8	35.1	-258.1	12.00	12.00	0.00
9,500.0	27.26	356.50	9,475.2	-247.0	34.5	-247.2	12.00	12.00	0.00
9,525.0	30.26	356.50	9,497.1	-235.0	33.7	-235.2	12.00	12.00	0.00
9,550.0	33.26	356.50	9,518.4	-221.9	32.9	-222.1	12.00	12.00	0.00
9,575.0	36.26	356.50	9,538.9	-207.6	32.1	-207.8	12.00	12.00	0.00
9,600.0	39.26	356.50	9,558.7	-192.4	31.1	-192.5	12.00	12.00	0.00
9,625.0	42.26	356.50	9,577.6	-176.1	30.1	-176.2	12.00	12.00	0.00
9,650.0	45.26	356.50	9,595.6	-158.8	29.1	-159.0	12.00	12.00	0.00
9,675.0	48.26	356.50	9,612.8	-140.6	28.0	-140.8	12.00	12.00	0.00
FTP - Emerald Fed Com 515H									
9,700.0	51.26	356.50	9,628.9	-121.6	26.8	-121.7	12.00	12.00	0.00
9,725.0	54.26	356.50	9,644.0	-101.7	25.6	-101.9	12.00	12.00	0.00
9,750.0	57.26	356.50	9,658.1	-81.1	24.3	-81.2	12.00	12.00	0.00
9,775.0	60.26	356.50	9,671.1	-59.8	23.0	-59.9	12.00	12.00	0.00
9,800.0	63.26	356.50	9,682.9	-37.8	21.7	-37.9	12.00	12.00	0.00
9,825.0	66.26	356.50	9,693.6	-15.2	20.3	-15.3	12.00	12.00	0.00
9,850.0	69.26	356.50	9,703.0	7.9	18.9	7.8	12.00	12.00	0.00
9,875.0	72.26	356.50	9,711.3	31.4	17.4	31.3	12.00	12.00	0.00
9,900.0	75.26	356.50	9,718.3	55.4	16.0	55.3	12.00	12.00	0.00
9,925.0	78.26	356.50	9,724.0	79.7	14.5	79.6	12.00	12.00	0.00
9,950.0	81.26	356.50	9,728.4	104.2	13.0	104.2	12.00	12.00	0.00
9,975.0	84.26	356.50	9,731.6	129.0	11.5	128.9	12.00	12.00	0.00
10,000.0	87.26	356.50	9,733.4	153.9	9.9	153.8	12.00	12.00	0.00
10,022.8	90.00	356.50	9,734.0	176.6	8.6	176.6	12.00	12.00	0.00
Turn - Start DLS 2.00 TFO 90.00									
10,100.0	90.00	358.04	9,734.0	253.7	4.9	253.7	2.00	0.00	2.00

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,178.9	90.00	359.62	9,734.0	332.6	3.3	332.6	2.00	0.00	2.00
LP - Start 9795.2 hold at 10178.9 MD									
10,200.0	90.00	359.62	9,734.0	353.7	3.1	353.7	0.00	0.00	0.00
10,300.0	90.00	359.62	9,734.0	453.7	2.5	453.7	0.00	0.00	0.00
10,400.0	90.00	359.62	9,734.0	553.7	1.8	553.7	0.00	0.00	0.00
10,500.0	90.00	359.62	9,734.0	653.7	1.2	653.7	0.00	0.00	0.00
10,600.0	90.00	359.62	9,734.0	753.7	0.5	753.7	0.00	0.00	0.00
10,700.0	90.00	359.62	9,734.0	853.7	-0.2	853.7	0.00	0.00	0.00
10,800.0	90.00	359.62	9,734.0	953.7	-0.8	953.7	0.00	0.00	0.00
10,900.0	90.00	359.62	9,734.0	1,053.7	-1.5	1,053.7	0.00	0.00	0.00
11,000.0	90.00	359.62	9,734.0	1,153.7	-2.1	1,153.7	0.00	0.00	0.00
11,100.0	90.00	359.62	9,734.0	1,253.7	-2.8	1,253.7	0.00	0.00	0.00
11,200.0	90.00	359.62	9,734.0	1,353.7	-3.5	1,353.7	0.00	0.00	0.00
11,300.0	90.00	359.62	9,734.0	1,453.7	-4.1	1,453.7	0.00	0.00	0.00
11,400.0	90.00	359.62	9,734.0	1,553.7	-4.8	1,553.7	0.00	0.00	0.00
11,500.0	90.00	359.62	9,734.0	1,653.7	-5.4	1,653.7	0.00	0.00	0.00
11,600.0	90.00	359.62	9,734.0	1,753.7	-6.1	1,753.7	0.00	0.00	0.00
11,700.0	90.00	359.62	9,734.0	1,853.7	-6.8	1,853.7	0.00	0.00	0.00
11,800.0	90.00	359.62	9,734.0	1,953.7	-7.4	1,953.7	0.00	0.00	0.00
11,900.0	90.00	359.62	9,734.0	2,053.7	-8.1	2,053.7	0.00	0.00	0.00
12,000.0	90.00	359.62	9,734.0	2,153.7	-8.7	2,153.7	0.00	0.00	0.00
12,100.0	90.00	359.62	9,734.0	2,253.7	-9.4	2,253.7	0.00	0.00	0.00
12,200.0	90.00	359.62	9,734.0	2,353.7	-10.1	2,353.7	0.00	0.00	0.00
12,300.0	90.00	359.62	9,734.0	2,453.7	-10.7	2,453.7	0.00	0.00	0.00
12,400.0	90.00	359.62	9,734.0	2,553.7	-11.4	2,553.7	0.00	0.00	0.00
12,500.0	90.00	359.62	9,734.0	2,653.7	-12.0	2,653.7	0.00	0.00	0.00
12,600.0	90.00	359.62	9,734.0	2,753.7	-12.7	2,753.7	0.00	0.00	0.00
12,700.0	90.00	359.62	9,734.0	2,853.7	-13.4	2,853.7	0.00	0.00	0.00
12,800.0	90.00	359.62	9,734.0	2,953.6	-14.0	2,953.7	0.00	0.00	0.00
12,900.0	90.00	359.62	9,734.0	3,053.6	-14.7	3,053.7	0.00	0.00	0.00
13,000.0	90.00	359.62	9,734.0	3,153.6	-15.3	3,153.7	0.00	0.00	0.00
13,100.0	90.00	359.62	9,734.0	3,253.6	-16.0	3,253.7	0.00	0.00	0.00
13,200.0	90.00	359.62	9,734.0	3,353.6	-16.6	3,353.7	0.00	0.00	0.00
13,300.0	90.00	359.62	9,734.0	3,453.6	-17.3	3,453.7	0.00	0.00	0.00
13,400.0	90.00	359.62	9,734.0	3,553.6	-18.0	3,553.7	0.00	0.00	0.00
13,500.0	90.00	359.62	9,734.0	3,653.6	-18.6	3,653.7	0.00	0.00	0.00
13,600.0	90.00	359.62	9,734.0	3,753.6	-19.3	3,753.7	0.00	0.00	0.00
13,700.0	90.00	359.62	9,734.0	3,853.6	-19.9	3,853.7	0.00	0.00	0.00
13,800.0	90.00	359.62	9,734.0	3,953.6	-20.6	3,953.7	0.00	0.00	0.00
13,900.0	90.00	359.62	9,734.0	4,053.6	-21.3	4,053.7	0.00	0.00	0.00
14,000.0	90.00	359.62	9,734.0	4,153.6	-21.9	4,153.7	0.00	0.00	0.00
14,100.0	90.00	359.62	9,734.0	4,253.6	-22.6	4,253.7	0.00	0.00	0.00
14,200.0	90.00	359.62	9,734.0	4,353.6	-23.2	4,353.7	0.00	0.00	0.00
14,300.0	90.00	359.62	9,734.0	4,453.6	-23.9	4,453.7	0.00	0.00	0.00
14,400.0	90.00	359.62	9,734.0	4,553.6	-24.6	4,553.7	0.00	0.00	0.00
14,500.0	90.00	359.62	9,734.0	4,653.6	-25.2	4,653.7	0.00	0.00	0.00
14,600.0	90.00	359.62	9,734.0	4,753.6	-25.9	4,753.7	0.00	0.00	0.00
14,700.0	90.00	359.62	9,734.0	4,853.6	-26.5	4,853.7	0.00	0.00	0.00
14,800.0	90.00	359.62	9,734.0	4,953.6	-27.2	4,953.7	0.00	0.00	0.00
14,900.0	90.00	359.62	9,734.0	5,053.6	-27.9	5,053.7	0.00	0.00	0.00
15,000.0	90.00	359.62	9,734.0	5,153.6	-28.5	5,153.7	0.00	0.00	0.00
15,100.0	90.00	359.62	9,734.0	5,253.6	-29.2	5,253.7	0.00	0.00	0.00
15,200.0	90.00	359.62	9,734.0	5,353.6	-29.8	5,353.7	0.00	0.00	0.00
15,300.0	90.00	359.62	9,734.0	5,453.6	-30.5	5,453.7	0.00	0.00	0.00

Planning Report

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Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,400.0	90.00	359.62	9,734.0	5,553.6	-31.2	5,553.7	0.00	0.00	0.00
15,500.0	90.00	359.62	9,734.0	5,653.6	-31.8	5,653.7	0.00	0.00	0.00
15,600.0	90.00	359.62	9,734.0	5,753.6	-32.5	5,753.7	0.00	0.00	0.00
15,700.0	90.00	359.62	9,734.0	5,853.6	-33.1	5,853.7	0.00	0.00	0.00
15,800.0	90.00	359.62	9,734.0	5,953.6	-33.8	5,953.7	0.00	0.00	0.00
15,900.0	90.00	359.62	9,734.0	6,053.6	-34.4	6,053.7	0.00	0.00	0.00
16,000.0	90.00	359.62	9,734.0	6,153.6	-35.1	6,153.7	0.00	0.00	0.00
16,100.0	90.00	359.62	9,734.0	6,253.6	-35.8	6,253.7	0.00	0.00	0.00
16,200.0	90.00	359.62	9,734.0	6,353.6	-36.4	6,353.7	0.00	0.00	0.00
16,300.0	90.00	359.62	9,734.0	6,453.6	-37.1	6,453.7	0.00	0.00	0.00
16,400.0	90.00	359.62	9,734.0	6,553.6	-37.7	6,553.7	0.00	0.00	0.00
16,500.0	90.00	359.62	9,734.0	6,653.6	-38.4	6,653.7	0.00	0.00	0.00
16,600.0	90.00	359.62	9,734.0	6,753.6	-39.1	6,753.7	0.00	0.00	0.00
16,700.0	90.00	359.62	9,734.0	6,853.6	-39.7	6,853.7	0.00	0.00	0.00
16,800.0	90.00	359.62	9,734.0	6,953.6	-40.4	6,953.7	0.00	0.00	0.00
16,900.0	90.00	359.62	9,734.0	7,053.6	-41.0	7,053.7	0.00	0.00	0.00
17,000.0	90.00	359.62	9,734.0	7,153.6	-41.7	7,153.7	0.00	0.00	0.00
17,100.0	90.00	359.62	9,734.0	7,253.6	-42.4	7,253.7	0.00	0.00	0.00
17,200.0	90.00	359.62	9,734.0	7,353.6	-43.0	7,353.7	0.00	0.00	0.00
17,300.0	90.00	359.62	9,734.0	7,453.6	-43.7	7,453.7	0.00	0.00	0.00
17,400.0	90.00	359.62	9,734.0	7,553.5	-44.3	7,553.7	0.00	0.00	0.00
17,500.0	90.00	359.62	9,734.0	7,653.5	-45.0	7,653.7	0.00	0.00	0.00
17,600.0	90.00	359.62	9,734.0	7,753.5	-45.7	7,753.7	0.00	0.00	0.00
17,700.0	90.00	359.62	9,734.0	7,853.5	-46.3	7,853.7	0.00	0.00	0.00
17,800.0	90.00	359.62	9,734.0	7,953.5	-47.0	7,953.7	0.00	0.00	0.00
17,900.0	90.00	359.62	9,734.0	8,053.5	-47.6	8,053.7	0.00	0.00	0.00
18,000.0	90.00	359.62	9,734.0	8,153.5	-48.3	8,153.7	0.00	0.00	0.00
18,100.0	90.00	359.62	9,734.0	8,253.5	-49.0	8,253.7	0.00	0.00	0.00
18,200.0	90.00	359.62	9,734.0	8,353.5	-49.6	8,353.7	0.00	0.00	0.00
18,300.0	90.00	359.62	9,734.0	8,453.5	-50.3	8,453.7	0.00	0.00	0.00
18,400.0	90.00	359.62	9,734.0	8,553.5	-50.9	8,553.7	0.00	0.00	0.00
18,500.0	90.00	359.62	9,734.0	8,653.5	-51.6	8,653.7	0.00	0.00	0.00
18,600.0	90.00	359.62	9,734.0	8,753.5	-52.3	8,753.7	0.00	0.00	0.00
18,700.0	90.00	359.62	9,734.0	8,853.5	-52.9	8,853.7	0.00	0.00	0.00
18,800.0	90.00	359.62	9,734.0	8,953.5	-53.6	8,953.7	0.00	0.00	0.00
18,900.0	90.00	359.62	9,734.0	9,053.5	-54.2	9,053.7	0.00	0.00	0.00
19,000.0	90.00	359.62	9,734.0	9,153.5	-54.9	9,153.7	0.00	0.00	0.00
19,100.0	90.00	359.62	9,734.0	9,253.5	-55.5	9,253.7	0.00	0.00	0.00
19,200.0	90.00	359.62	9,734.0	9,353.5	-56.2	9,353.7	0.00	0.00	0.00
19,300.0	90.00	359.62	9,734.0	9,453.5	-56.9	9,453.7	0.00	0.00	0.00
19,400.0	90.00	359.62	9,734.0	9,553.5	-57.5	9,553.7	0.00	0.00	0.00
19,500.0	90.00	359.62	9,734.0	9,653.5	-58.2	9,653.7	0.00	0.00	0.00
19,600.0	90.00	359.62	9,734.0	9,753.5	-58.8	9,753.7	0.00	0.00	0.00
19,700.0	90.00	359.62	9,734.0	9,853.5	-59.5	9,853.7	0.00	0.00	0.00
19,800.0	90.00	359.62	9,734.0	9,953.5	-60.2	9,953.7	0.00	0.00	0.00
19,900.0	90.00	359.62	9,734.0	10,053.5	-60.8	10,053.7	0.00	0.00	0.00
19,974.2	90.00	359.62	9,734.0	10,127.6	-61.3	10,127.8	0.00	0.00	0.00

TD at 19974.2 - LTP/BHL - Emerald Fed Com 515H

Planning Report

Database:	EDM 5000.16 Single User Db	**Local Co-ordinate Reference:**	Well Emerald Fed Com 515H
Company:	Avant Operating, LLC	**TVD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Project:	Lea Co., NM (NAD 83)	**MD Reference:**	WELL @ 3710.2usft (Original Well Elev)
Site:	Emerald Pad 2	**North Reference:**	Grid
Well:	Emerald Fed Com 515H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 0.1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP - Emerald Fed Con	0.00	0.00	9,156.0	-299.9	7.7	612,510.58	736,860.53	32.682226	-103.697845
- plan misses target center by 30.0usft at 9172.3usft MD (9156.0 TVD, -299.9 N, 37.7 E)									
- Point									
LTP/BHL - Emerald Fed	0.00	0.00	9,734.0	10,127.6	-61.3	622,938.16	736,791.56	32.710888	-103.697866
- plan hits target center									
- Point									
FTP - Emerald Fed Com	0.00	0.00	9,734.0	-249.9	7.4	612,560.58	736,860.26	32.682364	-103.697845
- plan misses target center by 164.5usft at 9675.0usft MD (9612.8 TVD, -140.6 N, 28.0 E)									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
19,963.4	9,734.0	20" Casing	20	24

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,460.0	1,460.0	RUSTLER			
1,754.0	1,754.0	SOLADO			
3,460.9	3,453.0	YATES			
4,745.9	4,730.0	CAPITAN_REEF			
5,167.3	5,151.0	CHERRY_CNYN			
5,784.3	5,768.0	BRUSHY_CANYON			
7,450.3	7,434.0	BSPG_LIME *			
8,188.3	8,172.0	AVALON_B			
8,743.3	8,727.0	FBSG__SD *			
9,120.3	9,104.0	SBSG_CARB			
9,310.4	9,294.0	SBSG_SD			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,000.0	2,000.0	0.0	0.0	KOP - Start Build 2.00
2,322.1	2,321.4	-17.9	2.3	Start 2372.2 hold at 2322.1 MD
4,694.3	4,678.6	-282.0	35.4	Start Drop -2.00
5,016.3	5,000.0	-299.9	37.7	Start 4256.5 hold at 5016.3 MD
9,272.8	9,256.5	-299.9	37.7	KOP #2 - Start Build 12.00
10,022.8	9,734.0	176.6	8.6	Turn - Start DLS 2.00 TFO 90.00
10,178.9	9,734.0	332.6	3.3	LP - Start 9795.2 hold at 10178.9 MD
19,974.2	9,734.0	10,127.6	-61.3	TD at 19974.2

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AFE: 0

API:

REGULATORY: NMOCD

PERMIT #

RIG: H&P 460

KB: 3710.5 (26.5')

GL: 3684'

CAMERON WELLHEAD
13" x 7-1/16" NOM

Emerald Federal Com 515H

Bone Spring

Lea County, NM

SHL: *Sec. 6, T-19S, R-33E; 350 FSL, 1260 FEL*

Lat: 32.6830507, Long: -103.6978636 (NAD83)

HOLE SIZE	MD	FORMATION	TVD	MUD	CASING	CEMENT	SPECIAL INSTRUCTIONS
	120	20" Conductor	120	SPUD MW 8.4 ppg Fresh 9 ppg	13 3/8 " 54.5# J-55 LTC +/- 12 Bowsprings *1 joint shoe track*	LEAD: 12.8 PPG Top of Lead: 0 50% Excess TAIL: 14.8 PPG Top of Tail: 1185' 20% Excess	Circ cement to surface is a NMOCD requirement Casing must be set 25' into the Rustler MUD: Fresh water only
17 1/2 "	1,460	Rustler	1,460				
	1,485	SURF CSG PT	1,485				
12 1/4 "	1,754	Solado	1,754	DRLOUT MW 9.5 ppg Cut Brine TD MW 9.5 ppg	9 5/8 " 40# J-55 LTC +/- 9 Bowsprings *1 joint shoe track*	LEAD: 11 PPG Top of Lead: 0' 50% excess TAIL: 14.8 PPG Top of Tail: 4213' 20% Excess	Circ cement to surface is a NMOCD requirement
	3,461	Yates	3,453				
	4,746	Capitan Reef	4,730				
	5,167	Cherry Canyon	5,151				
	5,267	INTRM CSG PT	5,251				
8 3/4 " VERTICAL	5,784	Brushy Canyon	5,768	DRLOUT MW 9.2 ppg Cut Brine KOP MW 9.5 ppg EOC MW 9.5	Float collar @ KOP		
	7,450	Bone Spring	7,434				
	8,188	Avalon	8,172				
	8,743	1st BS Sand	8,727				
	9,273	**KOP**	**9,257**				
8 3/4 " CURVE	9,310	2nd BS Sand	9,294	Cut Brine	Lat MW 9.2 ppg	OBM	TD MW 9.2 ppg
	10,023	**EOC**	**9,734**				
8 3/4 " LATERAL					5 1/2 " 20# P-110 HC GBCD 1 15' pup joints 2 20' Marker Jts +/- 33 Bowsprings +/- 27 Doublebows +/- 236 Solid Bodies	LEAD: 10.7 PPG Top of Lead: 0 50% Excess TAIL: 14.8 PPG Top of Tail: 9273 20% Excess All aqueous fluids (spacer and disp) left inside or outside of pipe must have biocide & corrision inhibitor	Expected Btm Hole Pressure 4672.32 psi

19,974 ' MD

10,128 ' VS

9,734 ' TVD

BHL: 100 FNL, 1254 FEL

WET SHOE

12°/ 100'

EOC VS = 333' *Lat. Azi = VS Azi. = 359.6°* Est BHST = 162°F, Est BHCT = 145°F

DIRECTIONAL PLAN

MD	INC	INC	TVD	ANNOTATION

Preliminary

DIRECTIONS TO LOCAITON:

Drilling Engineer: Ryan Harris

Emerald Federal Com 515H (H&P 460)

Date: 6/25/2024

PROPOSAL#: 240625131709-A

CEMENT PROCEDURE & PROPOSAL

PREPARED FOR:

Mr. Braden Harris
EMAIL: braden@avantnr.com
PHONE NUMBER: 406-600-3310

Avant Natural Resources

Emerald Federal Com #515H

Lea County, NM
Rig: H&P 460

Service Point

Odessa
1400 S JBS Parkway Odessa, TX 79766
432-701-8955

Technical Writer
Jonathan Smith
jonathan@wtcementers.com
432-701-3719

WTC Representative
Jon Reynolds
jon@wtcementers.com
432-257-1234

.Disclaimer Notice:
The ability of West Texas Cementers to complete this work is subject to the availability of the raw materials required to complete the job.
This information is presented in good faith, but no warranty is given by and West Texas Cementers LLC assumes no liability for advice or recommendations made concerning results to be obtained from the use of any product or service. The results given are estimates based on calculations produced by a computer model including various assumptions on the well, reservoir and treatment. The results depend on input data provided by the Operator and estimates as to unknown data and can be no more accurate than the model, the assumptions and such input data. The information presented is WTC LLC best estimate of the actual results that may be achieved and should be used for comparison purposes rather than absolute values. The quality of input data, and hence results, may be improved through the use of certain tests and procedures which West Texas Cementers LLC can assist in selecting. The Operator has superior knowledge of the well, the reservoir, the field and conditions affecting them. If the Operator is aware of any conditions whereby a neighboring well or wells might be affected by the treatment proposed herein it is the Operator's responsibility to notify the owner or owners of the well or wells accordingly. Prices quoted are estimates only and are good for 30 days from the date of issue. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services. Freedom from infringement of patents of West Texas Cementers LLC or others is not to be inferred.

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Avant Natural Resources
Emerald Federal Com #515H
Lea County, NM
Rig: H&P 460

Surface

PROPOSAL#: 240625131709-A

WELL INFORMATION	
MUD	8.4# Fresh Water
PREVIOUS PIPE	20'' 94# CSG to 120
OPEN HOLE	17.5'' OH to 1485
CASING/INJECTION	13.375'' 54.5# J-55/LTC to 1485
MD	1485
EST BHST/BHCT	92-F / 85-F (0.8-F/100-FT)
NOTES	Standby charges start after WTC has been on location for more than 4-hrs.

VOLUMES

FLUID NAME	LENGTH (ft)	OD (in.)	ID (in.)	XS (%)	FACTOR (bbl/ft)	VOLUME (bbl)
Lead	120	19.124	13.375		0.1815	21.8
Lead	1065	17.5	13.375	50%	0.1856	197.6
Tail	300	17.5	13.375	20%	0.1485	44.5
SHOE JOINT	40	13.375	12.615		0.1546	6.2

FLUIDS

SPACER

Fresh Water

VOLUME 20-bbl

Lead

35% B_Poz+65% Class C+6% Gel+5% SALT+0.25PPS Pol-E-Flake+0.005GPS NoFoam V1A

VOLUME	650-SX	Slurry Volume: *220-bbls*
DENSITY	12.8-ppg	Mix Water Required: *158-bbls*
YIELD	1.9-cf/sx	
MIX WATER	10.17-gps	
TOP OF CEMENT	Surface	
EXCESS	50%	

Avant Natural Resources
Emerald Federal Com #515H
Lea County, NM
Rig: H&P 460

Surface

PROPOSAL#: 240625131709-A

Tail		
100% Class C+1% CaCl2+0.005GPS NoFoam V1A		
VOLUME	215-SX	Slurry Volume: *50.9-bbls*
DENSITY	14.8-ppg	Mix Water Required: *33-bbls*
YIELD	1.33-cf/sx	
MIX WATER	6.34-gps	
TOP OF CEMENT	1185-ft	
EXCESS	20%	
DISPLACEMENT		
Displacement		
VOLUME	223.4-bbl	

Avant Natural Resources
Emerald Federal Com #515H
Lea County, NM
Rig: H&P 460

Intermediate

PROPOSAL#: 240625131709-A

WELL INFORMATION	
MUD	9.5# Cut Brine
PREVIOUS PIPE	13.375'' 54.5# CSG to 1485
OPEN HOLE	12.25'' OH to 5267
CASING/INJECTION	9.625'' 40# J-55/LTC to 5267
MD	5267
TVD	5251
EST BHST/BHCT	123-F / 107-F (0.8-F/100-FT)
NOTES	Standby charges start after WTC has been on location for more than 4-hrs.

VOLUMES

FLUID NAME	LENGTH (ft)	OD (in.)	ID (in.)	XS (%)	FACTOR (bbl/ft)	VOLUME (bbl)
Lead	1485	12.615	9.625		0.0646	95.9
Lead	2728	12.25	9.625	50%	0.0837	228.2
Tail	1054	12.25	9.625	20%	0.0669	70.5
SHOE JOINT	40	9.625	8.835		0.0758	3.0

FLUIDS

SPACER

Fresh Water

VOLUME 25-bbl

Lead

35% B_Poz+65% Class C+6% Gel+5% SALT+0.5% R-1300+0.25PPS Pol-E-Flake+0.005GPS NoFoam V1A

VOLUME	960-SX	Slurry Volume: *324.9-bbls*
DENSITY	12.8-ppg	Mix Water Required: *233-bbls*
YIELD	1.9-cf/sx	
MIX WATER	10.18-gps	
TOP OF CEMENT	Surface	
EXCESS	50%	

Avant Natural Resources
Emerald Federal Com #515H
Lea County, NM
Rig: H&P 460

Intermediate

PROPOSAL#: 240625131709-A

Tail		
100% Class C+5% SALT+0.005GPS NoFoam V1A		
VOLUME	305-SX	Slurry Volume: *73.9-bbls*
DENSITY	14.8-ppg	Mix Water Required: *48-bbls*
YIELD	1.36-cf/sx	
MIX WATER	6.51-gps	
TOP OF CEMENT	4213-ft	
EXCESS	20%	
DISPLACEMENT		
Displacement		
VOLUME	396.3-bbl	

Avant Natural Resources
Emerald Federal Com #515H
Lea County, NM
Rig: H&P 460

Production

PROPOSAL#: 240625131709-A

WELL INFORMATION	
MUD	9.2# OBM
PREVIOUS PIPE	9.625'' 40# CSG to 5267
OPEN HOLE	8.75'' OH to 19974
CASING/INJECTION	5.5'' 20# P-110 HC/GBCD to 19974
MD	19974
TVD	9734
EST BHST/BHCT	211-F / 194-F (1.34-F/100-FT)
KOP	9273
NOTES	Standby charges start after WTC has been on location for more than 8-hrs.

VOLUMES

FLUID NAME	LENGTH (ft)	OD (in.)	ID (in.)	XS (%)	FACTOR (bbl/ft)	VOLUME (bbl)
Lead	5267	8.835	5.5		0.0464	244.6
Lead	4006	8.75	5.5	50%	0.0675	270.3
Tail	10701	8.75	5.5	20%	0.0540	577.7
SHOE JOINT	80	5.5	4.778		0.0222	1.8

FLUIDS

SPACER

Wt. Spacer 38.01GPB Water+8PPB PolyScrub 4320+73.29PPB Barite+1GPB HoleScrub 4311+1PPB R-1300

VOLUME	40-bbl
DENSITY	9.7-ppg

Lead

100% ProLite+5PPS Plexcrete STE+2% SMS+0.65% R-1300+0.2% FL-24+3PPS Gilsonite+0.005GPS NoFoam V1A

VOLUME	860-SX	Slurry Volume: *517.7-bbls*
DENSITY	10.7-ppg	Mix Water Required: *432-bbls*
YIELD	3.38-cf/sx	
MIX WATER	21.06-gps	
TOP OF CEMENT	Surface	
EXCESS	50%	

Avant Natural Resources
Emerald Federal Com #515H
Lea County, NM
Rig: H&P 460

Production

PROPOSAL#: 240625131709-A

Tail		
50% B_Poz+50% Class H+5% SALT+0.05% RCKCAS-100+0.75% FR-5+0.5% FL-24+0.005GPS NoFoam V1A		
VOLUME	2690-SX	Slurry Volume: *579.7-bbls*
DENSITY	14.5-ppg	Mix Water Required: *339-bbls*
YIELD	1.21-cf/sx	
MIX WATER	5.28-gps	
TOP OF CEMENT	9273-ft	
EXCESS	20%	
DISPLACEMENT		
Fresh Water+ 0.25GPT Plexcide 24L+1GPT Corplex		
VOLUME	441.2-bbl	
DENSITY	8.34-ppg	

CHEMICAL DESCRIPTIONS		
CHEMICAL NAME	**CODE**	**DESCRIPTION**
B_Poz	WTC228	Poz - Fly Ash, Extender
Class H	WTC101	API Cement
Class C	WTC100	API Cement
M_Poz	WTC280	Poz - Fly Ash, Extender
ProLite		Blended Based Cement
Plexcrete SFA	WTC129	Cement Strength Enhancer
Gel	WTC102	Extender
Micro Crystal	WTC212	Cement Strength Enhancer
Micro Shell	WTC209	Cement Strength Enhancer
WTC1	WTC250	Extender
GB-52	WTC008	Microspheres, Extender
Plexcrete STE	WTC127	Cement Strength Enhancer
CSE-NP	WTC236	Cement Strength Enhancer
Gypsum	WTC111	Free Water Control, Extender
CaCl2	WTC112	Accelerator
SMS	WTC115	Free Water Control, Extender
RCKCAS-100	WTC276	Free Water Control, Anti-Settling Agent
R-1300	WTC201	Low Temperature Retarder
CRT-201	WTC278	Lignosulfonate Retarder
FR-5	WTC258	Lignosulfonate Retarder
C-37	WTC224	Dispersant, Friction Reducer
CFL-312	WTC265	Fluid Loss and Gas Migration Control
FL-24	WTC277	Fluid Loss (polymers/copolymers - 300-F max)
FL-17	WTC130	Fluid Loss and Gas Migration Control (400-F max)
MagBond	WTC271	Expanding Agent
Gilsonite	WTC003	Premium Lost Circulation Material, Free Water Control
Pol-E-Flake	WTC106	Lost Circulation Material
Web Seal	WTC133	Premium Fiber Lost Circulation Material
Zone Seal	WTC207	Premium Lost Circulation Material
NoFoam V1A	WTC105	Liquid Defoamer
Water		Fresh Water
PolyScrub 4320	WTC232	Spacer Gelling Agent
Barite	WTC116	Weighting Agent
HoleScrub 4311	WTC281	Surfactant
HoleScrub 4305	WTC213	Surfactant
HoleScrub 4308	WTC215	Surfactant
Soda Ash	WTC164	pH Control
R-1300	WTC201	Low Temperature Retarder
RCKCAS-100	WTC276	Free Water Control, Anti-Settling Agent
Sugar	WTC119	Retarder
R-33	WTC243	Lignosulfonate Retarder
Plexcide 24L	WTC166	Biocide
Corplex	WTC134	Corrosion Inhibitor
Clay Max	WTC096	KCL Substitute
Zone Seal	WTC207	Premium Lost Circulation Material

Hydrogen Sulfide Plan Summary

A. All personnel shall receive proper H2S training in accordance with Onshore Order III.C.3.a.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment:

- Well control equipment
  a. Flare line 150' from wellhead to be ignited by flare gun.
  b. Choke manifold with a remotely operated choke.
  c. Mud/gas separator

- Protective equipment for essential personnel.

  Breathing apparatus:
  a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
  b. Work/Escape packs —4 packs shall be stored on the rig floor th sufficient air hose not to restrict work activity.
  c. Emergency Escape Packs —4 packs shall be stored in the doghouse for emergency evacuation.

  Auxiliary Rescue Equipment:
  a. Stretcher
  b. Two OSHA full body harness
  c. 100 ft 5/8 inch OSHA approved rope
  d. 1-20# class ABC fire extinguisher

- H2S detection and monitoring equipment:
  The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.
  (Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
  a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  c. Two wind socks will be placed in strategic locations, visible from all angles.

AVANT
NATURAL RESOURCES

- Mud program:
  The mud program has been designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.

- Metallurgy:
  All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

- Communication:
  Communication will be via cell phones and land lines where available.

Company Personnel to be Notified

John Harper, Vice President of Geoscience	Office: (720) 746-5045 Mobile: (678) 988-6644
Braden Harris, Engineer	Mobile: (406) 600-3310

Local & County Agencies

Maljamar Volunter Fire Department	911 or (575) 676-4100
Lea County Sheriff (Lovington)	911 or (575) 396-3611
Lea County Emergency Management (Lovington)	(575) 396-8602
Lea Regional Medical Center Hopital (Hobbs)	(575) 492-5000

State Agencies

NM State Police (Hobbs)	(575) 392-5588
NM Oil Conservation (Hobbs)	(575) 370-3186
NM Oil Conservation (Santa Fe)	(505) 476-3440
NM Dept. of Transportation (Roswell)	(575) 637-7201

AVANT
NATURAL RESOURCES

Federal Agencies

BLM (Carlsbad)	(575) 234-5972
BLM (Hobbs)	(575) 393-3612
National Response Center	(800) 424-8802
US EPA Region 6 (Dallas)	(800) 887-6063
	(214) 665-6444

Veterinarians

Lovington Veterinary Clinic	(575) 396-7387
Hobbs Animal Clinic	(575) 392-5563
Dal Paso Animal Hospital (Hobbs)	(575) 397-2286

Residents within 2 miles

None

Air Evacuation

AeroCare (Lubbock)	(800) 627-2376
Med Flight Air Ambulance (Albuquerque)	(800) 842-4431
Lifeguard (Albuquerque)	(888) 866-7256

AVANT
NATURAL RESOURCES

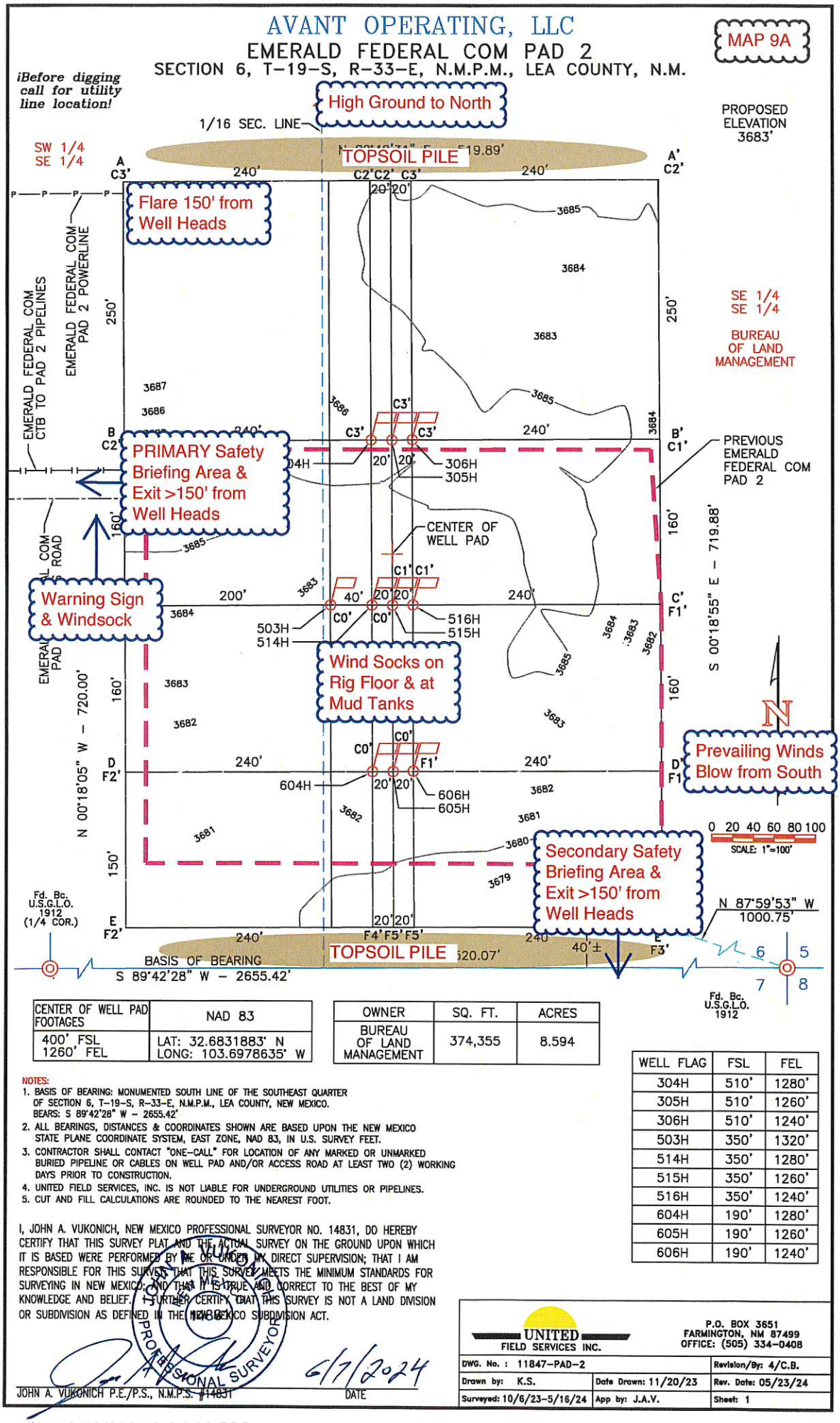
AVANT OPERATING, LLC

EMERALD FEDERAL COM PAD 2

SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, N.M.

MAP 9A

iBefore digging call for utility line location!



CENTER OF WELL PAD FOOTAGES	NAD 83
400' FSL 1260' FEL	LAT: 32.6831883° N LONG: 103.6978635° W

OWNER	SQ. FT.	ACRES
BUREAU OF LAND MANAGEMENT	374,355	8.594

WELL FLAG	FSL	FEL
304H	510'	1280'
305H	510'	1260'
306H	510'	1240'
503H	350'	1320'
514H	350'	1280'
515H	350'	1260'
516H	350'	1240'
604H	190'	1280'
605H	190'	1260'
606H	190'	1240'

NOTES:
1. BASIS OF BEARING: MONUMENTED SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 6, T-19-S, R-33-E, N.M.P.M., LEA COUNTY, NEW MEXICO. BEARS: S 89°42'28" W - 2655.42'
2. ALL BEARINGS, DISTANCES & COORDINATES SHOWN ARE BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83, IN U.S. SURVEY FEET.
3. CONTRACTOR SHALL CONTACT "ONE-CALL" FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINE OR CABLES ON WELL PAD AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
4. UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
5. CUT AND FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

I, JOHN A. VUKONICH, NEW MEXICO PROFESSIONAL SURVEYOR NO. 14831, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

NEW MEXICO PROFESSIONAL SURVEYOR 14831

JOHN A. VUKONICH P.E./P.S., N.M.P.S. #14831

6/7/2024
DATE

UNITED FIELD SERVICES INC.
P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

DWG. No. : 11847-PAD-2		Revision/By: 4/C.B.
Drawn by: K.S.	Date Drawn: 11/20/23	Rev. Date: 05/23/24
Surveyed: 10/6/23-5/16/24	App by: J.A.V.	Sheet: 1

Avant Operating, LLC

Emerald Federal Com
Pad 2
H2S Contingency Plan:
Radius Map

Section 6, Township 19S, Range 33E
Lea County, New Mexico

Pad Center

1:27,000

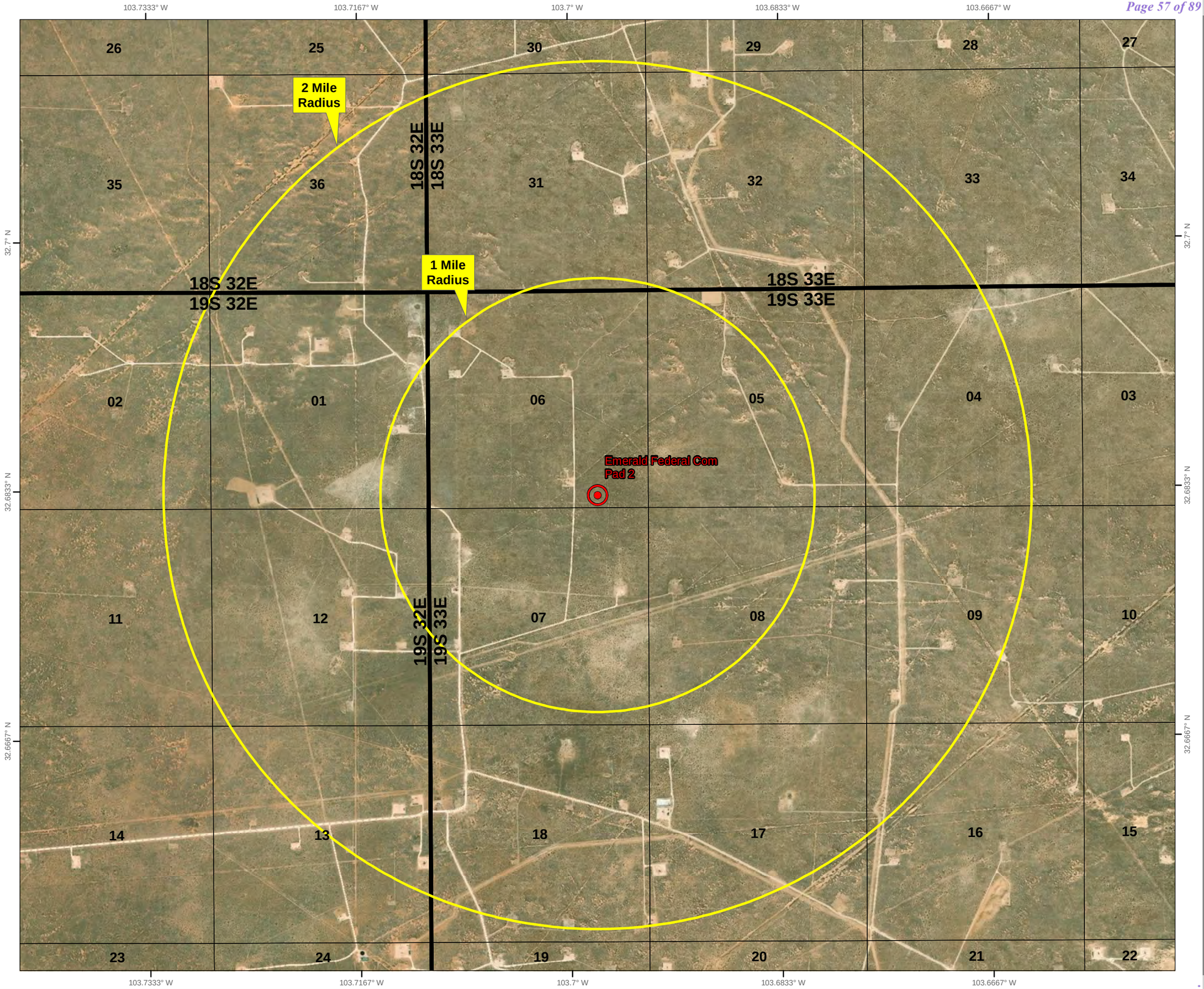
0 0.25 0.5 1

Miles

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST

Prepared by Permits West, Inc., February 20, 2024
for Avant Operating, LLC



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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025- 30-025-53574	13160	Corbin; Bone Spring, South

[4] Property Code	[5] Property Name	[6] Well Number
335608	EMERALD FEDERAL COM	515H

[7] OGRID No.	[8] Operator Name	[9] Elevation
330396	AVANT OPERATING, LLC	3683.7

[10] Surface Location

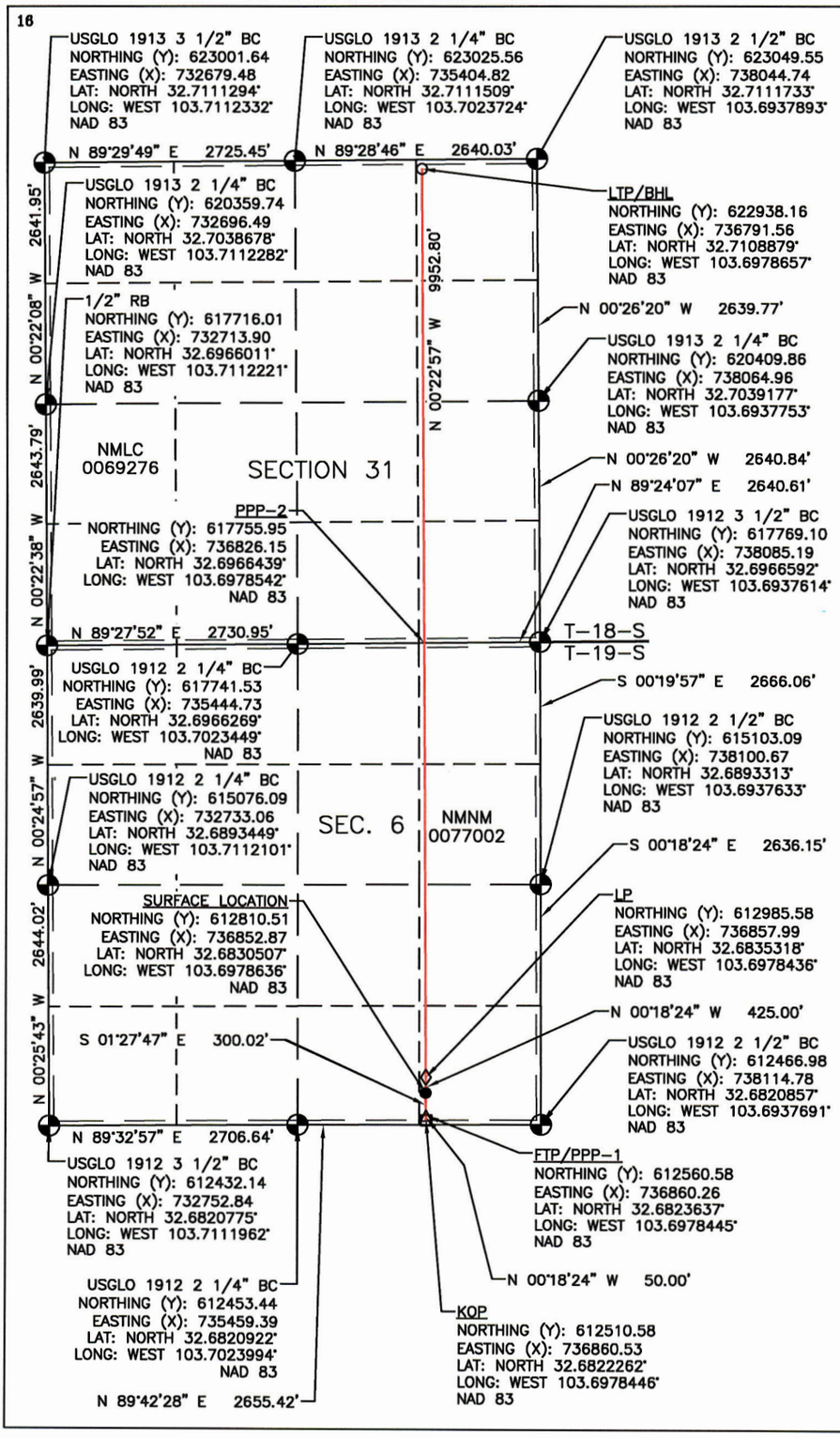
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	6	19 S	33 E		350	SOUTH	1260	EAST	LEA

[11] 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	31	18 S	33 E		100	NORTH	1254	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1302.98 Total Ac.			

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



[17] OPERATOR CERTIFICATION

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.

Signature 6/7/2024 Date

Meghan Twele
Printed Name

mtwele@outlook.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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.

12/20/23 6/1/2024
Date of Survey
Plat Revised: 5/23/24
Signature and Seal of Professional Surveyor:

JOHN A. VURONICH NEW MEXICO 14831 PROFESSIONAL SURVEYOR

Certificate Number 14831

LEGEND:
- ● = SURFACE LOCATION (SHL)
- □ = KICK OFF POINT (KOP)
- △ = FTP/PPP-1
- ◊ = LANDING POINT (LP)
- ○ = LTP/BHL
- ⊕ = FOUND MONUMENT

FOOTAGES		
SHL	350' FSL	1260' FEL
KOP	50' FSL	1254' FEL
FTP/PPP-1	100' FSL	1254' FEL
LP	525' FSL	1254' FEL
PPP-2	0' FNL	1259' FEL
LTP/BHL	100' FNL	1254' FEL

PENDING C-103A SUBMITAL AND APPROVAL BY THE OCD

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: Avant Operating, LLC **OGRID:** 330396 **Date:** 07/11/2024

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Emerald Federal Com 505H (515H)		P-06-T19S-R33E	350FSL/1280FEL	1400 BBL/D	2800 MCF/D	7000 BBL/D
Emerald Federal Com 506H		P-06-T19S-R33E	350FSL/1250FEL	1400 BBL/D	2800 MCF/D	7000 BBL/D

IV. Central Delivery Point Name: Emerald CTB [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Emerald Federal Com 505H (515H)		01/26/2025	03/12/2025	04/14/2025	04/21/2025	04/21/2025
Emerald Federal Com 506H		01/26/2025	03/12/2025	04/14/2025	04/21/2025	04/21/2025

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:
Printed Name: John Harper
Title: SVP Assets and Exploration
E-mail Address: John@avantnr.com
Date: 07/15/24
Phone: 678-988-6644

OIL CONSERVATION DIVISION **(Only applicable when submitted as a standalone form)**
Approved By:
Title:
Approval Date:
Conditions of Approval:

Avant Operating, LLC Natural Gas Management Plan

VI. Separation equipment will be sized by construction engineering staff based on stated manufacturer daily throughput capacities and anticipated daily production rates to ensure adequate capacity. Closed vent system piping, compression needs, and VRUs will be sized utilizing ProMax modelling software to ensure adequate capacity for anticipated production volumes and conditions.

VII. Avant Operating, LLC (Avant) will take the following actions to comply with the regulations listed in 19.15.27.8:

A. Avant will maximize the recovery of natural gas by minimizing the waste, as defined by 19.15.2 NMAC, of natural gas through venting and flaring. Avant will ensure that well(s) will be connected to a natural gas gathering system with sufficient capacity to transport natural gas.

B. All drilling operations will be equipped with a rig flare located at least 100' from the nearest surface hole. Rig flare will be utilized to combust any natural gas that is brought to surface during normal drilling operations. In the case of emergency venting or flaring the volumes will be estimated and reported appropriately.

C. During completion operations any natural gas brought to surface will be flared. Immediately following the finish of completion operations, all well flowback will be directed to permanent separation equipment. Produced natural gas from separation equipment will be sent to sales. It is not anticipated that gas will not meet pipeline standards. However, if natural gas does not meet gathering pipeline quality specifications, Avant will flare the natural gas for 60 days or until the natural gas meets the pipeline quality specifications. Avant will ensure that the flare is sized properly and is equipped with automatic igniter or continuous pilot. The gas sample will be analyzed twice per week and the gas will be routed into a gathering system as soon as pipeline specifications are met.

D. Avant will comply with the performance standards requirements and provisions listed in 19.15.27.8 (l) through (8). All equipment will be designed and sized to handle maximum anticipated pressures and throughputs to minimize the waste. Production storage tanks constructed after May 25, 2021, will be equipped with automatic gauging system. Flares constructed after May 25, 2021, will be equipped with automatic igniter or continuous pilot. Flares will be located at least 100' from the well and storage tanks unless otherwise approved by the division. Avant will conduct AVO inspections as described in 19.15.27.8 E (5) (a) with frequencies specified in 19.15.27.8 E (5) (b) and (c). All emergencies will be resolved as quickly and safely as feasible to minimize waste.

E. The volume of natural gas that is vented or flared as the result of malfunction or emergency during drilling and completions operations will be estimated. The volume of natural gas that is vented, flared, or beneficially used during production operations, will be measured, or estimated. Avant will install equipment to measure

AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report
08/13/2024

APD ID: 10400084367
Submission Date: 04/12/2022

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: EMERALD FEDERAL COM
Well Number: 505H

Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
13932503	RUSTLER	3690	1420	1420	LIMESTONE, MARL, SANDSTONE	USEABLE WATER	N
13932505	BASE OF SALT	554	3136	3136	SALT	NONE	N
13932499	YATES	407	3283	3283	DOLOMITE, SANDSTONE	NONE	N
13932498	QUEEN	-588	4278	4278	SANDSTONE	NONE	N
13932500	DELAWARE	-2331	6021	6021	SANDSTONE	NONE	N
13932501	BONE SPRINGS	-4231	7921	7921	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
13932502	BONE SPRING 1ST	-5461	9151	9151	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
13932506	BONE SPRING 2ND	-5766	9456	9456	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
13932507	BONE SPRING 3RD	-6561	10251	10251	LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M
Rating Depth: 11000

Equipment: A BOP consisting of three rams, including one blind ram and two pipe rams and one annular preventer. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A Kelly clock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.
Requesting Variance? YES

Variance request: Co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Variance to include Hammer Union connections on lines downstream of the buffer tank only. Legacy requests a 5M annular variance for the 10M BOP system. See attached procedure

Testing Procedure: Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000 (high) / 250 (low) psig and the annular preventer to 3500 (high) / 250 (low) psig by an independent service company. Test charts will always be kept on location. Surface casing will be tested to 1500 psi for 30 minutes. Before drilling out of the intermediate casing, the ram-type BOP and accessory

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: EMERALD FEDERAL COM **Well Number:** 505H

equipment will be tested to 5000 (high) / 250 (low) psig and the annular preventer to 3500 (high) / 250 (low) psig by an independent service company. Test charts will always be kept on location. Intermediate casing will be tested to 1500 psi for 30 minutes. A solid steel body pack-off will be used after running and cementing the intermediate casing. After installation, pack-off and lower flange will be pressure tested to 5000 psi. 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. A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe. This pressure test will be repeated at least once every 30 days, as per 43 CFR 3172 "Drilling Operations on Federal and Indian Oil and Gas Leases". Kelly cock will always be in the drill string. Full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will always be on the rig floor. The multi-bowl wellhead will be installed by a third-party welder while being monitored by the vendors representative. All BOP equipment will be tested using a conventional test plug - not a cup or J-packer type. Both the surface and intermediate casing strings will be tested as per Onshore Order 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield.

Choke Diagram Attachment:

chokedrawings_20240612091236.pdf

BOP Diagram Attachment:

Emerald_Fed_Com_BOP_10M_20220407193941.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1500	0	1500	3682	2182	1500	J-55	54.5	ST&C	1.42	3.86	DRY	4.3	DRY	4.3
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	6080	0	6070	3690	-2388	6080	J-55	40	LT&C	1.25	1.27	DRY	1.94	DRY	1.94
3	PRODUCTION	8.75	5.5	NEW	API	N	0	20512	0	9700	3690	-6018	20512	P-110	20	BUTT	2.27	1.28	DRY	1.76	DRY	1.76

Casing Attachments

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: EMERALD FEDERAL COM **Well Number:** 505H

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Emerald_Fed_Com_505H_Csg_Assumptions_20220411160413.pdf

Casing ID: 2 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Emerald_Fed_Com_505H_Csg_Assumptions_20220411160400.pdf

Casing ID: 3 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Emerald_Fed_Com_505H_Csg_Assumptions_20220411160335.pdf

Section 4 - Cement

CONFIDENTIAL

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: EMERALD FEDERAL COM **Well Number:** 505H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1500	970	1.72	13.5	1670	100	Class C Cement	CLASS C + BENTONITE
SURFACE	Tail		1550	1500	260	1.32	14.8	264	100	Class C Neat	CLASS C
INTERMEDIATE	Lead		0	6075	2115	1.94	12.6	4100	180	CLASS C	35:65 POZ C
INTERMEDIATE	Tail		0	6075	380	1.18	15.6	450	140	CLASS H NEAT	none
PRODUCTION	Lead		0	20512	1300	1.62	11.9	2100	80	CLASS H	POZ 50:50
PRODUCTION	Tail		0	20512	2650	1.34	14.2	3540	30	CLASS H	POZ 50:50

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. An electronic PVT system will be rigged up prior to spudding this well. A volume monitoring system that measures, calculates, and displays readings from the mud system on the rig to alert the crew of impending gas kicks and lost circulation. **In order to effectively run open hole logs and casing, the mud viscosity and fluid loss properties may be adjusted.

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
6100	20512	OTHER : Fresh Water / CUT Brine Water	8.8	9.3							

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: EMERALD FEDERAL COM **Well Number:** 505H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
1500	6100	OTHER : Brine water	9.8	10.3							
0	1500	SPUD MUD	8.4	8.6							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

No DST planned

List of open and cased hole logs run in the well:

MUD LOG/GEOLOGIC LITHOLOGY LOG,GAMMA RAY LOG,DIRECTIONAL SURVEY,

Coring operation description for the well:

NA

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4420 **Anticipated Surface Pressure:** 2285

Anticipated Bottom Hole Temperature(F): 170

Anticipated abnormal pressures, temperatures, or potential geologic hazards? YES

Describe:

Lost circulation may be encountered in the Delaware mountain group.

Contingency Plans geoharzards description:

Lost circulation material will be available, as well as additional drilling fluid along with the fluid volume in the drilling rig pit system. Drilling fluid can be mixed on location or mixed in vendor mud plant and trucked to location if needed.

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

Emerald_Fed_Com_505H_H2S_Plan_20220411160513.pdf

Emerald_Fed_Com_E2E2_Rig_Layout_20220411160541.pdf

Operator Name: LEGACY RESERVES OPERATING LP

Well Name: EMERALD FEDERAL COM **Well Number:** 505H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Emerald_Fed_Com_505H_Dir_Plan_20220411160607.pdf

Other proposed operations facets description:

No DV tool is planned in this well.

Other proposed operations facets attachment:

Emerald_Fed_Com_Construction_Material_20220407194632.pdf
Emerald_Fed_Com_Multibowl_WH_20220407194526.pdf
Emerald_Fed_Com_Water_Transportation_Map_20220407194546.pdf
Emerald_Fed_Com_505H_NGMP_20220411160624.pdf
Emerald_Fed_Com_505H_Well_Control_20220411160632.pdf

Other Variance attachment:

Emerald_Fed_Com_Flex_Hose_Test_20220407194707.pdf

CONFIDENTIAL

Legacy Reserves

Lea County, NM (NAD83 - NME)
Emerald Pad
Emerald Federal Com 505H

OH

Plan: Plan #1

Standard Planning Report

31 January, 2022

Planning Report

Database:	FHartmann	**Local Co-ordinate Reference:**	Well Emerald Federal Com 505H
Company:	Legacy Reserves	**TVD Reference:**	KB @ 3707.40usft
Project:	Lea County, NM (NAD83 - NME)	**MD Reference:**	KB @ 3707.40usft
Site:	Emerald Pad	**North Reference:**	Grid
Well:	Emerald Federal Com 505H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project Lea County, NM (NAD83 - NME)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Emerald Pad

Site Position:		**Northing:**	612,810.10 usft	**Latitude:**	32.683050
From:	Map	**Easting:**	736,803.18 usft	**Longitude:**	-103.698025
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "		

Well Emerald Federal Com 505H

Well Position	**+N/-S**	0.00 usft	**Northing:**	612,810.25 usft	**Latitude:**	32.683050
	+E/-W	0.00 usft	**Easting:**	736,833.17 usft	**Longitude:**	-103.697928
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,682.40 usft
Grid Convergence:		0.34 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2022_FILE	1/31/2022	6.53	60.55	47,901.50000000

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.39

Plan Survey Tool Program **Date** 1/31/2022

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,463.85	Plan #1 (OH)	MWD+HRGM	
				OWSG MWD + HRGM	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,420.00	8.40	182.43	1,418.50	-30.70	-1.30	2.00	2.00	0.00	182.43	
6,638.99	8.40	182.43	6,581.50	-792.43	-33.59	0.00	0.00	0.00	0.00	
7,058.99	0.00	0.00	7,000.00	-823.13	-34.89	2.00	-2.00	0.00	180.00	
9,186.03	0.00	0.00	9,127.04	-823.13	-34.89	0.00	0.00	0.00	0.00	
10,086.03	90.00	359.62	9,700.00	-250.18	-38.68	10.00	10.00	-0.04	359.62	
20,463.85	90.00	359.62	9,700.00	10,127.40	-107.38	0.00	0.00	0.00	0.00	Emerald Fed Com 505

Planning Report

Database:	FHartmann	**Local Co-ordinate Reference:**	Well Emerald Federal Com 505H
Company:	Legacy Reserves	**TVD Reference:**	KB @ 3707.40usft
Project:	Lea County, NM (NAD83 - NME)	**MD Reference:**	KB @ 3707.40usft
Site:	Emerald Pad	**North Reference:**	Grid
Well:	Emerald Federal Com 505H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	2.00	182.43	1,099.98	-1.74	-0.07	-1.74	2.00	2.00	0.00
1,200.00	4.00	182.43	1,199.84	-6.97	-0.30	-6.97	2.00	2.00	0.00
1,300.00	6.00	182.43	1,299.45	-15.68	-0.66	-15.67	2.00	2.00	0.00
1,400.00	8.00	182.43	1,398.70	-27.85	-1.18	-27.84	2.00	2.00	0.00
1,420.00	8.40	182.43	1,418.50	-30.70	-1.30	-30.69	2.00	2.00	0.00
Start 5219.00 hold at 1420.00 MD									
1,500.00	8.40	182.43	1,497.64	-42.38	-1.80	-42.36	0.00	0.00	0.00
1,600.00	8.40	182.43	1,596.57	-56.98	-2.42	-56.95	0.00	0.00	0.00
1,700.00	8.40	182.43	1,695.49	-71.57	-3.03	-71.54	0.00	0.00	0.00
1,800.00	8.40	182.43	1,794.42	-86.17	-3.65	-86.12	0.00	0.00	0.00
1,900.00	8.40	182.43	1,893.35	-100.76	-4.27	-100.71	0.00	0.00	0.00
2,000.00	8.40	182.43	1,992.28	-115.36	-4.89	-115.30	0.00	0.00	0.00
2,100.00	8.40	182.43	2,091.20	-129.95	-5.51	-129.89	0.00	0.00	0.00
2,200.00	8.40	182.43	2,190.13	-144.55	-6.13	-144.47	0.00	0.00	0.00
2,300.00	8.40	182.43	2,289.06	-159.14	-6.75	-159.06	0.00	0.00	0.00
2,400.00	8.40	182.43	2,387.98	-173.74	-7.36	-173.65	0.00	0.00	0.00
2,500.00	8.40	182.43	2,486.91	-188.33	-7.98	-188.24	0.00	0.00	0.00
2,600.00	8.40	182.43	2,585.84	-202.93	-8.60	-202.83	0.00	0.00	0.00
2,700.00	8.40	182.43	2,684.77	-217.52	-9.22	-217.41	0.00	0.00	0.00
2,800.00	8.40	182.43	2,783.69	-232.12	-9.84	-232.00	0.00	0.00	0.00
2,900.00	8.40	182.43	2,882.62	-246.71	-10.46	-246.59	0.00	0.00	0.00
3,000.00	8.40	182.43	2,981.55	-261.31	-11.08	-261.18	0.00	0.00	0.00
3,100.00	8.40	182.43	3,080.47	-275.90	-11.69	-275.76	0.00	0.00	0.00
3,200.00	8.40	182.43	3,179.40	-290.50	-12.31	-290.35	0.00	0.00	0.00
3,300.00	8.40	182.43	3,278.33	-305.09	-12.93	-304.94	0.00	0.00	0.00
3,400.00	8.40	182.43	3,377.26	-319.69	-13.55	-319.53	0.00	0.00	0.00
3,500.00	8.40	182.43	3,476.18	-334.28	-14.17	-334.12	0.00	0.00	0.00
3,600.00	8.40	182.43	3,575.11	-348.88	-14.79	-348.70	0.00	0.00	0.00
3,700.00	8.40	182.43	3,674.04	-363.47	-15.41	-363.29	0.00	0.00	0.00
3,800.00	8.40	182.43	3,772.97	-378.07	-16.03	-377.88	0.00	0.00	0.00
3,900.00	8.40	182.43	3,871.89	-392.66	-16.64	-392.47	0.00	0.00	0.00
4,000.00	8.40	182.43	3,970.82	-407.26	-17.26	-407.05	0.00	0.00	0.00
4,100.00	8.40	182.43	4,069.75	-421.86	-17.88	-421.64	0.00	0.00	0.00
4,200.00	8.40	182.43	4,168.67	-436.45	-18.50	-436.23	0.00	0.00	0.00
4,300.00	8.40	182.43	4,267.60	-451.05	-19.12	-450.82	0.00	0.00	0.00
4,400.00	8.40	182.43	4,366.53	-465.64	-19.74	-465.41	0.00	0.00	0.00
4,500.00	8.40	182.43	4,465.46	-480.24	-20.36	-479.99	0.00	0.00	0.00
4,600.00	8.40	182.43	4,564.38	-494.83	-20.97	-494.58	0.00	0.00	0.00
4,700.00	8.40	182.43	4,663.31	-509.43	-21.59	-509.17	0.00	0.00	0.00
4,800.00	8.40	182.43	4,762.24	-524.02	-22.21	-523.76	0.00	0.00	0.00
4,900.00	8.40	182.43	4,861.17	-538.62	-22.83	-538.34	0.00	0.00	0.00

Planning Report

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Company:	Legacy Reserves	**TVD Reference:**	KB @ 3707.40usft
Project:	Lea County, NM (NAD83 - NME)	**MD Reference:**	KB @ 3707.40usft
Site:	Emerald Pad	**North Reference:**	Grid
Well:	Emerald Federal Com 505H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,000.00	8.40	182.43	4,960.09	-553.21	-23.45	-552.93	0.00	0.00	0.00
5,100.00	8.40	182.43	5,059.02	-567.81	-24.07	-567.52	0.00	0.00	0.00
5,200.00	8.40	182.43	5,157.95	-582.40	-24.69	-582.11	0.00	0.00	0.00
5,300.00	8.40	182.43	5,256.87	-597.00	-25.30	-596.70	0.00	0.00	0.00
5,400.00	8.40	182.43	5,355.80	-611.59	-25.92	-611.28	0.00	0.00	0.00
5,500.00	8.40	182.43	5,454.73	-626.19	-26.54	-625.87	0.00	0.00	0.00
5,600.00	8.40	182.43	5,553.66	-640.78	-27.16	-640.46	0.00	0.00	0.00
5,700.00	8.40	182.43	5,652.58	-655.38	-27.78	-655.05	0.00	0.00	0.00
5,800.00	8.40	182.43	5,751.51	-669.97	-28.40	-669.63	0.00	0.00	0.00
5,900.00	8.40	182.43	5,850.44	-684.57	-29.02	-684.22	0.00	0.00	0.00
6,000.00	8.40	182.43	5,949.36	-699.16	-29.64	-698.81	0.00	0.00	0.00
6,100.00	8.40	182.43	6,048.29	-713.76	-30.25	-713.40	0.00	0.00	0.00
6,200.00	8.40	182.43	6,147.22	-728.35	-30.87	-727.99	0.00	0.00	0.00
6,300.00	8.40	182.43	6,246.15	-742.95	-31.49	-742.57	0.00	0.00	0.00
6,400.00	8.40	182.43	6,345.07	-757.54	-32.11	-757.16	0.00	0.00	0.00
6,500.00	8.40	182.43	6,444.00	-772.14	-32.73	-771.75	0.00	0.00	0.00
6,600.00	8.40	182.43	6,542.93	-786.73	-33.35	-786.34	0.00	0.00	0.00
6,638.99	8.40	182.43	6,581.50	-792.43	-33.59	-792.02	0.00	0.00	0.00
Start Drop -2.00									
6,700.00	7.18	182.43	6,641.95	-800.69	-33.94	-800.28	2.00	-2.00	0.00
6,800.00	5.18	182.43	6,741.36	-811.44	-34.39	-811.03	2.00	-2.00	0.00
6,900.00	3.18	182.43	6,841.09	-818.72	-34.70	-818.31	2.00	-2.00	0.00
7,000.00	1.18	182.43	6,941.01	-822.52	-34.86	-822.11	2.00	-2.00	0.00
7,058.99	0.00	0.00	7,000.00	-823.13	-34.89	-822.71	2.00	-2.00	0.00
Start 2127.04 hold at 7058.99 MD									
7,100.00	0.00	0.00	7,041.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,200.00	0.00	0.00	7,141.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,300.00	0.00	0.00	7,241.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,400.00	0.00	0.00	7,341.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,500.00	0.00	0.00	7,441.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,600.00	0.00	0.00	7,541.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,700.00	0.00	0.00	7,641.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,800.00	0.00	0.00	7,741.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
7,900.00	0.00	0.00	7,841.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,000.00	0.00	0.00	7,941.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,100.00	0.00	0.00	8,041.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,200.00	0.00	0.00	8,141.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,300.00	0.00	0.00	8,241.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,400.00	0.00	0.00	8,341.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,500.00	0.00	0.00	8,441.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,600.00	0.00	0.00	8,541.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,700.00	0.00	0.00	8,641.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,800.00	0.00	0.00	8,741.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
8,900.00	0.00	0.00	8,841.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
9,000.00	0.00	0.00	8,941.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
9,100.00	0.00	0.00	9,041.01	-823.13	-34.89	-822.71	0.00	0.00	0.00
9,186.03	0.00	0.00	9,127.04	-823.13	-34.89	-822.71	0.00	0.00	0.00
Start DLS 10.00 TFO 359.62									
9,200.00	1.40	359.62	9,141.01	-822.96	-34.89	-822.54	10.00	10.00	0.00
9,250.00	6.40	359.62	9,190.87	-819.56	-34.91	-819.15	10.00	10.00	0.00
9,300.00	11.40	359.62	9,240.26	-811.83	-34.96	-811.42	10.00	10.00	0.00
9,350.00	16.40	359.62	9,288.78	-799.83	-35.04	-799.41	10.00	10.00	0.00
9,400.00	21.40	359.62	9,336.07	-783.64	-35.15	-783.22	10.00	10.00	0.00

Planning Report

Database:	FHartmann	**Local Co-ordinate Reference:**	Well Emerald Federal Com 505H
Company:	Legacy Reserves	**TVD Reference:**	KB @ 3707.40usft
Project:	Lea County, NM (NAD83 - NME)	**MD Reference:**	KB @ 3707.40usft
Site:	Emerald Pad	**North Reference:**	Grid
Well:	Emerald Federal Com 505H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,450.00	26.40	359.62	9,381.77	-763.39	-35.29	-762.98	10.00	10.00	0.00
9,500.00	31.40	359.62	9,425.53	-739.24	-35.45	-738.82	10.00	10.00	0.00
9,550.00	36.40	359.62	9,467.02	-711.36	-35.63	-710.95	10.00	10.00	0.00
9,600.00	41.40	359.62	9,505.92	-679.98	-35.84	-679.56	10.00	10.00	0.00
9,650.00	46.40	359.62	9,541.94	-645.32	-36.07	-644.90	10.00	10.00	0.00
9,700.00	51.40	359.62	9,574.80	-607.66	-36.32	-607.24	10.00	10.00	0.00
9,750.00	56.40	359.62	9,604.25	-567.28	-36.58	-566.86	10.00	10.00	0.00
9,800.00	61.40	359.62	9,630.07	-524.48	-36.87	-524.06	10.00	10.00	0.00
9,850.00	66.40	359.62	9,652.06	-479.59	-37.16	-479.17	10.00	10.00	0.00
9,900.00	71.40	359.62	9,670.06	-432.96	-37.47	-432.54	10.00	10.00	0.00
9,950.00	76.40	359.62	9,683.93	-384.94	-37.79	-384.52	10.00	10.00	0.00
10,000.00	81.40	359.62	9,693.55	-335.89	-38.12	-335.47	10.00	10.00	0.00
10,050.00	86.40	359.62	9,698.87	-286.19	-38.44	-285.77	10.00	10.00	0.00
10,086.03	90.00	359.62	9,700.00	-250.18	-38.68	-249.76	10.00	10.00	0.00
Start 10377.81 hold at 10086.03 MD									
10,100.00	90.00	359.62	9,700.00	-236.22	-38.78	-235.79	0.00	0.00	0.00
10,200.00	90.00	359.62	9,700.00	-136.22	-39.44	-135.79	0.00	0.00	0.00
10,300.00	90.00	359.62	9,700.00	-36.22	-40.10	-35.80	0.00	0.00	0.00
10,400.00	90.00	359.62	9,700.00	63.78	-40.76	64.20	0.00	0.00	0.00
10,500.00	90.00	359.62	9,700.00	163.77	-41.42	164.20	0.00	0.00	0.00
10,600.00	90.00	359.62	9,700.00	263.77	-42.09	264.20	0.00	0.00	0.00
10,700.00	90.00	359.62	9,700.00	363.77	-42.75	364.20	0.00	0.00	0.00
10,800.00	90.00	359.62	9,700.00	463.77	-43.41	464.20	0.00	0.00	0.00
10,900.00	90.00	359.62	9,700.00	563.76	-44.07	564.20	0.00	0.00	0.00
11,000.00	90.00	359.62	9,700.00	663.76	-44.73	664.20	0.00	0.00	0.00
11,100.00	90.00	359.62	9,700.00	763.76	-45.39	764.20	0.00	0.00	0.00
11,200.00	90.00	359.62	9,700.00	863.76	-46.06	864.20	0.00	0.00	0.00
11,300.00	90.00	359.62	9,700.00	963.76	-46.72	964.20	0.00	0.00	0.00
11,400.00	90.00	359.62	9,700.00	1,063.75	-47.38	1,064.20	0.00	0.00	0.00
11,500.00	90.00	359.62	9,700.00	1,163.75	-48.04	1,164.19	0.00	0.00	0.00
11,600.00	90.00	359.62	9,700.00	1,263.75	-48.70	1,264.19	0.00	0.00	0.00
11,700.00	90.00	359.62	9,700.00	1,363.75	-49.37	1,364.19	0.00	0.00	0.00
11,800.00	90.00	359.62	9,700.00	1,463.74	-50.03	1,464.19	0.00	0.00	0.00
11,900.00	90.00	359.62	9,700.00	1,563.74	-50.69	1,564.19	0.00	0.00	0.00
12,000.00	90.00	359.62	9,700.00	1,663.74	-51.35	1,664.19	0.00	0.00	0.00
12,100.00	90.00	359.62	9,700.00	1,763.74	-52.01	1,764.19	0.00	0.00	0.00
12,200.00	90.00	359.62	9,700.00	1,863.74	-52.68	1,864.19	0.00	0.00	0.00
12,300.00	90.00	359.62	9,700.00	1,963.73	-53.34	1,964.19	0.00	0.00	0.00
12,400.00	90.00	359.62	9,700.00	2,063.73	-54.00	2,064.19	0.00	0.00	0.00
12,500.00	90.00	359.62	9,700.00	2,163.73	-54.66	2,164.19	0.00	0.00	0.00
12,600.00	90.00	359.62	9,700.00	2,263.73	-55.32	2,264.19	0.00	0.00	0.00
12,700.00	90.00	359.62	9,700.00	2,363.72	-55.99	2,364.19	0.00	0.00	0.00
12,800.00	90.00	359.62	9,700.00	2,463.72	-56.65	2,464.18	0.00	0.00	0.00
12,900.00	90.00	359.62	9,700.00	2,563.72	-57.31	2,564.18	0.00	0.00	0.00
13,000.00	90.00	359.62	9,700.00	2,663.72	-57.97	2,664.18	0.00	0.00	0.00
13,100.00	90.00	359.62	9,700.00	2,763.72	-58.63	2,764.18	0.00	0.00	0.00
13,200.00	90.00	359.62	9,700.00	2,863.71	-59.30	2,864.18	0.00	0.00	0.00
13,300.00	90.00	359.62	9,700.00	2,963.71	-59.96	2,964.18	0.00	0.00	0.00
13,400.00	90.00	359.62	9,700.00	3,063.71	-60.62	3,064.18	0.00	0.00	0.00
13,500.00	90.00	359.62	9,700.00	3,163.71	-61.28	3,164.18	0.00	0.00	0.00
13,600.00	90.00	359.62	9,700.00	3,263.71	-61.94	3,264.18	0.00	0.00	0.00
13,700.00	90.00	359.62	9,700.00	3,363.70	-62.61	3,364.18	0.00	0.00	0.00
13,800.00	90.00	359.62	9,700.00	3,463.70	-63.27	3,464.18	0.00	0.00	0.00
13,900.00	90.00	359.62	9,700.00	3,563.70	-63.93	3,564.18	0.00	0.00	0.00

Planning Report

Database:	FHartmann	**Local Co-ordinate Reference:**	Well Emerald Federal Com 505H
Company:	Legacy Reserves	**TVD Reference:**	KB @ 3707.40usft
Project:	Lea County, NM (NAD83 - NME)	**MD Reference:**	KB @ 3707.40usft
Site:	Emerald Pad	**North Reference:**	Grid
Well:	Emerald Federal Com 505H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,000.00	90.00	359.62	9,700.00	3,663.70	-64.59	3,664.18	0.00	0.00	0.00
14,100.00	90.00	359.62	9,700.00	3,763.69	-65.25	3,764.17	0.00	0.00	0.00
14,200.00	90.00	359.62	9,700.00	3,863.69	-65.92	3,864.17	0.00	0.00	0.00
14,300.00	90.00	359.62	9,700.00	3,963.69	-66.58	3,964.17	0.00	0.00	0.00
14,400.00	90.00	359.62	9,700.00	4,063.69	-67.24	4,064.17	0.00	0.00	0.00
14,500.00	90.00	359.62	9,700.00	4,163.69	-67.90	4,164.17	0.00	0.00	0.00
14,600.00	90.00	359.62	9,700.00	4,263.68	-68.56	4,264.17	0.00	0.00	0.00
14,700.00	90.00	359.62	9,700.00	4,363.68	-69.23	4,364.17	0.00	0.00	0.00
14,800.00	90.00	359.62	9,700.00	4,463.68	-69.89	4,464.17	0.00	0.00	0.00
14,900.00	90.00	359.62	9,700.00	4,563.68	-70.55	4,564.17	0.00	0.00	0.00
15,000.00	90.00	359.62	9,700.00	4,663.67	-71.21	4,664.17	0.00	0.00	0.00
15,100.00	90.00	359.62	9,700.00	4,763.67	-71.87	4,764.17	0.00	0.00	0.00
15,200.00	90.00	359.62	9,700.00	4,863.67	-72.54	4,864.17	0.00	0.00	0.00
15,300.00	90.00	359.62	9,700.00	4,963.67	-73.20	4,964.16	0.00	0.00	0.00
15,400.00	90.00	359.62	9,700.00	5,063.67	-73.86	5,064.16	0.00	0.00	0.00
15,500.00	90.00	359.62	9,700.00	5,163.66	-74.52	5,164.16	0.00	0.00	0.00
15,600.00	90.00	359.62	9,700.00	5,263.66	-75.18	5,264.16	0.00	0.00	0.00
15,700.00	90.00	359.62	9,700.00	5,363.66	-75.85	5,364.16	0.00	0.00	0.00
15,800.00	90.00	359.62	9,700.00	5,463.66	-76.51	5,464.16	0.00	0.00	0.00
15,900.00	90.00	359.62	9,700.00	5,563.65	-77.17	5,564.16	0.00	0.00	0.00
16,000.00	90.00	359.62	9,700.00	5,663.65	-77.83	5,664.16	0.00	0.00	0.00
16,100.00	90.00	359.62	9,700.00	5,763.65	-78.49	5,764.16	0.00	0.00	0.00
16,200.00	90.00	359.62	9,700.00	5,863.65	-79.15	5,864.16	0.00	0.00	0.00
16,300.00	90.00	359.62	9,700.00	5,963.65	-79.82	5,964.16	0.00	0.00	0.00
16,400.00	90.00	359.62	9,700.00	6,063.64	-80.48	6,064.16	0.00	0.00	0.00
16,500.00	90.00	359.62	9,700.00	6,163.64	-81.14	6,164.16	0.00	0.00	0.00
16,600.00	90.00	359.62	9,700.00	6,263.64	-81.80	6,264.15	0.00	0.00	0.00
16,700.00	90.00	359.62	9,700.00	6,363.64	-82.46	6,364.15	0.00	0.00	0.00
16,800.00	90.00	359.62	9,700.00	6,463.64	-83.13	6,464.15	0.00	0.00	0.00
16,900.00	90.00	359.62	9,700.00	6,563.63	-83.79	6,564.15	0.00	0.00	0.00
17,000.00	90.00	359.62	9,700.00	6,663.63	-84.45	6,664.15	0.00	0.00	0.00
17,100.00	90.00	359.62	9,700.00	6,763.63	-85.11	6,764.15	0.00	0.00	0.00
17,200.00	90.00	359.62	9,700.00	6,863.63	-85.77	6,864.15	0.00	0.00	0.00
17,300.00	90.00	359.62	9,700.00	6,963.62	-86.44	6,964.15	0.00	0.00	0.00
17,400.00	90.00	359.62	9,700.00	7,063.62	-87.10	7,064.15	0.00	0.00	0.00
17,500.00	90.00	359.62	9,700.00	7,163.62	-87.76	7,164.15	0.00	0.00	0.00
17,600.00	90.00	359.62	9,700.00	7,263.62	-88.42	7,264.15	0.00	0.00	0.00
17,700.00	90.00	359.62	9,700.00	7,363.62	-89.08	7,364.15	0.00	0.00	0.00
17,800.00	90.00	359.62	9,700.00	7,463.61	-89.75	7,464.15	0.00	0.00	0.00
17,900.00	90.00	359.62	9,700.00	7,563.61	-90.41	7,564.14	0.00	0.00	0.00
18,000.00	90.00	359.62	9,700.00	7,663.61	-91.07	7,664.14	0.00	0.00	0.00
18,100.00	90.00	359.62	9,700.00	7,763.61	-91.73	7,764.14	0.00	0.00	0.00
18,200.00	90.00	359.62	9,700.00	7,863.60	-92.39	7,864.14	0.00	0.00	0.00
18,300.00	90.00	359.62	9,700.00	7,963.60	-93.06	7,964.14	0.00	0.00	0.00
18,400.00	90.00	359.62	9,700.00	8,063.60	-93.72	8,064.14	0.00	0.00	0.00
18,500.00	90.00	359.62	9,700.00	8,163.60	-94.38	8,164.14	0.00	0.00	0.00
18,600.00	90.00	359.62	9,700.00	8,263.60	-95.04	8,264.14	0.00	0.00	0.00
18,700.00	90.00	359.62	9,700.00	8,363.59	-95.70	8,364.14	0.00	0.00	0.00
18,800.00	90.00	359.62	9,700.00	8,463.59	-96.37	8,464.14	0.00	0.00	0.00
18,900.00	90.00	359.62	9,700.00	8,563.59	-97.03	8,564.14	0.00	0.00	0.00
19,000.00	90.00	359.62	9,700.00	8,663.59	-97.69	8,664.14	0.00	0.00	0.00
19,100.00	90.00	359.62	9,700.00	8,763.58	-98.35	8,764.13	0.00	0.00	0.00
19,200.00	90.00	359.62	9,700.00	8,863.58	-99.01	8,864.13	0.00	0.00	0.00
19,300.00	90.00	359.62	9,700.00	8,963.58	-99.68	8,964.13	0.00	0.00	0.00

Planning Report

Database:	FHartmann	**Local Co-ordinate Reference:**	Well Emerald Federal Com 505H
Company:	Legacy Reserves	**TVD Reference:**	KB @ 3707.40usft
Project:	Lea County, NM (NAD83 - NME)	**MD Reference:**	KB @ 3707.40usft
Site:	Emerald Pad	**North Reference:**	Grid
Well:	Emerald Federal Com 505H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,400.00	90.00	359.62	9,700.00	9,063.58	-100.34	9,064.13	0.00	0.00	0.00
19,500.00	90.00	359.62	9,700.00	9,163.58	-101.00	9,164.13	0.00	0.00	0.00
19,600.00	90.00	359.62	9,700.00	9,263.57	-101.66	9,264.13	0.00	0.00	0.00
19,700.00	90.00	359.62	9,700.00	9,363.57	-102.32	9,364.13	0.00	0.00	0.00
19,800.00	90.00	359.62	9,700.00	9,463.57	-102.99	9,464.13	0.00	0.00	0.00
19,900.00	90.00	359.62	9,700.00	9,563.57	-103.65	9,564.13	0.00	0.00	0.00
20,000.00	90.00	359.62	9,700.00	9,663.56	-104.31	9,664.13	0.00	0.00	0.00
20,100.00	90.00	359.62	9,700.00	9,763.56	-104.97	9,764.13	0.00	0.00	0.00
20,200.00	90.00	359.62	9,700.00	9,863.56	-105.63	9,864.13	0.00	0.00	0.00
20,300.00	90.00	359.62	9,700.00	9,963.56	-106.30	9,964.13	0.00	0.00	0.00
20,400.00	90.00	359.62	9,700.00	10,063.56	-106.96	10,064.12	0.00	0.00	0.00
20,463.85	90.00	359.62	9,700.00	10,127.40	-107.38	10,127.97	0.00	0.00	0.00
TD at 20463.85									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Emerald Fed Com 505H - plan hits target center - Point	0.00	0.00	9,700.00	10,127.40	-107.38	622,937.65	736,725.79	32.710888	-103.698080
Emerald Fed Com 505H - plan misses target center by 0.02usft at 10086.06usft MD (9700.00 TVD, -250.16 N, -38.68 E) - Point	0.00	0.00	9,700.00	-250.16	-38.66	612,560.09	736,794.51	32.682363	-103.698058

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,000.00	1,000.00	0.00	0.00	Start Build 2.00
1,420.00	1,418.50	-30.70	-1.30	Start 5219.00 hold at 1420.00 MD
6,638.99	6,581.50	-792.43	-33.59	Start Drop -2.00
7,058.99	7,000.00	-823.13	-34.89	Start 2127.04 hold at 7058.99 MD
9,186.03	9,127.04	-823.13	-34.89	Start DLS 10.00 TFO 359.62
10,086.03	9,700.00	-250.18	-38.68	Start 10377.81 hold at 10086.03 MD
20,463.85	9,700.00	10,127.40	-107.38	TD at 20463.85

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Legacy Reserves Operating LP**
LEASE NO.:	**NMNM077002**
LOCATION:	Section 6, T.19 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	**Emerald Federal Com 505H**
BOTTOM HOLE FOOTAGE	100'/N & 1320'/E
ATS/API ID:	**ATS-24-1070**
APD ID:	**10400084367**
Sundry ID:	**N/a**
Date APD Submitted:	**N/a**

WELL NAME & NO.:	**Emerald Federal Com 506H**
BOTTOM HOLE FOOTAGE	100'/N & 330'/E
ATS/API ID:	**ATS-24-1058**
APD ID:	**10400084368**
Sundry ID:	**N/a**
Date APD Submitted:	**N/a**

Approval Date: 08/09/2024

COA

H2S	Yes		
Potash	None	None	
Cave/Karst Potential	Low		
Cave/Karst Potential	☐ Critical		
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	Conventional and Multibowl		
Other	☐ 4 String	Capitan Reef None	☐ WIPP
Other	Pilot Hole None	☐ Open Annulus	
Cementing	Contingency Squeeze None	Echo-Meter None	Primary Cement Squeeze None
Special Requirements	☐ Water Disposal/Injection	☑ COM	☐ Unit
Special Requirements	☐ Batch Sundry	Waste Prevention None	
Special Requirements Variance	☐ Break Testing	☐ Offline Cementing	☐ Casing Clearance

Approval Date: 08/09/2024

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet **43 CFR part 3170 Subpart 3176** requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1500 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt when present, and below usable fresh water) and cemented to the surface. The surface hole shall be **17 1/2** inch in diameter.

    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 will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    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.

    Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

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.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

    - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

Approval Date: 08/09/2024

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2.

Option 1:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** inch intermediate casing shoe shall be **5000 (5M)** psi.

Option 2:

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch surface casing. 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.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record),

or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in **43 CFR part 3170 Subpart 3171**
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

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)

☑ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 689-5981

1. 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.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.

2. 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 are located, this does not include the dog house or stairway area.

A. CASING

1. 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.

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2. Wait on cement (WOC) for Potash Areas: 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 for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. 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. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. 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.

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

6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. 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.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke

manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher 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.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. 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 cement), 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. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be

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initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. 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.

e. The results of the test shall be reported to the appropriate BLM office.

f. 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.

g. 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.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR part 3170 Subpart 3172**.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. 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.

Long Vo (LVO) 8/6/2024

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Hydrogen Sulfide Plan Summary

A. All personnel shall receive proper H2S training in accordance with Onshore Order III.C.3.a.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment:

- Well control equipment
  a. Flare line 150' from wellhead to be ignited by flare gun.
  b. Choke manifold with a remotely operated choke.
  c. Mud/gas separator

- Protective equipment for essential personnel.

  Breathing apparatus:
  a. Rescue Packs (SCBA) — 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
  b. Work/Escape packs —4 packs shall be stored on the rig floor th sufficient air hose not to restrict work activity.
  c. Emergency Escape Packs —4 packs shall be stored in the doghouse for emergency evacuation.

  Auxiliary Rescue Equipment:
  a. Stretcher
  b. Two OSHA full body harness
  c. 100 ft 5/8 inch OSHA approved rope
  d. 1-20# class ABC fire extinguisher

- H2S detection and monitoring equipment:
  The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor / Bell nipple / End of flow line or where well bore fluid is being discharged.
  (Gas sample tubes will be stored in the safety trailer)

- Visual warning systems.
  a. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
  b. A colored condition flag will be on display, reflecting the current condition at the site at the time.
  c. Two wind socks will be placed in strategic locations, visible from all angles.

AVANT
NATURAL RESOURCES

- Mud program:
  The mud program has been designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.

- Metallurgy:
  All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

- Communication:
  Communication will be via cell phones and land lines where available.

Company Personnel to be Notified

John Harper, Vice President of Geoscience	Office: (720) 746-5045 Mobile: (678) 988-6644
Braden Harris, Engineer	Mobile: (406) 600-3310

Local & County Agencies

Maljamar Volunter Fire Department	911 or (575) 676-4100
Lea County Sheriff (Lovington)	911 or (575) 396-3611
Lea County Emergency Management (Lovington)	(575) 396-8602
Lea Regional Medical Center Hopital (Hobbs)	(575) 492-5000

State Agencies

NM State Police (Hobbs)	(575) 392-5588
NM Oil Conservation (Hobbs)	(575) 370-3186
NM Oil Conservation (Santa Fe)	(505) 476-3440
NM Dept. of Transportation (Roswell)	(575) 637-7201

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NATURAL RESOURCES

Federal Agencies

BLM (Carlsbad)	(575) 234-5972
BLM (Hobbs)	(575) 393-3612
National Response Center	(800) 424-8802
US EPA Region 6 (Dallas)	(800) 887-6063
	(214) 665-6444

Veterinarians

Lovington Veterinary Clinic	(575) 396-7387
Hobbs Animal Clinic	(575) 392-5563
Dal Paso Animal Hospital (Hobbs)	(575) 397-2286

Residents within 2 miles

None

Air Evacuation

AeroCare (Lubbock)	(800) 627-2376
Med Flight Air Ambulance (Albuquerque)	(800) 842-4431
Lifeguard (Albuquerque)	(888) 866-7256

AVANT
NATURAL RESOURCES

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 384585

CONDITIONS

Operator:	OGRID:
Avant Operating, LLC 1515 Wynkoop Street Denver, CO 80202	330396
	Action Number: 384585
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	MUST NOT SPUD WELL UNTIL AVANT SUBMITS A BLM APPROVED C-103A CHANGE OF PLANS AND IT IS APPROVED BY THE OCD.	9/18/2024
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	9/18/2024
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	9/18/2024
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	9/18/2024
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	9/18/2024
pkautz	If cement does not circulate on any string, a CBL is required for that string of casing	9/18/2024