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.: NMNM629320

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.: LOS VAQUEROS FED 202H

2. Name of Operator: EARTHSTONE OPERATING LLC

9. API Well No.: 30-025-51444

3a. Address: 1400 WOODLOCH FOREST DRIVE SUITE 300, THE WO

3b. Phone No. *(include area code)*: (281) 298-4240

10. Field and Pool, or Exploratory: WC-025 G-08 S263412K; BONE SPRING

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

At surface: NENW / 211 FNL / 2036 FWL / LAT 32.0209803 / LONG -103.4085504

At proposed prod. zone: LOT 3 / 10 FSL / 2178 FWL / LAT 32.000317 / LONG -103.4080917

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 30/T26S/R35E/NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish: LEA

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 211 feet

16. No of acres in lease:

17. Spacing Unit dedicated to this well: 240.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 30 feet

19. Proposed Depth: 11026 feet / 18989 feet

20. BLM/BIA Bond No. in file: FED: NMB002110

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3183 feet

22. Approximate date work will start*: 09/30/2022

23. Estimated duration: 45 days

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: (Electronic Submission)

Name *(Printed/Typed)*: RYAN DELONG / Ph: (281) 298-4240

Date: 06/13/2022

Title: Regulatory Manager

Approved by *(Signature)*: (Electronic Submission)

Name *(Printed/Typed)*: CODY LAYTON / Ph: (575) 234-5959

Date: 08/10/2022

Title: Assistant Field Manager Lands & Minerals

Office: Carlsbad Field 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: 08/10/2022

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
30-025-51444	96672	WC-025 G-08 S263412K; Bone Spring

4 Property Code	5 Property Name	6 Well Number
~~331165~~ 333369	LOS VAQUEROS FED	202H

7 OGRID No.	8 Operator Name	9 Elevation
~~373986~~ 331165	EARTHSTONE OPERATING, LLC	3183.18'

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
C	30	26-S	35-E		211'	NORTH	2036'	WEST	LEA

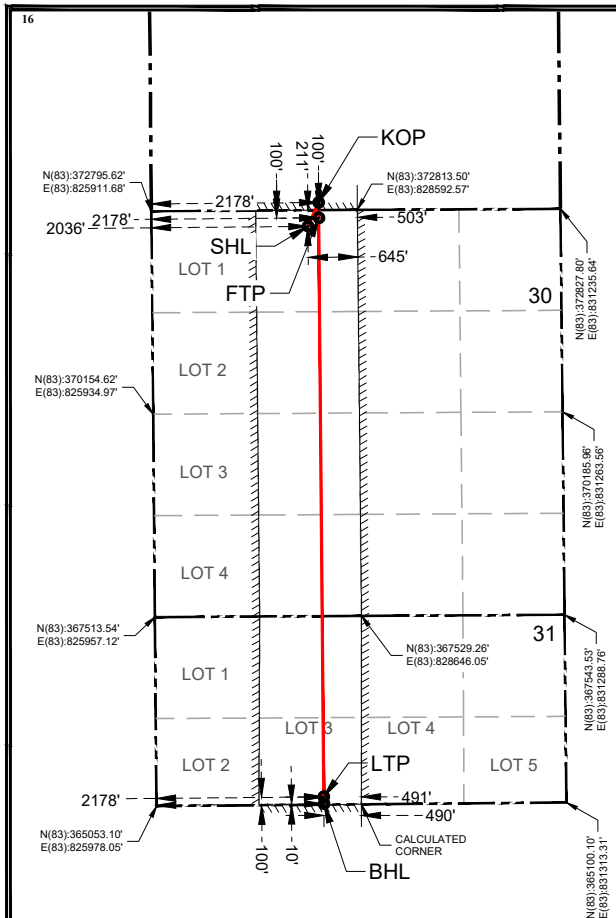
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
3	31	26-S	35-E		10'	SOUTH	2178'	WEST	LEA

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

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



SURFACE HOLE LOCATION (SHL)
NEW MEXICO EAST - NAD 83
X=827949.37 LAT.= 32.02098036° N
Y=372598.03 LONG.= 103.40855040° W
NEW MEXICO EAST - NAD 27
X=786761.05 LAT.= 32.02085403° N
Y=372540.92 LONG.= 103.40809008° W
211' FNL, 2036' FWL - SECTION 30
211' FNL, 645' FEL - LEASE

KICK OFF POINT (KOP)
NEW MEXICO EAST - NAD 83
X=828088.77 LAT.= 32.02183496° N
Y=372910.14 LONG.= 103.40809203° W
NEW MEXICO EAST - NAD 27
X=786900.47 LAT.= 32.02170863° N
Y=372853.02 LONG.= 103.40763167° W
100' FSL, 2178' FWL - SECTION 19

FIRST TAKE POINT (FTP)
NEW MEXICO EAST - NAD 83
X=828090.52 LAT.= 32.02128521° N
Y=372710.15 LONG.= 103.40809190° W
NEW MEXICO EAST - NAD 27
X=786902.21 LAT.= 32.02115888° N
Y=372653.03 LONG.= 103.40763157° W
100' FNL, 2178' FWL - SECTION 30
100' FNL, 503' FEL - LEASE

LAST TAKE POINT (LTP)
NEW MEXICO EAST - NAD 83
X=828155.12 LAT.= 32.00056439° N
Y=365172.13 LONG.= 103.40809169° W
NEW MEXICO EAST - NAD 27
X=786966.47 LAT.= 32.00043795° N
Y=365115.22 LONG.= 103.40763256° W
100' FSL, 2178' FWL - SECTION 31
100' FSL, 491' FEL - LEASE

BOTTOM HOLE LOCATION (BHL)
NEW MEXICO EAST - NAD 83
X=828155.88 LAT.= 32.00031701° N
Y=365082.14 LONG.= 103.40809170° W
NEW MEXICO EAST - NAD 27
X=786967.23 LAT.= 32.00019057° N
Y=365025.22 LONG.= 103.40763259° W
10' FSL, 2178' FWL - SECTION 31
10' FSL, 490' FEL - LEASE

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.

Jennifer Elrod 7/20/2022
Signature Date

JENNIFER ELROD
Printed Name

JELROD@EARTHSTONEENERGY.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.

07/19/2022
Date of Survey

Signature and Seal of Professional Surveyor:

CHARLES L. JURICA
NEW MEXICO
25490
PROFESSIONAL SURVEYOR

Certificate Number

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: Titus Oil & Gas Production, LLC **OGRID:** 373986 **Date:** 6/8/2022

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
Los Vaqueros Fed 202H	New Well	C, Sec 30, 26S-35E	211' FNL &	834	918	3754
			2036' FWL			

IV. Central Delivery Point Name: El Campeon CTB 30 [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
Los Vaqueros Fed 2022H	New Well	1/23/2023	2/23/2023	4/15/2023	4/21/2023	4/23/2023

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 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

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:	Ryan DeLong
Title:	Regulatory Manager
E-mail Address:	rdelong@titusoil.com
Date:	6/8/2022
Phone:	817-852-6370

OIL CONSERVATION DIVISION

(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

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

Each surface facility design includes the following process equipment: 3-phase vertical separator (one per well), 3-phase heater treater (one per well), one or two sales gas scrubbers, two bulk free water knockouts, two bulk heater treaters, a vapor recover tower (VRT), a vapor recovery unit (VRU) compressor, multiple water and oil tanks, as well as flare liquid scrubbers (HP & LP), flares (HP & LP), and combustors. All process vessels will be sized to separate oil, water, and gas based upon historical & predicted well performance. Each process vessel will be fitted with the appropriately sized PSV as per ASME code requirements to mitigate vessel rupture and loss of containment. Additionally, the process vessels will be fitted with pressure transmitters tied to the facility control system with allow operations to monitor pressures and when necessary, shut-in the facility to avoid vessel over-pressure and potential flaring or venting of natural gas. Natural gas will be preferentially sent to pipeline, and only directed to the HP flare system in upset/emergency situations. Flash gas from the free water knockouts, bulk heater treaters, and VRT will be recompressed using a VRU compressor and will be preferentially redirected to gas sales pipeline. Oil tanks and water tanks will be fitted with 16 oz thief hatches as well as PRVs to protect the tank from rupture/collapse. The tank vapor outlets and tank vapor capture system will be sized to keep the tank pressures below 12 oz. the tank vapor capture system will include a scrubber and combustors. All tank vapors will be combusted to industry standards.

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:

- **During drilling operations -** Gas meters will be installed at the shakers and Volume Totalizers will be installed on the pits. If elevated gas levels, or a pit gain are observed, returns will be diverted to a gas buster. Gas coming off the gas buster will be combusted at the flare stack. A 10’ or taller flare will be located at least 100’ from the SHL.
- **During Completion Operations, including stimulation and frac plug drill out operations:** hydrocarbon production to surface is minimized. If gas production does occur, gas will be combusted at a flare stack. A 10’ or taller flare will be located at least 100’ from SHL
- **During production operations:** All process vessels (separators, heater treaters, tanks) will recompress (where necessary) and route gas outlets into the natural gas gathering line. Gas will preferentially be routed to natural gas gathering pipeline and the flare system will only be used during emergency, malfunction, or if the gas does not meet pipeline specifications. In the event of flaring off-specification gas, operations will pull gas samples twice a week and will also route gas back to pipeline as soon as gas meets specifications. Exceptions to this will include only those qualified exceptions per the regulation 19.15.27.8 Subsection D.
- To comply with state performance standards, separation and storage equipment will be designed to handle the maximum anticipated throughput and pressure to minimize waste and reduce the likelihood of venting gas to atmosphere. Additionally, each storage atmospheric tank (oil & water) will be fitted with a level transmitter to facilitate gauging of the tank without opening the thief hatch. Any gas collected through the tank vent system is expected to be recompressed and routed to sales. However, in the event of an emergency, the tank vapor capture system will be designed to combust the gas using a combustor system with a continuous ignitor. The combustor will be properly anchored and will be

located a minimum of 100 feet from the well and storage tanks. Operators will conduct weekly AVO inspections. These AVO inspection records will be stored for the required 5-year period and will be made available upon Division request

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

- When performing routine or preventive maintenance on a vessel or tank, initially all inlet valves are close, and the vessel or tank is allowed to depressurize through the normal outlet connections to gas sales and/or liquid tanks. Once the vessel or tank is depressurized to lowest acceptable sales outlet pressure, usually around 20 psig, a temporary low-pressure flowline is connected from the vessel or tank to the VRU for further pressure reduction. Once depressurized to less than 1-2 psig, the remaining natural gas in the vessel or tank is vented to atmosphere through a controlled pressure relief valve. Once the vessel or tank is depressurized to atmospheric pressure, the vessel or tank can be safely opened, and maintenance performed.

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

Choke Diagram Attachment:

3M___H_P_614___BOP__CHOKE__FLEX_HOSE_APD_INFORMATION_20220608100856.pdf

BOP Diagram Attachment:

3M___H_P_614___BOP__CHOKE__FLEX_HOSE_APD_INFORMATION_20220608100905.pdf

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Pressure Rating (PSI): 5M **Rating Depth:** 11062

Equipment: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics. A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Testing Procedure: Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

Choke Diagram Attachment:

5M___H_P_614___BOP__CHOKE__FLEX_HOSE_APD_INFORMATION_20220608102142.pdf

BOP Diagram Attachment:

5M___H_P_614___BOP__CHOKE__FLEX_HOSE_APD_INFORMATION_20220608102151.pdf

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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	13.5	10.75	NEW	API	N	0	1055	0	1055	3183	2128	1055	J-55	45.5	BUTT	4.33	1	DRY	14.9	DRY	14.9
2	PRODUCTION	6.75	5.5	NEW	API	Y	0	11000	0	10934	3183	-7751	11000	P-110	20	BUTT	2.64	2.87	DRY	3.67	DRY	3.67
3	INTERMEDIATE	9.875	7.625	NEW	API	N	0	11200	0	11036	3183	-7853	11200	HCL-80	29.7	BUTT	1.26	1.57	DRY	2.18	DRY	2.18

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

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
4	PRODUCTION	6.75	5.0	NEW	API	Y	11000	18988	10934	11026	-7751	-7843	7988	P-110	18	BUTT	2.64	2.87	DRY	3.67	DRY	3.67

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Assumptions___Shallow_Wells_20220609141110.docx

Casing ID: 2 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Tapered_String_Spec_Los_Vaqueros_Fed_Com_202H_20220609141728.JPG

Casing Design Assumptions and Worksheet(s):

Casing_Assumptions___Shallow_Wells_20220609141759.docx

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

Casing Attachments

Casing ID: 3 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Assumptions___Shallow_Wells_20220609141412.docx

Casing ID: 4 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Tapered_String_Spec_Los_Vaqueros_Fed_Com_202H_20220609141925.JPG

Casing Design Assumptions and Worksheet(s):

Casing_Assumptions___Shallow_Wells_20220609141959.docx

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1055	250	1.75	13.5	437.5	50	Class C	4% Gel & 1% CaCl2
SURFACE	Tail		0	1055	250	1.34	14.8	335	50	Class C	2% CaCl2
INTERMEDIATE	Lead		0	11200	800	3.6	10.3	2880	50	TXI Lightweight Blend	N/A
INTERMEDIATE	Tail		0	11200	250	1.5	13.5	375	50	Class H	N/A
PRODUCTION	Lead		0	18988	1250	1.25	14.2	1562.5	35	Class H Blend (50:50:2)	N/A

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	18988	1250	1.25	14.2	1562.5	35	Class H Blend (50:50:2)	N/A

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

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
0	1055	OTHER : FW Gel	8.6	8.8							See Mud Program in attached APD drilling plan.
1055	11200	OTHER : Nova N-Gauge	8.4	9							See Mud Program in attached APD drilling plan.
11200	18988	OIL-BASED MUD	12.5	13.5							See Mud Program in attached APD drilling plan.

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

Section 6 - Test, Logging, Coring

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

Will run GR/CNL from TD to surface (horizontal well - vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.

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

DIRECTIONAL SURVEY,

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5505 **Anticipated Surface Pressure:** 3079

Anticipated Bottom Hole Temperature(F): 165

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

Los_Vaqueros_Fed_202H_20220610092248.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Los_Vaqueros_Fed_202H___Plan_1_04_19_22_20220609145029.pdf

Los_Vaqueros_Fed_202H___Plan_1_04_19_22_AC_Report_20220609145029.pdf

Other proposed operations facets description:

APD Drilling Plan
Natural Gas Management Plan
Multi-Bowl Wellhead Schematic
Closed Loop Schematic

Other proposed operations facets attachment:

NGMP_Los_Vaqueros_Fed_202H_20220609145219.pdf

AFS___Multi_Bowl_Schematic_20220609145424.pdf

Closed_Loop_Schematic_20220609145525.pdf

Los_Vaqueros_Fed_202H___APD_Temp___Shallow_Slim_5M__20220716145024.pdf

Other Variance attachment:

3M___H_P_614___BOP__CHOKE__FLEX_HOSE_APD_INFORMATION_20220609145316.pdf

5M___H_P_614___BOP__CHOKE__FLEX_HOSE_APD_INFORMATION_20220609145324.pdf

TITUS OIL GAS LLC

Project: Lea County, NM - (NAD83 NME)
Site: Los Vaqueros Fed 2
Well: Los Vaqueros Fed 202H
Wellbore: OH
Design: Plan 1 04-19-22
Rig: H&P 625

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.49°
Magnetic North: 5.79°

Magnetic Field
Strength: 47346.5nT
Dip Angle: 59.59°
Date: 6/18/2022
Model: MVHD

WELL DETAILS

Ground Level: 3183.18

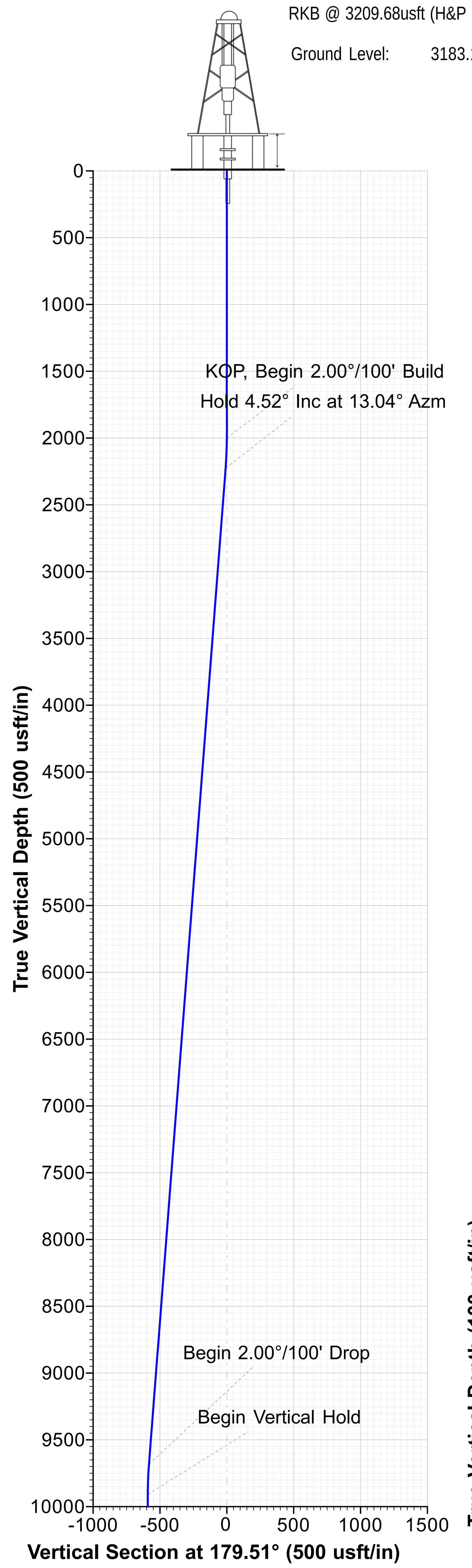
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	372598.03	827949.37	32° 1' 15.529274 N	103° 24' 30.781399 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - Los Vaqueros Fed 202H	11026.00	-7515.89	206.51	365082.14	828155.88	32° 0' 1.141265 N	103° 24' 29.130184 W
LTP - Los Vaqueros Fed 202H	11026.00	-7425.90	205.75	365172.13	828155.12	32° 0' 2.031791 N	103° 24' 29.130066 W
FTP - Los Vaqueros Fed 202H	11062.00	112.12	141.15	372710.15	828090.52	32° 1' 16.626754 N	103° 24' 29.130864 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00		
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.000	0.00		KOP, Begin 2.00°/100' Build
3	2226.04	4.52	13.04	2225.81	8.68	2.01	2.00	13.037	-8.67		Hold 4.52° Inc at 13.04° Azm
4	9706.83	4.52	13.04	9683.32	583.14	135.03	0.00	0.000	-581.96		Begin 2.00°/100' Drop
5	9932.88	0.00	0.00	9909.13	591.82	137.04	2.00	180.000	-590.63		Begin Vertical Hold
6	10608.28	0.00	0.00	10584.54	591.82	137.04	0.00	0.000	-590.63		KOP2, Begin 12.00°/100' Build
7	11360.54	90.27	179.51	11062.00	112.12	141.15	12.00	179.509	-110.91		LP, Hold 90.27° Inc at 179.51° Azm
8	18988.91	90.27	179.51	11026.00	-7515.89	206.51	0.00	0.000	7517.38	BHL - Los Vaqueros Fed 202H	TD at 18988.91



Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone

Local Origin: Well Los Vaqueros Fed 202H, Grid North

Latitude: 32° 1' 15.529274 N
Longitude: 103° 24' 30.781399 W

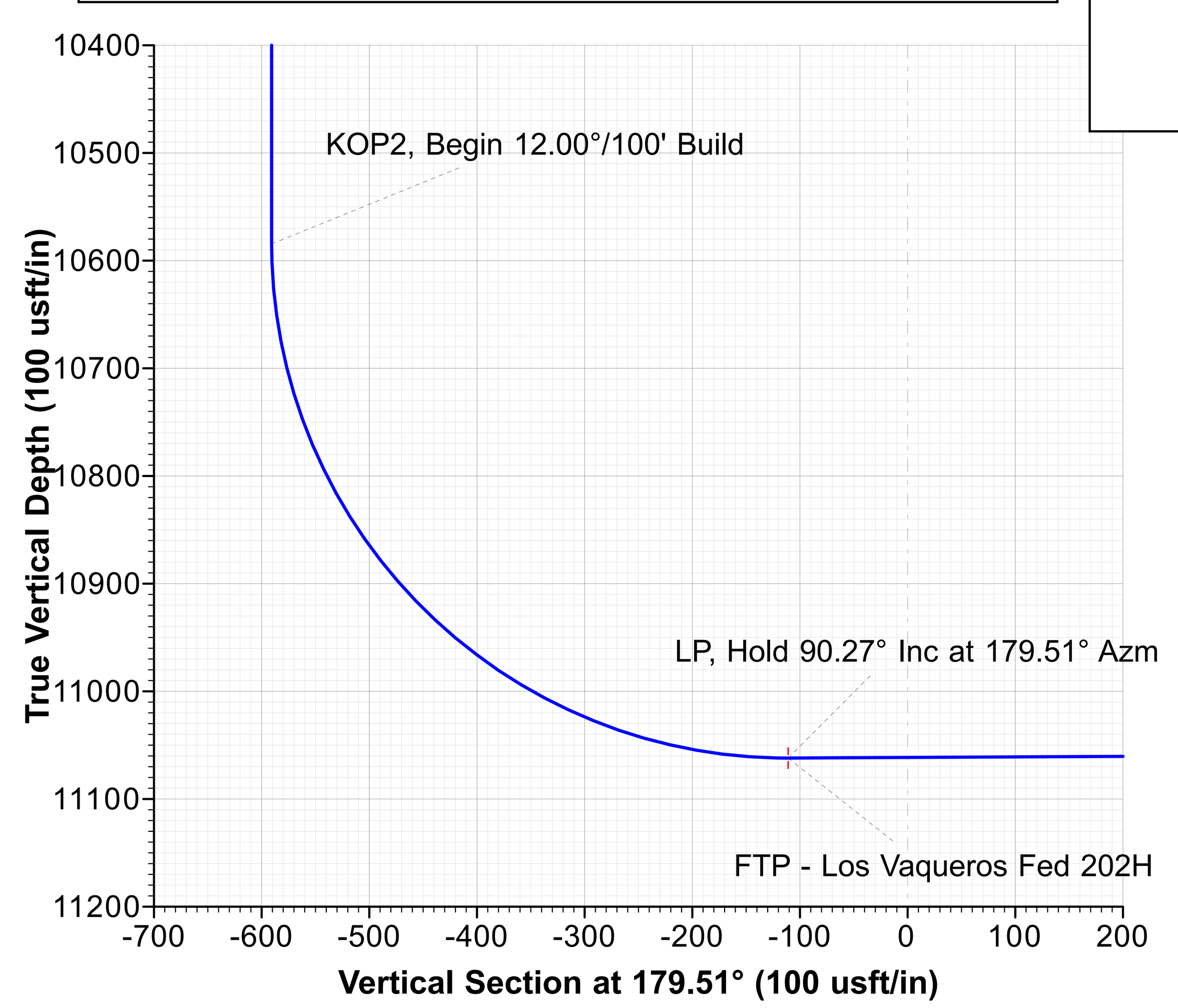
Grid East: 827949.37
Grid North: 372598.03
Scale Factor: 1.000

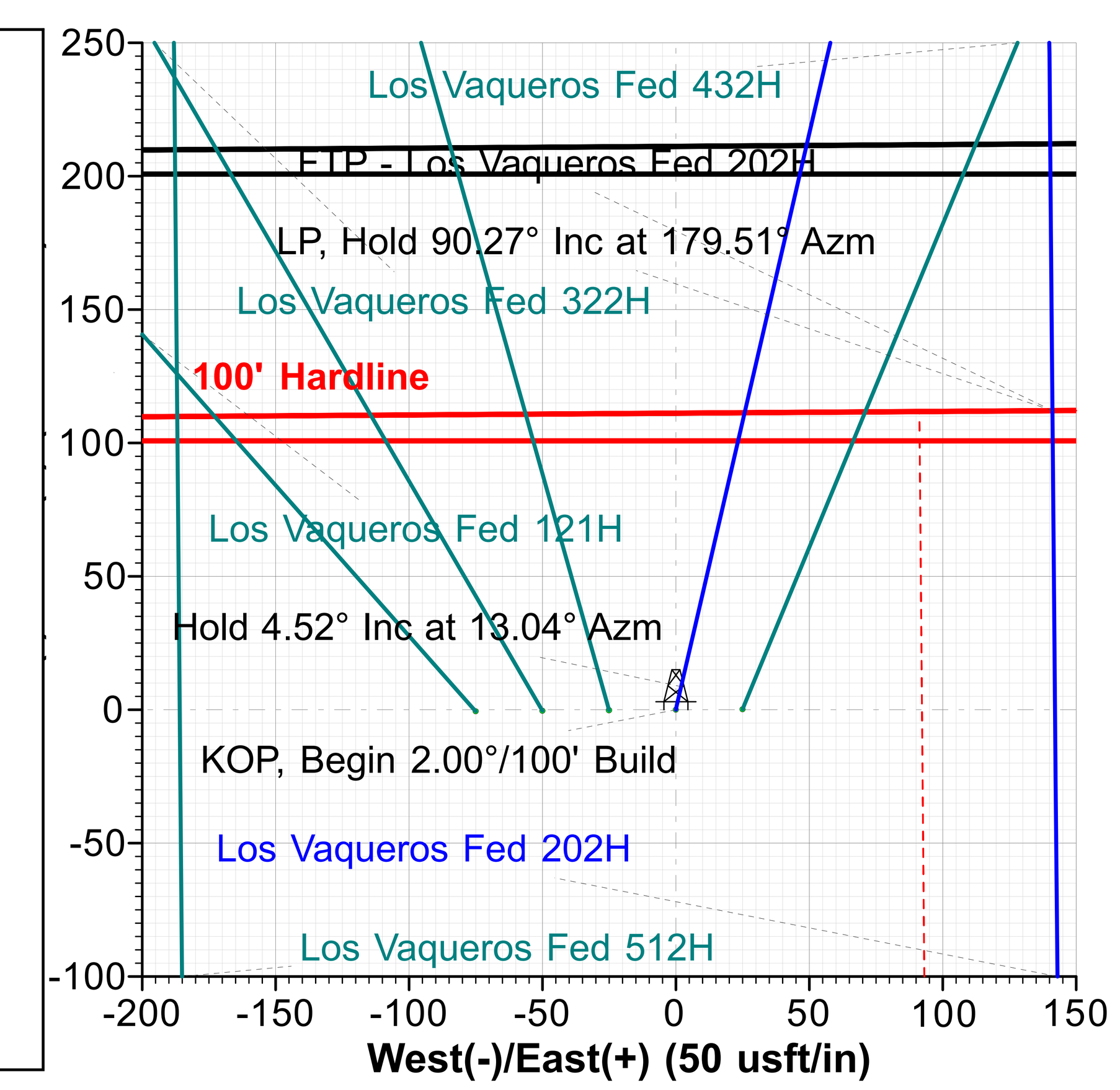
Geomagnetic Model: MVHD
Sample Date: 18-Jun-22
Magnetic Declination: 6.276°
Dip Angle from Horizontal: 59.585°
Magnetic Field Strength: 47346.52532182nT

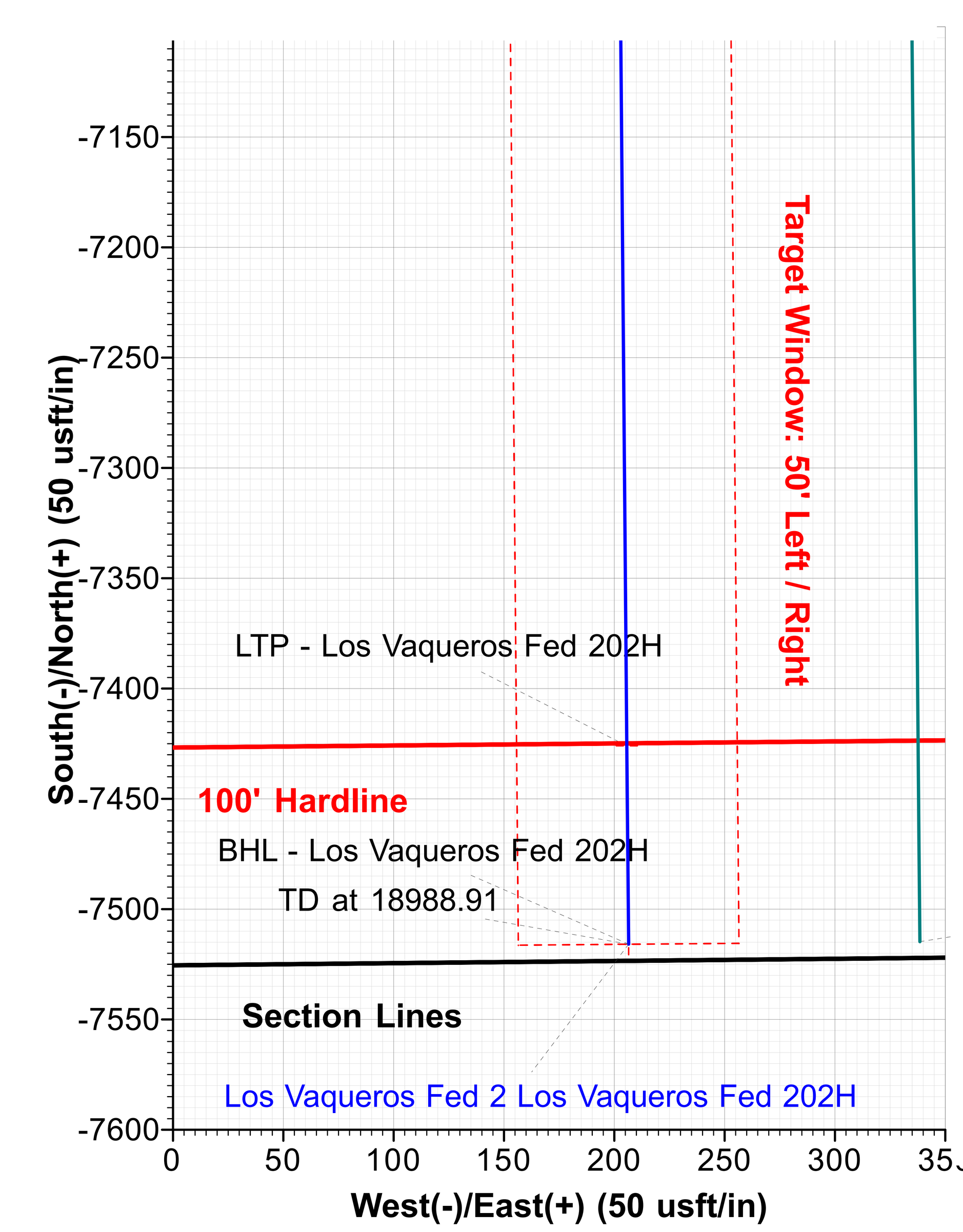
To convert a Magnetic Direction to a Grid Direction, Add 5.785°
To convert a Magnetic Direction to a True Direction, Add 6.276° East
To convert a True Direction to a Grid Direction, Subtract 0.490°

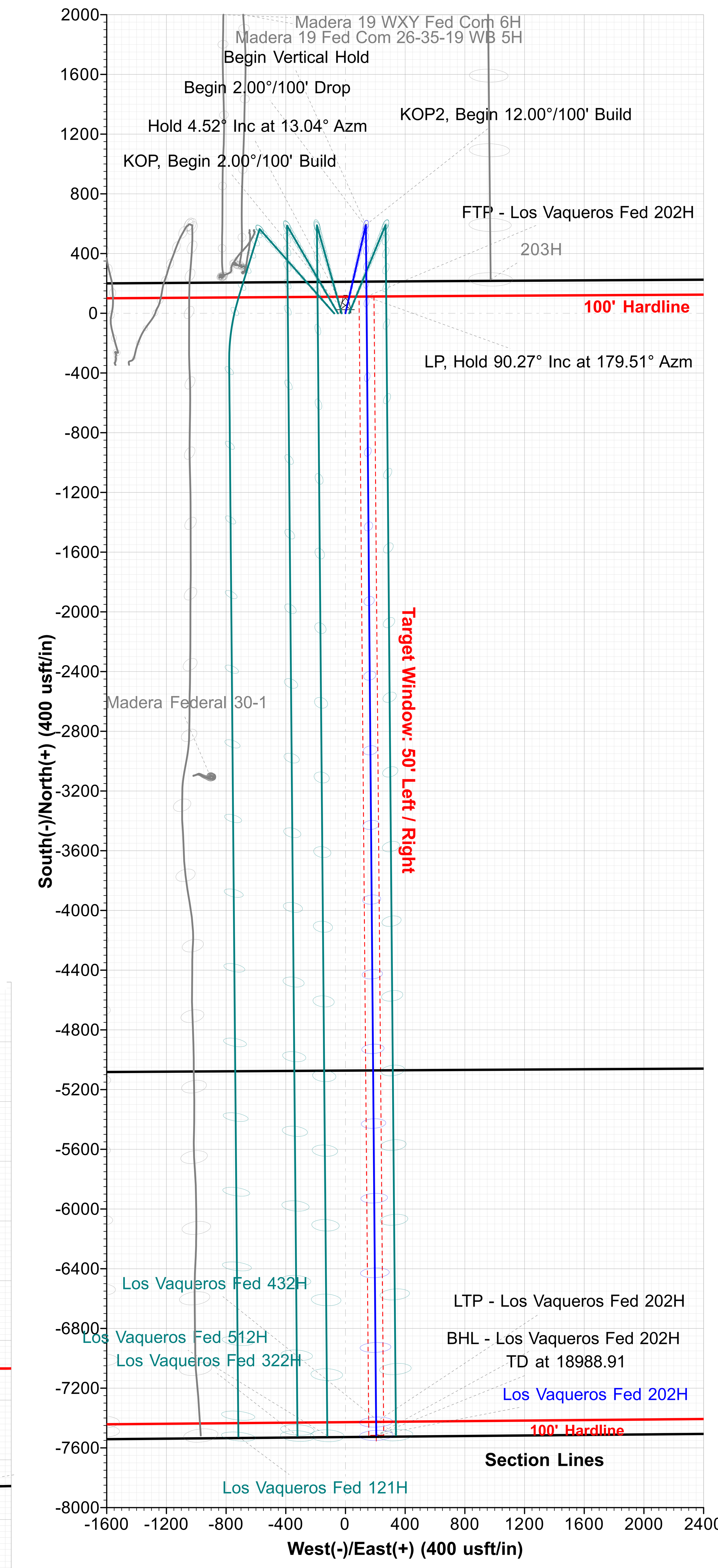
LEGEND

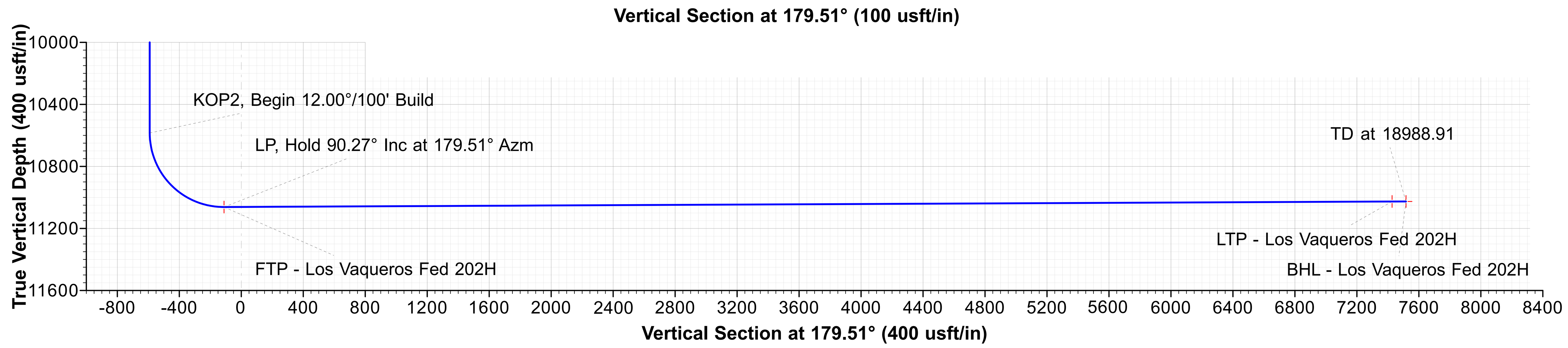
- Los Vaqueros Fed 512H, OH, Plan 1 04-19-22 V0
- 431H, OH / 68180, Surveys (Nabors 7503) V0
- Madera 19 WXY Fed Com 6H, OH, Surveys V0
- 201H, OH / 68178, Surveys (Nabors 7503) V0
- Los Vaqueros Fed 322H, OH, Plan 1 04-19-22 V0
- Madera 19 Fed Com 26-35-19 WB 5H, OH, Surveys V0
- Madera Federal 30-1, OH, Surveys V0
- Los Vaqueros Fed 121H, OH, Plan 1 04-19-22 V0
- 203H, OH, Plan 1 03-25-20 V0
- Los Vaqueros Fed 432H, OH, Plan 1 04-19-22 V0
- Plan 1 04-19-22











Date: 9:28, April 19 2022

PHOENIX
TECHNOLOGY SERVICES

Titus Oil & Gas Production, LLC

Lea County, NM - (NAD83 NME)
Los Vaqueros Fed 2
Los Vaqueros Fed 202H

OH

Plan: Plan 1 04-19-22

Standard Planning Report

19 April, 2022

TITUS
OIL GAS LLC

PHOENIX TECHNOLOGY SERVICES

Planning Report

TITUS OIL GAS LLC

Database:	USA Compass	**Local Co-ordinate Reference:**	Well Los Vaqueros Fed 202H
Company:	Titus Oil & Gas Production, LLC	**TVD Reference:**	RKB @ 3209.68usft (H&P 625)
Project:	Lea County, NM - (NAD83 NME)	**MD Reference:**	RKB @ 3209.68usft (H&P 625)
Site:	Los Vaqueros Fed 2	**North Reference:**	Grid
Well:	Los Vaqueros Fed 202H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-19-22		

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 Los Vaqueros Fed 2

Site Position:		**Northing:**	372,597.47 usft	**Latitude:**	32° 1' 15.530083 N
From:	Map	**Easting:**	827,874.37 usft	**Longitude:**	103° 24' 31.652541 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.490 °

Well Los Vaqueros Fed 202H

Well Position	**+N/-S**	0.56 usft	**Northing:**	372,598.03 usft	**Latitude:**	32° 1' 15.529274 N
	+E/-W	75.00 usft	**Easting:**	827,949.37 usft	**Longitude:**	103° 24' 30.781399 W
Position Uncertainty		1.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,183.18 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	6/18/2022	6.276	59.585	47,346.52532181

Design Plan 1 04-19-22

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	179.51

Plan Survey Tool Program **Date** 4/18/2022

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,988.91	Plan 1 04-19-22 (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	0.000	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,226.04	4.52	13.04	2,225.81	8.68	2.01	2.00	2.00	0.00	13.037	
9,706.83	4.52	13.04	9,683.32	583.14	135.03	0.00	0.00	0.00	0.000	
9,932.88	0.00	0.00	9,909.13	591.82	137.04	2.00	-2.00	0.00	180.000	
10,608.28	0.00	0.00	10,584.54	591.82	137.04	0.00	0.00	0.00	0.000	
11,360.54	90.27	179.51	11,062.00	112.12	141.15	12.00	12.00	0.00	179.509	
18,988.91	90.27	179.51	11,026.00	-7,515.89	206.51	0.00	0.00	0.00	0.000	BHL - Los Vaqueros F

PHOENIX TECHNOLOGY SERVICES

Planning Report

TITUS OIL GAS LLC

Database:	USA Compass	**Local Co-ordinate Reference:**	Well Los Vaqueros Fed 202H
Company:	Titus Oil & Gas Production, LLC	**TVD Reference:**	RKB @ 3209.68usft (H&P 625)
Project:	Lea County, NM - (NAD83 NME)	**MD Reference:**	RKB @ 3209.68usft (H&P 625)
Site:	Los Vaqueros Fed 2	**North Reference:**	Grid
Well:	Los Vaqueros Fed 202H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-19-22		

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
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
2,100.00	2.00	13.04	2,099.98	1.70	0.39	-1.70	2.00	2.00	0.00
2,200.00	4.00	13.04	2,199.84	6.80	1.57	-6.78	2.00	2.00	0.00
2,226.04	4.52	13.04	2,225.81	8.68	2.01	-8.67	2.00	2.00	0.00
Hold 4.52° Inc at 13.04° Azm									
2,300.00	4.52	13.04	2,299.54	14.36	3.33	-14.33	0.00	0.00	0.00
2,400.00	4.52	13.04	2,399.22	22.04	5.10	-22.00	0.00	0.00	0.00
2,500.00	4.52	13.04	2,498.91	29.72	6.88	-29.66	0.00	0.00	0.00
2,600.00	4.52	13.04	2,598.60	37.40	8.66	-37.32	0.00	0.00	0.00
2,700.00	4.52	13.04	2,698.29	45.08	10.44	-44.99	0.00	0.00	0.00
2,800.00	4.52	13.04	2,797.98	52.76	12.22	-52.65	0.00	0.00	0.00
2,900.00	4.52	13.04	2,897.67	60.44	13.99	-60.32	0.00	0.00	0.00
3,000.00	4.52	13.04	2,997.36	68.12	15.77	-67.98	0.00	0.00	0.00
3,100.00	4.52	13.04	3,097.05	75.80	17.55	-75.64	0.00	0.00	0.00
3,200.00	4.52	13.04	3,196.74	83.47	19.33	-83.31	0.00	0.00	0.00
3,300.00	4.52	13.04	3,296.42	91.15	21.11	-90.97	0.00	0.00	0.00
3,400.00	4.52	13.04	3,396.11	98.83	22.89	-98.63	0.00	0.00	0.00
3,500.00	4.52	13.04	3,495.80	106.51	24.66	-106.30	0.00	0.00	0.00
3,600.00	4.52	13.04	3,595.49	114.19	26.44	-113.96	0.00	0.00	0.00
3,700.00	4.52	13.04	3,695.18	121.87	28.22	-121.62	0.00	0.00	0.00
3,800.00	4.52	13.04	3,794.87	129.55	30.00	-129.29	0.00	0.00	0.00
3,900.00	4.52	13.04	3,894.56	137.23	31.78	-136.95	0.00	0.00	0.00
4,000.00	4.52	13.04	3,994.25	144.91	33.55	-144.61	0.00	0.00	0.00
4,100.00	4.52	13.04	4,093.94	152.59	35.33	-152.28	0.00	0.00	0.00
4,200.00	4.52	13.04	4,193.62	160.26	37.11	-159.94	0.00	0.00	0.00
4,300.00	4.52	13.04	4,293.31	167.94	38.89	-167.60	0.00	0.00	0.00
4,400.00	4.52	13.04	4,393.00	175.62	40.67	-175.27	0.00	0.00	0.00
4,500.00	4.52	13.04	4,492.69	183.30	42.44	-182.93	0.00	0.00	0.00
4,600.00	4.52	13.04	4,592.38	190.98	44.22	-190.60	0.00	0.00	0.00
4,700.00	4.52	13.04	4,692.07	198.66	46.00	-198.26	0.00	0.00	0.00
4,800.00	4.52	13.04	4,791.76	206.34	47.78	-205.92	0.00	0.00	0.00
4,900.00	4.52	13.04	4,891.45	214.02	49.56	-213.59	0.00	0.00	0.00
5,000.00	4.52	13.04	4,991.13	221.70	51.34	-221.25	0.00	0.00	0.00
5,100.00	4.52	13.04	5,090.82	229.38	53.11	-228.91	0.00	0.00	0.00
5,200.00	4.52	13.04	5,190.51	237.06	54.89	-236.58	0.00	0.00	0.00
5,300.00	4.52	13.04	5,290.20	244.73	56.67	-244.24	0.00	0.00	0.00
5,400.00	4.52	13.04	5,389.89	252.41	58.45	-251.90	0.00	0.00	0.00
5,500.00	4.52	13.04	5,489.58	260.09	60.23	-259.57	0.00	0.00	0.00
5,600.00	4.52	13.04	5,589.27	267.77	62.00	-267.23	0.00	0.00	0.00
5,700.00	4.52	13.04	5,688.96	275.45	63.78	-274.89	0.00	0.00	0.00
5,800.00	4.52	13.04	5,788.65	283.13	65.56	-282.56	0.00	0.00	0.00
5,900.00	4.52	13.04	5,888.33	290.81	67.34	-290.22	0.00	0.00	0.00
6,000.00	4.52	13.04	5,988.02	298.49	69.12	-297.89	0.00	0.00	0.00
6,100.00	4.52	13.04	6,087.71	306.17	70.89	-305.55	0.00	0.00	0.00
6,200.00	4.52	13.04	6,187.40	313.85	72.67	-313.21	0.00	0.00	0.00
6,300.00	4.52	13.04	6,287.09	321.52	74.45	-320.88	0.00	0.00	0.00
6,400.00	4.52	13.04	6,386.78	329.20	76.23	-328.54	0.00	0.00	0.00
6,500.00	4.52	13.04	6,486.47	336.88	78.01	-336.20	0.00	0.00	0.00
6,600.00	4.52	13.04	6,586.16	344.56	79.79	-343.87	0.00	0.00	0.00
6,700.00	4.52	13.04	6,685.85	352.24	81.56	-351.53	0.00	0.00	0.00
6,800.00	4.52	13.04	6,785.53	359.92	83.34	-359.19	0.00	0.00	0.00

PHOENIX TECHNOLOGY SERVICES

Planning Report

TITUS OIL GAS LLC

Database:	USA Compass	**Local Co-ordinate Reference:**	Well Los Vaqueros Fed 202H
Company:	Titus Oil & Gas Production, LLC	**TVD Reference:**	RKB @ 3209.68usft (H&P 625)
Project:	Lea County, NM - (NAD83 NME)	**MD Reference:**	RKB @ 3209.68usft (H&P 625)
Site:	Los Vaqueros Fed 2	**North Reference:**	Grid
Well:	Los Vaqueros Fed 202H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-19-22		

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)
6,900.00	4.52	13.04	6,885.22	367.60	85.12	-366.86	0.00	0.00	0.00
7,000.00	4.52	13.04	6,984.91	375.28	86.90	-374.52	0.00	0.00	0.00
7,100.00	4.52	13.04	7,084.60	382.96	88.68	-382.18	0.00	0.00	0.00
7,200.00	4.52	13.04	7,184.29	390.64	90.45	-389.85	0.00	0.00	0.00
7,300.00	4.52	13.04	7,283.98	398.32	92.23	-397.51	0.00	0.00	0.00
7,400.00	4.52	13.04	7,383.67	405.99	94.01	-405.18	0.00	0.00	0.00
7,500.00	4.52	13.04	7,483.36	413.67	95.79	-412.84	0.00	0.00	0.00
7,600.00	4.52	13.04	7,583.05	421.35	97.57	-420.50	0.00	0.00	0.00
7,700.00	4.52	13.04	7,682.73	429.03	99.34	-428.17	0.00	0.00	0.00
7,800.00	4.52	13.04	7,782.42	436.71	101.12	-435.83	0.00	0.00	0.00
7,900.00	4.52	13.04	7,882.11	444.39	102.90	-443.49	0.00	0.00	0.00
8,000.00	4.52	13.04	7,981.80	452.07	104.68	-451.16	0.00	0.00	0.00
8,100.00	4.52	13.04	8,081.49	459.75	106.46	-458.82	0.00	0.00	0.00
8,200.00	4.52	13.04	8,181.18	467.43	108.24	-466.48	0.00	0.00	0.00
8,300.00	4.52	13.04	8,280.87	475.11	110.01	-474.15	0.00	0.00	0.00
8,400.00	4.52	13.04	8,380.56	482.78	111.79	-481.81	0.00	0.00	0.00
8,500.00	4.52	13.04	8,480.25	490.46	113.57	-489.47	0.00	0.00	0.00
8,600.00	4.52	13.04	8,579.93	498.14	115.35	-497.14	0.00	0.00	0.00
8,700.00	4.52	13.04	8,679.62	505.82	117.13	-504.80	0.00	0.00	0.00
8,800.00	4.52	13.04	8,779.31	513.50	118.90	-512.47	0.00	0.00	0.00
8,900.00	4.52	13.04	8,879.00	521.18	120.68	-520.13	0.00	0.00	0.00
9,000.00	4.52	13.04	8,978.69	528.86	122.46	-527.79	0.00	0.00	0.00
9,100.00	4.52	13.04	9,078.38	536.54	124.24	-535.46	0.00	0.00	0.00
9,200.00	4.52	13.04	9,178.07	544.22	126.02	-543.12	0.00	0.00	0.00
9,300.00	4.52	13.04	9,277.76	551.90	127.79	-550.78	0.00	0.00	0.00
9,400.00	4.52	13.04	9,377.45	559.58	129.57	-558.45	0.00	0.00	0.00
9,500.00	4.52	13.04	9,477.13	567.25	131.35	-566.11	0.00	0.00	0.00
9,600.00	4.52	13.04	9,576.82	574.93	133.13	-573.77	0.00	0.00	0.00
9,700.00	4.52	13.04	9,676.51	582.61	134.91	-581.44	0.00	0.00	0.00
9,706.83	4.52	13.04	9,683.32	583.14	135.03	-581.96	0.00	0.00	0.00
Begin 2.00°/100' Drop									
9,800.00	2.66	13.04	9,776.30	588.82	136.34	-587.63	2.00	-2.00	0.00
9,900.00	0.66	13.04	9,876.26	591.64	137.00	-590.44	2.00	-2.00	0.00
9,932.88	0.00	0.00	9,909.13	591.82	137.04	-590.63	2.00	-2.00	0.00
Begin Vertical Hold									
10,608.28	0.00	0.00	10,584.54	591.82	137.04	-590.63	0.00	0.00	0.00
KOP2, Begin 12.00°/100' Build									
10,700.00	11.01	179.51	10,675.69	583.04	137.11	-581.85	12.00	12.00	0.00
10,800.00	23.01	179.51	10,771.15	553.85	137.37	-552.65	12.00	12.00	0.00
10,900.00	35.01	179.51	10,858.44	505.45	137.78	-504.25	12.00	12.00	0.00
11,000.00	47.01	179.51	10,933.77	439.96	138.34	-438.76	12.00	12.00	0.00
11,100.00	59.01	179.51	10,993.83	360.23	139.02	-359.03	12.00	12.00	0.00
11,200.00	71.01	179.51	11,036.01	269.77	139.80	-268.56	12.00	12.00	0.00
11,300.00	83.01	179.51	11,058.45	172.51	140.63	-171.30	12.00	12.00	0.00
11,360.54	90.27	179.51	11,062.00	112.12	141.15	-110.91	12.00	12.00	0.00
LP, Hold 90.27° Inc at 179.51° Azm									
11,400.00	90.27	179.51	11,061.81	72.66	141.49	-71.45	0.00	0.00	0.00
11,500.00	90.27	179.51	11,061.34	-27.34	142.34	28.55	0.00	0.00	0.00
11,600.00	90.27	179.51	11,060.87	-127.33	143.20	128.55	0.00	0.00	0.00
11,700.00	90.27	179.51	11,060.40	-227.33	144.06	228.55	0.00	0.00	0.00
11,800.00	90.27	179.51	11,059.93	-327.32	144.92	328.55	0.00	0.00	0.00
11,900.00	90.27	179.51	11,059.45	-427.32	145.77	428.55	0.00	0.00	0.00
12,000.00	90.27	179.51	11,058.98	-527.31	146.63	528.55	0.00	0.00	0.00

PHOENIX TECHNOLOGY SERVICES

Planning Report

TITUS OIL GAS LLC

Database:	USA Compass	**Local Co-ordinate Reference:**	Well Los Vaqueros Fed 202H
Company:	Titus Oil & Gas Production, LLC	**TVD Reference:**	RKB @ 3209.68usft (H&P 625)
Project:	Lea County, NM - (NAD83 NME)	**MD Reference:**	RKB @ 3209.68usft (H&P 625)
Site:	Los Vaqueros Fed 2	**North Reference:**	Grid
Well:	Los Vaqueros Fed 202H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-19-22		

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)
12,100.00	90.27	179.51	11,058.51	-627.31	147.49	628.55	0.00	0.00	0.00
12,200.00	90.27	179.51	11,058.04	-727.30	148.34	728.54	0.00	0.00	0.00
12,300.00	90.27	179.51	11,057.57	-827.30	149.20	828.54	0.00	0.00	0.00
12,400.00	90.27	179.51	11,057.09	-927.29	150.06	928.54	0.00	0.00	0.00
12,500.00	90.27	179.51	11,056.62	-1,027.29	150.91	1,028.54	0.00	0.00	0.00
12,600.00	90.27	179.51	11,056.15	-1,127.28	151.77	1,128.54	0.00	0.00	0.00
12,700.00	90.27	179.51	11,055.68	-1,227.28	152.63	1,228.54	0.00	0.00	0.00
12,800.00	90.27	179.51	11,055.21	-1,327.27	153.48	1,328.54	0.00	0.00	0.00
12,900.00	90.27	179.51	11,054.74	-1,427.27	154.34	1,428.54	0.00	0.00	0.00
13,000.00	90.27	179.51	11,054.26	-1,527.26	155.20	1,528.54	0.00	0.00	0.00
13,100.00	90.27	179.51	11,053.79	-1,627.26	156.05	1,628.53	0.00	0.00	0.00
13,200.00	90.27	179.51	11,053.32	-1,727.25	156.91	1,728.53	0.00	0.00	0.00
13,300.00	90.27	179.51	11,052.85	-1,827.25	157.77	1,828.53	0.00	0.00	0.00
13,400.00	90.27	179.51	11,052.38	-1,927.24	158.62	1,928.53	0.00	0.00	0.00
13,500.00	90.27	179.51	11,051.90	-2,027.24	159.48	2,028.53	0.00	0.00	0.00
13,600.00	90.27	179.51	11,051.43	-2,127.24	160.34	2,128.53	0.00	0.00	0.00
13,700.00	90.27	179.51	11,050.96	-2,227.23	161.19	2,228.53	0.00	0.00	0.00
13,800.00	90.27	179.51	11,050.49	-2,327.23	162.05	2,328.53	0.00	0.00	0.00
13,900.00	90.27	179.51	11,050.02	-2,427.22	162.91	2,428.53	0.00	0.00	0.00
14,000.00	90.27	179.51	11,049.54	-2,527.22	163.76	2,528.52	0.00	0.00	0.00
14,100.00	90.27	179.51	11,049.07	-2,627.21	164.62	2,628.52	0.00	0.00	0.00
14,200.00	90.27	179.51	11,048.60	-2,727.21	165.48	2,728.52	0.00	0.00	0.00
14,300.00	90.27	179.51	11,048.13	-2,827.20	166.34	2,828.52	0.00	0.00	0.00
14,400.00	90.27	179.51	11,047.66	-2,927.20	167.19	2,928.52	0.00	0.00	0.00
14,500.00	90.27	179.51	11,047.18	-3,027.19	168.05	3,028.52	0.00	0.00	0.00
14,600.00	90.27	179.51	11,046.71	-3,127.19	168.91	3,128.52	0.00	0.00	0.00
14,700.00	90.27	179.51	11,046.24	-3,227.18	169.76	3,228.52	0.00	0.00	0.00
14,800.00	90.27	179.51	11,045.77	-3,327.18	170.62	3,328.52	0.00	0.00	0.00
14,900.00	90.27	179.51	11,045.30	-3,427.17	171.48	3,428.51	0.00	0.00	0.00
15,000.00	90.27	179.51	11,044.82	-3,527.17	172.33	3,528.51	0.00	0.00	0.00
15,100.00	90.27	179.51	11,044.35	-3,627.16	173.19	3,628.51	0.00	0.00	0.00
15,200.00	90.27	179.51	11,043.88	-3,727.16	174.05	3,728.51	0.00	0.00	0.00
15,300.00	90.27	179.51	11,043.41	-3,827.15	174.90	3,828.51	0.00	0.00	0.00
15,400.00	90.27	179.51	11,042.94	-3,927.15	175.76	3,928.51	0.00	0.00	0.00
15,500.00	90.27	179.51	11,042.47	-4,027.14	176.62	4,028.51	0.00	0.00	0.00
15,600.00	90.27	179.51	11,041.99	-4,127.14	177.47	4,128.51	0.00	0.00	0.00
15,700.00	90.27	179.51	11,041.52	-4,227.13	178.33	4,228.51	0.00	0.00	0.00
15,800.00	90.27	179.51	11,041.05	-4,327.13	179.19	4,328.50	0.00	0.00	0.00
15,900.00	90.27	179.51	11,040.58	-4,427.13	180.04	4,428.50	0.00	0.00	0.00
16,000.00	90.27	179.51	11,040.11	-4,527.12	180.90	4,528.50	0.00	0.00	0.00
16,100.00	90.27	179.51	11,039.63	-4,627.12	181.76	4,628.50	0.00	0.00	0.00
16,200.00	90.27	179.51	11,039.16	-4,727.11	182.61	4,728.50	0.00	0.00	0.00
16,300.00	90.27	179.51	11,038.69	-4,827.11	183.47	4,828.50	0.00	0.00	0.00
16,400.00	90.27	179.51	11,038.22	-4,927.10	184.33	4,928.50	0.00	0.00	0.00
16,500.00	90.27	179.51	11,037.75	-5,027.10	185.18	5,028.50	0.00	0.00	0.00
16,600.00	90.27	179.51	11,037.27	-5,127.09	186.04	5,128.50	0.00	0.00	0.00
16,700.00	90.27	179.51	11,036.80	-5,227.09	186.90	5,228.49	0.00	0.00	0.00
16,800.00	90.27	179.51	11,036.33	-5,327.08	187.76	5,328.49	0.00	0.00	0.00
16,900.00	90.27	179.51	11,035.86	-5,427.08	188.61	5,428.49	0.00	0.00	0.00
17,000.00	90.27	179.51	11,035.39	-5,527.07	189.47	5,528.49	0.00	0.00	0.00
17,100.00	90.27	179.51	11,034.91	-5,627.07	190.33	5,628.49	0.00	0.00	0.00
17,200.00	90.27	179.51	11,034.44	-5,727.06	191.18	5,728.49	0.00	0.00	0.00
17,300.00	90.27	179.51	11,033.97	-5,827.06	192.04	5,828.49	0.00	0.00	0.00
17,400.00	90.27	179.51	11,033.50	-5,927.05	192.90	5,928.49	0.00	0.00	0.00

PHOENIX TECHNOLOGY SERVICES

Planning Report

TITUS OIL GAS LLC

Database:	USA Compass	**Local Co-ordinate Reference:**	Well Los Vaqueros Fed 202H
Company:	Titus Oil & Gas Production, LLC	**TVD Reference:**	RKB @ 3209.68usft (H&P 625)
Project:	Lea County, NM - (NAD83 NME)	**MD Reference:**	RKB @ 3209.68usft (H&P 625)
Site:	Los Vaqueros Fed 2	**North Reference:**	Grid
Well:	Los Vaqueros Fed 202H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-19-22		

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)
17,500.00	90.27	179.51	11,033.03	-6,027.05	193.75	6,028.49	0.00	0.00	0.00
17,600.00	90.27	179.51	11,032.55	-6,127.04	194.61	6,128.48	0.00	0.00	0.00
17,700.00	90.27	179.51	11,032.08	-6,227.04	195.47	6,228.48	0.00	0.00	0.00
17,800.00	90.27	179.51	11,031.61	-6,327.03	196.32	6,328.48	0.00	0.00	0.00
17,900.00	90.27	179.51	11,031.14	-6,427.03	197.18	6,428.48	0.00	0.00	0.00
18,000.00	90.27	179.51	11,030.67	-6,527.02	198.04	6,528.48	0.00	0.00	0.00
18,100.00	90.27	179.51	11,030.20	-6,627.02	198.89	6,628.48	0.00	0.00	0.00
18,200.00	90.27	179.51	11,029.72	-6,727.02	199.75	6,728.48	0.00	0.00	0.00
18,300.00	90.27	179.51	11,029.25	-6,827.01	200.61	6,828.48	0.00	0.00	0.00
18,400.00	90.27	179.51	11,028.78	-6,927.01	201.46	6,928.48	0.00	0.00	0.00
18,500.00	90.27	179.51	11,028.31	-7,027.00	202.32	7,028.47	0.00	0.00	0.00
18,600.00	90.27	179.51	11,027.84	-7,127.00	203.18	7,128.47	0.00	0.00	0.00
18,700.00	90.27	179.51	11,027.36	-7,226.99	204.03	7,228.47	0.00	0.00	0.00
18,800.00	90.27	179.51	11,026.89	-7,326.99	204.89	7,328.47	0.00	0.00	0.00
18,900.00	90.27	179.51	11,026.42	-7,426.98	205.75	7,428.47	0.00	0.00	0.00
18,988.91	90.27	179.51	11,026.00	-7,515.89	206.51	7,517.38	0.00	0.00	0.00
TD at 18988.91									

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
LTP - Los Vaqueros Fed - plan misses target center by 0.42usft at 18898.92usft MD (11026.42 TVD, -7425.90 N, 205.74 E) - Point	0.00	0.00	11,026.00	-7,425.90	205.75	365,172.13	828,155.12	32° 0' 2.031791 N	103° 24' 29.130066 W
BHL - Los Vaqueros Fed - plan hits target center - Rectangle (sides W100.00 H7,628.29 D0.00)	-0.27	179.51	11,026.00	-7,515.89	206.51	365,082.14	828,155.88	32° 0' 1.141265 N	103° 24' 29.130184 W
FTP - Los Vaqueros Fed - plan hits target center - Point	0.00	0.00	11,062.00	112.12	141.15	372,710.15	828,090.52	32° 1' 16.626754 N	103° 24' 29.130864 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
18,988.91	11,026.00	20" Casing	20	24

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,000.00	2,000.00	0.00	0.00	KOP, Begin 2.00°/100' Build
2,226.04	2,225.81	8.68	2.01	Hold 4.52° Inc at 13.04° Azm
9,706.83	9,683.32	583.14	135.03	Begin 2.00°/100' Drop
9,932.88	9,909.13	591.82	137.04	Begin Vertical Hold
10,608.28	10,584.54	591.82	137.04	KOP2, Begin 12.00°/100' Build
11,360.54	11,062.00	112.12	141.15	LP, Hold 90.27° Inc at 179.51° Azm
18,988.91	11,026.00	-7,515.89	206.51	TD at 18988.91

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Titus Oil and Gas**
LEASE NO.:	**NMNM062932**
LOCATION:	Section 30, T.26 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Los Vaqueros Fed 202H
SURFACE HOLE FOOTAGE:	211'/N & 2036'/W
BOTTOM HOLE FOOTAGE	10'/S & 2718'/E

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Cave/Karst Potential	○ Critical		
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☐ Unit

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **10-3/4** inch surface casing shall be set at approximately **1380** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

    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**

Approval Date: 08/10/2022

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.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the tail cement slurry due to cave/karst.

3. The minimum required fill of cement behind the **5-1/2 x 5** inch production casing is:
   - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

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. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi. . **Variance is approved to use a 5000 (5M) Annular which shall be tested to 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 OOGO2.III.A.2.i must be followed.

Approval Date: 08/10/2022

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)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ 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 Onshore Oil and Gas Order No. 2 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.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a

digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

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.

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, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity 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 intergrity 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 Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

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 OOGO2.III.A.2.i 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 when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. 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 plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 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 water basin (8 hours) or potash (24 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 Onshore Order No. 2.

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.
ZS080822

Approval Date: 08/10/2022

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Titus Oil and Gas Production LLC
LEASE NO.:	NMNM 062932
COUNTY:	Lea County, New Mexico
LOCATION:	Township 26S, Range 35E, section 30

Wells:

Well Pad 1
Los Vaqueros Fed 202H
Surface Hole Location: 211' FNL & 2036' FWL, Section 30, T. 26 S., R. 35 E.
Bottom Hole Location: 10' FSL & 2178' FWL, Section 31, T. 26 S, R 35 E.

Well Pad 2
Los Vaqueros Fed 202H
Surface Hole Location: 210' FNL & 2573' FEL, Section 30, T. 26 S., R. 35 E.
Bottom Hole Location: 10' FSL & 1650' FEL, Section 31, T. 26 S, R 35 E.

Well Pad 3
Los Vaqueros Fed 434H
Surface Hole Location: 353' FNL & 1559' FEL, Section 30, T. 26 S., R. 35 E.
Bottom Hole Location: 10' FSL & 330' FEL, Section 31, T. 26 S, R 35 E.

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

Approval Date: 08/10/2022

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 6 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or

any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Watershed:
The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching:

Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

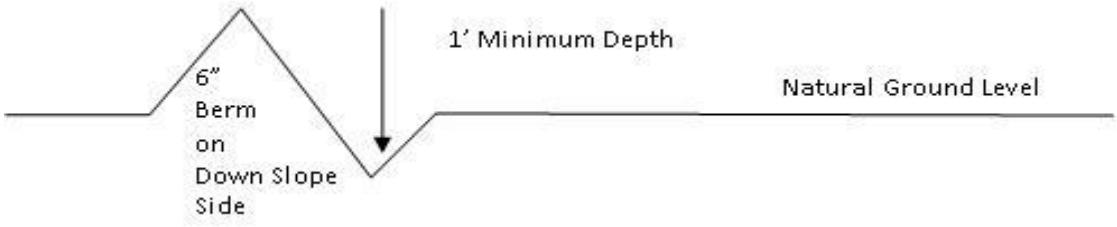
Ditching
Ditching shall be required on both sides of the road.

Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be

determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$\text{400 foot road with 4\% road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Approval Date: 08/10/2022

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

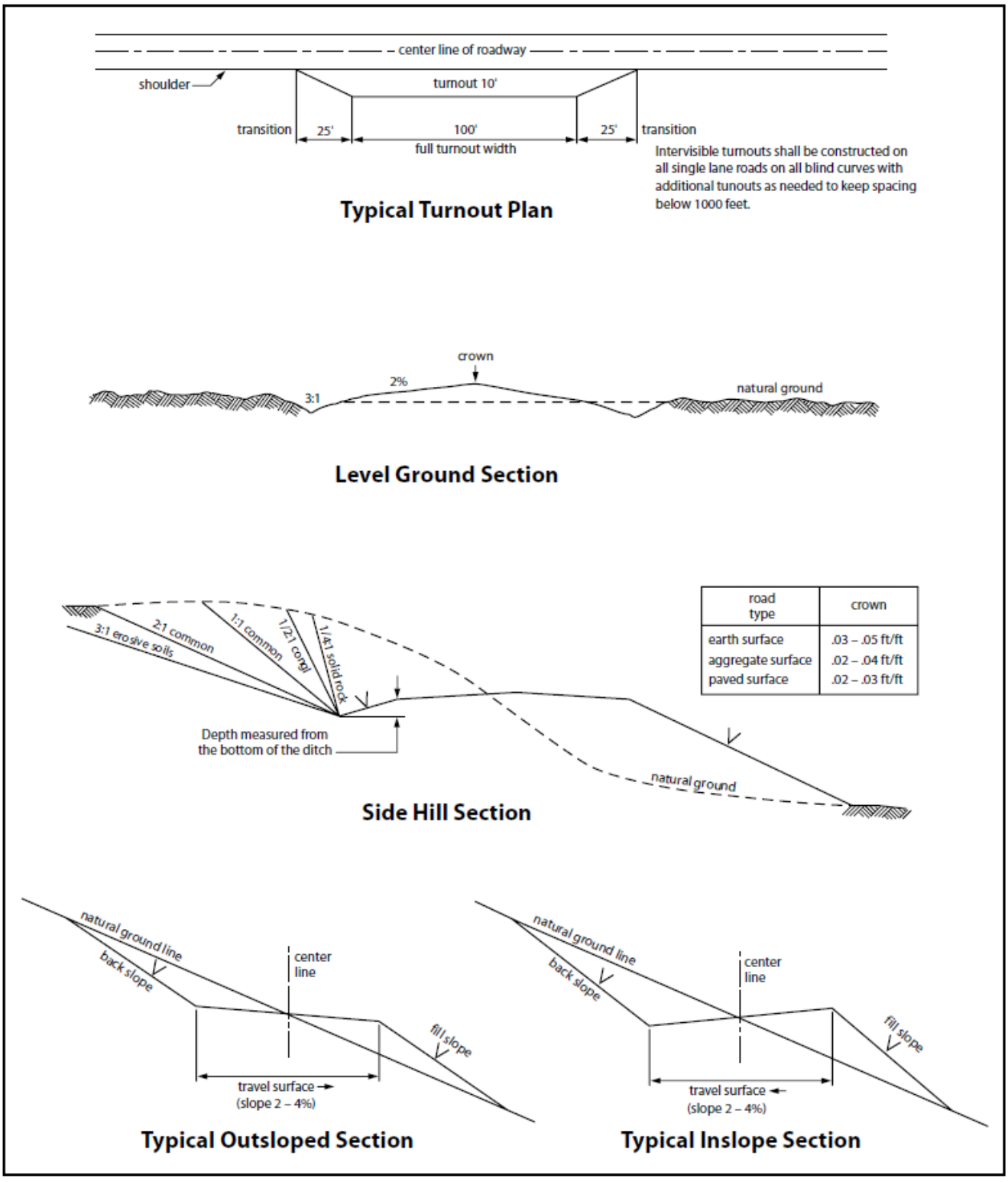


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

Approval Date: 08/10/2022

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone*.) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Approval Date: 08/10/2022

Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass (*Setaria macrostachya*)	1.0
Green Sprangletop (*Leptochloa dubia*)	2.0
Sideoats Grama (*Bouteloua curtipendula)*	5.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Approval Date: 08/10/2022

Mixture 4, for Gypsum Sites

The holder shall seed all the disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Alkali Sacaton (*Sporobolus airoides*)	1.5
DWS~ Four-wing saltbush (*Atriplex canescens*)	8.0

~DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Approval Date: 08/10/2022

Seed Mixture for LPC Sand/Shinnery Sites ONLY USE IF IN TIMING RESTRICTION POLYGON, NOT GREEN COA LAYER

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Approval Date: 08/10/2022

Seed Mixture for LPC/HEA Sites ONLY USE IF IN LPC HEA YELLOW POLYGON

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

The disturbed area associated with pipeline construction will be disked in order to loosen the soil. Seed application will be performed by dispersing seed through a hydroseeder with the appropriate amount of hydromulch to assist in an even rate of application. After application, a chain harrow will be implemented to cover the seed with soil to ensure the seed is had the proper depth (approximate ½ inch). Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	5lbs/A
Big Bluestem	5lbs/A
Plains Coreopsis	5lbs/A
Sand Dropseed	1lbs/A
Partridge Pea	1.6 lbs/A
Purple Prairie Clover	0.4 lbs/A
Fire wheel	0.4lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Approval Date: 08/10/2022

Earthstone Operating, LLC

1400 Woodloch Forest Drive, Suite 300
The Woodlands, TX 77380
Phone: (281) 298-4246
Fax: (832) 823-0478

H2S Contingency Plan

Lea County, NM

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crew should then block entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are NO homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'
100 ppm H2S concentration shall trigger activation of this plan

Emergency Procedures

In the event of a release of gas containing H2S, the first responder(s) must:

« Isolate the area and prevent entry by other persons into the 100 ppm ROE.
« Evacuate any public places encompassed by the 100 ppm ROE.
« Be equipped with H2S monitors and air packs in order to control the release.
« Use the "buddy system" to ensure no injuries occur during the response.
« Take precautions to avoid personal injury during this operation.
« Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
« Have received training
in the: Detection of
H2S, and
Measures for protection against the gas,
Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (S02). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H2S and SO,

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H2S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO2	2.21 Air=1	2 ppm	N/A	1000 ppm

Contacting Authorities

Earthstone Operating, LLC personnel must liaise with local and state agencies to ensure **a** proper response to a major release. Additionally, the OCD must be notified of the release as soon **as** possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to sit e. The following call list of essential and potential responders has been prepared for use during a release Earthstone Operating, LLC response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMERP).

Hydrogen Sulfide Drilling Operations Plan

1. All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   A. Characteristics of H2S
   B. Physical effects and hazards
   C. Principal and operation of H2S detectors, warning system and briefing areas.
   D. Evacuation procedure, routes and first aid.
   E. Proper use of safety equipment & life support systems
   F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30-minute pressure demand air packs.
2. H2S Detection and Alarm Systems:
   a. H2S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may play placed as deemed necessary.
   b. An audio alarm system will be installed on the derrick floor and in the top doghouse.
3. Windsock and/or wind streamers:
   a. Windsock at mudpit area should be high enough to be visible.
   b. Windsock on the rig floor and/ or top doghouse should be high enough to be visible.
4. Condition Flags and Signs
   a. Warning sign on access road to location.
   b. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential

pressure and danger. Red flag indicates danger (H2S present in dangerous concentration). Only H2S trained and certified personnel admitted to location.

5. Well control equipment:
   a. See exhibit BOP and Choke Diagrams

6. Communication:
   a. While working under masks chalkboards will be used for communication.
   b. Hand signals will be used where chalk board is inappropriate.
   c. Two-way radio will be used to communicate off location in case of emergency help is required. In most cases, cellular telephones will be available at most drilling foreman's trailer or living quarters.

7. Drill stem Testing:
   No DSTs are planned at this time.

8. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
9. If H25 is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

Emergency Assistance Telephone List

Earthstone Operating, LLC

The Woodlands Office (Headquarters): 281-298-4246

Midland Office: 432-686-1100

Vice President of Drilling-Nick Goree	Office: 281-771-3201
	Cell: 405-488-7164
Sr. Drilling Engineer/Superintendent- Ben Taylor	Cell: 432-978-3029
Production Superintendent-Paul Martinez	Cell: 325-206-1722

Public Safety:			**911 or**
Lea County Sheriff's Department		Number:	(575)396-3611
Lea County Emergency Management-Lorenzo Velasquez		Number:	(575)391-2983
Lea County Fire Marshal			
Lorenzo Velasquez, Director		Number:	(575)391-2983
Jeff Broom, Deputy Fire Marshal		Number:	(575)391-2988
Fire Department:			
Knowles Fire Department		Number:	(505)392-2810
City of Hobbs Fire Department		Number:	(505)397-9308
Jal Volunteer Fire Department		Number:	(505)395-2221
Lovington Fire Department		Number:	(575)396-2359
Maljamar Fire Department		Number:	(505)676-4100
Tatum Volunteer Fire Department		Number:	(505)398-3473
Eunice Fire Department		Number:	(575)394-3258
Hospital: Lea Regional Medical Center		Number:	(575)492-5000
AirMed: Medevac		Number:	(888)303-9112
Dept. of Public Safety		Number:	(505)827-9000
New Mexico OCD-Dist. 1-Hobbs-	Office	Number:	(575)393-6161
	Emergency	Number:	(575)370-3186
Lea County Road Department		Number:	(575)391-2940
NMDOT		Number:	(505)827-5100
Bureau of Land Management			
Pecos District Office		Number:	(575)627-0272
Carlsbad Field Office		Number:	(575)234-5972
Hobbs Field Station		Number:	(575)393-3612

Earthstone Operating, LLC plans to operate a Closed Loop System.

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** Y **New surface disturbance?** N

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** LOS VAQUEROS PAD **Number:** 2

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: **Distance to nearest well:** 30 FT **Distance to lease line:** 211 FT

Reservoir well spacing assigned acres Measurement: 240 Acres

Well plat: LOS_VAQUEROS_FED_202H_C102_rev1_20220722132115.pdf

Well work start Date: 09/30/2022 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
SHL Leg #1	211	FNL	2036	FWL	26S	35E	30	Aliquot NENW	32.0209803	-103.4085504	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 629320	3183	0	0	Y
KOP Leg #1	100	FSL	2178	FWL	26S	35E	19	Aliquot SESW	32.021835	-103.408092	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 093223	-7493	10700	10676	N
PPP Leg #1-1	0	FSL	2132	FWL	26S	35E	19	Aliquot SESW	32.02156	-103.408239	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 093223	-5596	8800	8779	N

Operator Name: EARTHSTONE OPERATING LLC

Well Name: LOS VAQUEROS FED **Well Number:** 202H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
PPP Leg #1-2	0	FNL	2178	FWL	26S	35E	30	Aliquot NENW	32.02154	-103.408091	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 629320	-7811	11100	10994	Y
EXIT Leg #1	10	FSL	2178	FWL	26S	35E	31	Lot 3	32.000317	-103.408917	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 629320	-7843	18989	11026	Y
BHL Leg #1	10	FSL	2178	FWL	26S	35E	31	Lot 3	32.000317	-103.408917	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 629320	-7843	18989	11026	Y

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

Drilling Plan Data Report
05/08/2023

APD ID: 10400085929
Submission Date: 06/13/2022
Operator Name: EARTHSTONE OPERATING LLC
Well Name: LOS VAQUEROS FED
Well Number: 202H
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
8715623	QUATERNARY	0	0	0	ALLUVIUM	USEABLE WATER	N
8715624	RUSTLER	-1030	1030	1030	ANHYDRITE	USEABLE WATER	N
8715625	TOP SALT	-1482	1482	1482	SALT	NONE	N
8715626	BASE OF SALT	-5009	5009	5009	SALT	NONE	N
8715627	LAMAR	-5348	5348	5358	LIMESTONE	NONE	N
8715628	DELAWARE	-5372	5372	5382	SANDSTONE, SHALE, SILTSTONE	NONE	N
8715629	BONE SPRING LIME	-9238	9238	9261	LIMESTONE	NATURAL GAS, OIL	N
8715630	BONE SPRING 1ST	-10605	10605	10630	LIMESTONE, SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
8715631	BONE SPRING 2ND	-10782	10782	10811	SHALE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M
Rating Depth: 11200

Equipment: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics. A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Testing Procedure: Formation integrity test will be performed per Onshore Order #2. On Exploratory wells

BOP SHEET

Annular Preventer
13-3/8 2,500 PSI WP

Ram Preventers
13-3/8" 5,000 PSI WP Double Ram
13-3/8" 5,000 PSI WP Single Ram

Test the pipe rams, blind rams, floor valves (IBOP and/or upper Kelly valve), choke lines and manifold to 250 psi/5,000 psi with a test plug and a test pump.

Test the annular to 250 psi/2,500 psi with same as above.

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 216416

CONDITIONS

Operator: Earthstone Operating, LLC 1400 Woodloch Forest; Ste 300 The Woodlands, TX 77380	OGRID: 331165
	Action Number: 216416
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
john.harrison	Notify OCD 24 hours prior to casing & cement	5/16/2023
john.harrison	Will require a File As Drilled C-102 and a Directional Survey with the C-104	5/16/2023
john.harrison	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	5/16/2023
john.harrison	Cement is required to circulate on both surface and intermediate1 strings of casing	5/16/2023
john.harrison	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	5/16/2023