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DISTRICT II-ARTESIA O.C.D.

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.
NMNM134868

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.
LEATHERNECK FED COM
201H 325670

2. Name of Operator
MATADOR PRODUCTION COMPANY 228937

9. API Well No.
30-015-45983

| 3a. Address | 3b. Phone No. *(include area code)* | 10. Field and Pool, or Exploratory |
|---|---|---|
| 5400 LBJ Freeway, Suite 1500 Dallas TX 75240 | (972)371-5200 | BURTON FLAT; WOLFCAMP, EAST |

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

At surface NWNW / 660 FNL / 247 FWL / LAT 32.5499253 / LONG -104.121717

At proposed prod. zone NENE / 660 FNL / 240 FEL / LAT 32.5498618 / LONG -104.0893902

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 30 / T20S / R29E / NMP

| 14. Distance in miles and direction from nearest town or post office* | 12. County or Parish | 13. State |
|---|---|---|
| 11 miles | EDDY | NM |

| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) | 16. No of acres in lease | 17. Spacing Unit dedicated to this well |
|---|---|---|
| 247 feet | 73.18 | 633.18 |

| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. | 19. Proposed Depth | 20. BLM/BIA Bond No. in file |
|---|---|---|
| 30 feet | 9254 feet / 19176 feet | FED: NMB001079 |

| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) | 22. Approximate date work will start* | 23. Estimated duration |
|---|---|---|
| 3238 feet | 09/01/2018 | 90 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 | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Brian Wood / Ph: (505)466-8120 | 07/04/2018 |

Title
President

| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Cody Layton / Ph: (575)234-5959 | 05/09/2019 |

| Title | Office |
|---|---|
| Assistant Field Manager Lands & Minerals | CARLSBAD |

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

Approval Date: 05/09/2019

RWP 5-15-19

(Continued on page 2)

*(Instructions on page 2)

## INSTRUCTIONS

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

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48( d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

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



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## Additional Operator Remarks

### Location of Well

1. SHL: NWNW / 660 FNL / 247 FWL / TWSP: 20S / RANGE: 29E / SECTION: 30 / LAT: 32.5499253 / LONG: -104.121717 ( TVD: 0 feet, MD: 0 feet )
   PPP: NWNW / 660 FNL / 247 FWL / TWSP: 20S / RANGE: 29E / SECTION: 30 / LAT: 32.5499253 / LONG: -104.121717 ( TVD: 0 feet, MD: 0 feet )
   PPP: NENW / 648 FNL / 1205 FWL / TWSP: 20S / RANGE: 29E / SECTION: 30 / LAT: 32.549923 / LONG: -104.118591 ( TVD: 9254 feet, MD: 10184 feet )
   BHL: NENE / 660 FNL / 240 FEL / TWSP: 20S / RANGE: 29E / SECTION: 29 / LAT: 32.5498618 / LONG: -104.0893902 ( TVD: 9254 feet, MD: 19176 feet )

## BLM Point of Contact

Name: Katrina Ponder
Title: Geologist
Phone: 5752345969
Email: kponder@blm.gov

## Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

# PECOS DISTRICT
# DRILLING OPERATIONS
# CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Matador Production Company** |
| **LEASE NO.:** | **NMNM134868** |
| **WELL NAME & NO.:** | **Leatherneck Fed Com 201H** |
| **SURFACE HOLE FOOTAGE:** | **660' FNL & 247' FWL** |
| **BOTTOM HOLE FOOTAGE** | **660' FNL & 240' FEL** |
| **LOCATION:** | **Section 30, T 20S, R 29E, NMPM** |
| **COUNTY:** | **Eddy County, New Mexico** |

| | | | |
|---|---|---|---|
| H2S | ◉ Yes | ○ No | |
| Potash | ◉ None | ○ Secretary | ○ R-111-P |
| Cave/Karst Potential | ○ Low | ○ Medium | ◉ High |
| 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

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated **500 feet** prior to drilling into the **Cherry Canyon** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

## B. CASING

1. The **20"** surface casing shall be set at approximately **400'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
   a. **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
   b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
   c. If cement falls back, remedial cementing will be done prior to drilling out that string.
   d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

2. The **13-3/8"** intermediate casing shall be set at approximately **1200'** and cemented to surface.
   a. **If cement does not circulate to surface,** see B.1.a, c & d.
   b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to high cave/karst potential.
3. The **9-5/8"** intermediate casing shall be cemented to surface.
   a. **If cement does not circulate to surface,** see B.1.a, c & d.
   b. Operator has proposed a contingency DV tool, the depth may be adjusted as long as the cement is changed proportionally.
      i. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
      ii. Second stage above DV tool: Cement to surface. If cement does not circulate contact the appropriate BLM office.
4. The **7-5/8"** and **7"** tapered intermediate casing shall be cemented to at least **50'** above the Capitan Reef. Operator shall provide method of verification.
5. The **5-1/2"** and **4-1/2"** tapered production string shall be cemented with at least **200'** of cement tie-back into the previous casing. 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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8" casing shoe shall be **5000 (5M)** psi.

**D. SPECIAL REQUIREMENTS**

1. Capitan Reef Requirements: If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:
   a. Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the 12-1/4" well bore and submit to the appropriate BLM office.

2. The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
   a. The well sign on location shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

**DR 4/30/2019**

# GENERAL REQUIREMENTS

1. 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)
      ☒ Chaves and Roosevelt Counties
      Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
      During office hours call (575) 627-0272.
      After office hours call (575)
      ☒ 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) 393-3612

2. 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.

3. 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.

4. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) 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. 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.

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. The results of the test shall be reported to the appropriate BLM office.
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. 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.
f. 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. This test shall be performed prior to the test at full stack pressure.
g. 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

1. 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

2. 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.

3. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

# PECOS DISTRICT
# SURFACE USE
# CONDITIONS OF APPROVAL

| | |
|---|---|
| OPERATOR'S NAME: | Matador Production Company |
| LEASE NO.: | NMNM134868 |
| WELL NAME & NO.: | Leatherneck Fed Com 201H |
| SURFACE HOLE FOOTAGE: | 660'/N & 247'/W |
| BOTTOM HOLE FOOTAGE | 660'/N & 240'/E |
| LOCATION: | Section 30, T.20 S., R.29 E., NMPM |
| COUNTY: | Eddy County, New Mexico |

## TABLE OF CONTENTS

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: 05/09/2019**

## 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 and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator 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 shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## 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)

**Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production:

**Construction:**

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

**No Blasting:**

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

**Pad Berming:**

- The entire perimeter of the well pad 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 high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- 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.
- 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 access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

**Tank Battery Liners and Berms:**

Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

**Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

**Automatic Shut-off Systems**:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

**Cave/Karst Subsurface Mitigation**
The following stipulations will be applied to protect cave/karst and ground water concerns:
**Rotary Drilling with Fresh Water:**
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

**Directional Drilling:**
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

**Lost Circulation:**
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.
Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

**Abandonment Cementing:**
Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Pressure Testing:**
The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

**Hydrology:**
The entire well pad 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 top soil 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.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

Electric Lines: Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion.

**Livestock Watering Requirement**

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

# 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.

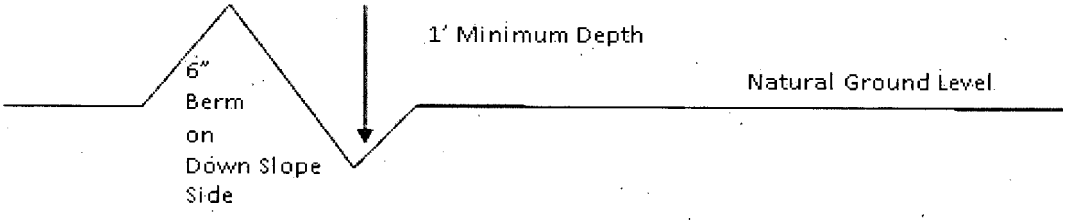
**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**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:

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

**Cattle guards**

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

**Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

**Public Access**

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

**Construction Steps**

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

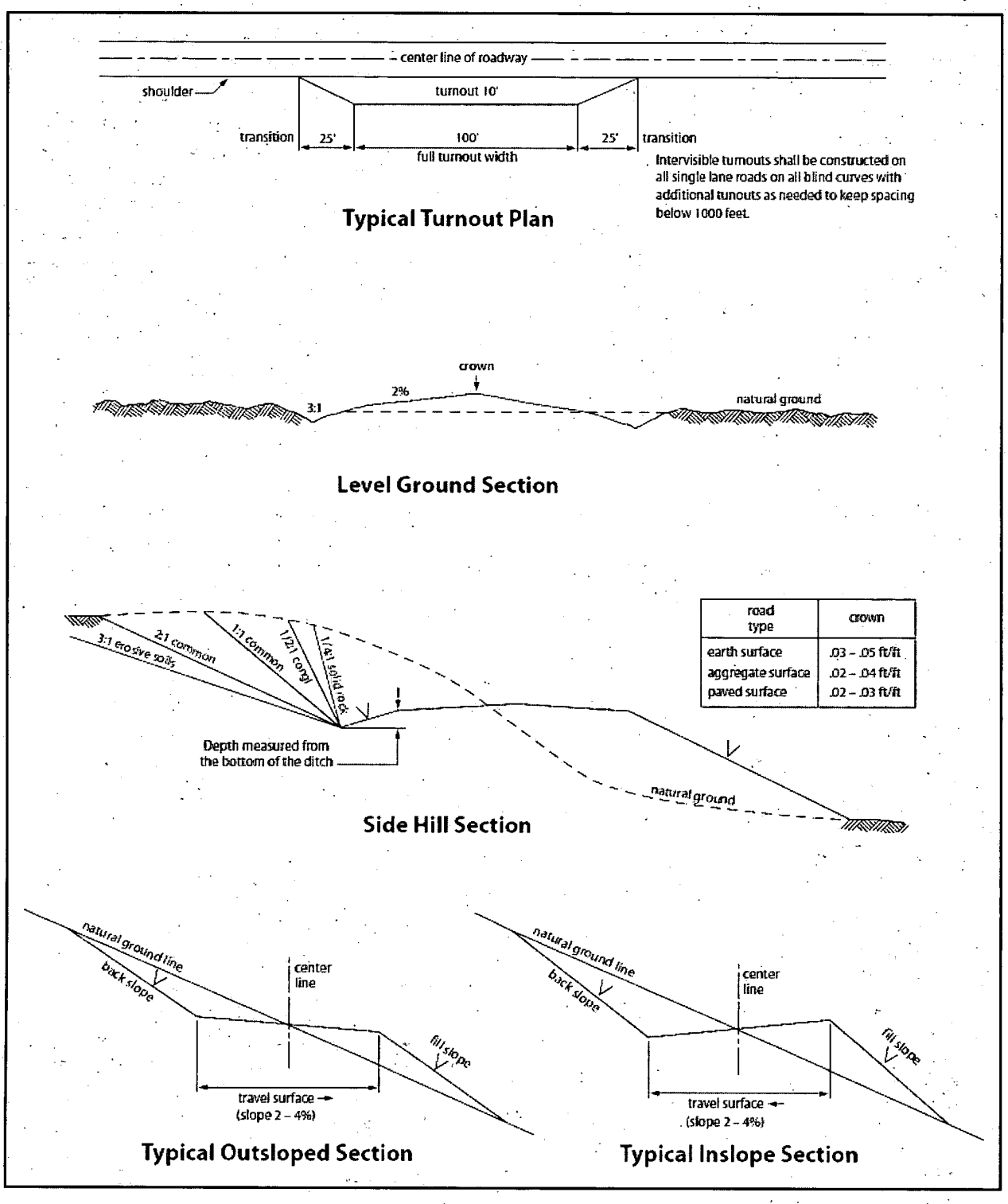



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

# 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).

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 shall 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 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 shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/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 shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The 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 lovegrass (Eragrostis intermedia) | 0.5 |
| Sand dropseed (Sporobolus cryptandrus) | 1.0 |
| Sideoats grama (Bouteloua curtipendula) | 5.0 |
| Plains bristlegrass (Setaria macrostachya) | 2.0 |

*Pounds of pure live seed:

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

**APD ID:** 10400031858
**Submission Date:** 07/04/2018
**Operator Name:** MATADOR PRODUCTION COMPANY
**Federal/Indian APD:** FED
**Well Name:** LEATHERNECK FED COM
**Well Number:** 201H
**Well Type:** OIL WELL
**Well Work Type:** Drill

Highlighted data reflects the most recent changes
Show Final Text

Application

## Section 1 - General

**APD ID:** 10400031858
**Tie to previous NOS?**
**Submission Date:** 07/04/2018
**BLM Office:** CARLSBAD
**User:** Brian Wood
**Title:** President
**Federal/Indian APD:** FED
**Is the first lease penetrated for production Federal or Indian?** FED
**Lease number:** NMNM134868
**Lease Acres:** 73.18
**Surface access agreement in place?**
**Allotted?**
**Reservation:**
**Agreement in place?** NO
**Federal or Indian agreement:**
**Agreement number:**
**Agreement name:**
**Keep application confidential?** NO
**Permitting Agent?** YES
**APD Operator:** MATADOR PRODUCTION COMPANY
**Operator letter of designation:**

## Operator Info

**Operator Organization Name:** MATADOR PRODUCTION COMPANY
**Operator Address:** 5400 LBJ Freeway, Suite 1500
**Zip:** 75240
**Operator PO Box:**
**Operator City:** Dallas
**State:** TX
**Operator Phone:** (972)371-5200
**Operator Internet Address:** amonroe@matadorresources.com

## Section 2 - Well Information

**Well in Master Development Plan?** NO
**Master Development Plan name:**
**Well in Master SUPO?** NO
**Master SUPO name:**
**Well in Master Drilling Plan?** NO
**Master Drilling Plan name:**

**Operator Name:** MATADOR PRODUCTION COMPANY

**Well Name:** LEATHERNECK FED COM **Well Number:** 201H

**Well Name:** LEATHERNECK FED COM **Well Number:** 201H **Well API Number:**

**Field/Pool or Exploratory?** Field and Pool **Field Name:** BURTON FLAT; WOLFCAMP, EAST **Pool Name:**

**Is the proposed well in an area containing other mineral resources?** USEABLE WATER,NATURAL GAS,CO2,OIL

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N **Use Existing Well Pad?** NO **New surface disturbance?**

**Type of Well Pad:** MULTIPLE WELL **Multiple Well Pad Name:** LEATHERNECK FED COM **Number:** SLOT 1

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

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** INFILL

**Describe sub-type:**

**Distance to town:** 11 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 247 FT

**Reservoir well spacing assigned acres Measurement:** 633.18 Acres

**Well plat:** LN_201H_C102_etal_20180703093012.pdf

**Well work start Date:** 09/01/2018 **Duration:** 90 DAYS

## Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83 **Vertical Datum:** NAVD88

**Survey number:** 19642

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHL Leg #1 | 660 | FNL | 247 | FWL | 20S | 29E | 30 | Aliquot NWNW | 32.549923 | -104.121717 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 134868 | 3238 | 0 | 0 |
| KOP Leg #1 | 660 | FNL | 247 | FWL | 20S | 29E | 30 | Aliquot NWNW | 32.549923 | -104.121717 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 134868 | -5439 | 8685 | 8677 |

**Operator Name:** MATADOR PRODUCTION COMPANY

**Well Name:** LEATHERNECK FED COM **Well Number:** 201H

| | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PPP Leg #1 | 660 | FNL | 247 | FWL | 20S | 29E | 30 | Aliquot NWNW | 32.5499253 | -104.121717 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 134868 | 3238 | 0 | 0 |
| PPP Leg #1 | 648 | FNL | 1205 | FWL | 20S | 29E | 30 | Aliquot NENW | 32.5499233 | -104.118591 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 0003677 | -6016 | 10184 | 9254 |
| EXIT Leg #1 | 660 | FNL | 240 | FEL | 20S | 29E | 29 | Aliquot NENE | 32.5498618 | -104.089390 2 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 0003677 | -6016 | 19176 | 9254 |
| BHL Leg #1 | 660 | FNL | 240 | FEL | 20S | 29E | 29 | Aliquot NENE | 32.5498618 | -104.089390 2 | EDDY | NEW MEXICO | NEW MEXICO | F | NMNM 0003677 | -6016 | 19176 | 9254 |

## Drilling Plan

## Section 1 - Geologic Formations

| Formation ID | Formation Name | Elevation | True Vertical Depth | Measured Depth | Lithologies | Mineral Resources | Producing Formation |
|---|---|---|---|---|---|---|---|
| 1 | QUATERNARY | 3238 | 0 | 0 | ALLUVIUM | USEABLE WATER | No |
| 2 | RUSTLER ANHYDRITE | 2798 | 440 | 440 | | NONE | No |
| 3 | YATES | 2444 | 794 | 794 | OTHER : Carbonate | NONE | No |
| 4 | CAPITAN REEF | 2013 | 1225 | 1225 | | USEABLE WATER | No |
| 5 | CHERRY CANYON | 263 | 2975 | 2980 | SANDSTONE | NATURAL GAS,CO2,OIL | No |
| 6 | BRUSHY CANYON | -889 | 4127 | 4135 | SANDSTONE | NATURAL GAS,CO2,OIL | No |
| 7 | BONE SPRING | -2434 | 5672 | 5680 | LIMESTONE | NATURAL GAS,CO2,OIL | No |
| 8 | UPPER AVALON SHALE | -2702 | 5940 | 5949 | | NATURAL GAS,CO2,OIL | No |
| 9 | --- | -2882 | 6120 | 6129 | OTHER : Avalon Carbonate | NATURAL GAS,CO2,OIL | No |
| 10 | --- | -3035 | 6273 | 6281 | OTHER : Lower Avalon Shale | NATURAL GAS,CO2,OIL | No |

**Operator Name:** MATADOR PRODUCTION COMPANY

**Well Name:** LEATHERNECK FED COM **Well Number:** 201H

| Formation ID | Formation Name | Elevation | True Vertical Depth | Measured Depth | Lithologies | Mineral Resources | Producing Formation |
|---|---|---|---|---|---|---|---|
| 11 | BONE SPRING 1ST | -3116 | 6354 | 6362 | OTHER : Carbonate | NATURAL GAS,CO2,OIL | No |
| 12 | BONE SPRING 1ST | -3593 | 6831 | 6840 | SANDSTONE | NATURAL GAS,CO2,OIL | No |
| 13 | BONE SPRING 2ND | -3785 | 7023 | 7032 | OTHER : Carbonate | NATURAL GAS,CO2,OIL | No |
| 14 | BONE SPRING 2ND | -4209 | 7447 | 7456 | SANDSTONE | NATURAL GAS,CO2,OIL | No |
| 15 | BONE SPRING 3RD | -4581 | 7819 | 7826 | OTHER : Carbonate | NATURAL GAS,CO2,OIL | No |
| 16 | BONE SPRING 3RD | -5417 | 8655 | 8663 | SANDSTONE | NATURAL GAS,CO2,OIL | No |
| 17 | WOLFCAMP | -5847 | 9085 | 9143 | OTHER : A | NATURAL GAS,CO2,OIL | Yes |

## Section 2 - Blowout Prevention

**Pressure Rating (PSI):** 5M **Rating Depth:** 12000

**Equipment:** A BOP stack consisting of 3 rams with 2 pipe rams, 1 blind ram, and 1 annular preventer will be used below surface casing to TD. See attached BOP, choke manifold, co-flex hose, and speed head diagrams. Also present will be an accumulator that meets the requirements of Onshore Order #2 for the pressure rating of the BOP stack. A rotating head will also be installed as needed. Pressure tests will be conducted prior to drilling out under all casing strings. BOP will be inspected and operated as recommended in Onshore Order #2. A Kelly cock and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position.
**Requesting Variance?** YES

**Variance request:** Matador requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. Manufacturer does not require the hose to be anchored. If the specific hose is not available, then one of equal or higher rating will be used. Matador is requesting a variance to use a speed head with landing mandrel for 9-5/8" and 7-5/8" x 7" casing.
**Testing Procedure:** A third party company will test the BOPs. Test pressures will be as follows: On the intermediate 1 casing, pressure tests will be made to 250 psi low and 2000 psi high. On the intermediate 2 casing, pressure tests will be made to 250 psi low and 3000 psi high. On the intermediate 3 casing, pressure tests will be made to 250 psi low and 7500 psi high. The annular preventer will be tested to 250 psi low and 2500 psi high on the intermediate 1, 2 and 3 casing. In the case of running a speed head with landing mandrel for 9-5/8" and 7-5/8" x 7" casing the initial intermediate 1 casing test pressures will be 250 psi low and 3000 psi high with wellhead seals tested to 5000 psi once the 9-5/8" casing has been landed and cemented. The BOP will then be lifted to install the 'D-section' of the wellhead. We will nipple the BOP back up and the pressure tests will be made to 250 psi low and 7500 psi high and the annular will be tested to 250 psi low and 2500 psi high.

**Choke Diagram Attachment:**

LN_201H_Choke_5M_20180703094828.pdf

**BOP Diagram Attachment:**

LN_201H_BOP_5M_20180703094914.pdf

## Section 3 - Casing

| Casing ID | String Type | Hole Size | Csg Size | Condition | Standard | Tapered String | Top Set MD | Bottom Set MD | Top Set TVD | Bottom Set TVD | Top Set MSL | Bottom Set MSL | Calculated casing length MD | Grade | Weight | Joint Type | Collapse SF | Burst SF | Joint SF Type | Joint SF | Body SF Type | Body SF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SURFACE | 26 | 20.0 | NEW | API | N | 0 | 400 | 0 | 400 | 3238 | | 400 | J-55 | 94 | OTHER - BTC | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 2 | INTERMEDIATE | 8.75 | 7.625 | NEW | API | Y | 0 | 1175 | 0 | 1175 | 3238 | | 1175 | P-110 | 29.7 | OTHER - BTC | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 3 | INTERMEDIATE | 17.5 | 13.375 | NEW | API | N | 0 | 1200 | 0 | 1200 | 3238 | | 1200 | J-55 | 54.5 | OTHER - BTC | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 4 | INTERMEDIATE | 12.25 | 9.625 | NEW | API | N | 0 | 3100 | 0 | 3095 | | | 3100 | J-55 | 40 | OTHER - BTC | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 5 | PRODUCTION | 6.125 | 5.5 | NEW | API | Y | 0 | 8535 | 0 | 8527 | 3238 | | 8535 | P-110 | 20 | OTHER - Tenaris XP | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 6 | INTERMEDIATE | 8.75 | 7.625 | NEW | API | Y | 1175 | 8635 | 1175 | 8627 | | | 7460 | P-110 | 29.7 | OTHER - HTF-NR | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 7 | INTERMEDIATE | 8.75 | 7.0 | NEW | API | Y | 8635 | 9450 | 8627 | 9236 | | | 815 | P-110 | 29 | OTHER - BTC | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |
| 8 | PRODUCTION | 6.125 | 4.5 | NEW | API | Y | 8535 | 19176 | 8527 | 9254 | | | 10641 | P-110 | 13.5 | OTHER - Tenaris XP | 1.125 | 1.125 | DRY | 1.8 | DRY | 1. |

**Casing Attachments**

**Casing ID:** 1 **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704113448.pdf

**Casing Attachments**

**Casing ID:** 2 **String Type:**INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704113936.pdf

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704115025.pdf

**Casing ID:** 3 **String Type:**INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704113614.pdf

**Casing ID:** 4 **String Type:**INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704114142.pdf

**Casing Attachments**

**Casing ID:** 5 **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

LN_201H_5.5in_TenarisXP_casing_spec_20180704114751.pdf

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704115035.pdf

**Casing ID:** 6 **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

LN_201H_7.625_inch_VAM_HTF_casing_spec_20180704114114.PDF

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704114150.pdf

**Casing ID:** 7 **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704114421.pdf

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704114522.pdf

**Casing Attachments**

**Casing ID:** 8 **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

LN_201H_4.5in_TenarisXP_casing_spec_20180704114931.pdf

**Casing Design Assumptions and Worksheet(s):**

LN_201H_Casing_Design_Assumptions_5string_Wolf_20180704115011.pdf

## Section 4 - Cement

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCTION | Lead | | 0 | 0 | 0 | 0 | 0 | 0 | | None | None |
| PRODUCTION | Tail | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | None | None |
| INTERMEDIATE | Lead | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | None | None |
| INTERMEDIATE | Tail | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | None | None |
| INTERMEDIATE | Lead | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | None | None |
| INTERMEDIATE | Tail | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | None | None |
| SURFACE | Lead | | 0 | 400 | 0 | 0 | 0 | 0 | | None | None |
| SURFACE | Tail | | 0 | 400 | 892 | 1.35 | 14.8 | 1204 | 100 | Class C | 5% NaCl + LCM |
| INTERMEDIATE | Lead | | 0 | 1200 | 619 | 1.78 | 13.5 | 1102 | 100 | Class C | Bentonite + 1% CaCL2 + 8% NaCl + LCM |
| INTERMEDIATE | Tail | | 0 | 1200 | 309 | 1.35 | 14.8 | 417 | 100 | Class C | 5% NaCl + LCM |
| INTERMEDIATE | Lead | | 0 | 3100 | 695 | 1.78 | 13.5 | 1237 | 100 | Class C | Bentonite + 2% CaCL2 + 3% NaCl + LCM |

**Operator Name:** MATADOR PRODUCTION COMPANY

**Well Name:** LEATHERNECK FED COM **Well Number:** 201H

| String Type | Lead/Tail | Stage Tool Depth | Top MD | Bottom MD | Quantity(sx) | Yield | Density | Cu Ft | Excess% | Cement type | Additives |
|---|---|---|---|---|---|---|---|---|---|---|---|
| INTERMEDIATE | Tail | | 0 | 3100 | 288 | 1.35 | 14.8 | 389 | 100 | Class C | 5% NaCl + LCM |
| INTERMEDIATE | Lead | | 1175 | 9450 | 593 | 2.36 | 11.5 | 1399 | 35 | TXI | Fluid Loss + Dispersant + Retarder + LCM |
| INTERMEDIATE | Tail | | 1175 | 9450 | 304 | 1.38 | 13.2 | 420 | 35 | TXI | Fluid Loss + Dispersant + Retarder + LCM |
| PRODUCTION | Lead | | 8450 | 19176 | 0 | 0 | 0 | 0 | | None | None |
| PRODUCTION | Tail | | 8450 | 19176 | 805 | 1.38 | 15.8 | 1111 | 10 | Class H | Fluid Loss + Dispersant + Retarder + LCM |

## 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:** All necessary mud products (barite, bentonite, LCM) for weight addition and fluid loss control will be on location at all times. Mud program is subject to change due to hole conditions. A closed loop system will be used.

**Describe the mud monitoring system utilized:** An electronic Pason mud monitoring system complying with Onshore Order 1 will be used.

## 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 | 400 | SPUD MUD | 8.4 | 8.4 | | | | | | | |
| 400 | 1200 | OTHER : Brine water | 10 | 10.1 | | | | | | | |
| 1200 | 3100 | OTHER : Fresh water | 8.4 | 8.6 | | | | | | | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3100 | 9450 | OTHER : Fresh water & cut brine | 9 | 9 | | | | | | | |
| 9450 | 19176 | OIL-BASED MUD | 12.5 | 12.5 | | | | | | | |

## Section 6 - Test, Logging, Coring

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

No electric logs are planned at this time. GR will be collected through the MWD tools from intermediate casing #2 to TD. CBL with CCL will be run as far as gravity will let it fall to TOC.

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

CBL

**Coring operation description for the well:**

No core or drill stem test is planned.

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 6015 **Anticipated Surface Pressure:** 3979.12

**Anticipated Bottom Hole Temperature(F):** 170

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

**Describe:**

**Contingency Plans geoharzards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

LN_201H_Slot1_H2S_Plan_20180704121551.pdf

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

LN_201H_Horizontal_Drill_Plan_20180704121609.pdf

**Other proposed operations facets description:**

**Other proposed operations facets attachment:**

LN_201H_Speedhead_Specs_5string_wolf_20180704121626.pdf

LN_201H_General_Drill_Plan_011419_20190115102726.pdf

**Other Variance attachment:**

LN_201H_DVT_Tool_Variance_20180704121636.pdf

## SUPO

## Section 1 - Existing Roads

**Will existing roads be used?** YES

**Existing Road Map:**

LN_201H_Road_MAP1_20180704121737.pdf

**Existing Road Purpose:** ACCESS **Row(s) Exist?** NO

### ROW ID(s)

**ID:**

**Do the existing roads need to be improved?** NO

**Existing Road Improvement Description:**

**Existing Road Improvement Attachment:**

## Section 2 - New or Reconstructed Access Roads

**Will new roads be needed?** YES

**New Road Map:**

LN_201H_New_Road_MAP3_20180704121819.pdf

**New road type:** RESOURCE

**Length:** 109.6 Feet **Width (ft.):** 30

**Max slope (%):** 0 **Max grade (%):** 1

**Army Corp of Engineers (ACOE) permit required?** NO

**ACOE Permit Number(s):**

**New road travel width:** 14

**New road access erosion control:** Crowned and ditched

**New road access plan or profile prepared?** NO

**New road access plan attachment:**

**Access road engineering design?** NO

**Access road engineering design attachment:**

**Access surfacing type:** OTHER

**Access topsoil source:** ONSITE

**Access surfacing type description:** Caliche

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:**

**Onsite topsoil removal process:** Grader

**Access other construction information:**

**Access miscellaneous information:**

**Number of access turnouts:** **Access turnout map:**

## Drainage Control

**New road drainage crossing:** OTHER

**Drainage Control comments:** Crowned and ditched

**Road Drainage Control Structures (DCS) description:** None

**Road Drainage Control Structures (DCS) attachment:**

## Access Additional Attachments

**Additional Attachment(s):**

## Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

LN_201H_Well_MAP2_20180704122021.pdf

**Existing Wells description:**

## Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:** A tank battery will be built on the Northeast side of the pad. Pipeline and power line plans have not been finalized.
**Production Facilities map:**

LN_201H_Production_Facilities_FIG1_20180704122158.pdf

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source use type:** DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING

**Water source type:** GW WELL

**Describe type:**

**Source longitude:**

**Source latitude:**

**Source datum:**

**Water source permit type:** PRIVATE CONTRACT

**Source land ownership:** PRIVATE

**Water source transport method:** TRUCKING

**Source transportation land ownership:** PRIVATE

**Water source volume (barrels):** 20000

**Source volume (acre-feet):** 2.577862

**Source volume (gal):** 840000

**Water source and transportation map:**

LN_201H_Water_Source_MAP1_20180704122354.pdf

**Water source comments:** Water will be trucked from two water wells (C 03570 and C 03607) on private land in NENENE and SENENE 24-21s-27e.
**New water well?** NO

### New Water Well Info

**Well latitude:** **Well Longitude:** **Well datum:**

**Well target aquifer:**

**Est. depth to top of aquifer(ft):** **Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):** **Well casing type:**

**Well casing outside diameter (in.):** **Well casing inside diameter (in.):**

**New water well casing?** **Used casing source:**

**Drilling method:** **Drill material:**

**Grout material:** **Grout depth:**

**Casing length (ft.):** **Casing top depth (ft.):**

**Well Production type:** **Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Construction Materials description:** NM One Call (811) will be notified before construction starts. Top 6" of soil and brush will be stockpiled east of the pad. Pipe racks will be to the north. A closed loop drilling system will be used. Caliche will be hauled from an existing Constructors, Inc. pits on private land in NWNE 34-21s-27e and S2 13-22s-26e.
**Construction Materials source location attachment:**

LN_201H_Construction_Methods_FIG1_20180704122656.pdf

## Section 7 - Methods for Handling Waste

**Waste type:** DRILLING

**Waste content description:** Drill cuttings, mud, salts, and other chemicals

**Amount of waste:** 1000 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** Steel tanks

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE
**Disposal type description:**

**Disposal location description:** CRI's state approved (NM-01-0006) disposal site

## Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?**

**Reserve pit length (ft.)** **Reserve pit width (ft.)**

**Reserve pit depth (ft.)** **Reserve pit volume (cu. yd.)**

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

## Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** YES

**Description of cuttings location** Steel tanks on pad

**Cuttings area length (ft.)** **Cuttings area width (ft.)**

**Cuttings area depth (ft.)** **Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

## Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:**

## Section 9 - Well Site Layout

**Well Site Layout Diagram:**

LN_201H_Well_Site_Layout_FIG1_20180704122907.pdf

**Comments:**

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** New Surface Disturbance **Multiple Well Pad Name:** LEATHERNECK FED COM

**Multiple Well Pad Number:** SLOT 1

**Recontouring attachment:**

LN_201H_Recontour_Plat_FIG2_20180704122945.PDF

LN_201H_Interim_Reclamation_Diagram_FIG1_20180704122954.pdf

**Drainage/Erosion control construction:** Crowned and ditched

**Drainage/Erosion control reclamation:** Harrowed on the contour

**Well pad proposed disturbance (acres):** 3.65
**Road proposed disturbance (acres):** 0.08
**Powerline proposed disturbance (acres):** 0
**Pipeline proposed disturbance (acres):** 0
**Other proposed disturbance (acres):** 0
**Total proposed disturbance:** 3.73

**Well pad interim reclamation (acres):** 0.99
**Road interim reclamation (acres):** 0
**Powerline interim reclamation (acres):** 0
**Pipeline interim reclamation (acres):** 0
**Other interim reclamation (acres):** 0
**Total interim reclamation:** 0.99

**Well pad long term disturbance (acres):** 2.66
**Road long term disturbance (acres):** 0.08
**Powerline long term disturbance (acres):** 0
**Pipeline long term disturbance (acres):** 0
**Other long term disturbance (acres):** 0
**Total long term disturbance:** 2.74

**Disturbance Comments:**

**Reconstruction method:** Interim reclamation will shrink the pad by 0.99 acres by removing caliche and reclaiming the east side (100' x 430'), leaving 2.74 acres for 4 wells, truck turn around, and production equipment. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas. Disturbed areas will be seeded in accordance with BLM's requirements.

**Topsoil redistribution:** Enough stockpiled topsoil will be retained to cover the remainder of the pad when the wells are plugged. Once the last well is plugged, then the remainder of the pad and new road will be similarly reclaimed. Noxious weeds will be controlled.

**Soil treatment:** None

**Existing Vegetation at the well pad:**

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:**

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:**

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:**

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** NO

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** NO

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?**

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed Management

### Seed Table

**Seed type:**

**Seed source:**

**Seed name:**

**Source name:**

**Source address:**

**Source phone:**

**Seed cultivar:**

**Seed use location:**

**PLS pounds per acre:**

**Proposed seeding season:**

### Seed Summary

**Total pounds/Acre:**

| Seed Type | Pounds/Acre |
|---|---|

**Seed reclamation attachment:**

## Operator Contact/Responsible Official Contact Info

**First Name:**

**Last Name:**

**Phone:**

**Email:**

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** To BLM standards

**Weed treatment plan attachment:**

**Monitoring plan description:** To BLM standards

**Monitoring plan attachment:**

**Success standards:** To BLM satisfaction

**Pit closure description:** No pit

**Pit closure attachment:**

## Section 11 - Surface Ownership

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:** **USFS Ranger District:**

**Disturbance type:** NEW ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:** **USFS Ranger District:**

**Disturbance type:** EXISTING ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:** **USFS Ranger District:**

## Section 12 - Other Information

**Right of Way needed?** NO **Use APD as ROW?**

**ROW Type(s):**

### ROW Applications

**SUPO Additional Information:**

**Use a previously conducted onsite?** YES

**Previous Onsite information:** On site inspection was held with on May 4, 2016 with Jim Goodbar and Vance Wolf from the BLM. Matador will pay the Permian Basin programmatic agreement archaeology fund.

### Other SUPO Attachment

LN_201H_SUPO_20180704123329.pdf

PWD

## Section 1 - General

**Would you like to address long-term produced water disposal?** NO

## Section 2 - Lined Pits

**Would you like to utilize Lined Pit PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Lined pit PWD on or off channel:**

**Lined pit PWD discharge volume (bbl/day):**

**Lined pit specifications:**

**Pit liner description:**

**Pit liner manufacturers information:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Lined pit precipitated solids disposal schedule:**

**Lined pit precipitated solids disposal schedule attachment:**

**Lined pit reclamation description:**

**Lined pit reclamation attachment:**

**Leak detection system description:**

**Leak detection system attachment:**

**Lined pit Monitor description:**

**Lined pit Monitor attachment:**

**Lined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Lined pit bond number:**

**Lined pit bond amount:**

**Additional bond information attachment:**

## Section 3 - Unlined Pits

**Would you like to utilize Unlined Pit PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Unlined pit PWD on or off channel:**

**Unlined pit PWD discharge volume (bbl/day):**

**Unlined pit specifications:**

**Precipitated solids disposal:**

**Decribe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule attachment:**

**Unlined pit reclamation description:**

**Unlined pit reclamation attachment:**

**Unlined pit Monitor description:**

**Unlined pit Monitor attachment:**

**Do you propose to put the produced water to beneficial use?**

**Beneficial use user confirmation:**

**Estimated depth of the shallowest aquifer (feet):**

**Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?**

**TDS lab results:**

**Geologic and hydrologic evidence:**

**State authorization:**

**Unlined Produced Water Pit Estimated percolation:**

**Unlined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Unlined pit bond number:**

**Unlined pit bond amount:**

**Additional bond information attachment:**

## Section 4 - Injection

**Would you like to utilize Injection PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Injection PWD discharge volume (bbl/day):**

**Injection well mineral owner:**

**Injection well type:**

**Injection well number:** **Injection well name:**

**Assigned injection well API number?** **Injection well API number:**

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection attachment:**

**Underground Injection Control (UIC) Permit?**

**UIC Permit attachment:**

## Section 5 - Surface Discharge

**Would you like to utilize Surface Discharge PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

## Section 6 - Other

**Would you like to utilize Other PWD options?** NO

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:** **PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**

Bond Info

## Bond Information

**Federal/Indian APD:** FED

**BLM Bond number:** NMB001079

**BIA Bond number:**

**Do you have a reclamation bond?** NO

**Is the reclamation bond a rider under the BLM bond?**

**Is the reclamation bond BLM or Forest Service?**

**BLM reclamation bond number:**

**Forest Service reclamation bond number:**

**Forest Service reclamation bond attachment:**

**Reclamation bond number:**

**Reclamation bond amount:**

**Reclamation bond rider amount:**

**Additional reclamation bond information attachment:**

## Operator Certification

### Operator Certification

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

**NAME:** Brian Wood **Signed on:** 07/04/2018

**Title:** President

**Street Address:** 37 Verano Loop

**City:** Santa Fe **State:** NM **Zip:** 87508

**Phone:** (505)466-8120

**Email address:** afmss@permitswest.com

### Field Representative

**Representative Name:**

**Street Address:**

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

**Phone:**

**Email address:**

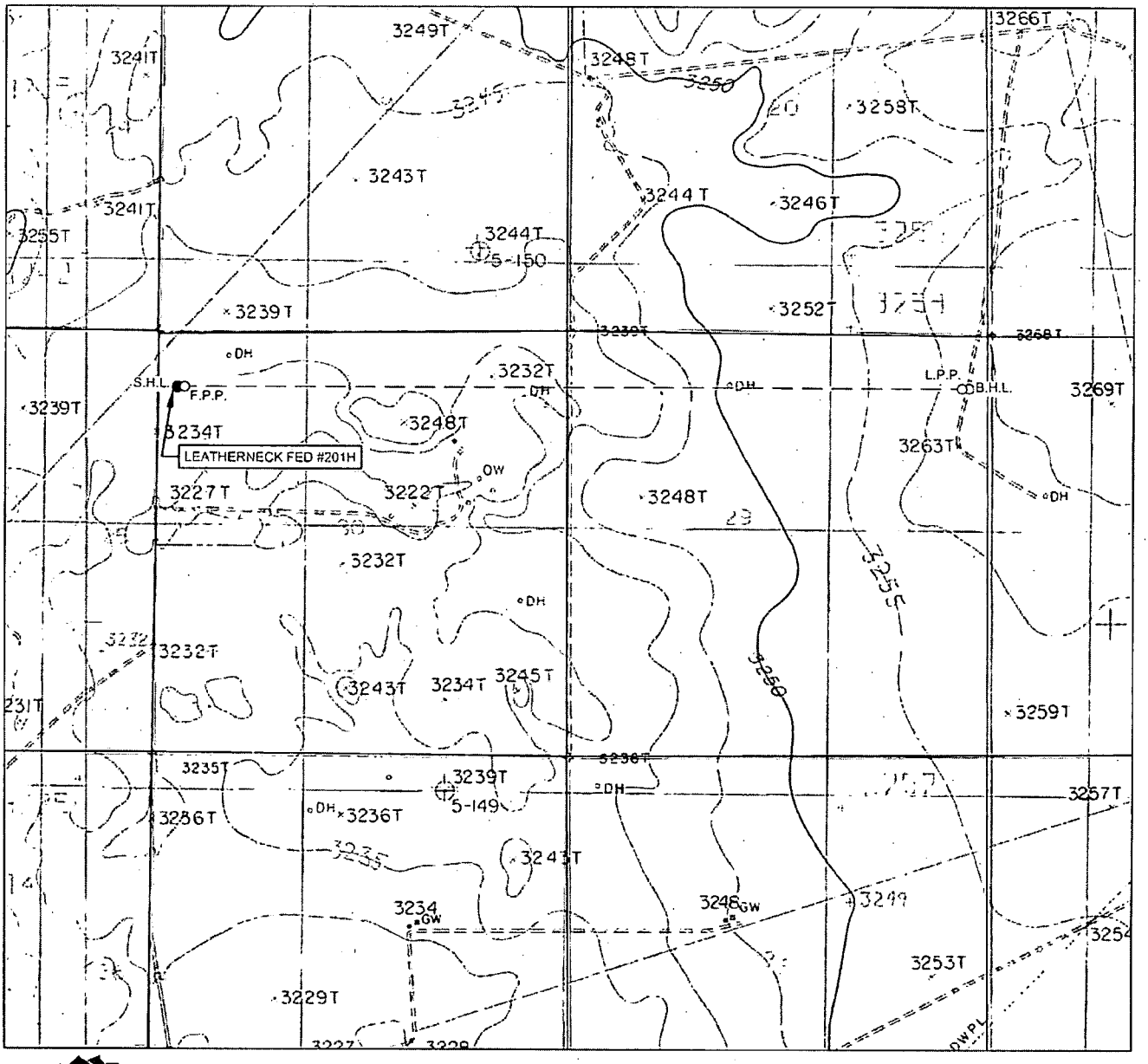
## Payment Info

### Payment

**APD Fee Payment Method:** BLM DIRECT

**CBS Receipt number:** 4163309

# LOCATION & ELEVATION VERIFICATION MAP




Matador PRODUCTION COMPANY

LEASE NAME & WELL NO.: LEATHERNECK FED #201H

SECTION 30 TWP 20-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM ELEVATION 3238'
DESCRIPTION 660' FNL & 247' FWL

LATITUDE N 32.5499253 LONGITUDE W 104.1217170

-N-

SCALE: 1" = 2000'

0' 1000' 2000'

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY MATADOR PRODUCTION COMPANY. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET.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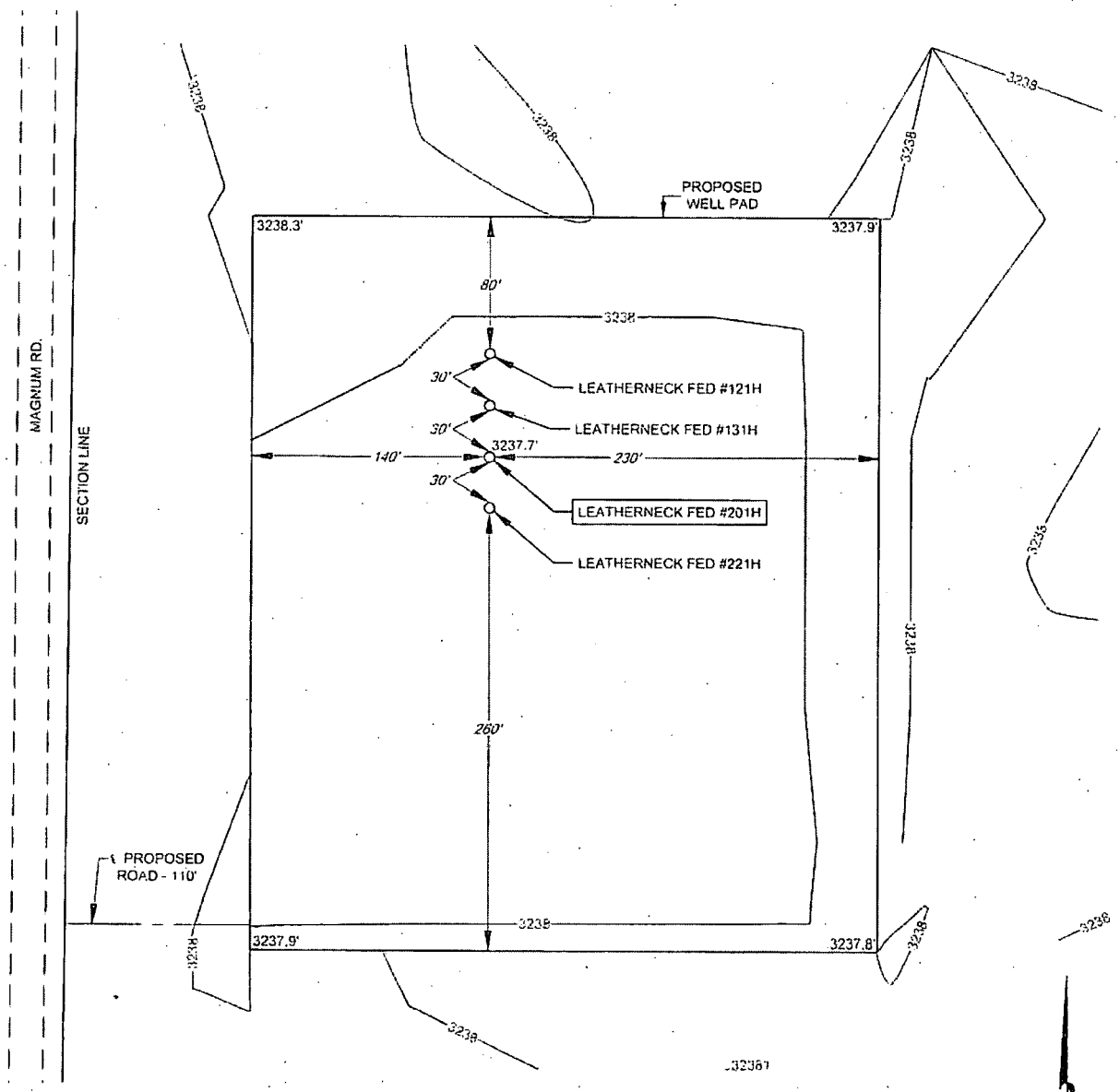
SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'




LEASE NAME & WELL NO.: LEATHERNECK FED #201H

#201H LATITUDE N 32.5499253 #201H LONGITUDE W 104.1217170

-N-

SCALE: 1" = 100'
0' 50' 100'

LEGEND

EXISTING ROAD
SECTION LINE
PROPOSED ROAD

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY MATADOR PRODUCTION COMPANY. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

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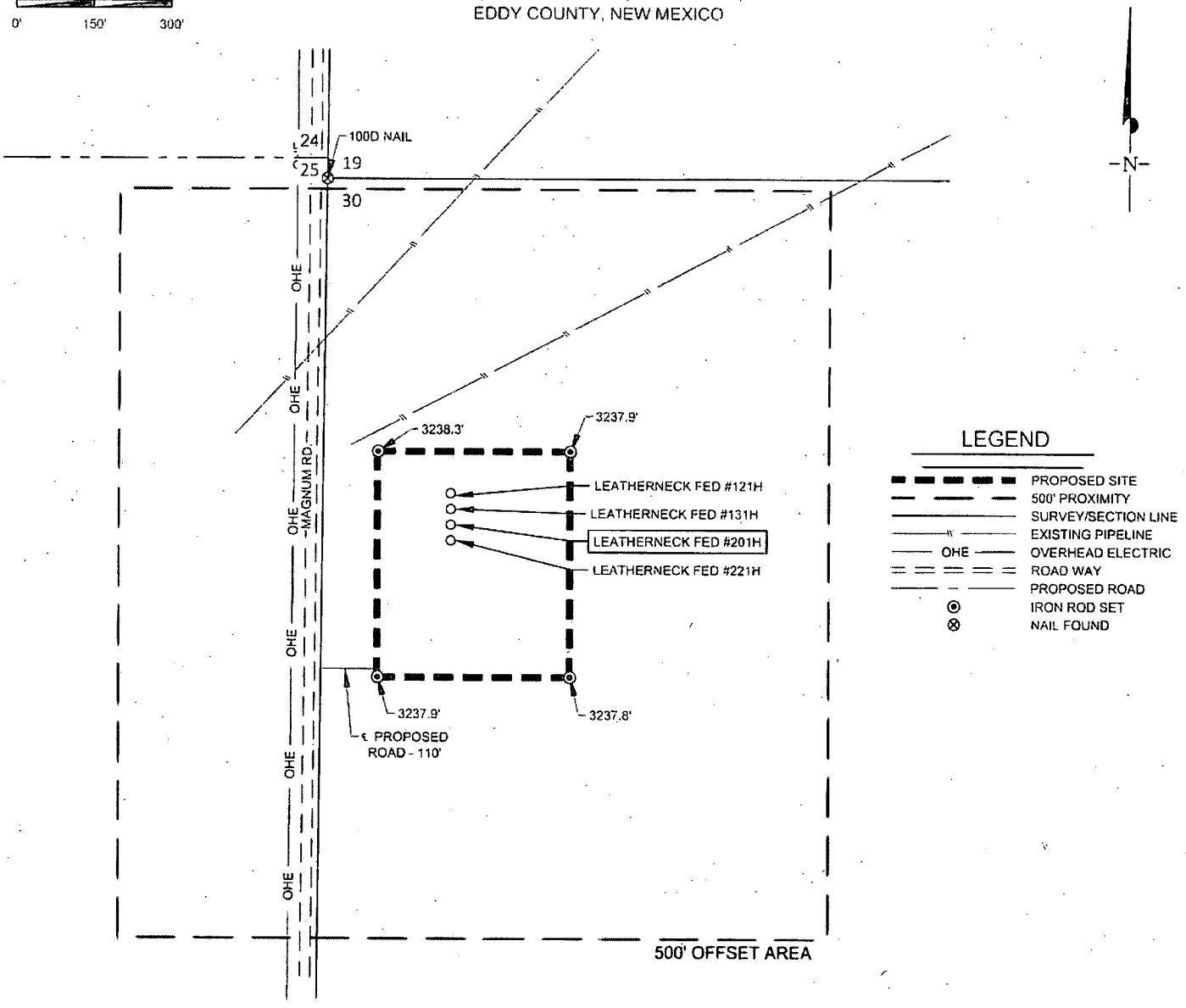
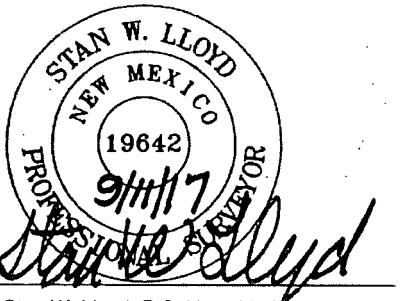
ORIGINAL DOCUMENT SIZE: 8.5" X 11"

SCALE: 1" = 300'

0' 150' 300'

SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO




Matador PRODUCTION COMPANY

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 197 · FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 · FAX (817) 744-7548
2903 NORTH BIG SPRING · MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 · FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

Stan W. Lloyd, P.S. No. 19642
SEPTEMBER 5, 2017

| LEATHERNECK FED #201H PROXIMITY | REVISION: | |
|---|---|---|
| | GLH | 05/16/17 |
| | EAH | 09/05/17 |
| DATE: 04/14/17 | | |
| FILE: LO_LEATHERNECK_FED_201H_REV2 | | |
| DRAWN BY: MML | | |
| SHEET: 7 OF 7 | | |

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1983.
3. CERTIFICATION IS MADE ONLY TO THE LOCATION OF THIS EASEMENT, IN RELATION TO THE EVIDENCE FOUND DURING A FIELD SURVEY, MADE ON THE GROUND, UNDER MY SUPERVISION, AND USING DOCUMENTATION PROVIDED BY MATADOR PRODUCTION COMPANY. ONLY UTILITIES/EASEMENTS THAT WERE VISIBLE ON THE DATE OF THIS SURVEY, WITHIN/ADJOINING THIS EASEMENT, HAVE BEEN LOCATED AS SHOWN HEREON OF WHICH I HAVE KNOWLEDGE. THIS CERTIFICATION IS LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE, AND MADE FOR THIS TRANSACTION ONLY.

# Matador Production Company

**Leatherneck Fed Slot 1:**
**121H, 131H, 201H, & 221H**
**Well Vicinity & Lease Map**

Sections 29 & 30, T.20S, R.29E
Eddy County, New Mexico

- Leatherneck Fed Well Pad
- Proposed Well Bore Path
- Bottom Hole Location
- Matador Lease Line
- BLM Surface
- State Surface

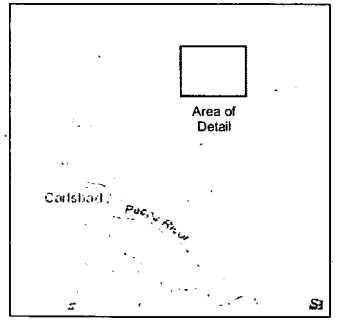
1:20,350

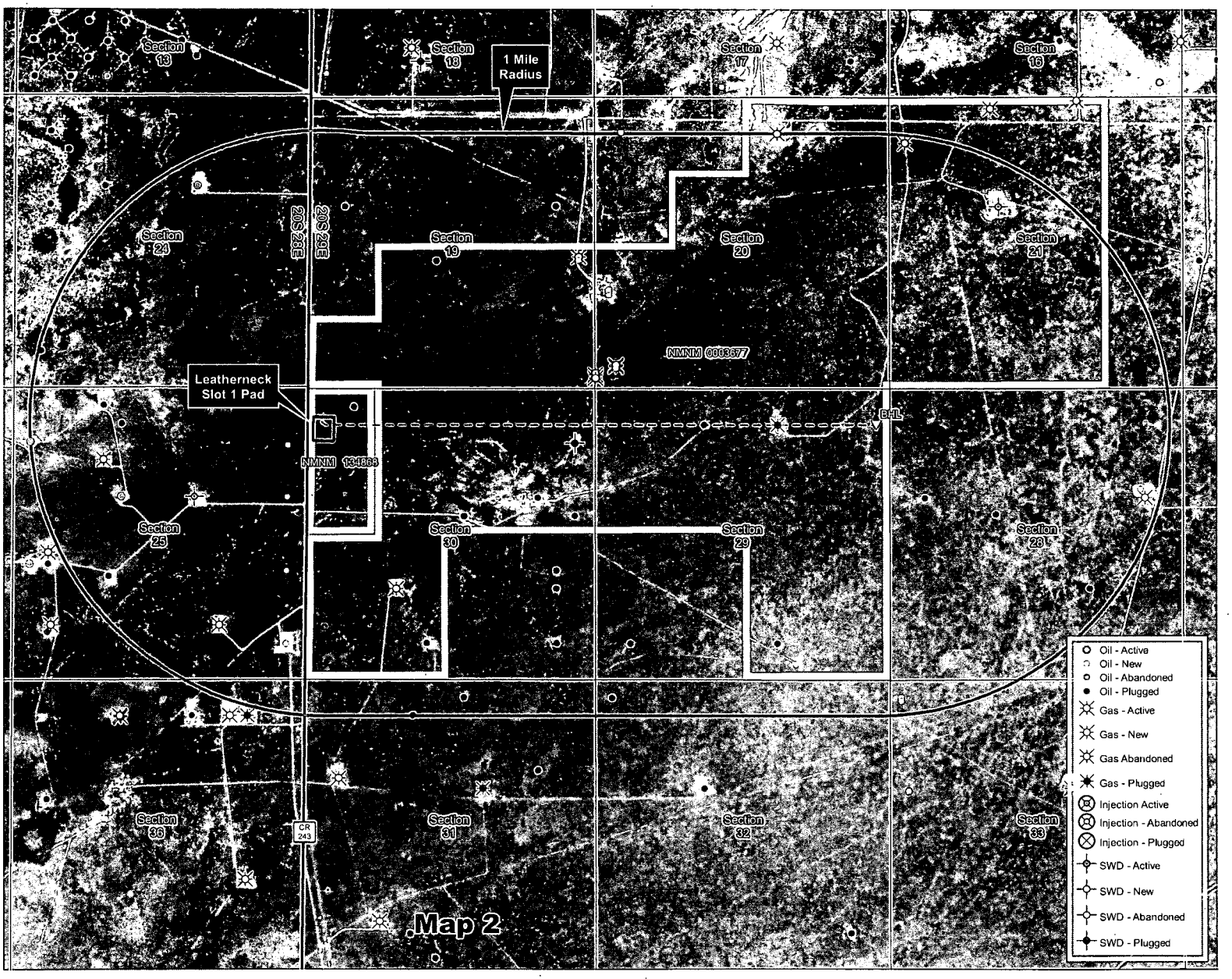
0 0.125 0.25 0.5
Miles

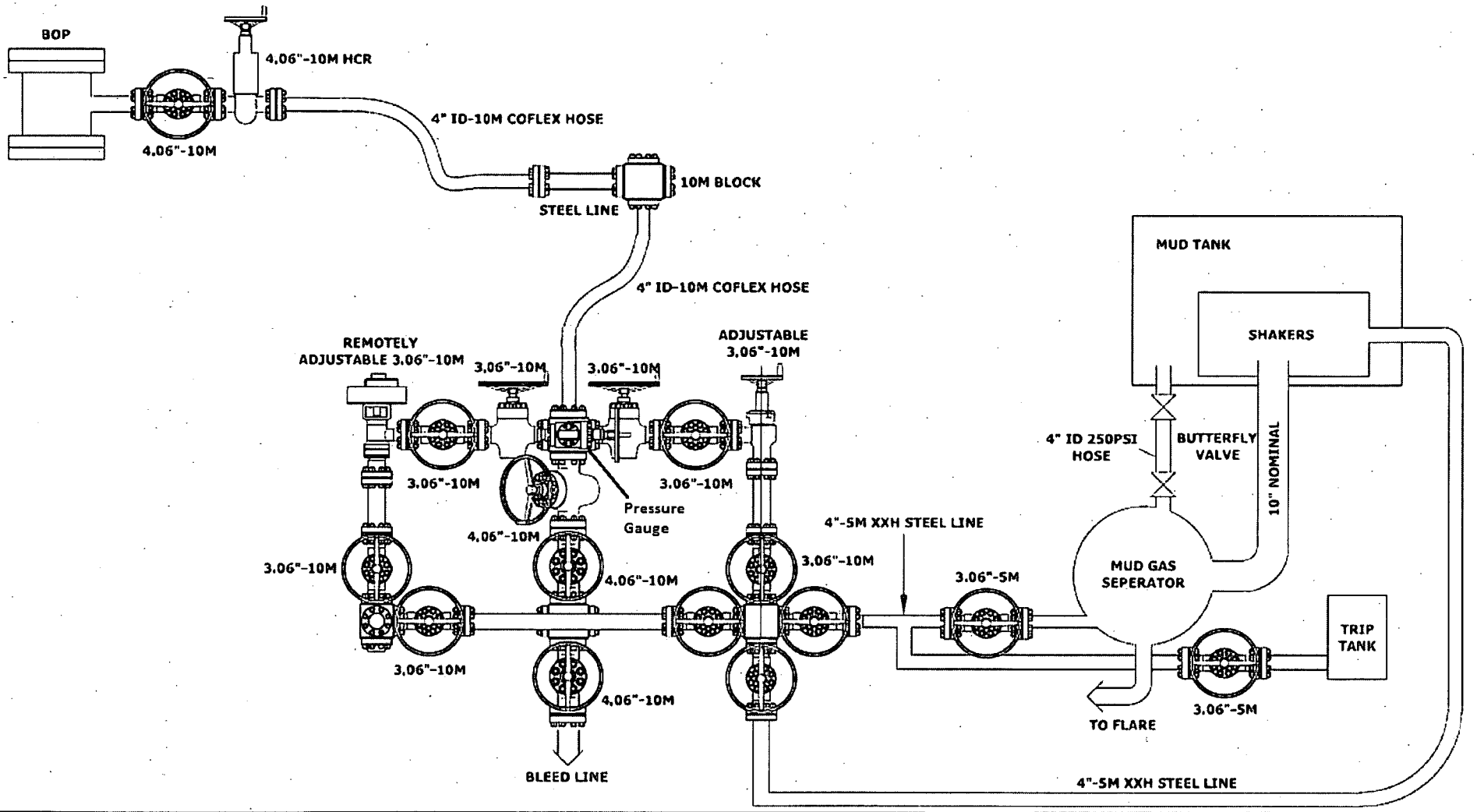
NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

Prepared by Permits West, Inc., May 2, 2018
for Matador Production Company






WELDING NOTE & TOLERANCES UNLESS OTHERWISE SPECIFIED.

GENERAL WELDING NOTE:
ALL ACCESSIBLE CONTACT SURFACES SHALL BE JOINED WITH CONTINUOUS 45 DEGREE FILLET WELDS, WELD SIZE TO BE 1/16 INCH SMALLER THAN THINNER MEMBER JOINED UP TO 3/16 INCH THICKNESS AND 1/8 INCH SMALLER THAN THINNER MEMBER JOINED UP TO 3/4 INCH THICKNESS AND DRAWN TOLERANCES ± 1/16

MACHINING TOLERANCES
1 PLACE DECIMAL ±0.1
2 PLACE DECIMAL ±0.03
3 PLACE DECIMAL ±0.010
FRACTIONAL TOLERANCES ± 1/64
INSIDE MACHINED CORNER RADII ±0.031
CHAMFER OUTSIDE CORNERS .03 X 45 DEG
ANGLE TOLERANCES ±1 DEGREE
MACHINED SURFACE FINISH 125 RMS
ALL UNSPECIFIED DIMENSIONS ARE FINISHED

| REV | DATE | DESCRIPTION | CHAN BY | CHK BY | APVD ENG. |
|---|---|---|---|---|---|
| 02 | 6-24-15 | ISSUED FOR INFORMATION | CP | CSL | |
| 01 | 4-8-15 | ISSUED FOR INFORMATION | CSL | | |



PATTERSON-UTI DRILLING COMPANY LLC

CHOKE MANIFOLD

10M CHOKE ARRANGEMENT
RIG 297

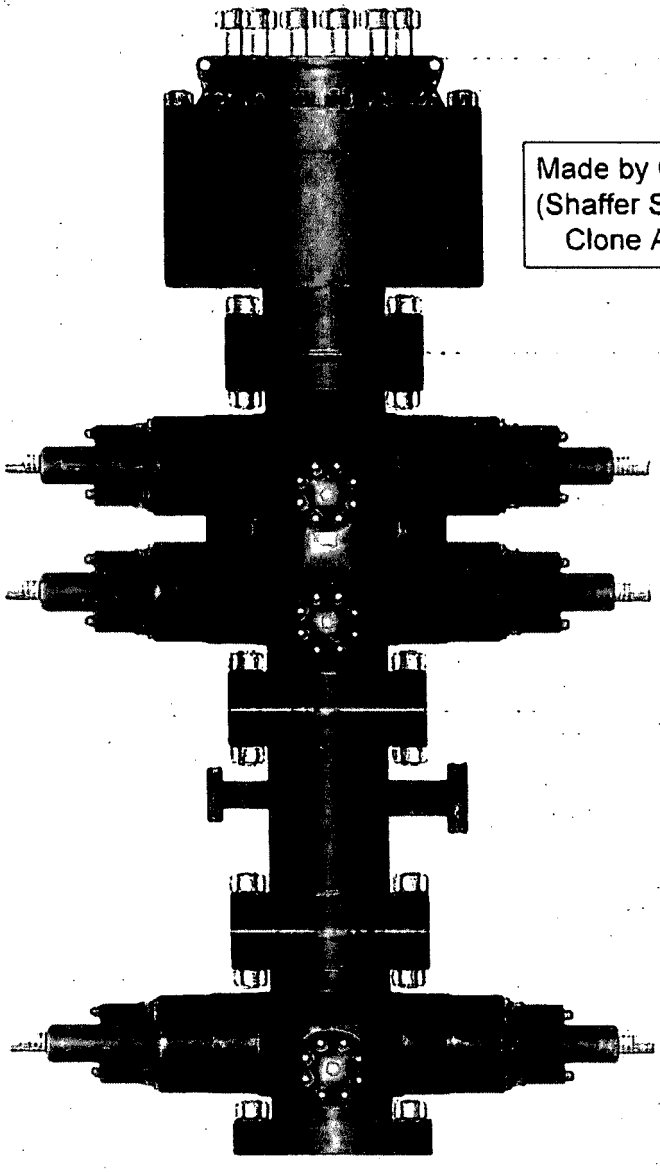
DWG NO. R0297-D.001.LAY.09

SHT 1 OF 1 REV 02

PATTERSON-UTI
Well Control

Exhibit E-1: BOP
Leatherneck 30 Fed #201H
Matador Resources Company

RIG: 809



Made by Cameron
(Shaffer Spherical)
Clone Annular

**PATTERSON-UTI #** PS2-628
**STYLE:** New Shaffer Spherical
**BORE** 13 5/8" **PRESSURE** 5,000
**HEIGHT:** 48 ½" **WEIGHT:** 13,800 lbs

**PATTERSON-UTI #** PC2-128
**STYLE:** New Cameron Type U
**BORE** 13 5/8" **PRESSURE** 10,000
**RAMS: TOP** 5" Pipe **BTM** Blinds
**HEIGHT:** 66 5/8" **WEIGHT:** 24,000 lbs

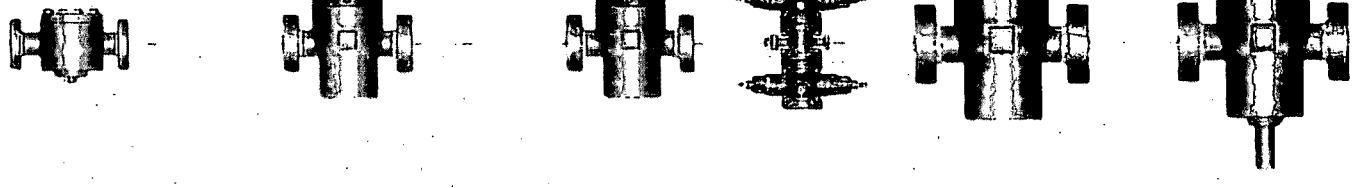
**Length** 40" **Outlets** 4" 10M
**DSA** 4" 10M x 2" 10M

**PATTERSON-UTI #** PC2-228
**STYLE:** New Cameron Type U
**BORE** 13 5/8" **PRESSURE** 10,000
**RAMS:** 5" Pipe
**HEIGHT:** 41 5/8" **WEIGHT:** 13,000 lbs

2" Minimum Kill Line

**WING VALVES**

3" Minimum Choke Line



2" Check Valve | 2" Manual Valve | 2" Manual Valve | 4" Manual Valve | 4" Hydraulic Valve

INSTALLED
8/19/2017

Midwest Hose
& Specialty, Inc.

# Internal Hydrostatic Test Certificate

| General Information | | Hose Specifications | |
|---|---|---|---|
| Customer | Dallas | Hose Assembly Type | Choke & Kill |
| MWH Sales Representative | Charles Ash | Certification | API 7K/FSL LEVEL2 |
| Date Assembled | 3/30/2017 | Hose Grade | Mud |
| Location Assembled | OKC | Hose Working Pressure | 10000 |
| Sales Order # | 321450 | Hose Lot # and Date Code | 11469-04/14 |
| Customer Purchase Order # | 360197 | Hose I.D. (Inches) | 3" |
| Assembly Serial # (Pick Ticket #) | 388434-2 | Hose O.D. (Inches) | 5.23" |
| Hose Assembly Length | 25 Feet | Armor (yes/no) | Yes |

| Fittings | | | |
|---|---|---|---|
| End A | | End B | |
| Stem (Part and Revision #) | R3.0X64WB | Stem (Part and Revision #) | R3.0X64WB |
| Stem (Heat #) | | Stem (Heat #) | |
| Ferrule (Part and Revision #) | RF3.0X5125 | Ferrule (Part and Revision #) | RF3.0X5125 |
| Ferrule (Heat #) | 37DA5631 | Ferrule (Heat #) | 37DA5631 |
| Connection . Flange Hammer Union Part | 4-1/16 10K | Connection (Part #) | 4-1/16 10K |
| Connection (Heat #) | | Connection (Heat #) | |
| Nut (Part #) | | Nut (Part #) | |
| Nut (Heat #) | | Nut (Heat #) | |
| Dies Used | 5.37" | Dies Used | 5.37" |

| Hydrostatic Test Requirements | | |
|---|---|---|
| Test Pressure (psi) | 15,000 | Hose assembly was tested with ambient water temperature. |
| Test Pressure Hold Time (minutes) | 17 3/4 | |

| Date Tested | Tested By | Approved By |
|---|---|---|
| 3/30/2017 | | Charles Ash |

Midwest Hose
& Specialty, Inc.

## Certificate of Conformity

| | |
|---|---|
| *Customer:* Dallas | *Customer P.O.#* 360197 |
| *Sales Order #* 321450 | *Date Assembled:* 3/30/2017 |

## Specifications

| | | | |
|---|---|---|---|
| *Hose Assembly Type:* | Choke & Kill | *Rig #* | N/A |
| *Assembly Serial #* | 388434-2 | *Hose Lot # and Date Code* | 11469-04/14 |
| *Hose Working Pressure (psi)* | 10000 | *Test Pressure (psi)* | 15000 |
| *Hose Assembly Description:* | CK48-SS-10K-6410K-6410K-25.00'-W/LIFTERS | | |

*We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.*

*Supplier:*
***Midwest Hose & Specialty, Inc.***
***3312 S I-35 Service Rd***
***Oklahoma City, OK 73129***

*Comments:*

| *Approved By* | *Date* |
|---|---|
| Charles Ash | 3/31/2017 |

## Casing Design Criteria and Load Case Assumptions

### Surface Casing

Collapse: $DF_C$=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: $DF_b$=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: $DF_t$=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

### Intermediate #1 Casing

Collapse: $DF_C$=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: $DF_b$=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: $DF_t$=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

### Intermediate #2 Casing

Collapse: $DF_C$=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: $DF_b$=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: $DF_t$=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.4 ppg).

## Intermediate #3 Casing

Collapse: $DF_C$=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: $DF_b$=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: $DF_t$=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

## Production Casing

Collapse: $DF_C$=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: $DF_b$=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: $DF_t$=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

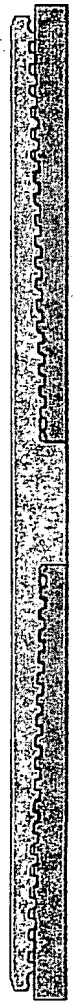
For the latest performance data, always visit our website: www.tenaris.com

July 15 2015

Tenaris

**Size**: 5.500 in.
**Wall**: 0.361 in.
**Weight**: 20.00 lbs/ft
**Grade**: P110-IC
**Min. Wall Thickness**: 87.5 %

**Connection**: TenarisXP™ BTC
**Casing/Tubing**: CAS
**Coupling Option**: REGULAR



## PIPE BODY DATA

### GEOMETRY

| | | | | | |
|---|---|---|---|---|---|
| Nominal OD | **5.500** in. | Nominal Weight | **20.00** lbs/ft | Standard Drift Diameter | **4.653** in. |
| Nominal ID | **4.778** in. | Wall Thickness | **0.361** in. | Special Drift Diameter | **N/A** |
| Plain End Weight | **19.83** lbs/ft | | | | |

### PERFORMANCE

| | | | | | |
|---|---|---|---|---|---|
| Body Yield Strength | **641** x 1000 lbs | Internal Yield | **12630** psi | SMYS | **110000** psi |
| Collapse | **12100** psi | | | | |

## TENARISXP™ BTC CONNECTION DATA

### GEOMETRY

| | | | | | |
|---|---|---|---|---|---|
| Connection OD | **6.100** in. | Coupling Length | **9.450** in. | Connection ID | **4.766** in. |
| Critical Section Area | **5.828** sq. in. | Threads per in. | **5.00** | Make-Up Loss | **4.204** in. |

### PERFORMANCE

| | | | | | |
|---|---|---|---|---|---|
| Tension Efficiency | **100** % | Joint Yield Strength | **641** x 1000 lbs | Internal Pressure Capacity[1] | **12630** psi |
| Structural Compression Efficiency | **100** % | Structural Compression Strength | **641** x 1000 lbs | Structural Bending[2] | **92** °/100 ft |
| External Pressure Capacity | **12100** psi | | | | |

### ESTIMATED MAKE-UP TORQUES[3]

| | | | | | |
|---|---|---|---|---|---|
| Minimum | **11270** ft-lbs | Optimum | **12520** ft-lbs | Maximum | **13770** ft-lbs |

### OPERATIONAL LIMIT TORQUES

| | | | | | |
|---|---|---|---|---|---|
| Operating Torque | **21500** ft-lbs | Yield Torque | **23900** ft-lbs | | |

**BLANKING DIMENSIONS**

Blanking Dimensions

**(1)** Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.

**(2)** Structural rating, pure bending to yield (i.e no other loads applied)

**(3)** Torque values calculated for API Modified thread compounds with Friction Factor=1. For other thread compounds please contact us at licensees@oilfield.tenaris.com. Torque values may be further reviewed.

For additional information, please contact us at contact-tenarishydril@tenaris.com

Issued on: 12 Janv. 2017 by T. DELBOSCO

VRCC 16-1177 Rev02 for Houston Field Service

**DATA ARE INFORMATIVE ONLY.**
**BASED ON SI_PD-101836 P&B**

# VAM® HTF-NR™
## Connection Data Sheet

| OD | Weight | Wall Th. | Grade | API Drift | Connection |
|---|---|---|---|---|---|
| 7 5/8 in. | 29.70 lb/ft | 0.375 in. | P110 EC | 6.750 in. | VAM® HTF NR |

| PIPE PROPERTIES | |
|---|---|
| Nominal OD | 7.625 in. |
| Nominal ID | 6.875 in. |
| Nominal Cross Section Area | 8.541 sqin. |
| Grade Type | Enhanced API |
| Min. Yield Strength | 125 ksi |
| Max. Yield Strength | 140 ksi |
| Min. Ultimate Tensile Strength | 135 ksi |
| Tensile Yield Strength | 1 068 klb |
| Internal Yield Pressure | 10 760 psi |
| Collapse pressure | 7 360 psi |

| CONNECTION PROPERTIES | |
|---|---|
| Connection Type | Premium Integral Flush |
| Connection OD (nom) | 7.701 in. |
| Connection ID (nom) | 6.782 in. |
| Make-Up Loss | 4.657 in. |
| Critical Cross Section | 4.971 sqin. |
| Tension Efficiency | 58 % of pipe |
| Compression Efficiency | 72.7 % of pipe |
| Compression Efficiency with Sealability | 34.8 % of pipe |
| Internal Pressure Efficiency | 100 % of pipe |
| External Pressure Efficiency | 100 % of pipe |

| CONNECTION PERFORMANCES | |
|---|---|
| Tensile Yield Strength | 619 klb |
| Compression Resistance | 778 klb |
| Compression with Sealability | 372 klb |
| Internal Yield Pressure | 10 760 psi |
| External Pressure Resistance | 7 360 psi |
| Max. Bending | 44 °/100ft |
| Max. Bending with Sealability | 17 °/100ft |

| TORQUE VALUES | |
|---|---|
| Min. Make-up torque | 9 600 ft.lb |
| Opti. Make-up torque | 11 300 ft.lb |
| Max. Make-up torque | 13 000 ft.lb |
| Max. Torque with Sealability | 58 500 ft.lb |
| Max. Torsional Value | 73 000 ft.lb |

VAM® HTF™ (High Torque Flush) is a flush OD integral connection providing maximum clearance along with torque strength for challenging applications such as extended reach and slim hole wells, drilling liner / casing, liner rotation to acheive better cementation in highly deviated and critical High Pressure / High Temperature wells.

Looking ahea on the outcoming testing industry standards, VAM® decided to create an upgraded design and launch on the market the VAM® HTF-NR as the new standard version of VAM® extreme high torque flush connection. The VAM® HTF-NR has extensive tests as per API RP 5C5:2015 CAL II which include the gas sealability having load points with bending, internal pressure and high temperature at 135°C.


**Do you need help on this product? - Remember no one knows VAM® like VAM®**

*canada@vamfieldservice.com* *uk@vamfieldservice.com* *china@vamfieldservice.com*
*usa@vamfieldservice.com* *dubai@vamfieldservice.com* *baku@vamfieldservice.com*
*mexico@vamfieldservice.com* *nigeria@vamfieldservice.com* *singapore@vamfieldservice.com*
*brazil@vamfieldservice.com* *angola@vamfieldservice.com* *australia@vamfieldservice.com*

**Over 180 VAM® Specialists available worldwide 24/7 for Rig Site Assistance**


Other Connection Data Sheets are available at www.vamservices.com

**Vallourec Group**

vallourec

For the latest performance data, always visit our website: www.tenaris.com

December 31 2015

# Tenaris

**Connection:** TenarisXP® BTC
**Casing/Tubing:** CAS
**Coupling Option:** REGULAR

**Size:** 4.500 in.
**Wall:** 0.290 in.
**Weight:** 13.50 lbs/ft
**Grade:** P110-ICY
**Min. Wall Thickness:** 87.5 %

| | | | | | |
|---|---|---|---|---|---|
| Nominal OD | 4.500 in. | Nominal Weight | 13.50 lbs/ft | Standard Drift Diameter | 3.795 in. |
| Nominal ID | 3.920 in. | Wall Thickness | 0.290 in. | Special Drift Diameter | N/A |
| Plain End Weight | 13.05 lbs/ft | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Body Yield Strength | 479 x 1000 lbs | Internal Yield | 14100 psi | SMYS | 125000 psi |
| Collapse | 11620 psi | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Connection OD | 5.000 in. | Coupling Length | 9.075 in. | Connection ID | 3.908 in. |
| Critical Section Area | 3.836 sq. in. | Threads per in. | 5.00 | Make-Up Loss | 4.016 in. |

| | | | | | |
|---|---|---|---|---|---|
| Tension Efficiency | 100 % | Joint Yield Strength | 479 x 1000 lbs | Internal Pressure Capacity[1] | 14100 psi |
| Structural Compression Efficiency | 100 % | Structural Compression Strength | 479 x 1000 lbs | Structural Bending[2] | 127 °/100 ft |
| External Pressure Capacity | 11620 psi | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Minimum | 6950 ft-lbs | Optimum | 7720 ft-lbs | Maximum | 8490 ft-lbs |

| | | | | | |
|---|---|---|---|---|---|
| Operating Torque | 10500 ft-lbs | Yield Torque | 12200 ft-lbs | | |

Blanking Dimensions

Hydrogen Sulfide Drilling

Operations Plan

Matador Resources

1 H2S safety instructions to the following:

- Characteristics of H2S
- Physical effects and hazards
- Principal and operation of H2S detectors, warning system and briefing areas
- Evacuation procedures, routes and first aid
- Proper use of safety equipment & life support systems
- Essential personnel meeting medical evaluation criteria will receive additional training on the proper use of 30min pressure demand air packs

2 H2S Detection and Alarm Systems:

- H2S sensor/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 be placed as deemed necessary
- An audio alarm system will be installed on the derrick floor and in the doghouse

3 Windsocks and / Wind Streamers:

- Windsocks at mud pit area should be high enough to be visible
- Windsock on the rig floor and / top of doghouse should be high enough to be visible

4 Condition Flags and Signs:

- Warning sign on access road to location
- Flags to be displayed on sign at entrance to location
    - Green Flag – Normal Safe Operation Condition
    - Yellow Flag – Potential Pressure and Danger
    - Red Flag – Danger (H2S present in dangerous concentrations) Only H2S trained personnel admitted on location

5 Well Control Equipment:

- See Exhibit E-1

6 Communication:

- While working under masks chalkboards will be used for communications
- Hand signals will be used where chalk board is inappropriate
- 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 Drilling Stem Testing:

- No DST cores are planned at this time

8 Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubulars good and other mechanical equipment

9 If H2S 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

10 H2S Contingency Plan:

- See exhibit (Contingency Plan)

11 Emergency Contacts

- See exhibit (Contingency Plan)

Exhibit E-6: H2S Contingency Plan Emergency Contacts
Leatherneck 30 Federal #201H
Matador Resources Company
Sec. 29-30, 20S, 29E
Eddy Co., NM

| **Company Office** | | | |
|---|---|---|---|
| Matador Resources Company | (972)-371-5200 | | |
| **Key Personnel** | | | |
| **Name** | **Title** | **Office** | **Mobile** |
| Billy Goodwin | Vice President Drilling | 972-371-5210 | 817-522-2928 |
| Gary Martin | Drilling Superintendent | | 601-669-1774 |
| Dee Smith | Drilling Superintendent | 972-371-5447 | 972-822-1010 |
| Patrick Walsh | Drilling Engineer | 972-371-5291 | 626-318-5808 |
| Gred Deevers | Construction Superintendent | | 405-431-9527 |
| Jimmy Benefield | Construction Superintendent | | 318-548-6659 |

| **Artesia** | |
|---|---|
| Ambulance | 911 |
| State Police | 575-746-2703 |
| City Police | 575-746-2703 |
| Sheriff's Office | 575-746-9888 |
| Fire Department | 575-746-2701 |
| Local Emergency Planning Committee | 575-746-2122 |
| New Mexico Oil Conservation Division | 575-748-1283 |
| **Carlsbad** | |
| Ambulance | 911 |
| State Police | 575-885-3137 |
| City Police | 575-885-2111 |
| Sheriff's Office | 575-887-7551 |
| Fire Department | 575-887-3798 |
| Local Emergency Planning Committee | 575-887-6544 |
| New Mexico Oil Conservation Division | 575-887-6544 |
| **Santa Fe** | |
| New Mexico Emergency Response Comission (Santa Fe) | 505-476-9600 |
| New Mexico Emergency Response Comission (Santa Fe) 24 hrs | 505-827-9126 |
| New Mexico State Emergency Operations Center | 505-476-9635 |
| **National** | |
| National Emegency Response Center (Washington, D.C.) | 800-424-8802 |
| **Medical** | |
| Flight for Life- 4000 24th St.; Lubbock, TX | 806-743-9911 |
| Aerocare- R3, Box 49F; Lubbock, TX | 806-747-8923 |
| Med Flight Air Amb- 2301 Yale Blvd S.E., D3; Albuquerque, NM | 505-842-4433 |
| SB Air Med Service- 2505 Clark Carr Loop S.E.; Albuquerque, NM | 505-842-4949 |

| **Other** | | |
|---|---|---|
| Boots & Coots IWC | 800-256-9688 | or 281-931-8884 |
| Cudd Pressure Control | 432-699-0139 | or 432-563-3356 |
| Haliburton | 575-746-2757 | |
| B.J. Services | 575-746-3569 | |

# Rig Diagram

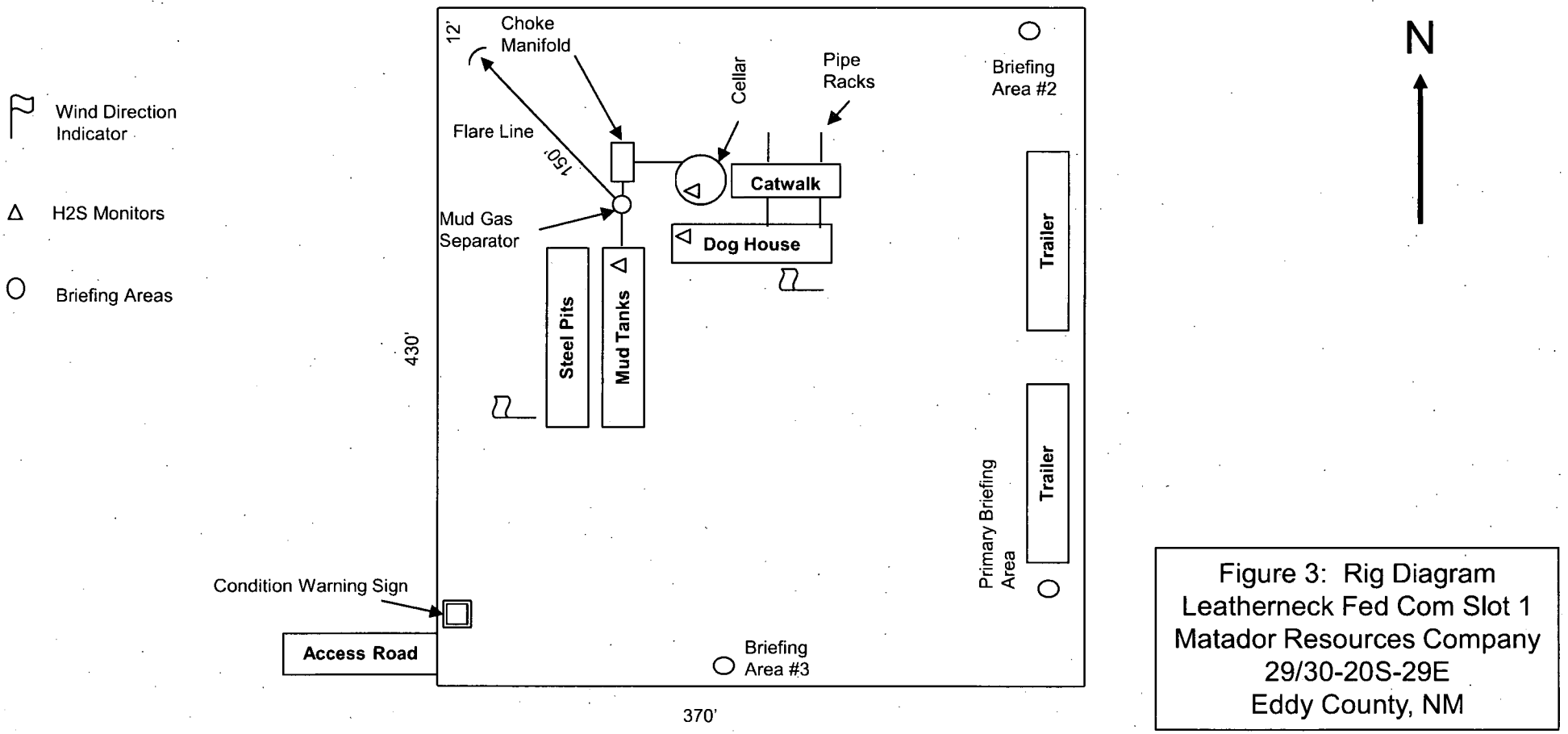
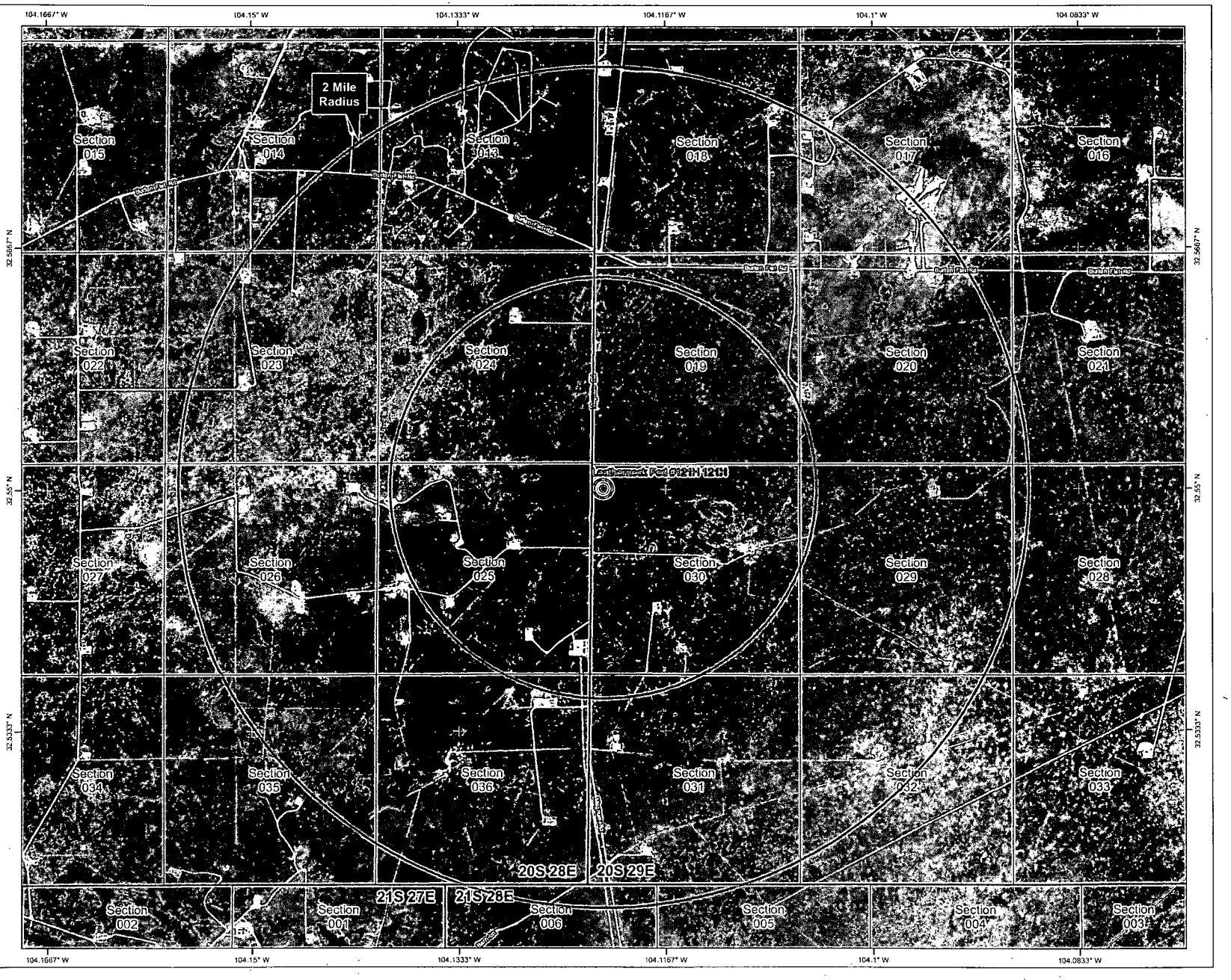



Figure 3: Rig Diagram
Leatherneck Fed Com Slot 1
Matador Resources Company
29/30-20S-29E
Eddy County, NM

# Matador Production Company

**Leatherneck Fed #121H**
**$H_2S$ Contingency Plan:**
**2 Mile Radius Map**

Section 30, Township 20S, Range 29E
Eddy County, New Mexico




Surface Hole Location

1:27,000

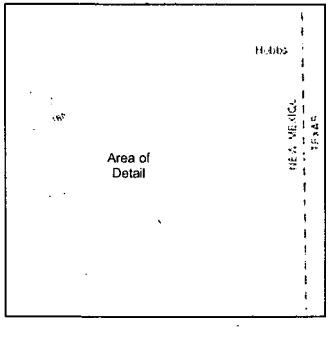
0 0.25 0.5 1

Miles

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

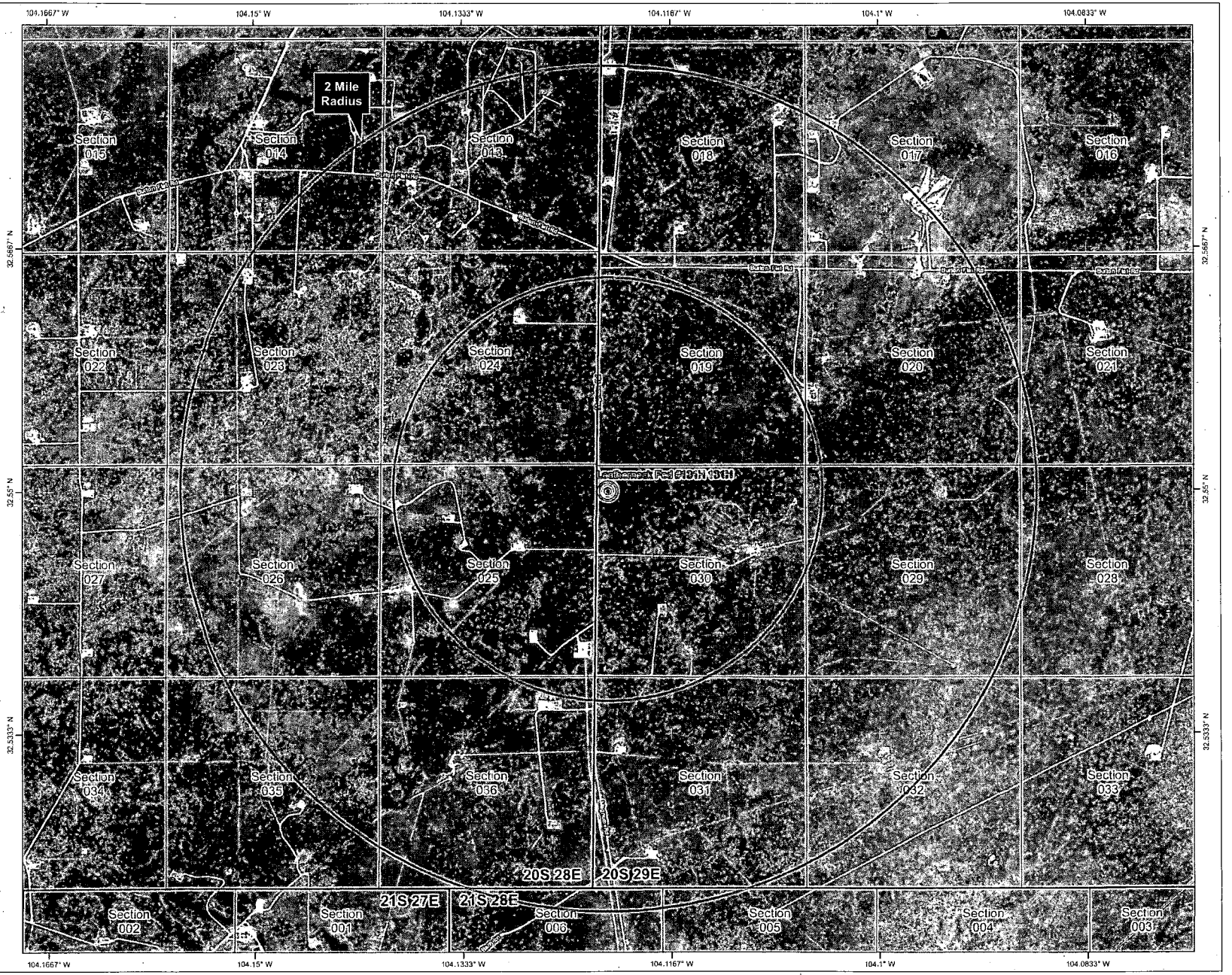
Prepared by Permits West, Inc., May 5, 2018
for Matador Production Company



# Matador Production Company

**Leatherneck Fed #131H**
**$H_2S$ Contingency Plan:**
**2 Mile Radius Map**

Section 30, Township 20S, Range 29E
Eddy County, New Mexico




Surface Hole Location

1:27,000

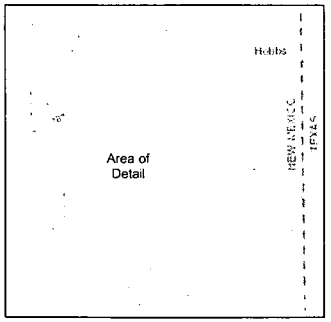
0 0.25 0.5 1

Miles

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.
PROVIDING PERMITS for LAND USE

Prepared by Permits West, Inc., May 5, 2018
for Matador Production Company



# Matador Production Company

**Leatherneck Fed #201H**
**$H_2S$ Contingency Plan:**
**2 Mile Radius Map**

Section 30, Township 20S, Range 29E
Eddy County, New Mexico

Surface Hole Location

1:27,000

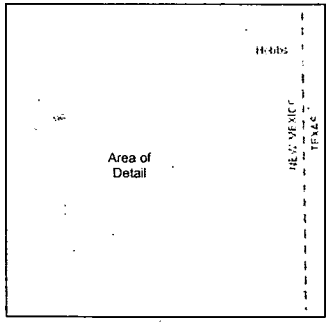
0 0.25 0.5 1

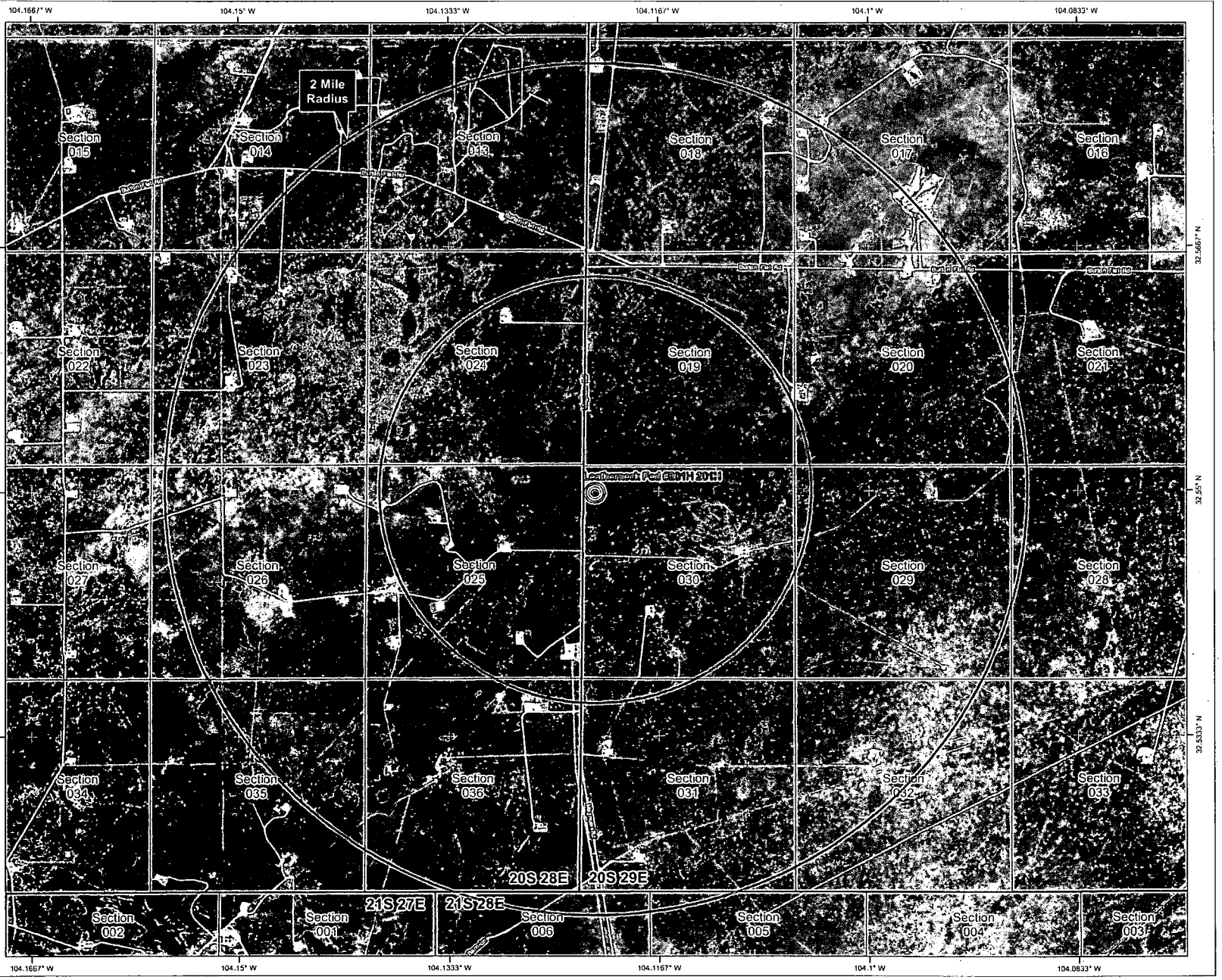
Miles

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.
PROVIDING PERMITS TO LAND USERS

Prepared by Permits West, Inc., May 5, 2018
for Matador Production Company

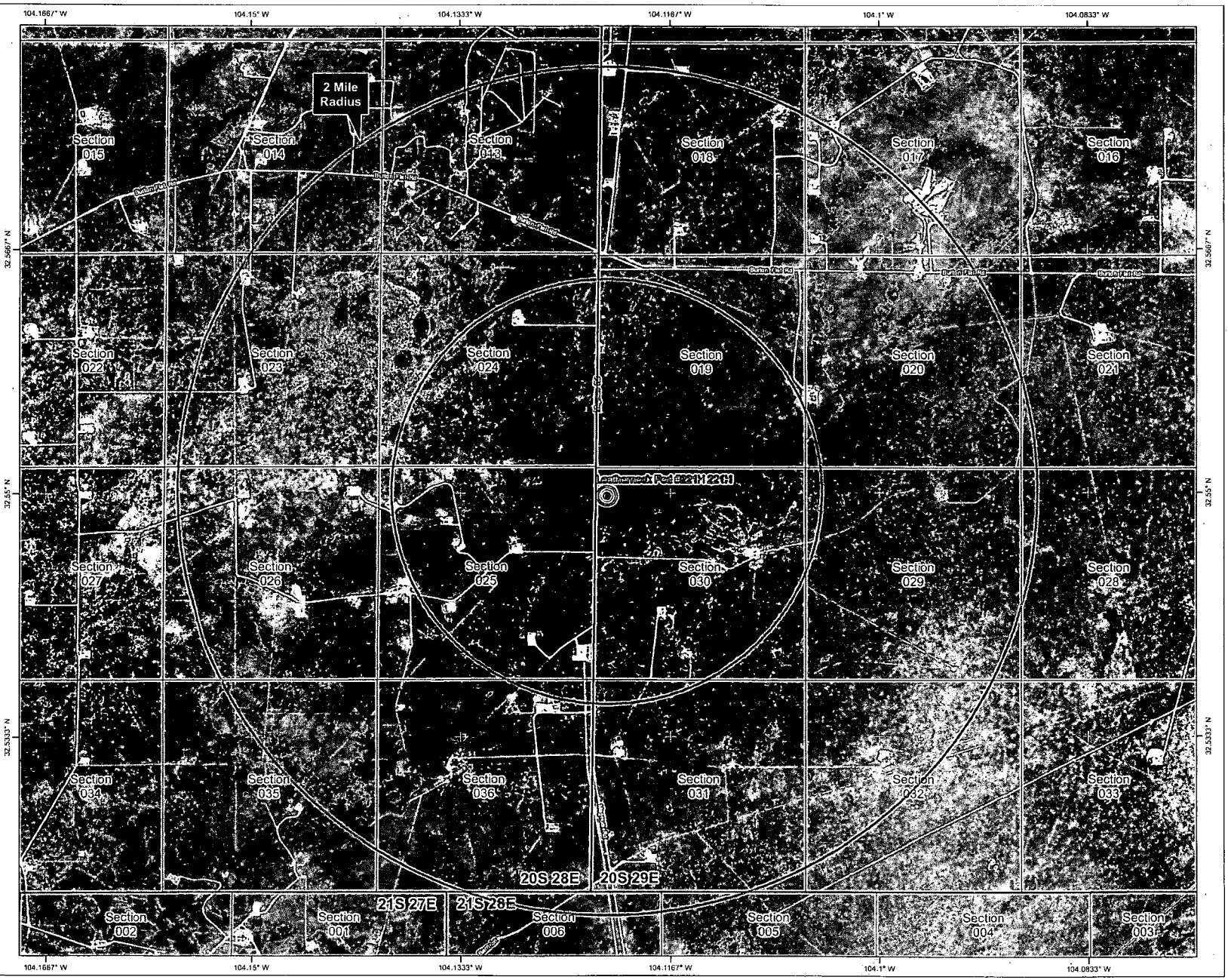


# Matador Production Company

**Leatherneck Fed #221H**
**$H_2S$ Contingency Plan:**
**2 Mile Radius Map**

Section 30, Township 20S, Range 29E
Eddy County, New Mexico




Surface Hole Location

1:27,000

0 0.25 0.5 1

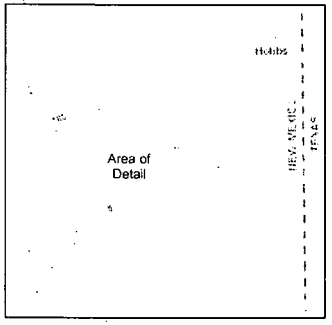
Miles

N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.
PROVIDING PERMITS & PLANT SITES

Prepared by Permits West, Inc., May 5, 2018
for Matador Production Company



# HYDROGEN SULFIDE CONTINGENCY PLAN
## Drilling, Testing, & Completion

# MRC ENERGY CO.

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**Reviewers**

---------- Operations Manager
---------- Operations Supt.
---------- Staff RES
---------- Field Supv.
---------- Engineering

**Latitude: N 32.55500905**
**Longitude: W -104.1217167**

## Leatherneck Fed Com Slot 1 Well Pad

**H2S Contingency Plan # 0165** **Revision# 0**

**This H2S Contingency Plan is subject to updating**

**Effective date: July 8, 2015**

## TABLE OF CONTENTS

# INTRODUCTION

**The H2S equipment will be rigged up 2 days prior to reaching a potential H2S containing zone. Drilling into any potential H2S zone shall not commence until the on-site MRC Drilling Supervisor has confirmed this plan in place.**

**The onsite Drilling Foreman will give Total Safety one week (7 days) notice to prepare for rig up of H2S equipment)**

To be effective, the plan requires the cooperation and effort of each person participating in the drilling of an $H_2S$ well. Each person must know his/her responsibilities and all emergency and safety procedures. He/she should thoroughly understand and be able to use with accuracy, all safety equipment while performing his/her normal duties, if the circumstance should arise. He/she should therefore familiarize himself/herself with the location of all safety equipment and check to see that it is properly stored, easily accessible at all times, and routinely maintained.

It is the intention of MRC ENERGY CO. and the Drilling Contractor to make every effort to provide adequate safeguards against harm to persons on the rig and in the immediate vicinity from the effects of hydrogen sulfide, which may be released into the atmosphere under emergency conditions. However, the initiative rests with the individual in utilizing the safeguards provided. The ideas and suggestions of the individuals involved in the drilling of this well are highly welcomed and act as a fundamental tool for providing the safest working conditions possible.

The drilling representative is required to enforce these procedures. They are set up for your safety and the safety of all others.

# II. PURPOSE

It is MRC Energy Co.'s intent to provide a safe working place, not only for its employees, but also for other contractors who are aiding in the drilling of this well. The safety of the general public is of utmost concern. All precautions will be taken to keep a safe working environment and protect the public.

There is a possibility of encountering toxic hydrogen sulfide gas. Safety procedures must be adhered to in order to protect all personnel connected with the operations as well as people living within the area.

The MRC Energy Co. representative will enforce all aspects of the H2S Contingency Plan. This job will become easier by a careful study of the following pages and training and informing all personnel that will be working on the well, their duties and responsibilities.

## A. OPERATING PROCEDURES

### DEFINITIONS:

**For purpose of this plan, on-site personnel shall be referred to as "In Scope Personnel" or "Out of Scope Personnel", per the following definitions:**

**In Scope Personnel** – Personnel who will be working or otherwise present in potential H2S release areas, including the rig floor, cellar, pits, and shaker areas.

**Out of Scope Personnel** – Personnel who will not be working or Otherwise present in potential H2S areas. Such personnel include rig Site visitor, delivery and camp services personnel.

### GENERAL:

Before this $H_2S$ contingency plan becomes operational, all regularly assigned In Scope Personnel (primarily the MRC, drilling contractor, and certain service personnel,) shall be thoroughly trained in the use of breathing equipment, emergency procedures, and responsibilities. Total Safety Technician or a designee assigned by the MRC Drilling Foreman shall keep a list of all personnel who have been through the on-site $H_2S$ training program at the drill site.

All In Scope Personnel shall be given H2S training and the steps to be taken during H2S conditions under which the well may be drilled. General information will be explained about toxic gases, as well as the physiological effects of $H_2S$ and the various classified operating conditions. In addition, the reader will be informed his/her general responsibility concerning safety equipment and emergency procedures.

The Total Safety $H_2S$ Safety Technician or MRC on-site RSE Technician shall make available the H2S Contingency Plan for all personnel to review.

Without exception, all personnel that arrive on location must proceed directly to and sign-in with the on-site MRC RSE Technician. In Scope Personnel will be required to complete an on-site H2S training and respirator fit testing before starting work, or produce evidence that they have received equivalent training. Out of Scope Personnel will be required to complete a site H2S awareness and general safety briefing. This briefing will consist of a H2S hazard overview, alarm review and required response to alarms.

## B. PROCEDURES TO BE INITIATED PRIOR TO H2S CONTINGENCY PLAN COMPLIANCE:

A list of emergency phone numbers and contacts will be on location and posted at the following locations:

1. MRC ENERGY CO.'S Representative's Office
2. Drilling Contractor's, Toolpusher Office
3. Living Quarters Area

All safety equipment and $H_2S$ related hardware must be set up as required by MRC Energy Co. with regard to location of briefing areas, breathing equipment, etc. All safety equipment must be inspected periodically (at least weekly) with particular attention to resuscitators and breathing equipment.

In Scope Personnel working in the well site area will be assigned breathing apparatus. Operator and drilling contractor personnel required to work in the following areas will be provided with Self Contained Breathing Apparatus:

1. Rig Floor
2. Mud Pits
3. Derrick
4. Shale Shaker
5. Cellar

The Total Safety $H_2S$ Safety Technician will be responsible for rigging up all $H_2S$ continuous monitoring-type detectors. The Total Safety Technician will monitor and bump test the detector units periodically (at least at least once a week to test alarm function during drilling conditions. In the event $H_2S$ is detected, or when drilling in a zone confirmed to contain $H_2S$, the units shall be bump tested at least once every 24 hours. A bump test/calibration log will be kept on location. All results will be reported to the MRC on-site Drilling Foreman.

All Total Safety H2S equipment will be maintained and inspected by a Total Safety Technician on at least a Weekly basis.

## C. DRILLING BELOW CONTINGENCY PLAN DEPTH

H2S response drills will be held at least once per week if possible or as often as necessary to acquaint the crews and service company personnel of their responsibilities and the proper procedures to shut-in a well. Initial drills will be performed until crews demonstrate competency donning and working under mask. After the MRC Energy Co.'s representative is satisfied with initial blowout drill procedures, a drill will be conducted weekly with each crew, as necessary. The H2S Safety Technician or designee will conduct safety talks and maintain the safety equipment, consult and carry out the instructions of the drilling supervisor. All personnel allowed in the well work area during drilling or testing operations will be instructed in the use of breathing equipment until supervisory personnel are satisfied that they are capable of using it.

After familiarization, each person must perform a drill with breathing equipment. The drill should include getting the breathing equipment, donning the breathing apparatus, and performing expected duties for a short period. A record shall be kept of all personnel drilled and the date of the drill. H2S training records will be kept on location for all personnel.

Rig crews and service company personnel shall be made aware of the location of spare air bottles, resuscitation equipment, portable fire extinguishers, $H_2S$ monitors and detectors. Knowledge of the location of the $H_2S$ monitors and detectors are vital in determining as our gas location and the severity of the emergency conditions.

After any device has initially detected H2S, all areas of poor ventilation shall be inspected periodically by means of a portable $H_2S$ detector instrument. The buddy system will be utilized. (When an alarm sounds, personnel will don an SCBA, shut the well in, and proceed to SBA for roll call. The H2S Technician or designee will mask up, with a buddy and will verify source of H2S and report back to the on-site MRC Foreman.)

## D. PROCEDURES PROGRAM

1. Drill Site

   a. The drilling rig will be located to allow prevailing winds to blow across the reserve pit.

   b. A Safe Briefing Area will be provided with a breathing air cascade trailer and or 30-minute SCBA's at the Primary Area. Personnel will assemble at the most up-wind station under alarm conditions, or when so ordered by the MRC Energy Co. representative, the Contractor representative, or

the Total Safety $H_2S$ Safety Technician. Windsocks or streamers will be anchored to various strategic places on a pole about 10 feet high, so it is in easy view from the rig floor at all times.

c. Warning signs will be posted on the perimeters. "No Smoking" signs will be posted by MRC Energy Co.as well.

d. One multi-channel automatic $H_2S$ monitor will be provided by Total Safety and the detector heads will be at the shale shaker, bell nipple, mud pits, rig floor, and quarter's area. The monitor will be located inside HSE or Company man trailer. Should the alarm be shut off to silence the sirens, the blinker light must continue to warn of $H_2S$ presence. The Total Safety H2S Safety Technician or designee will continuously monitor the detectors and will reactivate the alarm if $H_2S$ concentrations increase to a dangerous level.

e. A method of escape will be open at all times.

f. If available, land line telephone service will be provided or cell phones provided. (Primary communications provided)

g. A rig communication system will be provided, as needed.

h. A gas trap, choke manifold, and degasser will be installed.

i. A kill line, securely anchored and of ample strength, will be laid to the well-head from a safe location. This line is to be used only in an emergency.

General

a. The MRC Energy Co. representative and/or the Contractor's Toolpusher will be available at all times. The drilling supervisor, while on duty, will have complete charge of the rig and location operations and will take whatever action is deemed necessary to insure personnel safety, to protect the well, and to prevent damage.

b. A Mud Engineer will be on location at all times when drilling takes place at the depth $H_2S$ may be expected. The mud engineer will be able to verify the presence or absence of H2S.

## III. CONDITIONS AND EMERGENCY PROCEDURES

### A. DEFINITION OF OPERATIONAL "CONDITIONS"

**CONDITION I** **"POSSIBLE DANGER"**

Warning Flags: Green

Alarms: No Alarm. Less than 10 ppm

Characterized By: Drilling operations in zones that may contain hydrogen sulfide. This condition remains in effect unless $H_2S$ is detected and it becomes necessary to go to Condition II.

General Action:

a. Be alert for a condition change

b. Check all safety equipment for availability and proper functioning.

c. Perform all drills for familiarization and proficiency.

**CONDITION II** **"MODERATE DANGER"**

Warning Flags: Yellow

Alarms: Actuates at 10 ppm. Continuous flashing light.

Characterized By: Drilling operations in zones containing hydrogen sulfide. This condition will remain in effect until adding chemicals to the mud system neutralizes the hydrogen sulfide or it becomes necessary to go to Condition III.

General Action:

a. Be alert for a condition change

b. WHEN DRILLING AHEAD - Driller and designated crewmember will don 30 min SCBA, shut-in the well and immediately proceed to the Safe Briefing Area.

WHEN TRIPPING – Driller and two designated crewmembers will don 30 min SCBA, shut in the well and immediately proceed to the Safe Briefing Area. The Derrickman will

don a 5-minute escape pack, descend to the rig floor, don a 30-min SCBA (if necessary) and immediately proceed to the Safe Briefing Area.

c. All In Scope Personnel will proceed directly to the appropriate Safe Briefing Area.

d. Remain in safe briefing area, take roll call and wait for instructions

e. Contact the Total H2S Technician if not on location.

f. Personnel shall ensure that their breathing apparatus is properly fitted and operational before entering an $H_2S$ contaminated area to provide assistance to anyone who may be injured or overcome by toxic gases.

g. All Out of Scope Personnel will report to the appropriate Safe Briefing Area.

**CONDITION III "EXTREME DANGER"**

Warning Flags: Red

Alarms: Actuate at 15 ppm. Continuous Sirens and Flashing Lights

Characterized by: Critical well operations which pose an immediate threat of $H_2S$ exposure to on-site personnel and a potential threat to the public.

General Action:

a. WHEN DRILLING AHEAD - Driller and designated crewmember will don 30 min SCBA, shut-in the well and immediately proceed to the Safe Briefing Area.

WHEN TRIPPING – Driller and two designated crewmembers will don 30

min SCBA, shut in the well and immediately proceed to the Safe Briefing Area. The Derrickman will don a 5-minute escape pack, descend to the rig floor, don a 30-min SCBA (if necessary) and immediately proceed to the Safe Briefing Area.

b. All In Scope Personnel should don SCBA if nearby and immediately proceed to Safe Briefing Area. If SCBA in not nearby at time of alarm, DO NOT GO TOWARDS RIG AREA, but proceed directly to the Safe Briefing Area

c. All out of Scope Personnel shall evacuate the location.

d. Remain in the Safe Briefing Area, take roll call and wait for instructions.

e. Contact the Total H2S Technician if not on location.

f. Personnel shall ensure that their breathing apparatus is properly fitted and operational before entering an $H_2S$ contaminated area to provide assistance to anyone who may be injured or overcome by toxic gases. Use the buddy system.

g. Remain in safe briefing area, take roll call and wait for instructions.

h. A cascade breathing air systems shall be mobilized and utilized to conduct any additional on rig work required to correct the H2S release condition.

i. If well is ignited do not assume area is safe. SO2 is hazardous and not all H2S will burn.

## $H_2S$ EMERGENCY PROCEDURES; IN SCOPE PERSONNEL

### A. Day To Day Drilling Operations

1. Upon discovering a release of $H_2S$ gas in the ambient air by warning alarms or in any other way **Do Not Panic**.

2. Hold your breath donning the nearest Self Contained Breathing Apparatus and rapidly move up or across-wind away from the areas where $H_2S$ sensing devices are in place, to the closest available safe briefing area. Continue to use breathing apparatus until it has been determined that the exposure of $H_2S$ gas in the ambient air no longer exists. **Do Not Panic**!

3. Utilize the "Buddy System", i.e.; select and pair up each person participating in the drilling of an $H_2S$ well prior to an emergency situation.

4. Help anyone who is overcome or affected by the $H_2S$ gas by taking him/her up-wind out of the contaminated area. (This should be done utilizing an SCBA and with a buddy.)

5. Take necessary steps to confirm the release of the $H_2S$ gas into the ambient air.

    - When an H2S alarm activates, two designated personnel using the buddy system, while wearing their self contained breathing apparatus, will determine by the read-out on the fixed monitor which sensing device has detected the release of the $H_2S$ gas.

    - They will utilize the hand-held sniffer type device at the particular sensing point disclosed on the fixed monitor to corroborate the fact that $H_2S$ gas has actually been released. This will rule out the possibility of a false alarm. This will be done with a buddy and under mask after reporting to the Safe Briefing Area for roll call and instructions by on-site MRC Foreman.

6. Refer to the Emergency Phone Numbers and call emergency personnel.

7. Take the necessary steps to suppress the release of $H_2S$ gas into the ambient air. Comply with the MRC Energy Co. Representative to physically suppress the release of $H_2S$ gas at the actual release point.

8. Check all of MRC Energy Co.'s monitoring devices and increase gas-monitoring activities with the portable hand-operated $H_2S$ and gas detector units.

**Do Not Panic!**

The MRC Energy Co. representative will assess the situation and with assistance of the Contractor's Representative and Total Safety's $H_2S$ Safety Technician or on site designee, will assign duties to each person to bring the situation under control.

## B. RESPONSIBILITIES OF WELL-SITE PERSONNEL

In the event of a release of potentially hazardous amounts of $H_2S$, all personnel will immediately don their protective breathing apparatus, the well will be shut in and personnel will proceed upwind to the nearest designated safe briefing area for roll call and instructions by MRC Foreman. Consideration will be given to evacuating Out of Scope Personnel, as situation warrants.

### 1. MRC ENERGY CO.'S Well-site Representatives

a. If MRC Energy Co.'s well-site representative is incapacitated or not on location, this responsibility will fall to the Toolpusher/Driller.

b. Immediately upon assessing the situation, set this plan into Action by initiating the proper procedures to contain the gas and notify the appropriate people and agencies.

c. Ensure that the alarm area indicated by the fixed $H_2S$ Monitor is checked and verified with a portable $H_2S$ detector. (Safety Technician if on location or MRC assigned designee with a buddy utilizing SCBA's)

d. Consult Pusher/driller of remedial actions as needed.

e. Ensure that non-essential personnel proceed to the safe briefing area.

f. Ensure location entrance barricades are positioned. Keep the number of persons on location to a minimum during hazardous operations.

g. Consult each contractor, Service Company and all others allowed to enter the site, that H2S gas may be encountered and the potential hazards that may exist.

h. Authorize the evacuation of local residents if $H_2S$ threatens Their safety.

i. Non essential personnel should be evacuated from location if Situation warrants.

**2. Toolpusher**

a. Toolpusher/Driller will assume responsibilities of MRC Energy Co.'s well-site representative if that person is incapacitated or not on location.

b. Ensure that the alarm area indicated by the fixed $H_2S$ monitor is checked and verified with a portable $H_2S$ gas detector. (Alarm area indicated by the monitor will be Checked by the H2S Technician and a buddy, under mask.) This will be done after checking in and roll call at the Upwind Safe Briefing Area.

c. Confer with MRC Energy Co.'s well-site representative or superintendent and direct remedial action to suppress the $H_2S$ and control the well.

d. Ensure that personnel at the safe briefing area are instructed on emergency actions required.

e. Ensure that personnel at the drill floor area are instructed on emergency actions required.

f. Ensure that all personnel observe the appropriate safety and emergency procedures.

g. Ensure that all persons are accounted for and provided emergency assistance as necessary.

**3. Mud Engineer**

a. Run a sulfide check on the flowline mud.

b. Take steps to determine the source of the $H_2S$ and suppress it. Lime and $H_2S$ scavenger shall be added to the mud as necessary.

**4. Total $H_2S$ Safety Technician, if on location, or MRC Designee**

a. H2S Safety Technician or designee don nearest SCBA and report to Safe Briefing Area for roll call, take a buddy masked up and check monitor and verify with a portable $H_2S$ detector the alarm area indicated by the fixed $H_2S$ monitor. Advise the Toolpusher/Driller and MRC Energy Co.'s well-site representative of findings. Record all findings.

b. If $H_2S$ is flared, check for sulfur dioxide ($SO_2$) near the flare as necessary. Take hourly readings at different perimeters, log readings and record on location.

c. Ensure that personnel at the safe briefing area are instructed on emergency actions required.

d. Ensure that the appropriate warning flags are displayed.

e. Ensure that all personnel are in S.C.B.A. as necessary.

f. Ensure that all persons are accounted for and provide emergency assistance as necessary.

g. Be prepared to evacuate rig if order is issued.

**5. General Personnel & Visitors**

a. All In Scope Personnel, if not specifically designated to shut the well in or control the well, shall proceed to the (upwind) safe briefing area. All Out of Scope Personnel shall immediately proceed to the appropriate (upwind) safe briefing area or evacuate the site as conditions warrant.

b. During any emergency, use the "buddy" system to prevent anyone from entering or being left in a gas area alone, even wearing breathing apparatus.

c. Provide assistance to anyone who may be injured or overcome by toxic gases. Personnel shall ensure that their breathing apparatus is properly fitted and operational before entering a potentially $H_2S$ contaminated area.

d. Remain in safe briefing area and wait for instructions.

## C. INSTRUCTIONS FOR IGNITING THE WELL

1. The Toolpusher/Driller will confer with MRC Energy Co.'s well-site representative who will secure the approval of the "Texas Wells Delivery Manager, prior to igniting the well, if at all possible.

   The Toolpusher/Driller will be responsible for igniting the well in the event of severe well control problems. This decision should be made only as a last resort in situations where it is clear that:

   a. Human life and property are endangered, or

   b. There is no hope of controlling the well under current conditions.

2. Once the decision has been made, the following procedures should be followed:

   a. Two people wearing self-contained breathing apparatus will be needed for the actual lighting of the well. They must first establish the flammable perimeter by using an explosimeter. This should be established at 30% to 40% of the lower flammable limits.

   b. After the flammable perimeter has been established and everyone removed from the area, the ignition team should select a site upwind of the well from which to ignite the well. This site should offer the maximum protection and have a clear path for retreat from the area.

c. The ignition team should have safety belts and lifeline attached and manned before attempting ignition. If the leak is not ignited on the first attempt, move in 20 to 30 feet and fire again. Continue to monitor with the explosimeter and NEVER fire from an area with over 75% of the Lower Explosive Limit (LEL). If having trouble igniting the well, try firing 40 degrees to 90 degrees on either side of the well.

d. If ignition is not possible due to the makeup of the gas, the toxic perimeter must be established and evacuation continued until the well is contained.

e. All personnel must act only as directed by the person in charge of the operations.

NOTE: After the well is ignited, burning hydrogen sulfide ($H_2S$) will convert to sulfur dioxide ($SO_2$), which is also a highly toxic gas.

**DO NOT ASSUME THE AREA IS SAFE AFTER THE WELL IS IGNITED**

## D. CORING PROCEDURES

Only essential personnel shall be on the rig floor. Ten (10) stands prior to retrieving core barrel; all personnel on drill floor and in derrick shall confirm self-Contained breathing apparatus available and ready for use.

A Total H2S Technician will don a SCBA with a buddy assigned from the rig crew, and continuously monitor for H2S at each connection. Any levels detected will require operations to be shut down and all involved personnel to don SCBAs. Precautions will remain in place until barrel is laid down.

All involved personnel will don SCBAs when removing the inner barrel from the outer barrel. SCBAs can be removed once the absence of H2S in confirmed by the Total H2S Technician.

Cores will be appropriately marked and sealed for transportation.

## Normal Operations

### 1. Responsibilities of well-site personnel

#### a. Well-site Representative

1. Notify $H_2S$ Technician of expected date to reach Contingency Plan implementation depth (Two (2) days prior to reaching suspected $H_2S$ bearing zone) or prior to starting well work.

2. Ensure $H_2S$ Safety Technician completes rig-up procedures prior to reaching Contingency Plan effective depth.

3. Restrict the number of personnel at the drilling rig or well site to a minimum while drilling, starting well work, testing or coring.

4. Ensure weekly $H_2S$ drills/training are performed, if possible.

#### B. Toolpusher

1. Ensure that necessary $H_2S$ safety equipment is provided on the rig, and that it is properly inspected and maintained.

2. Ensure that all personnel that work in the well area, are thoroughly trained in the use of $H_2S$ safety equipment and periodic drills are held to maintain an adequate level of proficiency.

#### C. In Scope Personnel

1. Remain clean-shaven. Beards and long sideburns do not allow a proper facepiece seal.

2. Receive $H_2S$ safety training on location, or confirm prior training by certification that is one year within date.

3. Familiarize yourself with the rig's Contingency Plan.

4. Inspect and practice putting on your breathing apparatus.

5. Know the location of the "safe briefing areas".

6. Keep yourself "wind conscious". Be prepared to quickly move upwind and away in the event of any emergency involving release of $H_2S$.

**D. Total Safety $H_2S$ Safety Technician or MRC Designee**

1. Conduct training as necessary to ensure all personnel working in well area are familiar with the contingency procedures and the operation of emergency equipment.

2. Check all $H_2S$ safety equipment to ensure that it is ready for emergency use:

   - Check pressure weekly for each shift on breathing apparatus (both 30-minute and hip-packs) to make sure they are charged to full volume.
   - Check pressure on cascade air bottles, if on location, to see that they are capable of recharging breathing apparatus.
   - Check oxygen resuscitator, if on location, to ensure that it is charged to full volume.
   - Check $H_2S$ detectors weekly for each shift (fixed and portable), and explosimeter, to ensure they are working properly.

3. Provide a weekly report to MRC Energy Co.'s well-site representative documenting:

   - Calibrations performed on $H_2S$ detectors.
   - Proper location and working order of $H_2S$ safety equipment.
   - Attendance of all personnel, trained or retrained, and their company.
   - Weekly drills, if held and a list of personnel participating and summary of actions.

## OUT OF SCOPE PERSONNEL

MRC Energy Co. policy will not require Out of Scope Personnel to be clean shaven, have processed medical questionnaires, fit testing, or have certified H2S Training.

## SAFETY EQUIPMENT

**All respirators will be designed, selected, used and maintained in conformance with ANSI Z88.2, American National Standard for respiratory protection.**

Personal protective equipment must be provided and used. Those who are expected to use respiratory equipment in case of an emergency will be carefully instructed in the proper use and told why the equipment is being used. Careful attention will be given to the minute details in order to avoid possible misuse of the equipment during periods of extreme stress.

Self-contained breathing apparatus provides complete respiratory and eye protection in any concentration of toxic gases and under any condition of oxygen deficiency. The wearer is independent of the surrounding atmosphere because he/she is breathing with a system admitting no outside air. It consists of a full face mask, breathing tube, pressure demand regulator, air supply cylinder, and harness. Pure breathing air from the supply cylinder flows to the mask automatically through the pressure demand regulator which reduces the pressure to a breathing level. Upon inhalation, air flows into the mask at a rate precisely regulated to the user's demand. Upon exhalation, the flow to the mask stops and the exhaled breath passes through a valve in the face piece to the surrounding atmosphere. The apparatus includes an alarm & gauge which warns the wearer to leave the contaminated area for a new cylinder of air or cylinder refill.

The derrickman is provided with a full face piece unit attached to a 5– minute escape cylinder. He will also have his own self-contained 30-minute unit breathing apparatus located on the drilling floor. He will use the 5-minute unit to exit the derrick to the floor, donning the 30-minute unit located on the floor, if needed.

All respiratory protective equipment, when not in use, should be stored in a clean, cool, dry place, and out of direct sunlight to retard the deterioration of rubber parts. After each use, the mask assembly will be scrubbed with soap and water, rinsed thoroughly, and dried. Air cylinders can be recharged to a full condition from a cascade system.

Personnel in each crew will be trained in the proper techniques of bottle filling.

The primary piece of equipment to be utilized, should anyone be overcome by hydrogen sulfide, is the oxygen resuscitator, if on location.

When asphyxiation occurs, the victim must be moved to fresh air and immediately given artificial respiration. In order to assure readiness, the bottles of oxygen will be checked at regular intervals and an extra tank kept on hand.

Hand-operated pump-type detectors incorporating detector tubes will give more accurate readings of hydrogen sulfide. The pump-type draws air to be tested through the detector tube containing lead acetate-silica gel granules. Presence of hydrogen sulfide in the air sample is shown by the development of a dark brown stain on the granules, which is the

scale reading of the concentration of hydrogen sulfide. By changing the type of detector tube used, this detector may also be used for sulfur dioxide ($SO_2$) detection when hydrogen sulfide ($H_2S$) is being burned in the flare area.

Provisions must be made for the storage of all safety equipment as is evident from the foregoing discussion. All equipment must be stored in an available location so that anyone engaged in normal work situations is no more than "one breath away' from a mask.

## V – TOXICITY OF VARIOUS GASES

| Common Name | Chemical Formula | Specific Gravity[1] | PEL (OSHA)[2] | STEL[3] | Lethal ppm[4] |
|---|---|---|---|---|---|
| Hydrogen Cyanide | HCN | 0.94 | 10 | 150 | 300 |
| Hydrogen Sulfide | $H_2S$ | 1.18 | 20 | Peak- 50ppm | 600 |
| Note: The ACGIH(7) recommends a TWA(6) value of 10ppm as the TLV(5) for H2S and an STEL of 15ppm. | | | | | |
| Sulfur Dioxide | $SO_2$ | 2.21 | 2 | 5 ppm | 1000 |
| Chlorine | $CL_2$ | 2.45 | 1 | | |
| Carbon Monoxide | CO | 0.97 | 35 | 200/1 Hour | 1000 |
| Carbon Dioxide | $CO_2$ | 1.52 | 5000 | 5% | 10% |
| Methane | $CH_4$ | 0.55 | 90000 | | |

[1] **Air = 1.0**

[2] **Permissible -** Concentration at which is believed that all workers may repeatedly be exposed, day after day, without adverse effect.

[3] **STEL -** Short Term Exposure Limit. A 15-minute time weighted average.

[4] **Lethal -** Concentration that will cause death with short-term exposure.

**TLV –** Threshold Limit Value; a concentration recommended by the American Conference of Governmental Industrial Hygienists (ACGIH)

**TWA –** Time Weighted Average; the average concentration of contaminant one can be exposed to over a given eight-hour period.

**ACGIH –** (American Conference of Governmental Industrial Hygienists) is an organization comprised of Occupational Health Professionals believed by many to be the top experts in the field of Industrial Hygiene. They are recognized as an expert rexource by OSHA. The ACGIH releases a bi-annual publication "Threshold Limit Values and Biological Indices" that many safety professionals consider to be the authoritative document on airborne contaminants.
Reference: API RP-49, September 1974 - Reissued August 1978

# VI. PROPERTIES OF GASES

## A. CARBON DIOXIDE

1. Carbon Dioxide ($CO_2$) is usually considered inert and is commonly used to extinguish fires. It is 1.52 times heavier than air and will concentrate in low areas of still air. Humans cannot breathe air containing more than 10% $CO_2$ without losing conscience or becoming disorientation in a few minutes. Continued exposure to $CO_2$ after being affected will cause convulsions, coma, and respiratory failure.

2. The threshold limit of $CO_2$ is 5000 ppm. Short-term exposure to 50,000 ppm (5%) is reasonable. This gas is colorless, odorless, and can be tolerated in relatively high concentrations.

## B. HYDROGEN SULFIDE

1. Hydrogen Sulfide ($H_2S$) is a colorless, transparent, flammable gas. It is heavier than air and, hence, may accumulate in low places.

2. Although the slightest presence of $H_2S$ in the air is normally detectable by its characteristic "rotten egg" odor, it is dangerous to rely on the odor as a means of detecting excessive concentrations because the sense of smell is rapidly lost, allowing lethal concentrations to be accumulated without warning. The following table indicates the poisonous nature of $H_2S$.

| CONCENTRATION | | | EFFECTS |
|---|---|---|---|
| % $H_2S$ | PPM | GR/100 SCF[1] | |
| 0.001 | 10 | .65 | Safe for 8 hours without respirator. Obvious and unpleasant odor. |
| 0.0015 | 15 | 0.975 | Safe for 15 minutes of exposure without respirator. |
| 0.01 | 100 | 6.48 | Kills smell in 3-15 minutes; may sting eyes and throat. |
| 0.02 | 200 | 12.96 | Kills smell quickly; stings eyes and throat. |
| 0.05 | 500 | 32.96 | Dizziness; breathing ceases in a few minutes; need prompt artificial respiration. |
| 0.07 | 700 | 45.92 | Rapid Unconsciousness; death will result if not rescued promptly. |
| 0.1 | 1000 | 64.80 | Instant unconsciousness, followed by death within minutes. |

[1] Grains per 100 Cubic Feet

## VII. Treatment Procedures for Hydrogen Sulfide Poisoning

A. Remove the victim to fresh air.

B. If breathing has ceased or is labored, begin resuscitation immediately.
Note: This is the quickest and preferred method of clearing victim's lungs of contaminated air; however, under disaster conditions, it may not be practical to move the victim to fresh air. In such instances, where those rendering first aid must continue to wear masks, a resuscitator should be used.

C. Apply resuscitator to help purge $H_2S$ from the blood stream.

D. Keep the victim at rest and prevent chilling.

E. Get victim under physician's care as soon as possible.

### C. SULPHUR DIOXIDE

1. Sulfur Dioxide ($SO_2$) is a colorless, non-flammable, transparent gas.

2. $SO_2$ is produced during the burning of $H_2S$. Although $SO_2$ is heavier than air, it can be picked up by a breeze and carried downwind at elevated temperatures. Since $SO_2$ is extremely irritating to the eyes and mucous membranes of the upper respiratory tract, it has exceptionally good warning powers in this respect. The following table indicates the toxic nature of $SO_2$:

| CONCENTRATION | | EFFECTS |
|---|---|---|
| % $SO_2$ | PPM | |
| 0.0005 | 3 to 5 | Pungent odor, normally a person can detect $SO_2$ in this range. |
| 0.0012 | 12 | Throat irritation, coughing, constriction of the chest, tearing and smarting of eyes. |
| 0.015 | 150 | So irritating that it can only be endured for a few minutes. |
| .05 | 500 | Causes a sense of suffocation, event with the |

| | | |
|---|---|---|
| | | first breath. |

# VIII. BREATHING AIR EQUIPMENT DRILLS FOR ON & OFF DUTY PERSONNEL

**An $H_2S$ Drill and Training Session must be given once a week to ALL on-duty personnel with off duty personnel. On-duty and Off-duty personnel will reverse roles on alternate drills.**
**An H2S drill and training session must be given once a week to all off-duty personnel in coincidence with on-duty personnel reversing roles on alternate drills.**

The purpose of this drill is to instruct the crews in the operation and use of breathing air and $H_2S$ related emergency equipment and to allow the personnel to become acquainted with using the equipment under working conditions. The crews should be trained to put on the breathing air equipment within one minute when required or requested to do so.

The following procedure should be used for weekly drills. The MRC supervisor must be satisfied that the crews are proficient with the equipment.

1. All personnel should be informed that a drill will be held.

2. The Total H2S Safety Technician or a designee assigned by the MRC Drilling Foreman should initiate the drill by signaling as he/she would if H2S was detected.

3. Personnel should don their breathing apparatus.

4. Once the breathing air equipment is on, the H2S Technician should check all personnel to insure proper operation.

A training and information session will be conducted after each drill to answer any $H_2S$ related questions and to cover any gaps identified from one of the following topics:

- Condition II, and III alerts and steps to be taken by all personnel.
- The importance of wind direction when dealing with $H_2S$.
- Proper use and storage of all types of breathing equipment.
- Proper use and storage of oxygen resuscitators.
- Proper use and storage of $H_2S$ detectors (Mini Checks or equivalent).
- The "buddy system" and the procedure for rescuing a person overcome by $H_2S$.
- Responsibilities and duties.
- Location of $H_2S$ safety equipment.
- Other parts of the "$H_2S$ Contingency Plan" that should be reviewed.

NOTE: A record of attendance must be kept for weekly drills and training sessions.

## IX. HYDROGEN SULFIDE TRAINING CURRICULUM

(FOR EMPLOYERS, VISITORS, AND CONTRACTORS)

EACH PERSON WILL BE INFORMED ON THE RESTRICTIONS OF HAVING BEARDS AND CONTACT LENS. THEY WILL ALSO BE INFORMED OF THE AVAILABILITY OF SPECTACLE KITS.

AFTER THE H2S EQUIPMENT IS RIGGED UP, ALL IN SCOPE PERSONNEL WILL BE H2S TRAINED AND PUT THROUGH A DRILL. ANY DEFICIENCIES WILL BE CORRECTED.

**Training Completion cards are good for one year and will indicate date of completion or expiration. Personnel previously trained on another facility and visiting, must attend a "supplemental briefing" on H2S equipment and procedures before beginning duty. Visitors who remain on the location more than 24 hours must receive full H2S training given all crew members. A "supplemental briefing" will include but not be limited to: Location of respirators, familiarization with safe briefing areas, alarms with instruction on responsibilities in the event of a release and hazards of H2S and (SO2, if applicable). A training and drill log will be kept.**

Topics for full H2S training shall include the following equipment if on location, but not be limited to the following:

1. **Brief Introduction on H2S**
   - A. Slide or Computer presentation (If Available)
   - B. H2S material will be distributed
   - C. Re-emphasize the properties, toxicity, and hazards of H2S
   - D. Source of SO2 (if applicable)

2. **H2S Detection**
   - A. Description of H2S sensors
   - B. Description of warning system (how it works & it's location)
   - C. Actual location of H2S sensors
   - D. Instruction on use of pump type detector (Gastec)
   - E. Use of card detectors, ampoules, or dosimeters
   - F. Use of combustible gas detector
   - G. Other personnel detectors used
   - H. Alarm conditions I & II,
   - I. SO2 alarms (if applicable)

3. **H2S Protection**
   - A. Types of breathing apparatus provided (30-minute SCBA & 5-minute SCBA (with voice diaphragms for communication if supplied)
   - B. Principle of how breathing apparatus works
   - C. Demonstration on how to use breathing apparatus
   - D. Location of breathing apparatus

4. **Cascade System**
   - A. Description of cascade system
   - B. How system works
   - C. Cascade location of rig with reference to briefing areas
   - D. How to use cascade system (with 5-minute hose work line units & refill, if supplied)
   - E. Importance of wind direction and actual location of Windsocks
   - F. Purpose of compressor/function (if one is on site)

5. **H2S Rescue and First Aid**
   - A. Importance of wind direction
   - B. Safe briefing area
   - C. Buddy system
   - D. H2S symptoms
   - E. Methods of rescue

6. **Hands on Training**
   - A. Donning/familiarization of SCBA 30-minue unit
   - B. Donning/familiarization of SKADA 5- MIN. Packs
   - C. Familiarization of cascades
   - D. Use of O2 resuscitator
   - E. Alarm conditions - upwind briefing areas, etc...
   - F. Duties and responsibilities of all personnel
   - G. Procedures for evacuation
   - H. Search and Rescue teams

7. **Certification**
   - A. Testing on material covered

# TOTAL SAFETY US INC., FIT TEST

*X. EMPLOYEE INFORMATION*

Employee Name: _____ Date: _____

Date of Employee Medical Evaluation: _____

Medical Status (circle): Unrestricted Limitations on Use Use Not Authorized

RESPIRATOR INFORMATIOIN

Respirator Type (Dustmask, SCBA, etc):_____

Brand:_____

Size: (circle): XS S M L XL

FIT TEST INFORMATION

Type of Fit Test Performed:

**Quantitative**

| | |
|---|---|
| Porta Count | Fit Factor:_____ |
| Fittester 3000 | Fit Factor:_____ |

**Qualitative**

| | |
|---|---|
| Irritant Smoke | Passed / Failed |
| Isoamyl Acetate (Banana Oil) | Passed / Failed |
| Saccharin | Passed / Failed |
| Bitrex | Passed / Failed |

I hereby certify that this fittest was conducted in accordance with the OSHA Fit Testing Protocols found in Appendix A of 1910.134.

Fit Tester Name (Print):_____

Signature:_____ Date:_____

## XI. $H_2S$ SAFETY SERVICES

HYDROGEN SULFIDE SAFETY PACKAGE – Contained on location in Total Safety H2S Equipment Trailer, unless otherwise noted:

### RESPIRATORY SAFETY SYSTEMS

| QTY | DESCRIPTION |
|---|---|
| 12 | 30-Minute Pressure Demand SCBA<br>(4-Primary Safe Briefing Area, 4-Secondary Safe Briefing Area, 4-floor with one of these for derrick man) |
| 9 | Hose Line 5-minute Work Unit w/Escape Cylinder (1 in derrick, 6 on drill floor, 1 in mud pit wt area, 1 in shaker area) |

The following shall be part of the package if requested by the MRC Foremen (at least one trailer with cascade system is required to be located in the MRC Magnolia asset for use as needed)

| | |
|---|---|
| 1 | Breathing air cascade of 10 bottles w/regulator |
| 2 | Refill lines to refill 30-minute units on location |
| 1 | 6-Man manifold that can be rigged up to work area on floor, if needed |
| 6 | 25 foot hose lines |
| 2 | 50 foot hose lines |
| 100 | Feet of hose line to rig cascade up to 12 man manifold on floor |
| 12 | 30-minute Self Contained Breathing apparatus |

### DETECTION AND ALARM SAFETY SYSTEM

| | |
|---|---|
| 1 | H2S Fixed Monitor w/8Channels (Loc determined at rig up) suggested.<br>(Mud pit area, shaker area, bell nipple area, floor/driller area, & outside quarters) |
| 5 | H2S Sensors |
| 3 | Explosion Proof Alarms (Light and Siren)<br>(1 on floor, 1 in work area, 1 in trailer area where quarters are located) |
| 2 | Personal H2S monitors |
| 1 | Portable Tri-Gas Hand Held Meter (O2, LEL, H2S) |
| 1 | Sensidyne/Gastech Manual Pump Type Detector |
| 8 | Boxes H2S Tubes Various Ranges |
| 2 | Boxes SO2 Tubes Various Ranges |
| 1 | Calibration Gas |
| 1 | Set Paper Work for Records: Training, Cal, Inspection, other |

## ADDITIONAL SAFETY RELATED EQUIPMENT

| QTY | DESCRIPTION |
|---|---|
| 2 | Windsocks with Pole and Bracket |
| 1 | Set Well Condition Sign w/Green, Yellow, Red Flags |
| 1 | Primary Safe Briefing Area Sign |
| 1 | Secondary Safe Briefing Area Sign |
| 6 | Operating Condition Signs for Work Areas & Living Quarters |

## TRAILER WITH BREATHING AIR CASCADE WILL ALSO INCLUDE THE FOLLOWING:

This equipment will be part of the H2S equipment stored in the trailer, when on location

| | |
|---|---|
| 1 | First aid kit |
| 1 | Fire Blanket |
| 1 | Eye wash station |
| 2 | Safety Harness w/150' safety line |

## XII. EMERGENCY PHONE NUMBERS (Updated March 18, 2009)

### EMERGENCY PHONE NUMBERS

MRC Energy Co. Emergency Phone #
MRC Energy Co. Permian Operations Phone----------
**MRC Energy Co. Production**
113 Daw Rd
Mansfield LA 71052

| Title | Names | Phone | Cell |
|---|---|---|---|
| Operations Manager | | | |
| Operation Supt. | | | |
| Operations Supervisor | | | |
| Operations Supervisor | | | |
| Office Supervisor | | | |
| HSE | | | |
| Scheduler Planner | | | |

**Hydrogen Sulfide Safety Consultants**

| | | |
|---|---|---|
| Total Safety W. Bender Blvd. Hobbs, NM | 575-392-2973 | After Hours 24 Hour Call Center Through Office Number |
| Tommy Throckmorton Operations Manager | 575-392-2973 | 940-268-9614 |
| Rodney Jourdan Sales Contact | 575-392-2973 | 432-349-3928 |

**MRC Energy Co. MEDICAL RESPONSE PLAN AND IT'S MEDICAL PROTOCOLS WILL BE FOLLOWED**

**MEDICAL COORDINATOR # ----------**

Emergency Numbers & Directions

## Hospitals (911)

| | | |
|---|---|---|
| **Artesia General Hospital<br>702 N. 13th St.<br>Artesia, NM 88210** | **Main Phone Number** | **575-748-3333** |
| **Nor-Lea General Hospital<br>1600 N. Main Ave.<br>Lovington, NM 88260** | **Main Phone Number** | **575-396-6611** |
| **Lea Regional Medical Center<br>5419 N. Lovington Hwy<br>Hobbs, NM 88240** | **Main Phone Number** | **575-492-5260** |
| **Carlsbad General Hospital<br>2430 W. Pierce St.<br>Carlsbad, NM** | **Main Phone Number** | **575-887-4100** |
| **Lovelace Regional Hospital<br>117 E. 19th St<br>Roswell, NM 88201** | **Main Phone Number** | **575-627-7000** |
| **Winkler Co. Memorial Hospital<br>821 Jeffee Dr.<br>Kermit, Texas 79745** | **Main Phone Number** | **432-586-8299** |
| **Reeves County Hospital<br>2323 Texas St.<br>Pecos, Texas 79772** | **Main Phone Number** | **432-447-3551** |

State Police (911)

| | | |
|---|---|---|
| Texas DPS Loving co.<br>225 N.Pecos<br>Mentone, Texas 79754 | Office Number | 432-377-2411 |
| Texas DPS Winkler Co.<br>100 E Winkler<br>Kermit, Texas 79745 | Office Number | 432-586-3465 |
| Texas DPS Pecos Co.<br>148 N I-20 Frontage RD<br>Pecos, Texas 79772 | Office Number | 432-447-3532 |
| New Mexico State Police<br>3300 W. Main St<br>Artesia, NM | Office Number | 575-748-9718 |
| New Mexico State Police<br>304 N. Canyon St<br>Carlsbad, NM 88220 | Office Number | 575-885-3137 |
| New Mexico State Police<br>5100 Jack Gomez Blvd.<br>Hobbs, NM 88240 | Office Number | 575-392-5588 |

Local Law Enforcement (911) (Sheriff)

| | | |
|---|---|---|
| Reeves Co. Sheriff<br>500 N. Oak ST<br>Pecos, Texas 79722 | Office Number | 432-445-4901 |
| Winkler Co. Sheriff<br>1300 Bellaire St.<br>Kermit, Texas 79745 | Office Number | 432-586-3461 |
| Loving Co. Sheriff<br>Courthouse<br>Mentone, Texas | Office Number | 432-377-2411 |
| Lea Co. Sheriff<br>1417 S. Commercial St.<br>Lovington, NM 88260 | Office Number | |
| Eddy Co. Sheriff<br>305 N 7th St.<br>Artesia, NM 88210 | Office Number | 575-766-9888 |
| Eddy Co. Sheriff<br>305 N 7th St.<br>Carlsbad, NM 88220 | Office Number | 575-746-9888 |

Federal & State Agencies

| | | |
|---|---|---|
| **OSHA Lubbock Area Office<br>1205 Texas Av. Room 806<br>Lubbock, Texas 79401** | **Main Number** | **806-472-7681 EXT 7685** |
| **New Mexico Environment Department<br>400 N Pennsylvania<br>Roswell, NM 88201** | **Joe Fresquez** | **575-623-3935** |
| **Texas Railroad Commission<br>Midland, Texas** | **Main Number** | **844-773-0305** |
| **BLM Carlsbad, NM Field Office<br>620 E. Green ST<br>Carlsbad, NM 88220** | **Main Number** | **575-234-5972** |
| **BLM Hobbs Field Station<br>414 W. Taylor Rd.<br>Hobbs, NM 88240** | **Main Number** | **575-393-3612** |
| **BLM Roswell District Office<br>2909 W. Second St.<br>Roswell, NM 88201** | **Main Number** | **575-627-0272** |
| **TECQ Texas Commission on Environmental Quality** | **Main Number** | **800-832-8224** |
| **New Mexico OCD** | | |
| **U.S. Environmental Protection Agency Region 6<br>Texas/New Mexico** | **Main Number** | **214-655-2222** |
| **National Response Center Toxic Chemicals & Oil Spills** | **Main Number** | **800-424-8802** |

**Rig Company**

| | | |
|---|---|---|
| | | |
| | | |
| | | |

## XIII. EVACUATION OF THE GENERAL PUBLIC

The procedure to be used in alerting nearby persons in the event of any occurrence that could pose a threat to life or property will be arranged and completed with public officials in detail, prior to drilling into the hydrogen sulfide formations.

In the event of an actual emergency, the following steps will be immediately taken:

1. The MRC Energy Co.'s representative will dispatch sufficient personnel to immediately warn each resident and transients down-wind within radius of exposure from the well site. Then warn all residence in the radius of exposure. Additional evacuation zones may be necessary as the situation warrants.

2. The MRC Energy Co.'s representative will immediately notify proper authorities, including the Sheriff's Office, Highway Patrol, and any other public officials as described above and will enlist their assistance in warning residents and transients in the calculated radius of exposure.

3. The MRC Energy Co.'s representative will dispatch sufficient personnel to divert traffic in the vicinity away from the potentially dangerous area. A guard to the entrance of the well site will be posted to monitor essential and non essential traffic.

4. General:

    A. The area included within the radius of exposure is considered to be the zone of maximum potential hazard from a hydrogen sulfide gas escape. Immediate evacuation of public areas, in accordance with the provisions of this contingency plan, is imperative. When it is determined that conditions exist which create an additional area (beyond the initial zone of maximum potential hazard) vulnerable to possible hazard, public areas in the additional hazardous area will be evacuated in accordance with the contingency plan.

    B. In the event of a disaster, after the public areas have been evacuated and traffic stopped, it is expected that local civil authorities will have arrived and within a few hours will have assumed direction of and control of the public, including all public areas. MRC Energy Co. will cooperate with these authorities to the fullest extent and will exert every effort by careful advice to such authorities to prevent panic or rumors.

    C. MRC Energy Co. will dispatch appropriate management personnel at the disaster site as soon as possible. The company's personnel

will cooperate with and provide such information to civil authorities as they might require.

D. One of the products of the combustion of hydrogen sulfide is sulfur dioxide ($SO_2$). Under certain conditions this gas may be equally as dangerous as $H_2S$. A pump type detector device, which determines the percent of $SO_2$ in air through concentrations in ppm, will be available. Although normal air movement is sufficient to dissipate this material to safe levels, the $SO_2$ detector should be utilized to check concentrations in the proximity of the well once every hour, or as necessary and the situation warrants. Also, if any low areas are suspected of having high concentrations, personnel should be made aware of these areas, and steps should be taken to determine whether or not these low areas are hazardous.

**Matador Resources**
**Eddy County, NM**
**Leatherneck Fed**
**201H**
**Prelim Plan A**
**GL:3,238' + KB:29'**

PRODIRECTIONAL

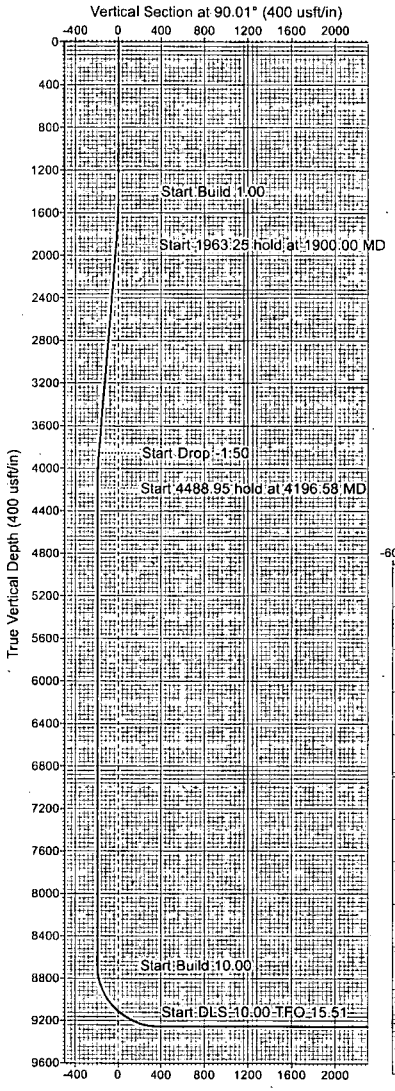
US State Plane 1927 (Exact solution)
NAD 1927 (NADCON CONUS)
Clarke 1866
New Mexico East 3001
Mean Sea Level

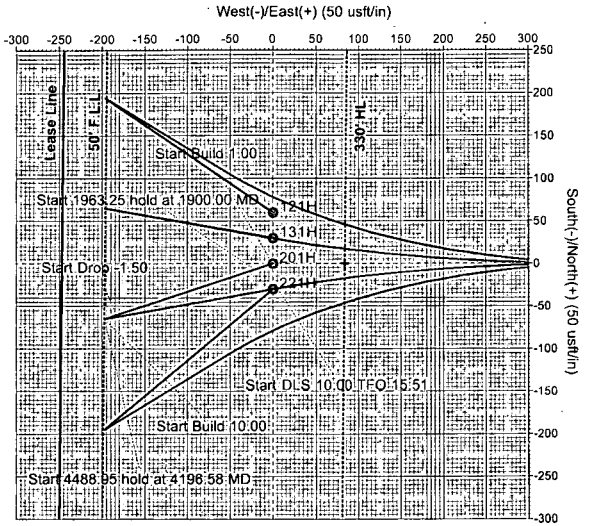
RKB Elevation: Rig @ 3267.00usft (GL:3,238' + KB:29')

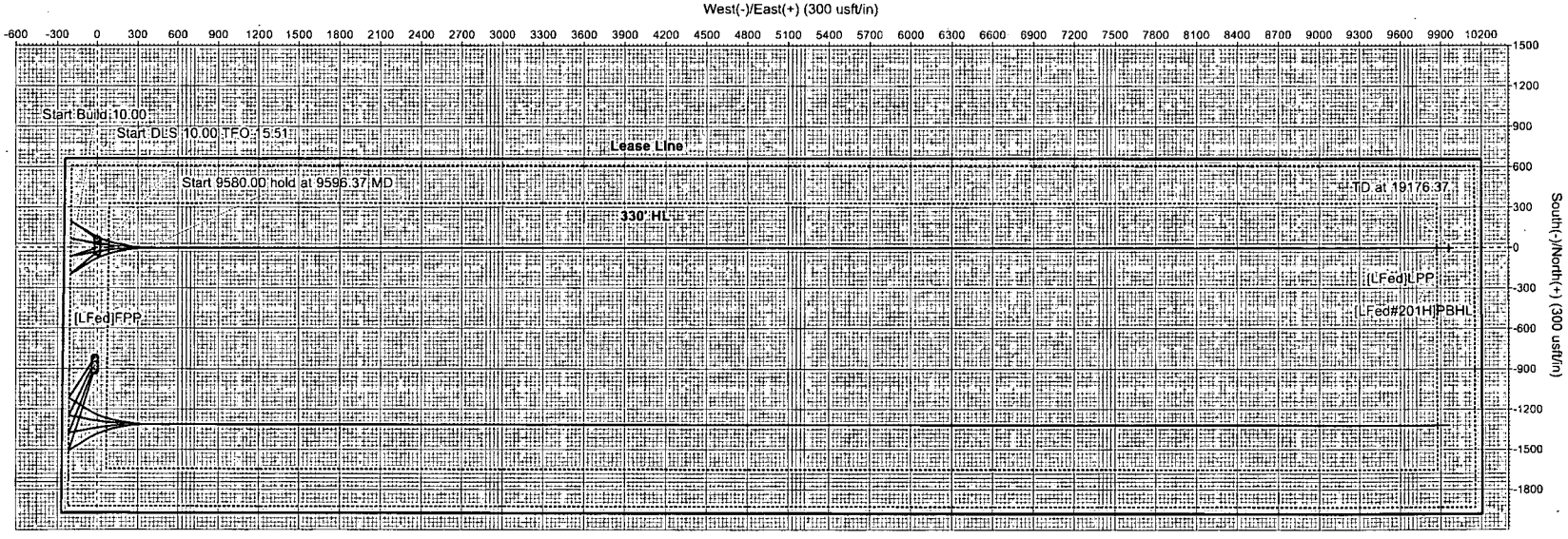
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 563797.00 | 565361.00 | 32.5498070 | -104.1212125 | |

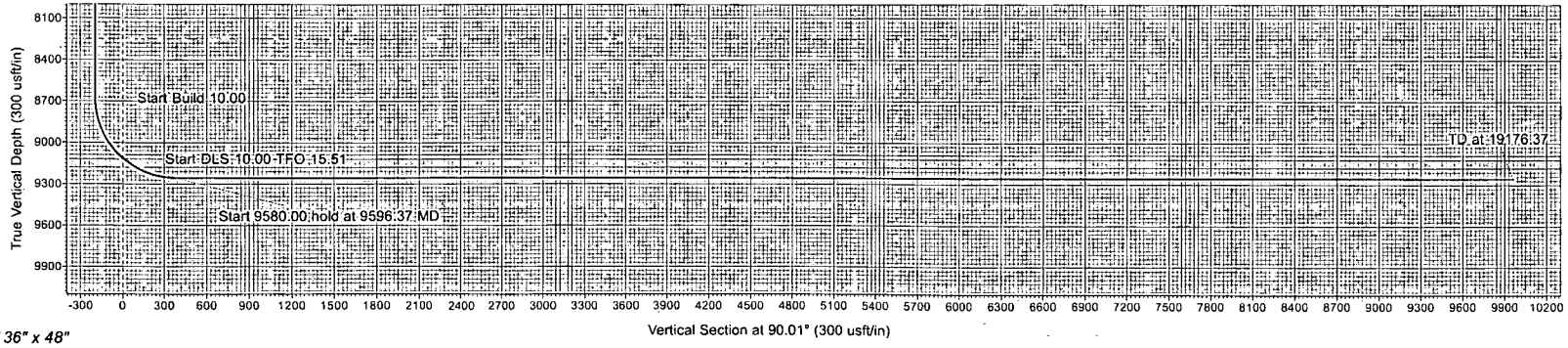
SECTION DETAILS- Lateral

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | VSect |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 1400.00 | 0.00 | 0.00 | 1400.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 1900.00 | 5.00 | 251.74 | 1899.37 | -6.83 | -20.70 | 1.00 | -20.70 |
| 4 | 3863.25 | 5.00 | 251.74 | 3855.14 | -60.45 | -183.20 | 0.00 | -183.18 |
| 5 | 4196.58 | 0.00 | 0.00 | 4188.05 | -65.00 | -197.00 | 1.50 | -196.99 |
| 6 | 8685.53 | 0.00 | 0.00 | 8677.00 | -65.00 | -197.00 | 0.00 | -196.99 |
| 7 | 9186.89 | 50.12 | 79.92 | 9116.83 | -29.01 | 5.47 | 10.00 | 5.48 |
| 8 | 9596.37 | 90.00 | 90.01 | 9254.00 | -0.33 | 381.00 | 10.00 | 381.00 |
| 9 | 19176.37 | 90.00 | 90.01 | 9254.00 | -2.00 | 9961.00 | 0.00 | 9961.00 |





Azimuths to Grid North
True North: -0.11°
Magnetic North: 7.24°

Magnetic Field
Strength: 48155.1snT
Dip Angle: 60.40°
Date: 10/30/2017
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 7.24°

Declination (M to T): 7.35° East

36" x 48"

# Pro Directional

Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Well:** | 201H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Prelim Plan A | **Database:** | WellPlanner1 |

| | | | |
|---|---|---|---|
| **Project** | Eddy County, NM | | |
| **Map System:** | US State Plane 1927 (Exact solution) | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | NAD 1927 (NADCON CONUS) | | |
| **Map Zone:** | New Mexico East 3001 | | |

| | | | | | |
|---|---|---|---|---|---|
| **Site** | Leatherneck Fed | | | | |
| **Site Position:** | | **Northing:** | 563,857.00 usft | **Latitude:** | 32.5499720 |
| **From:** | Map | **Easting:** | 565,361.00 usft | **Longitude:** | -104.1212121 |
| **Position Uncertainty:** | 0.00 usft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | 0.11 ° |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well** | 201H | | | | | |
| **Well Position** | **+N/-S** | 0.00 usft | **Northing:** | 563,797.00 usft | **Latitude:** | 32.5498070 |
| | **+E/-W** | 0.00 usft | **Easting:** | 565,361.00 usft | **Longitude:** | -104.1212125 |
| **Position Uncertainty** | | 0.00 usft | **Wellhead Elevation:** | usft | **Ground Level:** | 3,238.00 usft |

| | | | | | |
|---|---|---|---|---|---|
| **Wellbore** | OH | | | | |
| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
| | HDGM | 10/30/2017 | 7.35 | 60.40 | 48,155.10 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Design** | Prelim Plan A | | | | | |
| **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 | 90.01 | | |

**Survey Tool Program** **Date** 10/31/2017

| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0.00 | 1,200.00 | Prelim Plan A (OH) | MWD+HDGM | OWSG MWD + HRGM |
| 1,200.00 | 8,600.00 | Prelim Plan A (OH) | MWD+HDGM | OWSG MWD + HRGM |
| 8,600.00 | 19,176.37 | Prelim Plan A (OH) | MWD+HDGM | OWSG MWD + HRGM |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

# Pro Directional

Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Well:** | 201H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Prelim Plan A | **Database:** | WellPlanner1 |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 0.00 | 0.00 | 1,300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 0.00 | 0.00 | 1,400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 1.00 | 251.74 | 1,499.99 | -0.27 | -0.83 | -0.83 | 1.00 | 1.00 | 0.00 |
| 1,600.00 | 2.00 | 251.74 | 1,599.96 | -1.09 | -3.31 | -3.31 | 1.00 | 1.00 | 0.00 |
| 1,700.00 | 3.00 | 251.74 | 1,699.86 | -2.46 | -7.46 | -7.46 | 1.00 | 1.00 | 0.00 |
| 1,800.00 | 4.00 | 251.74 | 1,799.68 | -4.37 | -13.25 | -13.25 | 1.00 | 1.00 | 0.00 |
| 1,900.00 | 5.00 | 251.74 | 1,899.37 | -6.83 | -20.70 | -20.70 | 1.00 | 1.00 | 0.00 |
| 2,000.00 | 5.00 | 251.74 | 1,998.99 | -9.56 | -28.98 | -28.98 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 5.00 | 251.74 | 2,098.60 | -12.29 | -37.26 | -37.26 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 5.00 | 251.74 | 2,198.22 | -15.02 | -45.53 | -45.53 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 5.00 | 251.74 | 2,297.84 | -17.76 | -53.81 | -53.81 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 5.00 | 251.74 | 2,397.46 | -20.49 | -62.09 | -62.08 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 5.00 | 251.74 | 2,497.08 | -23.22 | -70.36 | -70.36 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 5.00 | 251.74 | 2,596.70 | -25.95 | -78.64 | -78.64 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 5.00 | 251.74 | 2,696.32 | -28.68 | -86.92 | -86.91 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 5.00 | 251.74 | 2,795.94 | -31.41 | -95.20 | -95.19 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 5.00 | 251.74 | 2,895.56 | -34.14 | -103.47 | -103.46 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 5.00 | 251.74 | 2,995.18 | -36.87 | -111.75 | -111.74 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 5.00 | 251.74 | 3,094.80 | -39.60 | -120.03 | -120.02 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 5.00 | 251.74 | 3,194.42 | -42.33 | -128.30 | -128.29 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 5.00 | 251.74 | 3,294.04 | -45.06 | -136.58 | -136.57 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 5.00 | 251.74 | 3,393.66 | -47.79 | -144.86 | -144.85 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 5.00 | 251.74 | 3,493.28 | -50.53 | -153.13 | -153.12 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 5.00 | 251.74 | 3,592.90 | -53.26 | -161.41 | -161.40 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 5.00 | 251.74 | 3,692.52 | -55.99 | -169.69 | -169.67 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 5.00 | 251.74 | 3,792.14 | -58.72 | -177.96 | -177.95 | 0.00 | 0.00 | 0.00 |
| 3,863.25 | 5.00 | 251.74 | 3,855.14 | -60.45 | -183.20 | -183.18 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 4.45 | 251.74 | 3,891.77 | -61.39 | -186.07 | -186.06 | 1.50 | -1.50 | 0.00 |
| 4,000.00 | 2.95 | 251.74 | 3,991.56 | -63.42 | -192.20 | -192.18 | 1.50 | -1.50 | 0.00 |
| 4,100.00 | 1.45 | 251.74 | 4,091.48 | -64.62 | -195.84 | -195.83 | 1.50 | -1.50 | 0.00 |
| 4,196.58 | 0.00 | 0.00 | 4,188.05 | -65.00 | -197.00 | -196.99 | 1.50 | -1.50 | 0.00 |
| 4,200.00 | 0.00 | 0.00 | 4,191.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 0.00 | 0.00 | 4,291.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 0.00 | 0.00 | 4,391.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 0.00 | 0.00 | 4,491.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 0.00 | 0.00 | 4,591.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 0.00 | 0.00 | 4,691.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 0.00 | 0.00 | 4,791.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 0.00 | 0.00 | 4,891.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |

# Pro Directional

Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Well:** | 201H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Prelim Plan A | **Database:** | WellPlanner1 |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 5,000.00 | 0.00 | 0.00 | 4,991.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 0.00 | 0.00 | 5,091.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 5,191.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 0.00 | 0.00 | 5,291.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,391.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 0.00 | 0.00 | 5,491.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 0.00 | 0.00 | 5,591.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 0.00 | 0.00 | 5,691.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 0.00 | 0.00 | 5,791.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 0.00 | 0.00 | 5,891.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 0.00 | 0.00 | 5,991.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 0.00 | 0.00 | 6,091.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 6,191.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,291.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,391.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,491.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,591.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,691.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,791.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,891.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,991.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 7,091.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 7,191.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 7,291.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,391.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,491.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,591.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,691.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,791.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 0.00 | 0.00 | 7,891.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,991.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 0.00 | 0.00 | 8,091.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 0.00 | 0.00 | 8,191.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 0.00 | 0.00 | 8,291.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 0.00 | 0.00 | 8,391.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 0.00 | 0.00 | 8,491.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 0.00 | 0.00 | 8,591.47 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,685.53 | 0.00 | 0.00 | 8,677.00 | -65.00 | -197.00 | -196.99 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 1.45 | 79.92 | 8,691.47 | -64.97 | -196.82 | -196.81 | 10.00 | 10.00 | 0.00 |
| 8,750.00 | 6.44 | 79.92 | 8,741.34 | -64.37 | -193.43 | -193.42 | 10.00 | 10.00 | 0.00 |
| 8,800.00 | 11.44 | 79.92 | 8,790.71 | -63.01 | -185.78 | -185.77 | 10.00 | 10.00 | 0.00 |
| 8,850.00 | 16.44 | 79.92 | 8,839.22 | -60.90 | -173.93 | -173.91 | 10.00 | 10.00 | 0.00 |
| 8,900.00 | 21.44 | 79.92 | 8,886.50 | -58.06 | -157.95 | -157.94 | 10.00 | 10.00 | 0.00 |

# Pro Directional

Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Well:** | 201H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Prelim Plan A | **Database:** | WellPlanner1 |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 8,950.00 | 26.44 | 79.92 | 8,932.19 | -54.51 | -137.98 | -137.97 | 10.00 | 10.00 | 0.00 |
| 9,000.00 | 31.43 | 79.92 | 8,975.93 | -50.28 | -114.17 | -114.16 | 10.00 | 10.00 | 0.00 |
| 9,050.00 | 36.43 | 79.92 | 9,017.40 | -45.40 | -86.70 | -86.69 | 10.00 | 10.00 | 0.00 |
| 9,100.00 | 41.43 | 79.92 | 9,056.28 | -39.90 | -55.78 | -55.77 | 10.00 | 10.00 | 0.00 |
| 9,150.00 | 46.43 | 79.92 | 9,092.28 | -33.83 | -21.63 | -21.63 | 10.00 | 10.00 | 0.00 |
| 9,186.89 | 50.12 | 79.92 | 9,116.83 | -29.01 | 5.47 | 5.48 | 10.00 | 10.00 | 0.00 |
| 9,200.00 | 51.38 | 80.37 | 9,125.13 | -27.28 | 15.47 | 15.48 | 10.00 | 9.64 | 3.42 |
| 9,250.00 | 56.21 | 81.95 | 9,154.65 | -21.10 | 55.33 | 55.33 | 10.00 | 9.67 | 3.15 |
| 9,300.00 | 61.07 | 83.36 | 9,180.67 | -15.65 | 97.66 | 97.66 | 10.00 | 9.70 | 2.82 |
| 9,350.00 | 65.93 | 84.64 | 9,202.97 | -10.98 | 142.15 | 142.15 | 10.00 | 9.73 | 2.56 |
| 9,400.00 | 70.80 | 85.83 | 9,221.40 | -7.13 | 188.45 | 188.45 | 10.00 | 9.75 | 2.38 |
| 9,450.00 | 75.69 | 86.94 | 9,235.81 | -4.12 | 236.22 | 236.22 | 10.00 | 9.76 | 2.24 |
| 9,500.00 | 80.57 | 88.02 | 9,246.09 | -1.97 | 285.08 | 285.09 | 10.00 | 9.77 | 2.14 |
| 9,550.00 | 85.46 | 89.06 | 9,252.17 | -0.70 | 334.68 | 334.68 | 10.00 | 9.78 | 2.08 |
| 9,596.37 | 90.00 | 90.01 | 9,254.00 | -0.33 | 381.00 | 381.00 | 10.00 | 9.78 | 2.06 |
| 9,600.00 | 90.00 | 90.01 | 9,254.00 | -0.33 | 384.63 | 384.63 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.00 | 90.01 | 9,254.00 | -0.35 | 484.63 | 484.63 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.00 | 90.01 | 9,254.00 | -0.36 | 584.63 | 584.63 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.00 | 90.01 | 9,254.00 | -0.38 | 684.63 | 684.63 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.00 | 90.01 | 9,254.00 | -0.40 | 784.63 | 784.63 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.00 | 90.01 | 9,254.00 | -0.42 | 884.63 | 884.63 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.00 | 90.01 | 9,254.00 | -0.43 | 984.63 | 984.63 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.00 | 90.01 | 9,254.00 | -0.45 | 1,084.63 | 1,084.63 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.00 | 90.01 | 9,254.00 | -0.47 | 1,184.63 | 1,184.63 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.00 | 90.01 | 9,254.00 | -0.49 | 1,284.63 | 1,284.63 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.00 | 90.01 | 9,254.00 | -0.50 | 1,384.63 | 1,384.63 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.00 | 90.01 | 9,254.00 | -0.52 | 1,484.63 | 1,484.63 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.00 | 90.01 | 9,254.00 | -0.54 | 1,584.63 | 1,584.63 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.00 | 90.01 | 9,254.00 | -0.56 | 1,684.63 | 1,684.63 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.00 | 90.01 | 9,254.00 | -0.57 | 1,784.63 | 1,784.63 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.00 | 90.01 | 9,254.00 | -0.59 | 1,884.63 | 1,884.63 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.00 | 90.01 | 9,254.00 | -0.61 | 1,984.63 | 1,984.63 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.00 | 90.01 | 9,254.00 | -0.63 | 2,084.63 | 2,084.63 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.00 | 90.01 | 9,254.00 | -0.64 | 2,184.63 | 2,184.63 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.00 | 90.01 | 9,254.00 | -0.66 | 2,284.63 | 2,284.63 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.00 | 90.01 | 9,254.00 | -0.68 | 2,384.63 | 2,384.63 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.00 | 90.01 | 9,254.00 | -0.70 | 2,484.63 | 2,484.63 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.00 | 90.01 | 9,254.00 | -0.71 | 2,584.63 | 2,584.63 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.00 | 90.01 | 9,254.00 | -0.73 | 2,684.63 | 2,684.63 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.00 | 90.01 | 9,254.00 | -0.75 | 2,784.63 | 2,784.63 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.00 | 90.01 | 9,254.00 | -0.76 | 2,884.63 | 2,884.63 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.00 | 90.01 | 9,254.00 | -0.78 | 2,984.63 | 2,984.63 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.00 | 90.01 | 9,254.00 | -0.80 | 3,084.63 | 3,084.63 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.00 | 90.01 | 9,254.00 | -0.82 | 3,184.63 | 3,184.63 | 0.00 | 0.00 | 0.00 |

# Pro Directional

Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Well:** | 201H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Prelim Plan A | **Database:** | WellPlanner1 |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 12,500.00 | 90.00 | 90.01 | 9,254.00 | -0.83 | 3,284.63 | 3,284.63 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.00 | 90.01 | 9,254.00 | -0.85 | 3,384.63 | 3,384.63 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 90.00 | 90.01 | 9,254.00 | -0.87 | 3,484.63 | 3,484.63 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 90.00 | 90.01 | 9,254.00 | -0.89 | 3,584.63 | 3,584.63 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 90.00 | 90.01 | 9,254.00 | -0.90 | 3,684.63 | 3,684.63 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 90.00 | 90.01 | 9,254.00 | -0.92 | 3,784.63 | 3,784.63 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 90.00 | 90.01 | 9,254.00 | -0.94 | 3,884.63 | 3,884.63 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 90.00 | 90.01 | 9,254.00 | -0.96 | 3,984.63 | 3,984.63 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 90.00 | 90.01 | 9,254.00 | -0.97 | 4,084.63 | 4,084.63 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 90.00 | 90.01 | 9,254.00 | -0.99 | 4,184.63 | 4,184.63 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 90.00 | 90.01 | 9,254.00 | -1.01 | 4,284.63 | 4,284.63 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 90.00 | 90.01 | 9,254.00 | -1.03 | 4,384.63 | 4,384.63 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 90.00 | 90.01 | 9,254.00 | -1.04 | 4,484.63 | 4,484.63 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 90.00 | 90.01 | 9,254.00 | -1.06 | 4,584.63 | 4,584.63 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 90.00 | 90.01 | 9,254.00 | -1.08 | 4,684.63 | 4,684.63 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 90.00 | 90.01 | 9,254.00 | -1.10 | 4,784.63 | 4,784.63 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 90.00 | 90.01 | 9,254.00 | -1.11 | 4,884.63 | 4,884.63 | 0.00 | 0.00 | 0.00 |
| 14,200.00 | 90.00 | 90.01 | 9,254.00 | -1.13 | 4,984.63 | 4,984.63 | 0.00 | 0.00 | 0.00 |
| 14,300.00 | 90.00 | 90.01 | 9,254.00 | -1.15 | 5,084.63 | 5,084.63 | 0.00 | 0.00 | 0.00 |
| 14,400.00 | 90.00 | 90.01 | 9,254.00 | -1.17 | 5,184.63 | 5,184.63 | 0.00 | 0.00 | 0.00 |
| 14,500.00 | 90.00 | 90.01 | 9,254.00 | -1.18 | 5,284.63 | 5,284.63 | 0.00 | 0.00 | 0.00 |
| 14,600.00 | 90.00 | 90.01 | 9,254.00 | -1.20 | 5,384.63 | 5,384.63 | 0.00 | 0.00 | 0.00 |
| 14,700.00 | 90.00 | 90.01 | 9,254.00 | -1.22 | 5,484.63 | 5,484.63 | 0.00 | 0.00 | 0.00 |
| 14,800.00 | 90.00 | 90.01 | 9,254.00 | -1.24 | 5,584.63 | 5,584.63 | 0.00 | 0.00 | 0.00 |
| 14,900.00 | 90.00 | 90.01 | 9,254.00 | -1.25 | 5,684.63 | 5,684.63 | 0.00 | 0.00 | 0.00 |
| 15,000.00 | 90.00 | 90.01 | 9,254.00 | -1.27 | 5,784.63 | 5,784.63 | 0.00 | 0.00 | 0.00 |
| 15,100.00 | 90.00 | 90.01 | 9,254.00 | -1.29 | 5,884.63 | 5,884.63 | 0.00 | 0.00 | 0.00 |
| 15,200.00 | 90.00 | 90.01 | 9,254.00 | -1.31 | 5,984.63 | 5,984.63 | 0.00 | 0.00 | 0.00 |
| 15,300.00 | 90.00 | 90.01 | 9,254.00 | -1.32 | 6,084.63 | 6,084.63 | 0.00 | 0.00 | 0.00 |
| 15,400.00 | 90.00 | 90.01 | 9,254.00 | -1.34 | 6,184.63 | 6,184.63 | 0.00 | 0.00 | 0.00 |
| 15,500.00 | 90.00 | 90.01 | 9,254.00 | -1.36 | 6,284.63 | 6,284.63 | 0.00 | 0.00 | 0.00 |
| 15,600.00 | 90.00 | 90.01 | 9,254.00 | -1.38 | 6,384.63 | 6,384.63 | 0.00 | 0.00 | 0.00 |
| 15,700.00 | 90.00 | 90.01 | 9,254.00 | -1.39 | 6,484.63 | 6,484.63 | 0.00 | 0.00 | 0.00 |
| 15,800.00 | 90.00 | 90.01 | 9,254.00 | -1.41 | 6,584.63 | 6,584.63 | 0.00 | 0.00 | 0.00 |
| 15,900.00 | 90.00 | 90.01 | 9,254.00 | -1.43 | 6,684.63 | 6,684.63 | 0.00 | 0.00 | 0.00 |
| 16,000.00 | 90.00 | 90.01 | 9,254.00 | -1.45 | 6,784.63 | 6,784.63 | 0.00 | 0.00 | 0.00 |
| 16,100.00 | 90.00 | 90.01 | 9,254.00 | -1.46 | 6,884.63 | 6,884.63 | 0.00 | 0.00 | 0.00 |
| 16,200.00 | 90.00 | 90.01 | 9,254.00 | -1.48 | 6,984.63 | 6,984.63 | 0.00 | 0.00 | 0.00 |
| 16,300.00 | 90.00 | 90.01 | 9,254.00 | -1.50 | 7,084.63 | 7,084.63 | 0.00 | 0.00 | 0.00 |
| 16,400.00 | 90.00 | 90.01 | 9,254.00 | -1.52 | 7,184.63 | 7,184.63 | 0.00 | 0.00 | 0.00 |
| 16,500.00 | 90.00 | 90.01 | 9,254.00 | -1.53 | 7,284.63 | 7,284.63 | 0.00 | 0.00 | 0.00 |
| 16,600.00 | 90.00 | 90.01 | 9,254.00 | -1.55 | 7,384.63 | 7,384.63 | 0.00 | 0.00 | 0.00 |
| 16,700.00 | 90.00 | 90.01 | 9,254.00 | -1.57 | 7,484.63 | 7,484.63 | 0.00 | 0.00 | 0.00 |

# Pro Directional

Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Well:** | 201H | **North Reference:** | Grid |
| **Wellbore:** | OH | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Prelim Plan A | **Database:** | WellPlanner1 |

**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) |
|---|---|---|---|---|---|---|---|---|---|
| 16,800.00 | 90.00 | 90.01 | 9,254.00 | -1.59 | 7,584.63 | 7,584.63 | 0.00 | 0.00 | 0.00 |
| 16,900.00 | 90.00 | 90.01 | 9,254.00 | -1.60 | 7,684.63 | 7,684.63 | 0.00 | 0.00 | 0.00 |
| 17,000.00 | 90.00 | 90.01 | 9,254.00 | -1.62 | 7,784.63 | 7,784.63 | 0.00 | 0.00 | 0.00 |
| 17,100.00 | 90.00 | 90.01 | 9,254.00 | -1.64 | 7,884.63 | 7,884.63 | 0.00 | 0.00 | 0.00 |
| 17,200.00 | 90.00 | 90.01 | 9,254.00 | -1.66 | 7,984.63 | 7,984.63 | 0.00 | 0.00 | 0.00 |
| 17,300.00 | 90.00 | 90.01 | 9,254.00 | -1.67 | 8,084.63 | 8,084.63 | 0.00 | 0.00 | 0.00 |
| 17,400.00 | 90.00 | 90.01 | 9,254.00 | -1.69 | 8,184.63 | 8,184.63 | 0.00 | 0.00 | 0.00 |
| 17,500.00 | 90.00 | 90.01 | 9,254.00 | -1.71 | 8,284.63 | 8,284.63 | 0.00 | 0.00 | 0.00 |
| 17,600.00 | 90.00 | 90.01 | 9,254.00 | -1.72 | 8,384.63 | 8,384.63 | 0.00 | 0.00 | 0.00 |
| 17,700.00 | 90.00 | 90.01 | 9,254.00 | -1.74 | 8,484.63 | 8,484.63 | 0.00 | 0.00 | 0.00 |
| 17,800.00 | 90.00 | 90.01 | 9,254.00 | -1.76 | 8,584.63 | 8,584.63 | 0.00 | 0.00 | 0.00 |
| 17,900.00 | 90.00 | 90.01 | 9,254.00 | -1.78 | 8,684.63 | 8,684.63 | 0.00 | 0.00 | 0.00 |
| 18,000.00 | 90.00 | 90.01 | 9,254.00 | -1.79 | 8,784.63 | 8,784.63 | 0.00 | 0.00 | 0.00 |
| 18,100.00 | 90.00 | 90.01 | 9,254.00 | -1.81 | 8,884.63 | 8,884.63 | 0.00 | 0.00 | 0.00 |
| 18,200.00 | 90.00 | 90.01 | 9,254.00 | -1.83 | 8,984.63 | 8,984.63 | 0.00 | 0.00 | 0.00 |
| 18,300.00 | 90.00 | 90.01 | 9,254.00 | -1.85 | 9,084.63 | 9,084.63 | 0.00 | 0.00 | 0.00 |
| 18,400.00 | 90.00 | 90.01 | 9,254.00 | -1.86 | 9,184.63 | 9,184.63 | 0.00 | 0.00 | 0.00 |
| 18,500.00 | 90.00 | 90.01 | 9,254.00 | -1.88 | 9,284.63 | 9,284.63 | 0.00 | 0.00 | 0.00 |
| 18,600.00 | 90.00 | 90.01 | 9,254.00 | -1.90 | 9,384.63 | 9,384.63 | 0.00 | 0.00 | 0.00 |
| 18,700.00 | 90.00 | 90.01 | 9,254.00 | -1.92 | 9,484.63 | 9,484.63 | 0.00 | 0.00 | 0.00 |
| 18,800.00 | 90.00 | 90.01 | 9,254.00 | -1.93 | 9,584.63 | 9,584.63 | 0.00 | 0.00 | 0.00 |
| 18,900.00 | 90.00 | 90.01 | 9,254.00 | -1.95 | 9,684.63 | 9,684.63 | 0.00 | 0.00 | 0.00 |
| 19,000.00 | 90.00 | 90.01 | 9,254.00 | -1.97 | 9,784.63 | 9,784.63 | 0.00 | 0.00 | 0.00 |
| 19,100.00 | 90.00 | 90.01 | 9,254.00 | -1.99 | 9,884.63 | 9,884.63 | 0.00 | 0.00 | 0.00 |
| 19,176.37 | 90.00 | 90.01 | 9,254.00 | -2.00 | 9,961.00 | 9,961.00 | 0.00 | 0.00 | 0.00 |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| [LFed]LPP | 0.00 | 0.00 | 0.00 | -2.00 | 9,871.00 | 563,795.00 | 575,232.00 | 32.5497434 | -104.0891777 |
| - plan misses target center by 9254.00usft at 19086.37usft MD (9254.00 TVD, -1.98 N, 9871.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| [LFed]FPP | 0.00 | 0.00 | 0.00 | 0.00 | 83.00 | 563,797.00 | 565,444.00 | 32.5498066 | -104.1209431 |
| - plan misses target center by 83.00usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| [LFed#201H]PBHL | 0.00 | 0.00 | 9,254.00 | -2.00 | 9,961.00 | 563,795.00 | 575,322.00 | 32.5497429 | -104.0888856 |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

Checked By: _____ Approved By: _____ Date: _____

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

| | | | |
|---|---|---|---|
| **Reference** | Prelim Plan A | | |
| **Filter type:** | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| **Interpolation Method:** | MD Interval 100.00usft | **Error Model:** | ISCWSA |
| **Depth Range:** | Unlimited | **Scan Method:** | Closest Approach 3D |
| **Results Limited by:** | Maximum center-center distance of 1,750.59 usft | **Error Surface:** | Pedal Curve |
| **Warning Levels Evaluated at:** | 2.00 **Sigma** | **Casing Method:** | Not applied |

**Survey Tool Program** **Date** 10/31/2017

| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0.00 | 1,200.00 | Prelim Plan A (OH) | MWD+HDGM | OWSG MWD + HRGM |
| 1,200.00 | 8,600.00 | Prelim Plan A (OH) | MWD+HDGM | OWSG MWD + HRGM |
| 8,600.00 | 19,176.37 | Prelim Plan A (OH) | MWD+HDGM | OWSG MWD + HRGM |

**Summary**

| Site Name / Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| Leatherneck Fed | | | | | | |
| 121H - OH - Prelim Plan A | 1,400.00 | 1,400.00 | 60.00 | 51.43 | 7.004 | CC, ES |
| 121H - OH - Prelim Plan A | 7,538.17 | 7,571.97 | 221.58 | 177.62 | 5.040 | SF |
| 131H - OH - Prelim Plan A | 1,400.00 | 1,400.00 | 30.00 | 21.43 | 3.502 | CC, ES |
| 131H - OH - Prelim Plan A | 19,176.37 | 18,987.12 | 189.00 | 28.08 | 1.175 | Level 2, SF |
| 221H - OH - Prelim Plan A | 1,400.00 | 1,400.00 | 30.00 | 20.93 | 3.307 | CC |
| 221H - OH - Prelim Plan A | 1,500.00 | 1,499.66 | 30.29 | 20.81 | 3.198 | ES |
| 221H - OH - Prelim Plan A | 19,176.37 | 19,441.18 | 246.00 | 84.59 | 1.524 | SF |

**Offset Design** Leatherneck Fed - 121H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 7100-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.00 | 0.00 | 60.00 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 0.00 | 60.00 | 0.00 | 60.00 | 59.75 | 0.25 | 235.742 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.49 | 0.49 | 0.00 | 60.00 | 0.00 | 60.00 | 59.03 | 0.97 | 61.763 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.84 | 0.84 | 0.00 | 60.00 | 0.00 | 60.00 | 58.31 | 1.69 | 35.537 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 1.20 | 1.20 | 0.00 | 60.00 | 0.00 | 60.00 | 57.59 | 2.41 | 24.944 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 1.56 | 1.56 | 0.00 | 60.00 | 0.00 | 60.00 | 56.88 | 3.12 | 19.217 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.92 | 1.92 | 0.00 | 60.00 | 0.00 | 60.00 | 56.16 | 3.84 | 15.628 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 2.28 | 2.28 | 0.00 | 60.00 | 0.00 | 60.00 | 55.44 | 4.56 | 13.169 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 2.64 | 2.64 | 0.00 | 60.00 | 0.00 | 60.00 | 54.73 | 5.27 | 11.378 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 3.00 | 3.00 | 0.00 | 60.00 | 0.00 | 60.00 | 54.01 | 5.99 | 10.017 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 3.35 | 3.35 | 0.00 | 60.00 | 0.00 | 60.00 | 53.29 | 6.71 | 8.946 | |
| 1,100.00 | 1,100.00 | 1,100.00 | 1,100.00 | 3.71 | 3.71 | 0.00 | 60.00 | 0.00 | 60.00 | 52.58 | 7.42 | 8.082 | |
| 1,200.00 | 1,200.00 | 1,200.00 | 1,200.00 | 4.07 | 4.07 | 0.00 | 60.00 | 0.00 | 60.00 | 51.86 | 8.14 | 7.370 | |
| 1,300.00 | 1,300.00 | 1,300.00 | 1,300.00 | 4.25 | 4.25 | 0.00 | 60.00 | 0.00 | 60.00 | 51.49 | 8.51 | 7.053 | |
| 1,400.00 | 1,400.00 | 1,400.00 | 1,400.00 | 4.28 | 4.28 | 0.00 | 60.00 | 0.00 | 60.00 | 51.43 | 8.57 | 7.004 | CC, ES |
| 1,500.00 | 1,499.99 | 1,499.41 | 1,499.40 | 4.34 | 4.34 | 108.36 | 60.49 | -0.71 | 60.76 | 52.08 | 8.68 | 6.998 | |
| 1,600.00 | 1,599.96 | 1,598.78 | 1,598.74 | 4.43 | 4.43 | 108.64 | 61.95 | -2.84 | 63.06 | 54.20 | 8.85 | 7.123 | |
| 1,700.00 | 1,699.86 | 1,698.08 | 1,697.94 | 4.54 | 4.54 | 109.06 | 64.38 | -6.39 | 66.88 | 57.80 | 9.08 | 7.368 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 121H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 7100-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,800.00 | 1,799.68 | 1,797.27 | 1,796.95 | 4.68 | 4.68 | 109.58 | 67.78 | -11.36 | 72.23 | 62.88 | 9.35 | 7.723 | |
| 1,900.00 | 1,899.37 | 1,903.70 | 1,895.68 | 4.84 | 4.86 | 110.14 | 72.14 | -17.72 | 79.12 | 69.43 | 9.69 | 8.164 | |
| 2,000.00 | 1,998.99 | 2,004.00 | 1,995.00 | 5.03 | 5.05 | 110.68 | 77.05 | -24.89 | 86.81 | 76.74 | 10.07 | 8.623 | |
| 2,100.00 | 2,098.60 | 2,104.30 | 2,094.32 | 5.24 | 5.26 | 111.13 | 81.97 | -32.05 | 94.50 | 84.02 | 10.48 | 9.015 | |
| 2,200.00 | 2,198.22 | 2,204.60 | 2,193.64 | 5.47 | 5.49 | 111.52 | 86.88 | -39.22 | 102.20 | 91.27 | 10.94 | 9.346 | |
| 2,300.00 | 2,297.84 | 2,304.90 | 2,292.96 | 5.71 | 5.73 | 111.85 | 91.79 | -46.39 | 109.91 | 98.49 | 11.42 | 9.625 | |
| 2,400.00 | 2,397.46 | 2,405.20 | 2,392.28 | 5.97 | 5.99 | 112.14 | 96.70 | -53.56 | 117.61 | 105.68 | 11.93 | 9.859 | |
| 2,500.00 | 2,497.08 | 2,505.50 | 2,491.60 | 6.24 | 6.26 | 112.40 | 101.61 | -60.73 | 125.32 | 112.86 | 12.46 | 10.054 | |
| 2,600.00 | 2,596.70 | 2,605.80 | 2,590.93 | 6.52 | 6.54 | 112.62 | 106.53 | -67.89 | 133.03 | 120.01 | 13.02 | 10.217 | |
| 2,700.00 | 2,696.32 | 2,706.10 | 2,690.25 | 6.81 | 6.83 | 112.82 | 111.44 | -75.06 | 140.75 | 127.15 | 13.60 | 10.352 | |
| 2,800.00 | 2,795.94 | 2,806.40 | 2,789.57 | 7.11 | 7.13 | 113.00 | 116.35 | -82.23 | 148.46 | 134.28 | 14.19 | 10.464 | |
| 2,900.00 | 2,895.56 | 2,906.70 | 2,888.89 | 7.41 | 7.43 | 113.16 | 121.26 | -89.40 | 156.18 | 141.39 | 14.79 | 10.557 | |
| 3,000.00 | 2,995.18 | 3,006.99 | 2,988.21 | 7.73 | 7.75 | 113.30 | 126.17 | -96.57 | 163.90 | 148.49 | 15.41 | 10.634 | |
| 3,100.00 | 3,094.80 | 3,107.29 | 3,087.53 | 8.04 | 8.06 | 113.44 | 131.09 | -103.73 | 171.62 | 155.58 | 16.04 | 10.698 | |
| 3,200.00 | 3,194.42 | 3,207.59 | 3,186.85 | 8.37 | 8.39 | 113.56 | 136.00 | -110.90 | 179.34 | 162.66 | 16.68 | 10.750 | |
| 3,300.00 | 3,294.04 | 3,307.89 | 3,286.18 | 8.70 | 8.71 | 113.67 | 140.91 | -118.07 | 187.06 | 169.73 | 17.33 | 10.793 | |
| 3,400.00 | 3,393.66 | 3,408.19 | 3,385.50 | 9.03 | 9.05 | 113.77 | 145.82 | -125.24 | 194.78 | 176.79 | 17.99 | 10.828 | |
| 3,500.00 | 3,493.28 | 3,508.49 | 3,484.82 | 9.36 | 9.38 | 113.87 | 150.73 | -132.41 | 202.50 | 183.85 | 18.65 | 10.857 | |
| 3,600.00 | 3,592.90 | 3,608.79 | 3,584.14 | 9.70 | 9.72 | 113.96 | 155.65 | -139.57 | 210.22 | 190.90 | 19.32 | 10.880 | |
| 3,700.00 | 3,692.52 | 3,709.09 | 3,683.46 | 10.04 | 10.06 | 114.04 | 160.56 | -146.74 | 217.95 | 197.95 | 20.00 | 10.899 | |
| 3,800.00 | 3,792.14 | 3,809.39 | 3,782.78 | 10.39 | 10.40 | 114.11 | 165.47 | -153.91 | 225.67 | 204.99 | 20.68 | 10.913 | |
| 3,900.00 | 3,891.77 | 3,909.68 | 3,882.11 | 10.73 | 10.75 | 114.18 | 170.38 | -161.08 | 233.32 | 211.96 | 21.36 | 10.922 | |
| 4,000.00 | 3,991.56 | 4,009.93 | 3,981.48 | 11.07 | 11.09 | 113.85 | 175.30 | -168.25 | 240.12 | 218.08 | 22.05 | 10.892 | |
| 4,100.00 | 4,091.48 | 4,089.82 | 4,080.85 | 11.41 | 11.37 | 112.96 | 180.21 | -175.42 | 245.91 | 223.25 | 22.65 | 10.855 | |
| 4,200.00 | 4,191.47 | 4,189.49 | 4,180.14 | 11.72 | 11.72 | 3.30 | 185.12 | -182.59 | 250.79 | 227.48 | 23.32 | 10.756 | |
| 4,300.00 | 4,291.47 | 4,291.58 | 4,281.90 | 12.03 | 12.08 | 1.70 | 189.81 | -189.42 | 255.10 | 231.12 | 23.98 | 10.636 | |
| 4,400.00 | 4,391.47 | 4,395.26 | 4,385.41 | 12.34 | 12.43 | 0.62 | 193.08 | -194.19 | 258.16 | 233.51 | 24.65 | 10.472 | |
| 4,500.00 | 4,491.47 | 4,499.17 | 4,489.27 | 12.65 | 12.78 | 0.08 | 194.76 | -196.64 | 259.77 | 234.45 | 25.31 | 10.262 | |
| 4,600.00 | 4,591.47 | 4,601.37 | 4,591.47 | 12.96 | 13.11 | 0.00 | 195.00 | -197.00 | 260.00 | 234.04 | 25.96 | 10.015 | |
| 4,700.00 | 4,691.47 | 4,701.37 | 4,691.47 | 13.28 | 13.43 | 0.00 | 195.00 | -197.00 | 260.00 | 233.40 | 26.60 | 9.774 | |
| 4,800.00 | 4,791.47 | 4,801.37 | 4,791.47 | 13.59 | 13.76 | 0.00 | 195.00 | -197.00 | 260.00 | 232.75 | 27.25 | 9.542 | |
| 4,900.00 | 4,891.47 | 4,901.37 | 4,891.47 | 13.91 | 14.08 | 0.00 | 195.00 | -197.00 | 260.00 | 232.10 | 27.90 | 9.320 | |
| 5,000.00 | 4,991.47 | 5,001.37 | 4,991.47 | 14.23 | 14.41 | 0.00 | 195.00 | -197.00 | 260.00 | 231.45 | 28.55 | 9.108 | |
| 5,100.00 | 5,091.47 | 5,101.37 | 5,091.47 | 14.56 | 14.74 | 0.00 | 195.00 | -197.00 | 260.00 | 230.80 | 29.20 | 8.903 | |
| 5,200.00 | 5,191.47 | 5,201.37 | 5,191.47 | 14.88 | 15.07 | 0.00 | 195.00 | -197.00 | 260.00 | 230.14 | 29.86 | 8.707 | |
| 5,300.00 | 5,291.47 | 5,301.37 | 5,291.47 | 15.21 | 15.40 | 0.00 | 195.00 | -197.00 | 260.00 | 229.48 | 30.52 | 8.519 | |
| 5,400.00 | 5,391.47 | 5,401.37 | 5,391.47 | 15.54 | 15.74 | 0.00 | 195.00 | -197.00 | 260.00 | 228.82 | 31.18 | 8.338 | |
| 5,500.00 | 5,491.47 | 5,501.37 | 5,491.47 | 15.87 | 16.07 | 0.00 | 195.00 | -197.00 | 260.00 | 228.15 | 31.85 | 8.163 | |
| 5,600.00 | 5,591.47 | 5,601.37 | 5,591.47 | 16.20 | 16.41 | 0.00 | 195.00 | -197.00 | 260.00 | 227.48 | 32.52 | 7.996 | |
| 5,700.00 | 5,691.47 | 5,701.37 | 5,691.47 | 16.53 | 16.74 | 0.00 | 195.00 | -197.00 | 260.00 | 226.81 | 33.19 | 7.835 | |
| 5,800.00 | 5,791.47 | 5,801.37 | 5,791.47 | 16.86 | 17.08 | 0.00 | 195.00 | -197.00 | 260.00 | 226.14 | 33.86 | 7.679 | |
| 5,900.00 | 5,891.47 | 5,901.37 | 5,891.47 | 17.19 | 17.42 | 0.00 | 195.00 | -197.00 | 260.00 | 225.47 | 34.53 | 7.529 | |
| 6,000.00 | 5,991.47 | 6,001.37 | 5,991.47 | 17.53 | 17.76 | 0.00 | 195.00 | -197.00 | 260.00 | 224.79 | 35.21 | 7.385 | |
| 6,100.00 | 6,091.47 | 6,101.37 | 6,091.47 | 17.86 | 18.09 | 0.00 | 195.00 | -197.00 | 260.00 | 224.12 | 35.88 | 7.246 | |
| 6,200.00 | 6,191.47 | 6,201.37 | 6,191.47 | 18.20 | 18.43 | 0.00 | 195.00 | -197.00 | 260.00 | 223.44 | 36.56 | 7.111 | |
| 6,300.00 | 6,291.47 | 6,301.37 | 6,291.47 | 18.54 | 18.78 | 0.00 | 195.00 | -197.00 | 260.00 | 222.76 | 37.24 | 6.982 | |
| 6,400.00 | 6,391.47 | 6,401.37 | 6,391.47 | 18.88 | 19.12 | 0.00 | 195.00 | -197.00 | 260.00 | 222.08 | 37.92 | 6.856 | |
| 6,500.00 | 6,491.47 | 6,501.37 | 6,491.47 | 19.22 | 19.46 | 0.00 | 195.00 | -197.00 | 260.00 | 221.40 | 38.60 | 6.735 | |
| 6,600.00 | 6,591.47 | 6,601.37 | 6,591.47 | 19.55 | 19.80 | 0.00 | 195.00 | -197.00 | 260.00 | 220.71 | 39.29 | 6.618 | |
| 6,700.00 | 6,691.47 | 6,701.37 | 6,691.47 | 19.90 | 20.15 | 0.00 | 195.00 | -197.00 | 260.00 | 220.03 | 39.97 | 6.504 | |
| 6,800.00 | 6,791.47 | 6,801.37 | 6,791.47 | 20.24 | 20.49 | 0.00 | 195.00 | -197.00 | 260.00 | 219.34 | 40.66 | 6.395 | |
| 6,900.00 | 6,891.47 | 6,901.37 | 6,891.47 | 20.58 | 20.83 | 0.00 | 195.00 | -197.00 | 260.00 | 218.65 | 41.35 | 6.289 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 121H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 7100-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7,000.00 | 6,991.47 | 7,001.37 | 6,991.47 | 20.92 | 21.18 | 0.00 | 195.00 | -197.00 | 260.00 | 217.97 | 42.03 | 6.186 | |
| 7,100.00 | 7,091.47 | 7,101.37 | 7,091.47 | 21.26 | 21.35 | 0.00 | 195.00 | -197.00 | 260.00 | 217.45 | 42.55 | 6.111 | |
| 7,200.00 | 7,191.47 | 7,211.40 | 7,201.46 | 21.60 | 21.35 | 0.30 | 194.18 | -195.66 | 259.37 | 216.51 | 42.86 | 6.052 | |
| 7,300.00 | 7,291.47 | 7,337.56 | 7,325.24 | 21.95 | 21.33 | 4.86 | 182.11 | -176.00 | 250.29 | 207.36 | 42.92 | 5.831 | |
| 7,400.00 | 7,391.47 | 7,449.05 | 7,428.12 | 22.29 | 21.31 | 14.27 | 159.88 | -139.79 | 234.92 | 191.75 | 43.17 | 5.442 | |
| 7,500.00 | 7,491.47 | 7,541.58 | 7,505.95 | 22.64 | 21.31 | 26.63 | 133.80 | -97.30 | 222.87 | 179.07 | 43.79 | 5.089 | |
| 7,538.17 | 7,529.64 | 7,571.97 | 7,529.64 | 22.77 | 21.32 | 31.54 | 123.84 | -81.08 | 221.58 | 177.62 | 43.96 | 5.040 SF | |
| 7,600.00 | 7,591.47 | 7,615.96 | 7,562.06 | 22.98 | 21.35 | 39.18 | 108.29 | -55.75 | 225.49 | 181.65 | 43.84 | 5.144 | |
| 7,700.00 | 7,691.47 | 7,667.72 | 7,597.45 | 23.33 | 21.40 | 48.39 | 89.49 | -23.03 | 250.95 | 208.88 | 42.07 | 5.965 | |
| 7,800.00 | 7,791.47 | 7,711.20 | 7,625.06 | 23.67 | 21.46 | 55.60 | 74.78 | 7.16 | 298.19 | 258.79 | 39.40 | 7.569 | |
| 7,900.00 | 7,891.47 | 7,750.00 | 7,647.92 | 24.02 | 21.55 | 61.30 | 62.60 | 36.04 | 360.42 | 323.40 | 37.03 | 9.734 | |
| 8,000.00 | 7,991.47 | 7,781.25 | 7,665.05 | 24.37 | 21.64 | 65.29 | 53.48 | 60.53 | 432.33 | 397.20 | 35.13 | 12.308 | |
| 8,100.00 | 8,091.47 | 7,809.48 | 7,679.49 | 24.71 | 21.73 | 68.45 | 45.79 | 83.53 | 510.58 | 476.80 | 33.78 | 15.115 | |
| 8,200.00 | 8,191.47 | 7,834.11 | 7,691.26 | 25.06 | 21.83 | 70.87 | 39.52 | 104.24 | 593.19 | 560.37 | 32.82 | 18.074 | |
| 8,300.00 | 8,291.47 | 7,850.00 | 7,698.43 | 25.41 | 21.89 | 72.27 | 35.70 | 117.89 | 678.96 | 646.97 | 31.99 | 21.222 | |
| 8,400.00 | 8,391.47 | 7,874.78 | 7,708.94 | 25.75 | 22.01 | 74.22 | 30.10 | 139.62 | 766.94 | 735.29 | 31.66 | 24.227 | |
| 8,500.00 | 8,491.47 | 7,900.00 | 7,718.78 | 26.10 | 22.14 | 75.96 | 24.86 | 162.24 | 856.85 | 825.36 | 31.49 | 27.210 | |
| 8,600.00 | 8,591.47 | 7,900.00 | 7,718.78 | 26.28 | 22.14 | 75.96 | 24.86 | 162.24 | 948.01 | 917.10 | 30.92 | 30.664 | |
| 8,700.00 | 8,691.47 | 7,920.28 | 7,726.04 | 26.28 | 22.26 | -2.58 | 20.98 | 180.77 | 1,040.20 | 1,009.36 | 30.84 | 33.729 | |
| 8,800.00 | 8,790.71 | 7,950.00 | 7,735.63 | 26.28 | 22.43 | -0.82 | 15.87 | 208.43 | 1,129.08 | 1,098.27 | 30.81 | 36.641 | |
| 8,900.00 | 8,886.50 | 7,950.00 | 7,735.63 | 26.27 | 22.43 | -0.65 | 15.87 | 208.43 | 1,210.05 | 1,179.73 | 30.32 | 39.910 | |
| 9,000.00 | 8,975.93 | 7,976.65 | 7,743.14 | 26.26 | 22.62 | -0.02 | 11.87 | 233.69 | 1,282.44 | 1,252.31 | 30.12 | 42.574 | |
| 9,100.00 | 9,056.28 | 8,000.00 | 7,748.86 | 26.28 | 22.79 | 0.34 | 8.82 | 256.11 | 1,344.99 | 1,315.09 | 29.90 | 44.986 | |
| 9,200.00 | 9,125.13 | 8,026.80 | 7,754.43 | 26.38 | 23.00 | 0.55 | 5.85 | 282.16 | 1,396.79 | 1,367.04 | 29.75 | 46.953 | |
| 9,300.00 | 9,180.67 | 8,050.00 | 7,758.38 | 26.59 | 23.19 | 0.20 | 3.74 | 304.92 | 1,437.44 | 1,407.76 | 29.67 | 48.444 | |
| 9,400.00 | 9,221.40 | 8,083.50 | 7,762.64 | 26.97 | 23.49 | 0.09 | 1.47 | 338.07 | 1,466.44 | 1,436.69 | 29.75 | 49.290 | |
| 9,500.00 | 9,246.09 | 8,100.00 | 7,764.11 | 27.54 | 23.64 | -0.01 | 0.68 | 354.48 | 1,483.61 | 1,453.71 | 29.90 | 49.619 | |
| 9,600.00 | 9,254.00 | 8,149.58 | 7,766.00 | 28.29 | 24.13 | 0.00 | -0.33 | 404.00 | 1,488.13 | 1,457.90 | 30.23 | 49.232 | |
| 9,641.34 | 9,254.00 | 8,171.55 | 7,766.00 | 28.66 | 24.36 | 0.00 | -0.34 | 425.97 | 1,488.00 | 1,457.61 | 30.39 | 48.961 | |
| 9,700.00 | 9,254.00 | 8,230.21 | 7,766.00 | 29.19 | 25.02 | 0.00 | -0.35 | 484.63 | 1,488.00 | 1,457.35 | 30.65 | 48.540 | |
| 9,800.00 | 9,254.00 | 8,330.21 | 7,766.00 | 30.25 | 26.24 | 0.00 | -0.36 | 584.63 | 1,488.00 | 1,456.84 | 31.16 | 47.747 | |
| 9,900.00 | 9,254.00 | 8,430.21 | 7,766.00 | 31.44 | 27.61 | 0.00 | -0.38 | 684.63 | 1,488.00 | 1,456.26 | 31.74 | 46.877 | |
| 10,000.00 | 9,254.00 | 8,530.21 | 7,766.00 | 32.75 | 29.09 | 0.00 | -0.40 | 784.63 | 1,488.00 | 1,455.61 | 32.39 | 45.943 | |
| 10,100.00 | 9,254.00 | 8,630.21 | 7,766.00 | 34.17 | 30.68 | 0.00 | -0.42 | 884.63 | 1,488.00 | 1,454.90 | 33.10 | 44.961 | |
| 10,200.00 | 9,254.00 | 8,730.21 | 7,766.00 | 35.68 | 32.36 | 0.00 | -0.43 | 984.63 | 1,488.00 | 1,454.14 | 33.86 | 43.945 | |
| 10,300.00 | 9,254.00 | 8,830.21 | 7,766.00 | 37.27 | 34.10 | 0.00 | -0.45 | 1,084.63 | 1,488.00 | 1,453.32 | 34.68 | 42.907 | |
| 10,365.80 | 9,254.00 | 8,903.99 | 7,766.00 | 38.37 | 35.43 | 0.00 | -0.46 | 1,150.43 | 1,488.00 | 1,452.71 | 35.29 | 42.170 | |
| 10,400.00 | 9,254.00 | 8,930.21 | 7,766.00 | 38.93 | 35.92 | 0.00 | -0.47 | 1,184.63 | 1,488.00 | 1,452.45 | 35.55 | 41.858 | |
| 10,500.00 | 9,254.00 | 9,030.21 | 7,766.00 | 40.66 | 37.78 | 0.00 | -0.49 | 1,284.63 | 1,488.00 | 1,451.54 | 36.47 | 40.806 | |
| 10,600.00 | 9,254.00 | 9,130.21 | 7,766.00 | 42.44 | 39.70 | 0.00 | -0.50 | 1,384.63 | 1,488.00 | 1,450.58 | 37.42 | 39.760 | |
| 10,700.00 | 9,254.00 | 9,230.21 | 7,766.00 | 44.27 | 41.65 | 0.00 | -0.52 | 1,484.63 | 1,488.00 | 1,449.58 | 38.42 | 38.726 | |
| 10,800.00 | 9,254.00 | 9,330.21 | 7,766.00 | 46.14 | 43.64 | 0.00 | -0.54 | 1,584.63 | 1,488.00 | 1,448.54 | 39.46 | 37.710 | |
| 10,900.00 | 9,254.00 | 9,430.21 | 7,766.00 | 48.06 | 45.65 | 0.00 | -0.56 | 1,684.63 | 1,488.00 | 1,447.47 | 40.53 | 36.714 | |
| 11,000.00 | 9,254.00 | 9,530.21 | 7,766.00 | 50.00 | 47.70 | 0.00 | -0.57 | 1,784.63 | 1,488.00 | 1,446.37 | 41.63 | 35.743 | |
| 11,100.00 | 9,254.00 | 9,630.21 | 7,766.00 | 51.97 | 49.76 | 0.00 | -0.59 | 1,884.63 | 1,488.00 | 1,445.24 | 42.76 | 34.798 | |
| 11,200.00 | 9,254.00 | 9,730.21 | 7,766.00 | 53.97 | 51.85 | 0.00 | -0.61 | 1,984.63 | 1,488.00 | 1,444.08 | 43.92 | 33.881 | |
| 11,300.00 | 9,254.00 | 9,830.21 | 7,766.00 | 56.00 | 53.96 | 0.00 | -0.63 | 2,084.63 | 1,488.00 | 1,442.90 | 45.10 | 32.993 | |
| 11,400.00 | 9,254.00 | 9,930.21 | 7,766.00 | 58.04 | 56.08 | 0.00 | -0.64 | 2,184.63 | 1,488.00 | 1,441.70 | 46.30 | 32.135 | |
| 11,500.00 | 9,254.00 | 10,030.21 | 7,766.00 | 60.11 | 58.21 | 0.00 | -0.66 | 2,284.63 | 1,488.00 | 1,440.47 | 47.53 | 31.306 | |
| 11,600.00 | 9,254.00 | 10,130.21 | 7,766.00 | 62.19 | 60.36 | 0.00 | -0.68 | 2,384.63 | 1,488.00 | 1,439.22 | 48.78 | 30.507 | |
| 11,700.00 | 9,254.00 | 10,230.21 | 7,766.00 | 64.28 | 62.52 | 0.00 | -0.70 | 2,484.63 | 1,488.00 | 1,437.96 | 50.04 | 29.737 | |
| 11,800.00 | 9,254.00 | 10,330.21 | 7,766.00 | 66.39 | 64.69 | 0.00 | -0.71 | 2,584.63 | 1,488.00 | 1,436.68 | 51.32 | 28.995 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 121H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 7100-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,865.80 | 9,254.00 | 10,403.99 | 7,766.00 | 67.79 | 66.29 | 0.00 | -0.72 | 2,650.43 | 1,488.00 | 1,435.78 | 52.22 | 28.493 | |
| 11,900.00 | 9,254.00 | 10,430.21 | 7,766.00 | 68.52 | 66.87 | 0.00 | -0.73 | 2,684.63 | 1,488.00 | 1,435.39 | 52.61 | 28.281 | |
| 12,000.00 | 9,254.00 | 10,530.21 | 7,766.00 | 70.65 | 69.05 | 0.00 | -0.75 | 2,784.63 | 1,488.00 | 1,434.08 | 53.92 | 27.594 | |
| 12,100.00 | 9,254.00 | 10,630.21 | 7,766.00 | 72.80 | 71.25 | 0.00 | -0.76 | 2,884.63 | 1,488.00 | 1,432.75 | 55.25 | 26.933 | |
| 12,200.00 | 9,254.00 | 10,730.21 | 7,766.00 | 74.95 | 73.45 | 0.00 | -0.78 | 2,984.63 | 1,488.00 | 1,431.42 | 56.58 | 26.298 | |
| 12,300.00 | 9,254.00 | 10,830.21 | 7,766.00 | 77.12 | 75.66 | 0.00 | -0.80 | 3,084.63 | 1,488.00 | 1,430.07 | 57.93 | 25.686 | |
| 12,400.00 | 9,254.00 | 10,930.21 | 7,766.00 | 79.29 | 77.87 | 0.00 | -0.82 | 3,184.63 | 1,488.00 | 1,428.71 | 59.29 | 25.097 | |
| 12,500.00 | 9,254.00 | 11,030.21 | 7,766.00 | 81.47 | 80.09 | 0.00 | -0.83 | 3,284.63 | 1,488.00 | 1,427.34 | 60.66 | 24.531 | |
| 12,600.00 | 9,254.00 | 11,130.21 | 7,766.00 | 83.65 | 82.31 | 0.00 | -0.85 | 3,384.63 | 1,488.00 | 1,425.96 | 62.04 | 23.986 | |
| 12,700.00 | 9,254.00 | 11,230.21 | 7,766.00 | 85.84 | 84.54 | 0.00 | -0.87 | 3,484.63 | 1,488.00 | 1,424.58 | 63.42 | 23.462 | |
| 12,800.00 | 9,254.00 | 11,330.21 | 7,766.00 | 88.04 | 86.77 | 0.00 | -0.89 | 3,584.63 | 1,488.00 | 1,423.18 | 64.82 | 22.957 | |
| 12,900.00 | 9,254.00 | 11,430.21 | 7,766.00 | 90.25 | 89.01 | 0.00 | -0.90 | 3,684.63 | 1,488.00 | 1,421.78 | 66.22 | 22.471 | |
| 13,000.00 | 9,254.00 | 11,530.21 | 7,766.00 | 92.45 | 91.25 | 0.00 | -0.92 | 3,784.63 | 1,488.00 | 1,420.37 | 67.63 | 22.002 | |
| 13,100.00 | 9,254.00 | 11,630.21 | 7,766.00 | 94.67 | 93.49 | 0.00 | -0.94 | 3,884.63 | 1,488.00 | 1,418.95 | 69.05 | 21.551 | |
| 13,200.00 | 9,254.00 | 11,730.21 | 7,766.00 | 96.89 | 95.74 | 0.00 | -0.96 | 3,984.63 | 1,488.00 | 1,417.53 | 70.47 | 21.116 | |
| 13,300.00 | 9,254.00 | 11,830.21 | 7,766.00 | 99.11 | 97.99 | 0.00 | -0.97 | 4,084.63 | 1,488.00 | 1,416.10 | 71.90 | 20.696 | |
| 13,365.80 | 9,254.00 | 11,903.99 | 7,766.00 | 100.57 | 99.65 | 0.00 | -0.99 | 4,150.43 | 1,488.00 | 1,415.10 | 72.90 | 20.411 | |
| 13,400.00 | 9,254.00 | 11,930.21 | 7,766.00 | 101.33 | 100.24 | 0.00 | -0.99 | 4,184.63 | 1,488.00 | 1,414.67 | 73.33 | 20.291 | |
| 13,500.00 | 9,254.00 | 12,030.21 | 7,766.00 | 103.56 | 102.49 | 0.00 | -1.01 | 4,284.63 | 1,488.00 | 1,413.23 | 74.77 | 19.900 | |
| 13,600.00 | 9,254.00 | 12,130.21 | 7,766.00 | 105.80 | 104.75 | 0.00 | -1.03 | 4,384.63 | 1,488.00 | 1,411.78 | 76.22 | 19.523 | |
| 13,700.00 | 9,254.00 | 12,230.21 | 7,766.00 | 108.03 | 107.01 | 0.00 | -1.04 | 4,484.63 | 1,488.00 | 1,410.33 | 77.67 | 19.158 | |
| 13,800.00 | 9,254.00 | 12,330.21 | 7,766.00 | 110.27 | 109.27 | 0.00 | -1.06 | 4,584.63 | 1,488.00 | 1,408.88 | 79.12 | 18.806 | |
| 13,900.00 | 9,254.00 | 12,430.21 | 7,766.00 | 112.51 | 111.53 | 0.00 | -1.08 | 4,684.63 | 1,488.00 | 1,407.42 | 80.58 | 18.465 | |
| 14,000.00 | 9,254.00 | 12,530.21 | 7,766.00 | 114.75 | 113.79 | 0.00 | -1.10 | 4,784.63 | 1,488.00 | 1,405.95 | 82.05 | 18.136 | |
| 14,100.00 | 9,254.00 | 12,630.21 | 7,766.00 | 117.00 | 116.06 | 0.00 | -1.11 | 4,884.63 | 1,488.00 | 1,404.49 | 83.51 | 17.817 | |
| 14,200.00 | 9,254.00 | 12,730.21 | 7,766.00 | 119.25 | 118.33 | 0.00 | -1.13 | 4,984.63 | 1,488.00 | 1,403.02 | 84.98 | 17.509 | |
| 14,300.00 | 9,254.00 | 12,830.21 | 7,766.00 | 121.50 | 120.60 | 0.00 | -1.15 | 5,084.63 | 1,488.00 | 1,401.54 | 86.46 | 17.211 | |
| 14,400.00 | 9,254.00 | 12,930.21 | 7,766.00 | 123.75 | 122.87 | 0.00 | -1.17 | 5,184.63 | 1,488.00 | 1,400.06 | 87.94 | 16.921 | |
| 14,500.00 | 9,254.00 | 13,030.21 | 7,766.00 | 126.01 | 125.14 | 0.00 | -1.18 | 5,284.63 | 1,488.00 | 1,398.58 | 89.42 | 16.641 | |
| 14,600.00 | 9,254.00 | 13,130.21 | 7,766.00 | 128.27 | 127.41 | 0.00 | -1.20 | 5,384.63 | 1,488.00 | 1,397.10 | 90.90 | 16.370 | |
| 14,700.00 | 9,254.00 | 13,230.21 | 7,766.00 | 130.52 | 129.69 | 0.00 | -1.22 | 5,484.63 | 1,488.00 | 1,395.61 | 92.39 | 16.106 | |
| 14,800.00 | 9,254.00 | 13,330.21 | 7,766.00 | 132.78 | 131.96 | 0.00 | -1.24 | 5,584.63 | 1,488.00 | 1,394.12 | 93.88 | 15.851 | |
| 14,865.80 | 9,254.00 | 13,403.99 | 7,766.00 | 134.27 | 133.64 | 0.00 | -1.25 | 5,650.43 | 1,488.00 | 1,393.08 | 94.92 | 15.677 | |
| 14,900.00 | 9,254.00 | 13,430.21 | 7,766.00 | 135.05 | 134.24 | 0.00 | -1.25 | 5,684.63 | 1,488.00 | 1,392.63 | 95.37 | 15.603 | |
| 15,000.00 | 9,254.00 | 13,530.21 | 7,766.00 | 137.31 | 136.51 | 0.00 | -1.27 | 5,784.63 | 1,488.00 | 1,391.14 | 96.86 | 15.362 | |
| 15,100.00 | 9,254.00 | 13,630.21 | 7,766.00 | 139.57 | 138.79 | 0.00 | -1.29 | 5,884.63 | 1,488.00 | 1,389.64 | 98.36 | 15.129 | |
| 15,200.00 | 9,254.00 | 13,730.21 | 7,766.00 | 141.84 | 141.07 | 0.00 | -1.31 | 5,984.63 | 1,488.00 | 1,388.14 | 99.86 | 14.902 | |
| 15,300.00 | 9,254.00 | 13,830.21 | 7,766.00 | 144.11 | 143.35 | 0.00 | -1.32 | 6,084.63 | 1,488.00 | 1,386.64 | 101.36 | 14.681 | |
| 15,400.00 | 9,254.00 | 13,930.21 | 7,766.00 | 146.38 | 145.63 | 0.00 | -1.34 | 6,184.63 | 1,488.00 | 1,385.14 | 102.86 | 14.466 | |
| 15,500.00 | 9,254.00 | 14,030.21 | 7,766.00 | 148.65 | 147.92 | 0.00 | -1.36 | 6,284.63 | 1,488.00 | 1,383.64 | 104.36 | 14.258 | |
| 15,600.00 | 9,254.00 | 14,130.21 | 7,766.00 | 150.92 | 150.20 | 0.00 | -1.38 | 6,384.63 | 1,488.00 | 1,382.13 | 105.87 | 14.055 | |
| 15,700.00 | 9,254.00 | 14,230.21 | 7,766.00 | 153.19 | 152.48 | 0.00 | -1.39 | 6,484.63 | 1,488.00 | 1,380.62 | 107.38 | 13.857 | |
| 15,800.00 | 9,254.00 | 14,330.21 | 7,766.00 | 155.46 | 154.77 | 0.00 | -1.41 | 6,584.63 | 1,488.00 | 1,379.11 | 108.89 | 13.665 | |
| 15,900.00 | 9,254.00 | 14,430.21 | 7,766.00 | 157.74 | 157.05 | 0.00 | -1.43 | 6,684.63 | 1,488.00 | 1,377.60 | 110.40 | 13.478 | |
| 16,000.00 | 9,254.00 | 14,530.21 | 7,766.00 | 160.01 | 159.34 | 0.00 | -1.45 | 6,784.63 | 1,488.00 | 1,376.09 | 111.91 | 13.296 | |
| 16,100.00 | 9,254.00 | 14,630.21 | 7,766.00 | 162.29 | 161.62 | 0.00 | -1.46 | 6,884.63 | 1,488.00 | 1,374.57 | 113.43 | 13.118 | |
| 16,200.00 | 9,254.00 | 14,730.21 | 7,766.00 | 164.56 | 163.91 | 0.00 | -1.48 | 6,984.63 | 1,488.00 | 1,373.05 | 114.95 | 12.945 | |
| 16,300.00 | 9,254.00 | 14,830.21 | 7,766.00 | 166.84 | 166.20 | 0.00 | -1.50 | 7,084.63 | 1,488.00 | 1,371.54 | 116.46 | 12.777 | |
| 16,365.80 | 9,254.00 | 14,903.99 | 7,766.00 | 168.34 | 167.88 | 0.00 | -1.51 | 7,150.43 | 1,488.00 | 1,370.48 | 117.52 | 12.661 | |
| 16,400.00 | 9,254.00 | 14,930.21 | 7,766.00 | 169.12 | 168.48 | 0.00 | -1.52 | 7,184.63 | 1,488.00 | 1,370.02 | 117.98 | 12.612 | |
| 16,500.00 | 9,254.00 | 15,030.21 | 7,766.00 | 171.40 | 170.77 | 0.00 | -1.53 | 7,284.63 | 1,488.00 | 1,368.50 | 119.50 | 12.452 | |
| 16,600.00 | 9,254.00 | 15,130.21 | 7,766.00 | 173.68 | 173.06 | 0.00 | -1.55 | 7,384.63 | 1,488.00 | 1,366.98 | 121.02 | 12.295 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 121H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 7100-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16,700.00 | 9,254.00 | 15,230.21 | 7,766.00 | 175.96 | 175.35 | 0.00 | -1.57 | 7,484.63 | 1,488.00 | 1,365.45 | 122.55 | 12.142 | |
| 16,800.00 | 9,254.00 | 15,330.21 | 7,766.00 | 178.24 | 177.64 | 0.00 | -1.59 | 7,584.63 | 1,488.00 | 1,363.93 | 124.07 | 11.993 | |
| 16,900.00 | 9,254.00 | 15,430.21 | 7,766.00 | 180.52 | 179.93 | 0.00 | -1.60 | 7,684.63 | 1,488.00 | 1,362.40 | 125.60 | 11.847 | |
| 17,000.00 | 9,254.00 | 15,530.21 | 7,766.00 | 182.81 | 182.22 | 0.00 | -1.62 | 7,784.63 | 1,488.00 | 1,360.88 | 127.12 | 11.705 | |
| 17,100.00 | 9,254.00 | 15,630.21 | 7,766.00 | 185.09 | 184.51 | 0.00 | -1.64 | 7,884.63 | 1,488.00 | 1,359.35 | 128.65 | 11.566 | |
| 17,200.00 | 9,254.00 | 15,730.21 | 7,766.00 | 187.37 | 186.80 | 0.00 | -1.66 | 7,984.63 | 1,488.00 | 1,357.82 | 130.18 | 11.430 | |
| 17,300.00 | 9,254.00 | 15,830.21 | 7,766.00 | 189.66 | 189.09 | 0.00 | -1.67 | 8,084.63 | 1,488.00 | 1,356.29 | 131.71 | 11.298 | |
| 17,400.00 | 9,254.00 | 15,930.21 | 7,766.00 | 191.94 | 191.39 | 0.00 | -1.69 | 8,184.63 | 1,488.00 | 1,354.76 | 133.24 | 11.168 | |
| 17,500.00 | 9,254.00 | 16,030.21 | 7,766.00 | 194.23 | 193.68 | 0.00 | -1.71 | 8,284.63 | 1,488.00 | 1,353.23 | 134.77 | 11.041 | |
| 17,600.00 | 9,254.00 | 16,130.21 | 7,766.00 | 196.51 | 195.97 | 0.00 | -1.72 | 8,384.63 | 1,488.00 | 1,351.70 | 136.30 | 10.917 | |
| 17,700.00 | 9,254.00 | 16,230.21 | 7,766.00 | 198.80 | 198.27 | 0.00 | -1.74 | 8,484.63 | 1,488.00 | 1,350.17 | 137.83 | 10.796 | |
| 17,800.00 | 9,254.00 | 16,330.21 | 7,766.00 | 201.09 | 200.56 | 0.00 | -1.76 | 8,584.63 | 1,488.00 | 1,348.63 | 139.37 | 10.677 | |
| 17,865.73 | 9,254.00 | 16,404.06 | 7,766.00 | 202.59 | 202.25 | 0.00 | -1.77 | 8,650.36 | 1,488.00 | 1,347.56 | 140.44 | 10.595 | |
| 17,900.00 | 9,254.00 | 16,430.21 | 7,766.00 | 203.37 | 202.85 | 0.00 | -1.78 | 8,684.63 | 1,488.00 | 1,347.10 | 140.90 | 10.561 | |
| 18,000.00 | 9,254.00 | 16,530.21 | 7,766.00 | 205.66 | 205.15 | 0.00 | -1.79 | 8,784.63 | 1,488.00 | 1,345.56 | 142.44 | 10.447 | |
| 18,100.00 | 9,254.00 | 16,630.21 | 7,766.00 | 207.95 | 207.44 | 0.00 | -1.81 | 8,884.63 | 1,488.00 | 1,344.03 | 143.97 | 10.335 | |
| 18,200.00 | 9,254.00 | 16,730.21 | 7,766.00 | 210.24 | 209.74 | 0.00 | -1.83 | 8,984.63 | 1,488.00 | 1,342.49 | 145.51 | 10.226 | |
| 18,300.00 | 9,254.00 | 16,830.21 | 7,766.00 | 212.53 | 212.03 | 0.00 | -1.85 | 9,084.63 | 1,488.00 | 1,340.95 | 147.05 | 10.119 | |
| 18,400.00 | 9,254.00 | 16,930.21 | 7,766.00 | 214.82 | 214.33 | 0.00 | -1.86 | 9,184.63 | 1,488.00 | 1,339.41 | 148.59 | 10.014 | |
| 18,500.00 | 9,254.00 | 17,030.21 | 7,766.00 | 217.11 | 216.62 | 0.00 | -1.88 | 9,284.63 | 1,488.00 | 1,337.88 | 150.12 | 9.912 | |
| 18,600.00 | 9,254.00 | 17,130.21 | 7,766.00 | 219.40 | 218.92 | 0.00 | -1.90 | 9,384.63 | 1,488.00 | 1,336.34 | 151.66 | 9.811 | |
| 18,700.00 | 9,254.00 | 17,230.21 | 7,766.00 | 221.69 | 221.21 | 0.00 | -1.92 | 9,484.63 | 1,488.00 | 1,334.80 | 153.20 | 9.713 | |
| 18,800.00 | 9,254.00 | 17,330.21 | 7,766.00 | 223.98 | 223.51 | 0.00 | -1.93 | 9,584.63 | 1,488.00 | 1,333.26 | 154.74 | 9.616 | |
| 18,900.00 | 9,254.00 | 17,430.21 | 7,766.00 | 226.27 | 225.81 | 0.00 | -1.95 | 9,684.63 | 1,488.00 | 1,331.72 | 156.28 | 9.521 | |
| 19,000.00 | 9,254.00 | 17,530.21 | 7,766.00 | 228.56 | 228.10 | 0.00 | -1.97 | 9,784.63 | 1,488.00 | 1,330.17 | 157.83 | 9.428 | |
| 19,100.00 | 9,254.00 | 17,630.21 | 7,766.00 | 230.85 | 230.40 | 0.00 | -1.99 | 9,884.63 | 1,488.00 | 1,328.63 | 159.37 | 9.337 | |
| 19,176.37 | 9,254.00 | 17,706.58 | 7,766.00 | 232.60 | 232.15 | 0.00 | -2.00 | 9,961.00 | 1,488.00 | 1,327.45 | 160.55 | 9.268 | |

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 131H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 8500-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.00 | 30.00 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 0.00 | 30.00 | 0.00 | 30.00 | 29.75 | 0.25 | 117.871 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.49 | 0.49 | 0.00 | 30.00 | 0.00 | 30.00 | 29.03 | 0.97 | 30.881 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.84 | 0.84 | 0.00 | 30.00 | 0.00 | 30.00 | 28.31 | 1.69 | 17.768 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 1.20 | 1.20 | 0.00 | 30.00 | 0.00 | 30.00 | 27.59 | 2.41 | 12.472 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 1.56 | 1.56 | 0.00 | 30.00 | 0.00 | 30.00 | 26.88 | 3.12 | 9.608 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.92 | 1.92 | 0.00 | 30.00 | 0.00 | 30.00 | 26.16 | 3.84 | 7.814 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 2.28 | 2.28 | 0.00 | 30.00 | 0.00 | 30.00 | 25.44 | 4.56 | 6.584 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 2.64 | 2.64 | 0.00 | 30.00 | 0.00 | 30.00 | 24.73 | 5.27 | 5.689 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 3.00 | 3.00 | 0.00 | 30.00 | 0.00 | 30.00 | 24.01 | 5.99 | 5.008 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 3.35 | 3.35 | 0.00 | 30.00 | 0.00 | 30.00 | 23.29 | 6.71 | 4.473 | |
| 1,100.00 | 1,100.00 | 1,100.00 | 1,100.00 | 3.71 | 3.71 | 0.00 | 30.00 | 0.00 | 30.00 | 22.58 | 7.42 | 4.041 | |
| 1,200.00 | 1,200.00 | 1,200.00 | 1,200.00 | 4.07 | 4.07 | 0.00 | 30.00 | 0.00 | 30.00 | 21.86 | 8.14 | 3.685 | |
| 1,300.00 | 1,300.00 | 1,300.00 | 1,300.00 | 4.25 | 4.25 | 0.00 | 30.00 | 0.00 | 30.00 | 21.49 | 8.51 | 3.527 | |
| 1,400.00 | 1,400.00 | 1,400.00 | 1,400.00 | 4.28 | 4.28 | 0.00 | 30.00 | 0.00 | 30.00 | 21.43 | 8.57 | 3.502 | CC, ES |
| 1,500.00 | 1,499.99 | 1,499.91 | 1,499.90 | 4.34 | 4.34 | 108.20 | 30.15 | -0.86 | 30.43 | 21.74 | 8.68 | 3.504 | |
| 1,600.00 | 1,599.96 | 1,599.80 | 1,599.76 | 4.43 | 4.43 | 108.03 | 30.61 | -3.43 | 31.70 | 22.85 | 8.85 | 3.581 | |
| 1,700.00 | 1,699.86 | 1,699.68 | 1,699.54 | 4.54 | 4.54 | 107.77 | 31.37 | -7.71 | 33.83 | 24.76 | 9.08 | 3.727 | |
| 1,800.00 | 1,799.68 | 1,799.52 | 1,799.19 | 4.68 | 4.68 | 107.46 | 32.44 | -13.71 | 36.81 | 27.46 | 9.36 | 3.935 | |
| 1,900.00 | 1,899.37 | 1,900.69 | 1,898.68 | 4.84 | 4.85 | 107.13 | 33.80 | -21.41 | 40.65 | 30.96 | 9.69 | 4.196 | |
| 2,000.00 | 1,998.99 | 2,000.78 | 1,998.21 | 5.03 | 5.04 | 106.84 | 35.33 | -29.98 | 44.91 | 34.84 | 10.06 | 4.462 | |
| 2,100.00 | 2,098.60 | 2,100.87 | 2,097.74 | 5.24 | 5.25 | 106.60 | 36.85 | -38.55 | 49.17 | 38.69 | 10.48 | 4.691 | |
| 2,200.00 | 2,198.22 | 2,200.96 | 2,197.27 | 5.47 | 5.47 | 106.41 | 38.37 | -47.13 | 53.43 | 42.49 | 10.93 | 4.886 | |
| 2,300.00 | 2,297.84 | 2,301.05 | 2,296.80 | 5.71 | 5.72 | 106.24 | 39.90 | -55.70 | 57.69 | 46.27 | 11.42 | 5.052 | |
| 2,400.00 | 2,397.46 | 2,401.14 | 2,396.33 | 5.97 | 5.98 | 106.09 | 41.42 | -64.27 | 61.95 | 50.02 | 11.93 | 5.191 | |
| 2,500.00 | 2,497.08 | 2,501.23 | 2,495.86 | 6.24 | 6.25 | 105.96 | 42.94 | -72.85 | 66.22 | 53.75 | 12.47 | 5.309 | |
| 2,600.00 | 2,596.70 | 2,601.32 | 2,595.38 | 6.52 | 6.53 | 105.85 | 44.47 | -81.42 | 70.48 | 57.45 | 13.03 | 5.408 | |
| 2,700.00 | 2,696.32 | 2,701.41 | 2,694.91 | 6.81 | 6.82 | 105.75 | 45.99 | -89.99 | 74.74 | 61.13 | 13.61 | 5.492 | |
| 2,800.00 | 2,795.94 | 2,801.50 | 2,794.44 | 7.11 | 7.12 | 105.66 | 47.51 | -98.57 | 79.01 | 64.80 | 14.21 | 5.562 | |
| 2,900.00 | 2,895.56 | 2,901.60 | 2,893.97 | 7.41 | 7.42 | 105.59 | 49.04 | -107.14 | 83.27 | 68.46 | 14.82 | 5.621 | |
| 3,000.00 | 2,995.18 | 3,001.69 | 2,993.50 | 7.73 | 7.73 | 105.51 | 50.56 | -115.72 | 87.54 | 72.10 | 15.44 | 5.670 | |
| 3,100.00 | 3,094.80 | 3,101.78 | 3,093.03 | 8.04 | 8.05 | 105.45 | 52.08 | -124.29 | 91.80 | 75.73 | 16.07 | 5.712 | |
| 3,200.00 | 3,194.42 | 3,201.87 | 3,192.56 | 8.37 | 8.37 | 105.39 | 53.60 | -132.86 | 96.06 | 79.35 | 16.72 | 5.747 | |
| 3,300.00 | 3,294.04 | 3,301.96 | 3,292.09 | 8.70 | 8.70 | 105.34 | 55.13 | -141.44 | 100.33 | 82.96 | 17.37 | 5.776 | |
| 3,400.00 | 3,393.66 | 3,402.05 | 3,391.62 | 9.03 | 9.03 | 105.29 | 56.65 | -150.01 | 104.59 | 86.56 | 18.03 | 5.801 | |
| 3,500.00 | 3,493.28 | 3,502.14 | 3,491.14 | 9.36 | 9.37 | 105.24 | 58.17 | -158.58 | 108.86 | 90.16 | 18.70 | 5.822 | |
| 3,600.00 | 3,592.90 | 3,602.23 | 3,590.67 | 9.70 | 9.71 | 105.20 | 59.70 | -167.16 | 113.12 | 93.75 | 19.37 | 5.839 | |
| 3,700.00 | 3,692.52 | 3,702.32 | 3,690.20 | 10.04 | 10.05 | 105.16 | 61.22 | -175.73 | 117.39 | 97.33 | 20.05 | 5.854 | |
| 3,800.00 | 3,792.14 | 3,797.72 | 3,789.87 | 10.39 | 10.37 | 105.14 | 62.74 | -184.27 | 121.64 | 100.92 | 20.72 | 5.870 | |
| 3,900.00 | 3,891.77 | 3,898.36 | 3,890.26 | 10.73 | 10.71 | 105.86 | 63.95 | -191.11 | 125.46 | 104.05 | 21.41 | 5.860 | |
| 4,000.00 | 3,991.56 | 3,998.99 | 3,990.80 | 11.07 | 11.05 | 106.81 | 64.71 | -195.35 | 128.16 | 106.08 | 22.08 | 5.805 | |
| 4,100.00 | 4,091.48 | 4,099.61 | 4,091.40 | 11.41 | 11.38 | 107.75 | 65.00 | -196.98 | 129.62 | 106.88 | 22.74 | 5.701 | |
| 4,200.00 | 4,191.47 | 4,200.32 | 4,191.47 | 11.72 | 11.69 | 0.01 | 65.00 | -197.00 | 130.00 | 106.63 | 23.37 | 5.564 | |
| 4,300.00 | 4,291.47 | 4,300.32 | 4,291.47 | 12.03 | 12.00 | 0.01 | 65.00 | -197.00 | 130.00 | 106.01 | 23.99 | 5.420 | |
| 4,400.00 | 4,391.47 | 4,400.32 | 4,391.47 | 12.34 | 12.32 | 0.01 | 65.00 | -197.00 | 130.00 | 105.39 | 24.61 | 5.282 | |
| 4,500.00 | 4,491.47 | 4,500.32 | 4,491.47 | 12.65 | 12.64 | 0.01 | 65.00 | -197.00 | 130.00 | 104.76 | 25.24 | 5.150 | |
| 4,600.00 | 4,591.47 | 4,600.32 | 4,591.47 | 12.96 | 12.96 | 0.01 | 65.00 | -197.00 | 130.00 | 104.12 | 25.88 | 5.023 | |
| 4,700.00 | 4,691.47 | 4,700.32 | 4,691.47 | 13.28 | 13.28 | 0.01 | 65.00 | -197.00 | 130.00 | 103.48 | 26.52 | 4.902 | |
| 4,800.00 | 4,791.47 | 4,800.32 | 4,791.47 | 13.59 | 13.61 | 0.01 | 65.00 | -197.00 | 130.00 | 102.84 | 27.16 | 4.786 | |
| 4,900.00 | 4,891.47 | 4,900.32 | 4,891.47 | 13.91 | 13.93 | 0.01 | 65.00 | -197.00 | 130.00 | 102.19 | 27.81 | 4.675 | |
| 5,000.00 | 4,991.47 | 5,000.32 | 4,991.47 | 14.23 | 14.26 | 0.01 | 65.00 | -197.00 | 130.00 | 101.54 | 28.46 | 4.568 | |
| 5,100.00 | 5,091.47 | 5,100.32 | 5,091.47 | 14.56 | 14.59 | 0.01 | 65.00 | -197.00 | 130.00 | 100.89 | 29.11 | 4.465 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 131H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 8500-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,200.00 | 5,191.47 | 5,200.32 | 5,191.47 | 14.88 | 14.92 | 0.01 | 65.00 | -197.00 | 130.00 | 100.23 | 29.77 | 4.367 | |
| 5,300.00 | 5,291.47 | 5,300.32 | 5,291.47 | 15.21 | 15.25 | 0.01 | 65.00 | -197.00 | 130.00 | 99.57 | 30.43 | 4.272 | |
| 5,400.00 | 5,391.47 | 5,400.32 | 5,391.47 | 15.54 | 15.59 | 0.01 | 65.00 | -197.00 | 130.00 | 98.91 | 31.09 | 4.181 | |
| 5,500.00 | 5,491.47 | 5,500.32 | 5,491.47 | 15.87 | 15.92 | 0.01 | 65.00 | -197.00 | 130.00 | 98.25 | 31.75 | 4.094 | |
| 5,600.00 | 5,591.47 | 5,600.32 | 5,591.47 | 16.20 | 16.26 | 0.01 | 65.00 | -197.00 | 130.00 | 97.58 | 32.42 | 4.010 | |
| 5,700.00 | 5,691.47 | 5,700.32 | 5,691.47 | 16.53 | 16.59 | 0.01 | 65.00 | -197.00 | 130.00 | 96.91 | 33.09 | 3.929 | |
| 5,800.00 | 5,791.47 | 5,800.32 | 5,791.47 | 16.86 | 16.93 | 0.01 | 65.00 | -197.00 | 130.00 | 96.24 | 33.76 | 3.851 | |
| 5,900.00 | 5,891.47 | 5,900.32 | 5,891.47 | 17.19 | 17.27 | 0.01 | 65.00 | -197.00 | 130.00 | 95.57 | 34.43 | 3.775 | |
| 6,000.00 | 5,991.47 | 6,000.32 | 5,991.47 | 17.53 | 17.61 | 0.01 | 65.00 | -197.00 | 130.00 | 94.89 | 35.11 | 3.703 | |
| 6,100.00 | 6,091.47 | 6,100.32 | 6,091.47 | 17.86 | 17.95 | 0.01 | 65.00 | -197.00 | 130.00 | 94.22 | 35.78 | 3.633 | |
| 6,200.00 | 6,191.47 | 6,200.32 | 6,191.47 | 18.20 | 18.29 | 0.01 | 65.00 | -197.00 | 130.00 | 93.54 | 36.46 | 3.566 | |
| 6,300.00 | 6,291.47 | 6,300.32 | 6,291.47 | 18.54 | 18.63 | 0.01 | 65.00 | -197.00 | 130.00 | 92.86 | 37.14 | 3.500 | |
| 6,400.00 | 6,391.47 | 6,400.32 | 6,391.47 | 18.88 | 18.97 | 0.01 | 65.00 | -197.00 | 130.00 | 92.18 | 37.82 | 3.437 | |
| 6,500.00 | 6,491.47 | 6,500.32 | 6,491.47 | 19.22 | 19.31 | 0.01 | 65.00 | -197.00 | 130.00 | 91.50 | 38.50 | 3.377 | |
| 6,600.00 | 6,591.47 | 6,600.32 | 6,591.47 | 19.55 | 19.65 | 0.01 | 65.00 | -197.00 | 130.00 | 90.82 | 39.18 | 3.318 | |
| 6,700.00 | 6,691.47 | 6,700.32 | 6,691.47 | 19.90 | 20.00 | 0.01 | 65.00 | -197.00 | 130.00 | 90.13 | 39.87 | 3.261 | |
| 6,800.00 | 6,791.47 | 6,800.32 | 6,791.47 | 20.24 | 20.34 | 0.01 | 65.00 | -197.00 | 130.00 | 89.45 | 40.55 | 3.206 | |
| 6,900.00 | 6,891.47 | 6,900.32 | 6,891.47 | 20.58 | 20.69 | 0.01 | 65.00 | -197.00 | 130.00 | 88.76 | 41.24 | 3.152 | |
| 7,000.00 | 6,991.47 | 7,000.32 | 6,991.47 | 20.92 | 21.03 | 0.01 | 65.00 | -197.00 | 130.00 | 88.07 | 41.93 | 3.101 | |
| 7,100.00 | 7,091.47 | 7,100.32 | 7,091.47 | 21.26 | 21.38 | 0.01 | 65.00 | -197.00 | 130.00 | 87.39 | 42.61 | 3.051 | |
| 7,200.00 | 7,191.47 | 7,200.32 | 7,191.47 | 21.60 | 21.72 | 0.01 | 65.00 | -197.00 | 130.00 | 86.70 | 43.30 | 3.002 | |
| 7,300.00 | 7,291.47 | 7,300.32 | 7,291.47 | 21.95 | 22.07 | 0.01 | 65.00 | -197.00 | 130.00 | 86.01 | 43.99 | 2.955 | |
| 7,400.00 | 7,391.47 | 7,400.32 | 7,391.47 | 22.29 | 22.41 | 0.01 | 65.00 | -197.00 | 130.00 | 85.32 | 44.68 | 2.909 | |
| 7,500.00 | 7,491.47 | 7,500.32 | 7,491.47 | 22.64 | 22.76 | 0.01 | 65.00 | -197.00 | 130.00 | 84.62 | 45.38 | 2.865 | |
| 7,600.00 | 7,591.47 | 7,600.32 | 7,591.47 | 22.98 | 23.11 | 0.01 | 65.00 | -197.00 | 130.00 | 83.93 | 46.07 | 2.822 | |
| 7,700.00 | 7,691.47 | 7,700.32 | 7,691.47 | 23.33 | 23.46 | 0.01 | 65.00 | -197.00 | 130.00 | 83.24 | 46.76 | 2.780 | |
| 7,800.00 | 7,791.47 | 7,800.32 | 7,791.47 | 23.67 | 23.80 | 0.01 | 65.00 | -197.00 | 130.00 | 82.54 | 47.46 | 2.739 | |
| 7,900.00 | 7,891.47 | 7,900.32 | 7,891.47 | 24.02 | 24.15 | 0.01 | 65.00 | -197.00 | 130.00 | 81.85 | 48.15 | 2.700 | |
| 8,000.00 | 7,991.47 | 8,000.32 | 7,991.47 | 24.37 | 24.50 | 0.01 | 65.00 | -197.00 | 130.00 | 81.15 | 48.85 | 2.661 | |
| 8,100.00 | 8,091.47 | 8,100.32 | 8,091.47 | 24.71 | 24.85 | 0.01 | 65.00 | -197.00 | 130.00 | 80.46 | 49.54 | 2.624 | |
| 8,200.00 | 8,191.47 | 8,200.32 | 8,191.47 | 25.06 | 25.20 | 0.01 | 65.00 | -197.00 | 130.00 | 79.76 | 50.24 | 2.588 | |
| 8,300.00 | 8,291.47 | 8,300.32 | 8,291.47 | 25.41 | 25.55 | 0.01 | 65.00 | -197.00 | 130.00 | 79.06 | 50.94 | 2.552 | |
| 8,400.00 | 8,391.47 | 8,400.32 | 8,391.47 | 25.75 | 25.90 | 0.01 | 65.00 | -197.00 | 130.00 | 78.37 | 51.63 | 2.518 | |
| 8,500.00 | 8,491.47 | 8,499.82 | 8,491.62 | 26.10 | 26.24 | 0.00 | 65.00 | -196.99 | 130.00 | 77.67 | 52.32 | 2.485 | |
| 8,600.00 | 8,591.47 | 8,602.75 | 8,593.93 | 26.28 | 26.23 | 4.33 | 63.26 | -187.28 | 128.65 | 76.17 | 52.48 | 2.451 | |
| 8,668.18 | 8,659.64 | 8,669.69 | 8,658.84 | 26.28 | 26.22 | -68.61 | 60.40 | -171.35 | 127.79 | 75.33 | 52.45 | 2.436 | |
| 8,700.00 | 8,691.47 | 8,699.28 | 8,686.85 | 26.28 | 26.21 | -64.14 | 58.72 | -161.96 | 128.59 | 76.19 | 52.40 | 2.454 | |
| 8,800.00 | 8,790.71 | 8,789.26 | 8,768.45 | 26.28 | 26.20 | -51.05 | 52.07 | -124.85 | 132.10 | 80.33 | 51.77 | 2.551 | |
| 8,900.00 | 8,886.50 | 8,874.73 | 8,839.60 | 26.27 | 26.21 | -38.98 | 43.74 | -78.37 | 137.46 | 87.42 | 50.04 | 2.747 | |
| 9,000.00 | 8,975.93 | 8,956.30 | 8,900.24 | 26.26 | 26.26 | -27.95 | 34.13 | -24.78 | 144.38 | 97.38 | 47.00 | 3.072 | |
| 9,100.00 | 9,056.28 | 9,033.74 | 8,950.16 | 26.28 | 26.37 | -18.12 | 23.99 | 33.49 | 152.69 | 109.76 | 42.93 | 3.557 | |
| 9,200.00 | 9,125.13 | 9,108.76 | 8,990.72 | 26.38 | 26.54 | -10.21 | 15.41 | 95.94 | 162.37 | 123.57 | 38.79 | 4.185 | |
| 9,300.00 | 9,180.67 | 9,183.65 | 9,022.91 | 26.59 | 26.82 | -5.52 | 8.60 | 163.15 | 172.52 | 136.85 | 35.67 | 4.837 | |
| 9,400.00 | 9,221.40 | 9,258.84 | 9,046.34 | 26.97 | 27.20 | -2.34 | 3.64 | 234.37 | 181.30 | 147.47 | 33.83 | 5.359 | |
| 9,500.00 | 9,246.09 | 9,334.28 | 9,060.48 | 27.54 | 27.69 | -0.55 | 0.64 | 308.36 | 187.08 | 153.92 | 33.16 | 5.642 | |
| 9,600.00 | 9,254.00 | 9,410.75 | 9,065.00 | 28.29 | 28.28 | 0.00 | -0.33 | 384.63 | 189.00 | 155.54 | 33.46 | 5.648 | |
| 9,700.00 | 9,254.00 | 9,510.75 | 9,065.00 | 29.19 | 29.20 | 0.00 | -0.35 | 484.63 | 189.00 | 155.16 | 33.84 | 5.586 | |
| 9,800.00 | 9,254.00 | 9,610.75 | 9,065.00 | 30.25 | 30.27 | 0.00 | -0.36 | 584.63 | 189.00 | 154.72 | 34.28 | 5.513 | |
| 9,900.00 | 9,254.00 | 9,710.75 | 9,065.00 | 31.44 | 31.47 | 0.00 | -0.38 | 684.63 | 189.00 | 154.21 | 34.79 | 5.433 | |
| 10,000.00 | 9,254.00 | 9,810.75 | 9,065.00 | 32.75 | 32.79 | 0.00 | -0.40 | 784.63 | 189.00 | 153.64 | 35.36 | 5.345 | |
| 10,100.00 | 9,254.00 | 9,910.75 | 9,065.00 | 34.17 | 34.22 | 0.00 | -0.42 | 884.63 | 189.00 | 153.01 | 35.99 | 5.252 | |
| 10,200.00 | 9,254.00 | 10,010.75 | 9,065.00 | 35.68 | 35.73 | 0.00 | -0.43 | 984.63 | 189.00 | 152.32 | 36.68 | 5.153 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 131H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 8500-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10,300.00 | 9,254.00 | 10,110.75 | 9,065.00 | 37.27 | 37.33 | 0.00 | -0.45 | 1,084.63 | 189.00 | 151.58 | 37.42 | 5.051 | |
| 10,400.00 | 9,254.00 | 10,210.75 | 9,065.00 | 38.93 | 39.00 | 0.00 | -0.47 | 1,184.63 | 189.00 | 150.79 | 38.21 | 4.947 | |
| 10,500.00 | 9,254.00 | 10,310.75 | 9,065.00 | 40.66 | 40.73 | 0.00 | -0.49 | 1,284.63 | 189.00 | 149.96 | 39.04 | 4.841 | |
| 10,600.00 | 9,254.00 | 10,410.75 | 9,065.00 | 42.44 | 42.52 | 0.00 | -0.50 | 1,384.63 | 189.00 | 149.08 | 39.92 | 4.734 | |
| 10,700.00 | 9,254.00 | 10,510.75 | 9,065.00 | 44.27 | 44.35 | 0.00 | -0.52 | 1,484.63 | 189.00 | 148.15 | 40.85 | 4.627 | |
| 10,800.00 | 9,254.00 | 10,610.75 | 9,065.00 | 46.14 | 46.23 | 0.00 | -0.54 | 1,584.63 | 189.00 | 147.19 | 41.81 | 4.521 | |
| 10,900.00 | 9,254.00 | 10,710.75 | 9,065.00 | 48.06 | 48.14 | 0.00 | -0.56 | 1,684.63 | 189.00 | 146.19 | 42.81 | 4.415 | |
| 11,000.00 | 9,254.00 | 10,810.75 | 9,065.00 | 50.00 | 50.09 | 0.00 | -0.57 | 1,784.63 | 189.00 | 145.16 | 43.84 | 4.311 | |
| 11,089.10 | 9,254.00 | 10,900.15 | 9,065.00 | 51.76 | 51.85 | 0.00 | -0.59 | 1,873.73 | 189.00 | 144.22 | 44.78 | 4.220 | |
| 11,100.00 | 9,254.00 | 10,910.75 | 9,065.00 | 51.97 | 52.06 | 0.00 | -0.59 | 1,884.63 | 189.00 | 144.10 | 44.90 | 4.209 | |
| 11,200.00 | 9,254.00 | 11,010.75 | 9,065.00 | 53.97 | 54.07 | 0.00 | -0.61 | 1,984.63 | 189.00 | 143.01 | 45.99 | 4.110 | |
| 11,300.00 | 9,254.00 | 11,110.75 | 9,065.00 | 56.00 | 56.09 | 0.00 | -0.63 | 2,084.63 | 189.00 | 141.89 | 47.11 | 4.012 | |
| 11,400.00 | 9,254.00 | 11,210.75 | 9,065.00 | 58.04 | 58.14 | 0.00 | -0.64 | 2,184.63 | 189.00 | 140.75 | 48.25 | 3.917 | |
| 11,500.00 | 9,254.00 | 11,310.75 | 9,065.00 | 60.11 | 60.21 | 0.00 | -0.66 | 2,284.63 | 189.00 | 139.58 | 49.42 | 3.824 | |
| 11,600.00 | 9,254.00 | 11,410.75 | 9,065.00 | 62.19 | 62.29 | 0.00 | -0.68 | 2,384.63 | 189.00 | 138.39 | 50.61 | 3.735 | |
| 11,700.00 | 9,254.00 | 11,510.75 | 9,065.00 | 64.28 | 64.39 | 0.00 | -0.70 | 2,484.63 | 189.00 | 137.18 | 51.82 | 3.648 | |
| 11,800.00 | 9,254.00 | 11,610.75 | 9,065.00 | 66.39 | 66.50 | 0.00 | -0.71 | 2,584.63 | 189.00 | 135.96 | 53.04 | 3.563 | |
| 11,900.00 | 9,254.00 | 11,710.75 | 9,065.00 | 68.52 | 68.62 | 0.00 | -0.73 | 2,684.63 | 189.00 | 134.71 | 54.29 | 3.481 | |
| 12,000.00 | 9,254.00 | 11,810.75 | 9,065.00 | 70.65 | 70.76 | 0.00 | -0.75 | 2,784.63 | 189.00 | 133.45 | 55.55 | 3.402 | |
| 12,100.00 | 9,254.00 | 11,910.75 | 9,065.00 | 72.80 | 72.91 | 0.00 | -0.76 | 2,884.63 | 189.00 | 132.17 | 56.83 | 3.326 | |
| 12,200.00 | 9,254.00 | 12,010.75 | 9,065.00 | 74.95 | 75.06 | 0.00 | -0.78 | 2,984.63 | 189.00 | 130.88 | 58.12 | 3.252 | |
| 12,300.00 | 9,254.00 | 12,110.75 | 9,065.00 | 77.12 | 77.23 | 0.00 | -0.80 | 3,084.63 | 189.00 | 129.58 | 59.42 | 3.181 | |
| 12,400.00 | 9,254.00 | 12,210.75 | 9,065.00 | 79.29 | 79.40 | 0.00 | -0.82 | 3,184.63 | 189.00 | 128.26 | 60.74 | 3.112 | |
| 12,500.00 | 9,254.00 | 12,310.75 | 9,065.00 | 81.47 | 81.58 | 0.00 | -0.83 | 3,284.63 | 189.00 | 126.93 | 62.07 | 3.045 | |
| 12,600.00 | 9,254.00 | 12,410.75 | 9,065.00 | 83.65 | 83.77 | 0.00 | -0.85 | 3,384.63 | 189.00 | 125.59 | 63.41 | 2.981 | |
| 12,700.00 | 9,254.00 | 12,510.75 | 9,065.00 | 85.84 | 85.96 | 0.00 | -0.87 | 3,484.63 | 189.00 | 124.24 | 64.76 | 2.918 | |
| 12,800.00 | 9,254.00 | 12,610.75 | 9,065.00 | 88.04 | 88.16 | 0.00 | -0.89 | 3,584.63 | 189.00 | 122.88 | 66.12 | 2.858 | |
| 12,900.00 | 9,254.00 | 12,710.75 | 9,065.00 | 90.25 | 90.36 | 0.00 | -0.90 | 3,684.63 | 189.00 | 121.51 | 67.49 | 2.800 | |
| 13,000.00 | 9,254.00 | 12,810.75 | 9,065.00 | 92.45 | 92.57 | 0.00 | -0.92 | 3,784.63 | 189.00 | 120.13 | 68.87 | 2.744 | |
| 13,100.00 | 9,254.00 | 12,910.75 | 9,065.00 | 94.67 | 94.79 | 0.00 | -0.94 | 3,884.63 | 189.00 | 118.75 | 70.25 | 2.690 | |
| 13,200.00 | 9,254.00 | 13,010.75 | 9,065.00 | 96.89 | 97.01 | 0.00 | -0.96 | 3,984.63 | 189.00 | 117.35 | 71.65 | 2.638 | |
| 13,300.00 | 9,254.00 | 13,110.75 | 9,065.00 | 99.11 | 99.23 | 0.00 | -0.97 | 4,084.63 | 189.00 | 115.95 | 73.05 | 2.587 | |
| 13,400.00 | 9,254.00 | 13,210.75 | 9,065.00 | 101.33 | 101.45 | 0.00 | -0.99 | 4,184.63 | 189.00 | 114.55 | 74.45 | 2.539 | |
| 13,500.00 | 9,254.00 | 13,310.75 | 9,065.00 | 103.56 | 103.68 | 0.00 | -1.01 | 4,284.63 | 189.00 | 113.13 | 75.87 | 2.491 | |
| 13,600.00 | 9,254.00 | 13,410.75 | 9,065.00 | 105.80 | 105.92 | 0.00 | -1.03 | 4,384.63 | 189.00 | 111.71 | 77.29 | 2.445 | |
| 13,700.00 | 9,254.00 | 13,510.75 | 9,065.00 | 108.03 | 108.15 | 0.00 | -1.04 | 4,484.63 | 189.00 | 110.29 | 78.71 | 2.401 | |
| 13,800.00 | 9,254.00 | 13,610.75 | 9,065.00 | 110.27 | 110.39 | 0.00 | -1.06 | 4,584.63 | 189.00 | 108.86 | 80.14 | 2.358 | |
| 13,900.00 | 9,254.00 | 13,710.75 | 9,065.00 | 112.51 | 112.63 | 0.00 | -1.08 | 4,684.63 | 189.00 | 107.42 | 81.58 | 2.317 | |
| 14,000.00 | 9,254.00 | 13,810.75 | 9,065.00 | 114.75 | 114.88 | 0.00 | -1.10 | 4,784.63 | 189.00 | 105.98 | 83.02 | 2.277 | |
| 14,066.27 | 9,254.00 | 13,877.02 | 9,065.00 | 116.24 | 116.37 | 0.00 | -1.11 | 4,850.90 | 189.00 | 105.02 | 83.98 | 2.251 | |
| 14,100.00 | 9,254.00 | 13,910.75 | 9,065.00 | 117.00 | 117.13 | 0.00 | -1.11 | 4,884.63 | 189.00 | 104.54 | 84.46 | 2.238 | |
| 14,200.00 | 9,254.00 | 14,010.75 | 9,065.00 | 119.25 | 119.37 | 0.00 | -1.13 | 4,984.63 | 189.00 | 103.09 | 85.91 | 2.200 | |
| 14,300.00 | 9,254.00 | 14,110.75 | 9,065.00 | 121.50 | 121.63 | 0.00 | -1.15 | 5,084.63 | 189.00 | 101.63 | 87.37 | 2.163 | |
| 14,400.00 | 9,254.00 | 14,210.75 | 9,065.00 | 123.75 | 123.88 | 0.00 | -1.17 | 5,184.63 | 189.00 | 100.17 | 88.83 | 2.128 | |
| 14,500.00 | 9,254.00 | 14,310.75 | 9,065.00 | 126.01 | 126.13 | 0.00 | -1.18 | 5,284.63 | 189.00 | 98.71 | 90.29 | 2.093 | |
| 14,600.00 | 9,254.00 | 14,410.75 | 9,065.00 | 128.27 | 128.39 | 0.00 | -1.20 | 5,384.63 | 189.00 | 97.25 | 91.75 | 2.060 | |
| 14,700.00 | 9,254.00 | 14,510.75 | 9,065.00 | 130.52 | 130.65 | 0.00 | -1.22 | 5,484.63 | 189.00 | 95.78 | 93.22 | 2.027 | |
| 14,800.00 | 9,254.00 | 14,610.75 | 9,065.00 | 132.78 | 132.91 | 0.00 | -1.24 | 5,584.63 | 189.00 | 94.31 | 94.69 | 1.996 | |
| 14,900.00 | 9,254.00 | 14,710.75 | 9,065.00 | 135.05 | 135.17 | 0.00 | -1.25 | 5,684.63 | 189.00 | 92.83 | 96.17 | 1.965 | |
| 15,000.00 | 9,254.00 | 14,810.75 | 9,065.00 | 137.31 | 137.44 | 0.00 | -1.27 | 5,784.63 | 189.00 | 91.36 | 97.64 | 1.936 | |
| 15,100.00 | 9,254.00 | 14,910.75 | 9,065.00 | 139.57 | 139.70 | 0.00 | -1.29 | 5,884.63 | 189.00 | 89.88 | 99.12 | 1.907 | |
| 15,200.00 | 9,254.00 | 15,010.75 | 9,065.00 | 141.84 | 141.97 | 0.00 | -1.31 | 5,984.63 | 189.00 | 88.39 | 100.61 | 1.879 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 131H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM, 1200-MWD+HDGM, 8500-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15,300.00 | 9,254.00 | 15,110.75 | 9,065.00 | 144.11 | 144.24 | 0.00 | -1.32 | 6,084.63 | 189.00 | 86.91 | 102.09 | 1.851 | |
| 15,400.00 | 9,254.00 | 15,210.75 | 9,065.00 | 146.38 | 146.50 | 0.00 | -1.34 | 6,184.63 | 189.00 | 85.42 | 103.58 | 1.825 | |
| 15,500.00 | 9,254.00 | 15,310.75 | 9,065.00 | 148.65 | 148.78 | 0.00 | -1.36 | 6,284.63 | 189.00 | 83.93 | 105.07 | 1.799 | |
| 15,600.00 | 9,254.00 | 15,410.75 | 9,065.00 | 150.92 | 151.05 | 0.00 | -1.38 | 6,384.63 | 189.00 | 82.43 | 106.57 | 1.774 | |
| 15,700.00 | 9,254.00 | 15,510.75 | 9,065.00 | 153.19 | 153.32 | 0.00 | -1.39 | 6,484.63 | 189.00 | 80.94 | 108.06 | 1.749 | |
| 15,800.00 | 9,254.00 | 15,610.75 | 9,065.00 | 155.46 | 155.59 | 0.00 | -1.41 | 6,584.63 | 189.00 | 79.44 | 109.56 | 1.725 | |
| 15,900.00 | 9,254.00 | 15,710.75 | 9,065.00 | 157.74 | 157.87 | 0.00 | -1.43 | 6,684.63 | 189.00 | 77.94 | 111.06 | 1.702 | |
| 16,000.00 | 9,254.00 | 15,810.75 | 9,065.00 | 160.01 | 160.14 | 0.00 | -1.45 | 6,784.63 | 189.00 | 76.44 | 112.56 | 1.679 | |
| 16,100.00 | 9,254.00 | 15,910.75 | 9,065.00 | 162.29 | 162.42 | 0.00 | -1.46 | 6,884.63 | 189.00 | 74.94 | 114.06 | 1.657 | |
| 16,200.00 | 9,254.00 | 16,010.75 | 9,065.00 | 164.56 | 164.69 | 0.00 | -1.48 | 6,984.63 | 189.00 | 73.43 | 115.57 | 1.635 | |
| 16,300.00 | 9,254.00 | 16,110.75 | 9,065.00 | 166.84 | 166.97 | 0.00 | -1.50 | 7,084.63 | 189.00 | 71.93 | 117.07 | 1.614 | |
| 16,400.00 | 9,254.00 | 16,210.75 | 9,065.00 | 169.12 | 169.25 | 0.00 | -1.52 | 7,184.63 | 189.00 | 70.42 | 118.58 | 1.594 | |
| 16,500.00 | 9,254.00 | 16,310.75 | 9,065.00 | 171.40 | 171.53 | 0.00 | -1.53 | 7,284.63 | 189.00 | 68.91 | 120.09 | 1.574 | |
| 16,600.00 | 9,254.00 | 16,410.75 | 9,065.00 | 173.68 | 173.81 | 0.00 | -1.55 | 7,384.63 | 189.00 | 67.40 | 121.60 | 1.554 | |
| 16,700.00 | 9,254.00 | 16,510.75 | 9,065.00 | 175.96 | 176.09 | 0.00 | -1.57 | 7,484.63 | 189.00 | 65.89 | 123.11 | 1.535 | |
| 16,800.00 | 9,254.00 | 16,610.75 | 9,065.00 | 178.24 | 178.37 | 0.00 | -1.59 | 7,584.63 | 189.00 | 64.37 | 124.63 | 1.517 | |
| 16,900.00 | 9,254.00 | 16,710.75 | 9,065.00 | 180.52 | 180.65 | 0.00 | -1.60 | 7,684.63 | 189.00 | 62.86 | 126.14 | 1.498 | Level 3 |
| 17,000.00 | 9,254.00 | 16,810.75 | 9,065.00 | 182.81 | 182.94 | 0.00 | -1.62 | 7,784.63 | 189.00 | 61.34 | 127.66 | 1.481 | Level 3 |
| 17,066.27 | 9,254.00 | 16,877.02 | 9,065.00 | 184.32 | 184.45 | 0.00 | -1.63 | 7,850.90 | 189.00 | 60.33 | 128.67 | 1.469 | Level 3 |
| 17,100.00 | 9,254.00 | 16,910.75 | 9,065.00 | 185.09 | 185.22 | 0.00 | -1.64 | 7,884.63 | 189.00 | 59.82 | 129.18 | 1.463 | Level 3 |
| 17,200.00 | 9,254.00 | 17,010.75 | 9,065.00 | 187.37 | 187.51 | 0.00 | -1.66 | 7,984.63 | 189.00 | 58.30 | 130.70 | 1.446 | Level 3 |
| 17,300.00 | 9,254.00 | 17,110.75 | 9,065.00 | 189.66 | 189.79 | 0.00 | -1.67 | 8,084.63 | 189.00 | 56.78 | 132.22 | 1.429 | Level 3 |
| 17,400.00 | 9,254.00 | 17,210.75 | 9,065.00 | 191.94 | 192.07 | 0.00 | -1.69 | 8,184.63 | 189.00 | 55.26 | 133.74 | 1.413 | Level 3 |
| 17,500.00 | 9,254.00 | 17,310.75 | 9,065.00 | 194.23 | 194.36 | 0.00 | -1.71 | 8,284.63 | 189.00 | 53.74 | 135.26 | 1.397 | Level 3 |
| 17,600.00 | 9,254.00 | 17,410.75 | 9,065.00 | 196.51 | 196.65 | 0.00 | -1.72 | 8,384.63 | 189.00 | 52.22 | 136.78 | 1.382 | Level 3 |
| 17,700.00 | 9,254.00 | 17,510.75 | 9,065.00 | 198.80 | 198.93 | 0.00 | -1.74 | 8,484.63 | 189.00 | 50.69 | 138.31 | 1.367 | Level 3 |
| 17,800.00 | 9,254.00 | 17,610.75 | 9,065.00 | 201.09 | 201.22 | 0.00 | -1.76 | 8,584.63 | 189.00 | 49.17 | 139.83 | 1.352 | Level 3 |
| 17,900.00 | 9,254.00 | 17,710.75 | 9,065.00 | 203.37 | 203.51 | 0.00 | -1.78 | 8,684.63 | 189.00 | 47.64 | 141.36 | 1.337 | Level 3 |
| 18,000.00 | 9,254.00 | 17,810.75 | 9,065.00 | 205.66 | 205.80 | 0.00 | -1.79 | 8,784.63 | 189.00 | 46.11 | 142.89 | 1.323 | Level 3 |
| 18,100.00 | 9,254.00 | 17,910.75 | 9,065.00 | 207.95 | 208.08 | 0.00 | -1.81 | 8,884.63 | 189.00 | 44.58 | 144.42 | 1.309 | Level 3 |
| 18,200.00 | 9,254.00 | 18,010.75 | 9,065.00 | 210.24 | 210.37 | 0.00 | -1.83 | 8,984.63 | 189.00 | 43.05 | 145.95 | 1.295 | Level 3 |
| 18,300.00 | 9,254.00 | 18,110.75 | 9,065.00 | 212.53 | 212.66 | 0.00 | -1.85 | 9,084.63 | 189.00 | 41.52 | 147.48 | 1.282 | Level 3 |
| 18,400.00 | 9,254.00 | 18,210.75 | 9,065.00 | 214.82 | 214.95 | 0.00 | -1.86 | 9,184.63 | 189.00 | 39.99 | 149.01 | 1.268 | Level 3 |
| 18,500.00 | 9,254.00 | 18,310.75 | 9,065.00 | 217.11 | 217.24 | 0.00 | -1.88 | 9,284.63 | 189.00 | 38.46 | 150.54 | 1.255 | Level 3 |
| 18,600.00 | 9,254.00 | 18,410.75 | 9,065.00 | 219.40 | 219.53 | 0.00 | -1.90 | 9,384.63 | 189.00 | 36.93 | 152.07 | 1.243 | Level 2 |
| 18,700.00 | 9,254.00 | 18,510.75 | 9,065.00 | 221.69 | 221.82 | 0.00 | -1.92 | 9,484.63 | 189.00 | 35.39 | 153.61 | 1.230 | Level 2 |
| 18,800.00 | 9,254.00 | 18,610.75 | 9,065.00 | 223.98 | 224.11 | 0.00 | -1.93 | 9,584.63 | 189.00 | 33.86 | 155.14 | 1.218 | Level 2 |
| 18,900.00 | 9,254.00 | 18,710.75 | 9,065.00 | 226.27 | 226.40 | 0.00 | -1.95 | 9,684.63 | 189.00 | 32.33 | 156.67 | 1.206 | Level 2 |
| 19,000.00 | 9,254.00 | 18,810.75 | 9,065.00 | 228.56 | 228.70 | 0.00 | -1.97 | 9,784.63 | 189.00 | 30.79 | 158.21 | 1.195 | Level 2 |
| 19,100.00 | 9,254.00 | 18,910.75 | 9,065.00 | 230.85 | 230.99 | 0.00 | -1.99 | 9,884.63 | 189.00 | 29.25 | 159.75 | 1.183 | Level 2 |
| 19,176.37 | 9,254.00 | 18,987.12 | 9,065.00 | 232.60 | 232.74 | 0.00 | -2.00 | 9,961.00 | 189.00 | 28.08 | 160.92 | 1.175 | Level 2, SF |

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 221H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.00 | -30.00 | 0.00 | 30.00 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 180.00 | -30.00 | 0.00 | 30.00 | 29.75 | 0.25 | 117.871 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.49 | 0.49 | 180.00 | -30.00 | 0.00 | 30.00 | 29.03 | 0.97 | 30.881 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.84 | 0.84 | 180.00 | -30.00 | 0.00 | 30.00 | 28.31 | 1.69 | 17.768 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 1.20 | 1.20 | 180.00 | -30.00 | 0.00 | 30.00 | 27.59 | 2.41 | 12.472 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 1.56 | 1.56 | 180.00 | -30.00 | 0.00 | 30.00 | 26.88 | 3.12 | 9.608 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.92 | 1.92 | 180.00 | -30.00 | 0.00 | 30.00 | 26.16 | 3.84 | 7.814 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 2.28 | 2.28 | 180.00 | -30.00 | 0.00 | 30.00 | 25.44 | 4.56 | 6.584 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 2.64 | 2.64 | 180.00 | -30.00 | 0.00 | 30.00 | 24.73 | 5.27 | 5.689 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 3.00 | 3.00 | 180.00 | -30.00 | 0.00 | 30.00 | 24.01 | 5.99 | 5.008 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 3.35 | 3.35 | 180.00 | -30.00 | 0.00 | 30.00 | 23.29 | 6.71 | 4.473 | |
| 1,100.00 | 1,100.00 | 1,100.00 | 1,100.00 | 3.71 | 3.71 | 180.00 | -30.00 | 0.00 | 30.00 | 22.58 | 7.42 | 4.041 | |
| 1,200.00 | 1,200.00 | 1,200.00 | 1,200.00 | 4.07 | 4.07 | 180.00 | -30.00 | 0.00 | 30.00 | 21.86 | 8.14 | 3.685 | |
| 1,300.00 | 1,300.00 | 1,300.00 | 1,300.00 | 4.25 | 4.43 | 180.00 | -30.00 | 0.00 | 30.00 | 21.32 | 8.68 | 3.455 | |
| 1,400.00 | 1,400.00 | 1,400.00 | 1,400.00 | 4.28 | 4.79 | 180.00 | -30.00 | 0.00 | 30.00 | 20.93 | 9.07 | 3.307 | CC |
| 1,500.00 | 1,499.99 | 1,499.66 | 1,499.66 | 4.34 | 5.13 | -72.04 | -30.56 | -0.66 | 30.29 | 20.81 | 9.47 | 3.198 | ES |
| 1,600.00 | 1,599.96 | 1,599.32 | 1,599.28 | 4.43 | 5.46 | -72.92 | -32.23 | -2.66 | 31.15 | 21.26 | 9.89 | 3.151 | |
| 1,700.00 | 1,699.86 | 1,698.97 | 1,698.83 | 4.54 | 5.80 | -74.27 | -35.01 | -5.98 | 32.60 | 22.27 | 10.33 | 3.156 | |
| 1,800.00 | 1,799.68 | 1,798.59 | 1,798.27 | 4.68 | 6.13 | -75.97 | -38.90 | -10.62 | 34.65 | 23.85 | 10.80 | 3.208 | |
| 1,900.00 | 1,899.37 | 1,901.81 | 1,897.56 | 4.84 | 6.49 | -77.88 | -43.90 | -16.59 | 37.34 | 26.02 | 11.32 | 3.298 | |
| 2,000.00 | 1,998.99 | 2,001.87 | 1,997.13 | 5.03 | 6.84 | -79.69 | -49.49 | -23.27 | 40.38 | 28.52 | 11.86 | 3.406 | |
| 2,100.00 | 2,098.60 | 2,101.92 | 2,096.69 | 5.24 | 7.19 | -81.25 | -55.08 | -29.95 | 43.45 | 31.04 | 12.42 | 3.500 | |
| 2,200.00 | 2,198.22 | 2,201.97 | 2,196.26 | 5.47 | 7.54 | -82.60 | -60.68 | -36.63 | 46.56 | 33.56 | 13.00 | 3.582 | |
| 2,300.00 | 2,297.84 | 2,302.03 | 2,295.82 | 5.71 | 7.90 | -83.78 | -66.27 | -43.31 | 49.68 | 36.09 | 13.59 | 3.654 | |
| 2,400.00 | 2,397.46 | 2,402.08 | 2,395.39 | 5.97 | 8.26 | -84.82 | -71.86 | -49.98 | 52.83 | 38.62 | 14.21 | 3.717 | |
| 2,500.00 | 2,497.08 | 2,502.14 | 2,494.95 | 6.24 | 8.62 | -85.74 | -77.46 | -56.66 | 55.99 | 41.15 | 14.84 | 3.773 | |
| 2,600.00 | 2,596.70 | 2,602.19 | 2,594.52 | 6.52 | 8.98 | -86.57 | -83.05 | -63.34 | 59.16 | 43.68 | 15.48 | 3.821 | |
| 2,700.00 | 2,696.32 | 2,702.24 | 2,694.09 | 6.81 | 9.34 | -87.31 | -88.64 | -70.02 | 62.34 | 46.21 | 16.13 | 3.864 | |
| 2,800.00 | 2,795.94 | 2,802.30 | 2,793.65 | 7.11 | 9.71 | -87.98 | -94.24 | -76.70 | 65.53 | 48.74 | 16.80 | 3.902 | |
| 2,900.00 | 2,895.56 | 2,902.35 | 2,893.22 | 7.41 | 10.07 | -88.59 | -99.83 | -83.37 | 68.74 | 51.27 | 17.47 | 3.935 | |
| 3,000.00 | 2,995.18 | 3,002.40 | 2,992.78 | 7.73 | 10.44 | -89.14 | -105.42 | -90.05 | 71.94 | 53.80 | 18.15 | 3.965 | |
| 3,100.00 | 3,094.80 | 3,102.46 | 3,092.35 | 8.04 | 10.81 | -89.64 | -111.02 | -96.73 | 75.16 | 56.33 | 18.83 | 3.991 | |
| 3,200.00 | 3,194.42 | 3,202.51 | 3,191.92 | 8.37 | 11.18 | -90.11 | -116.61 | -103.41 | 78.38 | 58.86 | 19.52 | 4.015 | |
| 3,300.00 | 3,294.04 | 3,302.57 | 3,291.48 | 8.70 | 11.55 | -90.54 | -122.20 | -110.09 | 81.60 | 61.38 | 20.22 | 4.036 | |
| 3,400.00 | 3,393.66 | 3,402.62 | 3,391.05 | 9.03 | 11.92 | -90.93 | -127.80 | -116.76 | 84.83 | 63.91 | 20.92 | 4.055 | |
| 3,500.00 | 3,493.28 | 3,502.67 | 3,490.61 | 9.36 | 12.29 | -91.30 | -133.39 | -123.44 | 88.06 | 66.44 | 21.62 | 4.073 | |
| 3,600.00 | 3,592.90 | 3,602.73 | 3,590.18 | 9.70 | 12.66 | -91.64 | -138.98 | -130.12 | 91.30 | 68.97 | 22.33 | 4.088 | |
| 3,700.00 | 3,692.52 | 3,702.78 | 3,689.75 | 10.04 | 13.03 | -91.95 | -144.58 | -136.80 | 94.54 | 71.49 | 23.04 | 4.103 | |
| 3,800.00 | 3,792.14 | 3,802.84 | 3,789.31 | 10.39 | 13.40 | -92.25 | -150.17 | -143.47 | 97.78 | 74.02 | 23.76 | 4.115 | |
| 3,900.00 | 3,891.77 | 3,902.89 | 3,888.88 | 10.73 | 13.77 | -92.44 | -155.76 | -150.15 | 101.01 | 76.54 | 24.48 | 4.127 | |
| 4,000.00 | 3,991.56 | 4,002.96 | 3,988.43 | 11.07 | 14.15 | -91.50 | -161.36 | -156.83 | 104.18 | 78.99 | 25.18 | 4.137 | |
| 4,100.00 | 4,091.48 | 4,103.10 | 4,087.90 | 11.41 | 14.52 | -89.23 | -166.94 | -163.50 | 107.37 | 81.50 | 25.88 | 4.149 | |
| 4,200.00 | 4,191.47 | 4,203.39 | 4,187.23 | 11.72 | 14.90 | 165.99 | -172.52 | -170.16 | 110.90 | 84.36 | 26.55 | 4.178 | |
| 4,300.00 | 4,291.47 | 4,303.78 | 4,286.47 | 12.03 | 15.27 | 169.88 | -178.10 | -176.82 | 114.99 | 87.79 | 27.20 | 4.228 | |
| 4,400.00 | 4,391.47 | 4,395.84 | 4,385.71 | 12.34 | 15.61 | 173.50 | -183.67 | -183.48 | 119.58 | 91.76 | 27.82 | 4.298 | |
| 4,500.00 | 4,491.47 | 4,496.74 | 4,486.27 | 12.65 | 15.99 | 176.67 | -188.96 | -189.79 | 124.28 | 95.80 | 28.48 | 4.363 | |
| 4,600.00 | 4,591.47 | 4,598.63 | 4,588.00 | 12.96 | 16.36 | 178.76 | -192.68 | -194.23 | 127.76 | 98.60 | 29.15 | 4.382 | |
| 4,700.00 | 4,691.47 | 4,700.77 | 4,690.08 | 13.28 | 16.73 | 179.82 | -194.66 | -196.59 | 129.66 | 99.84 | 29.82 | 4.348 | |
| 4,800.00 | 4,791.47 | 4,802.16 | 4,791.47 | 13.59 | 17.07 | -180.00 | -195.00 | -197.00 | 130.00 | 99.52 | 30.48 | 4.265 | |
| 4,900.00 | 4,891.47 | 4,902.16 | 4,891.47 | 13.91 | 17.41 | -180.00 | -195.00 | -197.00 | 130.00 | 98.86 | 31.14 | 4.175 | |
| 5,000.00 | 4,991.47 | 5,002.16 | 4,991.47 | 14.23 | 17.74 | -180.00 | -195.00 | -197.00 | 130.00 | 98.20 | 31.80 | 4.088 | |
| 5,100.00 | 5,091.47 | 5,102.16 | 5,091.47 | 14.56 | 18.08 | -180.00 | -195.00 | -197.00 | 130.00 | 97.53 | 32.47 | 4.004 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 221H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,200.00 | 5,191.47 | 5,202.16 | 5,191.47 | 14.88 | 18.42 | -180.00 | -195.00 | -197.00 | 130.00 | 96.87 | 33.13 | 3.924 | |
| 5,300.00 | 5,291.47 | 5,302.16 | 5,291.47 | 15.21 | 18.76 | -180.00 | -195.00 | -197.00 | 130.00 | 96.20 | 33.80 | 3.846 | |
| 5,400.00 | 5,391.47 | 5,402.16 | 5,391.47 | 15.54 | 19.10 | -180.00 | -195.00 | -197.00 | 130.00 | 95.53 | 34.47 | 3.771 | |
| 5,500.00 | 5,491.47 | 5,502.16 | 5,491.47 | 15.87 | 19.44 | -180.00 | -195.00 | -197.00 | 130.00 | 94.85 | 35.15 | 3.699 | |
| 5,600.00 | 5,591.47 | 5,602.16 | 5,591.47 | 16.20 | 19.78 | -180.00 | -195.00 | -197.00 | 130.00 | 94.18 | 35.82 | 3.629 | |
| 5,700.00 | 5,691.47 | 5,702.16 | 5,691.47 | 16.53 | 20.12 | -180.00 | -195.00 | -197.00 | 130.00 | 93.50 | 36.50 | 3.562 | |
| 5,800.00 | 5,791.47 | 5,802.16 | 5,791.47 | 16.86 | 20.46 | -180.00 | -195.00 | -197.00 | 130.00 | 92.83 | 37.17 | 3.497 | |
| 5,900.00 | 5,891.47 | 5,902.16 | 5,891.47 | 17.19 | 20.80 | -180.00 | -195.00 | -197.00 | 130.00 | 92.15 | 37.85 | 3.434 | |
| 6,000.00 | 5,991.47 | 6,002.16 | 5,991.47 | 17.53 | 21.15 | -180.00 | -195.00 | -197.00 | 130.00 | 91.47 | 38.53 | 3.374 | |
| 6,100.00 | 6,091.47 | 6,102.16 | 6,091.47 | 17.86 | 21.49 | -180.00 | -195.00 | -197.00 | 130.00 | 90.78 | 39.22 | 3.315 | |
| 6,200.00 | 6,191.47 | 6,202.16 | 6,191.47 | 18.20 | 21.83 | -180.00 | -195.00 | -197.00 | 130.00 | 90.10 | 39.90 | 3.258 | |
| 6,300.00 | 6,291.47 | 6,302.16 | 6,291.47 | 18.54 | 22.18 | -180.00 | -195.00 | -197.00 | 130.00 | 89.42 | 40.58 | 3.203 | |
| 6,400.00 | 6,391.47 | 6,402.16 | 6,391.47 | 18.88 | 22.52 | -180.00 | -195.00 | -197.00 | 130.00 | 88.73 | 41.27 | 3.150 | |
| 6,500.00 | 6,491.47 | 6,502.16 | 6,491.47 | 19.22 | 22.87 | -180.00 | -195.00 | -197.00 | 130.00 | 88.04 | 41.96 | 3.098 | |
| 6,600.00 | 6,591.47 | 6,602.16 | 6,591.47 | 19.55 | 23.22 | -180.00 | -195.00 | -197.00 | 130.00 | 87.36 | 42.64 | 3.048 | |
| 6,700.00 | 6,691.47 | 6,702.16 | 6,691.47 | 19.90 | 23.56 | -180.00 | -195.00 | -197.00 | 130.00 | 86.67 | 43.33 | 3.000 | |
| 6,800.00 | 6,791.47 | 6,802.16 | 6,791.47 | 20.24 | 23.91 | -180.00 | -195.00 | -197.00 | 130.00 | 85.98 | 44.02 | 2.953 | |
| 6,900.00 | 6,891.47 | 6,902.16 | 6,891.47 | 20.58 | 24.26 | -180.00 | -195.00 | -197.00 | 130.00 | 85.29 | 44.71 | 2.907 | |
| 7,000.00 | 6,991.47 | 7,002.16 | 6,991.47 | 20.92 | 24.60 | -180.00 | -195.00 | -197.00 | 130.00 | 84.59 | 45.41 | 2.863 | |
| 7,100.00 | 7,091.47 | 7,102.16 | 7,091.47 | 21.26 | 24.95 | -180.00 | -195.00 | -197.00 | 130.00 | 83.90 | 46.10 | 2.820 | |
| 7,200.00 | 7,191.47 | 7,202.16 | 7,191.47 | 21.60 | 25.30 | -180.00 | -195.00 | -197.00 | 130.00 | 83.21 | 46.79 | 2.778 | |
| 7,300.00 | 7,291.47 | 7,302.16 | 7,291.47 | 21.95 | 25.65 | -180.00 | -195.00 | -197.00 | 130.00 | 82.52 | 47.48 | 2.738 | |
| 7,400.00 | 7,391.47 | 7,402.16 | 7,391.47 | 22.29 | 25.99 | -180.00 | -195.00 | -197.00 | 130.00 | 81.82 | 48.18 | 2.698 | |
| 7,500.00 | 7,491.47 | 7,502.16 | 7,491.47 | 22.64 | 26.34 | -180.00 | -195.00 | -197.00 | 130.00 | 81.13 | 48.87 | 2.660 | |
| 7,600.00 | 7,591.47 | 7,602.16 | 7,591.47 | 22.98 | 26.69 | -180.00 | -195.00 | -197.00 | 130.00 | 80.43 | 49.57 | 2.623 | |
| 7,700.00 | 7,691.47 | 7,702.16 | 7,691.47 | 23.33 | 27.04 | -180.00 | -195.00 | -197.00 | 130.00 | 79.73 | 50.27 | 2.586 | |
| 7,800.00 | 7,791.47 | 7,802.16 | 7,791.47 | 23.67 | 27.39 | -180.00 | -195.00 | -197.00 | 130.00 | 79.04 | 50.96 | 2.551 | |
| 7,900.00 | 7,891.47 | 7,902.16 | 7,891.47 | 24.02 | 27.74 | -180.00 | -195.00 | -197.00 | 130.00 | 78.34 | 51.66 | 2.516 | |
| 8,000.00 | 7,991.47 | 8,002.16 | 7,991.47 | 24.37 | 28.09 | -180.00 | -195.00 | -197.00 | 130.00 | 77.64 | 52.36 | 2.483 | |
| 8,100.00 | 8,091.47 | 8,102.16 | 8,091.47 | 24.71 | 28.44 | -180.00 | -195.00 | -197.00 | 130.00 | 76.94 | 53.06 | 2.450 | |
| 8,200.00 | 8,191.47 | 8,202.16 | 8,191.47 | 25.06 | 28.79 | -180.00 | -195.00 | -197.00 | 130.00 | 76.24 | 53.76 | 2.418 | |
| 8,300.00 | 8,291.47 | 8,302.16 | 8,291.47 | 25.41 | 29.14 | -180.00 | -195.00 | -197.00 | 130.00 | 75.55 | 54.45 | 2.387 | |
| 8,400.00 | 8,391.47 | 8,402.16 | 8,391.47 | 25.75 | 29.49 | -180.00 | -195.00 | -197.00 | 130.00 | 74.85 | 55.15 | 2.357 | |
| 8,500.00 | 8,491.47 | 8,502.16 | 8,491.47 | 26.10 | 29.84 | -180.00 | -195.00 | -197.00 | 130.00 | 74.15 | 55.85 | 2.327 | |
| 8,600.00 | 8,591.47 | 8,602.16 | 8,591.47 | 26.28 | 30.19 | -180.00 | -195.00 | -197.00 | 130.00 | 73.62 | 56.38 | 2.306 | |
| 8,605.50 | 8,596.97 | 8,607.66 | 8,596.97 | 26.28 | 30.21 | 100.08 | -195.00 | -197.00 | 130.00 | 73.60 | 56.40 | 2.305 | |
| 8,700.00 | 8,691.47 | 8,702.16 | 8,691.47 | 26.28 | 30.55 | 100.15 | -195.00 | -197.00 | 130.03 | 73.29 | 56.74 | 2.292 | |
| 8,800.00 | 8,790.71 | 8,801.40 | 8,790.71 | 26.28 | 30.89 | 104.65 | -195.00 | -197.00 | 132.47 | 75.41 | 57.06 | 2.322 | |
| 8,900.00 | 8,886.50 | 8,897.19 | 8,886.50 | 26.27 | 31.23 | 114.41 | -195.00 | -197.00 | 142.40 | 85.07 | 57.33 | 2.484 | |
| 9,000.00 | 8,975.93 | 9,013.66 | 9,002.30 | 26.26 | 31.62 | 127.88 | -189.50 | -188.03 | 159.79 | 102.86 | 56.93 | 2.807 | |
| 9,100.00 | 9,056.28 | 9,140.94 | 9,123.53 | 26.28 | 32.01 | 140.81 | -169.71 | -155.72 | 177.09 | 122.45 | 54.63 | 3.241 | |
| 9,200.00 | 9,125.13 | 9,277.16 | 9,240.59 | 26.38 | 32.40 | 153.20 | -133.65 | -96.85 | 193.03 | 142.93 | 50.10 | 3.853 | |
| 9,300.00 | 9,180.67 | 9,412.20 | 9,337.80 | 26.59 | 32.80 | 163.81 | -86.33 | -16.41 | 206.64 | 161.64 | 45.01 | 4.592 | |
| 9,400.00 | 9,221.40 | 9,547.57 | 9,415.16 | 26.97 | 33.26 | 171.98 | -45.30 | 86.41 | 222.29 | 181.77 | 40.52 | 5.486 | |
| 9,500.00 | 9,246.09 | 9,695.49 | 9,472.81 | 27.54 | 33.92 | 177.45 | -14.73 | 218.70 | 236.58 | 200.19 | 36.39 | 6.501 | |
| 9,600.00 | 9,254.00 | 9,853.01 | 9,499.25 | 28.29 | 34.84 | 179.91 | -0.72 | 372.85 | 245.53 | 210.86 | 34.67 | 7.081 | |
| 9,700.00 | 9,254.00 | 9,964.81 | 9,500.00 | 29.19 | 35.65 | 180.00 | -0.35 | 484.63 | 246.00 | 210.90 | 35.10 | 7.008 | |
| 9,800.00 | 9,254.00 | 10,064.81 | 9,500.00 | 30.25 | 36.49 | 180.00 | -0.36 | 584.63 | 246.00 | 210.45 | 35.55 | 6.921 | |
| 9,900.00 | 9,254.00 | 10,164.81 | 9,500.00 | 31.44 | 37.46 | 180.00 | -0.38 | 684.63 | 246.00 | 209.95 | 36.05 | 6.823 | |
| 10,000.00 | 9,254.00 | 10,264.81 | 9,500.00 | 32.75 | 38.54 | 180.00 | -0.40 | 784.63 | 246.00 | 209.38 | 36.62 | 6.717 | |
| 10,100.00 | 9,254.00 | 10,364.81 | 9,500.00 | 34.17 | 39.73 | 180.00 | -0.42 | 884.63 | 246.00 | 208.75 | 37.25 | 6.604 | |
| 10,200.00 | 9,254.00 | 10,464.81 | 9,500.00 | 35.68 | 41.02 | 180.00 | -0.43 | 984.63 | 246.00 | 208.07 | 37.93 | 6.486 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

**Offset Design** Leatherneck Fed - 221H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10,300.00 | 9,254.00 | 10,564.81 | 9,500.00 | 37.27 | 42.40 | 180.00 | -0.45 | 1,084.63 | 246.00 | 207.34 | 38.66 | 6.363 | |
| 10,400.00 | 9,254.00 | 10,664.81 | 9,500.00 | 38.93 | 43.85 | 180.00 | -0.47 | 1,184.63 | 246.00 | 206.56 | 39.44 | 6.237 | |
| 10,500.00 | 9,254.00 | 10,764.81 | 9,500.00 | 40.66 | 45.37 | 180.00 | -0.49 | 1,284.63 | 246.00 | 205.73 | 40.27 | 6.109 | |
| 10,600.00 | 9,254.00 | 10,864.81 | 9,500.00 | 42.44 | 46.96 | 180.00 | -0.50 | 1,384.63 | 246.00 | 204.86 | 41.14 | 5.979 | |
| 10,700.00 | 9,254.00 | 10,964.81 | 9,500.00 | 44.27 | 48.61 | 180.00 | -0.52 | 1,484.63 | 246.00 | 203.95 | 42.05 | 5.850 | |
| 10,800.00 | 9,254.00 | 11,064.81 | 9,500.00 | 46.14 | 50.31 | 180.00 | -0.54 | 1,584.63 | 246.00 | 203.00 | 43.00 | 5.721 | |
| 10,900.00 | 9,254.00 | 11,164.81 | 9,500.00 | 48.06 | 52.05 | 180.00 | -0.56 | 1,684.63 | 246.00 | 202.01 | 43.99 | 5.593 | |
| 11,000.00 | 9,254.00 | 11,264.81 | 9,500.00 | 50.00 | 53.84 | 180.00 | -0.57 | 1,784.63 | 246.00 | 201.00 | 45.00 | 5.466 | |
| 11,100.00 | 9,254.00 | 11,364.81 | 9,500.00 | 51.97 | 55.67 | 180.00 | -0.59 | 1,884.63 | 246.00 | 199.95 | 46.05 | 5.342 | |
| 11,133.96 | 9,254.00 | 11,401.23 | 9,500.00 | 52.65 | 56.34 | 180.00 | -0.60 | 1,918.60 | 246.00 | 199.57 | 46.43 | 5.298 | |
| 11,200.00 | 9,254.00 | 11,464.81 | 9,500.00 | 53.97 | 57.53 | 180.00 | -0.61 | 1,984.63 | 246.00 | 198.87 | 47.13 | 5.219 | |
| 11,300.00 | 9,254.00 | 11,564.81 | 9,500.00 | 56.00 | 59.42 | 180.00 | -0.63 | 2,084.63 | 246.00 | 197.76 | 48.24 | 5.100 | |
| 11,400.00 | 9,254.00 | 11,664.81 | 9,500.00 | 58.04 | 61.34 | 180.00 | -0.64 | 2,184.63 | 246.00 | 196.63 | 49.37 | 4.983 | |
| 11,500.00 | 9,254.00 | 11,764.81 | 9,500.00 | 60.11 | 63.29 | 180.00 | -0.66 | 2,284.63 | 246.00 | 195.48 | 50.52 | 4.869 | |
| 11,600.00 | 9,254.00 | 11,864.81 | 9,500.00 | 62.19 | 65.26 | 180.00 | -0.68 | 2,384.63 | 246.00 | 194.30 | 51.70 | 4.759 | |
| 11,700.00 | 9,254.00 | 11,964.81 | 9,500.00 | 64.28 | 67.25 | 180.00 | -0.70 | 2,484.63 | 246.00 | 193.11 | 52.89 | 4.651 | |
| 11,800.00 | 9,254.00 | 12,064.81 | 9,500.00 | 66.39 | 69.26 | 180.00 | -0.71 | 2,584.63 | 246.00 | 191.89 | 54.11 | 4.547 | |
| 11,900.00 | 9,254.00 | 12,164.81 | 9,500.00 | 68.52 | 71.29 | 180.00 | -0.73 | 2,684.63 | 246.00 | 190.66 | 55.34 | 4.445 | |
| 12,000.00 | 9,254.00 | 12,264.81 | 9,500.00 | 70.65 | 73.34 | 180.00 | -0.75 | 2,784.63 | 246.00 | 189.41 | 56.59 | 4.347 | |
| 12,100.00 | 9,254.00 | 12,364.81 | 9,500.00 | 72.80 | 75.40 | 180.00 | -0.76 | 2,884.63 | 246.00 | 188.15 | 57.85 | 4.252 | |
| 12,200.00 | 9,254.00 | 12,464.81 | 9,500.00 | 74.95 | 77.48 | 180.00 | -0.78 | 2,984.63 | 246.00 | 186.87 | 59.13 | 4.160 | |
| 12,300.00 | 9,254.00 | 12,564.81 | 9,500.00 | 77.12 | 79.56 | 180.00 | -0.80 | 3,084.63 | 246.00 | 185.57 | 60.43 | 4.071 | |
| 12,400.00 | 9,254.00 | 12,664.81 | 9,500.00 | 79.29 | 81.66 | 180.00 | -0.82 | 3,184.63 | 246.00 | 184.27 | 61.73 | 3.985 | |
| 12,500.00 | 9,254.00 | 12,764.81 | 9,500.00 | 81.47 | 83.77 | 180.00 | -0.83 | 3,284.63 | 246.00 | 182.95 | 63.05 | 3.902 | |
| 12,600.00 | 9,254.00 | 12,864.81 | 9,500.00 | 83.65 | 85.89 | 180.00 | -0.85 | 3,384.63 | 246.00 | 181.62 | 64.38 | 3.821 | |
| 12,700.00 | 9,254.00 | 12,964.81 | 9,500.00 | 85.84 | 88.02 | 180.00 | -0.87 | 3,484.63 | 246.00 | 180.28 | 65.72 | 3.743 | |
| 12,800.00 | 9,254.00 | 13,064.81 | 9,500.00 | 88.04 | 90.16 | 180.00 | -0.89 | 3,584.63 | 246.00 | 178.93 | 67.07 | 3.668 | |
| 12,900.00 | 9,254.00 | 13,164.81 | 9,500.00 | 90.25 | 92.31 | 180.00 | -0.90 | 3,684.63 | 246.00 | 177.57 | 68.43 | 3.595 | |
| 13,000.00 | 9,254.00 | 13,264.81 | 9,500.00 | 92.45 | 94.46 | 180.00 | -0.92 | 3,784.63 | 246.00 | 176.20 | 69.80 | 3.524 | |
| 13,100.00 | 9,254.00 | 13,364.81 | 9,500.00 | 94.67 | 96.63 | 180.00 | -0.94 | 3,884.63 | 246.00 | 174.82 | 71.18 | 3.456 | |
| 13,200.00 | 9,254.00 | 13,464.81 | 9,500.00 | 96.89 | 98.79 | 180.00 | -0.96 | 3,984.63 | 246.00 | 173.44 | 72.56 | 3.390 | |
| 13,300.00 | 9,254.00 | 13,564.81 | 9,500.00 | 99.11 | 100.97 | 180.00 | -0.97 | 4,084.63 | 246.00 | 172.05 | 73.95 | 3.326 | |
| 13,400.00 | 9,254.00 | 13,664.81 | 9,500.00 | 101.33 | 103.15 | 180.00 | -0.99 | 4,184.63 | 246.00 | 170.65 | 75.35 | 3.265 | |
| 13,500.00 | 9,254.00 | 13,764.81 | 9,500.00 | 103.56 | 105.33 | 180.00 | -1.01 | 4,284.63 | 246.00 | 169.24 | 76.76 | 3.205 | |
| 13,600.00 | 9,254.00 | 13,864.81 | 9,500.00 | 105.80 | 107.53 | 180.00 | -1.03 | 4,384.63 | 246.00 | 167.83 | 78.17 | 3.147 | |
| 13,700.00 | 9,254.00 | 13,964.81 | 9,500.00 | 108.03 | 109.72 | 180.00 | -1.04 | 4,484.63 | 246.00 | 166.41 | 79.59 | 3.091 | |
| 13,800.00 | 9,254.00 | 14,064.81 | 9,500.00 | 110.27 | 111.92 | 180.00 | -1.06 | 4,584.63 | 246.00 | 164.99 | 81.01 | 3.037 | |
| 13,900.00 | 9,254.00 | 14,164.81 | 9,500.00 | 112.51 | 114.12 | 180.00 | -1.08 | 4,684.63 | 246.00 | 163.56 | 82.44 | 2.984 | |
| 14,000.00 | 9,254.00 | 14,264.81 | 9,500.00 | 114.75 | 116.33 | 180.00 | -1.10 | 4,784.63 | 246.00 | 162.13 | 83.87 | 2.933 | |
| 14,100.00 | 9,254.00 | 14,364.81 | 9,500.00 | 117.00 | 118.54 | 180.00 | -1.11 | 4,884.63 | 246.00 | 160.69 | 85.31 | 2.884 | |
| 14,111.02 | 9,254.00 | 14,375.83 | 9,500.00 | 117.25 | 118.79 | 180.00 | -1.12 | 4,895.65 | 246.00 | 160.53 | 85.47 | 2.878 | |
| 14,200.00 | 9,254.00 | 14,464.81 | 9,500.00 | 119.25 | 120.76 | 180.00 | -1.13 | 4,984.63 | 246.00 | 159.25 | 86.75 | 2.836 | |
| 14,300.00 | 9,254.00 | 14,564.81 | 9,500.00 | 121.50 | 122.98 | 180.00 | -1.15 | 5,084.63 | 246.00 | 157.80 | 88.20 | 2.789 | |
| 14,400.00 | 9,254.00 | 14,664.81 | 9,500.00 | 123.75 | 125.20 | 180.00 | -1.17 | 5,184.63 | 246.00 | 156.35 | 89.65 | 2.744 | |
| 14,500.00 | 9,254.00 | 14,764.81 | 9,500.00 | 126.01 | 127.43 | 180.00 | -1.18 | 5,284.63 | 246.00 | 154.89 | 91.11 | 2.700 | |
| 14,600.00 | 9,254.00 | 14,864.81 | 9,500.00 | 128.27 | 129.65 | 180.00 | -1.20 | 5,384.63 | 246.00 | 153.44 | 92.56 | 2.658 | |
| 14,700.00 | 9,254.00 | 14,964.81 | 9,500.00 | 130.52 | 131.88 | 180.00 | -1.22 | 5,484.63 | 246.00 | 151.97 | 94.03 | 2.616 | |
| 14,800.00 | 9,254.00 | 15,064.81 | 9,500.00 | 132.78 | 134.12 | 180.00 | -1.24 | 5,584.63 | 246.00 | 150.51 | 95.49 | 2.576 | |
| 14,900.00 | 9,254.00 | 15,164.81 | 9,500.00 | 135.05 | 136.35 | 180.00 | -1.25 | 5,684.63 | 246.00 | 149.04 | 96.96 | 2.537 | |
| 15,000.00 | 9,254.00 | 15,264.81 | 9,500.00 | 137.31 | 138.59 | 180.00 | -1.27 | 5,784.63 | 246.00 | 147.57 | 98.43 | 2.499 | |
| 15,100.00 | 9,254.00 | 15,364.81 | 9,500.00 | 139.57 | 140.83 | 180.00 | -1.29 | 5,884.63 | 246.00 | 146.09 | 99.91 | 2.462 | |
| 15,200.00 | 9,254.00 | 15,464.81 | 9,500.00 | 141.84 | 143.07 | 180.00 | -1.31 | 5,984.63 | 246.00 | 144.61 | 101.39 | 2.426 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# Pro Directional

Anticollision Report

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

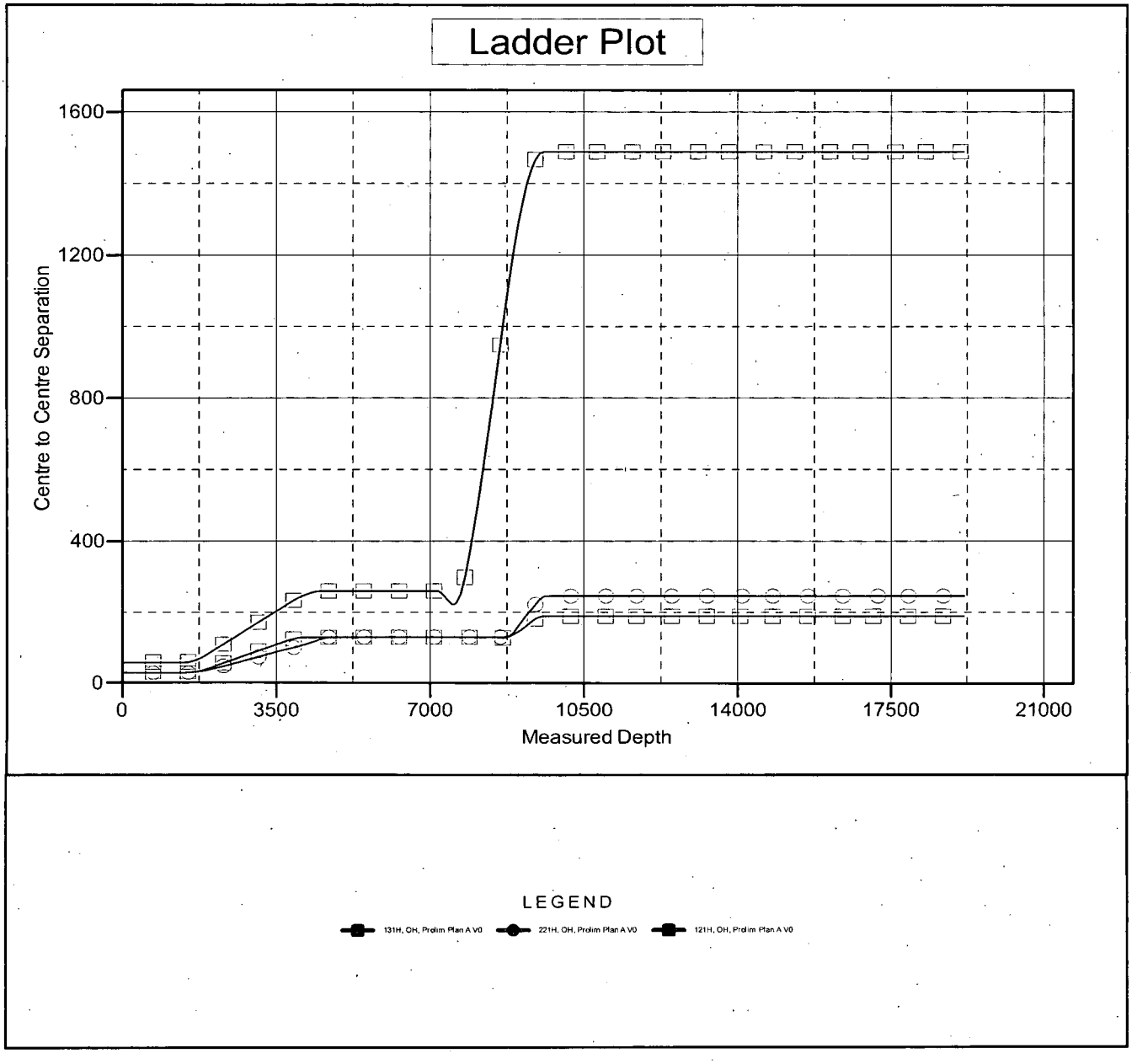
**Offset Design** Leatherneck Fed - 221H - OH - Prelim Plan A — **Offset Site Error:** 0.00 usft

**Survey Program:** 0-MWD+HDGM — **Offset Well Error:** 0.00 usft

| Reference Measured Depth (usft) | Reference Vertical Depth (usft) | Offset Measured Depth (usft) | Offset Vertical Depth (usft) | Semi Major Axis Reference (usft) | Semi Major Axis Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | Offset Wellbore Centre +E/-W (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15,300.00 | 9,254.00 | 15,564.81 | 9,500.00 | 144.11 | 145.32 | 180.00 | -1.32 | 6,084.63 | 246.00 | 143.13 | 102.87 | 2.391 | |
| 15,400.00 | 9,254.00 | 15,664.81 | 9,500.00 | 146.38 | 147.56 | 180.00 | -1.34 | 6,184.63 | 246.00 | 141.65 | 104.35 | 2.357 | |
| 15,500.00 | 9,254.00 | 15,764.81 | 9,500.00 | 148.65 | 149.81 | 180.00 | -1.36 | 6,284.63 | 246.00 | 140.16 | 105.84 | 2.324 | |
| 15,600.00 | 9,254.00 | 15,864.81 | 9,500.00 | 150.92 | 152.06 | 180.00 | -1.38 | 6,384.63 | 246.00 | 138.67 | 107.33 | 2.292 | |
| 15,700.00 | 9,254.00 | 15,964.81 | 9,500.00 | 153.19 | 154.31 | 180.00 | -1.39 | 6,484.63 | 246.00 | 137.18 | 108.82 | 2.261 | |
| 15,800.00 | 9,254.00 | 16,064.81 | 9,500.00 | 155.46 | 156.57 | 180.00 | -1.41 | 6,584.63 | 246.00 | 135.69 | 110.31 | 2.230 | |
| 15,900.00 | 9,254.00 | 16,164.81 | 9,500.00 | 157.74 | 158.82 | 180.00 | -1.43 | 6,684.63 | 246.00 | 134.20 | 111.80 | 2.200 | |
| 16,000.00 | 9,254.00 | 16,264.81 | 9,500.00 | 160.01 | 161.08 | 180.00 | -1.45 | 6,784.63 | 246.00 | 132.70 | 113.30 | 2.171 | |
| 16,100.00 | 9,254.00 | 16,364.81 | 9,500.00 | 162.29 | 163.34 | 180.00 | -1.46 | 6,884.63 | 246.00 | 131.20 | 114.80 | 2.143 | |
| 16,200.00 | 9,254.00 | 16,464.81 | 9,500.00 | 164.56 | 165.60 | 180.00 | -1.48 | 6,984.63 | 246.00 | 129.70 | 116.30 | 2.115 | |
| 16,300.00 | 9,254.00 | 16,564.81 | 9,500.00 | 166.84 | 167.86 | 180.00 | -1.50 | 7,084.63 | 246.00 | 128.20 | 117.80 | 2.088 | |
| 16,400.00 | 9,254.00 | 16,664.81 | 9,500.00 | 169.12 | 170.12 | 180.00 | -1.52 | 7,184.63 | 246.00 | 126.69 | 119.31 | 2.062 | |
| 16,500.00 | 9,254.00 | 16,764.81 | 9,500.00 | 171.40 | 172.38 | 180.00 | -1.53 | 7,284.63 | 246.00 | 125.19 | 120.81 | 2.036 | |
| 16,600.00 | 9,254.00 | 16,864.81 | 9,500.00 | 173.68 | 174.64 | 180.00 | -1.55 | 7,384.63 | 246.00 | 123.68 | 122.32 | 2.011 | |
| 16,700.00 | 9,254.00 | 16,964.81 | 9,500.00 | 175.96 | 176.91 | 180.00 | -1.57 | 7,484.63 | 246.00 | 122.17 | 123.83 | 1.987 | |
| 16,800.00 | 9,254.00 | 17,064.81 | 9,500.00 | 178.24 | 179.18 | 180.00 | -1.59 | 7,584.63 | 246.00 | 120.66 | 125.34 | 1.963 | |
| 16,900.00 | 9,254.00 | 17,164.81 | 9,500.00 | 180.52 | 181.44 | 180.00 | -1.60 | 7,684.63 | 246.00 | 119.15 | 126.85 | 1.939 | |
| 17,000.00 | 9,254.00 | 17,264.81 | 9,500.00 | 182.81 | 183.71 | 180.00 | -1.62 | 7,784.63 | 246.00 | 117.63 | 128.37 | 1.916 | |
| 17,100.00 | 9,254.00 | 17,364.81 | 9,500.00 | 185.09 | 185.98 | 180.00 | -1.64 | 7,884.63 | 246.00 | 116.12 | 129.88 | 1.894 | |
| 17,200.00 | 9,254.00 | 17,464.81 | 9,500.00 | 187.37 | 188.25 | 180.00 | -1.66 | 7,984.63 | 246.00 | 114.60 | 131.40 | 1.872 | |
| 17,233.96 | 9,254.00 | 17,501.23 | 9,500.00 | 188.15 | 189.08 | 180.00 | -1.66 | 8,018.60 | 246.00 | 114.07 | 131.93 | 1.865 | |
| 17,300.00 | 9,254.00 | 17,564.81 | 9,500.00 | 189.66 | 190.52 | 180.00 | -1.67 | 8,084.63 | 246.00 | 113.09 | 132.91 | 1.851 | |
| 17,400.00 | 9,254.00 | 17,664.81 | 9,500.00 | 191.94 | 192.79 | 180.00 | -1.69 | 8,184.63 | 246.00 | 111.57 | 134.43 | 1.830 | |
| 17,500.00 | 9,254.00 | 17,764.81 | 9,500.00 | 194.23 | 195.07 | 180.00 | -1.71 | 8,284.63 | 246.00 | 110.05 | 135.95 | 1.809 | |
| 17,600.00 | 9,254.00 | 17,864.81 | 9,500.00 | 196.51 | 197.34 | 180.00 | -1.72 | 8,384.63 | 246.00 | 108.53 | 137.47 | 1.789 | |
| 17,700.00 | 9,254.00 | 17,964.81 | 9,500.00 | 198.80 | 199.61 | 180.00 | -1.74 | 8,484.63 | 246.00 | 107.01 | 138.99 | 1.770 | |
| 17,800.00 | 9,254.00 | 18,064.81 | 9,500.00 | 201.09 | 201.89 | 180.00 | -1.76 | 8,584.63 | 246.00 | 105.48 | 140.52 | 1.751 | |
| 17,900.00 | 9,254.00 | 18,164.81 | 9,500.00 | 203.37 | 204.16 | 180.00 | -1.78 | 8,684.63 | 246.00 | 103.96 | 142.04 | 1.732 | |
| 18,000.00 | 9,254.00 | 18,264.81 | 9,500.00 | 205.66 | 206.44 | 180.00 | -1.79 | 8,784.63 | 246.00 | 102.43 | 143.57 | 1.714 | |
| 18,100.00 | 9,254.00 | 18,364.81 | 9,500.00 | 207.95 | 208.72 | 180.00 | -1.81 | 8,884.63 | 246.00 | 100.91 | 145.09 | 1.695 | |
| 18,200.00 | 9,254.00 | 18,464.81 | 9,500.00 | 210.24 | 211.00 | 180.00 | -1.83 | 8,984.63 | 246.00 | 99.38 | 146.62 | 1.678 | |
| 18,300.00 | 9,254.00 | 18,564.81 | 9,500.00 | 212.53 | 213.27 | 180.00 | -1.85 | 9,084.63 | 246.00 | 97.85 | 148.15 | 1.661 | |
| 18,400.00 | 9,254.00 | 18,664.81 | 9,500.00 | 214.82 | 215.55 | 180.00 | -1.86 | 9,184.63 | 246.00 | 96.33 | 149.67 | 1.644 | |
| 18,500.00 | 9,254.00 | 18,764.81 | 9,500.00 | 217.11 | 217.83 | 180.00 | -1.88 | 9,284.63 | 246.00 | 94.80 | 151.20 | 1.627 | |
| 18,600.00 | 9,254.00 | 18,864.81 | 9,500.00 | 219.40 | 220.11 | 180.00 | -1.90 | 9,384.63 | 246.00 | 93.27 | 152.73 | 1.611 | |
| 18,700.00 | 9,254.00 | 18,964.81 | 9,500.00 | 221.69 | 222.39 | 180.00 | -1.92 | 9,484.63 | 246.00 | 91.74 | 154.26 | 1.595 | |
| 18,800.00 | 9,254.00 | 19,064.81 | 9,500.00 | 223.98 | 224.67 | 180.00 | -1.93 | 9,584.63 | 246.00 | 90.20 | 155.80 | 1.579 | |
| 18,900.00 | 9,254.00 | 19,164.81 | 9,500.00 | 226.27 | 226.96 | 180.00 | -1.95 | 9,684.63 | 246.00 | 88.67 | 157.33 | 1.564 | |
| 19,000.00 | 9,254.00 | 19,264.81 | 9,500.00 | 228.56 | 229.24 | 180.00 | -1.97 | 9,784.63 | 246.00 | 87.14 | 158.86 | 1.549 | |
| 19,100.00 | 9,254.00 | 19,364.81 | 9,500.00 | 230.85 | 231.52 | 180.00 | -1.99 | 9,884.63 | 246.00 | 85.61 | 160.39 | 1.534 | |
| 19,176.37 | 9,254.00 | 19,441.18 | 9,500.00 | 232.60 | 232.92 | 180.00 | -2.00 | 9,961.00 | 246.00 | 84.59 | 161.41 | 1.524 SF | |

| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

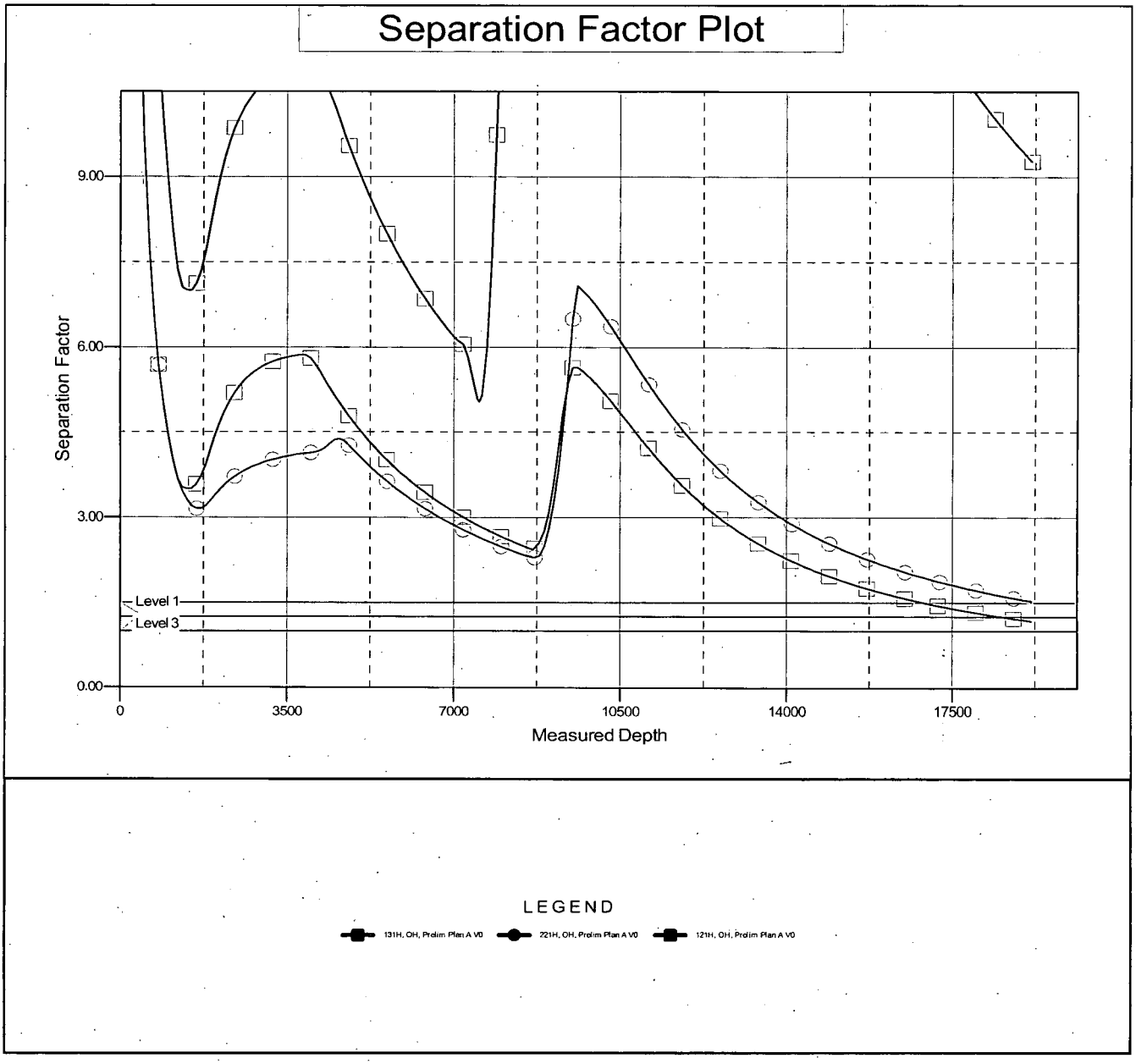
| | |
|---|---|
| Reference Depths are relative to Rig @ 3267.00usft (GL:3,238' + KB:29 | Coordinates are relative to: 201H |
| Offset Depths are relative to Offset Datum | Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30 |
| Central Meridian is -104.3333333 | Grid Convergence at Surface is: 0.11° |



| | | | |
|---|---|---|---|
| **Company:** | Matador Resources | **Local Co-ordinate Reference:** | Well 201H |
| **Project:** | Eddy County, NM | **TVD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Reference Site:** | Leatherneck Fed | **MD Reference:** | Rig @ 3267.00usft (GL:3,238' + KB:29') |
| **Site Error:** | 0.00 usft | **North Reference:** | Grid |
| **Reference Well:** | 201H | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.00 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | OH | **Database:** | WellPlanner1 |
| **Reference Design:** | Prelim Plan A | **Offset TVD Reference:** | Offset Datum |

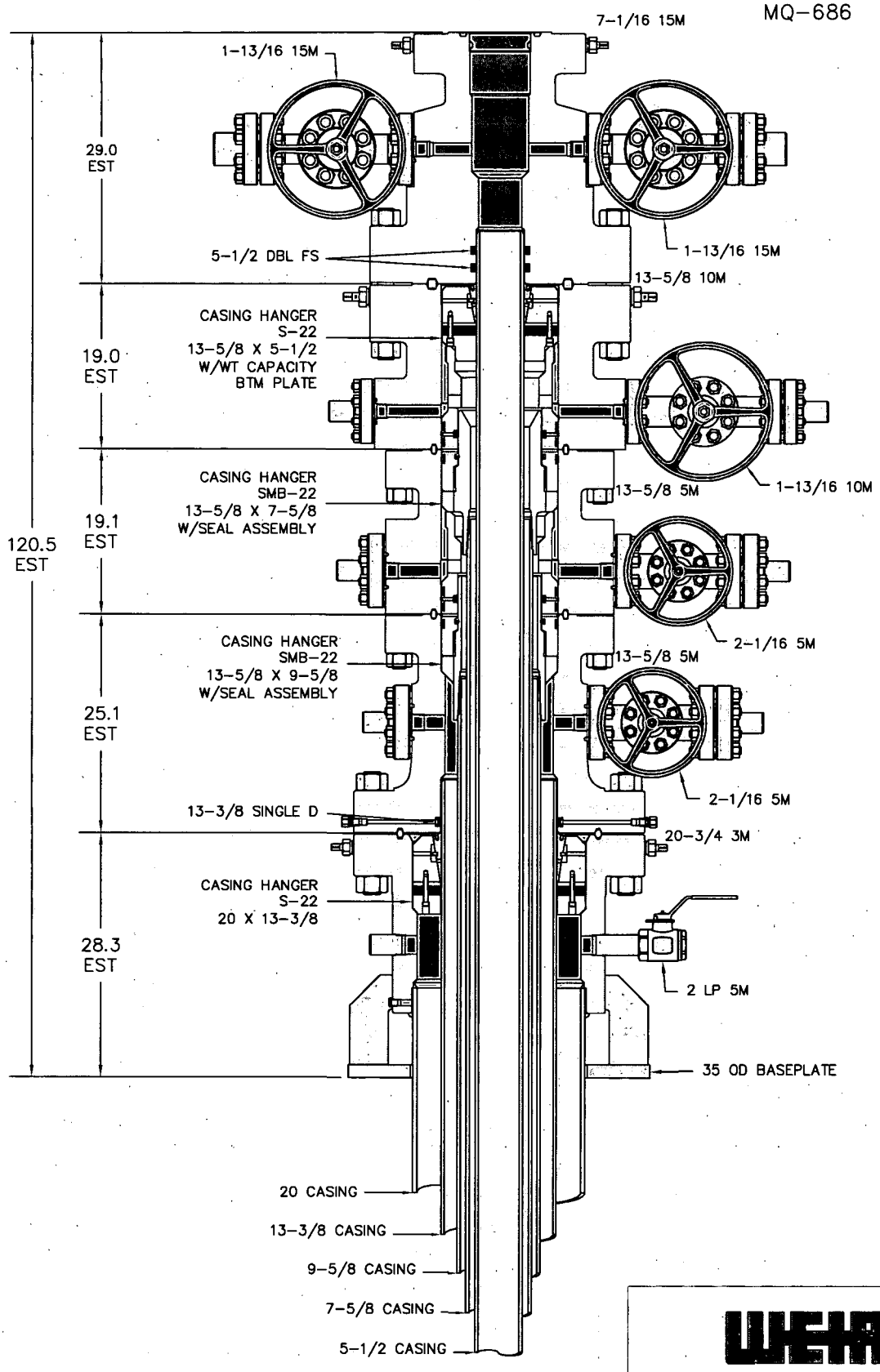
Reference Depths are relative to Rig @ 3267.00usft (GL:3,238' + KB:29
Offset Depths are relative to Offset Datum
Central Meridian is -104.3333333

Coordinates are relative to: 201H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.11°




CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

MATADOR PROD. CO.
PATTERSON 809
MQ-686




NOTE:
DIMENSIONS SHOWN ON THIS DRAWING ARE ESTIMATES ONLY AND CAN VARY SIGNIFICANTLY DEPENDING ON RAW MATERIAL LENGTHS.
NO GUARANTEE OF STACKUP HEIGHT IS IMPLIED.
DIMENSIONS SHOWN SHOULD BE CONSIDERED FOR REFERENCE PURPOSES ONLY.



WEIR

15,000 PSI WELLHEAD ASSEMBLY
20 X 13-3/8 X 9-5/8 X 7-5/8 X 5-1/2

| DRAWN BY: | SCALE | DATE | REV |
|---|---|---|---|
| RPL | 1:14 | 03APR17 | |
| CHECKED BY: | DRAWING NO. | | |
| APPROVED BY: | P-22072 | | |

**Matador Production Company** **DRILL PLAN PAGE 1**
**Leatherneck Fed Com 201H**
**SHL 660' FNL & 247' FWL Sec. 30**
**BHL 660' FSL & 240' FWL Sec. 29**
**T. 20 S., R. 29 E., Eddy County, NM**

Drilling Program

1. ESTIMATED TOPS

| Formation Name | MD | TVD | Bearing |
|---|---|---|---|
| Quaternary Alluvium Deposits | 000 | 000 | water |
| Rustler anhydrite | 440 | 440 | N/A |
| Yates carbonate | 794 | 794 | N/A |
| Capitan Reef | 1225 | 1225 | water |
| Cherry Canyon sandstone | 2980 | 2975 | hydrocarbons |
| Brushy Canyon sandstone | 4135 | 4127 | hydrocarbons |
| Bone Spring limestone | 5680 | 5672 | hydrocarbons |
| Upper Avalon Shale | 5949 | 5940 | hydrocarbons |
| Avalon Carbonate | 6129 | 6120 | hydrocarbons |
| Lower Avalon Shale | 6281 | 6273 | hydrocarbons |
| 1st Bone Spring carbonate | 6362 | 6354 | hydrocarbons |
| 1st Bone Spring sandstone | 6840 | 6831 | hydrocarbons |
| 2nd Bone Spring carbonate | 7032 | 7023 | hydrocarbons |
| 2nd Bone Spring sandstone | 7456 | 7447 | hydrocarbons |
| 3rd Bone Spring carbonate | 7826 | 7819 | hydrocarbons |
| 3rd Bone Spring sandstone | 8663 | 8655 | hydrocarbons |
| **KOP** | **8685** | **8677** | hydrocarbons |
| Wolfcamp A | 9143 | 9085 | **hydrocarbons & goal** |
| **TD** | **19176** | **9254** | |

2. NOTABLE ZONES

**Wolfcamp A is the goal.** Hole will extend east of the last perforation point to allow for pump installation. All perforations will be ≥330' from the dedication perimeter. Closest water well (C 00936) is approximately 3845' northeast. Water bearing strata depths were not reported for the 70' deep well. OSE estimated ground water depth at this location is 68'.

3. PRESSURE CONTROL

A BOP stack consisting of 3 rams with 2 pipe rams, 1 blind ram, and 1 annular preventer will be used below surface casing to TD. See attached BOP, choke manifold, co-flex hose, and speed head diagrams. Also present will be an accumulator that meets the requirements of Onshore Order #2 for the pressure rating of the BOP stack. A rotating head will also be installed as needed. Pressure tests will be conducted prior to drilling out under all casing strings. BOP will be inspected and operated as recommended in Onshore Order #2. A Kelly cock and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position. A third party company will test the BOPs.

Test pressures will be as follows: On the intermediate 1 casing, pressure tests will be made to 250 psi low and 2000 psi high. On the intermediate 2 casing, pressure tests will be made to 250 psi low and 3000 psi high. On the intermediate 3 casing, pressure tests will be made to 250 psi low and 7500 psi high. The annular preventer will be tested to 250 psi low and 2500 psi high on the intermediate 1, 2 and 3 casing. In the case of running a speed head with landing mandrel for 9-5/8" and 7-5/8" x 7" casing the initial intermediate 1 casing test pressures will be 250 psi low and 3000 psi high with wellhead seals tested to 5000 psi once the 9-5/8" casing has been landed and cemented. The BOP will then be lifted to install the 'D-section' of the wellhead. We will nipple the BOP back up and the pressure tests will be made to 250 psi low and 7500 psi high and the annular will be tested to 250 psi low and 2500 psi high.

**Variance Requests**

Matador requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. Manufacturer does not require the hose to be anchored. If the specific hose is not available, then one of equal or higher rating will be used.

Matador is requesting a variance to use a speed head with landing mandrel for 9-5/8" and 7-5/8" x 7" casing. A diagram of the speed head is attached.

## 4. CASING & CEMENT

All casing will be API and new. See attached casing assumption worksheet.

| String | Hole O.D. | Casing O.D. | Set MD | Set TVD | Wt/Grade | Joint |
|---|---|---|---|---|---|---|
| Surface | 26" | 20" (new) | 400 | 400 | 94# J-55 | BTC |
| Intermediate 1 | 17-1/2" | 13-3/8" (new) | 1200 | 1200 | 54.5# J-55 | BTC |
| Intermediate 2 | 12-1/4" | 9-5/8" (new) | 3100 | 3095 | 40# J-55 | BTC |
| Intermediate 3 | 8-3/4" | 7-5/8" (new) | 0 - 1175 | 0 - 1175 | 29.7# P-110 | BTC |
| | | 7-5/8" (new) | **1175 - 8635** | **1175- 8627** | 29.7# P-110 | HTF-NR |
| | | 7" (new) | 8635 - 9450 | 8627 - 9236 | 29# P-110 | BTC |
| Production | 6-1/8" | 5-1/2" (new) | 0 - 8535 | 0 - 8527 | 20# P-110 | Tenaris XP |
| | | 4-1/2" (new) | 8535 - 19176 | 8527 - 9254 | 13.5# P-110 | Tenaris XP |

Minimum Safety Factors: Burst: 1.125 Collapse: 1.125 Tension 1.8

| Name | Type | Sacks | Yield | Cu. Ft. | Weight | Blend |
|---|---|---|---|---|---|---|
| Surface | Tail | 892 | 1.35 | 1204 | 14.8 | Class C + 5% NaCl + LCM |
| TOC = 0' | | 100% Excess | | | | Centralizers per Onshore Order 2.III.B.1f |
| Inter. 1 | Lead | 619 | 1.78 | 1102 | 13.5 | Class C + Bentonite + 1% CaCL2 + 8% NaCl + LCM |
| | Tail | 309 | 1.35 | 417.15 | 14.8 | Class C + 5% NaCl + LCM |
| TOC = 0' | | 100% Excess | | | | 2 on btm jt, 1 on 2nd jt, 1 every 4th jt to surface |
| Inter. 2 | Lead | 695 | 1.78 | 1237 | 13.5 | Class C + Bentonite + 2% CaCL2 + 3% NaCl + LCM |
| | Tail | 288 | 1.35 | 389 | 14.8 | Class C + 5% NaCl + LCM |
| TOC = 0' | | 100% Excess | | | | 2 on btm jt, 1 on 2nd jt, 1 every 4th jt to surface |
| Inter. 3 | Lead | 593 | 2.36 | 1399 | 11.5 | TXI + Fluid Loss + Dispersant + Retarder + LCM |
| | Tail | 304 | 1.38 | 420 | 13.2 | TXI + Fluid Loss + Dispersant + Retarder + LCM |
| TOC = 1175' | | 35% Excess | | | | 2 on btm jt, 1 on 2nd jt, 1 every other jt to top of tail cement (500' above TOC), 1 every 4th jt to surface |
| Production | Tail | 805 | 1.38 | 1111 | 15.8 | Class H + Fluid Loss + Dispersant + Retarder + LCM |
| TOC = 8450' | | 10% Excess | | | | 2 on btm jt, 1 on 2nd jt, 1 every 4th jt to top of tail cement (1000' tie back) |

## Variance Request

Matador requests the option to run a DV tool with annular packer as contingency in the intermediate 2 section on 9-5/8" casing if lost circulation is encountered. If losses occur the DV tool with packer will be placed at least 100' above the loss zone to give the option to pump cement as either a single stage or two stage.

Example:
Assuming DV tool is set at 1500' MD but if the setting depth changes, cement volumes will be adjusted proportionately.

Stage 1:

| | | | | |
|---|---|---|---|---|
| Lead | 695 | 1.78 | 13.5 | Class C + Bentonite + 2% CaCL2 + 3% NaCl + LCM |
| Tail | 288 | 1.35 | 14.4 | Class C + 5% NaCl + LCM |
| 100% excess, TOC = 0' MD | | | | |

Stage 2:

| | | | | |
|---|---|---|---|---|
| Lead | 350 | 1.78 | 13.5 | Class C + Bentonite + 2% CaCL2 + 3% NaCl + LCM |
| 100% excess, TOC = 0' MD | | | | |

## 5. MUD PROGRAM

An electronic Pason mud monitoring system complying with Onshore Order 1 will be used. All necessary mud products (barite, bentonite, LCM) for weight addition and fluid loss control will be on location at all times. Mud program is subject to change due to hole conditions. A closed loop system will be used.

| Casing | Hole Size | Type | Interval (MD) | lb/gal | Viscosity | Fluid Loss |
|---|---|---|---|---|---|---|
| Surface | 20" | SW spud mud | 0-400 | 8.4 | 28 | NC |
| Inter. 1 | 17 ½" | brine water | 400-1200 | 10.0 | 30-32 | NC |
| Inter. 2 | 12 ¼" | FW | 1200-3100 | 8.4-8.6 | 28-30 | NC |
| Inter. 3 | 8 ¾" | FW/cut brine | 3100-9450 | 9.0 | 30-32 | NC |
| Production | 6 1/8" | OBM | 9450-19176 | 12.50 | 50-60 | <10 |

6. CORES, TESTS, & LOGS

No core or drill stem test is planned.

A 2-person mud logging program will be used from ≈1,200' to TD.

No electric logs are planned at this time. GR will be collected through the MWD tools from intermediate casing #2 to TD. CBL with CCL will be run as far as gravity will let it fall to TOC.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈6,015 psi. Expected bottom hole temperature is ≈170° F.

In accordance with Onshore Order 6, Matador does not anticipate that there will be enough $H_2S$ from the surface to the Bone Spring to meet the BLM's minimum requirements for the submission of an "$H_2S$ Drilling Operation Plan" or "Public Protection Plan" for drilling and completing this well. Since Matador has an $H_2S$ safety package on all wells, an "$H_2S$ Drilling Operations Plan" is attached. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈3 months to drill and complete the well.

**DVT Tool Variance Request**

Matador requests the option to run a DV tool with annular packer as contingency in the intermediate 2 section on 9-5/8" casing if lost circulation is encountered. If losses occur the DV tool with packer will be placed at least 100' above the loss zone to give the option to pump cement as either a single stage or two stage.

Example:
Assuming DV tool is set at 1500' MD but if the setting depth changes, cement volumes will be adjusted proportionately.

Stage 1:

| | | | | |
|---|---|---|---|---|
| Lead | 695 | 1.78 | 13.5 | Class C + Bentonite + 2% CaCL2 + 3% NaCl + LCM |
| Tail | 288 | 1.35 | 14.4 | Class C + 5% NaCl + LCM |
| 100% excess, TOC = 0' MD | | | | |

Stage 2:

| | | | | |
|---|---|---|---|---|
| Lead | 350 | 1.78 | 13.5 | Class C + Bentonite + 2% CaCL2 + 3% NaCl + LCM |
| 100% excess, TOC = 0' MD | | | | |

# Matador Production Company

**Leatherneck Fed**
**Water & Gravel Source Map**

Eddy County, New Mexico

Leatherneck Well Pads

1:65,000

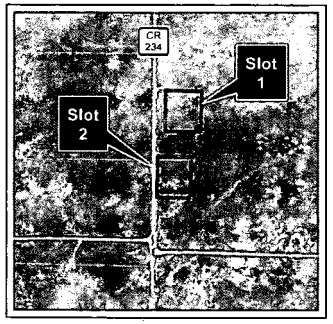
0 0.5 1 2
Miles

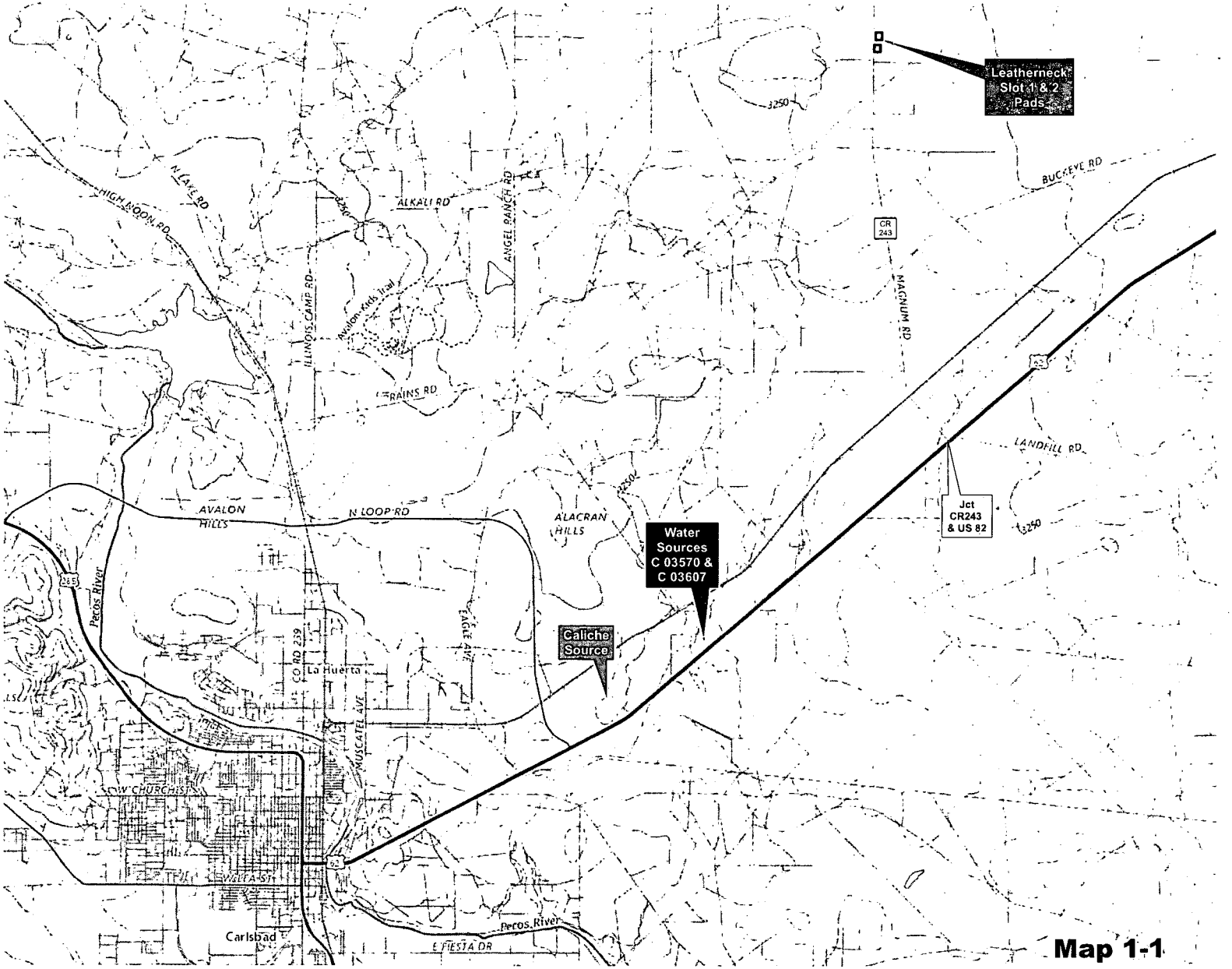
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

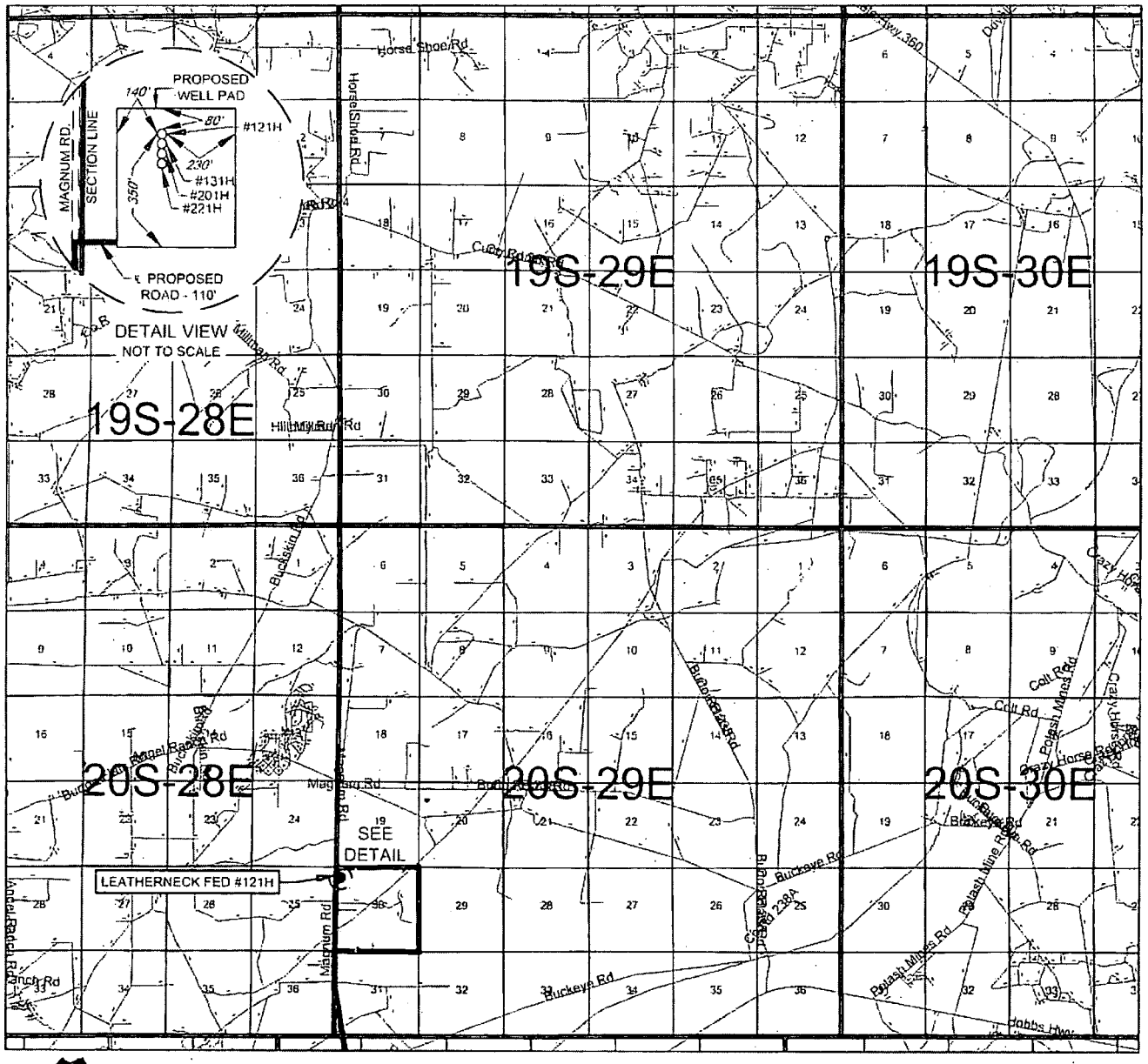
PERMITS WEST

Prepared by Permits West, Inc., May 2, 2018
for Matador Production Company



# VICINITY MAP




LEASE NAME & WELL NO.: LEATHERNECK FED #121H

SECTION 30 TWP 20-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 600' FNL & 246' FWL

DISTANCE & DIRECTION

FROM INT. OF NM-360 & US-180/US-62 GO WEST ON US-180/US-62 ±6.9 MILES, THENCE NORTH (RIGHT) ON MAGNUM RD. ±4.7 MILES, THENCE EAST (RIGHT) ON PROPOSED RD. ±110 FEET TO A POINT ±350 FEET SOUTHWEST OF THE LOCATION.

-N-

SCALE: 1" = 10000'

0' 5000' 10000'

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY MATADOR PRODUCTION COMPANY. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE OF THE NORTH AMERICAN DATUM 1983, U.S. SURVEY FEET.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2903 NORTH BIG SPRING · MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 · FAX (432) 682-1743
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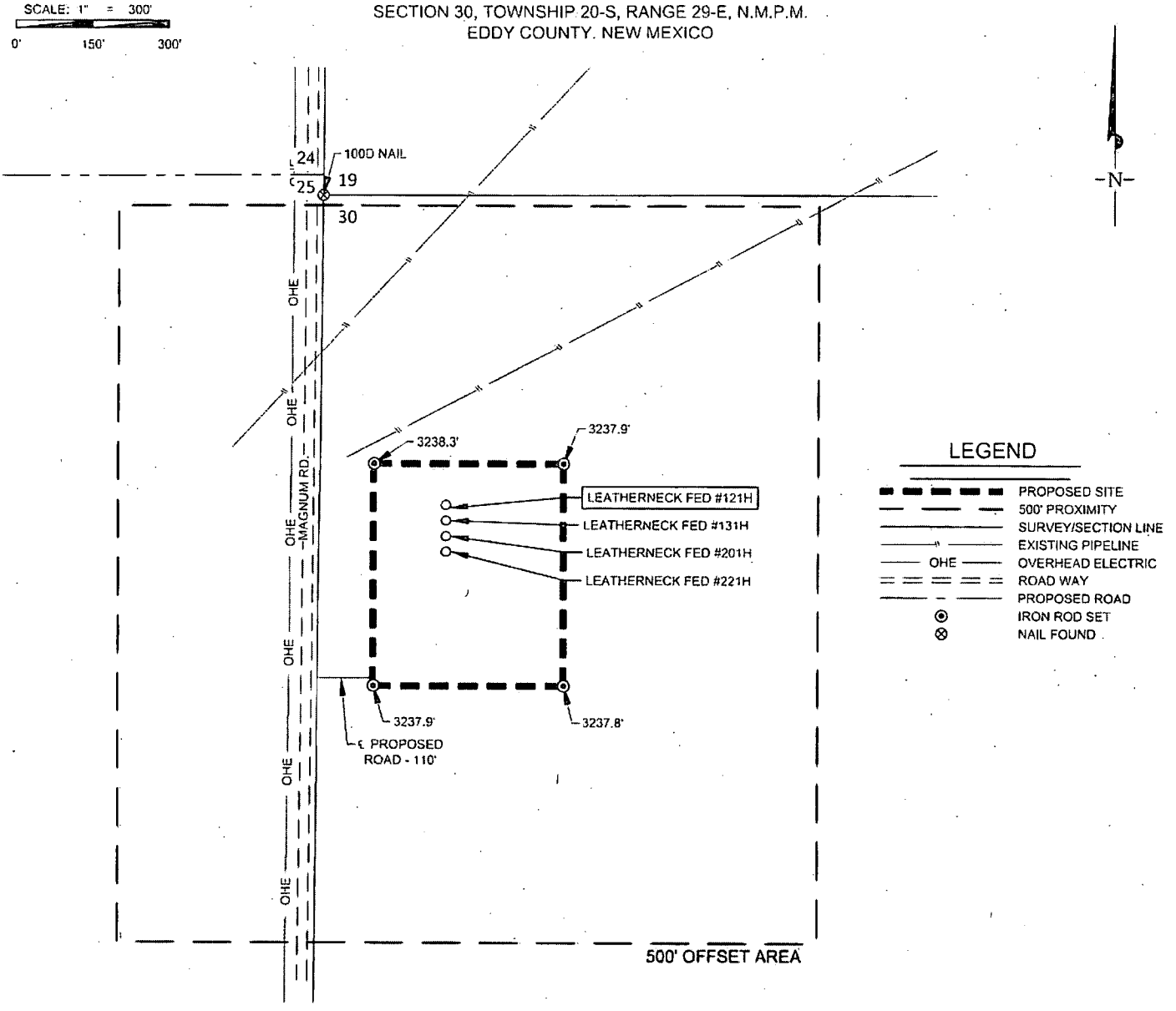
**Map 3-1**

SCALE: 1" = 300'

0' 150' 300'

SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO




Matador PRODUCTION COMPANY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WWW.TOPOGRAPHIC.COM


STAN W. LLOYD
NEW MEXICO
19642
PROFESSIONAL SURVEYOR
9/11/17

Stan W. Lloyd, P.S. No. 19642
SEPTEMBER 5, 2017

| LEATHERNECK FED #121H PROXIMITY | REVISION: | |
|---|---|---|
| | GLH | 05/16/17 |
| | EAH | 09/05/17 |
| DATE: 04/14/17 | | |
| FILE: LO_LEATHERNECK_FED_121H_REV2 | | |
| DRAWN BY: MML | | |
| SHEET: 7 OF 7 | | |

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1983.
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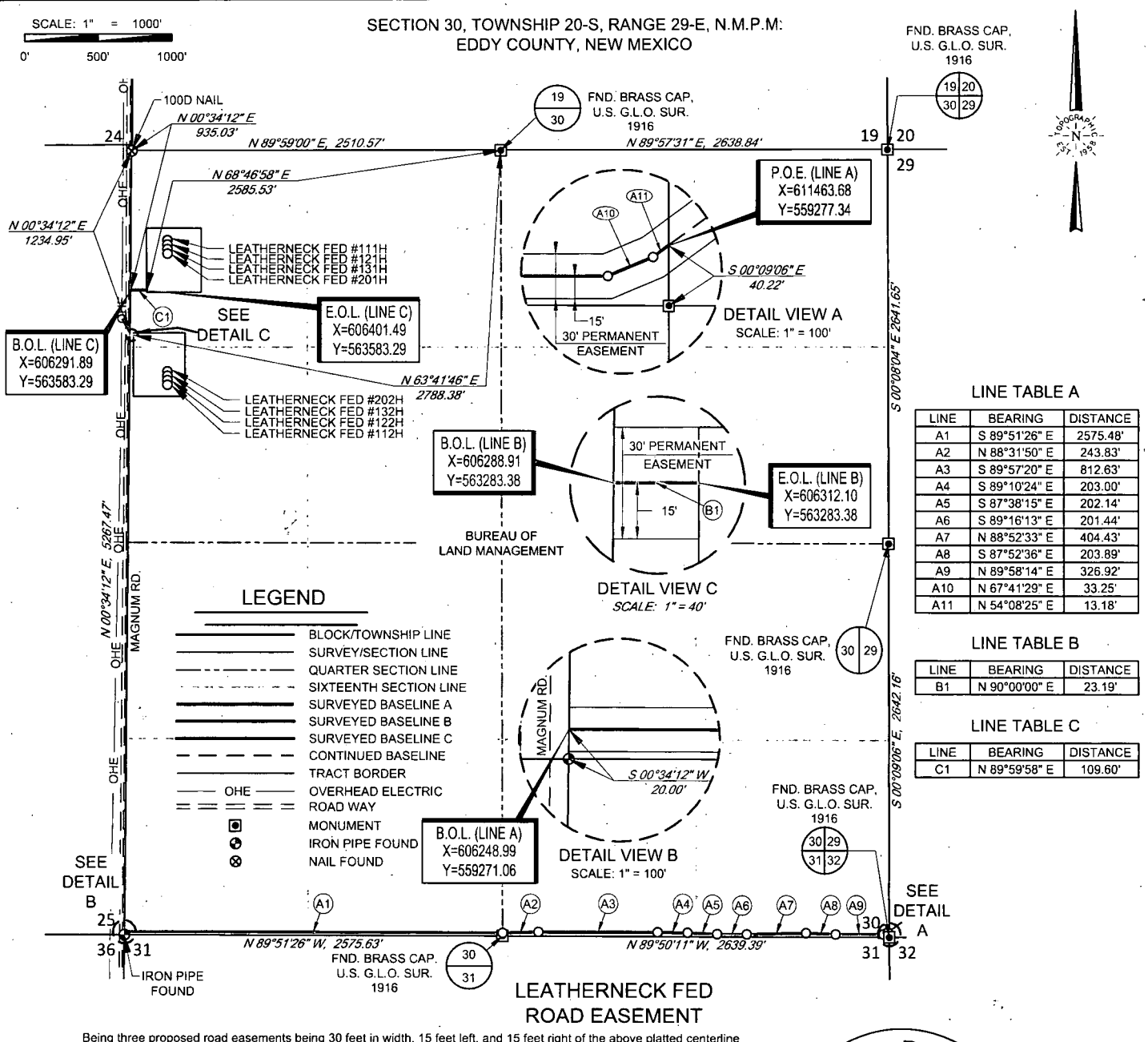
**Map 3-2**

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_FED_121H\FINAL_PRODUCTS\LO_LEATHERNECK_FED_121H_REV2.DWG 9/11/2017 8:40:55 AM ehornbrook

SCALE: 1" = 1000'

0' 500' 1000'

# SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M: EDDY COUNTY, NEW MEXICO




## LEGEND

- BLOCK/TOWNSHIP LINE
- SURVEY/SECTION LINE
- QUARTER SECTION LINE
- SIXTEENTH SECTION LINE
- SURVEYED BASELINE A
- SURVEYED BASELINE B
- SURVEYED BASELINE C
- CONTINUED BASELINE
- TRACT BORDER
- OHE — OVERHEAD ELECTRIC
- ROAD WAY
- MONUMENT
- IRON PIPE FOUND
- NAIL FOUND

### LINE TABLE A

| LINE | BEARING | DISTANCE |
|---|---|---|
| A1 | S 89°51'26" E | 2575.48' |
| A2 | N 88°31'50" E | 243.83' |
| A3 | S 89°57'20" E | 812.63' |
| A4 | S 89°10'24" E | 203.00' |
| A5 | S 87°38'15" E | 202.14' |
| A6 | S 89°16'13" E | 201.44' |
| A7 | N 88°52'33" E | 404.43' |
| A8 | S 87°52'36" E | 203.89' |
| A9 | N 89°58'14" E | 326.92' |
| A10 | N 67°41'29" E | 33.25' |
| A11 | N 54°08'25" E | 13.18' |

### LINE TABLE B

| LINE | BEARING | DISTANCE |
|---|---|---|
| B1 | N 90°00'00" E | 23.19' |

### LINE TABLE C

| LINE | BEARING | DISTANCE |
|---|---|---|
| C1 | N 89°59'58" E | 109.60' |

## LEATHERNECK FED ROAD EASEMENT

Being three proposed road easements being 30 feet in width, 15 feet left, and 15 feet right of the above platted centerline total line footage containing 5352.98 feet or 324.42 rods, containing 3.69 acres more or less.

MICHAEL B. BROWN NEW MEXICO 18329 PROFESSIONAL SURVEYOR

Michael Blake Brown, P.S. No. 18329

MAY 12, 2017


Matador PRODUCTION COMPANY

TOPOGRAPHIC LOYALTY INNOVATION LEGACY

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| LEATHERNECK FED ROAD EASEMENT | REVISION: | |
|---|---|---|
| | GLH | 05/12/17 |
| DATE: 04/17/17 | | |
| FILE: EP_LEATHERNECK_FED_ROAD_SEC_30_REV1 | | |
| DRAWN BY: GLH | | |
| SHEET: 1 OF 1 | | |

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4. P.O.B./B.O.L. = POINT OF BEGINNING/BEGINNING OF LINE.
5. P.O.E./E.O.L. = POINT OF EXIT/END OF LINE

**Map 3-3**

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_FED_ROAD_EASEMENT\FINAL_PRODUCTS\EP_LEATHERNECK_FED_ROAD_SEC_30_REV1.DWG 5/19/2017 5:44:02 PM ccaston

# Matador Production Company

**Leatherneck Fed**
**Slot 1: 121H, 131H, 201H, & 221H**
**Slot 2: 122H, 132H, 202H, & 222H**
**Well Pad & Access Road Map**

Sections 29 & 30, T.20S, R.29E
Eddy County, New Mexico

- Proposed Surface Hole Location
- Proposed Well Bore Path
- Proposed Access Road
- Proposed Well Pad
- Matador Lease Line

1:1,500

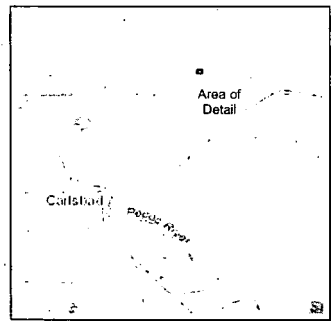
0 75 150 300
Feet

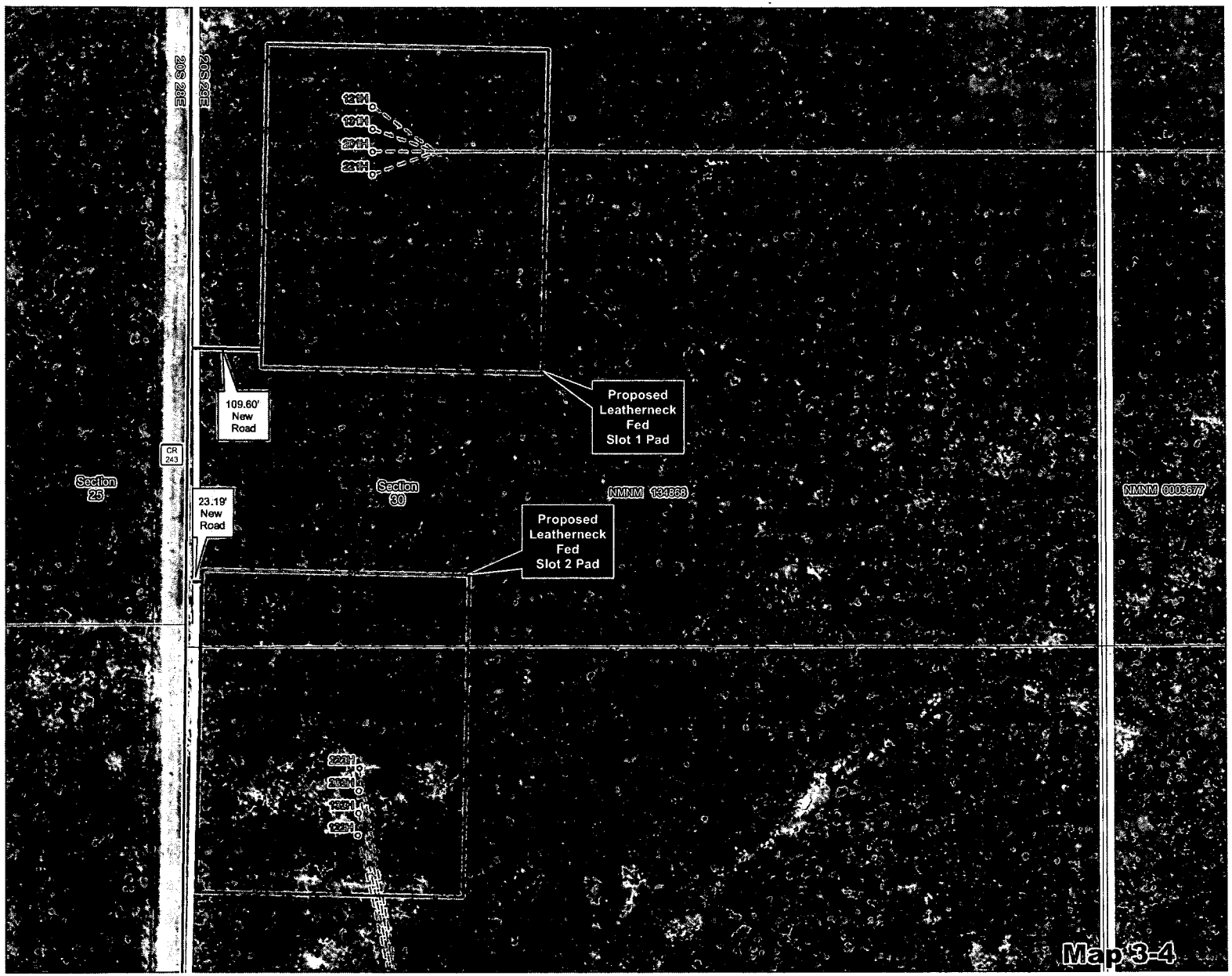
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

Prepared by Permits West, Inc., May 2, 2018
for Matador Production Company



# Matador Production Company

**Leatherneck Fed Slot 1:**
**121H, 131H, 201H, & 221H**
**Well Vicinity & Lease Map**

Sections 29 & 30, T.20S, R.29E
Eddy County, New Mexico

- Leatherneck Fed Well Pad
- Proposed Well Bore Path
- Bottom Hole Location
- Matador Lease Line
- BLM Surface
- State Surface

1:20,350

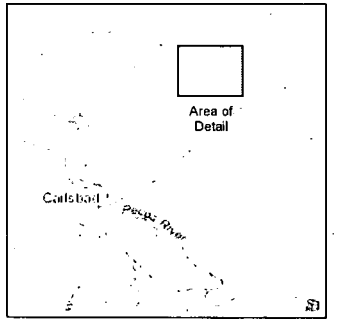
0 0.125 0.25 0.5
Miles

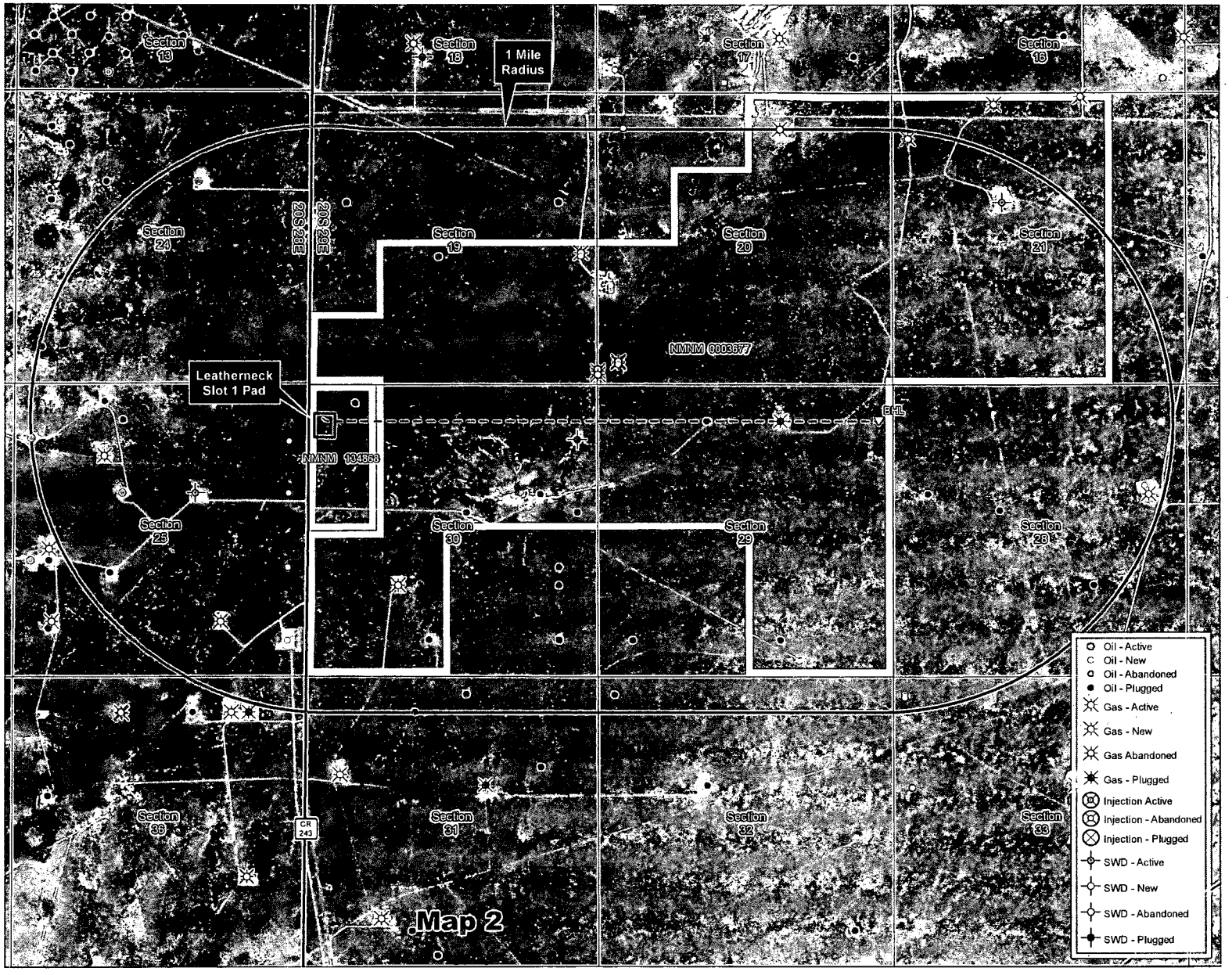
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.

Prepared by Permits West, Inc., May 2, 2018
for Matador Production Company



# Production Layout and Interim Reclamation Diagram

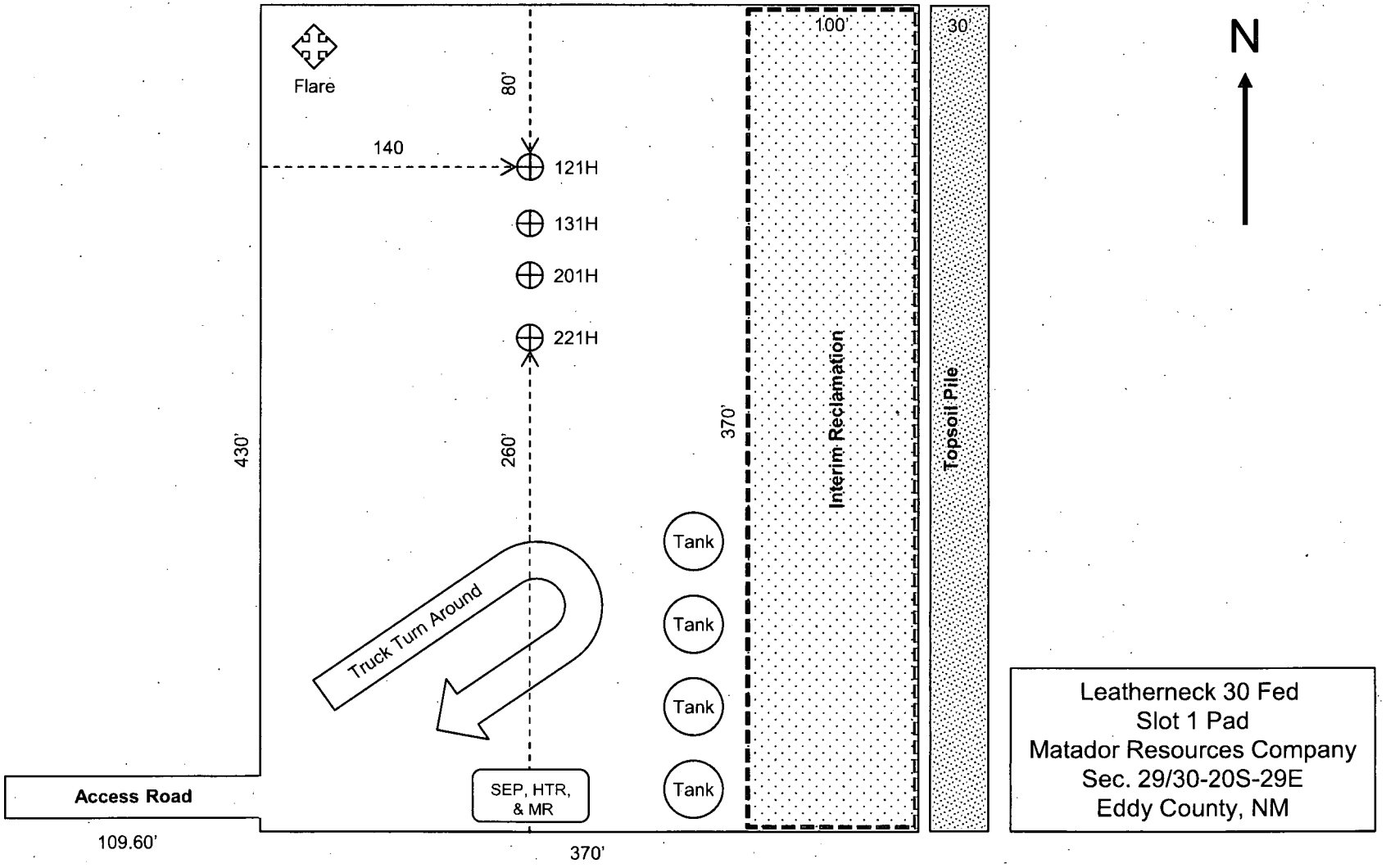



**FIGURE 1**

# Matador Production Company

**Leatherneck Fed**
**Water & Gravel Source Map**

Eddy County, New Mexico

Leatherneck Well Pads

1:65,000

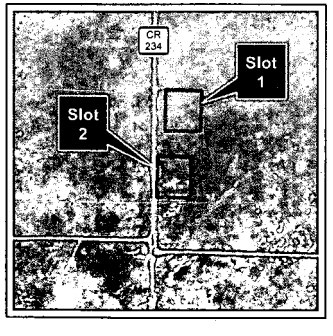
0 0.5 1 2
Miles

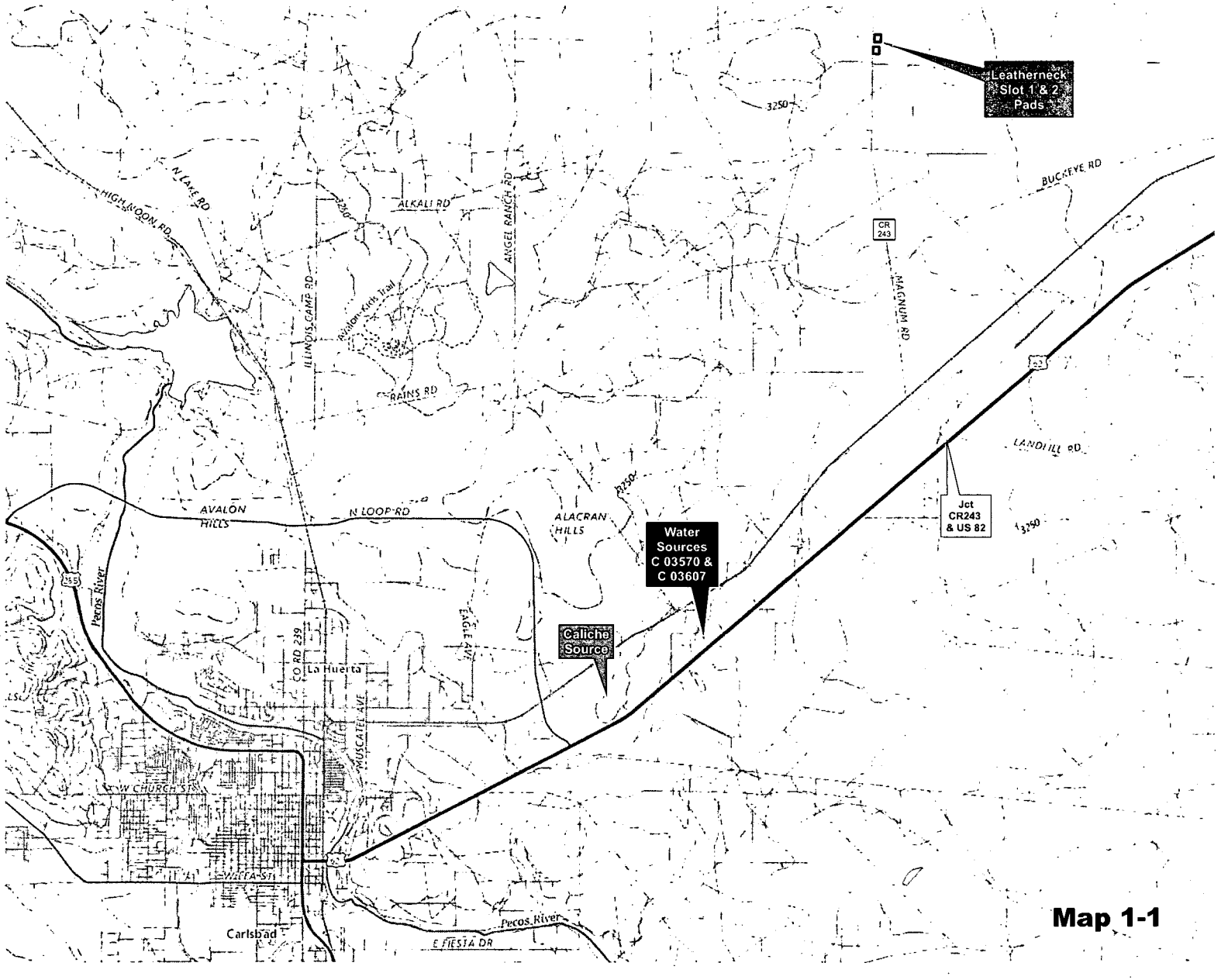
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

Prepared by Permits West, Inc., May 2, 2018
for Matador Production Company




**Map 1-1**

# Production Layout and Interim Reclamation Diagram

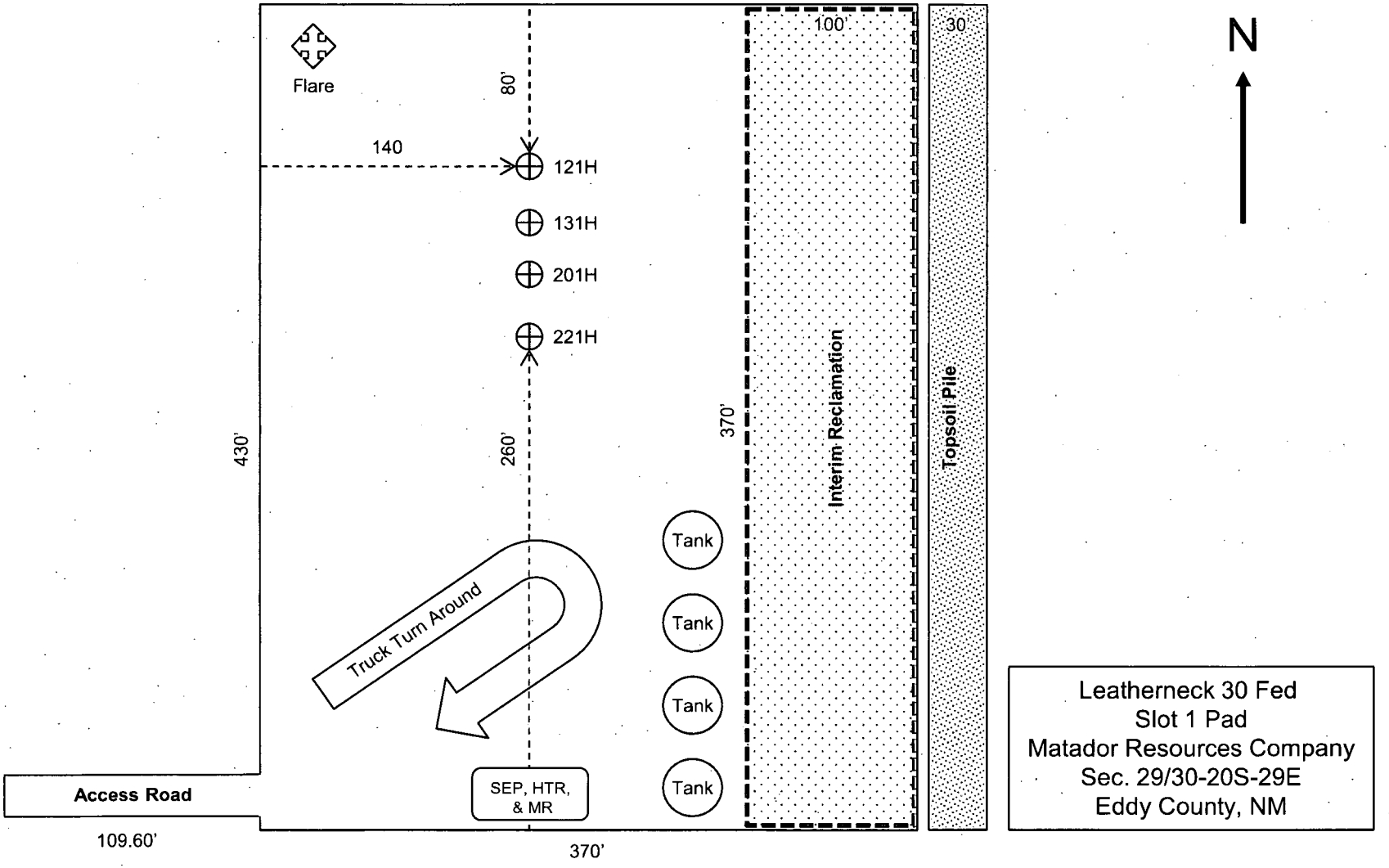



**FIGURE 1**

# Production Layout and Interim Reclamation Diagram

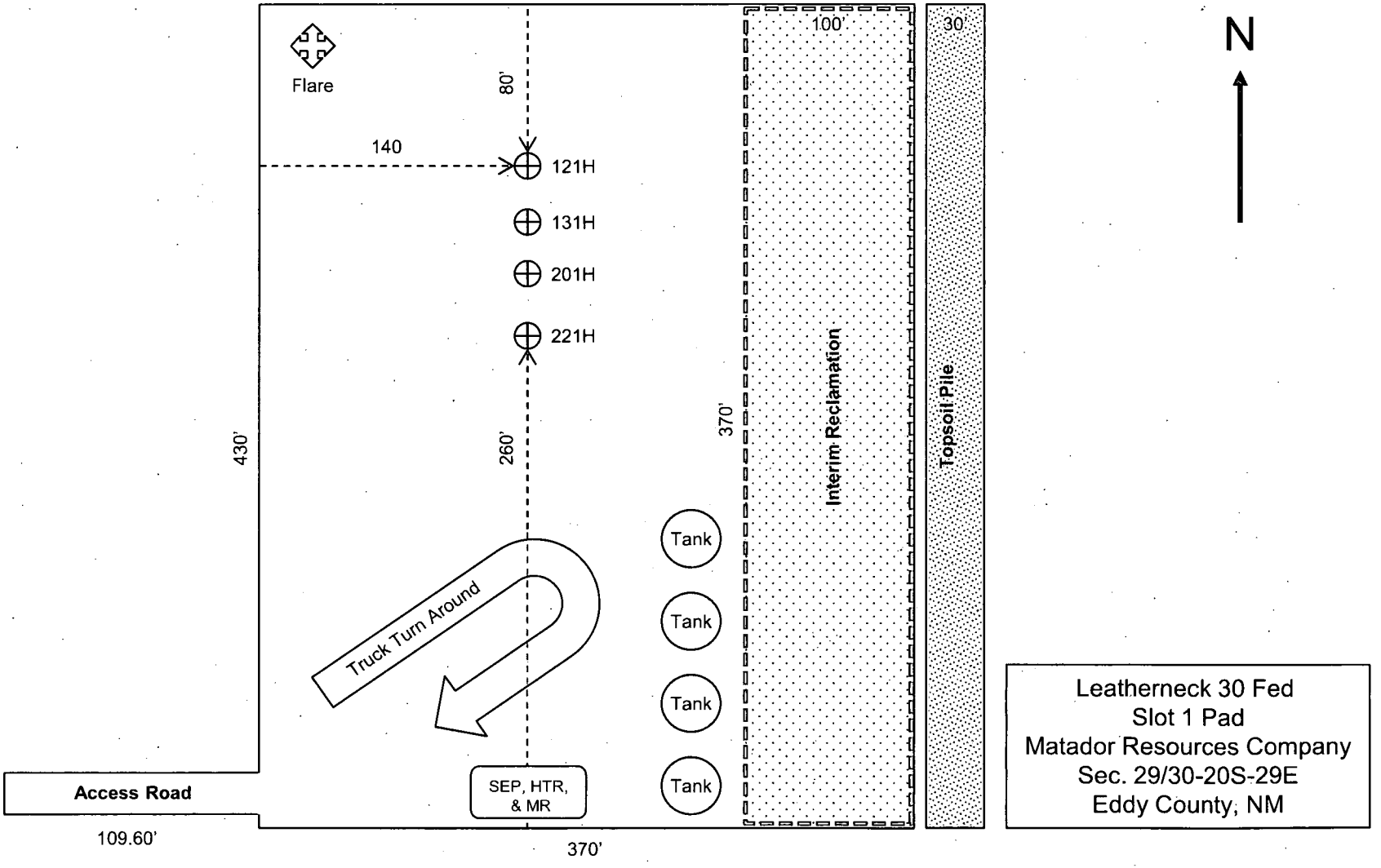



**FIGURE 1**

# Rig Diagram

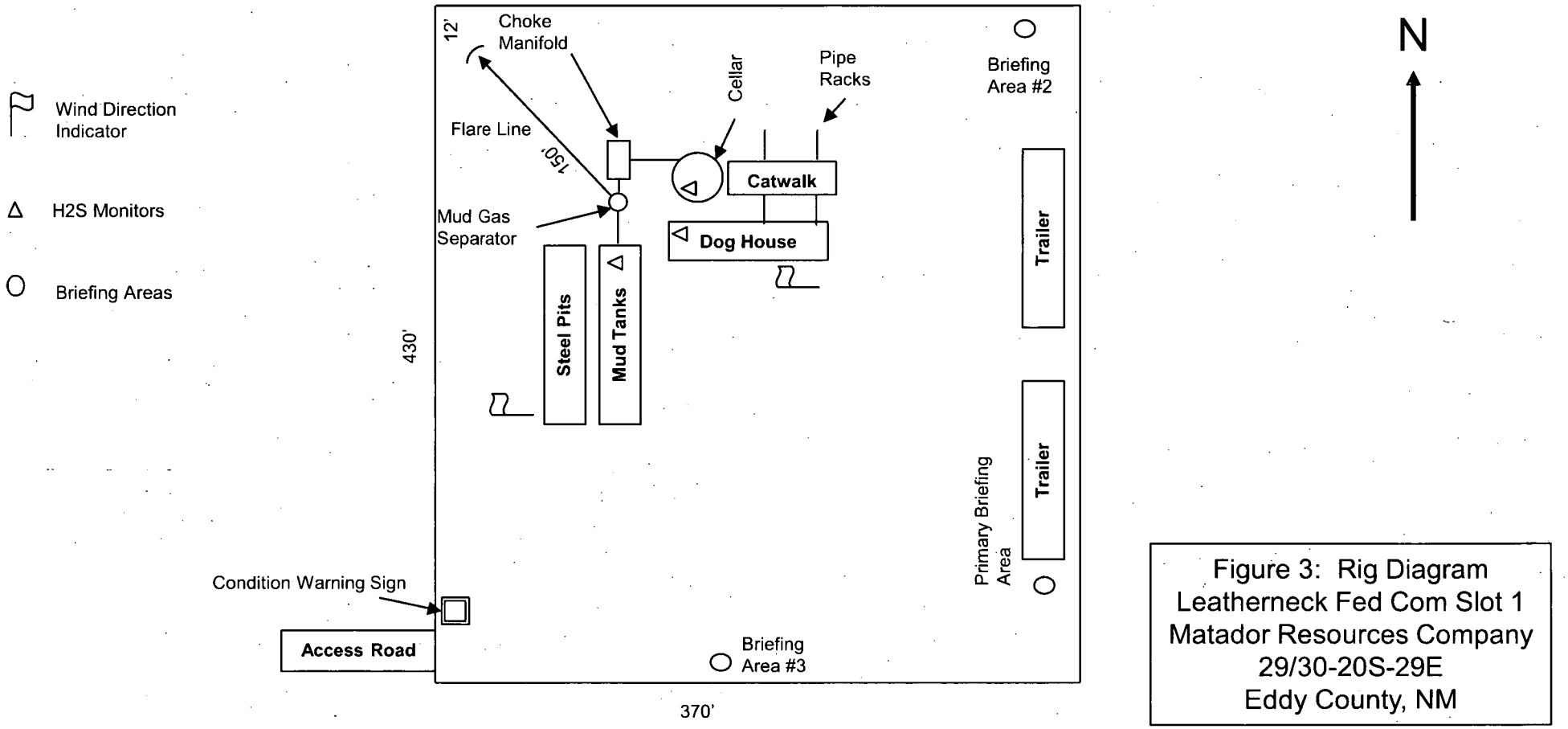
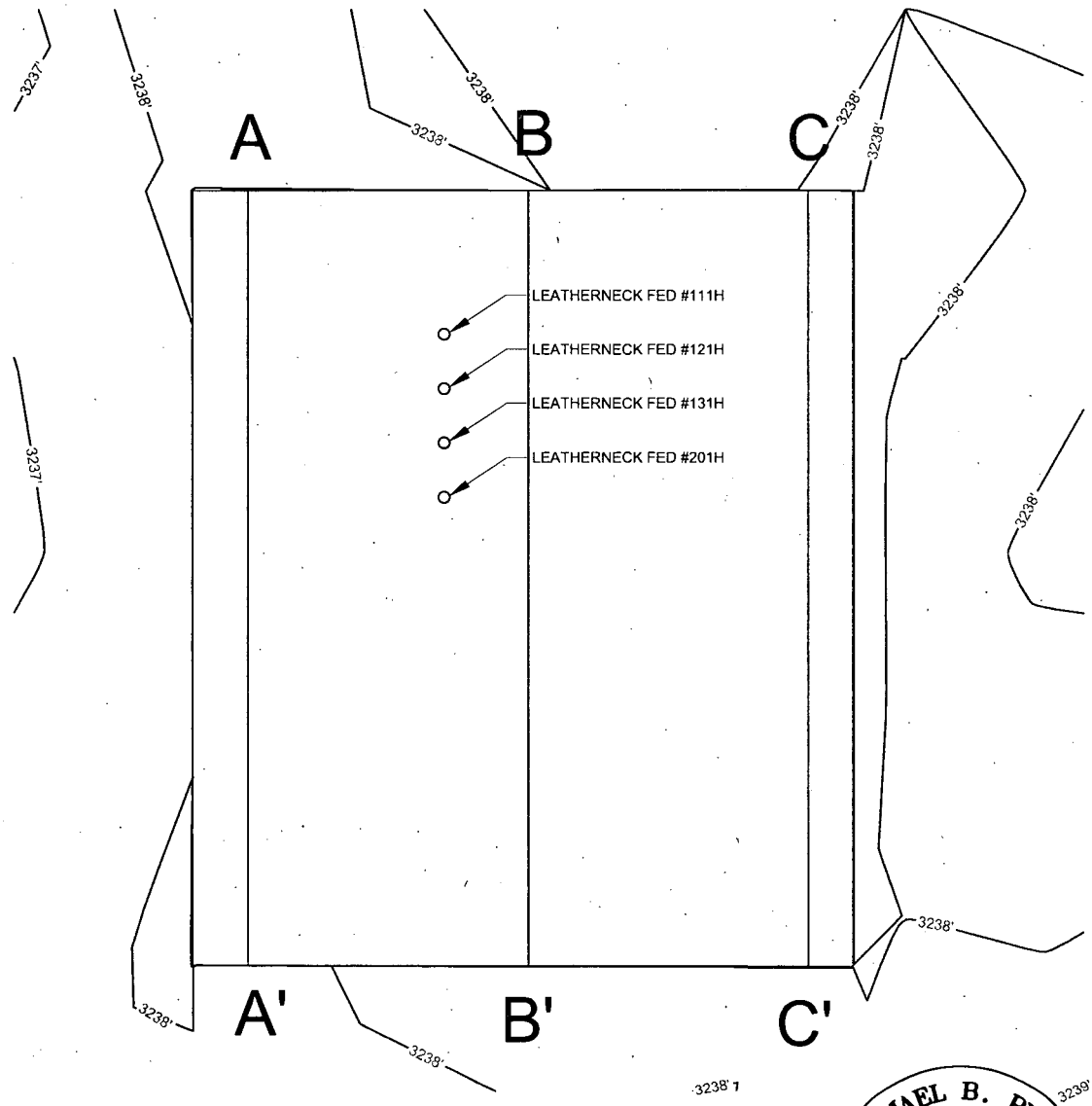



Figure 3: Rig Diagram
Leatherneck Fed Com Slot 1
Matador Resources Company
29/30-20S-29E
Eddy County, NM

# EXHIBIT "A"

SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

SCALE: 1" = 100'
0' 50' 100'




MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Michael Blake Brown, P.S. No. 18329
APRIL 20, 2017
Field note description of even date accompanies this plat.

Matador PRODUCTION COMPANY

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LOYALTY INNOVATION LEGACY
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TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

| LEATHERNECK #121H SURFACE PAD SITE PROFILE | REVISION: INT | DATE |
|---|---|---|
| DATE: 04/20/17 | | |
| FILE: CD_LEATHERNECK_FED_121H_SURFACE_PAD_SITE | | |
| DRAWN BY: EAH | | |
| SHEET: 1 OF 2 | | |

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**FIGURE 2-1**

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_FED_121H_SURFACE_PAD_SITE\FINAL_PRODUCTS\CD_LEATHERNECK_FED_121H_SURFACE_PAD_SITE.DWG 4/20/2017 11:55:03 AM ccaston

TOP OF PAD ELEVATION: 3237.9116
CUT SLOPE: 33.33% 3.00:1 18.43°
FILL SLOPE: 33.33% 3.00:1 18.43°
BALANCE TOLERANCE (C.Y.): 0.00
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

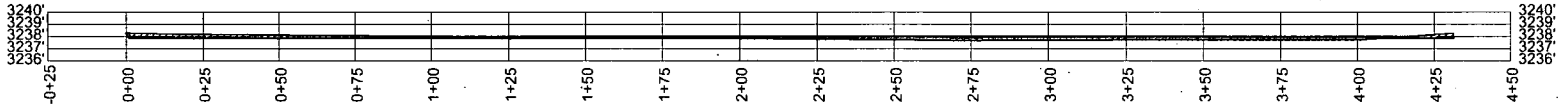
PAD EARTHWORK VOLUMES
CUT : 11,358.9 C.F., 420.70 C.Y.
FILL: 11,358.9 C.F., 420.70 C.Y.
BALANCE EXPORT: 0.0 C.F., 0.00 C.Y.
AREA: 160110.9 SQ.FT., 3.676 ACRES

# EXHIBIT "A"

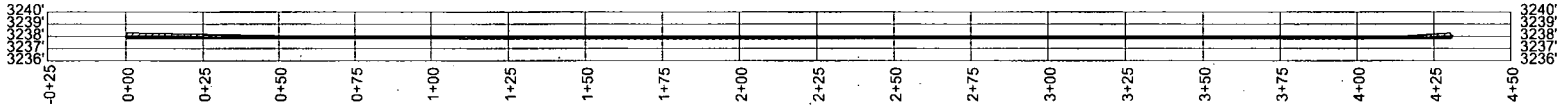
SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Matador PRODUCTION COMPANY

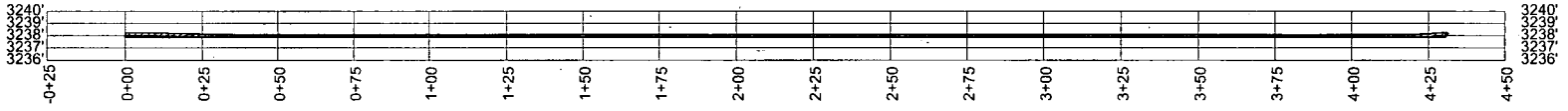
A-A'




B-B'




C-C'




Horizontal Scale = 1:60
Vertical Scale = 1:5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| LEATHERNECK #121H SURFACE PAD SITE PROFILE | REVISION: INT | DATE |
|---|---|---|
| | | |
| DATE: 04/20/17 | | |
| FILE: CD_LEATHERNECK_FED_121H_SURFACE_PAD_SITE | | |
| DRAWN BY: EAH | | |
| SHEET : 2 OF 2 | | |

NOTES:
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**FIGURE 2-2**

MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Michael Blake Brown, P.S. No. 18329
APRIL 20, 2017
Field note description of even date accompanies this plat.

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_FED_121H_SURFACE_PAD_SITE\FINAL_PRODUCTS\CD_LEATHERNECK_FED_121H_SURFACE_PAD_SITE.DWG 4/20/2017 11:55:07 AM ccaston

# Production Layout and Interim Reclamation Diagram

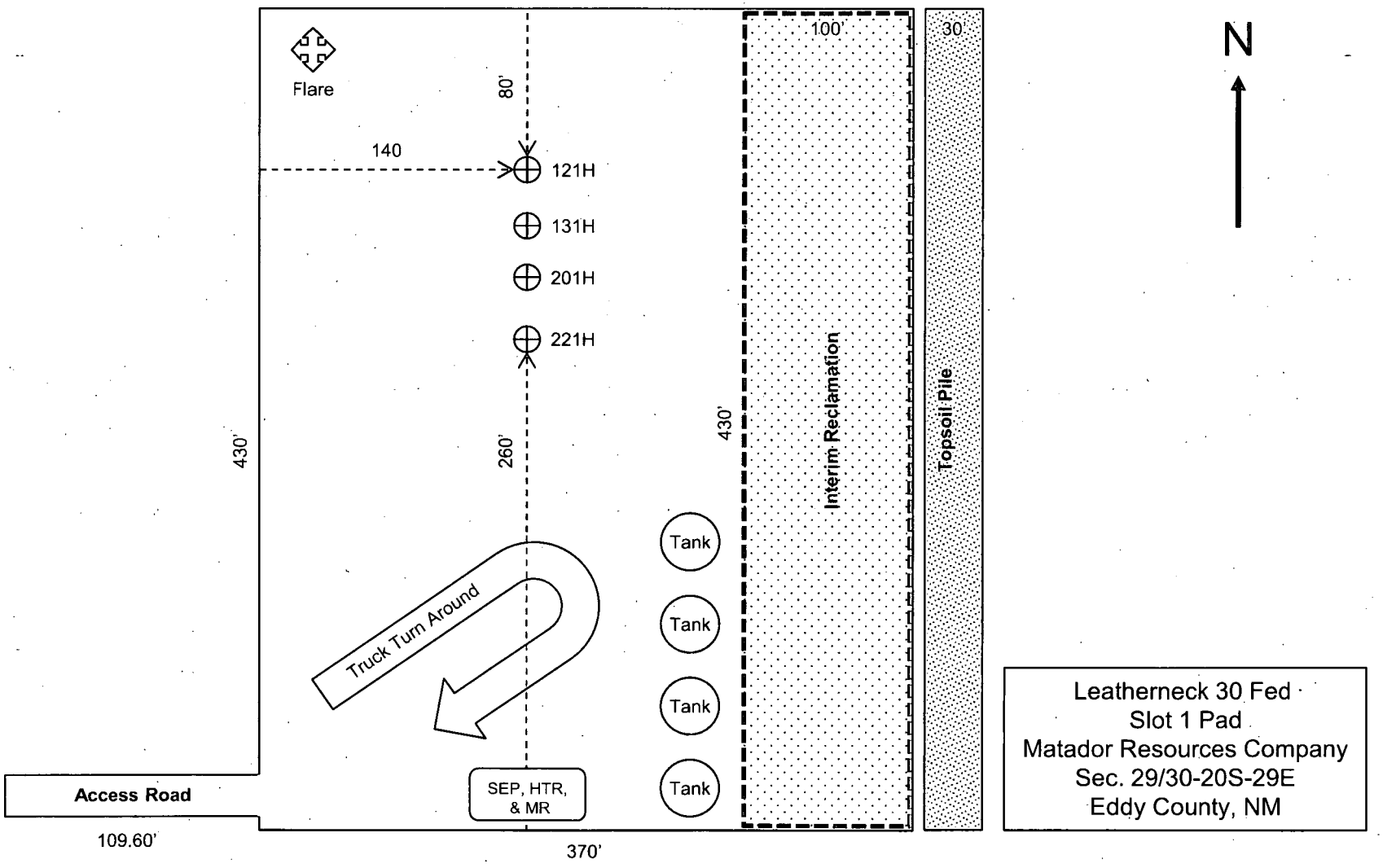



Figure 1

## Surface Use Plan

1. ROAD DIRECTIONS & DESCRIPTIONS (See MAPS 1 & 3)

From the junction of US 62/180 and Eddy County Road 243.....
Go North 4.4 miles on paved US 62/180 to the equivalent of Mile Post 44.15
Then turn left and go North 5.8 miles on paved County Road 243 (Magnum Road)
Then turn right and go East 109.6' on a new road to the proposed pad

Non-county roads will be maintained as needed to Gold Book standards. This includes pulling ditches, preserving the crown, and cleaning culverts. This will be done at least once a year, and more often as needed. Caliche will be hauled from Constructors, Inc. existing pits on private land in NWNE 34-21s-27e and S2 13-22s-26e.

2. ROAD TO BE BUILT OR UPGRADED (See MAP 3)

Approximately 109.6' of new road will be built. The 109.6' of reclaimed road will be crowned and ditched, have a 14' wide driving surface, and be surfaced with caliche. Maximum disturbed width = 30'. Maximum grade = 1%. Maximum cut or fill = 1'. No culvert, cattle guard, or vehicle turn out is needed.

3. EXISTING WELLS (See MAP 2)

Existing oil, gas, water, disposal, and P & A wells are within a mile. No injection well is within a mile.

4. PROPOSED PRODUCTION FACILITIES (See FIGURE 1)

A tank battery will be built on the Northeast side of the pad. Pipeline and power line plans have not been finalized.

5. WATER SUPPLY (See MAP 1)

Water will be trucked from two water wells (C 03570 and C 03607) on private land in NENENE and SENENE 24-21s-27e.

6. CONSTRUCTION MATERIALS & METHODS (see FIGURES 1, 2, & 3)

NM One Call (811) will be notified before construction starts. Top ≈6" of soil and brush will be stockpiled east of the pad. Pipe racks will be to the north. A closed loop drilling system will be used. Caliche will be hauled from an existing Constructors, Inc. pits on private land in NWNE 34-21s-27e and S2 13-22s-26e.

7. WASTE DISPOSAL

All trash will be placed in a portable trash cage. It will be hauled to the Eddy County landfill. There will be no trash burning. Contents (drill cuttings, mud, salts, and other chemicals) of the mud tanks will be hauled to CRI's state approved (NM-01-0006) disposal site. Human waste will be disposed of in chemical toilets and hauled to the Carlsbad wastewater treatment plant.

8. ANCILLARY FACILITIES

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

9. WELL SITE LAYOUT

See Figures 1 & 2 for depictions of the well pad, trash cage, and access onto the location, parking, living facilities, and rig orientation.

10. RECLAMATION (FIGURES 1 & 3)

Interim reclamation will shrink the pad by 0.99 acres by removing caliche and reclaiming the east side (100' x 430'), leaving 2.74 acres for 4 wells, truck turn around, and production equipment. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas. Disturbed areas will be seeded in accordance with BLM's requirements. Enough stockpiled topsoil will be retained to cover the remainder of the pad when the wells are plugged. Once the last well is plugged, then the remainder of the pad and new road will be similarly reclaimed. Noxious weeds will be controlled.

Disturbance:

30' x 109.60' road = 0.08 acres
+ 370' x 430' pad = 3.65 acres
3.73 acres short term
–0.99 acres interim reclamation
**2.74 acres long term**

11. SURFACE OWNER (MAP 2)

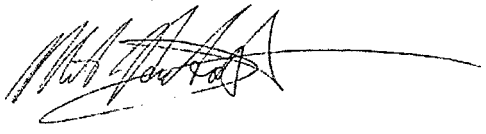
All construction will be on BLM.

12. OTHER INFORMATION

- On site inspection was held with on May 4, 2016 with Jim Goodbar and Vance Wolf from the BLM.
- Matador will pay the Permian Basin programmatic agreement archaeology fund.

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U. S. C. 1001 for the filing of false statements. Executed this 1st day of May, 2018.



Mike Deutsch, Consultant
Permits West, Inc.
37 Verano Loop, Santa Fe, NM 87508
(505) 466-8120

Field representative will be:

Sam Pryor, Senior Staff Landman
Matador Production Company
5400 LBJ Freeway, Suite 1500
Dallas TX 75240
Phone: (972) 371-5241
FAX: (214) 866-4841

# Matador Production Company

**Leatherneck Fed**
**Water & Gravel Source Map**

Eddy County, New Mexico

Leatherneck Well Pads

1:65,000

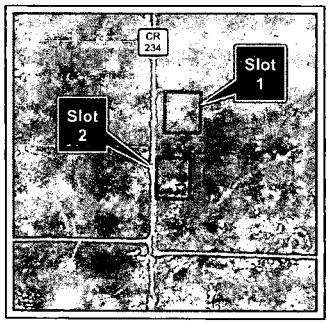
0 0.5 1 2
Miles

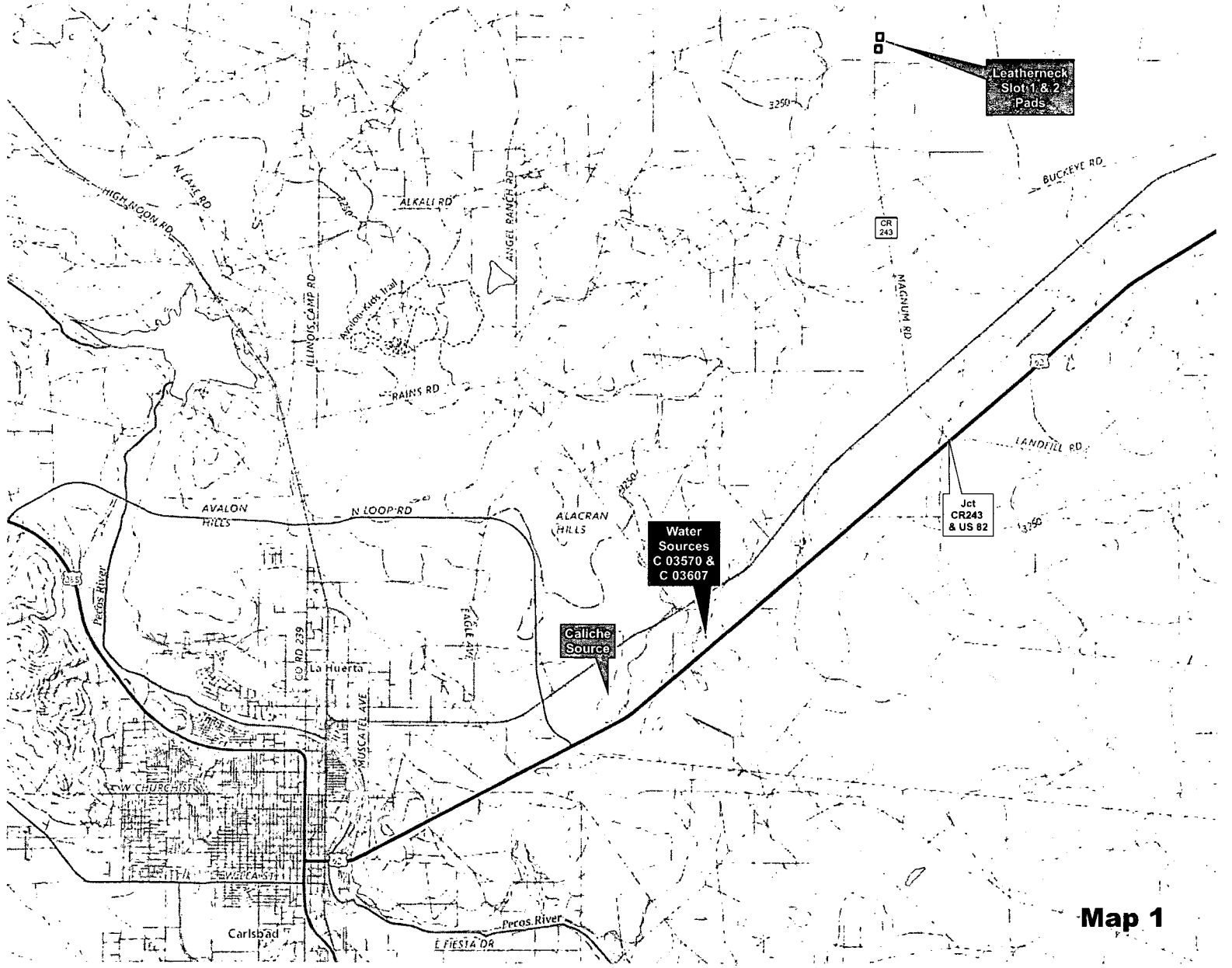
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

Prepared by Permits West, Inc., May 2, 2018
for Matador Production Company



# Matador Production Company

**Leatherneck Fed Slot 1:**
**121H, 131H, 201H, & 221H**
**Well Vicinity & Lease Map**

Sections 29 & 30, T.20S, R.29E
Eddy County, New Mexico

- Leatherneck Fed Well Pad
- Proposed Well Bore Path
- Bottom Hole Location
- Matador Lease Line
- BLM Surface
- State Surface

1:20,350

0 0.125 0.25 0.5
Miles

N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

Prepared by Permits West, Inc., May 2, 2018
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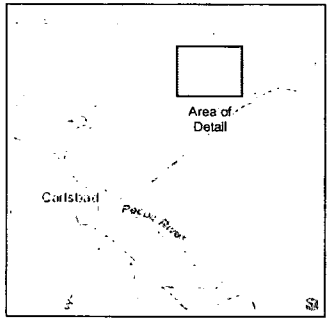


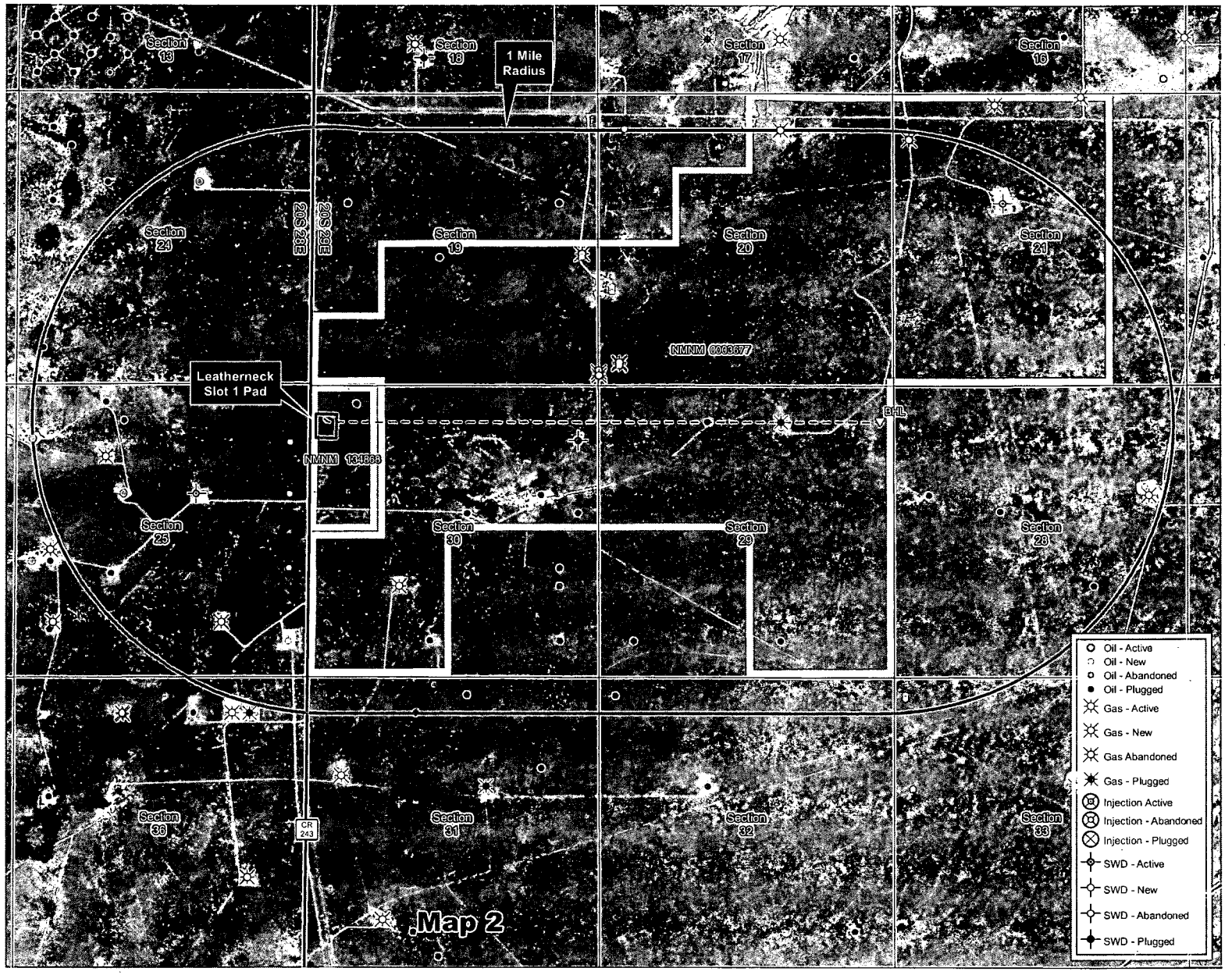

# Matador Production Company

**Leatherneck Fed**
**Slot 1: 121H, 131H, 201H, & 221H**
**Slot 2: 122H, 132H, 202H, & 222H**
**Well Pad & Access Road Map**

Sections 29 & 30, T.20S, R.29E
Eddy County, New Mexico

- Proposed Surface Hole Location
- Proposed Well Bore Path
- Proposed Access Road
- Proposed Well Pad
- Matador Lease Line

1:1,500

0 75 150 300
Feet

N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, INC.

Prepared by Permits West, Inc., May 2, 2018
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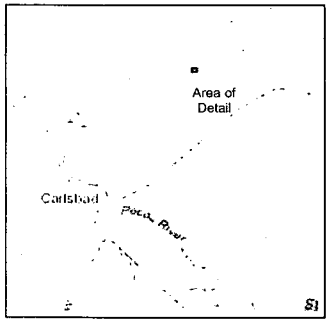


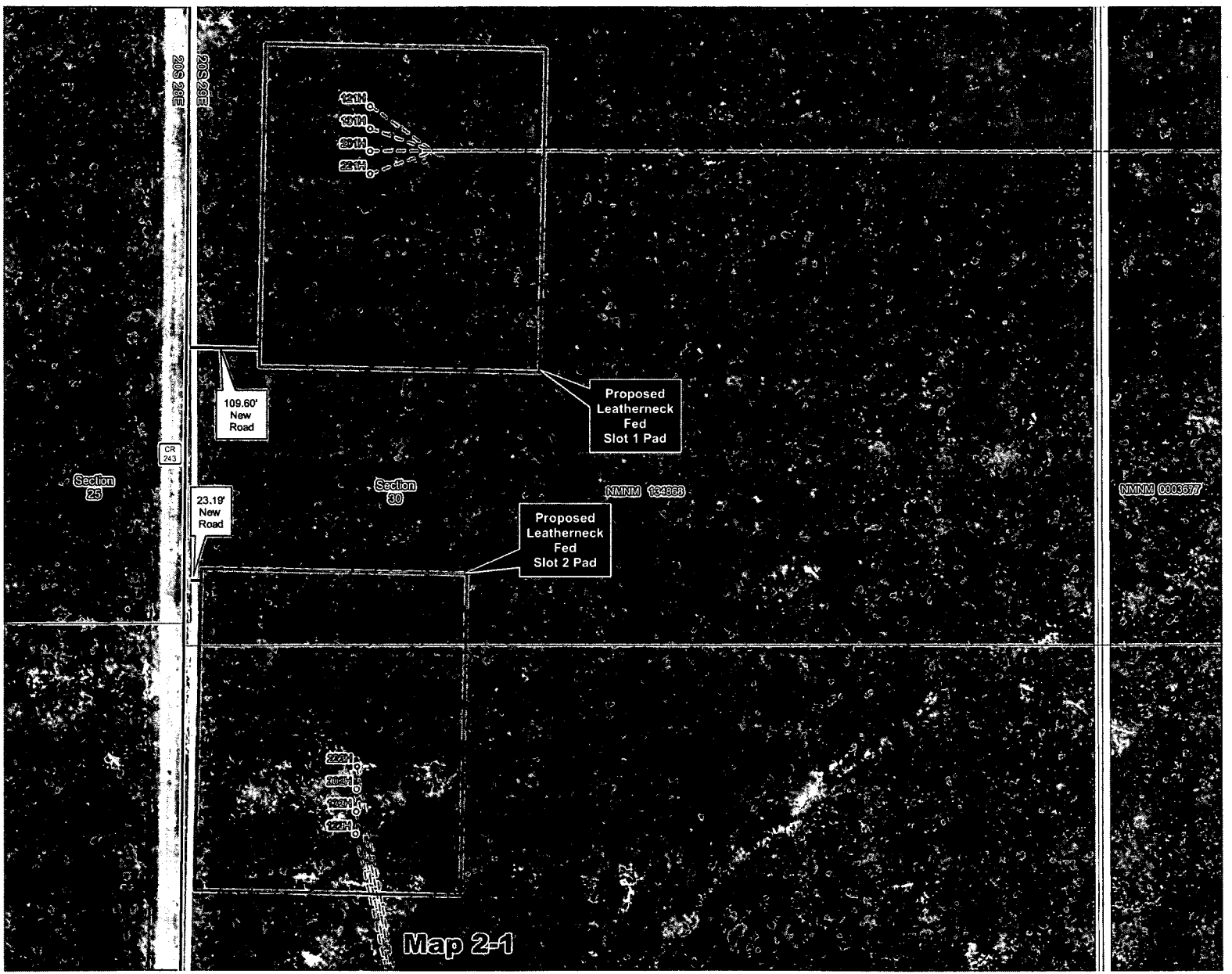

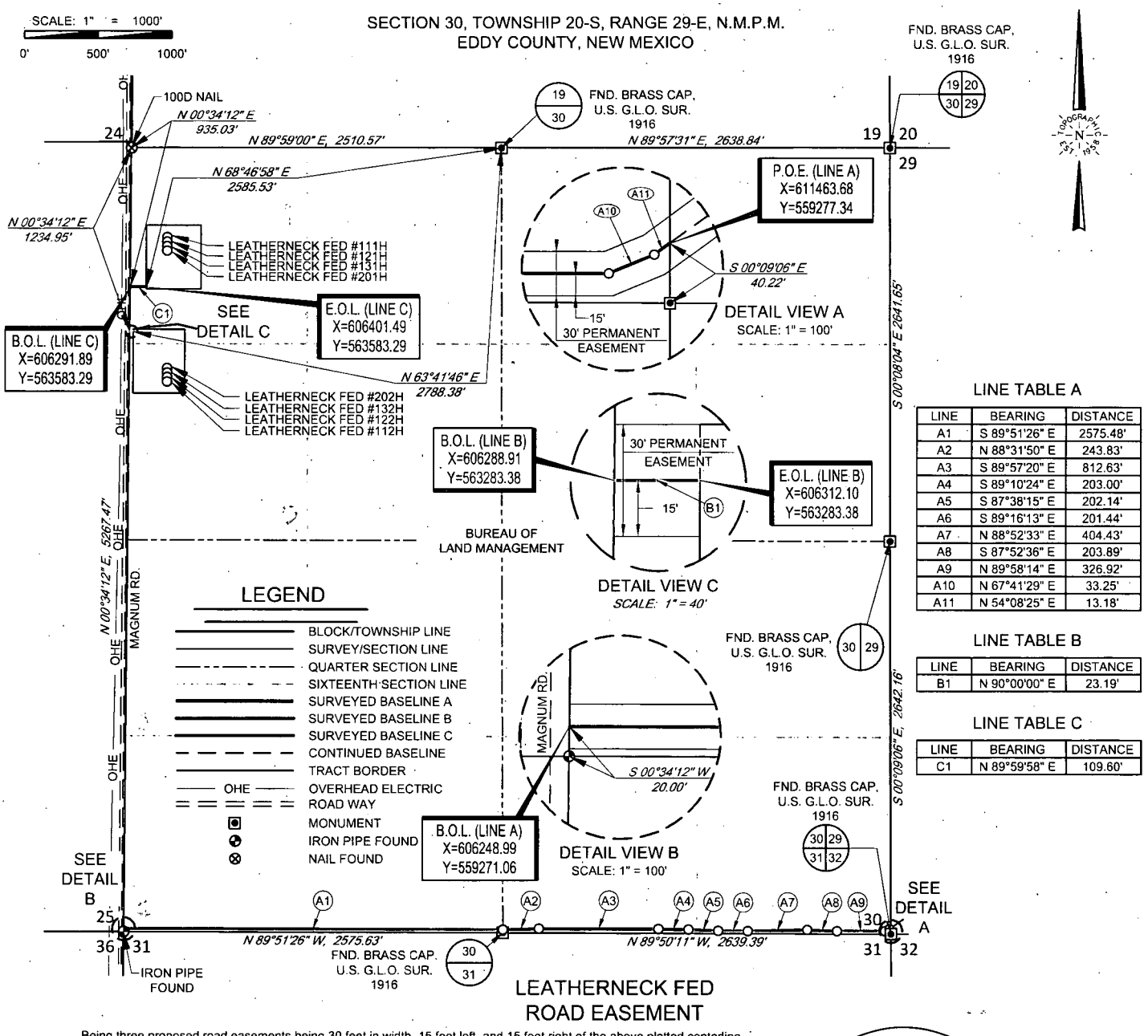


## LEATHERNECK FED ROAD EASEMENT

Being three proposed road easements being 30 feet in width, 15 feet left, and 15 feet right of the above platted centerline total line footage containing 5352.98 feet or 324.42 rods, containing 3.69 acres more or less.

### LINE TABLE A

| LINE | BEARING | DISTANCE |
|---|---|---|
| A1 | S 89°51'26" E | 2575.48' |
| A2 | N 88°31'50" E | 243.83' |
| A3 | S 89°57'20" E | 812.63' |
| A4 | S 89°10'24" E | 203.00' |
| A5 | S 87°38'15" E | 202.14' |
| A6 | S 89°16'13" E | 201.44' |
| A7 | N 88°52'33" E | 404.43' |
| A8 | S 87°52'36" E | 203.89' |
| A9 | N 89°58'14" E | 326.92' |
| A10 | N 67°41'29" E | 33.25' |
| A11 | N 54°08'25" E | 13.18' |

### LINE TABLE B

| LINE | BEARING | DISTANCE |
|---|---|---|
| B1 | N 90°00'00" E | 23.19' |

### LINE TABLE C

| LINE | BEARING | DISTANCE |
|---|---|---|
| C1 | N 89°59'58" E | 109.60' |

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MICHAEL B. BROWN NEW MEXICO 18329 PROFESSIONAL SURVEYOR

Michael Blake Brown, P.S. No. 18329
MAY 12, 2017

| LEATHERNECK FED ROAD EASEMENT | REVISION: | |
|---|---|---|
| | GLH | 05/12/17 |
| DATE: 04/17/17 | | |
| FILE: EP_LEATHERNECK_FED_ROAD_SEC_30_REV1 | | |
| DRAWN BY: GLH | | |
| SHEET: 1 OF 1 | | |

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4. P.O.B./B.O.L. = POINT OF BEGINNING/BEGINNING OF LINE
5. P.O.E./E.O.L. = POINT OF EXIT/END OF LINE

# Map 2-2

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_FED_ROAD_EASEMENT\FINAL_PRODUCTS\EP_LEATHERNECK_FED_ROAD_SEC_30_REV1.DWG 5/19/2017 5:44:02 PM ccaston

# Production Layout and Interim Reclamation Diagram

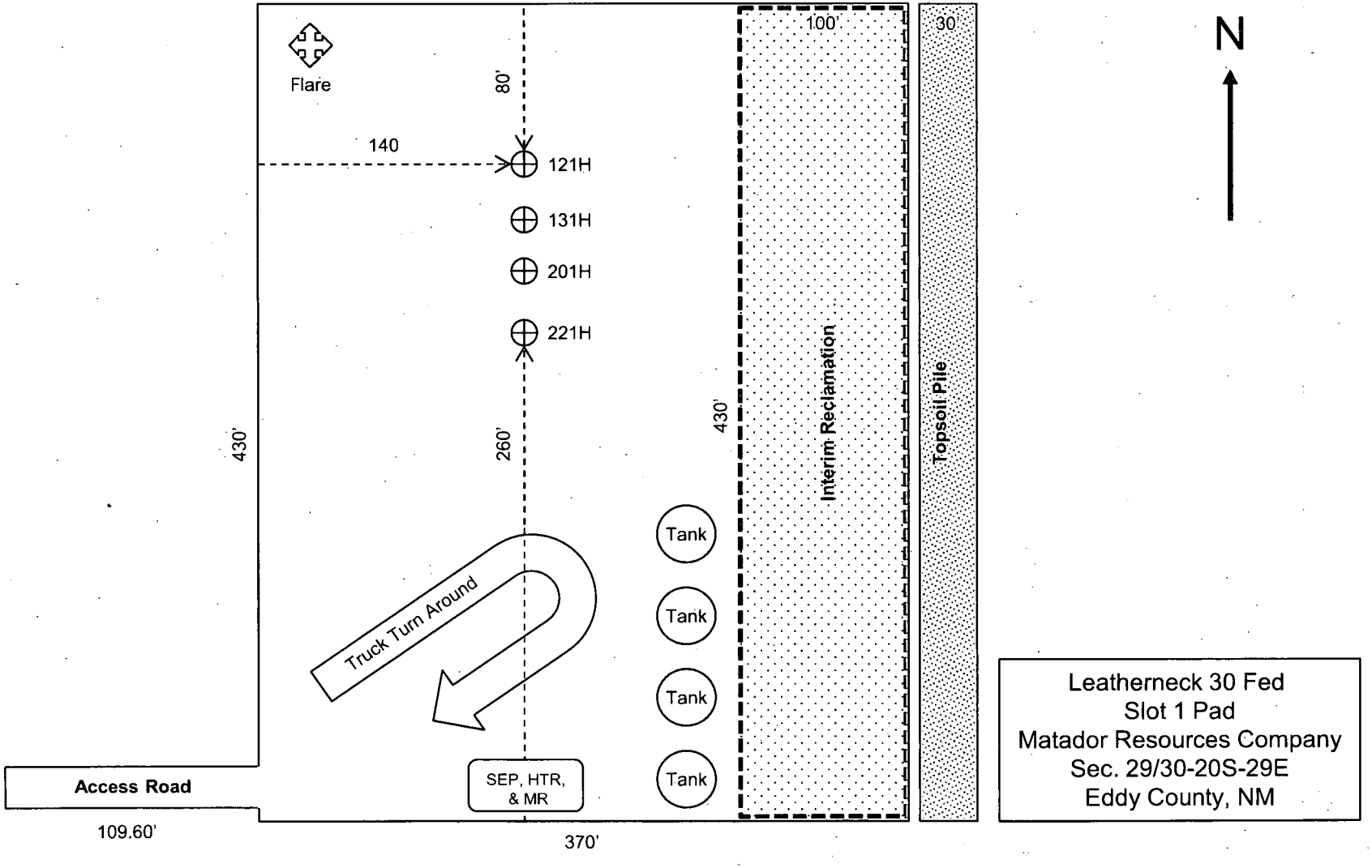
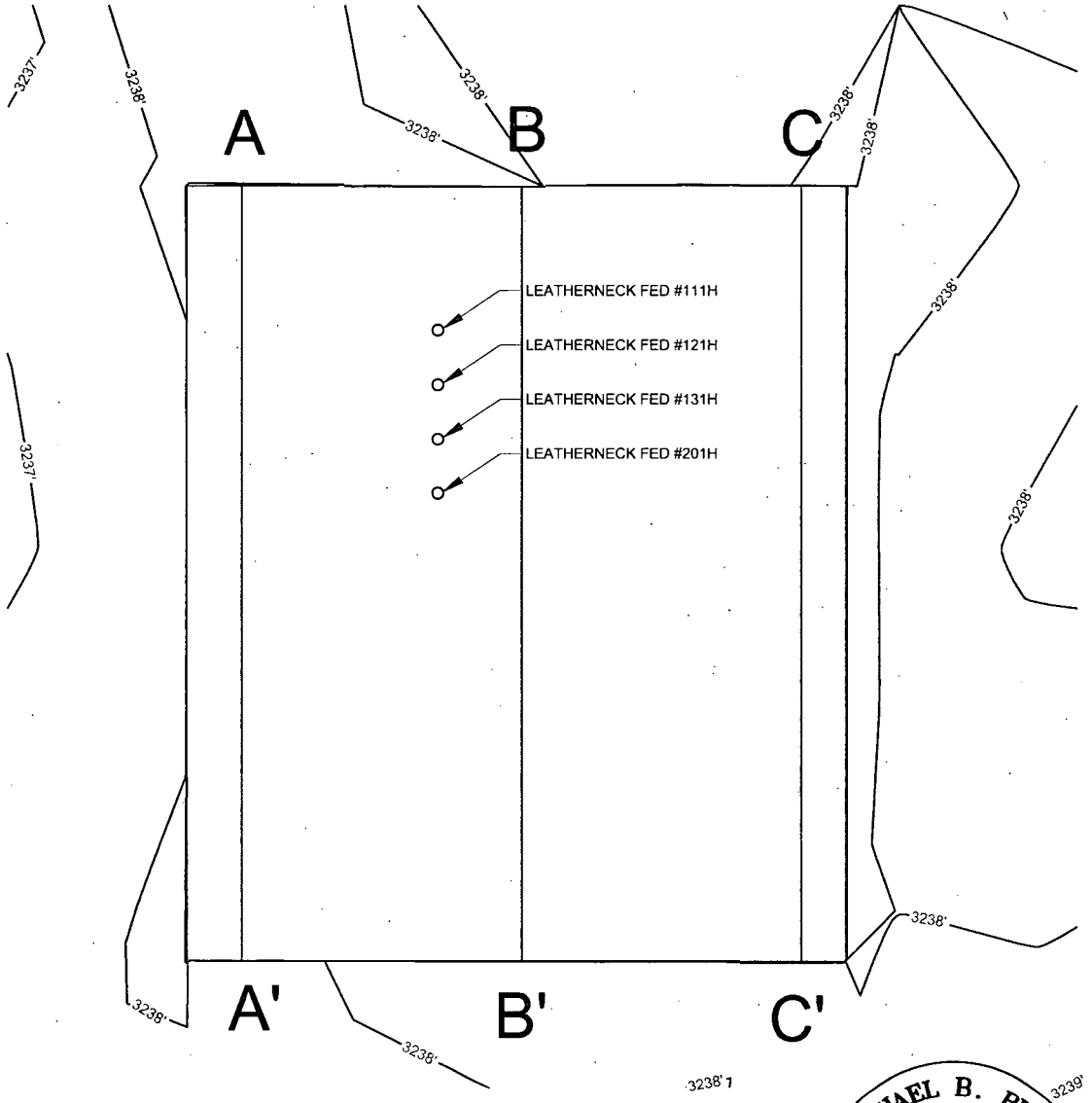



Figure 1

# EXHIBIT "A"

SECTION 30, TOWNSHIP 20-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

SCALE: 1" = 100'
0' 50' 100'




MICHAEL B. BROWN
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PROFESSIONAL SURVEYOR

Matador PRODUCTION COMPANY

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Michael Blake Brown, P.S. No. 18329
APRIL 20, 2017
Field note description of even date accompanies this plat.

| LEATHERNECK #121H SURFACE PAD SITE PROFILE | REVISION: INT | DATE |
|---|---|---|
| DATE: 04/20/17 | | |
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| DRAWN BY: EAH | | |
| SHEET: 1 OF 2 | | |

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**FIGURE 2-1**

TOP OF PAD ELEVATION: 3237.9116
CUT SLOPE: 33.33% 3.00:1 18.43°
FILL SLOPE: 33.33% 3.00:1 18.43°
BALANCE TOLERANCE (C.Y.): 0.00
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT : 11,358.9 C.F., 420.70 C.Y.
FILL: 11,358.9 C.F., 420.70 C.Y.
BALANCE EXPORT: 0.0 C.F., 0.00 C.Y.
AREA: 160110.9 SQ.FT., 3.676 ACRES

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EDDY COUNTY, NEW MEXICO

Matador PRODUCTION COMPANY

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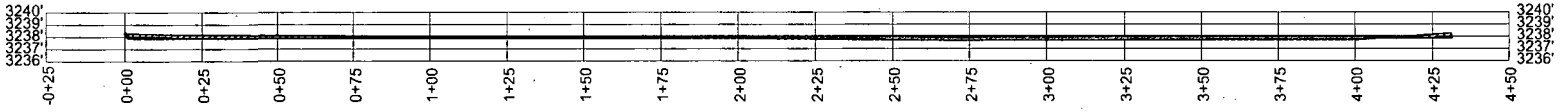
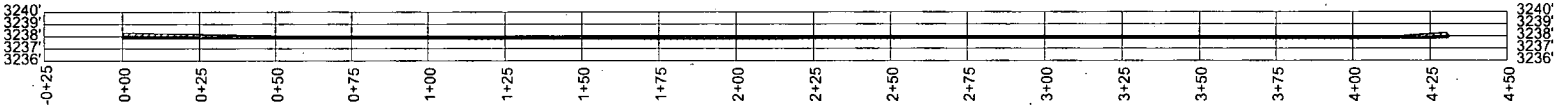



B-B'




C-C'

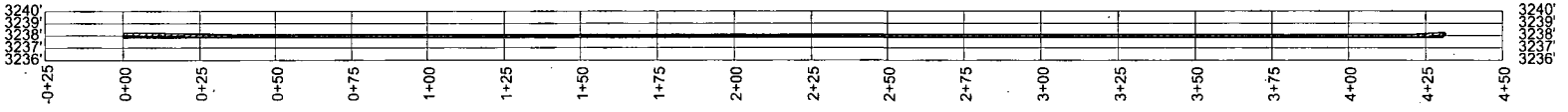



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**FIGURE 2-2**

MICHAEL B. BROWN
NEW MEXICO
18329
PROFESSIONAL SURVEYOR

Michael Blake Brown, P.S. No. 18329
APRIL 20, 2017
Field note description of even date accompanies this plat.

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_FED_121H_SURFACE_PAD_SITE\FINAL_PRODUCTS\CD_LEATHERNECK_FED_121H_SURFACE_PAD_SITE.DWG 4/20/2017 11:55:07 AM ccaston

# Rig Diagram

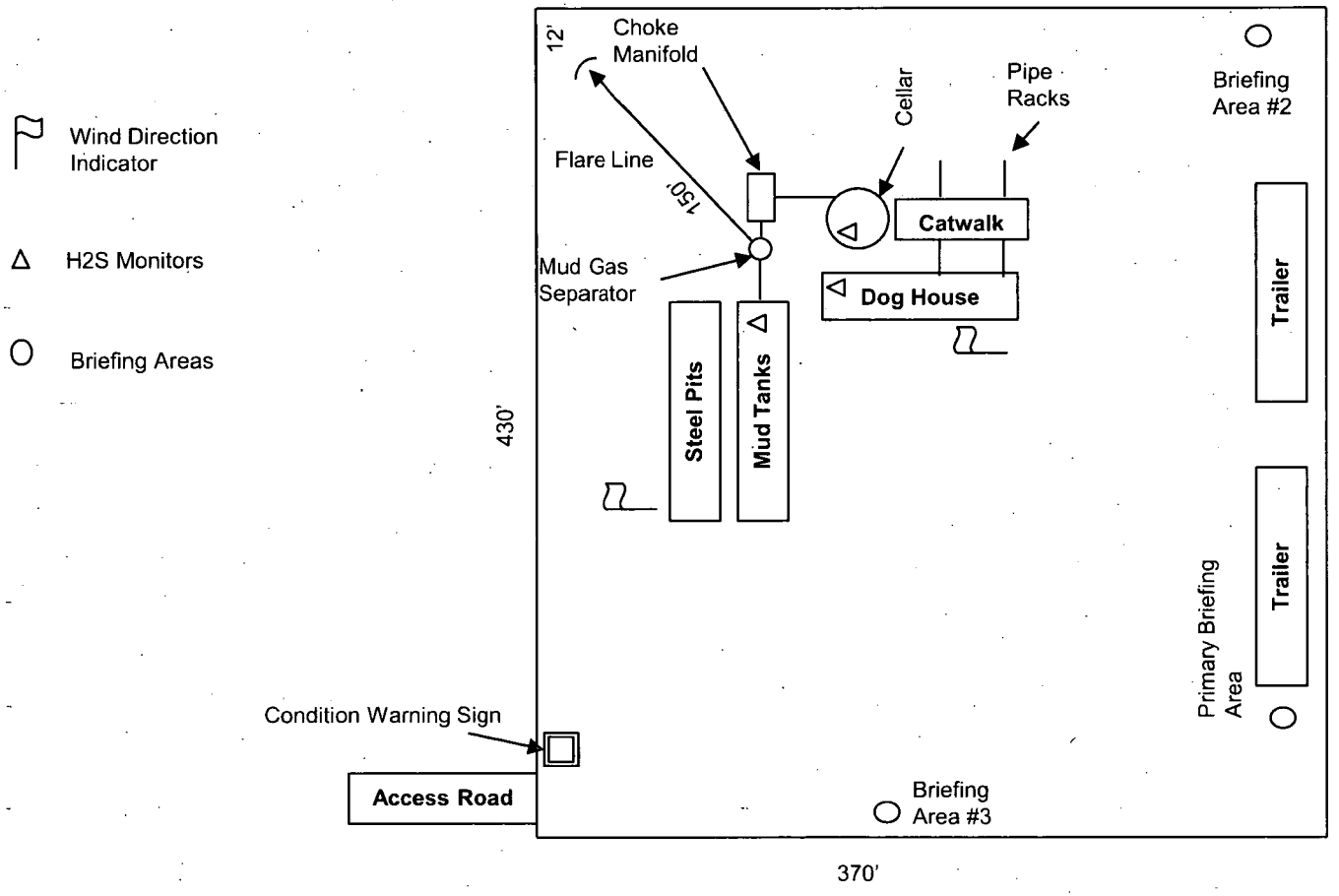


Figure 3: Rig Diagram
Leatherneck Fed Com Slot 1
Matador Resources Company
29/30-20S-29E
Eddy County, NM