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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.
NMNM0003677

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 3029 FED COM
127H
326053

2. Name of Operator
MATADOR PRODUCTION COMPANY

9. API Well No.
30-015-46894

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	AVALON / BONE SPRING EAST 3713

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

At surface LOT 4 / 1245 FSL / 250 FWL / LAT 32.5406831 / LONG -104.1218371

At proposed prod. zone NESE / 1650 FSL / 60 FEL / LAT 32.541694 / LONG -104.088801

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
8 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
250 feet	2150.97	317.32

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	7815 feet / 17969 feet	FED: NMB001079

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3236 feet	09/01/2019	65 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	07/15/2019

Title
President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	03/06/2020

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: 03/06/2020

(Continued on page 2)

*(Instructions on page 2)

KP 3-20-20

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: LOT 4 / 1245 FSL / 250 FWL / TWSP: 20S / RANGE: 29E / SECTION: 30 / LAT: 32.5406831 / LONG: -104.1218371 (TVD: 0 feet, MD: 0 feet)
   PPP: LOT 3 / 1553 FSL / 106 FWL / TWSP: 20S / RANGE: 29E / SECTION: 30 / LAT: 32.5415264 / LONG: -104.1223042 (TVD: 7483 feet, MD: 7509 feet)
   PPP: NWSE / 1650 FSL / 2640 FEL / TWSP: 20S / RANGE: 29E / SECTION: 30 / LAT: 32.54177 / LONG: -104.114322 (TVD: 7815 feet, MD: 10104 feet)
   BHL: NESE / 1650 FSL / 60 FEL / TWSP: 20S / RANGE: 29E / SECTION: 29 / LAT: 32.541694 / LONG: -104.088801 (TVD: 7815 feet, MD: 17969 feet)

BLM Point of Contact

Name: Sophia Cwiklinski
Title: LIE
Phone: 5752345972
Email: scwiklinkski@blm.gov

Approval Date: 03/06/2020

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
LEASE NO.:	NMNM0003677
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 127H
SURFACE HOLE FOOTAGE:	1245'/S & 250'/W
BOTTOM HOLE FOOTAGE	1650'/S & 60'/E
LOCATION:	Section 29, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico

COA

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

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Cherry Canyon** and **Brushy Canyon** formations. 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

Casing Design:

1. The **20** inch surface casing shall be set at approximately **400** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The **13-3/8** inch intermediate casing shall be set at approximately **1200** feet The minimum required fill of cement behind the **13-3/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. 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.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In **High Cave/Karst Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

❖ In **Capitan Reef Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

- Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.

- 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 intermediate well bore and submit to the appropriate BLM office.

3. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement should tie-back at least **50 feet** on top of Capitan Reef top. If cement does not circulate see B.1.a, c-d above.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

c. 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.

d. Second stage above DV tool:

- Cement should tie-back at least **50 feet** on top of Capitan Reef top. If cement does not circulate see B.1.a, c-d above.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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

Option 1 (Single Stage):

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

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. 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.

b. Second stage above DV tool:

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

C. PRESSURE CONTROL

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

2.

Option 1:

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

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

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.

d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- 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.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ 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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

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

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including

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

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

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

NMK03032020

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 113H
SURFACE HOLE FOOTAGE:	1575'/S & 250'/W
BOTTOM HOLE FOOTAGE	2310'/S & 30'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 114H
SURFACE HOLE FOOTAGE:	1575'/S & 280'/W
BOTTOM HOLE FOOTAGE	987'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 123H
SURFACE HOLE FOOTAGE:	1465'/S & 250'/W
BOTTOM HOLE FOOTAGE	2310'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 124H
SURFACE HOLE FOOTAGE:	1465'/S & 280'/W
BOTTOM HOLE FOOTAGE	987'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 127H
SURFACE HOLE FOOTAGE:	1245'/S & 250'/W
BOTTOM HOLE FOOTAGE	1650'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 128H
SURFACE HOLE FOOTAGE:	1245'/S & 280'/W
BOTTOM HOLE FOOTAGE	330'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 133H
SURFACE HOLE FOOTAGE:	1545'/S & 250'/W
BOTTOM HOLE FOOTAGE	2310'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico

Approval Date: 03/06/2020

OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 134H
SURFACE HOLE FOOTAGE:	1545'/S & 280'/W
BOTTOM HOLE FOOTAGE	987'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 137H
SURFACE HOLE FOOTAGE:	1355'/S & 280'/W
BOTTOM HOLE FOOTAGE	1650'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 138H
SURFACE HOLE FOOTAGE:	1325'/S & 280'/W
BOTTOM HOLE FOOTAGE	330'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 207H
SURFACE HOLE FOOTAGE:	1356'/S & 250'/W
BOTTOM HOLE FOOTAGE	330'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 208H
SURFACE HOLE FOOTAGE:	1325'/S & 250'/W
BOTTOM HOLE FOOTAGE	330'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 223H
SURFACE HOLE FOOTAGE:	1435'/S & 250'/W
BOTTOM HOLE FOOTAGE	2310'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico
OPERATOR'S NAME:	MATADOR PRODUCTION COMPANY
WELL NAME & NO.:	LEATHERNECK 3029 FED COM 224H
SURFACE HOLE FOOTAGE:	1435'/S & 280'/W
BOTTOM HOLE FOOTAGE	987'/S & 60'/E
LOCATION:	Section 30, T.20 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico

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

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)

Condition of Approval for High Karst:

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- 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 (i.e. an 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.

Road Construction:

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

Buried Pipeline/Cable Construction:

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

Surface Flowlines Installation:

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has 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.
- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- 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.

Residual and Cumulative Mitigation

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 taken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Upon well abandonment in high 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.

Hydrology:

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The 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. The berm would be maintained through the life of the wells and after interim reclamation has been completed.

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.

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. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

Grazing Lease Stipulations:

An agreement between Matador Production Company and the active Akali Lake (#77020) allotment (grazing) lease holder must come to an agreement of a new water pipeline location. Matador will move the water pipeline a minimum of 30' away from any oil and gas infrastructure. Matador will also construct the new pipeline prior to disconnecting the old pipeline to ensure cattle will have a source of water through the entire pipeline and oil and gas infrastructure construction.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

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

G. ON LEASE ACCESS ROADS

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

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

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

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

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

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

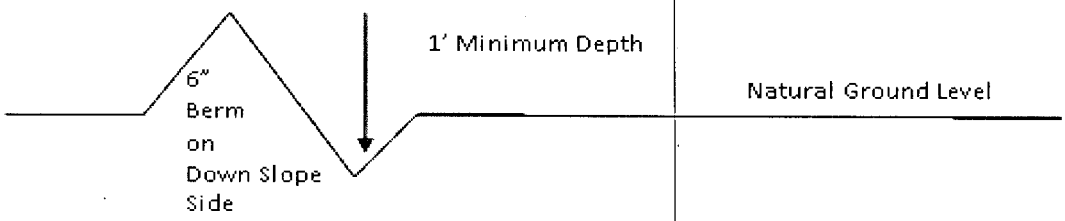
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

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

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

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

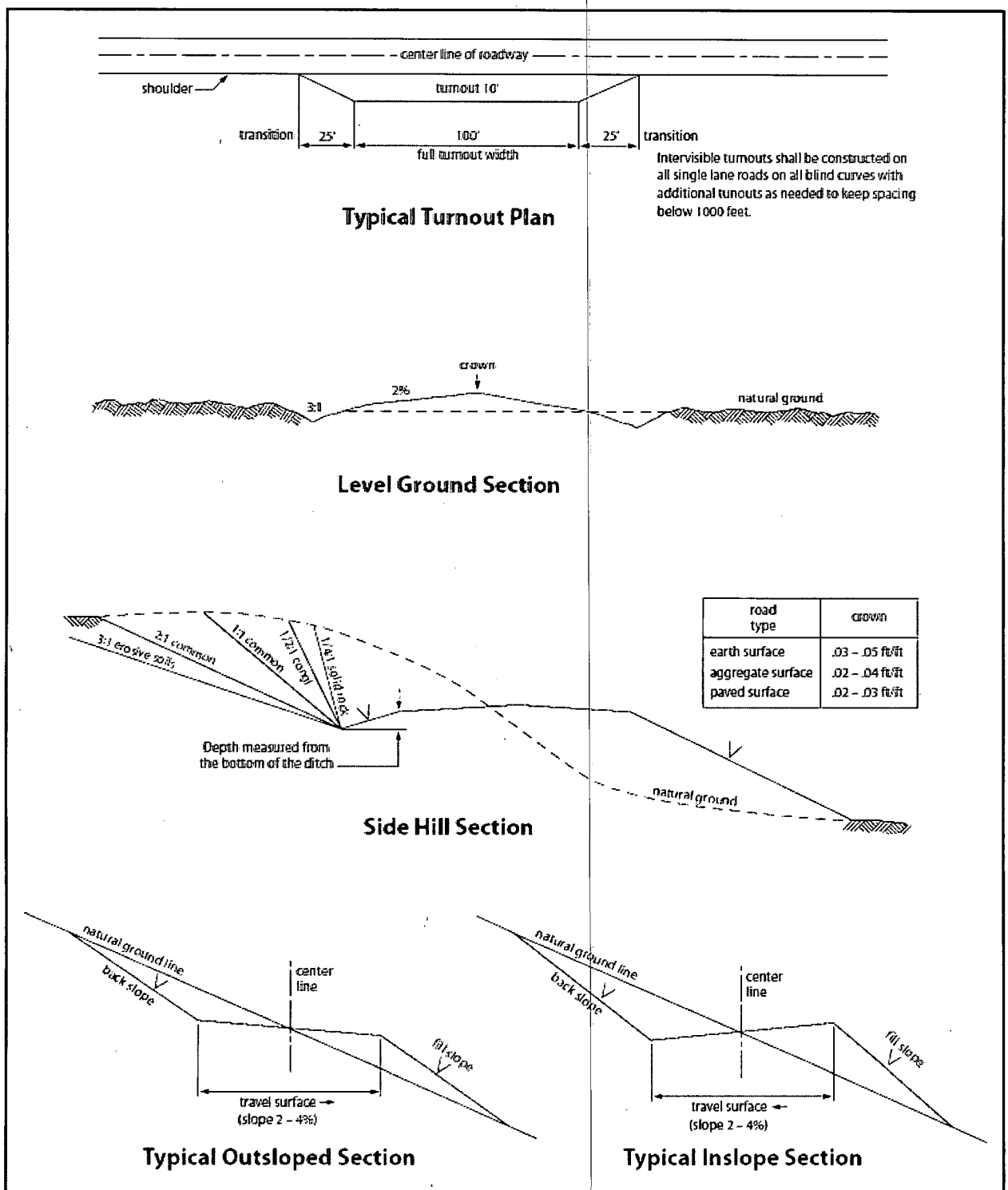


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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).

B. OIL AND GAS RELATED SITES

STANDARD STIPULATIONS FOR OIL AND GAS RELATED SITES

A copy of the application (Grant/Sundry Notice) and attachments, including stipulations and map, will be on location during construction. BLM personnel may request to view a copy of your permit during construction to ensure compliance with all stipulations.

The holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer, BLM.

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant and for all response costs, penalties, damages, claims, and other costs arising from the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Chap. 82, Section 6901 et. seq., from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. Chap. 109, Section 9601 et. seq., and from other applicable environmental statues.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et. seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42

U.S.C. 9601, et. seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et. seq.) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the site or related pipeline(s), any oil or other pollutant should be discharged from site facilities, the pipeline(s) or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil of other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

5. Sites shall be maintained in an orderly, sanitary condition at all times. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, brines, chemicals, oil drums, ashes, and equipment.

6. The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

7. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for this project is **Shale Green**, Munsell Soil Color Chart Number 5Y 4/2.

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

evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

9. A sales contract for removal of mineral material (caliche, sand, gravel, fill dirt) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. There are several options available for purchasing mineral material: contact the BLM office (575-234-5972).

10. 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.
11. Once the site is no longer in service or use, the site must undergo final abandonment. At final abandonment, the site 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 the abandonment of the site. All pads and 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. 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).

12. The holder shall stockpile an adequate amount of topsoil where blading occurs. The topsoil to be stripped is approximately ___6___ inches in depth. The topsoil will be segregated from other spoil piles. The topsoil will be used for final reclamation.

13. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

(X) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	(X) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

14. In those areas where erosion control structures are required to stabilize soil conditions, the holder shall install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound management practices. Any earth work will require prior approval by the Authorized Officer.

15. Open-topped Tanks - 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

16. 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.

17. 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.

18. 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.

19. Special Stipulations:

Hydrology:

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The 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.

Range:

Cattleguards

Where a permanent cattlegaurd is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Livestock Watering Requirement

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

Karst:

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- 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 (i.e. an 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.

Road Construction:

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.

- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

Buried Pipeline/Cable Construction:

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

Surface Flowlines Installation:

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has 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.

- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- 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.

Residual and Cumulative Mitigation
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 taken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation
Upon well abandonment in high 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.

Grazing Lease Stipulations:
An agreement between Matador Production Company and the active Akali Lake (#77020) allotment lease holder must come to an agreement of new water pipeline location. Matador will move the water pipeline a minimum of 30' away from any oil and gas infrastructure. Matador will also construct the new pipeline prior to disconnecting the old pipeline to ensure cattle will have a source of water through the entire pipeline and well pad construction.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on

facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent,

conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

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

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

Powerline Construction:

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

ELECTRIC LINE(S):

- 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. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

- **Grazing Lease Stipulations:**
  An agreement between Matador Production Company and the active Akali Lake (#77020) allotment lease holder must come to an agreement of new water pipeline location. Matador will move the water pipeline a minimum of 30' away from any oil and gas infrastructure. Matador will also construct the new pipeline prior to

disconnecting the old pipeline to ensure cattle will have a source of water through the entire pipeline and well pad construction.

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).

Seed Mixture 1 for Loamy Sites

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

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

Operator Certification Data Report

03/09/2020

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: 07/15/2019

Title: President

Street Address: 37 Verano Looop

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:

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

Application Data Report

03/09/2020

APD ID: 10400043694 **Submission Date:** 07/15/2019

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400043694 **Tie to previous NOS?** N **Submission Date:** 07/15/2019

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: NMNM0003677 **Lease Acres:** 2150.97

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:**

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** AVALON **Pool Name:** BONE SPRING EAST

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

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

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

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 3029 SLOT **Number:** 3/4

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: 8 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 250 FT

Reservoir well spacing assigned acres Measurement: 317.32 Acres

Well plat: LN_127H_C102_etal_010920_20200109093754.pdf

Well work start Date: 09/01/2019 **Duration:** 65 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 25116 **Reference Datum:**

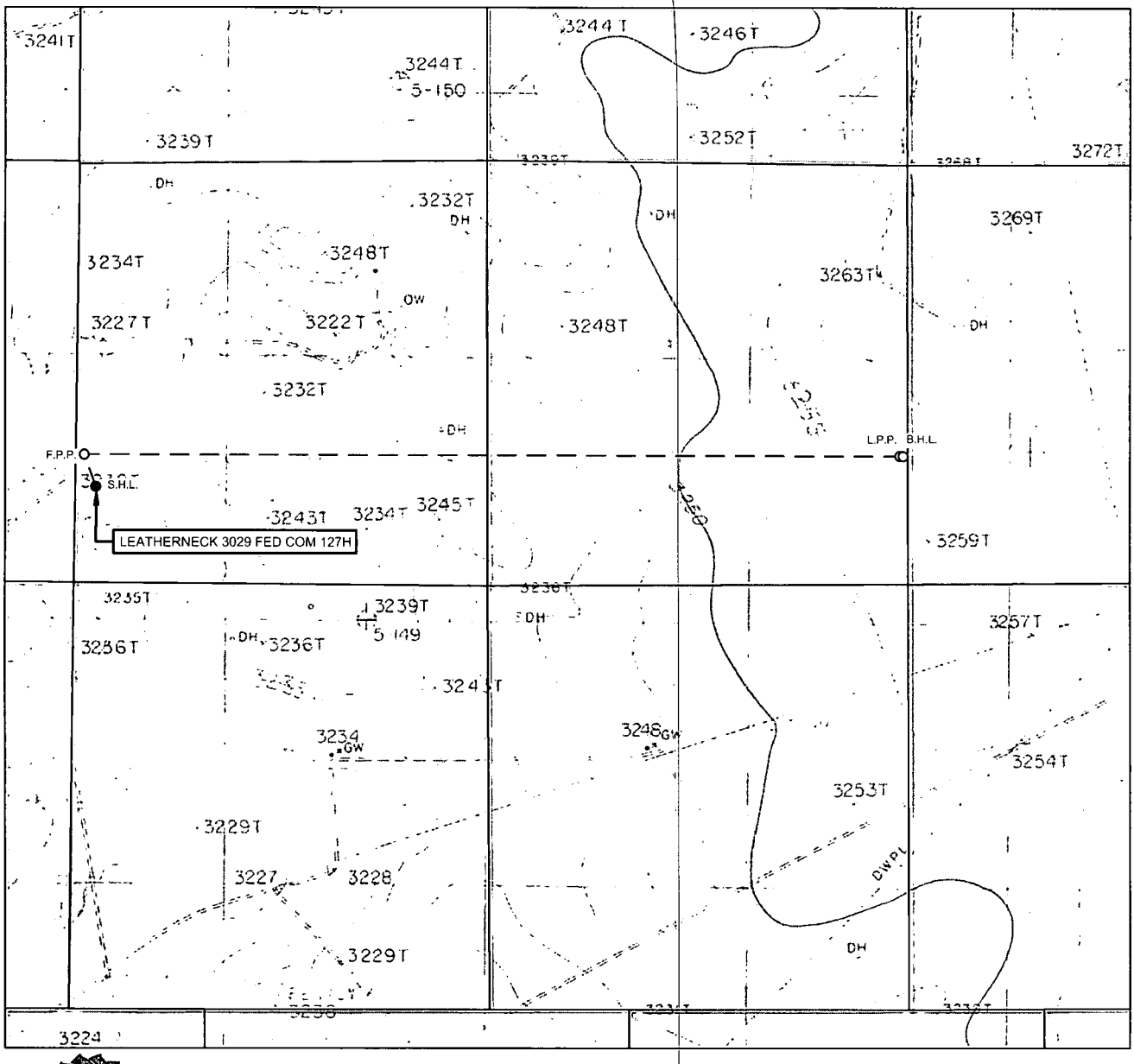
Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	1245	FSL	250	FWL	20S	29E	30	Lot 4	32.5406831	-104.1218371	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0003677	3236	0	0	
KOP Leg #1	1546	FSL	54	FWL	20S	29E	30	Lot 3	32.5415073	-104.1224729	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0003677	-4006	7261	7242	
PPP Leg #1-1	1650	FSL	2640	FEL	20S	29E	30	Aliquot NWSE	32.54177	-104.114322	DONA ANA	NEW MEXICO	NEW MEXICO	F	NMNM 095635	-4579	10104	7815	

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-2	1553	FSL	106	FWL	20S	29E	30	Lot 3	32.5415264	-104.1223042	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0003677	-4247	7509	7483	
EXIT Leg #1	1650	FSL	60	FEL	20S	29E	29	Aliquot NESE	32.5416944	-104.088801	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0003677	-4579	17969	7815	
BHL Leg #1	1650	FSL	60	FEL	20S	29E	29	Aliquot NESE	32.5416944	-104.088801	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 0003677	-4579	17969	7815	

LOCATION & ELEVATION VERIFICATION MAP



Matador PRODUCTION COMPANY

LEASE NAME & WELL NO.: LEATHERNECK 3029 FED COM 127H

SECTION 30 TWP 20-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM ELEVATION 3236'
DESCRIPTION 1245' FSL & 250' FWL

LATITUDE N 32.5406831 LONGITUDE W 104.1218371

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 COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

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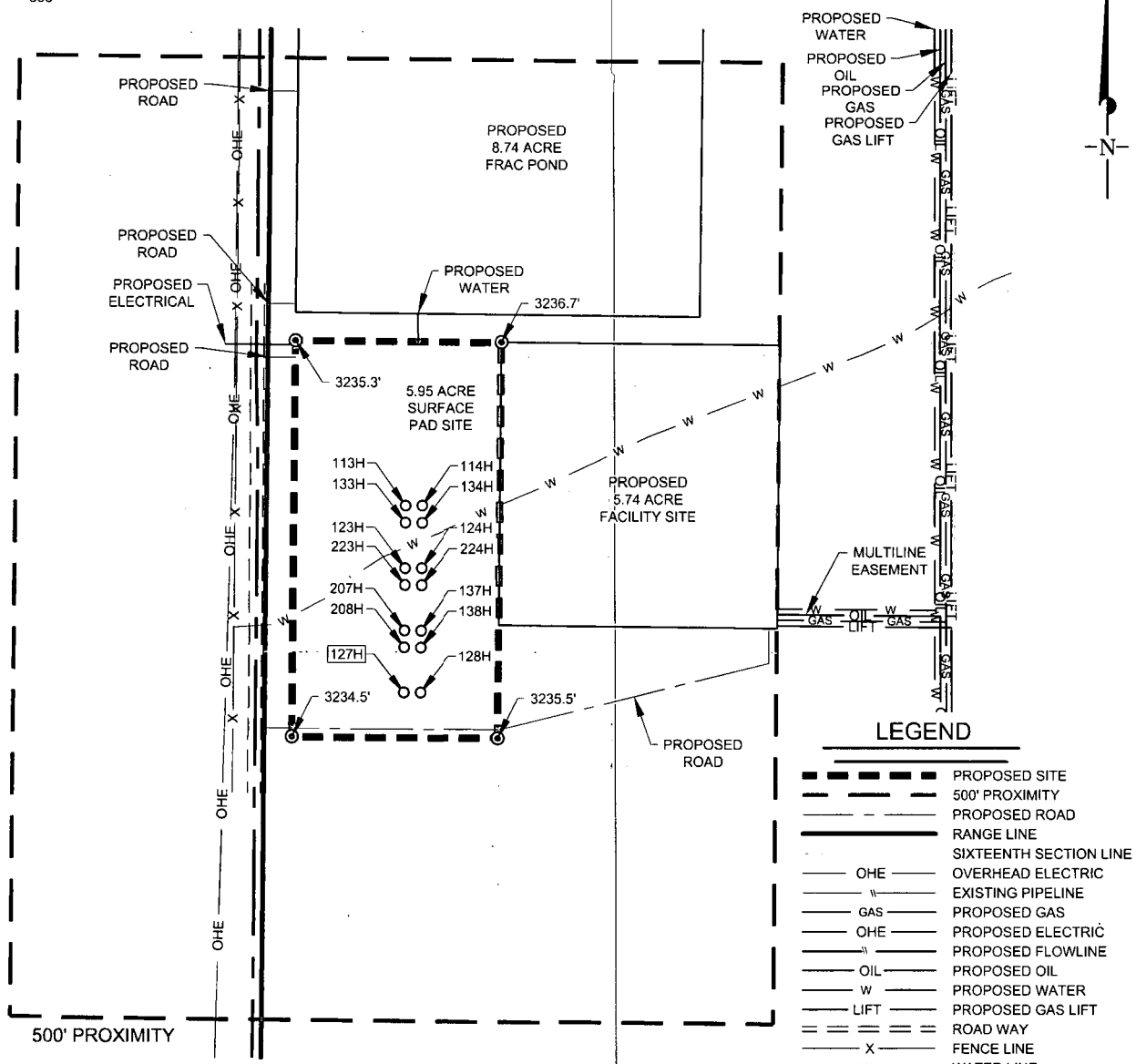
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

SCALE: 1" = 300'

0' 150' 300'

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



LEGEND

- PROPOSED SITE
- 500' PROXIMITY
- PROPOSED ROAD
- RANGE LINE
- SIXTEENTH SECTION LINE
- OHE — OVERHEAD ELECTRIC
- EXISTING PIPELINE
- GAS — PROPOSED GAS
- OHE — PROPOSED ELECTRIC
- PROPOSED FLOWLINE
- OIL — PROPOSED OIL
- W — PROPOSED WATER
- LIFT — PROPOSED GAS LIFT
- ROAD WAY
- X — FENCE LINE
- W — WATER LINE
- IRON ROD SET

Matador PRODUCTION COMPANY

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"PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE."

Angel M. Baeza, License No. 25116
MAY 7, 2019

LEATHERNECK 3029 FED COM 127H PROXIMITY MAP	REVISION:	
	JDR	04/02/2019
	MML	05/01/2019
DATE: 03/21/2019		
FILE: LO_LEATHERNECK_3029_FED_COM_127H_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 COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.
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.
4. ADJOINER INFORMATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.

S:\SURVEY\MATADOR_RESOURCES\LEATHERNECK_30-20S-29E\FINAL_PRODUCTS\LO_LEATHERNECK_3029_FED_COM_127H_REV2.DWG 5/7/2019 4:36:07 PM bgregory

Matador Production Company

Leatherneck Fed Com Slot 3/4:
Well Vicinity & Lease Map

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

- – – Proposed Lateral
- Matador Lease Line
- BLM Surface
- State Surface

1:20,350

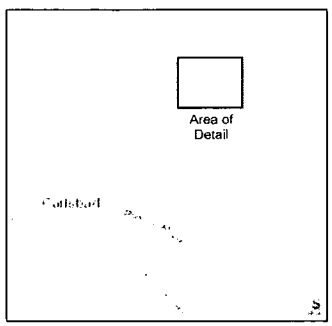
0 0.125 0.25 0.5
Miles

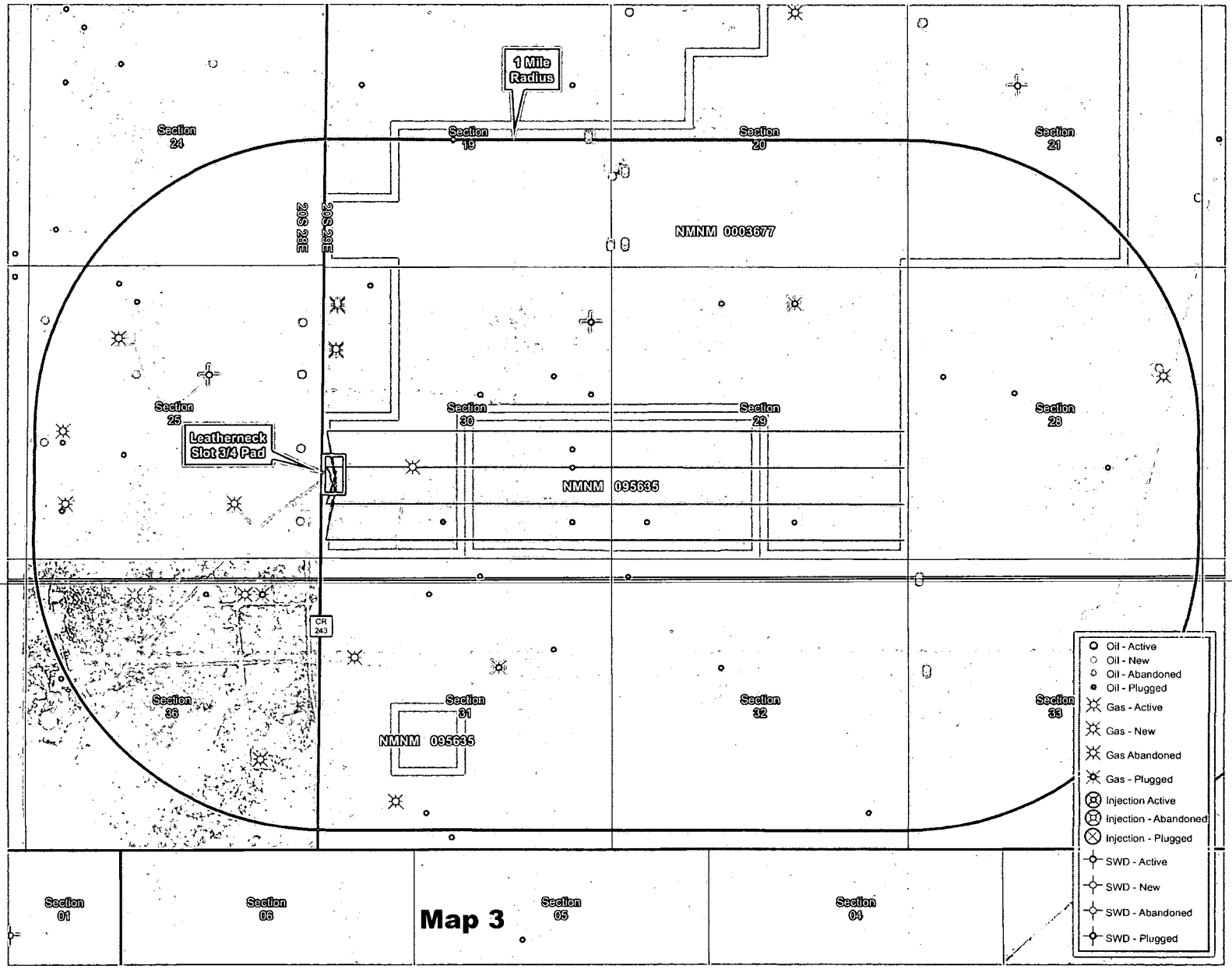
N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST

Prepared by Permits West, Inc., June 26, 2019
for Matador Production Company





Map 3

AFMSS

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

Drilling Plan Data Report
03/09/2020

APD ID: 10400043694 **Submission Date:** 07/15/2019

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
497799	RUSTLER	3236	165	165	ANHYDRITE	NONE	N
497798	TOP SALT	2970	265	265	SALT	NONE	N
497800	BASE OF SALT	2444	791	791	SALT	NONE	N
497795	YATES	2370	865	865	OTHER : Cave/Karst	NONE	N
497796	SEVEN RIVERS	1920	1315	1315	OTHER : Cave/Karst	NONE	N
497801	CAPITAN REEF	1845	1390	1390	OTHER : Capitan Aquifer	NONE	N
497797	CHERRY CANYON	250	2985	2985	SANDSTONE	NATURAL GAS, OIL	N
497802	BRUSHY CANYON	-710	3945	3945	SANDSTONE	NATURAL GAS, OIL	N
497803	BONE SPRING LIME	-2390	5625	5625	LIMESTONE	NATURAL GAS, OIL	N
497804	BONE SPRING 1ST	-3508	6743	6743	SANDSTONE	NATURAL GAS, OIL	Y
497805	BONE SPRING 2ND	-3770	7005	7005	OTHER : Carbonate	NATURAL GAS, OIL	N
497806	BONE SPRING 2ND	-4247	7482	7509	SANDSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

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

Equipment: A 12,000' 5000-psi BOP stack consisting of 3 rams with 2 pipe rams, 1 blind ram, and one annular preventer will be utilized below intermediate 1 casing to TD. See attachments for BOP and choke manifold diagrams. An accumulator complying with Onshore Order #2 requirements for the pressure rating of the BOP stack will be present. A rotating head will also be installed as needed.

Requesting Variance? YES

Variance request: Matador requests a variance to have the option of running a multi-bowl wellhead assembly. The BOPs will not be tested again unless any flanges are separated or if the time between the setting of the intermediate casing and reaching within 500' from the top of the Wolfcamp formation exceeds 30 days per the CFO Drilling COAs. 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. The hose is not required by the manufacturer to be anchored. If the specific hose is not available, then one of equal or higher rating will be used. Matador requests a variance to have the option of batch drilling this well with other wells on the same pad. In the event that this well is batch drilled, the wellbore will be secured with a blind flange of like pressure. When the rig returns to this well and BOPs are installed, the operator will perform a full BOP test. Matador requests a variance for the use of a diverter along with a 2000-psi annular to be installed after running 20" casing. Matador requests the option to cut off 20" SOW wellhead and run 13-3/8" SOW multi-bowl wellhead system once 1st intermediate string is run and cemented.
Testing Procedure: BOP will be inspected and operated as required in Onshore Order #2. 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. After setting intermediate casing, a minimum 5M BOPE system will be installed. Test pressures will be 250 psi low and 5000 psi high with the annular preventer being tested to 250 psi low and 2500 psi high before drilling below intermediate shoe. In the event that the rig drills multiple wells on the pad and any seal subject to test pressures are broken, a full BOP test will be performed when the rig returns and the 5M BOPE system is re-installed.

Choke Diagram Attachment:

LN_127H_5M_Choke_20190715081227.pdf

BOP Diagram Attachment:

LN_127H_5M_BOP_20190715081251.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	3236		400	J-55	94	BUTT	1.125	1.125	DRY	1.8	DRY	1.8
2	INTERMEDIATE	17.5	13.375	NEW	API	N	0	1200	0	1200	3236		1200	J-55	54.5	BUTT	1.125	1.125	DRY	1.8	DRY	1.8
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3100	0	3100	3236		3100	J-55	40	BUTT	1.125	1.125	DRY	1.8	DRY	1.8
4	PRODUCTION	8.75	5.5	NEW	API	N	0	17969	0	7815	3236		17969	P-110	20	OTHER - DWC/C-IS HT Plus	1.125	1.125	DRY	1.8	DRY	1.8

Casing Attachments

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

LN_127H_casing_design_assumptions_4string_BS_20190715081330.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

LN_127H_casing_design_assumptions_4string_BS_20190715081351.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

LN_127H_casing_design_assumptions_4string_BS_20190715081506.pdf

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

Casing Attachments

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

LN_127H_casing_design_assumptions_4string_BS_20190715081537.pdf

LN_Slot34_Casing_Spec_5.5in_20190715085138.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
SURFACE	Lead		0	400	0	0	0	0	0	None	None
SURFACE	Tail		0	400	1060	1.35	14.8	1424	100	Class C	5% NaCl + LCM
INTERMEDIATE	Lead	1500	0	1200	640	1.78	13.5	1132	50	Class C	5% NaCl + LCM
INTERMEDIATE	Tail		900	1200	260	1.35	14.8	347	50	Class C	5% NaCl + LCM
INTERMEDIATE	Lead	1500	0	3100	700	1.78	13.5	1254	50	Class C	Bentonite + 1% CaCL2 + 8% NaCl + LCM
INTERMEDIATE	Tail		2480	3100	240	1.35	14.8	325	50	Class C	5% NaCl + LCM
PRODUCTION	Lead		1340	17969	730	2.22	11.5	1615	25	Class H	Fluid Loss + Dispersant + Retarder + LCM
PRODUCTION	Tail		6761	17969	2630	1.35	13.2	3549	25	Class H	Fluid Loss + Dispersant + Retarder + LCM

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

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 for weight addition and fluid loss control will be on location at all times. Mud program subject to change due to hole conditions.

Describe the mud monitoring system utilized: An electronic Pason mud monitoring system complying with Onshore Order #2 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	8.8							
1200	3100	OTHER : Fresh water	8.4	8.6							
3100	17969	OTHER : Cut brine/OBM	8.6	9.4							
400	1200	OTHER : Brine water	9.5	10.2							

Section 6 - Test, Logging, Coring

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

A 2-person mud logging program will be used from Kick-off point to TD. No electric logs are planned at this time. GR will be collected through the MWD tools from Intermediate casing to TD. CBL with CCL will be run as far as gravity will let it fall to top of curve.

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

CBL,GR

Coring operation description for the well:

No core or drill stem test is planned.

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: LEATHERNECK 3029 FED COM **Well Number:** 127H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 3820 **Anticipated Surface Pressure:** 2100.69

Anticipated Bottom Hole Temperature(F): 155

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_Slot34_H2S_Plan_wMaps_20190715082135.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

LN_127H_horizontal_plan_20190715082154.pdf

Other proposed operations facets description:

Co-flex hose is certified for 7K

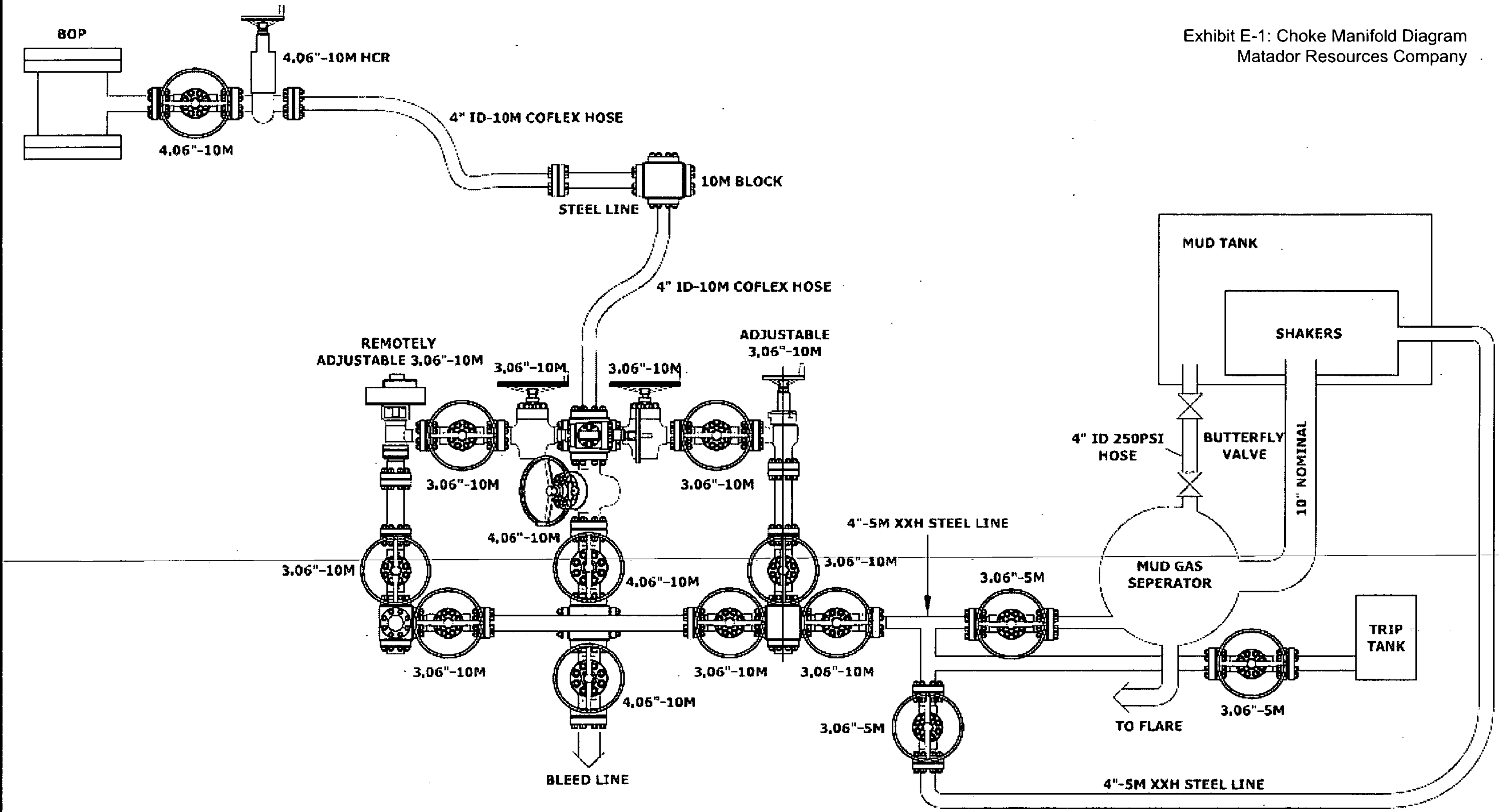
Other proposed operations facets attachment:

LN_Slot34_full_wellhead_3string_20190715082231.pdf
LN_127H_CoFlex_Certs_20190715082348.pdf
LN_127H_20in_20.75_3M_SOW_20190715082359.pdf
LN_127H_Anti_Collision_Report_20190715082408.pdf
LN_127H_Drill_Plan_Revised_20191219091331.pdf

Other Variance attachment:

LN_127H_DVT_Tool_Variance_Request_20190715082214.pdf

Exhibit E-1: Choke Manifold Diagram
Matador Resources Company



WELDING NOTES & TOLERANCES UNLESS OTHERWISE SPECIFIED

REV	DATE	DESCRIPTION	DRAWN BY	CHK BY	APPVD ENG.
02	4-3-15	ISSUED FOR INFORMATION			
01	4-3-15	ISSUED FOR INFORMATION			

PATTERSON-UTI DRILLING COMPANY LLC

CHOKE MANIFOLD

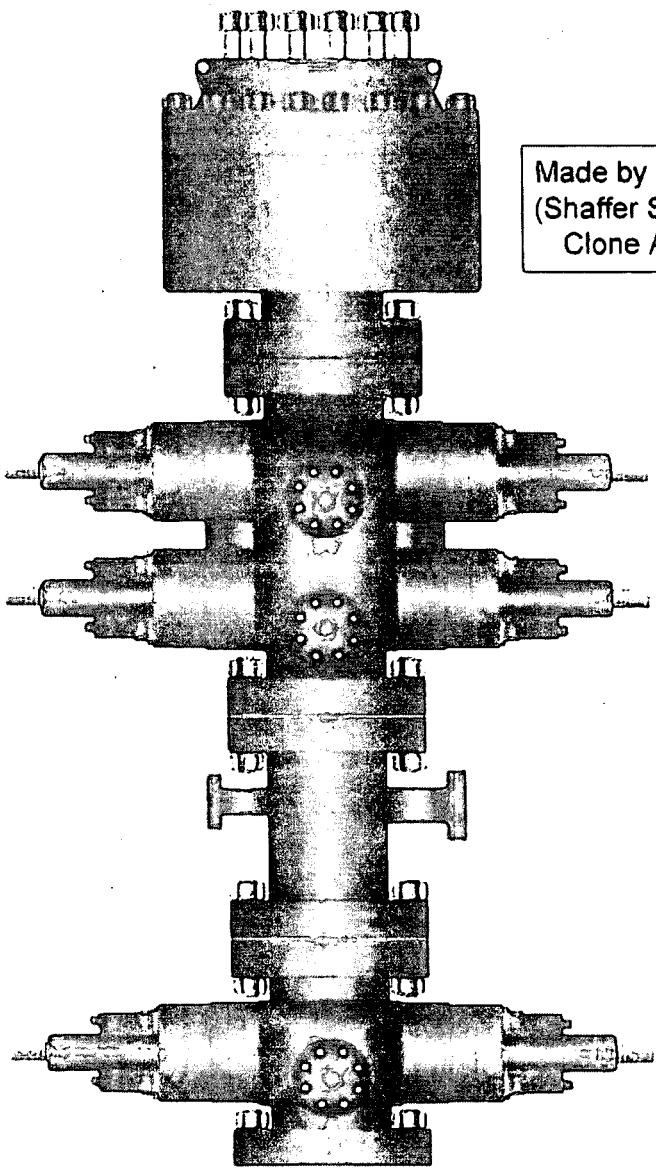
10M CHOKE ARRANGEMENT
RIG 297

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

Exhibit E-1: BOP
Matador Resources Company

PATTERSON-UTI
Well Control

RIG: 297



Made by Cameron
(Shaffer Spherical)
Clone Annular

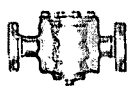
PATTERSON-UTI # PS2-628
STYLE: New Shaffer Spherical
BORE 13 5/8" **PRESSURE** 5,000
HEIGHT: 48 ½" **WEIGHT:** 13,800 lbs

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

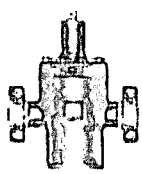
Length 40" **Outlets** 4" 10M
DSA 4" 10M x 2" 10M

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

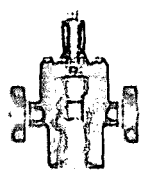
WING VALVES



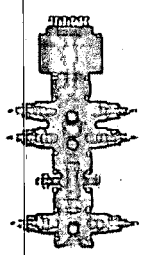
2" Check Valve

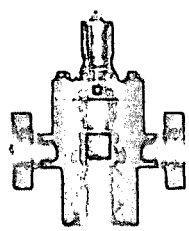


2" Manual Valve

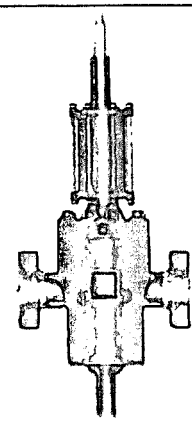


2" Manual Valve





4" Manual Valve



4" Hydraulic Valve

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).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 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 (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test 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.
- 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 (0.47 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).

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).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 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 (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test 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.
- 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 (0.47 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).

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).

Production Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 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 (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test 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.
- 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 (0.47 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).

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).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 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 (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test 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.
- 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 (0.47 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).

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
11 Emergency Contacts

- See exhibit E-6

HYDROGEN SULFIDE CONTINGENCY PLAN
Drilling, Testing, & Completion

MRC ENERGY CO.

Reviewers

---------- Operations Manager
---------- Operations Supt.
---------- Staff RES
---------- Field Supt.
Blake Hermes---Engineering

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 (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. (Mud pit area, shaker area, bell nipple area, floor/driller area, & outside quarters)
5	H2S Sensors
3	Explosion Proof Alarms (Light and Siren) (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 702 N. 13th St. Artesia, NM 88210	**Main Phone Number**	**575-748-3333**
Nor-Lea General Hospital 1600 N. Main Ave. Lovington, NM 88260	**Main Phone Number**	**575-396-6611**
Lea Regional Medical Center 5419 N. Lovington Hwy Hobbs, NM 88240	**Main Phone Number**	**575-492-5260**
Carlsbad General Hospital 2430 W. Pierce St. Carlsbad, NM	**Main Phone Number**	**575-887-4100**
Lovelace Regional Hospital 117 E. 19th St Roswell, NM 88201	**Main Phone Number**	**575-627-7000**
Winkler Co. Memorial Hospital 821 Jeffee Dr. Kermit, Texas 79745	**Main Phone Number**	**432-586-8299**
Reeves County Hospital 2323 Texas St. Pecos, Texas 79772	**Main Phone Number**	**432-447-3551**

State Police (911)

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

Local Law Enforcement (911) (Sheriff)

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

Federal & State Agencies

OSHA Lubbock Area Office 1205 Texas Av. Room 806 Lubbock, Texas 79401	**Main Number**		**806-472-7681 EXT 7685**
New Mexico Environment Department 400 N Pennsylvania Roswell, NM 88201	**Joe Fresquez**		**575-623-3935**
Texas Railroad Commission Midland, Texas	**Main Number**		**844-773-0305**
BLM Carlsbad, NM Field Office 620 E. Green ST Carlsbad, NM 88220	**Main Number**		**575-234-5972**
BLM Hobbs Field Station 414 W. Taylor Rd. Hobbs, NM 88240	**Main Number**		**575-393-3612**
BLM Roswell District Office 2909 W. Second St. 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 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

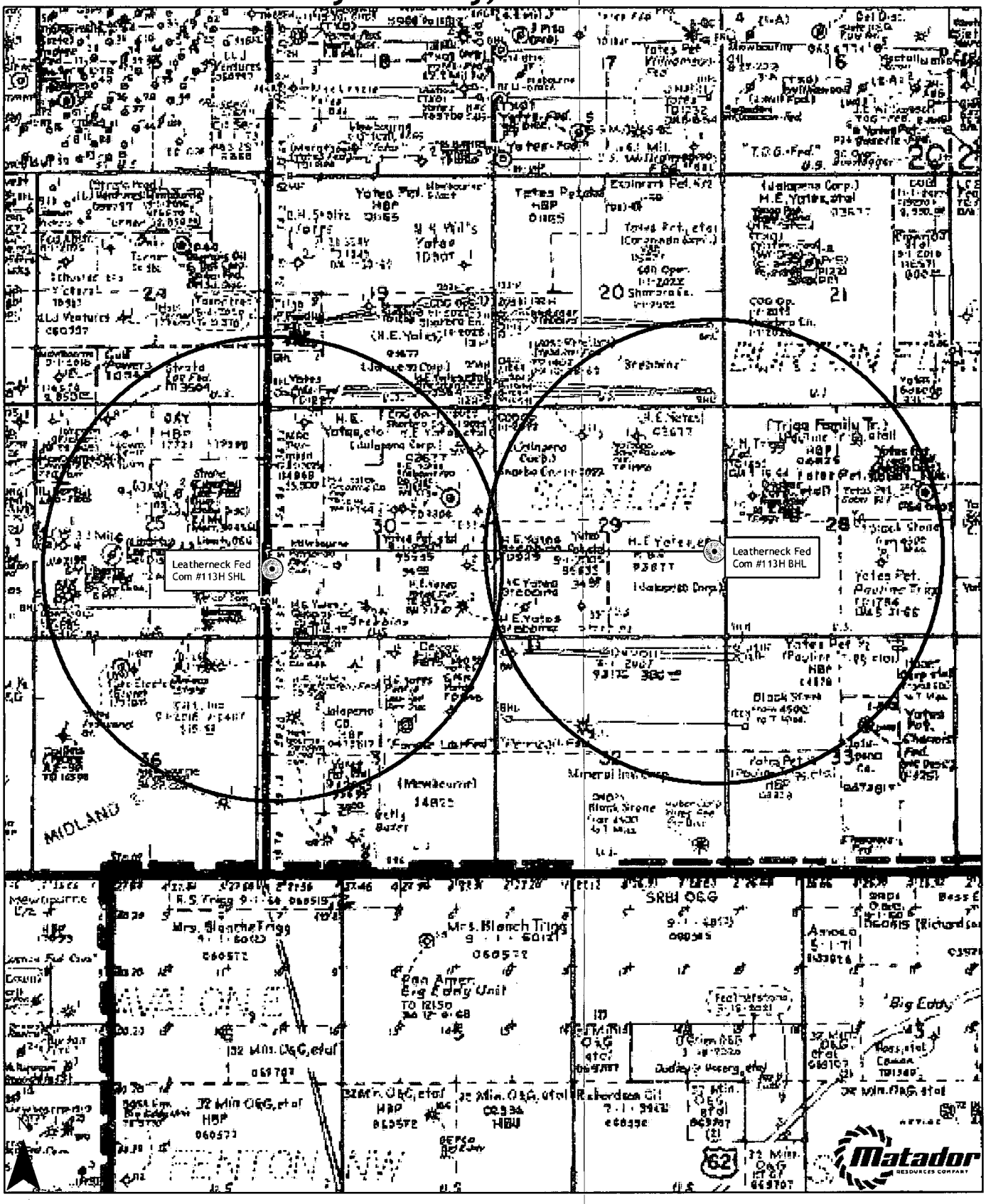
will cooperate with and provide such information to civil authorities as they might require.

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.

Exhibit E-6: H2S Contingency Plan Emergency Contacts
Matador Resources Company

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
Blake Hermes	Drilling Engineer	972-371-5485	713-876-8558
	Construction Superintendent		
	Construction Superintendent		
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	

Eddy County, New Mexico



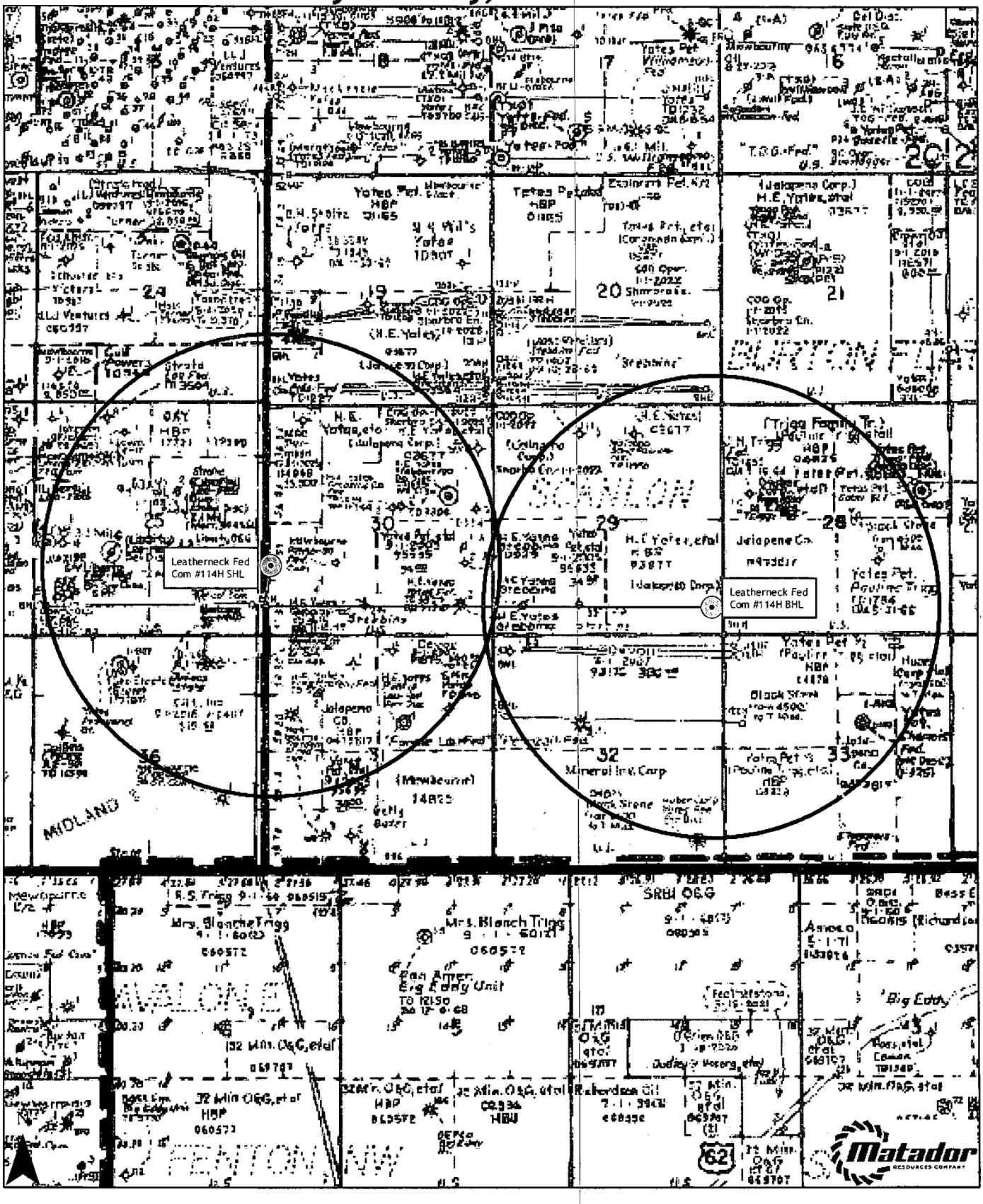
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-1

Eddy County, New Mexico



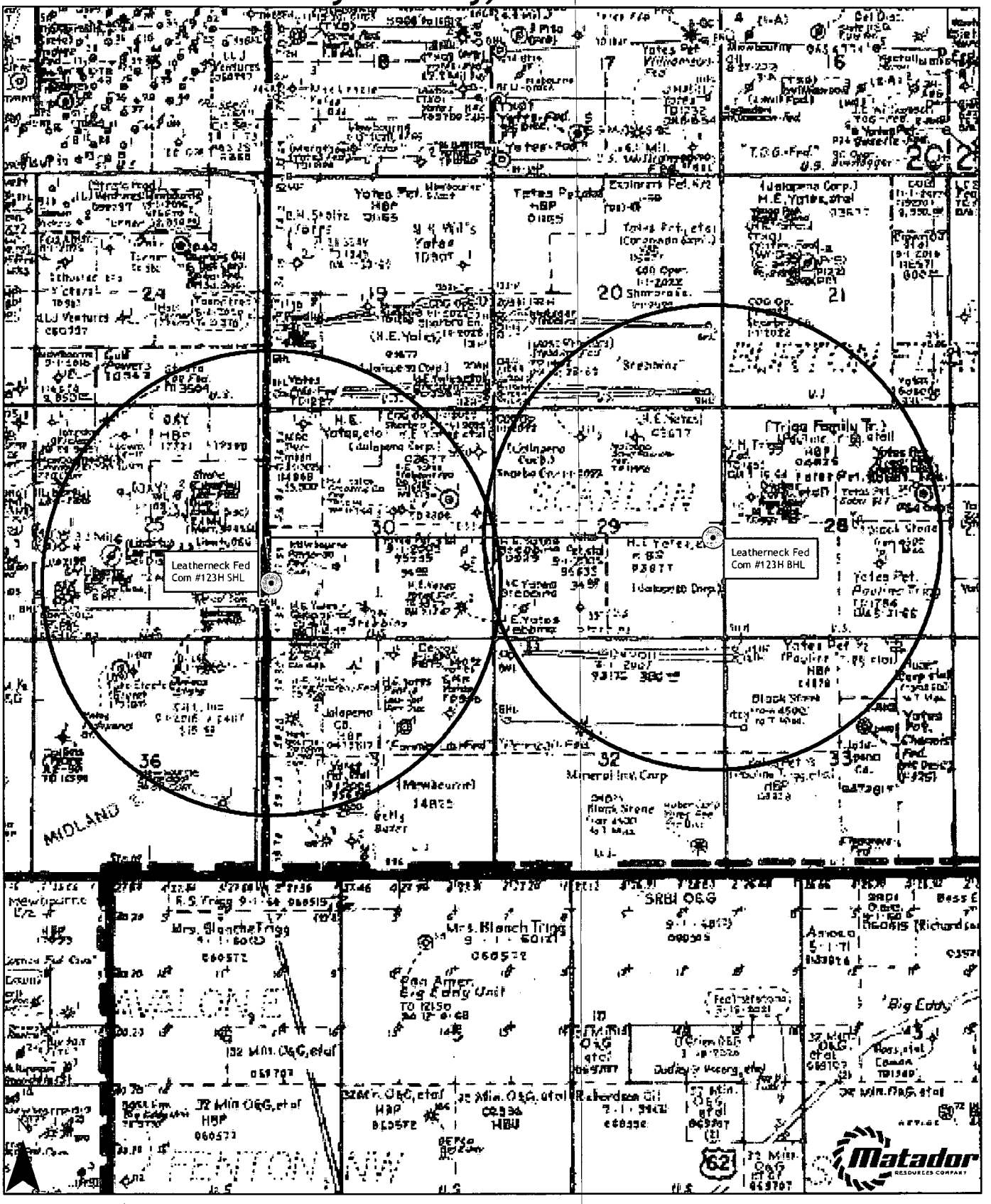
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-2

Eddy County, New Mexico



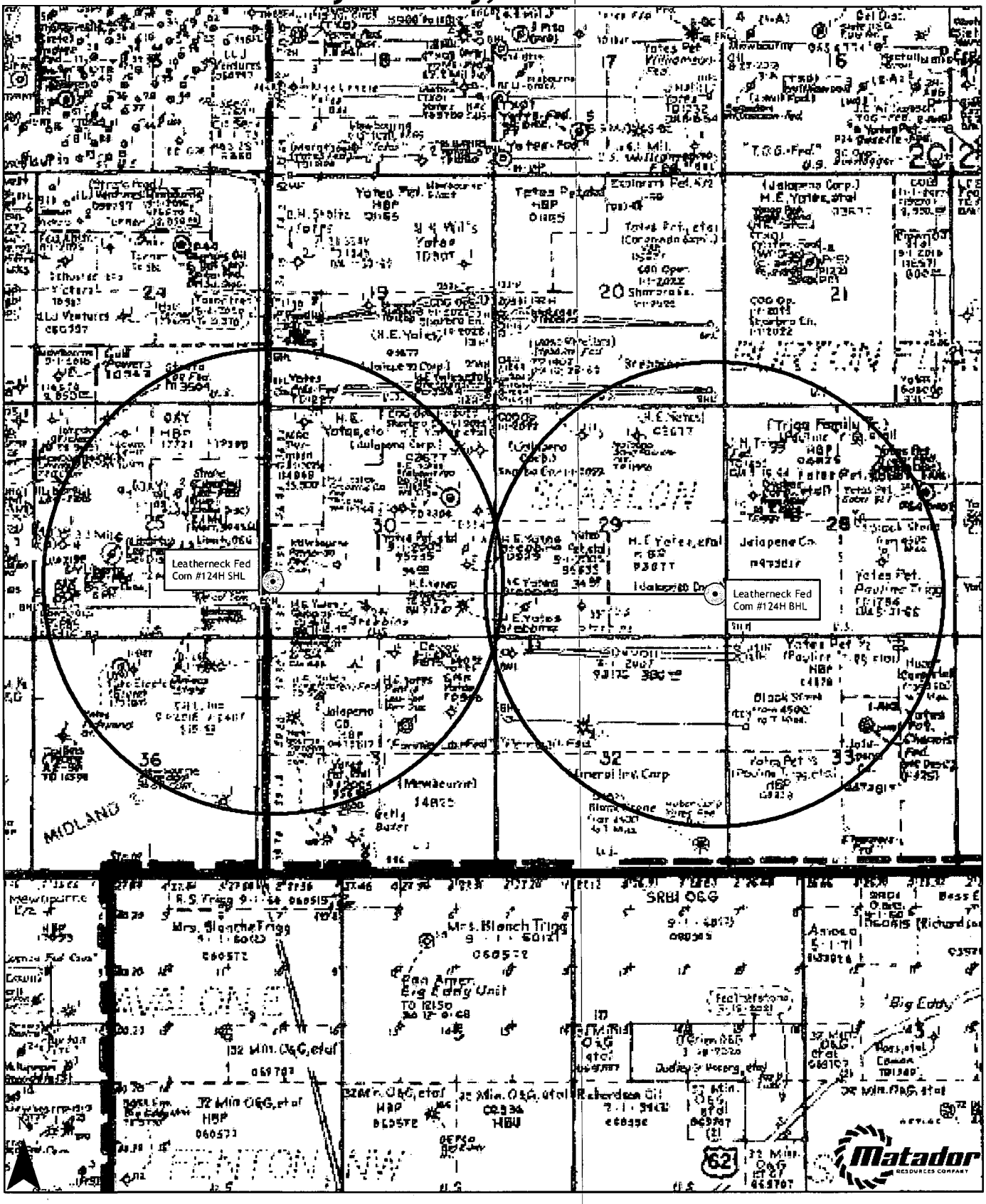
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute (ESRI);

Map 3-3

Eddy County, New Mexico



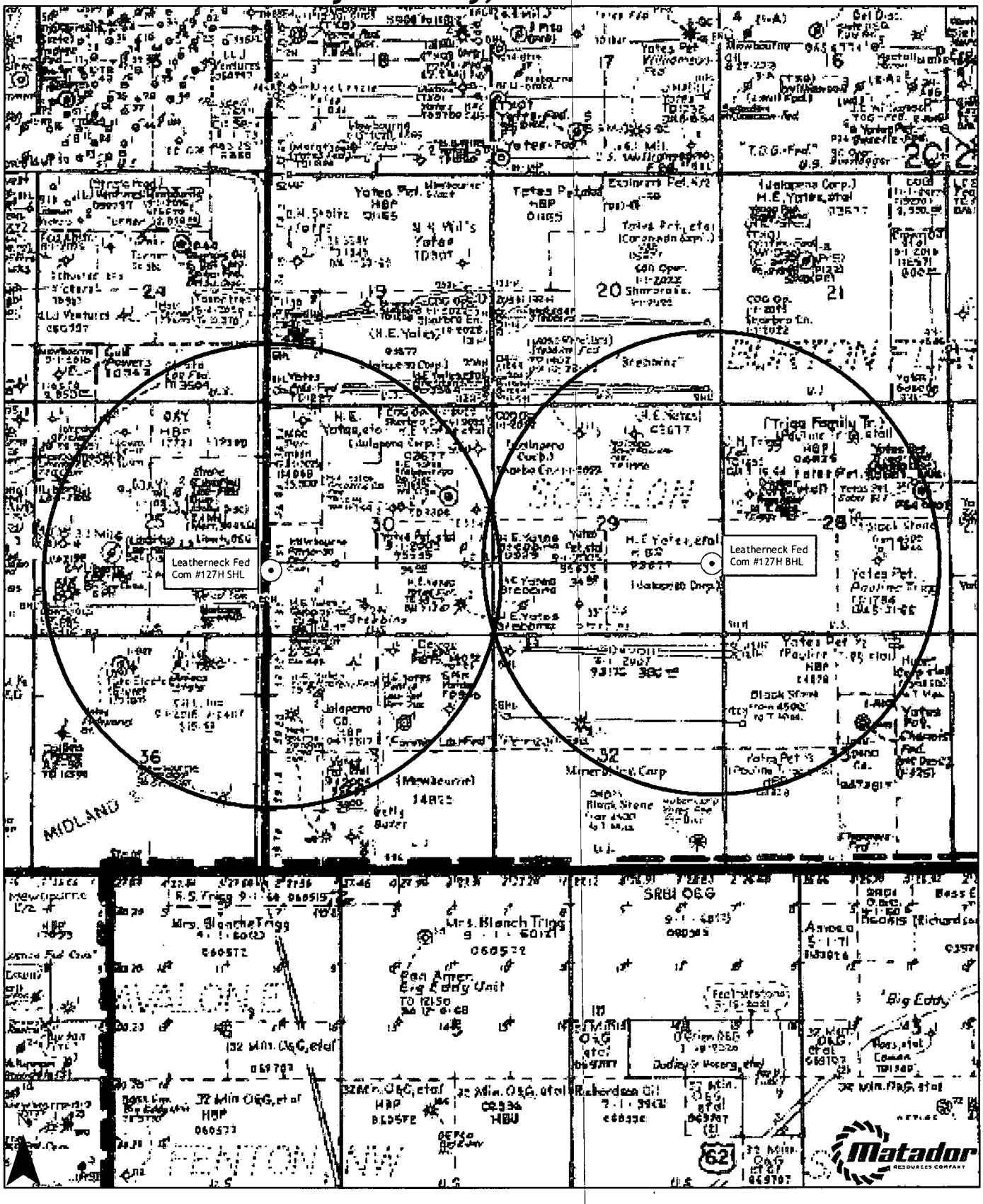
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-4

Eddy County, New Mexico



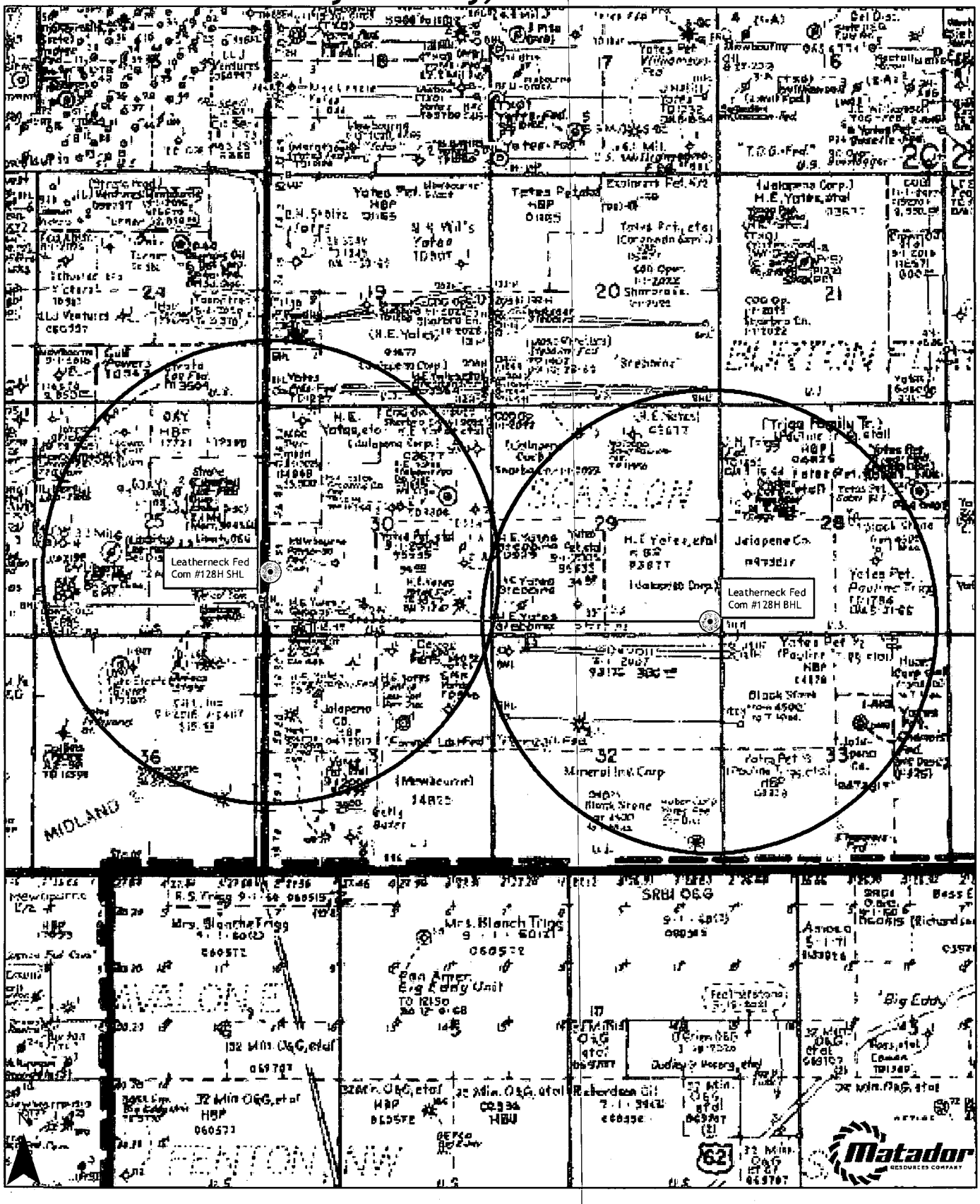
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-5

Eddy County, New Mexico



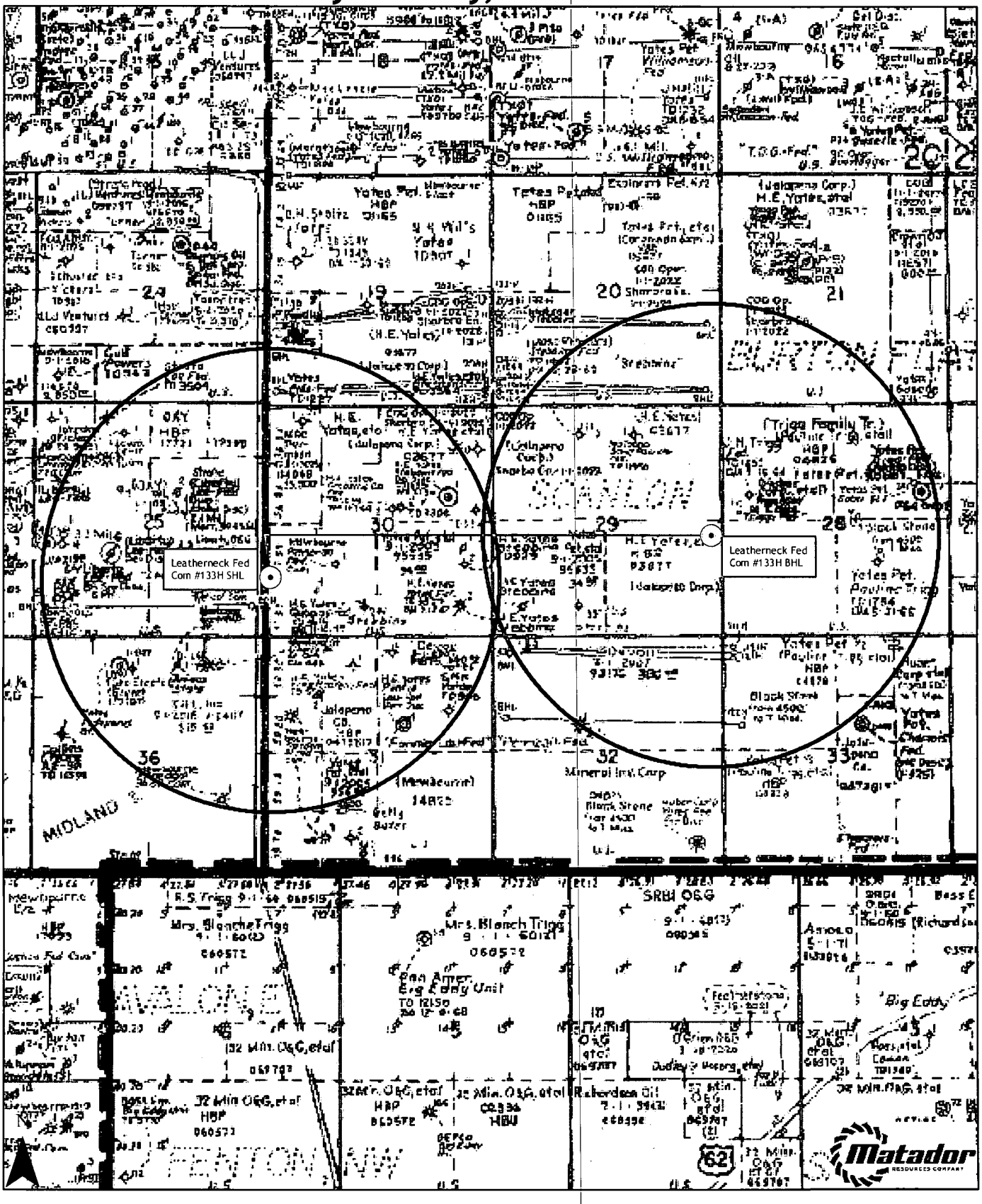
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute (ESRI);

Map 3-6

Eddy County, New Mexico



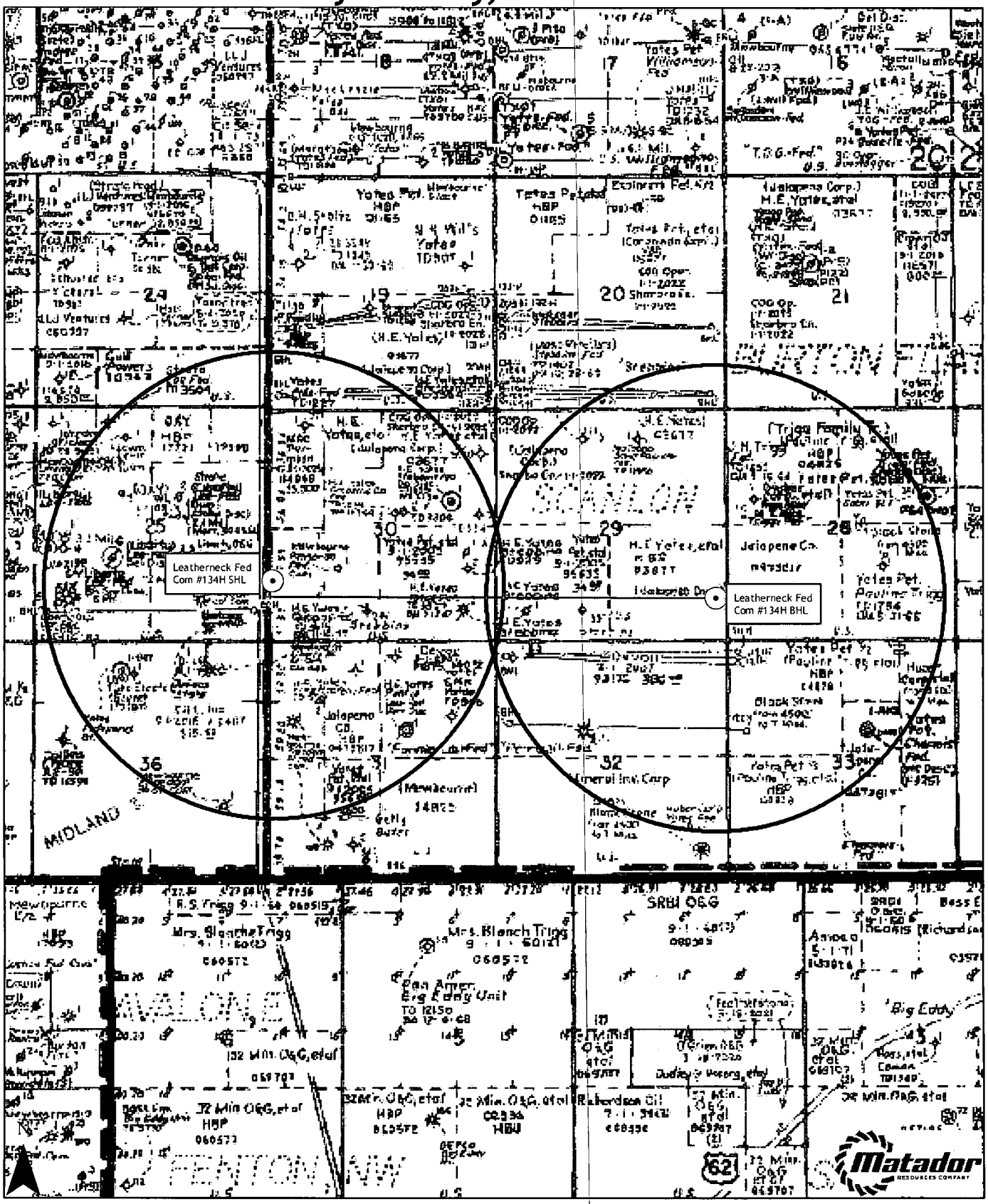
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-7

Eddy County, New Mexico



1 inch = 3,000 feet

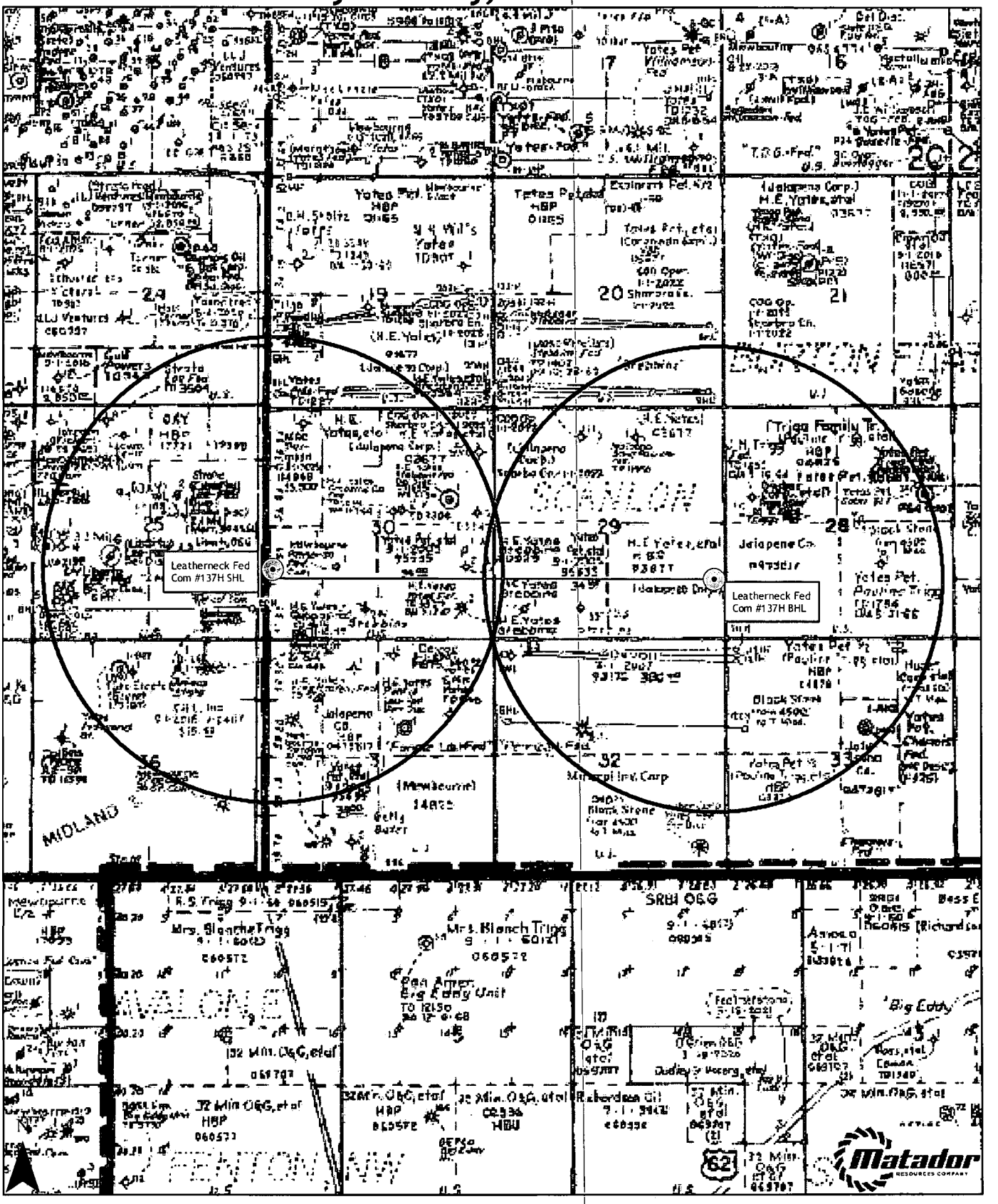
Feet

0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-8

Eddy County, New Mexico



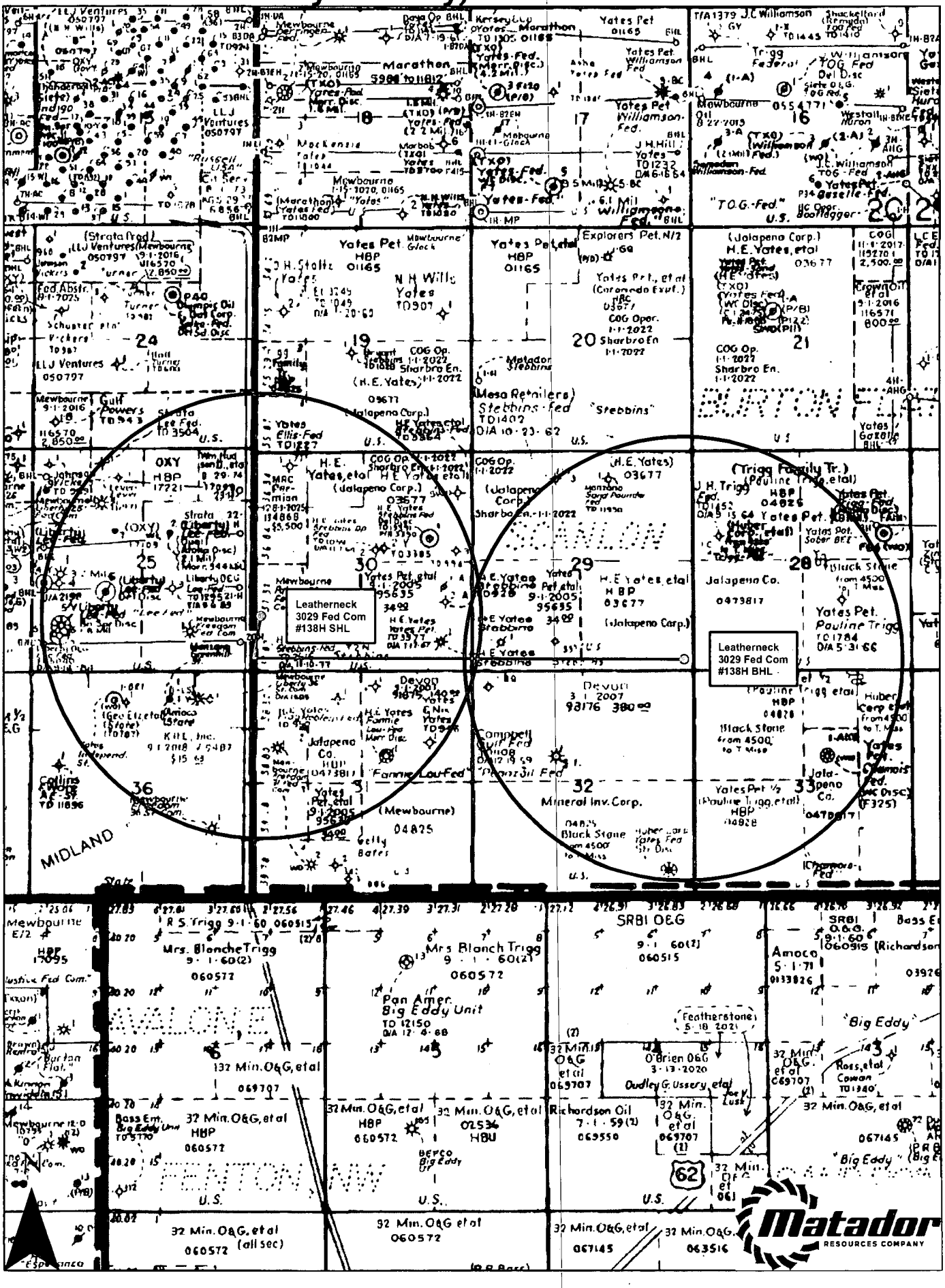
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

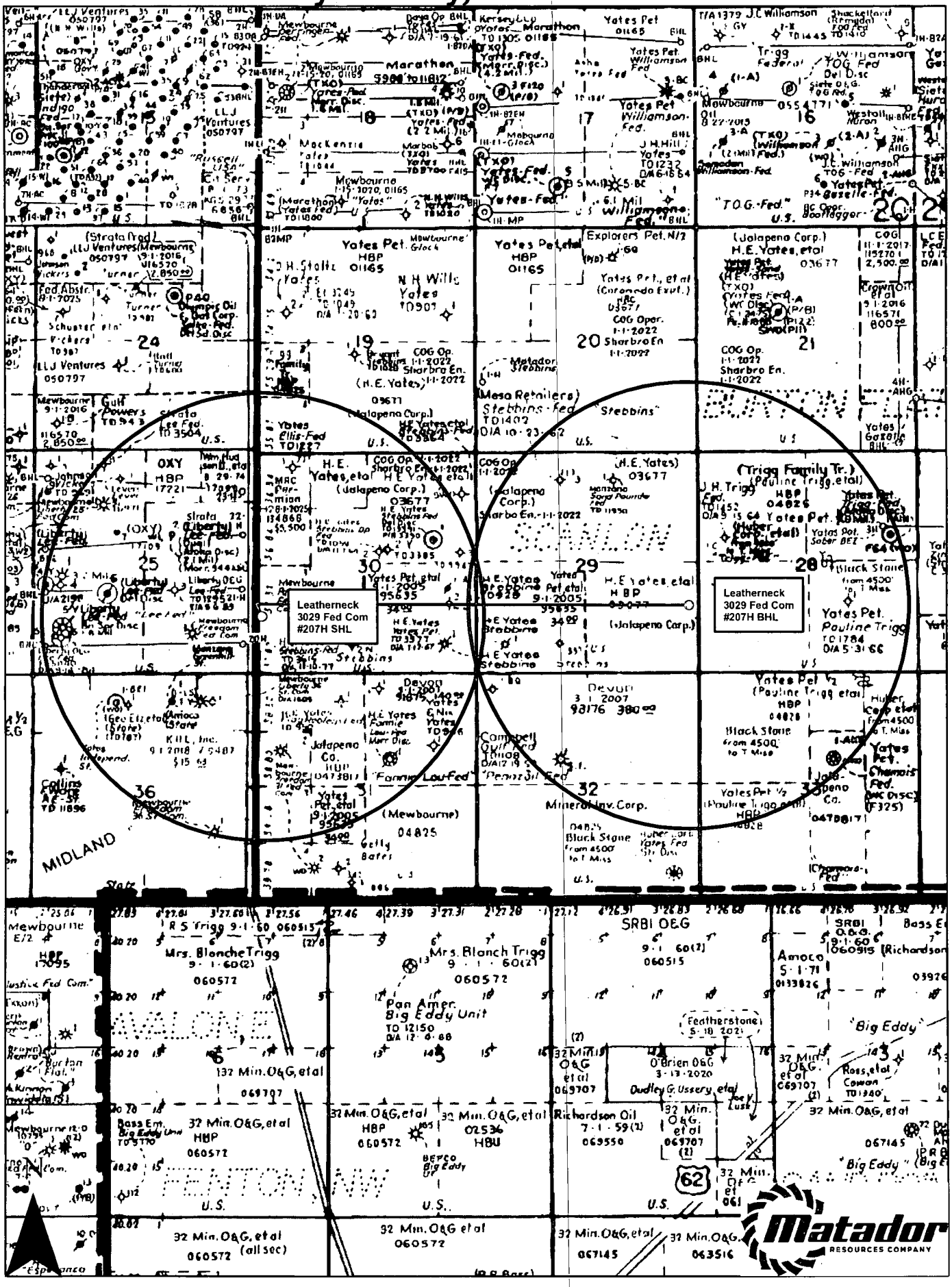
Map 3-9

Eddy County, New Mexico



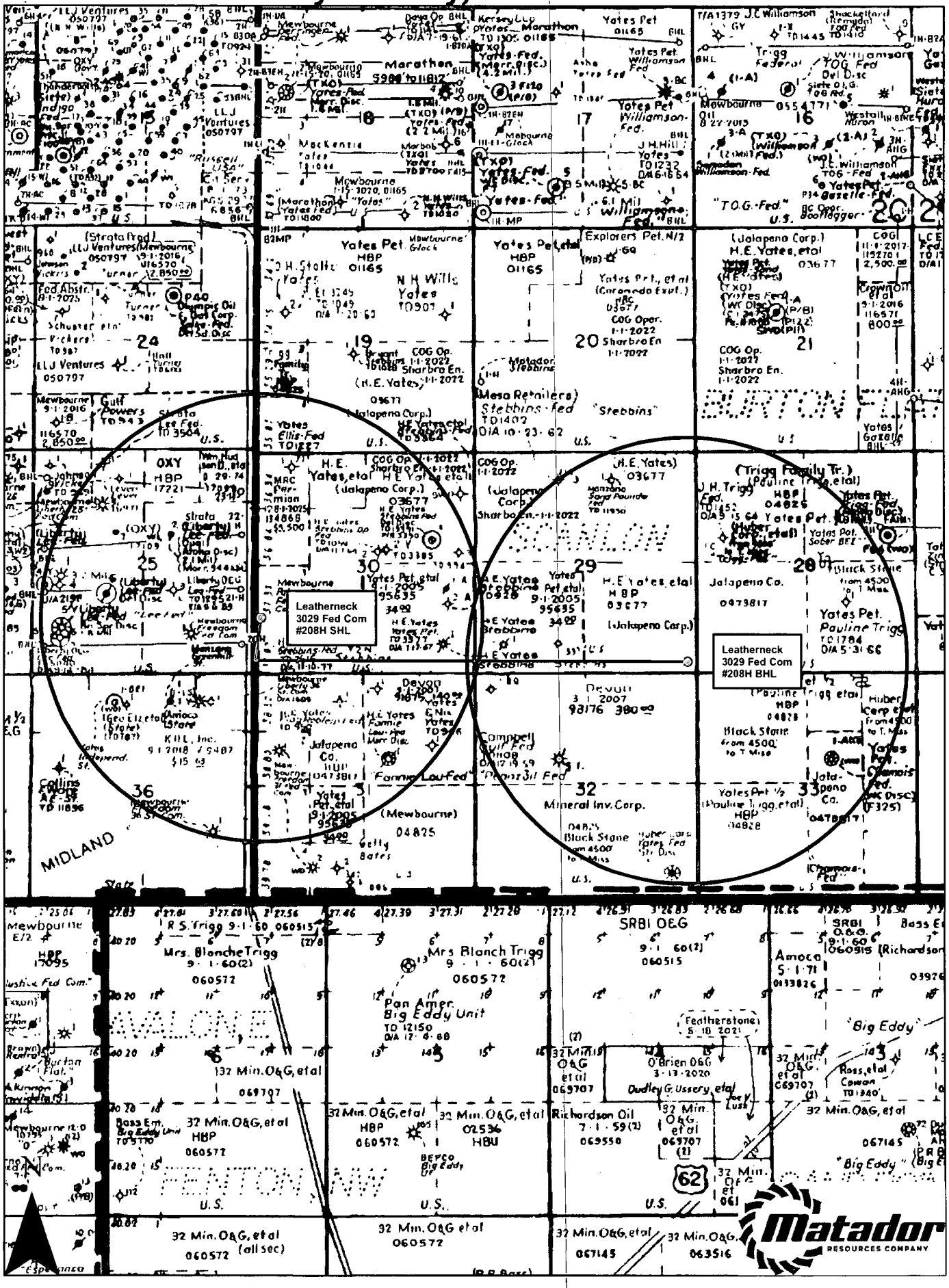
Map 3-10

Eddy County, New Mexico



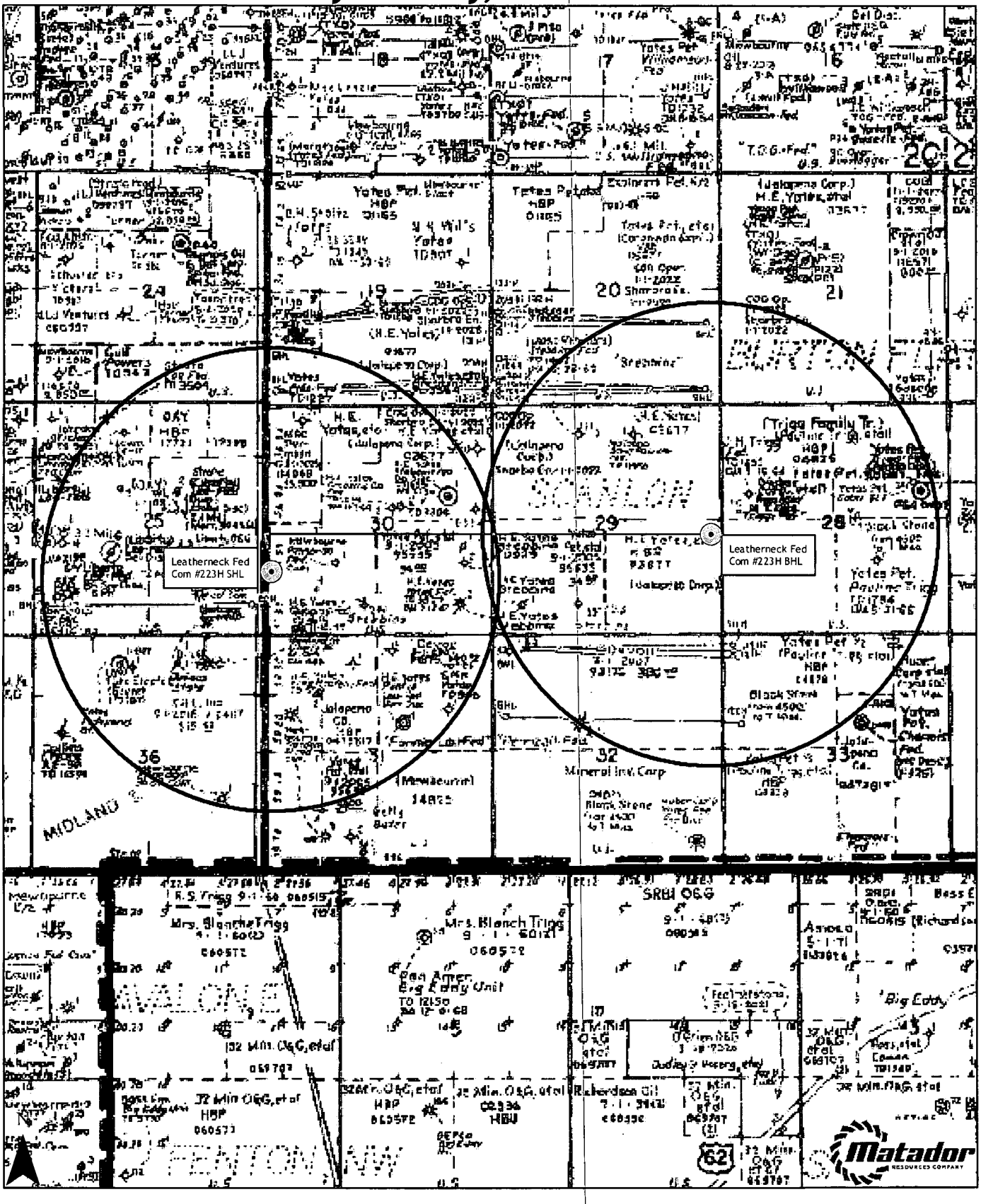
Map 3-11

Eddy County, New Mexico



Map 3-12

Eddy County, New Mexico



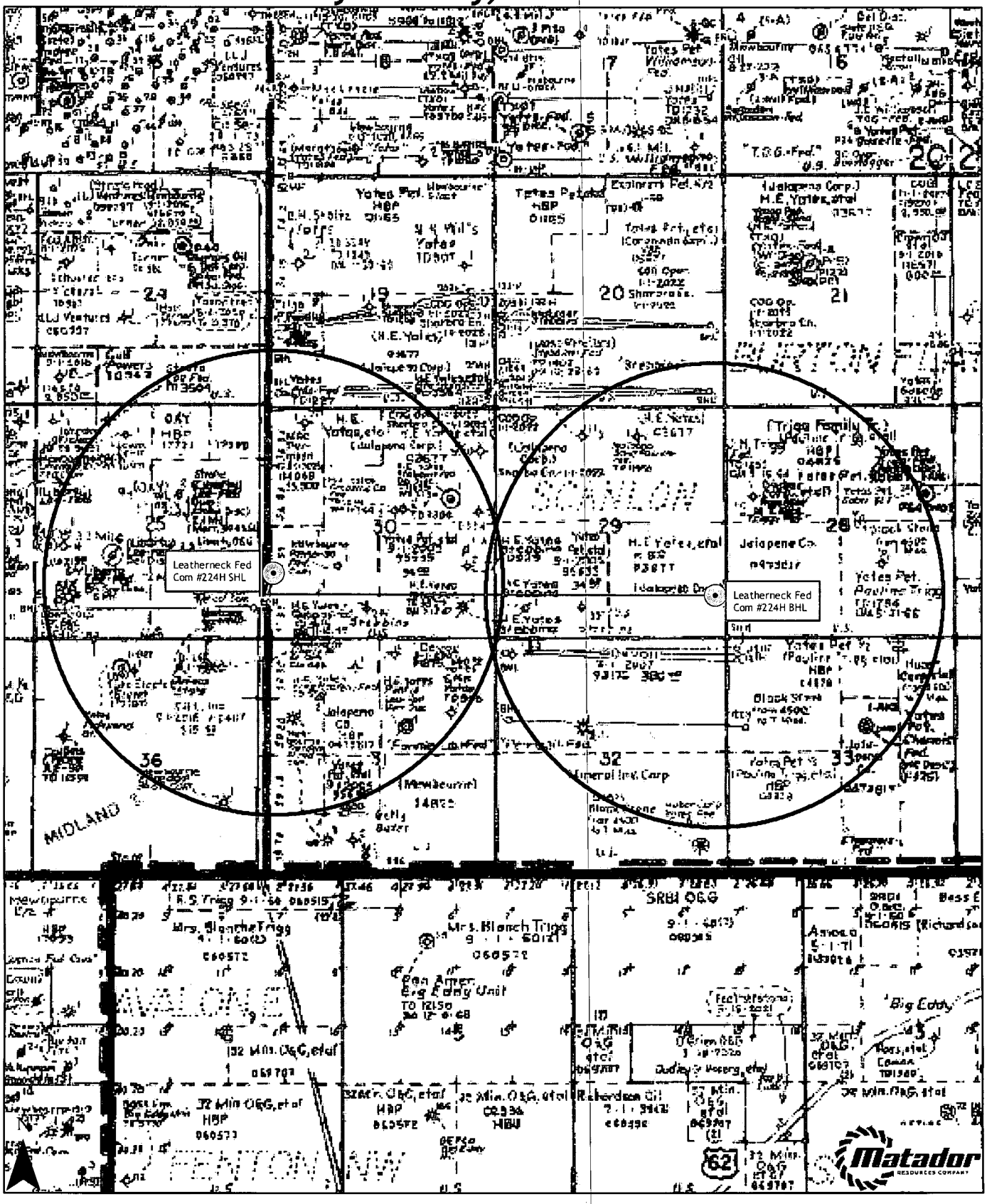
1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute (ESRI);

Map 3-13

Eddy County, New Mexico



1 inch = 3,000 feet

Feet
0 7501,500 3,000

Map Prepared by: agreen
Date: April 18, 2019
filename: OneMileRadius_Plat
Sources: IHS Energy; Midland Map Company; Environmental Systems Research Institute [ESRI];

Map 3-14

Matador Resources
Eddy County, NM (NAD27)
Leatherneck Fed
#127H
Prelim B
Patt 809

RKB Elevation: 3236 + 28.5 = KB @ 3264.50usft (Patt 809)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	560435.00	565331.00	32.540566	-104.121332	

SECTION DETAILS

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	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00
3	1350.00	7.00	315.00	1349.13	15.10	-15.10	2.00	-15.12
4	3350.00	7.00	315.00	3334.22	187.45	-187.45	0.00	-187.68
5	3620.48	2.98	1.75	3603.71	206.15	-198.90	2.00	-199.15
6	5370.11	2.98	1.75	5350.97	297.12	-196.12	0.00	-196.48
7	5519.21	0.00	0.00	5500.00	301.00	-196.00	2.00	-196.37
8	7261.25	0.00	0.00	7242.04	301.00	-196.00	0.00	-196.37
9	8161.25	90.00	82.50	7815.00	375.79	372.06	10.00	371.60
10	8539.68	90.00	90.07	7815.00	400.29	749.42	2.00	748.93
11	17969.27	90.00	90.07	7815.00	389.00	10179.00	0.00	10178.52

Targets

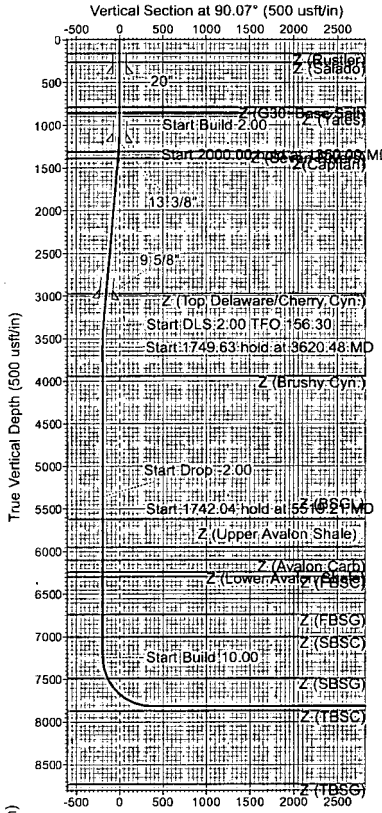
Name	TVD	+N/-S	+E/-W	Northing	Easting
FPP (Leatherneck #127H)	7243.04	401.00	-146.00	560836.00	565185.00
BHL (Leatherneck #127H)	7815.00	389.00	10179.00	560824.00	575510.00
LPP (Leatherneck #127H)	7815.00	389.00	10139.00	560824.00	575470.00

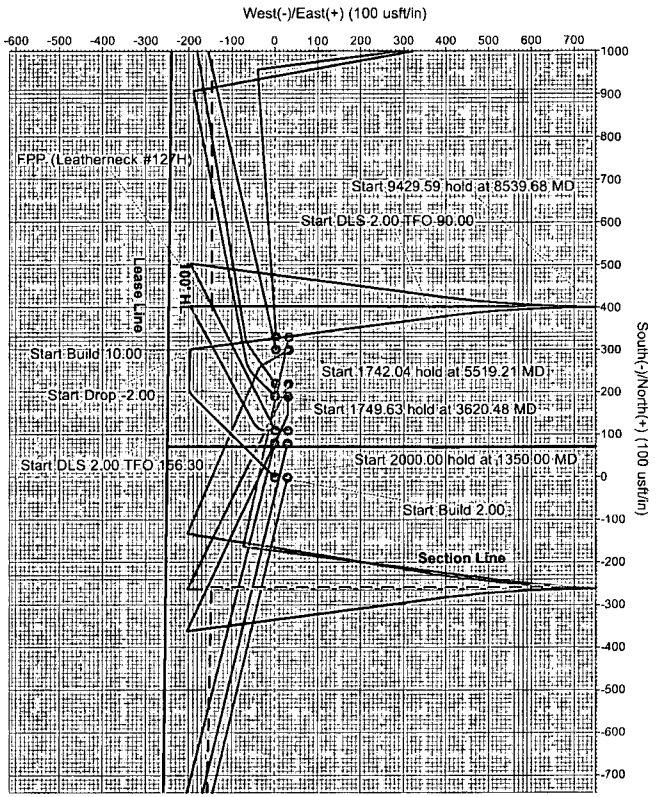
Azimuths to Grid North
True North: -0.11°
Magnetic North: 7.10°

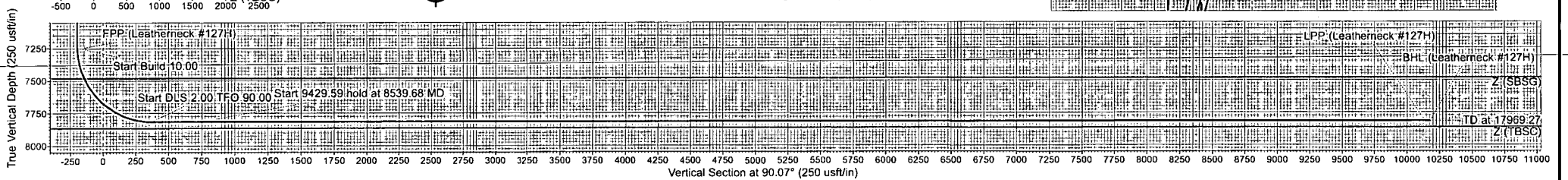
Magnetic Field
Strength: 47990.5snT
Dip Angle: 60.30°
Date: 4/4/2019
Model: HDGM

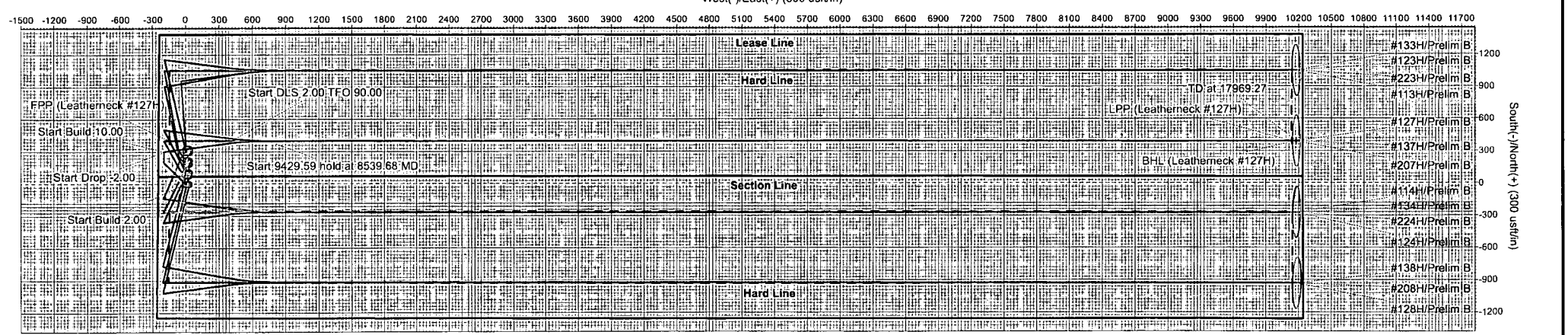
US State Plane 1927 (Exact solution)
NAD 1927 (NADCON CONUS)
Clarke 1866
New Mexico East 3001
Mean Sea Level

Azimuth Corrections
Total Magnetic Corr. (M to G): 7.10°









Matador Resources

Eddy County, NM (NAD27)
Leatherneck Fed
#127H

OH

Plan: Prelim B

Standard Planning Report

03 June, 2019

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

Project	Eddy County, NM (NAD27)		
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:**	560,625.00 usft	**Latitude:**	32.541088
From:	Map	**Easting:**	565,332.00 usft	**Longitude:**	-104.121327
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.11 °

Well	#127H					
Well Position	**+N/-S**	-190.00 usft	**Northing:**	560,435.00 usft	**Latitude:**	32.540566
	+E/-W	-1.00 usft	**Easting:**	565,331.00 usft	**Longitude:**	-104.121332
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,236.00 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	4/4/2019	7.22	60.30	47,990.50

Design	Prelim B				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	90.07	

Plan Survey Tool Program **Date** 5/31/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,969.27	Prelim B (OH)	MWD+HDGM	
				OWSG MWD + HRGM	

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,350.00	7.00	315.00	1,349.13	15.10	-15.10	2.00	2.00	0.00	315.00	
3,350.00	7.00	315.00	3,334.22	187.45	-187.45	0.00	0.00	0.00	0.00	
3,620.48	2.98	1.75	3,603.71	206.15	-198.90	2.00	-1.49	17.28	156.30	
5,370.11	2.98	1.75	5,350.97	297.12	-196.12	0.00	0.00	0.00	0.00	
5,519.21	0.00	0.00	5,500.00	301.00	-196.00	2.00	-2.00	0.00	180.00	
7,261.25	0.00	0.00	7,242.04	301.00	-196.00	0.00	0.00	0.00	0.00	
8,161.25	90.00	82.50	7,815.00	375.79	372.06	10.00	10.00	0.00	82.50	
8,539.68	90.00	90.07	7,815.00	400.29	749.42	2.00	0.00	2.00	90.00	
17,969.27	90.00	90.07	7,815.00	389.00	10,179.00	0.00	0.00	0.00	0.00	BHL (Leatherneck #

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

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
162.50	0.00	0.00	162.50	0.00	0.00	0.00	0.00	0.00	0.00
Z (Rustler)									
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
262.50	0.00	0.00	262.50	0.00	0.00	0.00	0.00	0.00	0.00
Z (Salado)									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
399.00	0.00	0.00	399.00	0.00	0.00	0.00	0.00	0.00	0.00
20"									
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
788.50	0.00	0.00	788.50	0.00	0.00	0.00	0.00	0.00	0.00
Z (G30: Base Salt)									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
862.50	0.00	0.00	862.50	0.00	0.00	0.00	0.00	0.00	0.00
Z (Yates)									
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	2.00	315.00	1,099.98	1.23	-1.23	-1.24	2.00	2.00	0.00
1,199.16	3.98	315.00	1,199.00	4.89	-4.89	-4.90	2.00	2.00	0.00
13 3/8"									
1,200.00	4.00	315.00	1,199.84	4.93	-4.93	-4.94	2.00	2.00	0.00
1,300.00	6.00	315.00	1,299.45	11.10	-11.10	-11.11	2.00	2.00	0.00
1,313.12	6.26	315.00	1,312.50	12.09	-12.09	-12.10	2.00	2.00	0.00
Z (Seven Rivers)									
1,350.00	7.00	315.00	1,349.13	15.10	-15.10	-15.12	2.00	2.00	0.00
1,388.66	7.00	315.00	1,387.50	18.43	-18.43	-18.45	0.00	0.00	0.00
Z(Capitan)									
1,400.00	7.00	315.00	1,398.76	19.41	-19.41	-19.43	0.00	0.00	0.00
1,500.00	7.00	315.00	1,498.01	28.03	-28.03	-28.06	0.00	0.00	0.00
1,600.00	7.00	315.00	1,597.27	36.64	-36.64	-36.69	0.00	0.00	0.00
1,700.00	7.00	315.00	1,696.52	45.26	-45.26	-45.32	0.00	0.00	0.00
1,800.00	7.00	315.00	1,795.78	53.88	-53.88	-53.94	0.00	0.00	0.00
1,900.00	7.00	315.00	1,895.03	62.50	-62.50	-62.57	0.00	0.00	0.00
2,000.00	7.00	315.00	1,994.28	71.11	-71.11	-71.20	0.00	0.00	0.00
2,100.00	7.00	315.00	2,093.54	79.73	-79.73	-79.83	0.00	0.00	0.00
2,200.00	7.00	315.00	2,192.79	88.35	-88.35	-88.46	0.00	0.00	0.00
2,300.00	7.00	315.00	2,292.05	96.97	-96.97	-97.08	0.00	0.00	0.00
2,400.00	7.00	315.00	2,391.30	105.58	-105.58	-105.71	0.00	0.00	0.00
2,500.00	7.00	315.00	2,490.56	114.20	-114.20	-114.34	0.00	0.00	0.00
2,600.00	7.00	315.00	2,589.81	122.82	-122.82	-122.97	0.00	0.00	0.00
2,700.00	7.00	315.00	2,689.07	131.44	-131.44	-131.60	0.00	0.00	0.00
2,800.00	7.00	315.00	2,788.32	140.05	-140.05	-140.22	0.00	0.00	0.00
2,900.00	7.00	315.00	2,887.58	148.67	-148.67	-148.85	0.00	0.00	0.00
2,995.64	7.00	315.00	2,982.50	156.91	-156.91	-157.10	0.00	0.00	0.00
Z (Top Delaware/Cherry Cyn.)									
3,000.00	7.00	315.00	2,986.83	157.29	-157.29	-157.48	0.00	0.00	0.00
3,046.52	7.00	315.00	3,033.00	161.30	-161.30	-161.49	0.00	0.00	0.00
9 5/8"									
3,100.00	7.00	315.00	3,086.09	165.90	-165.90	-166.11	0.00	0.00	0.00

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

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)
3,200.00	7.00	315.00	3,185.34	174.52	-174.52	-174.74	0.00	0.00	0.00
3,300.00	7.00	315.00	3,284.60	183.14	-183.14	-183.36	0.00	0.00	0.00
3,350.00	7.00	315.00	3,334.22	187.45	-187.45	-187.68	0.00	0.00	0.00
3,400.00	6.10	318.79	3,383.90	191.60	-191.35	-191.59	2.00	-1.80	7.57
3,500.00	4.42	330.84	3,483.47	198.96	-196.73	-196.97	2.00	-1.68	12.05
3,600.00	3.14	354.70	3,583.26	205.06	-198.86	-199.11	2.00	-1.28	23.86
3,620.48	2.98	1.75	3,603.71	206.15	-198.90	-199.15	2.00	-0.79	34.43
3,700.00	2.98	1.75	3,683.12	210.28	-198.77	-199.03	0.00	0.00	0.00
3,800.00	2.98	1.75	3,782.99	215.48	-198.61	-198.87	0.00	0.00	0.00
3,900.00	2.98	1.75	3,882.85	220.68	-198.45	-198.72	0.00	0.00	0.00
3,959.73	2.98	1.75	3,942.50	223.79	-198.36	-198.63	0.00	0.00	0.00
Z (Brushy Cyn.)									
4,000.00	2.98	1.75	3,982.72	225.88	-198.29	-198.57	0.00	0.00	0.00
4,100.00	2.98	1.75	4,082.58	231.08	-198.14	-198.42	0.00	0.00	0.00
4,200.00	2.98	1.75	4,182.45	236.28	-197.98	-198.26	0.00	0.00	0.00
4,300.00	2.98	1.75	4,282.31	241.48	-197.82	-198.11	0.00	0.00	0.00
4,400.00	2.98	1.75	4,382.18	246.68	-197.66	-197.96	0.00	0.00	0.00
4,500.00	2.98	1.75	4,482.04	251.88	-197.50	-197.81	0.00	0.00	0.00
4,600.00	2.98	1.75	4,581.91	257.08	-197.34	-197.66	0.00	0.00	0.00
4,700.00	2.98	1.75	4,681.77	262.28	-197.18	-197.50	0.00	0.00	0.00
4,800.00	2.98	1.75	4,781.63	267.48	-197.02	-197.35	0.00	0.00	0.00
4,900.00	2.98	1.75	4,881.50	272.68	-196.86	-197.20	0.00	0.00	0.00
5,000.00	2.98	1.75	4,981.36	277.88	-196.71	-197.05	0.00	0.00	0.00
5,100.00	2.98	1.75	5,081.23	283.08	-196.55	-196.89	0.00	0.00	0.00
5,200.00	2.98	1.75	5,181.09	288.28	-196.39	-196.74	0.00	0.00	0.00
5,300.00	2.98	1.75	5,280.96	293.48	-196.23	-196.59	0.00	0.00	0.00
5,370.11	2.98	1.75	5,350.97	297.12	-196.12	-196.48	0.00	0.00	0.00
5,400.00	2.38	1.75	5,380.83	298.52	-196.08	-196.44	2.00	-2.00	0.00
5,500.00	0.38	1.75	5,480.80	300.94	-196.00	-196.37	2.00	-2.00	0.00
5,519.21	0.00	0.00	5,500.00	301.00	-196.00	-196.37	2.00	-2.00	0.00
5,600.00	0.00	0.00	5,580.80	301.00	-196.00	-196.37	0.00	0.00	0.00
5,641.71	0.00	0.00	5,622.50	301.00	-196.00	-196.37	0.00	0.00	0.00
Z (BSGL)									
5,700.00	0.00	0.00	5,680.80	301.00	-196.00	-196.37	0.00	0.00	0.00
5,800.00	0.00	0.00	5,780.80	301.00	-196.00	-196.37	0.00	0.00	0.00
5,900.00	0.00	0.00	5,880.80	301.00	-196.00	-196.37	0.00	0.00	0.00
5,971.71	0.00	0.00	5,952.50	301.00	-196.00	-196.37	0.00	0.00	0.00
Z (Upper Avalon Shale)									
6,000.00	0.00	0.00	5,980.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,100.00	0.00	0.00	6,080.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,121.71	0.00	0.00	6,102.50	301.00	-196.00	-196.37	0.00	0.00	0.00
Z (Avalon Carb)									
6,200.00	0.00	0.00	6,180.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,261.71	0.00	0.00	6,242.50	301.00	-196.00	-196.37	0.00	0.00	0.00
Z (Lower Avalon Shale)									
6,300.00	0.00	0.00	6,280.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,316.71	0.00	0.00	6,297.50	301.00	-196.00	-196.37	0.00	0.00	0.00
Z (FBSC)									
6,400.00	0.00	0.00	6,380.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,500.00	0.00	0.00	6,480.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,600.00	0.00	0.00	6,580.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,700.00	0.00	0.00	6,680.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,756.71	0.00	0.00	6,737.50	301.00	-196.00	-196.37	0.00	0.00	0.00

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

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)
Z (FBSG)									
6,800.00	0.00	0.00	6,780.80	301.00	-196.00	-196.37	0.00	0.00	0.00
6,900.00	0.00	0.00	6,880.80	301.00	-196.00	-196.37	0.00	0.00	0.00
7,000.00	0.00	0.00	6,980.80	301.00	-196.00	-196.37	0.00	0.00	0.00
7,021.71	0.00	0.00	7,002.50	301.00	-196.00	-196.37	0.00	0.00	0.00
Z (SBSC)									
7,100.00	0.00	0.00	7,080.80	301.00	-196.00	-196.37	0.00	0.00	0.00
7,200.00	0.00	0.00	7,180.80	301.00	-196.00	-196.37	0.00	0.00	0.00
7,261.25	0.00	0.00	7,242.04	301.00	-196.00	-196.37	0.00	0.00	0.00
7,300.00	3.88	82.50	7,280.77	301.17	-194.70	-195.07	10.00	10.00	0.00
7,350.00	8.88	82.50	7,330.44	301.90	-189.20	-189.57	10.00	10.00	0.00
7,400.00	13.88	82.50	7,379.44	303.18	-179.42	-179.79	10.00	10.00	0.00
7,450.00	18.88	82.50	7,427.40	305.02	-165.45	-165.82	10.00	10.00	0.00
7,500.00	23.88	82.50	7,473.95	307.40	-147.39	-147.77	10.00	10.00	0.00
7,509.39	24.81	82.50	7,482.50	307.90	-143.55	-143.93	10.00	10.00	0.00
Z (SBSG)									
7,550.00	28.88	82.50	7,518.73	310.30	-125.37	-125.75	10.00	10.00	0.00
7,600.00	33.88	82.50	7,561.40	313.69	-99.57	-99.96	10.00	10.00	0.00
7,650.00	38.88	82.50	7,601.65	317.56	-70.18	-70.57	10.00	10.00	0.00
7,700.00	43.88	82.50	7,639.15	321.88	-37.43	-37.82	10.00	10.00	0.00
7,750.00	48.88	82.50	7,673.64	326.60	-1.55	-1.95	10.00	10.00	0.00
7,800.00	53.88	82.50	7,704.84	331.70	37.16	36.76	10.00	10.00	0.00
7,850.00	58.88	82.50	7,732.52	337.13	78.43	78.02	10.00	10.00	0.00
7,900.00	63.88	82.50	7,756.46	342.86	121.93	121.51	10.00	10.00	0.00
7,950.00	68.88	82.50	7,776.49	348.83	167.33	166.90	10.00	10.00	0.00
8,000.00	73.88	82.50	7,792.46	355.02	214.29	213.86	10.00	10.00	0.00
8,050.00	78.88	82.50	7,804.23	361.36	262.45	262.01	10.00	10.00	0.00
8,100.00	83.88	82.50	7,811.73	367.81	311.45	311.00	10.00	10.00	0.00
8,150.00	88.88	82.50	7,814.89	374.32	360.91	360.45	10.00	10.00	0.00
8,161.25	90.00	82.50	7,815.00	375.79	372.06	371.60	10.00	10.00	0.00
8,200.00	90.00	83.28	7,815.00	380.58	410.51	410.05	2.00	0.00	2.00
8,300.00	90.00	85.28	7,815.00	390.56	510.01	509.53	2.00	0.00	2.00
8,400.00	90.00	87.28	7,815.00	397.06	609.79	609.31	2.00	0.00	2.00
8,500.00	90.00	89.28	7,815.00	400.07	709.74	709.25	2.00	0.00	2.00
8,539.68	90.00	90.07	7,815.00	400.29	749.42	748.93	2.00	0.00	2.00
8,600.00	90.00	90.07	7,815.00	400.22	809.74	809.25	0.00	0.00	0.00
8,700.00	90.00	90.07	7,815.00	400.10	909.74	909.25	0.00	0.00	0.00
8,800.00	90.00	90.07	7,815.00	399.98	1,009.74	1,009.25	0.00	0.00	0.00
8,900.00	90.00	90.07	7,815.00	399.86	1,109.74	1,109.25	0.00	0.00	0.00
9,000.00	90.00	90.07	7,815.00	399.74	1,209.74	1,209.25	0.00	0.00	0.00
9,100.00	90.00	90.07	7,815.00	399.62	1,309.74	1,309.25	0.00	0.00	0.00
9,200.00	90.00	90.07	7,815.00	399.50	1,409.74	1,409.25	0.00	0.00	0.00
9,300.00	90.00	90.07	7,815.00	399.38	1,509.74	1,509.25	0.00	0.00	0.00
9,400.00	90.00	90.07	7,815.00	399.26	1,609.74	1,609.25	0.00	0.00	0.00
9,500.00	90.00	90.07	7,815.00	399.14	1,709.74	1,709.25	0.00	0.00	0.00
9,600.00	90.00	90.07	7,815.00	399.02	1,809.74	1,809.25	0.00	0.00	0.00
9,700.00	90.00	90.07	7,815.00	398.90	1,909.74	1,909.25	0.00	0.00	0.00
9,800.00	90.00	90.07	7,815.00	398.78	2,009.74	2,009.25	0.00	0.00	0.00
9,900.00	90.00	90.07	7,815.00	398.66	2,109.74	2,109.25	0.00	0.00	0.00
10,000.00	90.00	90.07	7,815.00	398.54	2,209.74	2,209.25	0.00	0.00	0.00
10,100.00	90.00	90.07	7,815.00	398.42	2,309.74	2,309.25	0.00	0.00	0.00
10,200.00	90.00	90.07	7,815.00	398.30	2,409.74	2,409.25	0.00	0.00	0.00
10,300.00	90.00	90.07	7,815.00	398.18	2,509.74	2,509.25	0.00	0.00	0.00

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,400.00	90.00	90.07	7,815.00	398.06	2,609.74	2,609.25	0.00	0.00	0.00
10,500.00	90.00	90.07	7,815.00	397.94	2,709.74	2,709.25	0.00	0.00	0.00
10,600.00	90.00	90.07	7,815.00	397.83	2,809.74	2,809.25	0.00	0.00	0.00
10,700.00	90.00	90.07	7,815.00	397.71	2,909.74	2,909.25	0.00	0.00	0.00
10,800.00	90.00	90.07	7,815.00	397.59	3,009.74	3,009.25	0.00	0.00	0.00
10,900.00	90.00	90.07	7,815.00	397.47	3,109.74	3,109.25	0.00	0.00	0.00
11,000.00	90.00	90.07	7,815.00	397.35	3,209.74	3,209.25	0.00	0.00	0.00
11,100.00	90.00	90.07	7,815.00	397.23	3,309.74	3,309.25	0.00	0.00	0.00
11,200.00	90.00	90.07	7,815.00	397.11	3,409.74	3,409.25	0.00	0.00	0.00
11,300.00	90.00	90.07	7,815.00	396.99	3,509.74	3,509.25	0.00	0.00	0.00
11,400.00	90.00	90.07	7,815.00	396.87	3,609.74	3,609.25	0.00	0.00	0.00
11,500.00	90.00	90.07	7,815.00	396.75	3,709.74	3,709.25	0.00	0.00	0.00
11,600.00	90.00	90.07	7,815.00	396.63	3,809.74	3,809.25	0.00	0.00	0.00
11,700.00	90.00	90.07	7,815.00	396.51	3,909.74	3,909.25	0.00	0.00	0.00
11,800.00	90.00	90.07	7,815.00	396.39	4,009.74	4,009.25	0.00	0.00	0.00
11,900.00	90.00	90.07	7,815.00	396.27	4,109.74	4,109.25	0.00	0.00	0.00
12,000.00	90.00	90.07	7,815.00	396.15	4,209.74	4,209.25	0.00	0.00	0.00
12,100.00	90.00	90.07	7,815.00	396.03	4,309.74	4,309.25	0.00	0.00	0.00
12,200.00	90.00	90.07	7,815.00	395.91	4,409.74	4,409.25	0.00	0.00	0.00
12,300.00	90.00	90.07	7,815.00	395.79	4,509.74	4,509.25	0.00	0.00	0.00
12,400.00	90.00	90.07	7,815.00	395.67	4,609.74	4,609.25	0.00	0.00	0.00
12,500.00	90.00	90.07	7,815.00	395.55	4,709.74	4,709.25	0.00	0.00	0.00
12,600.00	90.00	90.07	7,815.00	395.43	4,809.74	4,809.25	0.00	0.00	0.00
12,700.00	90.00	90.07	7,815.00	395.31	4,909.74	4,909.25	0.00	0.00	0.00
12,800.00	90.00	90.07	7,815.00	395.19	5,009.74	5,009.25	0.00	0.00	0.00
12,900.00	90.00	90.07	7,815.00	395.07	5,109.74	5,109.25	0.00	0.00	0.00
13,000.00	90.00	90.07	7,815.00	394.95	5,209.74	5,209.25	0.00	0.00	0.00
13,100.00	90.00	90.07	7,815.00	394.83	5,309.74	5,309.25	0.00	0.00	0.00
13,200.00	90.00	90.07	7,815.00	394.71	5,409.74	5,409.25	0.00	0.00	0.00
13,300.00	90.00	90.07	7,815.00	394.59	5,509.74	5,509.25	0.00	0.00	0.00
13,400.00	90.00	90.07	7,815.00	394.47	5,609.74	5,609.25	0.00	0.00	0.00
13,500.00	90.00	90.07	7,815.00	394.35	5,709.74	5,709.25	0.00	0.00	0.00
13,600.00	90.00	90.07	7,815.00	394.23	5,809.74	5,809.25	0.00	0.00	0.00
13,700.00	90.00	90.07	7,815.00	394.11	5,909.74	5,909.25	0.00	0.00	0.00
13,800.00	90.00	90.07	7,815.00	393.99	6,009.74	6,009.25	0.00	0.00	0.00
13,900.00	90.00	90.07	7,815.00	393.87	6,109.74	6,109.25	0.00	0.00	0.00
14,000.00	90.00	90.07	7,815.00	393.75	6,209.74	6,209.25	0.00	0.00	0.00
14,100.00	90.00	90.07	7,815.00	393.63	6,309.74	6,309.25	0.00	0.00	0.00
14,200.00	90.00	90.07	7,815.00	393.51	6,409.74	6,409.25	0.00	0.00	0.00
14,300.00	90.00	90.07	7,815.00	393.39	6,509.74	6,509.25	0.00	0.00	0.00
14,400.00	90.00	90.07	7,815.00	393.27	6,609.74	6,609.25	0.00	0.00	0.00
14,500.00	90.00	90.07	7,815.00	393.15	6,709.74	6,709.25	0.00	0.00	0.00
14,600.00	90.00	90.07	7,815.00	393.03	6,809.74	6,809.25	0.00	0.00	0.00
14,700.00	90.00	90.07	7,815.00	392.92	6,909.74	6,909.25	0.00	0.00	0.00
14,800.00	90.00	90.07	7,815.00	392.80	7,009.74	7,009.25	0.00	0.00	0.00
14,900.00	90.00	90.07	7,815.00	392.68	7,109.74	7,109.25	0.00	0.00	0.00
15,000.00	90.00	90.07	7,815.00	392.56	7,209.74	7,209.25	0.00	0.00	0.00
15,100.00	90.00	90.07	7,815.00	392.44	7,309.74	7,309.25	0.00	0.00	0.00
15,200.00	90.00	90.07	7,815.00	392.32	7,409.74	7,409.25	0.00	0.00	0.00
15,300.00	90.00	90.07	7,815.00	392.20	7,509.74	7,509.25	0.00	0.00	0.00
15,400.00	90.00	90.07	7,815.00	392.08	7,609.74	7,609.25	0.00	0.00	0.00
15,500.00	90.00	90.07	7,815.00	391.96	7,709.74	7,709.25	0.00	0.00	0.00
15,600.00	90.00	90.07	7,815.00	391.84	7,809.74	7,809.25	0.00	0.00	0.00
15,700.00	90.00	90.07	7,815.00	391.72	7,909.74	7,909.25	0.00	0.00	0.00

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,800.00	90.00	90.07	7,815.00	391.60	8,009.74	8,009.25	0.00	0.00	0.00
15,900.00	90.00	90.07	7,815.00	391.48	8,109.74	8,109.25	0.00	0.00	0.00
16,000.00	90.00	90.07	7,815.00	391.36	8,209.74	8,209.25	0.00	0.00	0.00
16,100.00	90.00	90.07	7,815.00	391.24	8,309.74	8,309.25	0.00	0.00	0.00
16,200.00	90.00	90.07	7,815.00	391.12	8,409.74	8,409.25	0.00	0.00	0.00
16,300.00	90.00	90.07	7,815.00	391.00	8,509.74	8,509.25	0.00	0.00	0.00
16,400.00	90.00	90.07	7,815.00	390.88	8,609.74	8,609.25	0.00	0.00	0.00
16,500.00	90.00	90.07	7,815.00	390.76	8,709.74	8,709.25	0.00	0.00	0.00
16,600.00	90.00	90.07	7,815.00	390.64	8,809.74	8,809.25	0.00	0.00	0.00
16,700.00	90.00	90.07	7,815.00	390.52	8,909.74	8,909.25	0.00	0.00	0.00
16,800.00	90.00	90.07	7,815.00	390.40	9,009.74	9,009.25	0.00	0.00	0.00
16,900.00	90.00	90.07	7,815.00	390.28	9,109.74	9,109.25	0.00	0.00	0.00
17,000.00	90.00	90.07	7,815.00	390.16	9,209.74	9,209.25	0.00	0.00	0.00
17,100.00	90.00	90.07	7,815.00	390.04	9,309.74	9,309.25	0.00	0.00	0.00
17,200.00	90.00	90.07	7,815.00	389.92	9,409.74	9,409.25	0.00	0.00	0.00
17,300.00	90.00	90.07	7,815.00	389.80	9,509.73	9,509.25	0.00	0.00	0.00
17,400.00	90.00	90.07	7,815.00	389.68	9,609.73	9,609.25	0.00	0.00	0.00
17,500.00	90.00	90.07	7,815.00	389.56	9,709.73	9,709.25	0.00	0.00	0.00
17,600.00	90.00	90.07	7,815.00	389.44	9,809.73	9,809.25	0.00	0.00	0.00
17,700.00	90.00	90.07	7,815.00	389.32	9,909.73	9,909.25	0.00	0.00	0.00
17,800.00	90.00	90.07	7,815.00	389.20	10,009.73	10,009.25	0.00	0.00	0.00
17,900.00	90.00	90.07	7,815.00	389.08	10,109.73	10,109.25	0.00	0.00	0.00
17,969.27	90.00	90.07	7,815.00	389.00	10,179.00	10,178.52	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
FPP (Leatherneck #1:	0.00	0.00	7,243.04	401.00	-146.00	560,836.00	565,185.00	32.541669	-104.121803
- plan misses target center by 111.82usft at 7264.36usft MD (7245.16 TVD, 301.00 N, -195.99 E)									
- Point									
LPP (Leatherneck #1:	0.00	0.00	7,815.00	389.00	10,139.00	560,824.00	575,470.00	32.541575	-104.088428
- plan misses target center by 29.27usft at 17900.00usft MD (7815.00 TVD, 389.08 N, 10109.73 E)									
- Point									
BHL (Leatherneck #1:	0.00	0.00	7,815.00	389.00	10,179.00	560,824.00	575,510.00	32.541575	-104.088298
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
399.00	399.00	20"	20	26
1,199.16	1,199.00	13 3/8"	13-3/8	17-1/2
3,046.52	3,033.00	9 5/8"	9-5/8	12-1/4

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well #127H
Company:	Matador Resources	**TVD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Project:	Eddy County, NM (NAD27)	**MD Reference:**	3236 + 28.5 = KB @ 3264.50usft (Patt 809)
Site:	Leatherneck Fed	**North Reference:**	Grid
Well:	#127H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim B		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
162.50	162.50	Z (Rustler)			
262.50	262.50	Z (Salado)			
788.50	788.50	Z (G30: Base Salt)			
862.50	862.50	Z (Yates)			
1,313.12	1,312.50	Z (Seven Rivers)			
1,388.66	1,387.50	Z(Capitan)			
2,995.64	2,982.50	Z (Top Delaware/Cherry Cyn.)			
3,959.73	3,942.50	Z (Brushy Cyn.)			
5,641.71	5,622.50	Z (BSGL)			
5,971.71	5,952.50	Z (Upper Avalon Shale)			
6,121.71	6,102.50	Z (Avalon Carb)			
6,261.71	6,242.50	Z (Lower Avalon Shale)			
6,316.71	6,297.50	Z (FBSC)			
6,756.71	6,737.50	Z (FBSG)			
7,021.71	7,002.50	Z (SBSC)			
7,509.39	7,482.50	Z (SBSG)			