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JAN 22 2019

DISTRICT II-ARTESIA O.C.D.

Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMLC0061672A

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.
LUSITANO 27-34 FED COM
333H 319562

2. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP 6137

9. API Well No.
30-015-45652

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool or Exploratory
333 West Sheridan Avenue Oklahoma City OK 73102	(800)583-3866	PADUCA / BONE SPRING, WEST, JENNINGS 97860

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

At surface NENW / 235 FNL / 1732 FWL / LAT 32.107905 / LONG -103.7688899

At proposed prod. zone SESW / 20 FSL / 2310 FWL / LAT 32.0794957 / LONG -103.7671482

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 27 / T25S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
	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
235 feet	240	320
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**
1750 feet	11153 feet / 21305 feet	FED: CO1104

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3335 feet	01/01/2019	45 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Linda Good / Ph: (405)552-6558	08/29/2018
Title: Regulatory Compliance Professional		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 01/17/2019
Title: Assistant Field Manager Lands & Minerals	Office: 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: 01/17/2019

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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Additional Operator Remarks

Location of Well

1. SHL: NENW / 235 FNL / 1732 FWL / TWSP: 25S / RANGE: 31E / SECTION: 27 / LAT: 32.107905 / LONG: -103.7688899 (TVD: 0 feet, MD: 0 feet)
   PPP: NENW / 405 FNL / 2310 FWL / TWSP: 25S / RANGE: 31E / SECTION: 27 / LAT: 32.10743 / LONG: -103.767025 (TVD: 11018 feet, MD: 11111 feet)
   BHL: SESW / 20 FSL / 2310 FWL / TWSP: 25S / RANGE: 31E / SECTION: 34 / LAT: 32.0794957 / LONG: -103.7671482 (TVD: 11053 feet, MD: 21305 feet)

BLM Point of Contact

Name: Tenille Ortiz
Title: Legal Instruments Examiner
Phone: 5752342224
Email: tortiz@blm.gov

Approval Date: 01/17/2019

Review and Appeal Rights

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

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMLC0061672A
WELL NAME & NO.:	LUSITANO 27-34 FED COM 333H
SURFACE HOLE FOOTAGE:	235'/N & 1732'/W
BOTTOM HOLE FOOTAGE	20'/S & 2310'/W
LOCATION:	SECTION 27, T25S, R31E, NMPM
COUNTY:	EDDY

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	
Other	☐4 String Area	☐Capitan Reef	☐WIPP

A. Hydrogen Sulfide

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

B. CASING

1. The **13 3/8"** surface casing shall be set at approximately **924'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
   a. **If cement does not circulate to surface,** the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
   b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
   c. If cement falls back, remedial cementing will be done prior to drilling out that string.
   d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

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

2. The minimum required fill of cement behind the **9 5/8"** 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.**

❖ In **Medium/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.

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.**

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

- Cement should tie-back at least **200** feet into previous string. Operator shall provide method of verification. **Excess calculates to only 2% - additional cement may be required.**

❖ In **Medium/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 case of lost circulation, operator has proposed to pump down 13 3/8" X 9 5/8" annulus. Operator must run a CBL from TD of the 9 5/8" casing to surface. Submit results to the BLM.

Alternate Casing Design:

4. The **13 3/8"** surface casing shall be set at approximately **924'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.

   a. **If cement does not circulate to surface,** the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.

   b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.

   c. If cement falls back, remedial cementing will be done prior to drilling out that string.

   d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

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

5. The minimum required fill of cement behind the **8 5/8"** 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.**

❖ In **Medium/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.

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.**

❖ In **Medium/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 case of lost circulation, operator has proposed to pump down 13 3/8" X 8 5/8" annulus. Operator must run a CBL from TD of the 8 5/8'' casing to surface. Submit results to the BLM.

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

   - Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification. **Excess cement calculates to negative 1% - additional cement may be required.**

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:

i. 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.

Option 2:

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5,000 (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.

JJP 1152019

GENERAL REQUIREMENTS

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

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

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

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

   ☒ Lea County
   Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

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

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

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

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

B. PRESSURE CONTROL

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

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

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

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
   a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
   b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
   c. Manufacturer representative shall install the test plug for the initial BOP test.

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

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

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

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

   c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

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

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

   f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.

   g. BOP/BOPE must be tested by an independent service company within 500 feet of

the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

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

1. 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.

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMNM016348
WELL NAME & NO.:	LUSITANO 27-34 FED COM 333H
SURFACE HOLE FOOTAGE:	235'/N & 1732'/W
BOTTOM HOLE FOOTAGE	20'/S & 2310'/W
LOCATION:	SECTION 27, T25S, R31E, NMPM
COUNTY:	EDDY

TABLE OF CONTENTS

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

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)

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

Below ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at below ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

Temporary Fence Crossing Requirement
Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces 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 fences.

Cattle Guard Requirement
Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access 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. Once the road is abandoned, the fence would 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 fences.

Livestock Watering Requirement
The operator must contact the allotment holder prior to construction to identify the location of the water pipelines. The operator must take measures to protect the pipelines from compression or other damages. If the water pipelines are damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the water pipelines immediately. 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.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent 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 grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

As stated above, the applicant through the CCA program contributes funds that are used for habitat restoration projects identified by USFWS and BLM. Although the CCA program may not fully mitigate for impacts to habitat at the project site, it complies with the BLM mitigation rule.

In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

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 power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

The presence of short-eared owls is a surprising and scientifically interesting incident. The preparation and construction of CDU 34-34 pad and CTB #1 and CDU 27-27 pad and CTB #1 should be delayed until after September to allow confirmation and documentation of the nesting status.

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:

- In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
- No Blasting to prevent geologic structure instabilities.
- Pad Berming to minimize effects of any spilled contaminates.

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 Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost Circulation zones 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 terrain, the following Conditions of Approval will apply to this APD:

- Tank battery liners and berms to minimize the impact resulting from leaks.
- 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 line failures used in production or drilling.

Residual and Cumulative Mitigation

- Annual pressure monitoring will be performed by the operator. If the test results indicate a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Abandonment Cementing: 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.

- The entire well pads and CTB pads will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad and CTB pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pads shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and CTB and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pads and CTB pads during the life of the wells and CTB's will be corrected within two weeks and proper measures will be taken to prevent future erosion.

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.

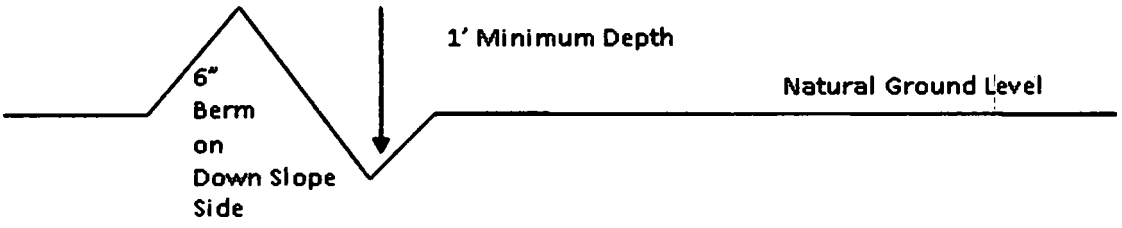
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

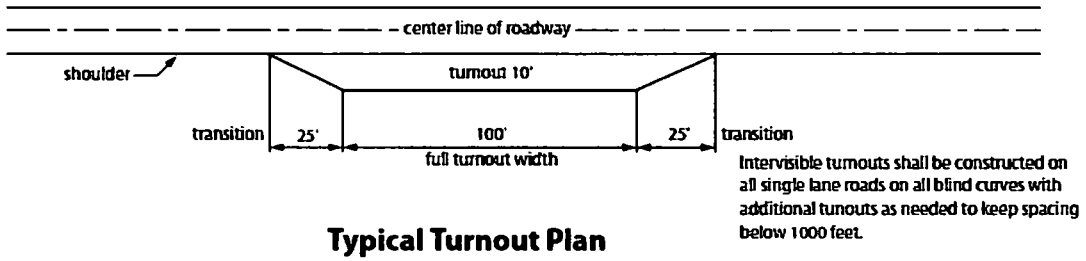
Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

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

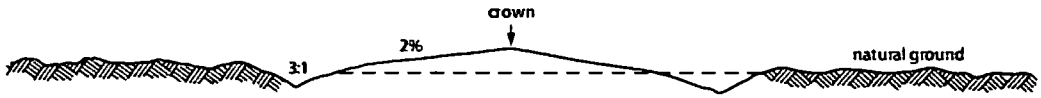
Construction Steps

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

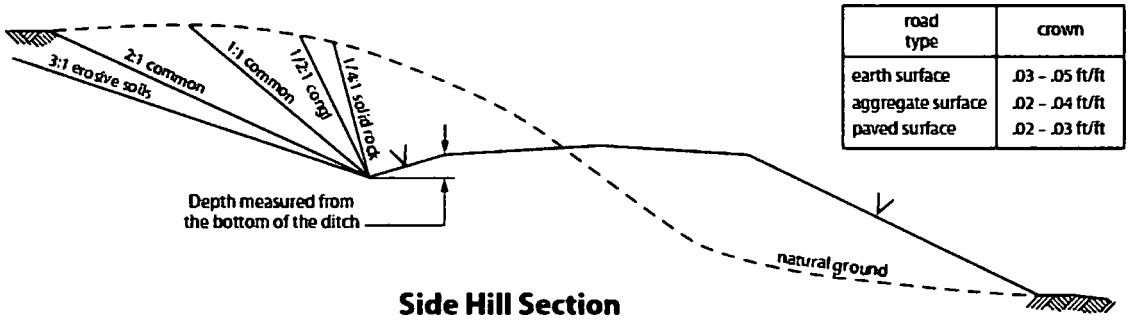


Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.

Typical Turnout Plan

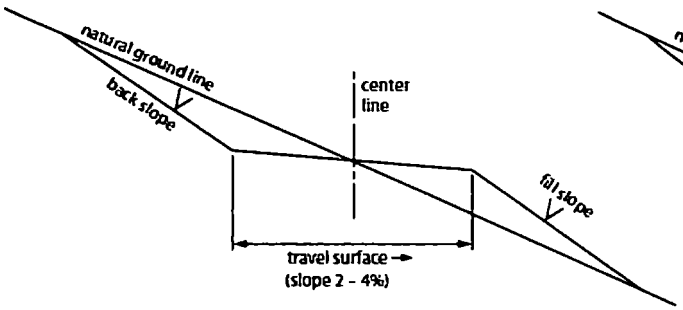


Level Ground Section

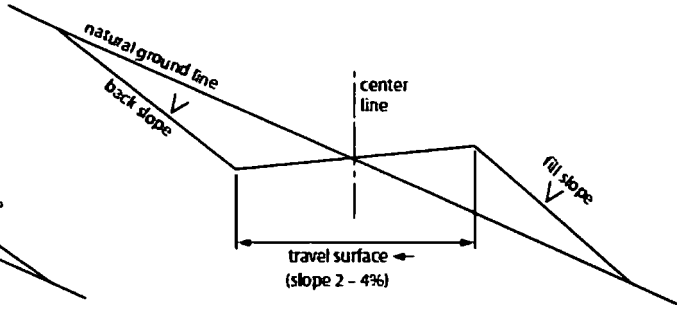


road type	crown
earth surface	.03 - .05 ft/ft
aggregate surface	.02 - .04 ft/ft
paved surface	.02 - .03 ft/ft

Side Hill Section



Typical Outsloped Section



Typical Inslope Section

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).

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, 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. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting

Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up 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 holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. 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 of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

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

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

13. 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 color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (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.

17. 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 associated roads, 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.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

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.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be

allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

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).

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

Seed Mixture for LPC Sand/Shinnery 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 will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

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

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

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

*Pounds of pure live seed:

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

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: Linda Good **Signed on:** 08/29/2018

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City **State:** OK **Zip:** 73102

Phone: (405)552-6558

Email address: Linda.Good@dvn.com

Field Representative

Representative Name: Ray Vaz

Street Address: 6488 Seven Rivers Hwy

City: Artesia **State:** NM **Zip:** 88210

Phone: (575)748-1871

Email address: ray.vaz@dvn.com

APD ID: 10400033592 **Submission Date:** 08/29/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400033592 **Tie to previous NOS?** **Submission Date:** 08/29/2018

BLM Office: CARLSBAD **User:** Linda Good **Title:** Regulatory Compliance Professional

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMLC0061672A **Lease Acres:** 240

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue **Zip:** 73102

Operator PO Box:

Operator City: Oklahoma City **State:** OK

Operator Phone: (800)583-3866

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? EXISTING **Mater Development Plan name:** Cotton Draw 1 MDP

Well in Master SUPO? NO **Master SUPO name:**

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

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H **Well API Number:**

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

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** LUSITANO 27 WELLPAD **Number:** 3

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: **Distance to nearest well:** 1750 FT **Distance to lease line:** 235 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: Lusitano_27_34_Fed_Com_333H_C_102_signed_20180829052344.pdf

Lusitano_27_34_Fed_Com_333H_Additional_points_required_20180829062751.pdf

Well work start Date: 01/01/2019 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

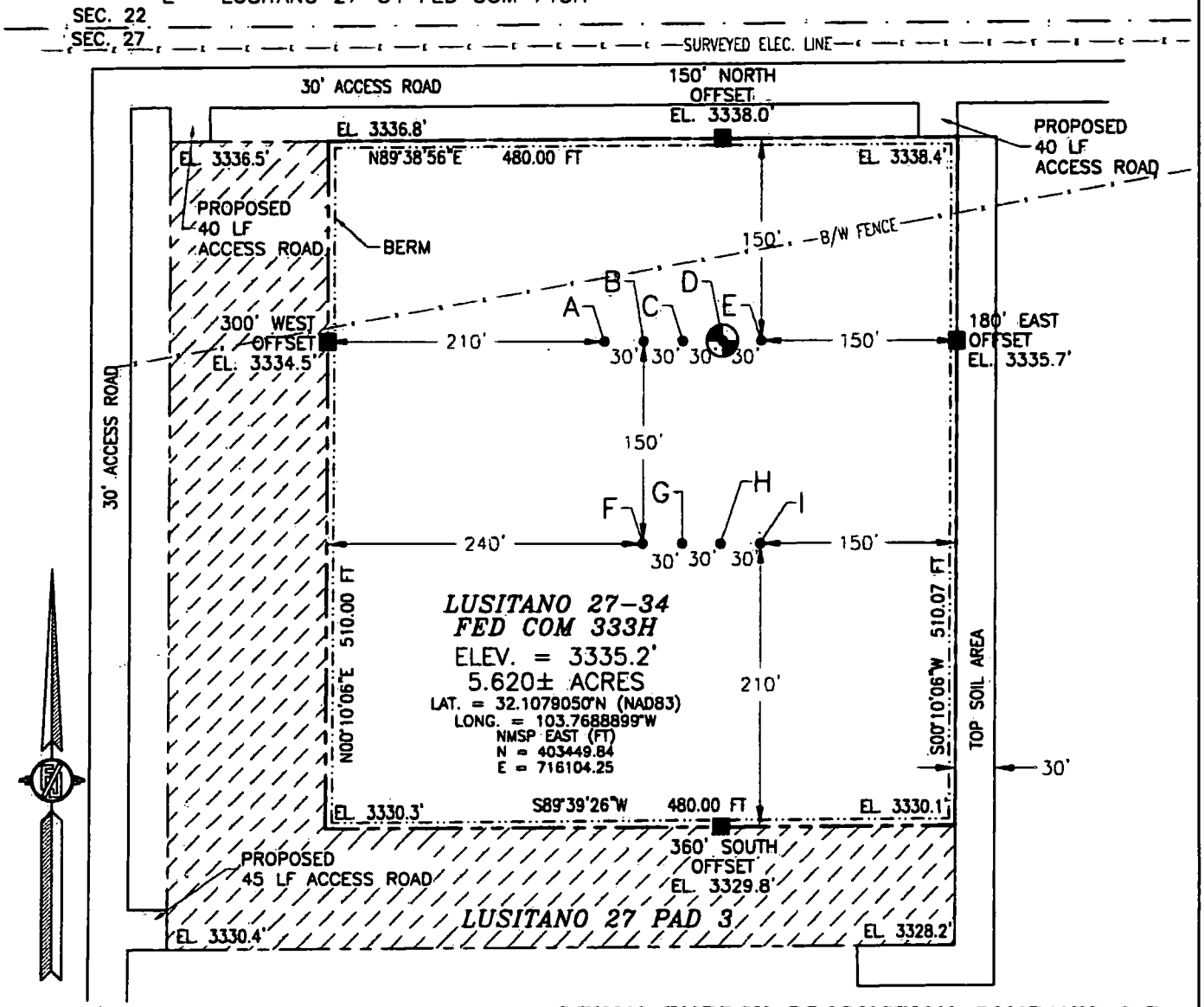
Survey number: 6428

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	235	FNL	1732	FWL	25S	31E	27	Aliquot NENW	32.107905	-103.7688899	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 125635	3335	0	0
KOP Leg #1	200	FNL	2310	FWL	25S	31E	27	Aliquot NENW	32.107993	-103.767023	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 125635	-7245	10611	10580
PPP Leg #1	405	FNL	2310	FWL	25S	31E	27	Aliquot NENW	32.10743	-103.767025	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 125635	-7683	11111	11018

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83) LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.

A – LUSITANO 27-22 FED COM 232H
B – LUSITANO 27-34 FED COM 733H
C – LUSITANO 27-34 FED COM 622H
D – LUSITANO 27-34 FED COM 333H
E – LUSITANO 27-34 FED COM 713H
F – LUSITANO 27-34 FED COM 233H
G – LUSITANO 27-34 FED COM 533H
H – LUSITANO 27-34 FED COM 523H
I – LUSITANO 27-34 FED COM 534H



012 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.0 MILE TO BEGIN ROAD SURVEY, GO WEST 3437' (0.65 MILE), THEN SOUTH 40' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 333H

LOCATED 235 FT. FROM THE NORTH LINE AND 1732 FT. FROM THE WEST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

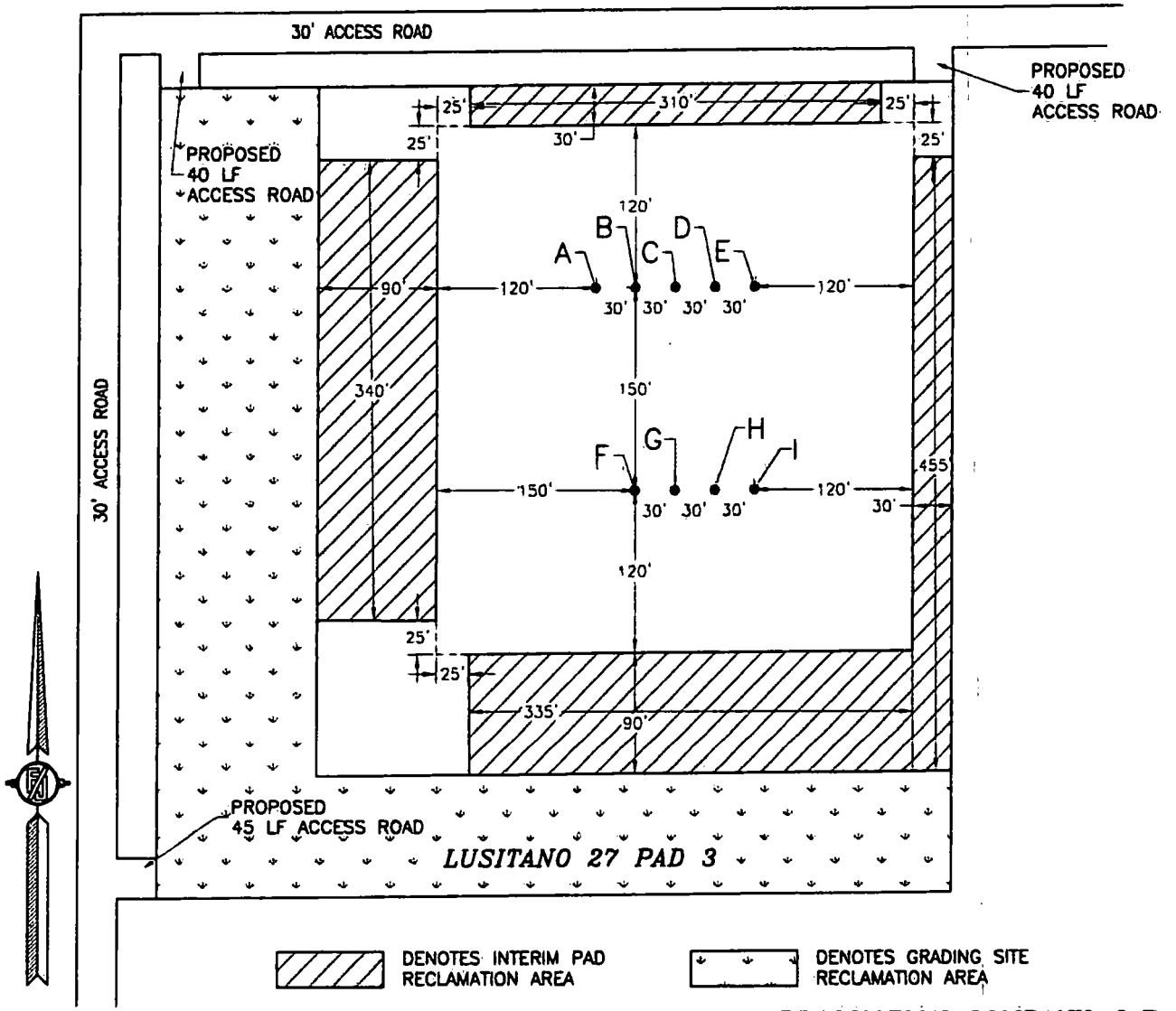
AUGUST 1, 2018
SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN

A – LUSITANO 27–22 FED COM 232H
B – LUSITANO 27–34 FED COM 733H
C – LUSITANO 27–34 FED COM 622H
D – LUSITANO 27–34 FED COM 333H
E – LUSITANO 27–34 FED COM 713H
F – LUSITANO 27–34 FED COM 233H
G – LUSITANO 27–34 FED COM 533H
H – LUSITANO 27–34 FED COM 523H
I – LUSITANO 27–34 FED COM 534H

SEC. 22
SEC. 27



1.921± ACRES INTERIM PAD RECLAMATION AREA
2.646± ACRES GRADING SITE RECLAMATION AREA
3.699± ACRES NON–RECLAIMED AREA
8.266± ACRES LUSITANO 27 PAD 3

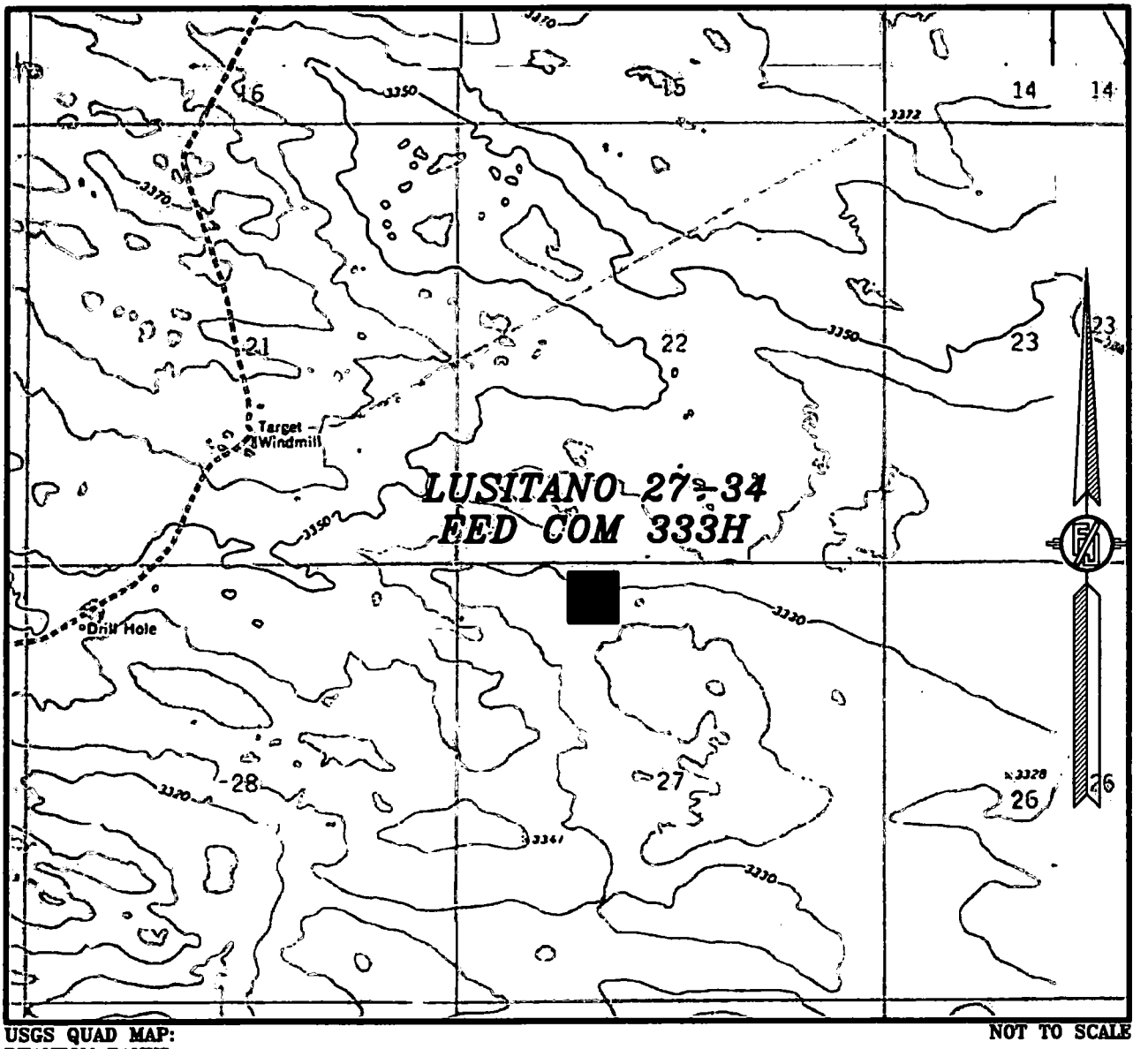
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27–34 FED COM 333H
LOCATED 235 FT. FROM THE NORTH LINE AND 1732 FT. FROM THE WEST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018
SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
PHANTOM BANKS

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 333H
LOCATED 235 FT. FROM THE NORTH LINE
AND 1732 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

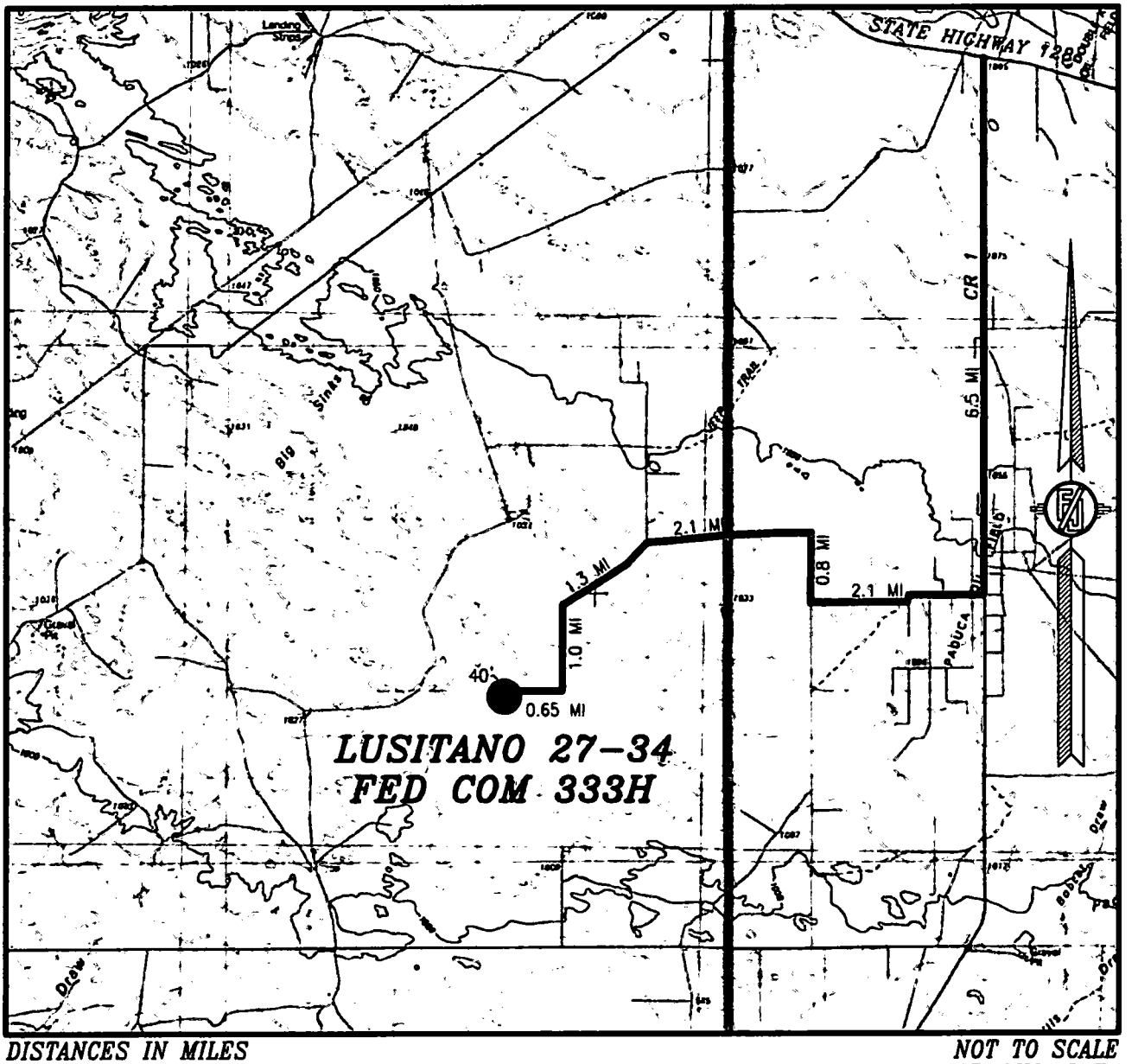
AUGUST 1, 2018

SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 333H

LOCATED 235 FT. FROM THE NORTH LINE
AND 1732 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018

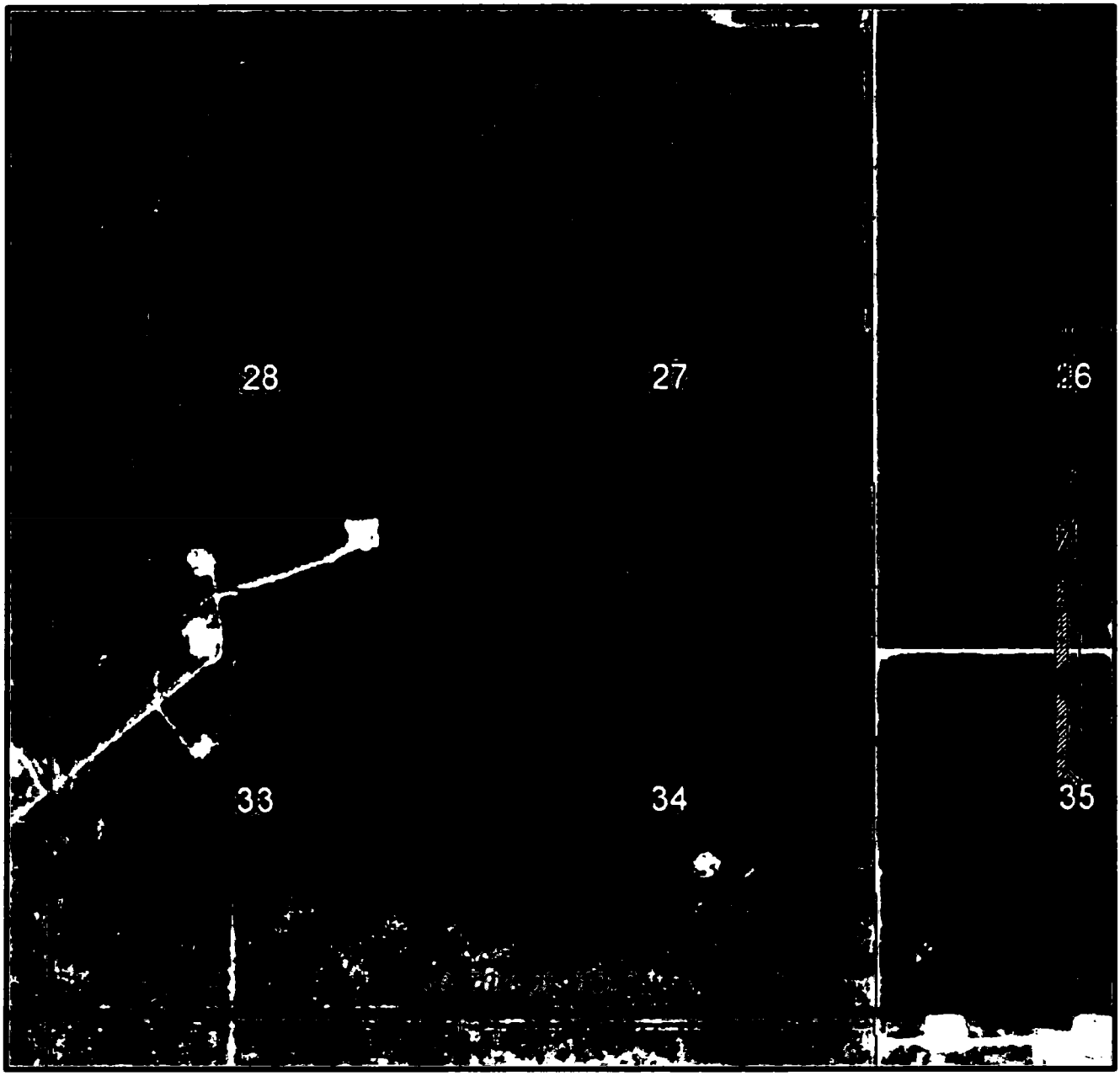
DIRECTIONS TO LOCATION
FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.0 MILE TO BEGIN ROAD SURVEY, GO WEST 3437' (0.65 MILE), THEN SOUTH 40' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 333H

LOCATED 235 FT. FROM THE NORTH LINE
AND 1732 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

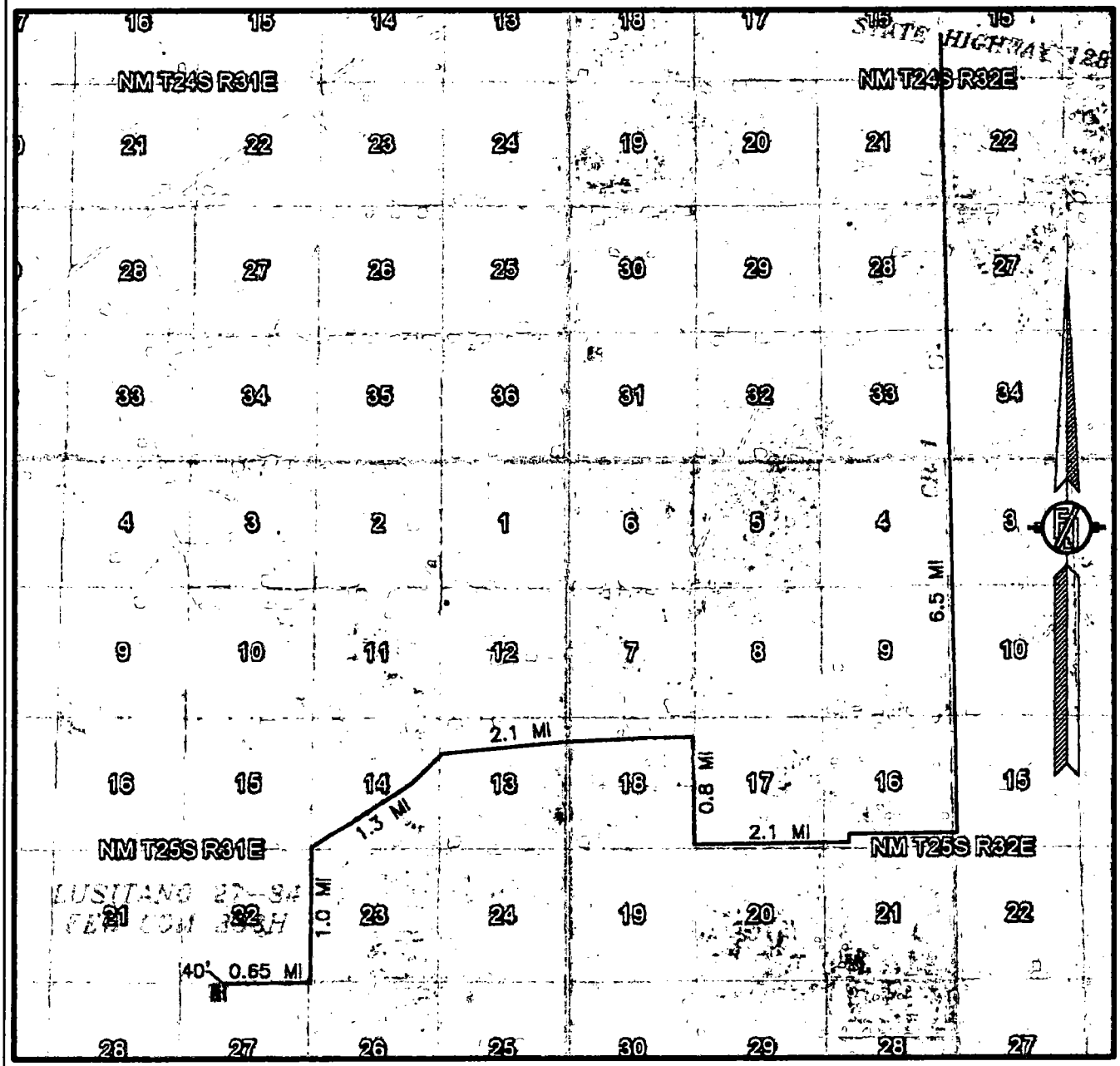
AUGUST 1, 2018

SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 333H

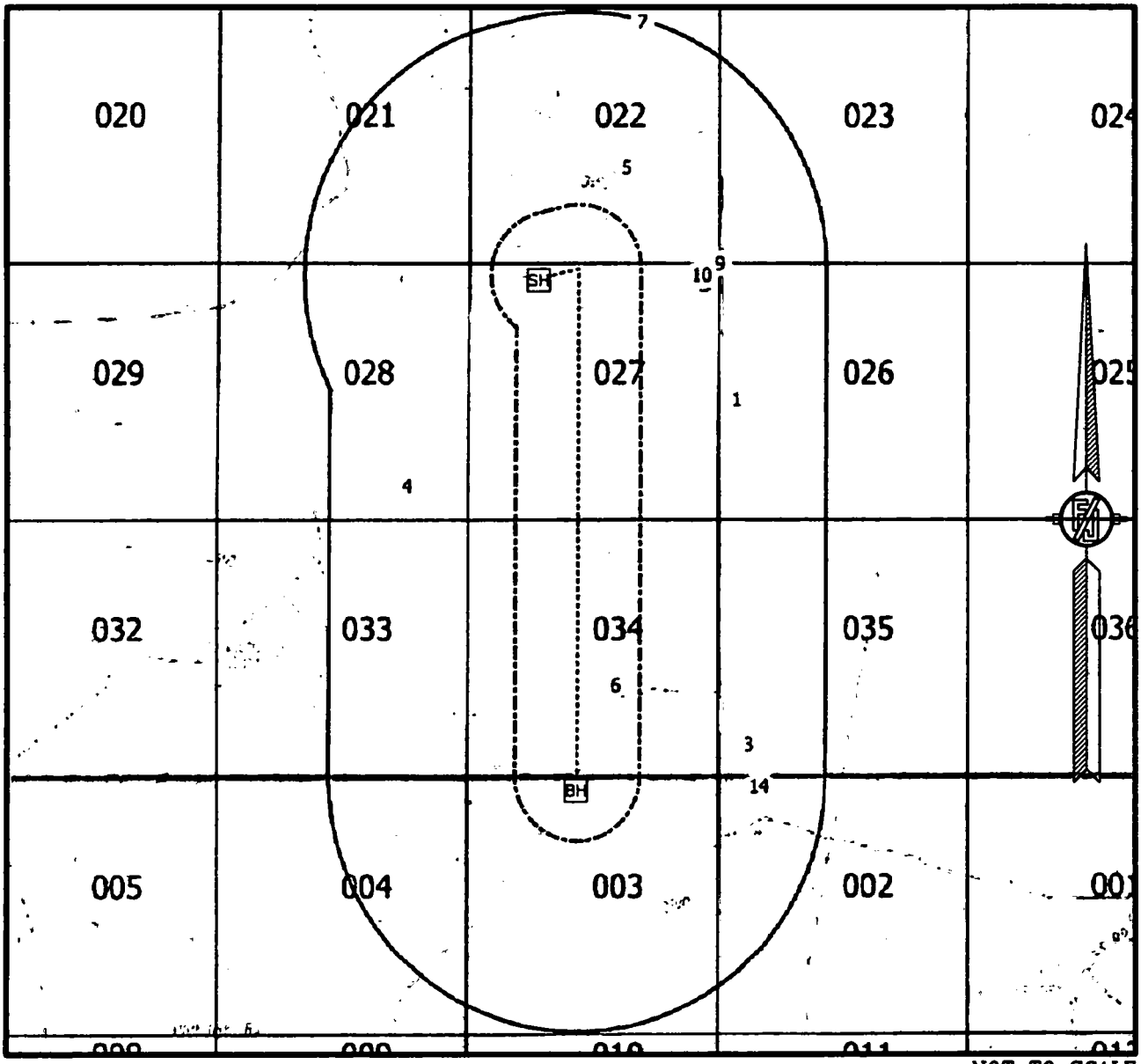
LOCATED 235 FT. FROM THE NORTH LINE
AND 1732 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018

SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

1-MILE MAP



NOT TO SCALE

WELL DATA FROM NMOCD GIS – 8/1/18

SH SURFACE LOCATION

BH BOTTOM OF HOLE

XX WELLS WITHIN 1 MILE

WELL PATH

1/4 MILE BOUNDARY

1-MILE BOUNDARY

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 333H

LOCATED 235 FT. FROM THE NORTH LINE AND 1732 FT. FROM THE WEST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

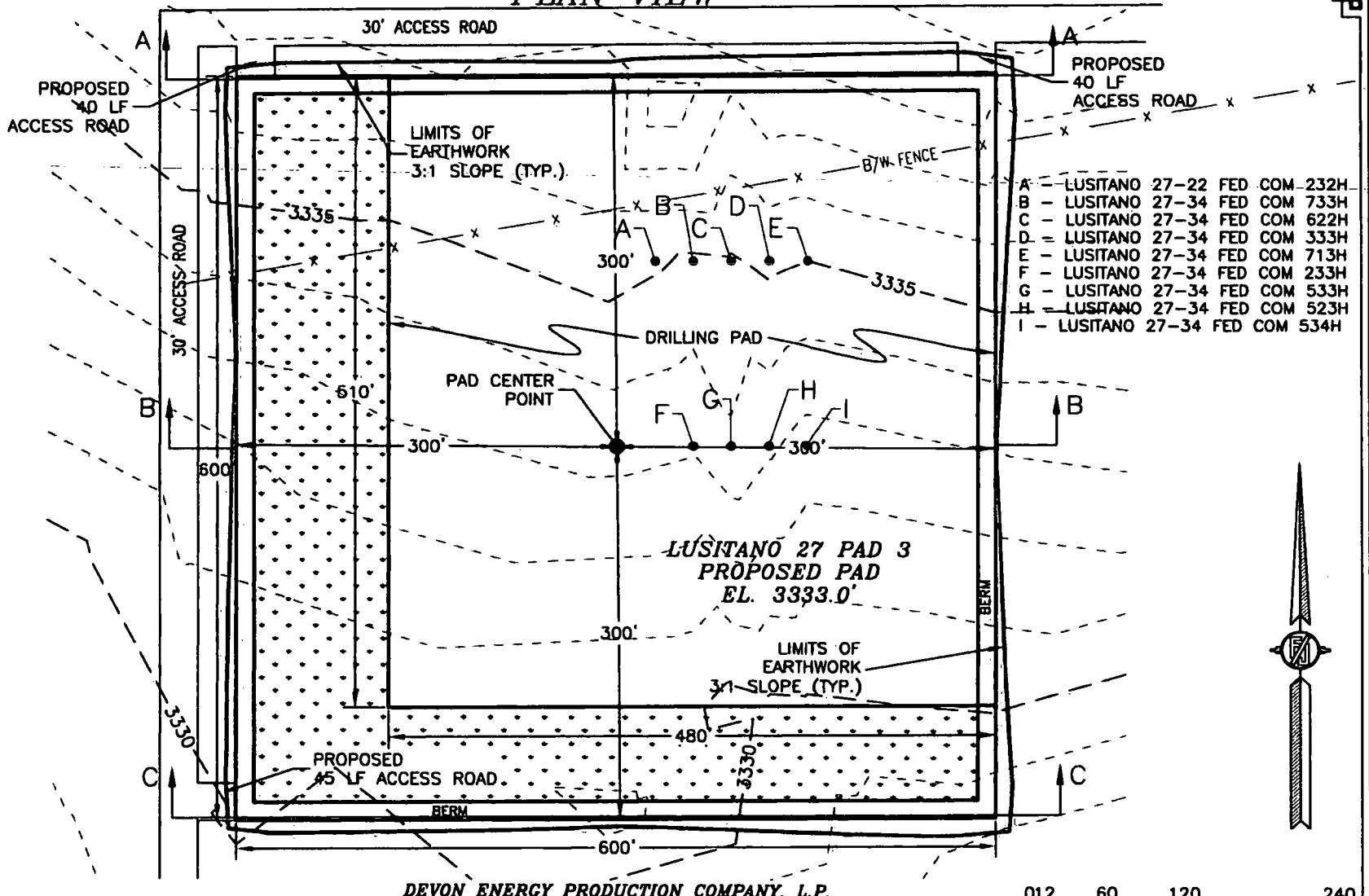
LAND STATUS: BLM

AUGUST 1, 2018

SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

PLAN VIEW



012 60 120 240

SCALE 1" = 120'

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27-34 FED COM 333H
SECTION 27, TOWNSHIP 26 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

AUGUST 1, 2018

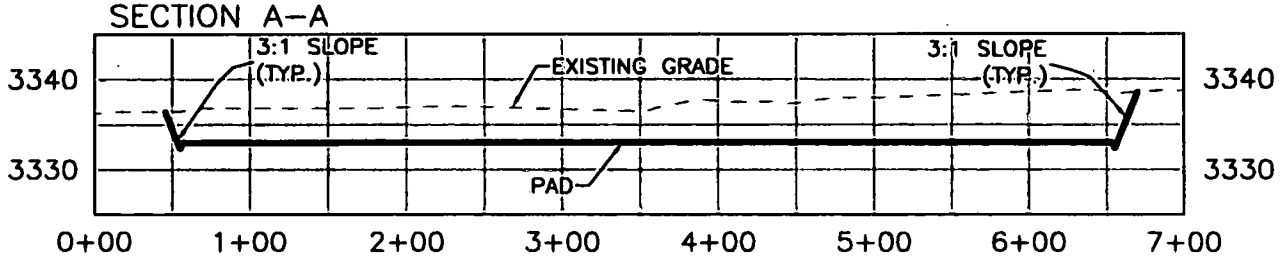
CUT	FILL	NET
14475 CU. YD	14269 CU. YD	207 CU. YD (CUT)

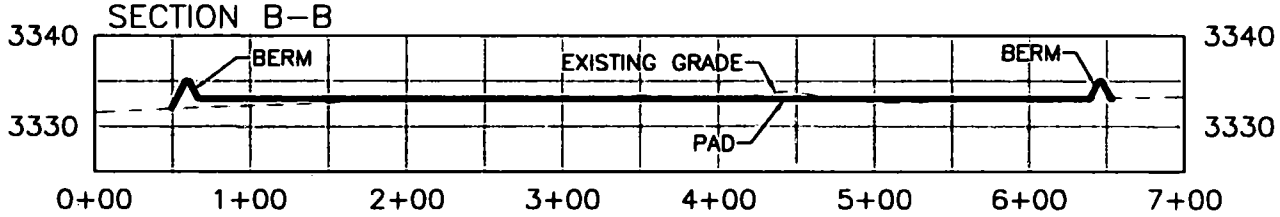
EARTHWORK QUANTITIES ARE ESTIMATED

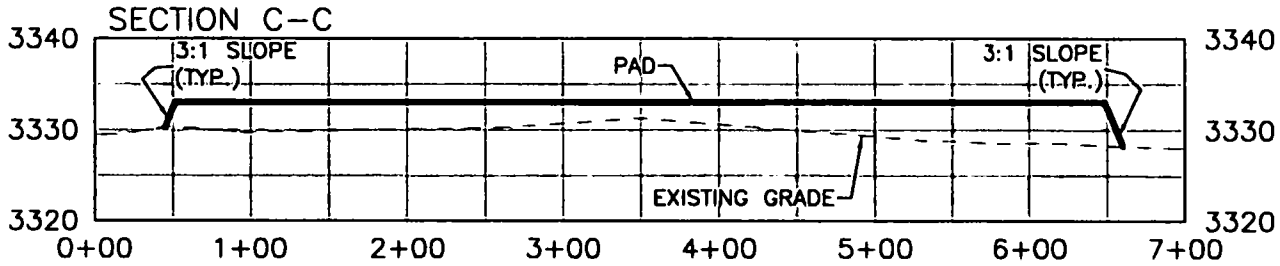
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SHEET 1-2
SURVEY NO. 6428

CROSS SECTIONS







DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27–34 FED COM 333H
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

AUGUST 1, 2018

012 60 120 240
SCALE 1" = 120' – 1" = 20' VER

CUT	FILL	NET
14475 CU. YD	14269 CU. YD	207 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

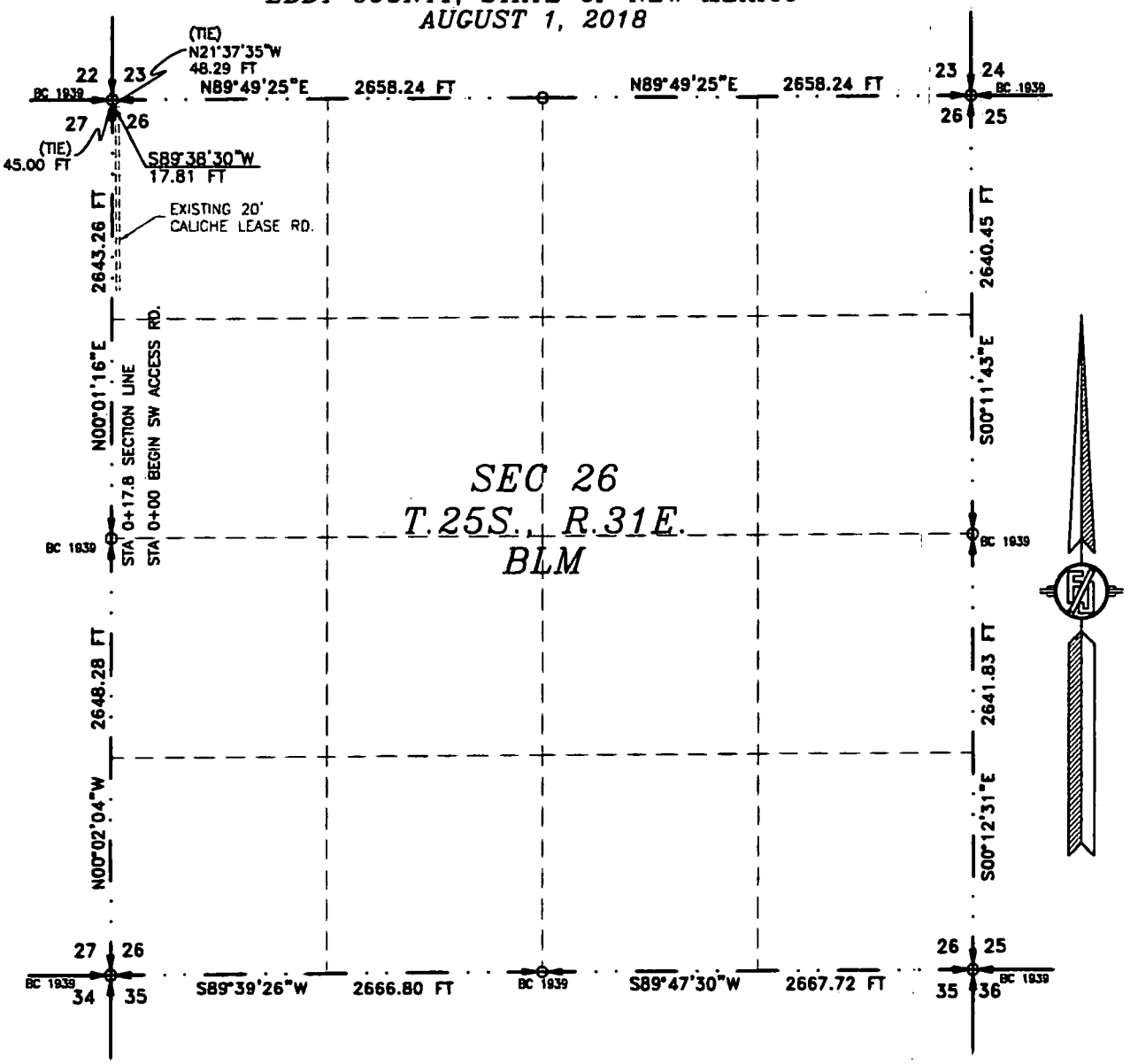
SHEET 2–2
SURVEY NO. 6428

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000

Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 31ST DAY OF AUGUST 2018.

FILIMON F. JARAMILLO, PLS, 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 6428

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

SOUTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N21°37'35"W, A DISTANCE OF 48.29 FEET;
THENCE S89°38'30"W A DISTANCE OF 17.81 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

SAID STRIP OF LAND BEING 17.81 FEET OR 1.08 RODS IN LENGTH, CONTAINING 0.012 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4	17.81 L.F.	1.08 RODS	0.012 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY ~~THAT I HAVE~~ CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 22nd DAY OF AUGUST 2018.

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

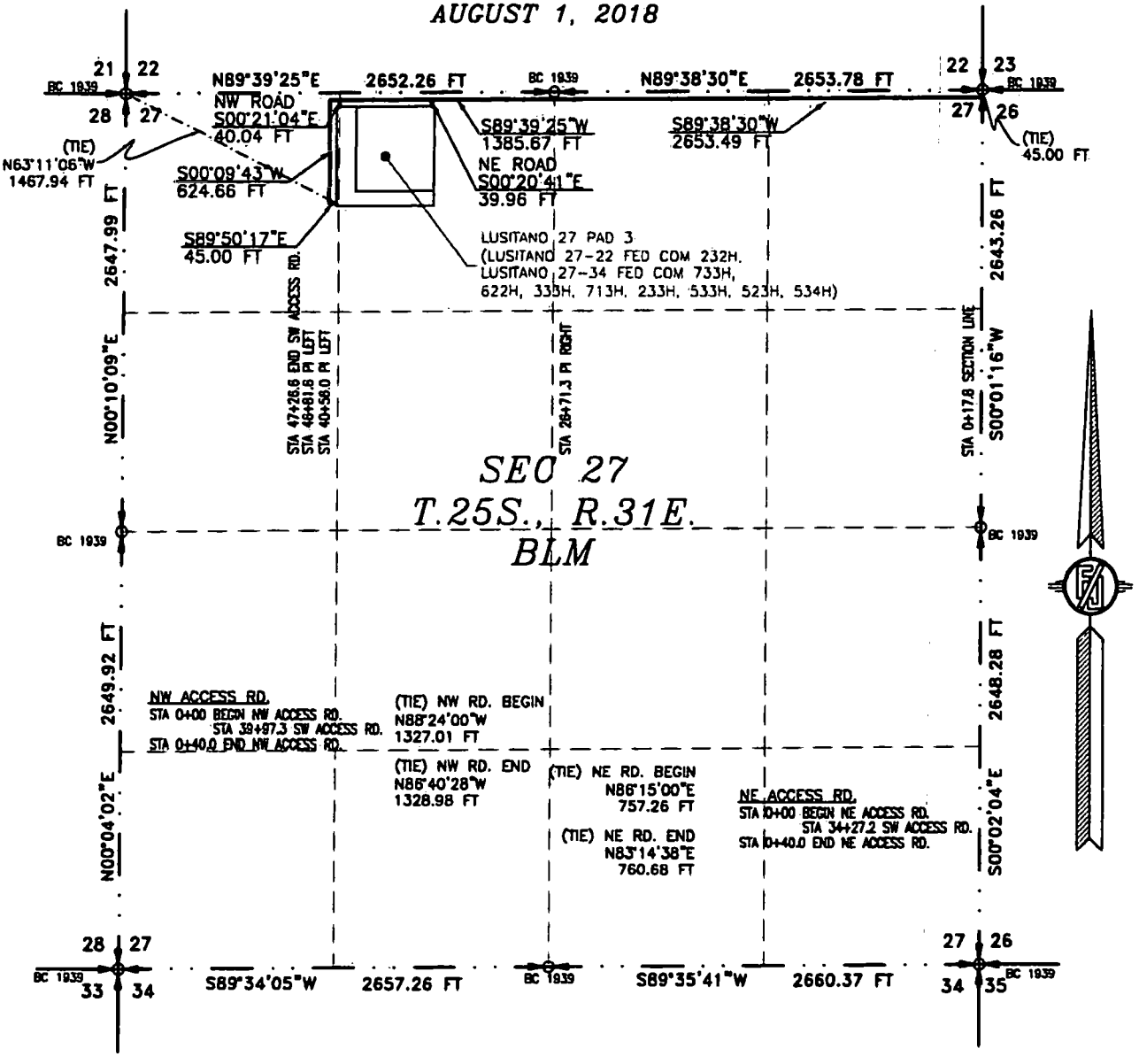
FILIMON F. JARAMILLO, P.S. 12797

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018



SEE NEXT SHEET (4-4) FOR DESCRIPTION

1000 0 1000

Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

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SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 3 DAY OF AUGUST 2018

FILIMON F. JARAMILLO, PLS 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 3-4

SURVEY NO. 6428

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

APD ID: 10400033592 **Submission Date:** 08/29/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

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
1	UNKNOWN	3338	0	0	ALLUVIUM	NONE	No
2	RUSTLER	2498	840	840	SALT	NONE	No
3	BASE OF SALT	-872	4210	4210	SALT	NONE	No
4	DELAWARE	-927	4265	4265	SANDSTONE	NATURAL GAS,OIL	No
5	BONE SPRING	-4862	8200	8200	LIMESTONE,SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 9978

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below surface casing, a BOP/BOPE system with the above minimum rating will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Choke Diagram Attachment:

Lusitano_27_34_Fed_Com_333H_5M_BOPE_CK_20180829053912.pdf

BOP Diagram Attachment:

Lusitano_27_34_Fed_Com_333H_5M_BOPE_CK_20180829053925.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Pressure Rating (PSI): 5M **Rating Depth:** 11153

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermeidate casing, a BOP/BOPE system with the above minimum rating will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.
Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.
Testing Procedure: A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Choke Diagram Attachment:

Lusitano_27_34_Fed_Com_333H_5M_BOPE_CK_20180829053954.pdf

BOP Diagram Attachment:

Lusitano_27_34_Fed_Com_333H_5M_BOPE_CK_20180829054021.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	908	0	908	-6993	-7781	908	H-40	48	STC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	4500	9978	4500	9978			5478	P-110	40	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	9978	0	9978	-6993	-11343	9978	J-55	40	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.69
4	PRODUCTION	8.75	5.5	NEW	API	N	0	21305	0	11153	-6993	-17388	21305	P-110	17	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_333H_SurfCsg_Ass_20180829054551.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_333H_Int_Csg_Ass_20180829054842.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_333H_Int_Csg_Ass_20190107050915.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Lusitano_27_34_Fed_Com_333H_ProdCasing_Ass_20180829055008.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
[redacted]	Lead	[redacted]				0	[redacted]				
[redacted]	Lead	[redacted]				1.33	[redacted]				
[redacted]	Lead	[redacted]				1.85	[redacted]				
	Tail										
	Lead					1.2					

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
908	9978	OTHER : DBE/CUT BRINE	10	10.5							
0	908	WATER-BASED MUD	8.5	9							
9978	21305	WATER-BASED MUD	9.5	10							

Section 6 - Test, Logging, Coring

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

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

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

DS,GR,MUDLOG

Coring operation description for the well:

N/A

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5800 **Anticipated Surface Pressure:** 3346.34

Anticipated Bottom Hole Temperature(F): 184

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:

Lusitano_27_34_Fed_Com_333H_H2S_Plans_20180829055735.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Lusitano_27_34_Fed_Com_333H_AC_Report_20180829055814.pdf
Lusitano_27_34_Fed_Com_333H_Dir_Plan_20180829055828.pdf
Lusitano_27_34_Fed_Com_333H_Permit_Plan_1_20180829055854.pdf
Lusitano_27_34_Fed_Com_333H_Plot_20180829055854.pdf

Other proposed operations facets description:

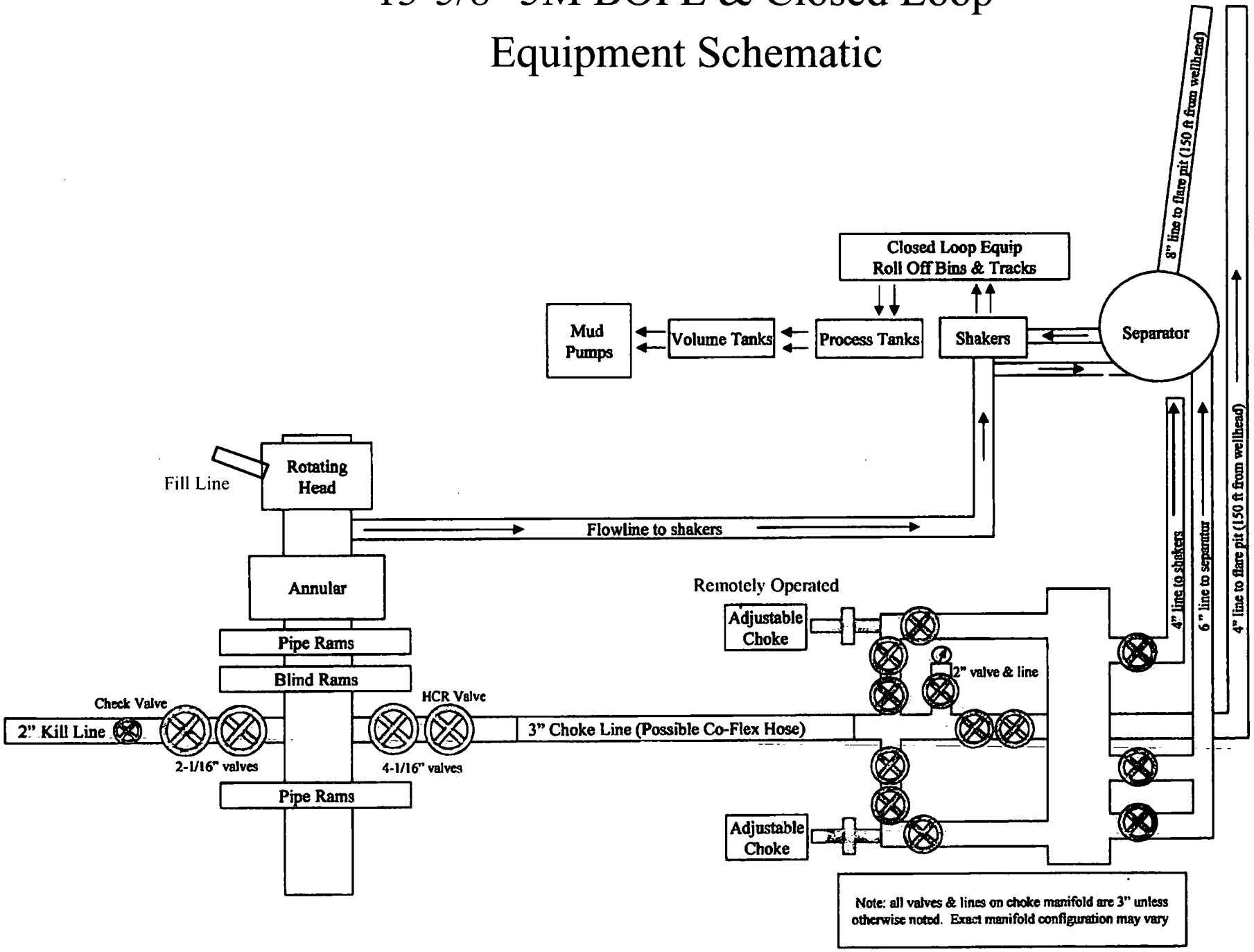
Other proposed operations facets attachment:

Lusitano_27_34_Fed_Com_333H_Clsd_Loop_20180829060215.pdf
Lusitano_27_34_Fed_Com_333H_Gas_Capture_Plan_20180829060216.pdf
Lusitano_27_34_Fed_Com_333H_MB_Verb_5M_20180829060217.pdf
Lusitano_27_34_Fed_Com_333H_MB_Wellhd_20180829060218.pdf
Lusitano_27_34_Fed_Com_333H_9.625_40__P110EC_BTC_V_M_4230_Collapse_20181218070507.pdf
Lusitano_27_34_Fed_Com_333H_8.625_32.00_L80HC_20181218070521.pdf
Lusitano_27_34_Fed_Com_333H_Drilling_Plan_rev1_20181219100917.pdf
Lusitano_27_34_Fed_Com_333H_MB_Verb_5M_Alt_Design_rev_20190107050400.pdf

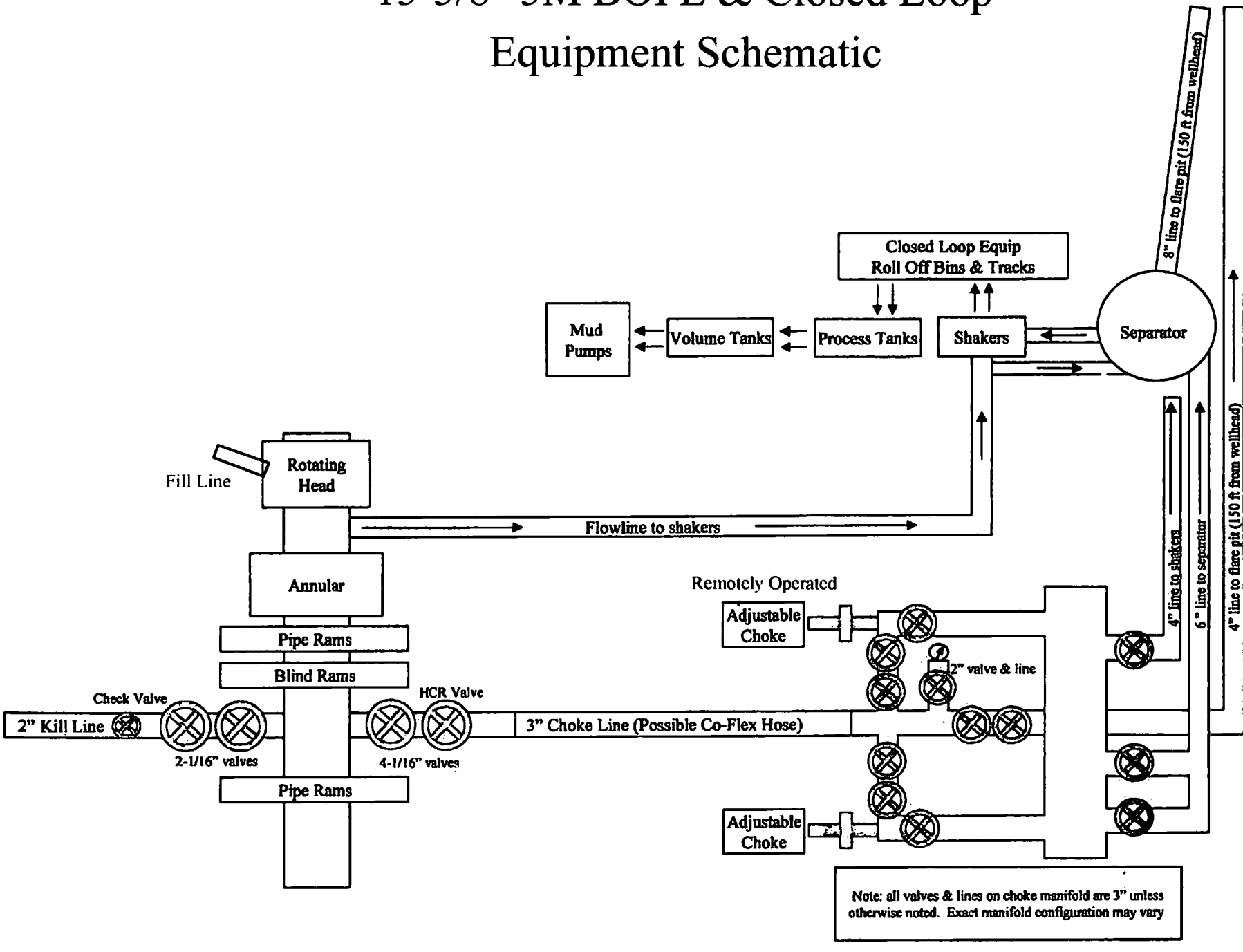
Other Variance attachment:

Lusitano_27_34_Fed_Com_333H_Co_flex_20180829060301.pdf

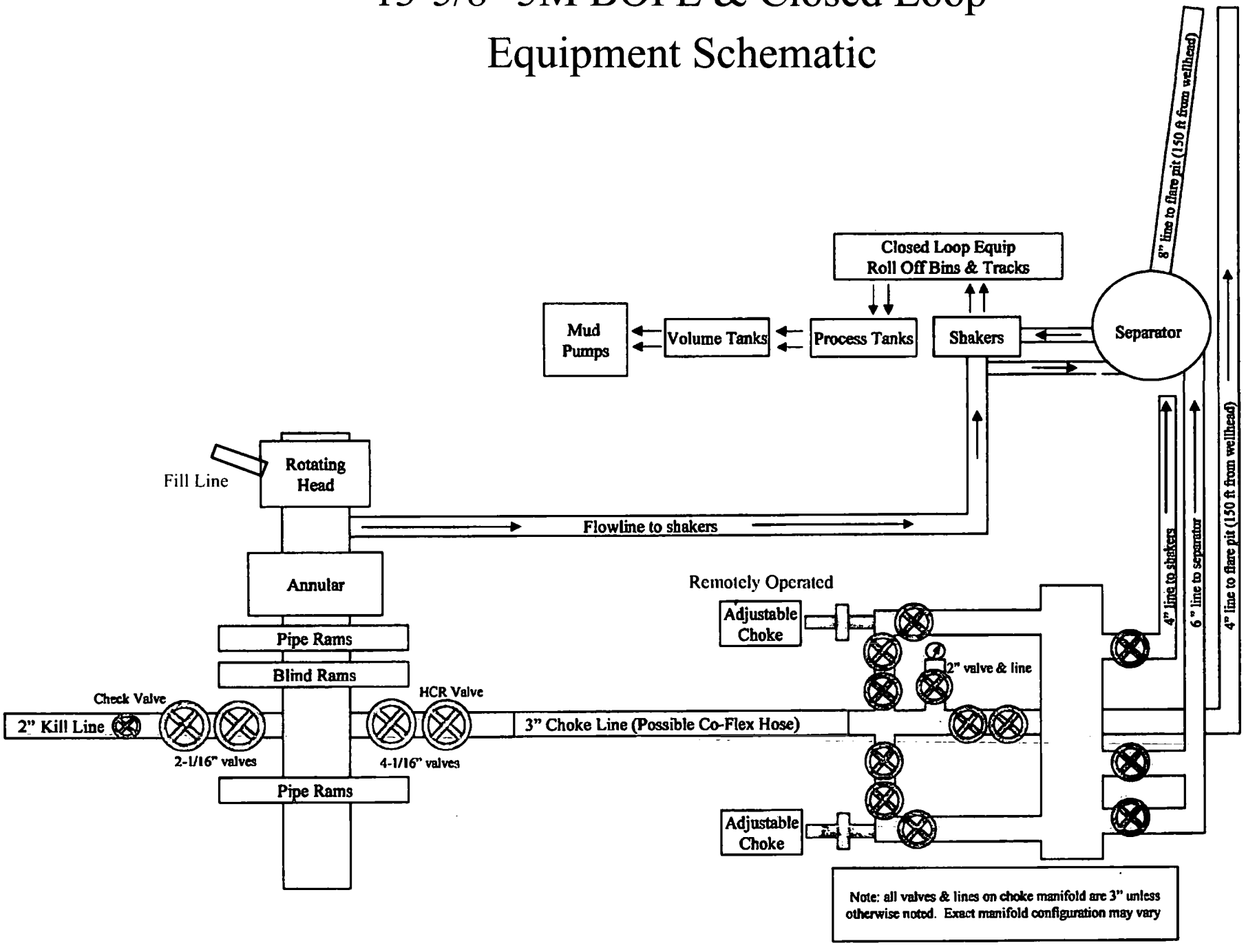
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



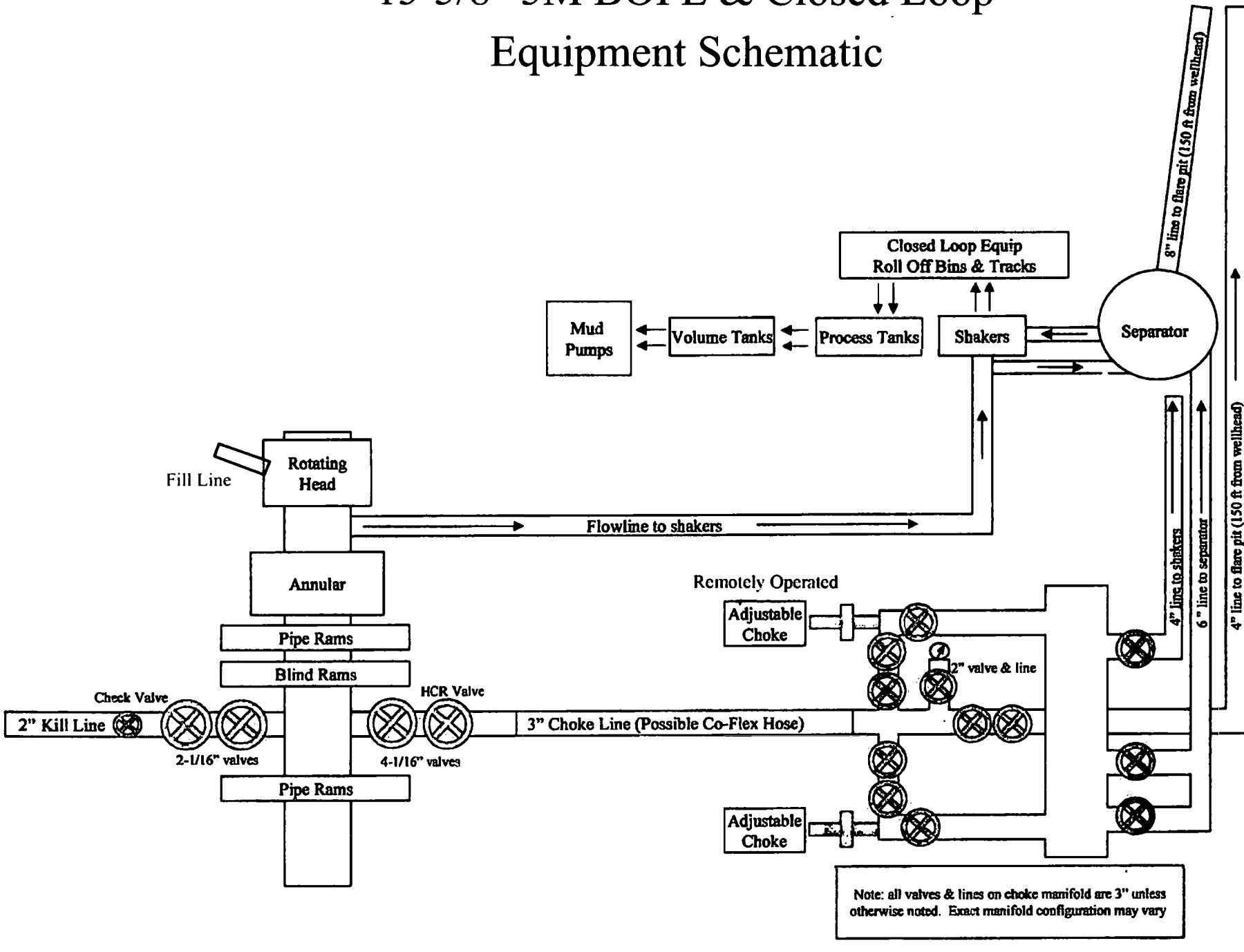
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



13-5/8" 5M BOPE & Closed Loop Equipment Schematic



13-5/8" 5M BOPE & Closed Loop Equipment Schematic



Casing Assumptions and Load Cases

Surface

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Surface Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Displace to Gas	Formation Pore Pressure	Dry gas from next casing point

Surface Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Surface Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	3 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Intermediate Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Fracture @ Shoe	Formation Pore Pressure	Dry gas

Intermediate Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Intermediate Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Production Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Fluid in hole (water or produced water) + test psi
Tubing Leak	Formation Pore Pressure	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Stimulation	Formation Pore Pressure	Max frac pressure with heaviest frac fluid

Production Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC.	None
Cementing	Wet cement weight	Water (8.33ppg)

Production Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Intermediate Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Fracture @ Shoe	Formation Pore Pressure	Dry gas

Intermediate Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Intermediate Casing Tension Design	
Load Case	**Assumptions**
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

devon

Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015

Hydrogen Sulfide (H_2S) Contingency Plan

For

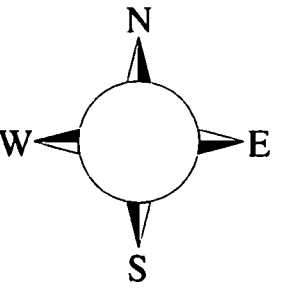
Lusitano 27-34 Fed Com 333H

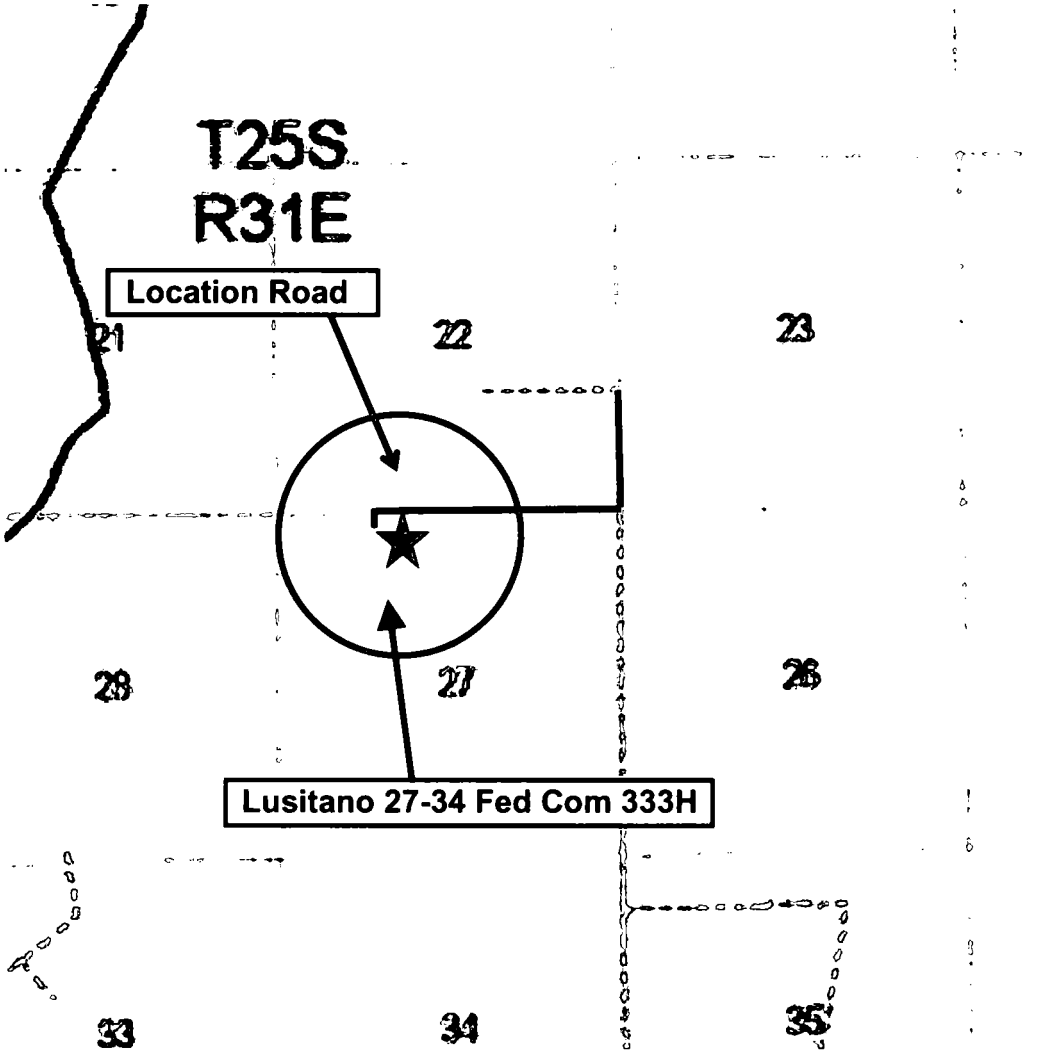
Sec-27 T-25S R-31E
235' FNL & 1732' FWL
LAT. = 32.1079050' N (NAD83)
LONG = 103.7688899' W

Eddy County NM

Lusitano 27-34 Fed Com 333H

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H_2S, including warning signs, wind indicators and H_2S monitor.





Assumed 100 ppm ROE = **3000'** (Radius of Exposure)
100 ppm H2S concentration shall trigger activation of this plan.

Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with H_2S monitors and air packs in order to control the release.**
- **Use the "buddy system" to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of H_2S, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H_2S) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H_2S)

2. The proper use and maintenance of personal protective equipment and life support systems.

3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.

4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H_2S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.

2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.

3. The contents and requirements of the H_2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan.

II. HYDROGEN SULFIDE TRAINING

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S.

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold – Remotely Operated

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

   D. Auxiliary equipment may include if applicable: annular preventer and rotating head.

   E. Mud/Gas Separator

2. **Protective equipment for essential personnel:**

   30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. **H_2S detection and monitoring equipment:**

   Portable H_2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H_2S levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

   - **Bell nipple**
   - **Rig floor**
   - **Cellar**
   - **Possum Belly/Shale shaker**
   - **Choke manifold**

   Visual warning systems:

   A. Wind direction indicators as shown on well site diagram

   B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. **Mud program:**

   The mud program has been designed to minimize the volume of H_2S circulated to surface. Proper mud weight, safe drilling practices and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

5. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H_2S trim.

   B. All elastomers used for packing and seals shall be H_2S trim.

6. **Communication:**

   A. Company personnel have/use cellular telephones in the field.

   B. Land line (telephone) communications at Office

7. **Well testing:**

   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H_2S environment will use the closed chamber method of testing.

   B. There will be no drill stem testing.

Devon Energy Corp. Company Call List		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
EHS Professional – Laura Wright		405-439-8129
Agency Call List		
Lea County (575)	**Hobbs**	
	Lea County Communication Authority	393-3981
	State Police	392-5588
	City Police	397-9265
	Sheriff's Office	393-2515
	Ambulance	**911**
	Fire Department	397-9308
	LEPC (Local Emergency Planning Committee)	393-2870
	NMOCD	393-6161
	US Bureau of Land Management	393-3612
Eddy County (575)	**Carlsbad**	
	State Police	885-3137
	City Police	885-2111
	Sheriff's Office	887-7551
	Ambulance	**911**
	Fire Department	885-3125
	LEPC (Local Emergency Planning Committee)	887-3798
	US Bureau of Land Management	887-6544
	NM Emergency Response Commission (Santa Fe)	(505) 476-9600
	24 HR	(505) 827-9126
	National Emergency Response Center	(800) 424-8802
	National Pollution Control Center: Direct	(703) 872-6000
	For Oil Spills	(800) 280-7118
	Emergency Services	
	Wild Well Control	(281) 784-4700
	Cudd Pressure Control (915) 699-0139	(915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services	(575) 746-3569
Give GPS position:	Native Air – Emergency Helicopter – Hobbs	(575) 392-6429
	Flight For Life - Lubbock, TX	(806) 743-9911
	Aerocare - Lubbock, TX	(806) 747-8923
	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(800) 222-1222
	Poison Control (24/7)	(575) 272-3115
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - www.nhc.noaa.gov	

Prepared in conjunction with
Dave Small SHARP communications and consulting

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)
Sec 27-T25S-R31E
Lusitano 27-34 Fed Com 333H

Wellbore #1
Permit Plan 1

Anticollision Report

21 August, 2018

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Reference	Permit Plan 1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.00ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,500.00 ft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 8/21/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	21,305.11	Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Sec 22-T25S-R31E						
Amoco DB Fed #001 (Active) - Wellbore #1 - Wellbore #1						Out of range
SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual						Out of range
Sec 27-T25S-R31E						
Gunnison 34 Fed #001 (P&A) - Wellbore #1 - Wellbore #						Out of range
Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Pl	2,700.00	2,699.90	89.99	71.06	4.753	Alert, CC
Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Pl	2,800.00	2,799.28	90.33	70.68	4.598	Alert, ES
Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Pl	4,550.00	4,548.57	113.33	81.17	3.524	Alert, SF
Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Pl	8,003.99	8,006.38	91.46	34.25	1.599	Minor Risk, CC
Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Pl	8,050.00	8,052.11	91.61	34.06	1.592	Minor Risk, ES
Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Pl	8,100.00	8,101.80	92.08	34.18	1.590	Minor Risk, SF
Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Pl	2,615.21	2,613.78	149.10	130.82	8.154	CC
Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Pl	2,700.00	2,697.95	149.42	130.53	7.910	ES
Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Pl	8,900.00	8,951.63	350.74	287.59	5.554	SF
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Pl	3,046.96	3,046.66	30.02	8.60	1.402	Major Risk, CC
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Pl	3,450.00	3,449.59	31.33	7.02	1.289	Major Risk, ES
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Pl	3,600.00	3,600.45	32.54	7.16	1.282	Major Risk, SF
Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Pl	2,500.00	2,499.80	29.96	12.46	1.712	Minor Risk, CC
Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Pl	2,550.00	2,549.49	30.22	12.36	1.692	Minor Risk, ES, SF
Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Pl	10,736.68	10,762.01	1,360.00	1,283.95	17.881	CC
Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Pl	18,850.00	19,640.18	1,499.98	1,273.38	6.620	ES, SF
Lusitano 27_34 Fed Com 736H - Wellbore #1 - Permit Pl						Out of range
Lusitano 27-34 Fed Com 235H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Pla	10,300.00	10,282.65	1,345.94	1,273.25	18.516	CC
Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Pla	21,305.11	21,315.20	1,358.57	1,048.41	4.380	Alert, ES, SF
Lusitano 27-34 Fed Com 336H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 528H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 536H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 626H - Wellbore #1 - Wellbore						Out of range
Lusitano 27-34 Fed Com 718H - Wellbore #1 - Wellbore						Out of range

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.10	-0.10	0.50	0.50	-90.36	-0.56	-89.99	89.99				
50.00	50.00	49.90	49.90	0.50	0.50	-90.36	-0.56	-89.99	89.99	88.99	1.01	89.412	
100.00	100.00	100.10	99.90	0.52	0.52	-90.36	-0.56	-89.99	89.99	88.96	1.04	86.898	
150.00	150.00	149.90	149.90	0.59	0.59	-90.36	-0.56	-89.99	89.99	88.81	1.18	76.246	
200.00	200.00	200.10	199.90	0.70	0.70	-90.36	-0.56	-89.99	89.99	88.59	1.40	64.076	
250.00	250.00	249.90	249.90	0.84	0.84	-90.36	-0.56	-89.99	89.99	88.32	1.68	53.722	
300.00	300.00	300.10	299.90	0.99	0.99	-90.36	-0.56	-89.99	89.99	88.02	1.97	45.566	
350.00	350.00	349.90	349.90	1.15	1.15	-90.36	-0.56	-89.99	89.99	87.70	2.29	39.286	
400.00	400.00	400.10	399.90	1.31	1.31	-90.36	-0.56	-89.99	89.99	87.37	2.62	34.368	
450.00	450.00	449.90	449.90	1.48	1.48	-90.36	-0.56	-89.99	89.99	87.04	2.95	30.482	
500.00	500.00	500.10	499.90	1.65	1.65	-90.36	-0.56	-89.99	89.99	86.70	3.29	27.332	
550.00	550.00	549.90	549.90	1.82	1.82	-90.36	-0.56	-89.99	89.99	86.36	3.63	24.757	
600.00	600.00	600.10	599.90	1.99	1.99	-90.36	-0.56	-89.99	89.99	86.01	3.98	22.602	
650.00	650.00	649.90	649.90	2.16	2.16	-90.36	-0.56	-89.99	89.99	85.66	4.33	20.789	
700.00	700.00	700.10	699.90	2.34	2.34	-90.36	-0.56	-89.99	89.99	85.31	4.68	19.233	
750.00	750.00	749.90	749.90	2.51	2.51	-90.36	-0.56	-89.99	89.99	84.96	5.03	17.894	
800.00	800.00	800.10	799.90	2.69	2.69	-90.36	-0.56	-89.99	89.99	84.61	5.38	16.722	
850.00	850.00	849.90	849.90	2.87	2.87	-90.36	-0.56	-89.99	89.99	84.26	5.73	15.696	
900.00	900.00	900.10	899.90	3.04	3.04	-90.36	-0.56	-89.99	89.99	83.90	6.09	14.783	
950.00	950.00	949.90	949.90	3.22	3.22	-90.36	-0.56	-89.99	89.99	83.55	6.44	13.973	
1,000.00	1,000.00	1,000.10	999.90	3.40	3.40	-90.36	-0.56	-89.99	89.99	83.20	6.80	13.243	
1,050.00	1,050.00	1,049.90	1,049.90	3.58	3.57	-90.36	-0.56	-89.99	89.99	82.84	7.15	12.587	
1,100.00	1,100.00	1,100.10	1,099.90	3.75	3.75	-90.36	-0.56	-89.99	89.99	82.49	7.51	11.990	
1,150.00	1,150.00	1,149.90	1,149.90	3.93	3.93	-90.36	-0.56	-89.99	89.99	82.13	7.86	11.449	
1,200.00	1,200.00	1,200.10	1,199.90	4.11	4.11	-90.36	-0.56	-89.99	89.99	81.78	8.22	10.952	
1,250.00	1,250.00	1,249.90	1,249.90	4.29	4.29	-90.36	-0.56	-89.99	89.99	81.42	8.57	10.499	
1,300.00	1,300.00	1,300.10	1,299.90	4.46	4.46	-90.36	-0.56	-89.99	89.99	81.06	8.93	10.079	
1,350.00	1,350.00	1,349.90	1,349.90	4.64	4.64	-90.36	-0.56	-89.99	89.99	80.71	9.28	9.693	
1,400.00	1,400.00	1,400.10	1,399.90	4.82	4.82	-90.36	-0.56	-89.99	89.99	80.35	9.64	9.334	
1,450.00	1,450.00	1,449.90	1,449.90	5.00	5.00	-90.36	-0.56	-89.99	89.99	79.99	10.00	9.002	
1,500.00	1,500.00	1,500.10	1,499.90	5.18	5.18	-90.36	-0.56	-89.99	89.99	79.64	10.35	8.691	
1,550.00	1,550.00	1,549.90	1,549.90	5.36	5.36	-90.36	-0.56	-89.99	89.99	79.28	10.71	8.402	
1,600.00	1,600.00	1,600.10	1,599.90	5.53	5.53	-90.36	-0.56	-89.99	89.99	78.92	11.07	8.130	
1,650.00	1,650.00	1,649.90	1,649.90	5.71	5.71	-90.36	-0.56	-89.99	89.99	78.57	11.42	7.877	
1,700.00	1,700.00	1,700.10	1,699.90	5.89	5.89	-90.36	-0.56	-89.99	89.99	78.21	11.78	7.638	
1,750.00	1,750.00	1,749.90	1,749.90	6.07	6.07	-90.36	-0.56	-89.99	89.99	77.85	12.14	7.413	
1,800.00	1,800.00	1,800.10	1,799.90	6.25	6.25	-90.36	-0.56	-89.99	89.99	77.49	12.50	7.201	
1,850.00	1,850.00	1,849.90	1,849.90	6.43	6.43	-90.36	-0.56	-89.99	89.99	77.14	12.85	7.001	
1,900.00	1,900.00	1,900.10	1,899.90	6.61	6.61	-90.36	-0.56	-89.99	89.99	76.78	13.21	6.811	
1,950.00	1,950.00	1,949.90	1,949.90	6.78	6.78	-90.36	-0.56	-89.99	89.99	76.42	13.57	6.632	
2,000.00	2,000.00	2,000.10	1,999.90	6.96	6.96	-90.36	-0.56	-89.99	89.99	76.06	13.93	6.462	
2,050.00	2,050.00	2,049.90	2,049.90	7.14	7.14	-90.36	-0.56	-89.99	89.99	75.71	14.28	6.300	
2,100.00	2,100.00	2,100.10	2,099.90	7.32	7.32	-90.36	-0.56	-89.99	89.99	75.35	14.64	6.146	
2,150.00	2,150.00	2,149.90	2,149.90	7.50	7.50	-90.36	-0.56	-89.99	89.99	74.99	15.00	6.000	
2,200.00	2,200.00	2,200.10	2,199.90	7.68	7.68	-90.36	-0.56	-89.99	89.99	74.63	15.36	5.860	
2,250.00	2,250.00	2,249.90	2,249.90	7.86	7.86	-90.36	-0.56	-89.99	89.99	74.28	15.71	5.727	
2,300.00	2,300.00	2,300.10	2,299.90	8.04	8.04	-90.36	-0.56	-89.99	89.99	73.92	16.07	5.599	
2,350.00	2,350.00	2,349.90	2,349.90	8.22	8.21	-90.36	-0.56	-89.99	89.99	73.56	16.43	5.477	
2,400.00	2,400.00	2,400.10	2,399.90	8.39	8.39	-90.36	-0.56	-89.99	89.99	73.20	16.79	5.360	
2,450.00	2,450.00	2,449.90	2,449.90	8.57	8.57	-90.36	-0.56	-89.99	89.99	72.85	17.15	5.249	
2,500.00	2,500.00	2,500.10	2,499.90	8.75	8.75	-90.36	-0.56	-89.99	89.99	72.49	17.50	5.141	
2,550.00	2,550.00	2,549.90	2,549.90	8.93	8.93	-90.36	-0.56	-89.99	89.99	72.13	17.86	5.038	

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,600.00	2,600.10	2,599.90	9.11	9.11	-90.36	-0.56	-89.99	89.99	71.77	18.22	4.939	Alert
2,650.00	2,650.00	2,649.90	2,649.90	9.29	9.29	-90.36	-0.56	-89.99	89.99	71.41	18.58	4.844	Alert
2,700.00	2,700.00	2,699.90	2,699.90	9.47	9.47	-90.36	-0.56	-89.99	89.99	71.06	18.94	4.753	Alert, CC
2,750.00	2,750.00	2,749.60	2,749.60	9.65	9.65	-90.23	-0.36	-90.07	90.08	70.78	19.29	4.669	Alert
2,800.00	2,800.00	2,799.28	2,799.28	9.83	9.82	-89.85	0.23	-90.33	90.33	70.68	19.65	4.598	Alert, ES
2,850.00	2,850.00	2,849.05	2,849.03	10.00	10.00	-89.24	1.21	-90.75	90.76	70.76	20.00	4.537	Alert
2,900.00	2,900.00	2,900.97	2,899.00	10.18	10.19	-88.56	2.29	-91.21	91.25	70.88	20.37	4.480	Alert
2,950.00	2,950.00	2,949.02	2,948.97	10.36	10.36	-87.90	3.37	-91.68	91.74	71.03	20.72	4.428	Alert
3,000.00	3,000.00	3,001.00	2,998.95	10.54	10.54	-87.24	4.45	-92.14	92.25	71.17	21.08	4.376	Alert
3,050.00	3,050.00	3,048.99	3,048.92	10.72	10.71	-86.58	5.53	-92.61	92.78	71.35	21.43	4.329	Alert
3,100.00	3,100.00	3,101.02	3,098.89	10.90	10.90	-85.94	6.61	-93.07	93.31	71.52	21.80	4.281	Alert
3,150.00	3,150.00	3,148.96	3,148.86	11.08	11.07	-85.30	7.69	-93.54	93.86	71.71	22.15	4.238	Alert
3,200.00	3,200.00	3,201.05	3,198.84	11.26	11.26	-84.67	8.78	-94.00	94.42	71.91	22.51	4.194	Alert
3,250.00	3,250.00	3,248.94	3,248.81	11.44	11.43	-84.04	9.86	-94.47	94.99	72.12	22.86	4.155	Alert
3,300.00	3,300.00	3,301.08	3,298.78	11.62	11.61	-83.43	10.94	-94.93	95.57	72.34	23.23	4.115	Alert
3,350.00	3,350.00	3,348.91	3,348.75	11.80	11.78	-82.82	12.02	-95.40	96.16	72.58	23.58	4.079	Alert
3,400.00	3,400.00	3,401.11	3,398.73	11.97	11.97	-82.22	13.10	-95.86	96.76	72.82	23.94	4.042	Alert
3,450.00	3,450.00	3,448.88	3,448.70	12.15	12.14	-81.62	14.18	-96.32	97.37	73.08	24.29	4.009	Alert
3,500.00	3,500.00	3,501.13	3,498.67	12.33	12.33	-81.04	15.27	-96.79	97.99	73.34	24.66	3.974	Alert
3,550.00	3,550.00	3,548.85	3,548.64	12.51	12.50	-80.46	16.35	-97.25	98.63	73.62	25.01	3.944	Alert
3,600.00	3,600.00	3,601.16	3,598.61	12.69	12.69	-79.89	17.43	-97.72	99.27	73.90	25.37	3.913	Alert
3,650.00	3,650.00	3,648.82	3,648.59	12.87	12.86	-79.32	18.51	-98.18	99.92	74.20	25.72	3.885	Alert
3,700.00	3,700.00	3,701.19	3,698.56	13.05	13.04	-78.77	19.59	-98.65	100.58	74.50	26.09	3.856	Alert
3,750.00	3,750.00	3,748.80	3,748.53	13.23	13.21	-78.22	20.67	-99.11	101.25	74.82	26.44	3.830	Alert
3,800.00	3,800.00	3,801.22	3,798.50	13.41	13.40	-77.68	21.75	-99.58	101.94	75.13	26.80	3.803	Alert
3,850.00	3,850.00	3,848.77	3,848.48	13.59	13.57	-77.14	22.84	-100.04	102.63	75.47	27.15	3.780	Alert
3,900.00	3,900.00	3,901.24	3,898.45	13.77	13.76	-76.61	23.92	-100.51	103.32	75.81	27.52	3.755	Alert
3,950.00	3,950.00	3,948.74	3,948.42	13.94	13.93	-76.09	25.00	-100.97	104.03	76.16	27.87	3.733	Alert
4,000.00	4,000.00	4,001.27	3,998.39	14.12	14.12	-75.58	26.08	-101.44	104.75	76.51	28.23	3.710	Alert
4,050.00	4,050.00	4,048.71	4,048.36	14.30	14.29	-75.07	27.16	-101.90	105.47	76.89	28.58	3.690	Alert
4,100.00	4,100.00	4,101.30	4,098.34	14.48	14.48	-74.58	28.24	-102.37	106.20	77.25	28.95	3.669	Alert
4,150.00	4,150.00	4,148.69	4,148.31	14.66	14.65	-74.08	29.33	-102.83	106.94	77.64	29.30	3.650	Alert
4,200.00	4,200.00	4,201.33	4,198.28	14.84	14.83	-73.60	30.41	-103.29	107.69	78.02	29.66	3.630	Alert
4,250.00	4,250.00	4,248.66	4,248.25	15.02	15.00	-73.12	31.49	-103.76	108.44	78.43	30.01	3.613	Alert
4,300.00	4,300.00	4,298.64	4,298.23	15.20	15.18	-72.65	32.57	-104.22	109.21	78.84	30.37	3.596	Alert
4,350.00	4,350.00	4,348.63	4,348.20	15.38	15.36	-72.18	33.65	-104.69	109.98	79.25	30.73	3.579	Alert
4,400.00	4,400.00	4,401.38	4,398.17	15.56	15.55	-71.72	34.73	-105.15	110.75	79.66	31.10	3.562	Alert
4,450.00	4,450.00	4,448.60	4,448.14	15.74	15.72	-71.27	35.81	-105.62	111.54	80.09	31.44	3.547	Alert
4,500.00	4,500.00	4,501.41	4,498.12	15.92	15.91	-70.82	36.90	-106.08	112.33	80.52	31.81	3.531	Alert
4,550.00	4,550.00	4,548.57	4,548.09	16.09	16.08	-156.96	37.98	-106.55	113.33	81.17	32.16	3.524	Alert, SF
4,600.00	4,600.00	4,601.45	4,598.05	16.26	16.27	-156.65	39.06	-107.01	114.73	82.21	32.52	3.528	Alert
4,650.00	4,649.98	4,648.51	4,648.00	16.44	16.44	-156.43	40.14	-107.48	116.54	83.68	32.86	3.547	Alert
4,700.00	4,699.96	4,701.54	4,697.94	16.61	16.63	-156.30	41.22	-107.94	118.75	85.53	33.22	3.575	Alert
4,750.00	4,749.92	4,748.40	4,747.85	16.78	16.79	-156.26	42.30	-108.40	121.35	87.80	33.56	3.616	Alert
4,800.00	4,799.86	4,801.69	4,797.75	16.95	16.98	-156.30	43.38	-108.87	124.36	90.44	33.92	3.666	Alert
4,850.00	4,849.78	4,848.19	4,847.62	17.12	17.15	-156.41	44.46	-109.33	127.77	93.51	34.26	3.730	Alert
4,900.00	4,899.68	4,901.96	4,897.46	17.30	17.34	-156.60	45.54	-109.80	131.57	96.95	34.62	3.800	Alert
4,950.00	4,949.54	4,947.86	4,947.26	17.47	17.51	-156.84	46.62	-110.26	135.78	100.82	34.96	3.884	Alert
5,000.00	4,999.37	5,002.36	4,997.03	17.64	17.70	-157.13	47.69	-110.72	140.39	105.06	35.32	3.974	Alert
5,050.00	5,049.16	5,047.38	5,046.76	17.82	17.86	-157.47	48.77	-111.18	145.40	109.74	35.66	4.078	Alert
5,100.00	5,098.90	5,102.92	5,096.44	17.99	18.06	-157.85	49.85	-111.65	150.82	114.80	36.03	4.187	Alert
5,150.00	5,148.61	5,146.72	5,146.07	18.16	18.22	-158.26	50.92	-112.11	156.63	120.28	36.35	4.309	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,198.30	5,203.64	5,195.69	18.34	18.42	-158.67	51.99	-112.57	162.56	125.83	36.73	4.426	Alert
5,250.00	5,247.99	5,245.99	5,245.31	18.52	18.58	-159.06	53.07	-113.03	168.49	131.44	37.05	4.547	Alert
5,300.00	5,297.69	5,304.37	5,294.93	18.69	18.79	-159.41	54.14	-113.49	174.42	136.99	37.43	4.660	Alert
5,350.00	5,347.38	5,345.26	5,344.56	18.87	18.93	-159.74	55.22	-113.95	180.37	142.62	37.75	4.778	Alert
5,400.00	5,397.07	5,394.90	5,394.18	19.04	19.11	-160.06	56.29	-114.41	186.32	148.22	38.10	4.890	Alert
5,450.00	5,446.77	5,444.53	5,443.80	19.22	19.29	-160.35	57.36	-114.88	192.27	153.82	38.45	5.001	
5,500.00	5,496.46	5,505.83	5,493.42	19.40	19.51	-160.62	58.44	-115.34	198.23	159.39	38.84	5.104	
5,550.00	5,546.15	5,543.80	5,543.04	19.58	19.64	-160.88	59.51	-115.80	204.19	165.04	39.15	5.216	
5,600.00	5,595.84	5,606.56	5,592.66	19.75	19.87	-161.12	60.59	-116.26	210.16	170.61	39.55	5.314	
5,650.00	5,645.54	5,643.07	5,642.28	19.93	20.00	-161.36	61.66	-116.72	216.13	176.28	39.85	5.423	
5,700.00	5,695.23	5,707.29	5,691.90	20.11	20.23	-161.57	62.73	-117.18	222.11	181.85	40.25	5.518	
5,750.00	5,744.92	5,742.34	5,741.52	20.29	20.36	-161.78	63.81	-117.64	228.08	187.53	40.55	5.624	
5,800.00	5,794.62	5,808.02	5,791.15	20.47	20.59	-161.98	64.88	-118.11	234.06	193.10	40.96	5.714	
5,850.00	5,844.31	5,841.61	5,840.77	20.65	20.71	-162.16	65.96	-118.57	240.04	198.79	41.26	5.818	
5,900.00	5,894.00	5,908.75	5,890.39	20.83	20.95	-162.34	67.03	-119.03	246.03	204.36	41.67	5.904	
5,950.00	5,943.69	5,940.88	5,940.01	21.01	21.07	-162.51	68.10	-119.49	252.02	210.06	41.96	6.006	
6,000.00	5,993.39	6,009.48	5,989.63	21.19	21.31	-162.67	69.18	-119.95	258.00	215.63	42.38	6.088	
6,050.00	6,043.08	6,040.15	6,039.25	21.37	21.42	-162.82	70.25	-120.41	263.99	221.33	42.66	6.188	
6,100.00	6,092.77	6,089.79	6,088.87	21.55	21.60	-162.97	71.33	-120.87	269.99	226.97	43.01	6.277	
6,150.00	6,142.47	6,139.42	6,138.49	21.73	21.78	-163.11	72.40	-121.34	275.98	232.61	43.37	6.364	
6,200.00	6,192.16	6,189.06	6,188.12	21.91	21.96	-163.25	73.47	-121.80	281.98	238.26	43.72	6.450	
6,250.00	6,241.85	6,238.69	6,237.74	22.09	22.14	-163.37	74.55	-122.26	287.97	243.90	44.07	6.534	
6,300.00	6,291.54	6,288.33	6,287.36	22.27	22.31	-163.50	75.62	-122.72	293.97	249.55	44.42	6.617	
6,350.00	6,341.24	6,337.96	6,336.98	22.46	22.49	-163.62	76.70	-123.18	299.97	255.20	44.78	6.699	
6,400.00	6,390.93	6,387.60	6,386.60	22.64	22.67	-163.73	77.77	-123.64	305.97	260.84	45.13	6.780	
6,450.00	6,440.62	6,437.23	6,436.22	22.82	22.85	-163.84	78.84	-124.10	311.98	266.49	45.48	6.859	
6,500.00	6,490.32	6,486.87	6,485.84	23.00	23.03	-163.95	79.92	-124.57	317.98	272.14	45.84	6.937	
6,550.00	6,540.01	6,536.50	6,535.46	23.19	23.20	-164.05	80.99	-125.03	323.98	277.79	46.19	7.014	
6,600.00	6,589.70	6,586.14	6,585.08	23.37	23.38	-164.15	82.07	-125.49	329.99	283.45	46.54	7.090	
6,650.00	6,639.39	6,635.77	6,634.71	23.55	23.56	-164.24	83.14	-125.95	336.00	289.10	46.90	7.165	
6,700.00	6,689.09	6,685.41	6,684.33	23.73	23.74	-164.33	84.21	-126.41	342.00	294.75	47.25	7.238	
6,750.00	6,738.78	6,735.04	6,733.95	23.92	23.92	-164.42	85.29	-126.87	348.01	300.41	47.60	7.311	
6,800.00	6,788.47	6,784.68	6,783.57	24.10	24.09	-164.50	86.36	-127.33	354.02	306.06	47.96	7.382	
6,850.00	6,838.17	6,834.31	6,833.19	24.29	24.27	-164.59	87.43	-127.80	360.03	311.72	48.31	7.452	
6,900.00	6,887.86	6,883.95	6,882.81	24.47	24.45	-164.67	88.51	-128.26	366.04	317.37	48.67	7.521	
6,950.00	6,937.55	6,933.58	6,932.43	24.65	24.63	-164.74	89.58	-128.72	372.05	323.03	49.02	7.590	
7,000.00	6,987.24	6,983.22	6,982.05	24.84	24.81	-164.82	90.66	-129.18	378.06	328.69	49.37	7.657	
7,050.00	7,036.94	7,032.85	7,031.68	25.02	24.99	-164.89	91.73	-129.64	384.07	334.35	49.73	7.723	
7,100.00	7,086.63	7,082.49	7,081.30	25.21	25.16	-164.96	92.80	-130.10	390.09	340.00	50.08	7.789	
7,150.00	7,136.32	7,132.12	7,130.92	25.39	25.34	-165.03	93.88	-130.56	396.10	345.66	50.44	7.853	
7,200.00	7,186.02	7,181.76	7,180.54	25.58	25.52	-165.09	94.95	-131.03	402.11	351.32	50.79	7.917	
7,250.00	7,235.71	7,231.39	7,230.16	25.76	25.70	-165.16	96.03	-131.49	408.13	356.98	51.15	7.979	
7,300.00	7,285.40	7,281.03	7,279.78	25.95	25.88	-165.22	97.10	-131.95	414.14	362.64	51.50	8.041	
7,350.00	7,335.09	7,330.66	7,329.40	26.13	26.05	-165.28	98.17	-132.41	420.16	368.30	51.86	8.102	
7,400.00	7,384.79	7,380.30	7,379.02	26.32	26.23	-165.34	99.25	-132.87	426.17	373.96	52.21	8.162	
7,450.00	7,434.48	7,429.93	7,428.65	26.50	26.41	-165.39	100.32	-133.33	432.19	379.62	52.57	8.222	
7,500.00	7,484.17	7,479.57	7,478.27	26.69	26.59	-165.45	101.40	-133.79	438.21	385.28	52.92	8.280	
7,550.00	7,533.86	7,529.20	7,527.89	26.87	26.77	-165.50	102.47	-134.26	444.22	390.95	53.28	8.338	
7,600.00	7,583.56	7,578.84	7,577.51	27.06	26.94	-165.55	103.54	-134.72	450.24	396.61	53.63	8.395	
7,650.00	7,633.25	7,628.47	7,627.13	27.25	27.12	-165.61	104.62	-135.18	456.26	402.27	53.99	8.451	
7,700.00	7,682.94	7,678.11	7,676.75	27.43	27.30	-165.66	105.69	-135.64	462.28	407.93	54.34	8.506	
7,750.00	7,732.64	7,727.74	7,726.37	27.62	27.48	-165.70	106.77	-136.10	468.30	413.60	54.70	8.561	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,782.33	7,777.38	7,775.99	27.81	27.66	-165.75	107.84	-136.56	474.31	419.26	55.06	8.615	
7,850.00	7,832.02	7,827.01	7,825.61	27.99	27.84	-165.80	108.91	-137.02	480.33	424.92	55.41	8.669	
7,900.00	7,881.71	7,876.65	7,875.24	28.18	28.01	-165.84	109.99	-137.48	486.35	430.59	55.77	8.721	
7,950.00	7,931.41	7,926.28	7,924.86	28.37	28.19	-165.89	111.06	-137.95	492.37	436.25	56.12	8.773	
8,000.00	7,981.10	7,975.92	7,974.48	28.55	28.37	-165.93	112.14	-138.41	498.39	441.91	56.48	8.824	
8,050.00	8,030.79	8,025.55	8,024.10	28.74	28.55	-165.97	113.21	-138.87	504.41	447.58	56.83	8.875	
8,100.00	8,080.49	8,075.19	8,073.72	28.93	28.73	-166.01	114.28	-139.33	510.43	453.24	57.19	8.925	
8,150.00	8,130.18	8,124.82	8,123.34	29.11	28.90	-166.05	115.36	-139.79	516.45	458.91	57.55	8.974	
8,200.00	8,179.87	8,174.46	8,172.96	29.30	29.08	-166.09	116.43	-140.25	522.47	464.57	57.90	9.023	
8,250.00	8,229.56	8,224.09	8,222.58	29.49	29.26	-166.13	117.51	-140.71	528.49	470.23	58.26	9.071	
8,300.00	8,279.26	8,273.73	8,272.21	29.68	29.44	-166.16	118.58	-141.18	534.52	475.90	58.62	9.119	
8,350.00	8,328.95	8,323.36	8,321.83	29.86	29.62	-166.20	119.65	-141.64	540.54	481.56	58.97	9.166	
8,400.00	8,378.64	8,373.00	8,371.45	30.05	29.79	-166.24	120.73	-142.10	546.56	487.23	59.33	9.212	
8,450.00	8,428.34	8,422.63	8,421.07	30.24	29.97	-166.27	121.80	-142.56	552.58	492.90	59.69	9.258	
8,500.00	8,478.03	8,472.27	8,470.69	30.43	30.15	-166.30	122.88	-143.02	558.60	498.56	60.04	9.304	
8,550.00	8,527.72	8,521.90	8,520.31	30.62	30.33	-166.34	123.95	-143.48	564.63	504.23	60.40	9.348	
8,600.00	8,577.41	8,571.54	8,569.93	30.80	30.51	-166.37	125.02	-143.94	570.65	509.89	60.76	9.393	
8,650.00	8,627.11	8,621.17	8,619.55	30.99	30.69	-166.40	126.10	-144.41	576.67	515.56	61.11	9.436	
8,700.00	8,676.80	8,670.81	8,669.17	31.18	30.86	-166.43	127.17	-144.87	582.69	521.22	61.47	9.480	
8,750.00	8,726.49	8,720.44	8,718.80	31.37	31.04	-166.46	128.25	-145.33	588.72	526.89	61.83	9.522	
8,800.00	8,776.19	8,770.08	8,768.42	31.56	31.22	-166.49	129.32	-145.79	594.74	532.56	62.18	9.564	
8,850.00	8,825.88	8,819.71	8,818.04	31.74	31.40	-166.52	130.39	-146.25	600.76	538.22	62.54	9.606	
8,900.00	8,875.57	8,869.35	8,867.66	31.93	31.58	-166.55	131.47	-146.71	606.79	543.89	62.90	9.647	
8,950.00	8,925.26	8,918.98	8,917.28	32.12	31.76	-166.58	132.54	-147.17	612.81	549.56	63.25	9.688	
9,000.00	8,974.96	8,968.28	8,967.57	32.31	31.94	-166.61	133.62	-147.64	618.83	555.22	63.61	9.728	
9,050.00	9,024.65	9,023.78	9,022.06	32.50	32.13	-166.68	134.35	-147.95	624.61	560.61	64.00	9.760	
9,100.00	9,074.34	9,075.96	9,074.24	32.69	32.32	-166.79	134.44	-147.99	630.05	565.68	64.37	9.788	
9,150.00	9,124.04	9,125.66	9,123.94	32.88	32.49	-166.90	134.44	-147.99	635.44	570.71	64.72	9.818	
9,200.00	9,173.73	9,175.35	9,173.63	33.07	32.67	-167.02	134.44	-147.99	640.83	575.75	65.08	9.847	
9,250.00	9,223.42	9,225.04	9,223.32	33.25	32.85	-167.13	134.44	-147.99	646.22	580.79	65.44	9.875	
9,300.00	9,273.11	9,274.73	9,273.01	33.44	33.03	-167.23	134.44	-147.99	651.62	585.83	65.79	9.904	
9,350.00	9,322.81	9,324.43	9,322.71	33.63	33.21	-167.34	134.44	-147.99	657.02	590.87	66.15	9.932	
9,400.00	9,372.50	9,374.12	9,372.40	33.82	33.38	-167.45	134.44	-147.99	662.42	595.91	66.51	9.960	
9,450.00	9,422.19	9,420.64	9,418.91	34.01	33.55	-167.52	134.75	-147.99	667.88	601.03	66.85	9.991	
9,500.00	9,471.89	9,462.99	9,461.16	34.20	33.70	-167.35	137.71	-147.95	673.79	606.63	67.16	10.032	
9,550.00	9,521.58	9,504.74	9,502.47	34.39	33.85	-166.94	143.67	-147.89	680.27	612.80	67.47	10.082	
9,600.00	9,571.27	9,545.46	9,542.24	34.58	34.00	-166.30	152.36	-147.79	687.38	619.62	67.76	10.144	
9,650.00	9,620.96	9,584.79	9,579.98	34.77	34.13	-165.47	163.43	-147.67	695.24	627.21	68.03	10.220	
9,700.00	9,670.66	9,622.47	9,615.33	34.96	34.27	-164.49	176.42	-147.53	703.97	635.72	68.26	10.313	
9,750.00	9,720.35	9,658.27	9,648.07	35.15	34.39	-163.41	190.90	-147.37	713.73	645.28	68.45	10.428	
9,800.00	9,770.04	9,692.10	9,678.11	35.34	34.51	-162.25	206.44	-147.20	724.64	656.06	68.58	10.566	
9,850.00	9,819.74	9,723.88	9,705.46	35.53	34.62	-161.07	222.62	-147.02	736.82	668.17	68.65	10.733	
9,900.00	9,869.48	9,750.00	9,727.23	35.72	34.71	-160.09	237.04	-146.86	749.99	681.40	68.59	10.934	
9,950.00	9,919.29	9,781.41	9,752.51	35.90	34.82	-158.82	255.68	-146.66	764.07	695.50	68.57	11.143	
10,000.00	9,969.15	9,807.25	9,772.52	36.09	34.91	-157.74	272.03	-146.48	779.18	710.78	68.40	11.391	
10,050.00	10,019.05	9,831.27	9,790.44	36.27	34.99	-156.70	288.02	-146.30	795.39	727.24	68.15	11.672	
10,100.00	10,068.99	9,850.00	9,803.94	36.45	35.05	-155.90	301.00	-146.16	812.76	745.02	67.74	11.998	
10,150.00	10,118.96	9,874.23	9,820.76	36.63	35.14	-154.82	318.44	-145.97	831.30	763.91	67.39	12.335	
10,200.00	10,168.95	9,900.00	9,837.82	36.80	35.23	-153.64	337.75	-145.76	851.10	784.07	67.03	12.697	
10,250.00	10,218.94	9,911.18	9,844.95	36.98	35.27	-153.22	346.36	-145.66	872.02	805.68	66.34	13.145	
10,300.00	10,268.94	9,927.69	9,855.16	37.15	35.32	-65.86	359.33	-145.52	894.32	828.60	65.72	13.608	
10,350.00	10,318.94	9,950.00	9,868.37	37.32	35.40	-64.67	377.31	-145.32	918.31	853.10	65.22	14.081	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_22 Fed Com 232H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,400.00	10,368.94	9,950.00	9,868.37	37.49	35.40	-64.67	377.31	-145.32	943.85	879.64	64.21	14.699	
10,450.00	10,418.94	9,970.65	9,879.96	37.67	35.47	-63.57	394.40	-145.14	970.82	907.15	63.67	15.247	
10,500.00	10,468.94	9,983.09	9,886.64	37.84	35.52	-62.91	404.89	-145.02	999.27	936.31	62.96	15.872	
10,550.00	10,518.94	10,000.00	9,895.35	38.01	35.58	-62.00	419.38	-144.86	1,029.09	966.73	62.36	16.503	
10,600.00	10,568.94	10,000.00	9,895.35	38.19	35.58	-62.00	419.38	-144.86	1,060.13	998.71	61.41	17.263	
10,650.00	10,618.91	10,015.31	9,902.87	38.35	35.63	115.90	432.71	-144.72	1,092.76	1,031.92	60.84	17.961	
10,700.00	10,668.59	10,022.87	9,906.45	38.52	35.66	111.86	439.37	-144.64	1,127.86	1,067.68	60.17	18.743	
10,750.00	10,717.59	10,028.35	9,908.99	38.67	35.68	106.98	444.23	-144.59	1,165.03	1,105.48	59.55	19.563	
10,800.00	10,765.54	10,031.90	9,910.61	38.83	35.69	101.25	447.39	-144.56	1,203.89	1,144.90	58.99	20.407	
10,850.00	10,812.08	10,033.67	9,911.41	38.97	35.69	94.72	448.96	-144.54	1,244.03	1,185.53	58.50	21.266	
10,900.00	10,856.86	10,033.80	9,911.47	39.11	35.70	87.56	449.08	-144.54	1,285.06	1,226.98	58.08	22.127	
10,950.00	10,899.53	10,032.43	9,910.86	39.24	35.69	80.04	447.86	-144.55	1,326.60	1,268.87	57.73	22.980	
11,000.00	10,939.76	10,029.72	9,909.62	39.36	35.68	72.51	445.44	-144.58	1,368.29	1,310.84	57.46	23.814	
11,050.00	10,977.26	10,025.77	9,907.80	39.48	35.67	65.31	441.94	-144.62	1,409.79	1,352.53	57.26	24.621	
11,100.00	11,011.74	10,020.72	9,905.45	39.58	35.65	58.70	437.48	-144.66	1,450.79	1,393.65	57.14	25.392	
11,150.00	11,042.93	10,000.00	9,895.35	39.68	35.58	52.15	419.38	-144.86	1,491.22	1,434.42	56.79	26.257	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	2.00	-2.00	0.50	0.50	-179.83	-149.98	-0.44	149.98				
50.00	50.00	48.00	48.00	0.50	0.50	-179.83	-149.98	-0.44	149.98	148.97	1.01	149.064	
100.00	100.00	102.00	98.00	0.52	0.52	-179.83	-149.98	-0.44	149.98	148.94	1.04	144.571	
150.00	150.00	148.00	148.00	0.59	0.59	-179.83	-149.98	-0.44	149.98	148.80	1.18	127.459	
200.00	200.00	202.00	198.00	0.70	0.71	-179.83	-149.98	-0.44	149.98	148.57	1.41	106.425	
250.00	250.00	248.00	248.00	0.84	0.83	-179.83	-149.98	-0.44	149.98	148.31	1.67	89.826	
300.00	300.00	302.00	298.00	0.99	0.99	-179.83	-149.98	-0.44	149.98	148.00	1.98	75.715	
350.00	350.00	348.00	348.00	1.15	1.14	-179.83	-149.98	-0.44	149.98	147.70	2.28	65.651	
400.00	400.00	402.00	398.00	1.31	1.32	-179.83	-149.98	-0.44	149.98	147.36	2.62	57.140	
450.00	450.00	448.00	448.00	1.48	1.47	-179.83	-149.98	-0.44	149.98	147.04	2.95	50.912	
500.00	500.00	502.00	498.00	1.65	1.65	-179.83	-149.98	-0.44	149.98	146.68	3.30	45.462	
550.00	550.00	548.00	548.00	1.82	1.81	-179.83	-149.98	-0.44	149.98	146.35	3.63	41.335	
600.00	600.00	602.00	598.00	1.99	2.00	-179.83	-149.98	-0.44	149.98	145.99	3.99	37.607	
650.00	650.00	648.00	648.00	2.16	2.16	-179.83	-149.98	-0.44	149.98	145.66	4.32	34.701	
700.00	700.00	702.00	698.00	2.34	2.35	-179.83	-149.98	-0.44	149.98	145.30	4.69	32.009	
750.00	750.00	748.00	748.00	2.51	2.51	-179.83	-149.98	-0.44	149.98	144.96	5.02	29.863	
800.00	800.00	802.00	798.00	2.69	2.70	-179.83	-149.98	-0.44	149.98	144.59	5.39	27.835	
850.00	850.00	848.00	848.00	2.87	2.86	-179.83	-149.98	-0.44	149.98	144.25	5.73	26.190	
900.00	900.00	902.00	898.00	3.04	3.05	-179.83	-149.98	-0.44	149.98	143.89	6.09	24.611	
950.00	950.00	948.00	948.00	3.22	3.21	-179.83	-149.98	-0.44	149.98	143.55	6.43	23.311	
1,000.00	1,000.00	1,002.00	998.00	3.40	3.40	-179.83	-149.98	-0.44	149.98	143.18	6.80	22.048	
1,050.00	1,050.00	1,048.00	1,048.00	3.58	3.57	-179.83	-149.98	-0.44	149.98	142.84	7.14	20.997	
1,100.00	1,100.00	1,102.00	1,098.00	3.75	3.76	-179.83	-149.98	-0.44	149.98	142.47	7.51	19.965	
1,150.00	1,150.00	1,148.00	1,148.00	3.93	3.92	-179.83	-149.98	-0.44	149.98	142.13	7.85	19.097	
1,200.00	1,200.00	1,202.00	1,198.00	4.11	4.12	-179.83	-149.98	-0.44	149.98	141.76	8.22	18.238	
1,250.00	1,250.00	1,248.00	1,248.00	4.29	4.28	-179.83	-149.98	-0.44	149.98	141.42	8.57	17.511	
1,300.00	1,300.00	1,302.00	1,298.00	4.46	4.47	-179.83	-149.98	-0.44	149.98	141.05	8.94	16.785	
1,350.00	1,350.00	1,348.00	1,348.00	4.64	4.64	-179.83	-149.98	-0.44	149.98	140.70	9.28	16.166	
1,400.00	1,400.00	1,402.00	1,398.00	4.82	4.83	-179.83	-149.98	-0.44	149.98	140.33	9.65	15.545	
1,450.00	1,450.00	1,448.00	1,448.00	5.00	4.99	-179.83	-149.98	-0.44	149.98	139.99	9.99	15.012	
1,500.00	1,500.00	1,502.00	1,498.00	5.18	5.18	-179.83	-149.98	-0.44	149.98	139.62	10.36	14.475	
1,550.00	1,550.00	1,548.00	1,548.00	5.36	5.35	-179.83	-149.98	-0.44	149.98	139.28	10.70	14.011	
1,600.00	1,600.00	1,602.00	1,598.00	5.53	5.54	-179.83	-149.98	-0.44	149.98	138.91	11.08	13.542	
1,650.00	1,650.00	1,648.00	1,648.00	5.71	5.71	-179.83	-149.98	-0.44	149.98	138.56	11.42	13.135	
1,700.00	1,700.00	1,702.00	1,698.00	5.89	5.90	-179.83	-149.98	-0.44	149.98	138.19	11.79	12.721	
1,750.00	1,750.00	1,748.00	1,748.00	6.07	6.06	-179.83	-149.98	-0.44	149.98	137.85	12.13	12.362	
1,800.00	1,800.00	1,802.00	1,798.00	6.25	6.26	-179.83	-149.98	-0.44	149.98	137.48	12.50	11.995	
1,850.00	1,850.00	1,848.00	1,848.00	6.43	6.42	-179.83	-149.98	-0.44	149.98	137.13	12.85	11.674	
1,900.00	1,900.00	1,902.00	1,898.00	6.61	6.61	-179.83	-149.98	-0.44	149.98	136.76	13.22	11.346	
1,950.00	1,950.00	1,948.00	1,948.00	6.78	6.78	-179.83	-149.98	-0.44	149.98	136.42	13.56	11.059	
2,000.00	2,000.00	2,002.00	1,998.00	6.96	6.97	-179.83	-149.98	-0.44	149.98	136.05	13.93	10.764	
2,050.00	2,050.00	2,048.00	2,048.00	7.14	7.13	-179.83	-149.98	-0.44	149.98	135.70	14.28	10.505	
2,100.00	2,100.00	2,102.00	2,098.00	7.32	7.33	-179.83	-149.98	-0.44	149.98	135.33	14.65	10.238	
2,150.00	2,150.00	2,148.00	2,148.00	7.50	7.49	-179.83	-149.98	-0.44	149.98	134.99	14.99	10.004	
2,200.00	2,200.00	2,202.00	2,198.00	7.68	7.69	-179.83	-149.98	-0.44	149.98	134.62	15.36	9.762	
2,250.00	2,250.00	2,248.00	2,248.00	7.86	7.85	-179.83	-149.98	-0.44	149.98	134.27	15.71	9.548	
2,300.00	2,300.00	2,302.00	2,298.00	8.04	8.04	-179.83	-149.98	-0.44	149.98	133.90	16.08	9.327	
2,350.00	2,350.00	2,348.00	2,348.00	8.22	8.21	-179.83	-149.98	-0.44	149.98	133.56	16.42	9.132	
2,400.00	2,400.00	2,402.00	2,398.00	8.39	8.40	-179.83	-149.98	-0.44	149.98	133.19	16.80	8.930	
2,450.00	2,450.00	2,448.00	2,448.00	8.57	8.57	-179.83	-149.98	-0.44	149.98	132.84	17.14	8.751	
2,500.00	2,500.00	2,502.00	2,498.00	8.75	8.76	-179.83	-149.98	-0.44	149.98	132.47	17.51	8.565	
2,550.00	2,550.00	2,548.00	2,548.00	8.93	8.92	-179.83	-149.98	-0.44	149.98	132.13	17.85	8.400	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,600.00	2,602.00	2,598.00	9.11	9.12	-179.83	-149.98	-0.44	149.98	131.75	18.23	8.228	
2,650.00	2,650.00	2,648.00	2,648.00	9.29	9.28	-179.83	-149.98	-0.44	149.98	131.41	18.57	8.076	
2,700.00	2,700.00	2,702.00	2,698.00	9.47	9.48	-179.83	-149.98	-0.44	149.98	131.04	18.94	7.918	
2,750.00	2,750.00	2,748.00	2,748.00	9.65	9.64	-179.83	-149.98	-0.44	149.98	130.69	19.29	7.776	
2,800.00	2,800.00	2,802.00	2,798.00	9.83	9.83	-179.83	-149.98	-0.44	149.98	130.32	19.66	7.629	
2,850.00	2,850.00	2,848.00	2,848.00	10.00	10.00	-179.83	-149.98	-0.44	149.98	129.98	20.00	7.498	
2,900.00	2,900.00	2,902.00	2,898.00	10.18	10.19	-179.83	-149.98	-0.44	149.98	129.61	20.37	7.361	
2,950.00	2,950.00	2,948.00	2,948.00	10.36	10.36	-179.83	-149.98	-0.44	149.98	129.26	20.72	7.239	
3,000.00	3,000.00	3,002.00	2,998.00	10.54	10.55	-179.83	-149.98	-0.44	149.98	128.89	21.09	7.111	
3,050.00	3,050.00	3,048.00	3,048.00	10.72	10.71	-179.83	-149.98	-0.44	149.98	128.55	21.43	6.997	
3,100.00	3,100.00	3,102.00	3,098.00	10.90	10.91	-179.83	-149.98	-0.44	149.98	128.17	21.81	6.878	
3,150.00	3,150.00	3,148.00	3,148.00	11.08	11.07	-179.83	-149.98	-0.44	149.98	127.83	22.15	6.771	
3,200.00	3,200.00	3,202.00	3,198.00	11.26	11.27	-179.83	-149.98	-0.44	149.98	127.46	22.52	6.659	
3,250.00	3,250.00	3,248.00	3,248.00	11.44	11.43	-179.83	-149.98	-0.44	149.98	127.11	22.87	6.559	
3,300.00	3,300.00	3,302.00	3,298.00	11.62	11.62	-179.83	-149.98	-0.44	149.98	126.74	23.24	6.454	
3,350.00	3,350.00	3,348.00	3,348.00	11.80	11.79	-179.83	-149.98	-0.44	149.98	126.40	23.58	6.360	
3,400.00	3,400.00	3,402.00	3,398.00	11.97	11.98	-179.83	-149.98	-0.44	149.98	126.02	23.96	6.261	
3,450.00	3,450.00	3,448.00	3,448.00	12.15	12.15	-179.83	-149.98	-0.44	149.98	125.68	24.30	6.172	
3,500.00	3,500.00	3,502.00	3,498.00	12.33	12.34	-179.83	-149.98	-0.44	149.98	125.31	24.67	6.079	
3,550.00	3,550.00	3,548.00	3,548.00	12.51	12.50	-179.83	-149.98	-0.44	149.98	124.96	25.02	5.995	
3,600.00	3,600.00	3,602.00	3,598.00	12.69	12.70	-179.83	-149.98	-0.44	149.98	124.59	25.39	5.907	
3,650.00	3,650.00	3,648.00	3,648.00	12.87	12.86	-179.83	-149.98	-0.44	149.98	124.25	25.73	5.828	
3,700.00	3,700.00	3,702.00	3,698.00	13.05	13.06	-179.83	-149.98	-0.44	149.98	123.88	26.11	5.745	
3,750.00	3,750.00	3,748.00	3,748.00	13.23	13.22	-179.83	-149.98	-0.44	149.98	123.53	26.45	5.671	
3,800.00	3,800.00	3,802.00	3,798.00	13.41	13.41	-179.83	-149.98	-0.44	149.98	123.16	26.82	5.592	
3,850.00	3,850.00	3,848.00	3,848.00	13.59	13.58	-179.83	-149.98	-0.44	149.98	122.82	27.17	5.521	
3,900.00	3,900.00	3,902.00	3,898.00	13.77	13.77	-179.83	-149.98	-0.44	149.98	122.44	27.54	5.446	
3,950.00	3,950.00	3,948.00	3,948.00	13.94	13.94	-179.83	-149.98	-0.44	149.98	122.10	27.88	5.379	
4,000.00	4,000.00	4,002.00	3,998.00	14.12	14.13	-179.83	-149.98	-0.44	149.98	121.73	28.25	5.308	
4,050.00	4,050.00	4,048.00	4,048.00	14.30	14.30	-179.83	-149.98	-0.44	149.98	121.38	28.60	5.244	
4,100.00	4,100.00	4,102.00	4,098.00	14.48	14.49	-179.83	-149.98	-0.44	149.98	121.01	28.97	5.177	
4,150.00	4,150.00	4,148.00	4,148.00	14.66	14.65	-179.83	-149.98	-0.44	149.98	120.67	29.31	5.116	
4,200.00	4,200.00	4,202.00	4,198.00	14.84	14.85	-179.83	-149.98	-0.44	149.98	120.29	29.69	5.052	
4,250.00	4,250.00	4,248.00	4,248.00	15.02	15.01	-179.83	-149.98	-0.44	149.98	119.95	30.03	4.994	Alert
4,300.00	4,300.00	4,302.00	4,298.00	15.20	15.21	-179.83	-149.98	-0.44	149.98	119.58	30.40	4.933	Alert
4,350.00	4,350.00	4,348.00	4,348.00	15.38	15.37	-179.83	-149.98	-0.44	149.98	119.23	30.75	4.878	Alert
4,400.00	4,400.00	4,402.00	4,398.00	15.56	15.56	-179.83	-149.98	-0.44	149.98	118.86	31.12	4.819	Alert
4,450.00	4,450.00	4,448.00	4,448.00	15.74	15.73	-179.83	-149.98	-0.44	149.98	118.52	31.46	4.767	Alert
4,500.00	4,500.00	4,498.00	4,498.00	15.92	15.91	-179.83	-149.98	-0.44	149.98	118.16	31.82	4.713	Alert
4,550.00	4,550.00	4,548.28	4,548.28	16.09	16.08	93.64	-149.94	-0.24	149.95	117.78	32.17	4.661	Alert
4,600.00	4,600.00	4,598.57	4,598.57	16.26	16.26	93.65	-149.80	0.39	149.85	117.32	32.53	4.607	Alert
4,650.00	4,649.98	4,648.86	4,648.84	16.44	16.43	93.67	-149.56	1.45	149.68	116.81	32.87	4.554	Alert
4,700.00	4,699.96	4,699.15	4,699.11	16.61	16.61	93.69	-149.23	2.94	149.44	116.23	33.22	4.499	Alert
4,750.00	4,749.92	4,749.44	4,749.36	16.78	16.78	93.71	-148.80	4.86	149.13	115.57	33.56	4.444	Alert
4,800.00	4,799.86	4,799.73	4,799.59	16.95	16.96	93.74	-148.27	7.21	148.76	114.85	33.91	4.387	Alert
4,850.00	4,849.78	4,850.02	4,849.80	17.12	17.13	93.77	-147.65	9.99	148.31	114.06	34.25	4.330	Alert
4,900.00	4,899.68	4,900.31	4,899.98	17.30	17.31	93.80	-146.93	13.20	147.80	113.20	34.60	4.272	Alert
4,950.00	4,949.54	4,950.59	4,950.13	17.47	17.48	93.84	-146.12	16.84	147.21	112.27	34.95	4.213	Alert
5,000.00	4,999.37	5,000.88	5,000.24	17.64	17.66	93.88	-145.21	20.91	146.56	111.26	35.29	4.153	Alert
5,050.00	5,049.16	5,051.16	5,050.31	17.82	17.83	93.93	-144.20	25.41	145.83	110.19	35.64	4.092	Alert
5,100.00	5,098.90	5,101.44	5,100.34	17.99	18.01	93.98	-143.10	30.34	145.04	109.05	35.99	4.030	Alert
5,150.00	5,148.61	5,151.72	5,150.32	18.16	18.19	94.02	-141.91	35.69	144.18	107.84	36.34	3.968	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,198.30	5,202.00	5,200.24	18.34	18.36	93.93	-140.61	41.48	143.23	106.54	36.69	3.904	Alert
5,250.00	5,247.99	5,252.26	5,250.10	18.52	18.54	93.67	-139.23	47.69	142.18	105.14	37.04	3.838	Alert
5,300.00	5,297.69	5,302.46	5,299.84	18.69	18.72	93.23	-137.75	54.30	141.04	103.64	37.40	3.772	Alert
5,350.00	5,347.38	5,352.43	5,349.33	18.87	18.90	92.73	-136.24	61.03	139.88	102.13	37.75	3.705	Alert
5,400.00	5,397.07	5,402.40	5,398.82	19.04	19.07	92.22	-134.74	67.76	138.73	100.62	38.11	3.641	Alert
5,450.00	5,446.77	5,452.37	5,448.32	19.22	19.25	91.70	-133.24	74.49	137.59	99.13	38.46	3.577	Alert
5,500.00	5,496.46	5,502.34	5,497.81	19.40	19.43	91.17	-131.73	81.22	136.46	97.64	38.82	3.515	Alert
5,550.00	5,546.15	5,552.31	5,547.30	19.58	19.61	90.64	-130.23	87.95	135.35	96.17	39.18	3.455	Alert
5,600.00	5,595.84	5,602.28	5,596.80	19.75	19.79	90.09	-128.72	94.68	134.24	94.71	39.54	3.395	Alert
5,650.00	5,645.54	5,652.26	5,646.29	19.93	19.97	89.54	-127.22	101.41	133.15	93.26	39.90	3.337	Alert
5,700.00	5,695.23	5,702.23	5,695.78	20.11	20.15	88.98	-125.72	108.14	132.07	91.82	40.26	3.281	Alert
5,750.00	5,744.92	5,752.20	5,745.28	20.29	20.33	88.40	-124.21	114.87	131.01	90.39	40.62	3.225	Alert
5,800.00	5,794.62	5,802.17	5,794.77	20.47	20.52	87.82	-122.71	121.60	129.96	88.98	40.98	3.171	Alert
5,850.00	5,844.31	5,852.14	5,844.26	20.65	20.70	87.23	-121.21	128.33	128.92	87.58	41.34	3.118	Alert
5,900.00	5,894.00	5,902.11	5,893.76	20.83	20.88	86.63	-119.70	135.06	127.89	86.19	41.70	3.067	Alert
5,950.00	5,943.69	5,952.08	5,943.25	21.01	21.06	86.02	-118.20	141.79	126.88	84.82	42.07	3.016	Alert
6,000.00	5,993.39	6,002.06	5,992.74	21.19	21.25	85.40	-116.69	148.52	125.89	83.46	42.43	2.967	Alert
6,050.00	6,043.08	6,052.03	6,042.24	21.37	21.43	84.77	-115.19	155.25	124.91	82.11	42.79	2.919	Alert
6,100.00	6,092.77	6,102.00	6,091.73	21.55	21.61	84.13	-113.69	161.98	123.94	80.78	43.16	2.872	Alert
6,150.00	6,142.47	6,151.97	6,141.22	21.73	21.80	83.48	-112.18	168.71	122.99	79.47	43.52	2.826	Alert
6,200.00	6,192.16	6,201.94	6,190.72	21.91	21.98	82.82	-110.68	175.43	122.06	78.17	43.89	2.781	Alert
6,250.00	6,241.85	6,251.91	6,240.21	22.09	22.17	82.15	-109.17	182.16	121.14	76.89	44.25	2.737	Alert
6,300.00	6,291.54	6,301.88	6,289.70	22.27	22.35	81.47	-107.67	188.89	120.24	75.62	44.62	2.695	Alert
6,350.00	6,341.24	6,351.86	6,339.20	22.46	22.54	80.78	-106.17	195.62	119.36	74.37	44.98	2.653	Alert
6,400.00	6,390.93	6,401.83	6,388.69	22.64	22.73	80.08	-104.66	202.35	118.49	73.14	45.35	2.613	Alert
6,450.00	6,440.62	6,451.80	6,438.18	22.82	22.91	79.37	-103.16	209.08	117.64	71.93	45.72	2.573	Alert
6,500.00	6,490.32	6,501.77	6,487.68	23.00	23.10	78.65	-101.66	215.81	116.81	70.73	46.08	2.535	Alert
6,550.00	6,540.01	6,551.74	6,537.17	23.19	23.28	77.92	-100.15	222.54	116.00	69.55	46.45	2.497	Minor Risk
6,600.00	6,589.70	6,601.71	6,586.66	23.37	23.47	77.18	-98.65	229.27	115.21	68.39	46.82	2.461	Minor Risk
6,650.00	6,639.39	6,651.68	6,636.16	23.55	23.66	76.43	-97.14	236.00	114.44	67.26	47.18	2.425	Minor Risk
6,700.00	6,689.09	6,701.65	6,685.65	23.73	23.85	75.67	-95.64	242.73	113.69	66.14	47.55	2.391	Minor Risk
6,750.00	6,738.78	6,751.63	6,735.14	23.92	24.03	74.90	-94.14	249.46	112.95	65.04	47.92	2.357	Minor Risk
6,800.00	6,788.47	6,801.60	6,784.64	24.10	24.22	74.12	-92.63	256.19	112.24	63.96	48.28	2.325	Minor Risk
6,850.00	6,838.17	6,851.57	6,834.13	24.29	24.41	73.33	-91.13	262.92	111.55	62.90	48.65	2.293	Minor Risk
6,900.00	6,887.86	6,901.54	6,883.62	24.47	24.60	72.53	-89.63	269.65	110.88	61.87	49.01	2.262	Minor Risk
6,950.00	6,937.55	6,951.51	6,933.12	24.65	24.79	71.72	-88.12	276.38	110.24	60.86	49.38	2.232	Minor Risk
7,000.00	6,987.24	7,001.48	6,982.61	24.84	24.98	70.90	-86.62	283.11	109.61	59.87	49.75	2.203	Minor Risk
7,050.00	7,036.94	7,051.45	7,032.10	25.02	25.17	70.07	-85.11	289.84	109.01	58.90	50.11	2.175	Minor Risk
7,100.00	7,086.63	7,101.43	7,081.60	25.21	25.36	69.23	-83.61	296.57	108.43	57.96	50.48	2.148	Minor Risk
7,150.00	7,136.32	7,151.40	7,131.09	25.39	25.54	68.39	-82.11	303.29	107.88	57.04	50.84	2.122	Minor Risk
7,200.00	7,186.02	7,201.37	7,180.58	25.58	25.73	67.53	-80.60	310.02	107.35	56.14	51.21	2.096	Minor Risk
7,250.00	7,235.71	7,251.34	7,230.08	25.76	25.92	66.67	-79.10	316.75	106.84	55.27	51.57	2.072	Minor Risk
7,300.00	7,285.40	7,301.40	7,279.66	25.95	26.11	65.81	-77.60	323.48	106.35	54.42	51.93	2.048	Minor Risk
7,350.00	7,335.09	7,351.75	7,329.60	26.13	26.30	65.18	-76.19	329.79	105.76	53.46	52.30	2.022	Minor Risk
7,400.00	7,384.79	7,402.13	7,379.63	26.32	26.49	64.89	-74.92	335.45	105.00	52.32	52.68	1.993	Minor Risk
7,450.00	7,434.48	7,452.50	7,429.74	26.50	26.68	64.94	-73.80	340.48	104.06	51.01	53.05	1.962	Minor Risk
7,500.00	7,484.17	7,502.85	7,479.89	26.69	26.87	65.35	-72.82	344.85	102.94	49.51	53.42	1.927	Minor Risk
7,550.00	7,533.86	7,553.17	7,530.06	26.87	27.05	66.14	-71.99	348.58	101.65	47.85	53.80	1.889	Minor Risk
7,600.00	7,583.56	7,603.43	7,580.23	27.06	27.23	67.30	-71.30	351.66	100.22	46.05	54.18	1.850	Minor Risk
7,650.00	7,633.25	7,653.63	7,630.36	27.25	27.41	68.88	-70.75	354.10	98.70	44.15	54.56	1.809	Minor Risk
7,700.00	7,682.94	7,703.73	7,680.43	27.43	27.59	70.88	-70.36	355.88	97.14	42.20	54.94	1.768	Minor Risk
7,750.00	7,732.64	7,753.73	7,730.42	27.62	27.77	73.32	-70.10	357.03	95.61	40.29	55.32	1.728	Minor Risk

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 523H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,782.33	7,803.62	7,780.30	27.81	27.94	76.23	-69.99	357.53	94.21	38.51	55.70	1.691	Minor Risk
7,850.00	7,832.02	7,853.34	7,830.02	27.99	28.12	79.51	-69.98	357.56	93.04	36.96	56.08	1.659	Minor Risk
7,900.00	7,881.71	7,903.03	7,879.71	28.18	28.29	82.87	-69.98	357.56	92.19	35.73	56.45	1.633	Minor Risk
7,950.00	7,931.41	7,952.72	7,929.41	28.37	28.47	86.29	-69.98	357.56	91.66	34.84	56.82	1.613	Minor Risk
8,000.00	7,981.10	8,002.42	7,979.10	28.55	28.64	89.73	-69.98	357.56	91.47	34.28	57.19	1.599	Minor Risk
8,003.99	7,985.07	8,006.38	7,983.07	28.57	28.65	90.00	-69.98	357.56	91.46	34.25	57.22	1.599	Minor Risk, CC
8,050.00	8,030.79	8,052.11	8,028.79	28.74	28.81	93.17	-69.98	357.56	91.61	34.06	57.55	1.592	Minor Risk, ES
8,100.00	8,080.49	8,101.80	8,078.49	28.93	28.99	96.59	-69.98	357.56	92.08	34.18	57.90	1.590	Minor Risk, SF
8,150.00	8,130.18	8,151.49	8,128.18	29.11	29.16	99.96	-69.98	357.56	92.88	34.64	58.25	1.595	Minor Risk
8,200.00	8,179.87	8,196.60	8,173.27	29.30	29.32	102.89	-70.68	357.56	94.80	36.32	58.48	1.621	Minor Risk
8,250.00	8,229.56	8,239.01	8,215.51	29.49	29.45	105.17	-74.33	357.57	100.40	41.94	58.45	1.718	Minor Risk
8,300.00	8,279.26	8,280.61	8,256.58	29.68	29.58	106.80	-80.94	357.58	109.68	51.48	58.21	1.884	Minor Risk
8,350.00	8,328.95	8,321.01	8,295.90	29.86	29.71	107.78	-90.20	357.59	122.43	64.65	57.77	2.119	Minor Risk
8,400.00	8,378.64	8,359.88	8,333.02	30.05	29.82	108.24	-101.69	357.61	138.39	81.20	57.18	2.420	Minor Risk
8,450.00	8,428.34	8,396.97	8,367.64	30.24	29.93	108.33	-114.99	357.63	157.33	100.88	56.46	2.787	Alert
8,500.00	8,478.03	8,432.11	8,399.58	30.43	30.02	108.18	-129.62	357.65	179.05	123.42	55.63	3.219	Alert
8,550.00	8,527.72	8,465.20	8,428.78	30.62	30.11	107.88	-145.17	357.68	203.31	148.58	54.73	3.715	Alert
8,600.00	8,577.41	8,496.22	8,455.31	30.80	30.19	107.51	-161.26	357.70	229.90	176.12	53.77	4.275	Alert
8,650.00	8,627.11	8,525.20	8,479.26	30.99	30.26	107.11	-177.56	357.73	258.60	205.80	52.80	4.898	Alert
8,700.00	8,676.80	8,550.00	8,499.08	31.18	30.32	106.74	-192.45	357.75	289.23	237.61	51.62	5.603	
8,750.00	8,726.49	8,577.28	8,520.12	31.37	30.37	106.31	-209.81	357.78	321.56	270.69	50.87	6.322	
8,800.00	8,776.19	8,600.00	8,537.00	31.56	30.42	105.95	-225.03	357.80	355.45	305.56	49.89	7.125	
8,850.00	8,825.88	8,622.21	8,552.90	31.74	30.47	105.59	-240.53	357.83	390.74	341.68	49.05	7.966	
8,900.00	8,875.57	8,642.28	8,566.74	31.93	30.51	105.27	-255.06	357.85	427.27	379.06	48.21	8.863	
8,950.00	8,925.26	8,660.91	8,579.13	32.12	30.54	104.98	-268.98	357.87	464.92	417.51	47.41	9.807	
9,000.00	8,974.96	8,678.22	8,590.23	32.31	30.57	104.71	-282.26	357.89	503.57	456.91	46.65	10.793	
9,050.00	9,024.65	8,700.00	8,603.61	32.50	30.62	104.37	-299.44	357.92	543.18	496.86	46.31	11.728	
9,100.00	9,074.34	8,700.00	8,603.61	32.69	30.62	104.37	-299.44	357.92	583.62	538.81	44.81	13.024	
9,150.00	9,124.04	8,723.25	8,617.17	32.88	30.66	104.02	-318.33	357.95	624.56	579.82	44.74	13.960	
9,200.00	9,173.73	8,736.27	8,624.43	33.07	30.69	103.82	-329.14	357.97	666.30	622.11	44.19	15.077	
9,250.00	9,223.42	8,750.00	8,631.81	33.25	30.72	103.62	-340.71	357.98	708.63	664.86	43.77	16.190	
9,300.00	9,273.11	8,750.00	8,631.81	33.44	30.72	103.62	-340.71	357.98	751.64	708.83	42.81	17.557	
9,350.00	9,322.81	8,770.48	8,642.29	33.63	30.76	103.32	-358.30	358.01	794.84	752.02	42.82	18.561	
9,400.00	9,372.50	8,780.48	8,647.19	33.82	30.78	103.18	-367.02	358.02	838.63	796.19	42.44	19.759	
9,450.00	9,422.19	8,800.00	8,656.29	34.01	30.82	102.91	-384.29	358.05	882.96	840.49	42.47	20.788	
9,500.00	9,471.89	8,800.00	8,656.29	34.20	30.82	102.91	-384.29	358.05	927.37	885.54	41.84	22.167	
9,550.00	9,521.58	8,800.00	8,656.29	34.39	30.82	102.91	-384.29	358.05	972.33	931.05	41.28	23.554	
9,600.00	9,571.27	8,814.89	8,662.84	34.58	30.86	102.71	-397.65	358.07	1,017.45	976.19	41.26	24.660	
9,650.00	9,620.96	8,822.30	8,665.97	34.77	30.88	102.61	-404.38	358.08	1,062.92	1,021.89	41.03	25.904	
9,700.00	9,670.66	8,829.31	8,668.85	34.96	30.89	102.52	-410.77	358.09	1,108.65	1,067.82	40.83	27.151	
9,750.00	9,720.35	8,850.00	8,676.89	35.15	30.95	102.25	-429.83	358.12	1,154.87	1,113.84	41.03	28.144	
9,800.00	9,770.04	8,850.00	8,676.89	35.34	30.95	102.25	-429.83	358.12	1,200.88	1,160.18	40.70	29.507	
9,850.00	9,819.74	8,850.00	8,676.89	35.53	30.95	102.71	-429.83	358.12	1,247.19	1,206.79	40.41	30.867	
9,900.00	9,869.48	8,850.00	8,676.89	35.72	30.95	104.57	-429.83	358.12	1,293.74	1,253.59	40.15	32.223	
9,950.00	9,919.29	8,850.00	8,676.89	35.90	30.95	106.47	-429.83	358.12	1,340.48	1,300.56	39.92	33.575	
10,000.00	9,969.15	8,850.00	8,676.89	36.09	30.95	108.41	-429.83	358.12	1,387.38	1,347.66	39.73	34.923	
10,050.00	10,019.05	8,869.47	8,683.82	36.27	31.00	109.80	-448.02	358.15	1,433.97	1,394.02	39.95	35.896	
10,100.00	10,068.99	8,874.21	8,685.42	36.45	31.01	111.56	-452.48	358.16	1,480.89	1,441.02	39.87	37.140	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	2.60	-2.60	0.50	0.50	168.86	-149.80	29.51	152.68				
50.00	50.00	47.40	47.40	0.50	0.50	168.86	-149.80	29.51	152.68	151.67	1.01	151.762	
100.00	100.00	102.60	97.40	0.52	0.52	168.86	-149.80	29.51	152.68	151.64	1.04	147.089	
150.00	150.00	147.40	147.40	0.59	0.59	168.86	-149.80	29.51	152.68	151.50	1.18	129.875	
200.00	200.00	202.60	197.40	0.70	0.71	168.86	-149.80	29.51	152.68	151.27	1.41	108.223	
250.00	250.00	247.40	247.40	0.84	0.83	168.86	-149.80	29.51	152.68	151.01	1.67	91.536	
300.00	300.00	302.60	297.40	0.99	1.00	168.86	-149.80	29.51	152.68	150.70	1.98	77.005	
350.00	350.00	347.40	347.40	1.15	1.14	168.86	-149.80	29.51	152.68	150.40	2.28	66.888	
400.00	400.00	402.60	397.40	1.31	1.32	168.86	-149.80	29.51	152.68	150.05	2.63	58.124	
450.00	450.00	447.40	447.40	1.48	1.47	168.86	-149.80	29.51	152.68	149.74	2.94	51.863	
500.00	500.00	502.60	497.40	1.65	1.65	168.86	-149.80	29.51	152.68	149.38	3.30	46.252	
550.00	550.00	547.40	547.40	1.82	1.81	168.86	-149.80	29.51	152.68	149.05	3.63	42.102	
600.00	600.00	602.60	597.40	1.99	2.00	168.86	-149.80	29.51	152.68	148.69	3.99	38.263	
650.00	650.00	647.40	647.40	2.16	2.16	168.86	-149.80	29.51	152.68	148.36	4.32	35.342	
700.00	700.00	702.60	697.40	2.34	2.35	168.86	-149.80	29.51	152.68	147.99	4.69	32.570	
750.00	750.00	747.40	747.40	2.51	2.51	168.86	-149.80	29.51	152.68	147.66	5.02	30.413	
800.00	800.00	802.60	797.40	2.69	2.70	168.86	-149.80	29.51	152.68	147.29	5.39	28.325	
850.00	850.00	847.40	847.40	2.87	2.86	168.86	-149.80	29.51	152.68	146.95	5.72	26.671	
900.00	900.00	902.60	897.40	3.04	3.05	168.86	-149.80	29.51	152.68	146.58	6.10	25.045	
950.00	950.00	947.40	947.40	3.22	3.21	168.86	-149.80	29.51	152.68	146.25	6.43	23.738	
1,000.00	1,000.00	1,002.60	997.40	3.40	3.41	168.86	-149.80	29.51	152.68	145.87	6.80	22.438	
1,050.00	1,050.00	1,047.40	1,047.40	3.58	3.57	168.86	-149.80	29.51	152.68	145.54	7.14	21.381	
1,100.00	1,100.00	1,102.60	1,097.40	3.75	3.76	168.86	-149.80	29.51	152.68	145.16	7.51	20.318	
1,150.00	1,150.00	1,147.40	1,147.40	3.93	3.92	168.86	-149.80	29.51	152.68	144.83	7.85	19.446	
1,200.00	1,200.00	1,202.60	1,197.40	4.11	4.12	168.86	-149.80	29.51	152.68	144.45	8.23	18.562	
1,250.00	1,250.00	1,247.40	1,247.40	4.29	4.28	168.86	-149.80	29.51	152.68	144.12	8.56	17.830	
1,300.00	1,300.00	1,302.60	1,297.40	4.46	4.47	168.86	-149.80	29.51	152.68	143.74	8.94	17.083	
1,350.00	1,350.00	1,347.40	1,347.40	4.64	4.63	168.86	-149.80	29.51	152.68	143.40	9.28	16.461	
1,400.00	1,400.00	1,402.60	1,397.40	4.82	4.83	168.86	-149.80	29.51	152.68	143.03	9.65	15.821	
1,450.00	1,450.00	1,447.40	1,447.40	5.00	4.99	168.86	-149.80	29.51	152.68	142.69	9.99	15.286	
1,500.00	1,500.00	1,502.60	1,497.40	5.18	5.19	168.86	-149.80	29.51	152.68	142.32	10.36	14.732	
1,550.00	1,550.00	1,547.40	1,547.40	5.36	5.35	168.86	-149.80	29.51	152.68	141.98	10.70	14.266	
1,600.00	1,600.00	1,602.60	1,597.40	5.53	5.54	168.86	-149.80	29.51	152.68	141.60	11.08	13.783	
1,650.00	1,650.00	1,647.40	1,647.40	5.71	5.70	168.86	-149.80	29.51	152.68	141.26	11.42	13.374	
1,700.00	1,700.00	1,702.60	1,697.40	5.89	5.90	168.86	-149.80	29.51	152.68	140.89	11.79	12.948	
1,750.00	1,750.00	1,747.40	1,747.40	6.07	6.06	168.86	-149.80	29.51	152.68	140.55	12.13	12.587	
1,800.00	1,800.00	1,802.60	1,797.40	6.25	6.26	168.86	-149.80	29.51	152.68	140.17	12.51	12.208	
1,850.00	1,850.00	1,847.40	1,847.40	6.43	6.42	168.86	-149.80	29.51	152.68	139.83	12.85	11.886	
1,900.00	1,900.00	1,902.60	1,897.40	6.61	6.62	168.86	-149.80	29.51	152.68	139.46	13.22	11.548	
1,950.00	1,950.00	1,947.40	1,947.40	6.78	6.78	168.86	-149.80	29.51	152.68	139.12	13.56	11.260	
2,000.00	2,000.00	1,997.40	1,997.40	6.96	6.95	168.86	-149.80	29.51	152.68	138.76	13.92	10.970	
2,050.00	2,050.00	2,047.67	2,047.67	7.14	7.13	168.78	-149.72	29.69	152.64	138.36	14.27	10.694	
2,100.00	2,100.00	2,097.95	2,097.95	7.32	7.31	168.55	-149.47	30.28	152.50	137.87	14.63	10.424	
2,150.00	2,150.00	2,148.22	2,148.20	7.50	7.48	168.15	-149.03	31.27	152.28	137.30	14.98	10.163	
2,200.00	2,200.00	2,198.46	2,198.42	7.68	7.66	167.59	-148.43	32.66	151.98	136.64	15.34	9.910	
2,250.00	2,250.00	2,248.67	2,248.59	7.86	7.83	166.86	-147.64	34.46	151.61	135.92	15.69	9.663	
2,300.00	2,300.00	2,298.84	2,298.71	8.04	8.01	165.97	-146.69	36.65	151.20	135.16	16.05	9.423	
2,350.00	2,350.00	2,348.97	2,348.76	8.22	8.19	164.91	-145.55	39.25	150.76	134.36	16.40	9.193	
2,400.00	2,400.00	2,399.04	2,398.72	8.39	8.36	163.68	-144.25	42.24	150.31	133.56	16.75	8.971	
2,450.00	2,450.00	2,449.06	2,448.60	8.57	8.54	162.28	-142.77	45.63	149.89	132.78	17.11	8.760	
2,500.00	2,500.00	2,499.00	2,498.37	8.75	8.71	160.70	-141.12	49.41	149.52	132.06	17.47	8.561	
2,550.00	2,550.00	2,548.87	2,548.03	8.93	8.89	158.96	-139.30	53.59	149.25	131.43	17.82	8.375	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,600.00	2,598.66	2,597.57	9.11	9.07	157.05	-137.31	58.15	149.11	130.94	18.18	8.203	
2,615.21	2,615.21	2,613.78	2,612.61	9.16	9.12	156.43	-136.67	59.61	149.10	130.82	18.29	8.154	CC
2,650.00	2,650.00	2,648.35	2,646.97	9.29	9.25	154.97	-135.15	63.10	149.15	130.62	18.53	8.047	
2,700.00	2,700.00	2,697.95	2,696.22	9.47	9.42	152.74	-132.83	68.43	149.42	130.53	18.89	7.910	ES
2,750.00	2,750.00	2,747.44	2,745.32	9.65	9.60	150.37	-130.34	74.13	149.96	130.71	19.25	7.792	
2,800.00	2,800.00	2,796.82	2,794.25	9.83	9.78	147.86	-127.68	80.21	150.82	131.22	19.60	7.695	
2,850.00	2,850.00	2,846.08	2,843.01	10.00	9.96	145.24	-124.87	86.67	152.06	132.11	19.96	7.620	
2,900.00	2,900.00	2,895.22	2,891.58	10.18	10.14	142.51	-121.90	93.48	153.73	133.42	20.31	7.570	
2,950.00	2,950.00	2,944.59	2,940.35	10.36	10.33	139.76	-118.82	100.54	155.81	135.14	20.66	7.541	
3,000.00	3,000.00	3,006.02	2,989.13	10.54	10.56	137.09	-115.74	107.60	158.25	137.19	21.06	7.514	
3,050.00	3,050.00	3,043.37	3,037.92	10.72	10.70	134.49	-112.66	114.67	161.03	139.66	21.37	7.536	
3,100.00	3,100.00	3,107.25	3,086.70	10.90	10.93	131.99	-109.58	121.73	164.13	142.36	21.77	7.538	
3,150.00	3,150.00	3,142.14	3,135.48	11.08	11.07	129.59	-106.50	128.79	167.54	145.47	22.07	7.590	
3,200.00	3,200.00	3,208.47	3,184.27	11.26	11.32	127.28	-103.42	135.85	171.24	148.75	22.49	7.615	
3,250.00	3,250.00	3,240.92	3,233.05	11.44	11.44	125.07	-100.33	142.91	175.20	152.43	22.78	7.692	
3,300.00	3,300.00	3,309.69	3,281.83	11.62	11.70	122.96	-97.25	149.97	179.42	156.22	23.20	7.734	
3,350.00	3,350.00	3,339.69	3,330.62	11.80	11.82	120.95	-94.17	157.03	183.88	160.40	23.48	7.832	
3,400.00	3,400.00	3,389.08	3,379.40	11.97	12.01	119.04	-91.09	164.10	188.55	164.72	23.83	7.912	
3,450.00	3,450.00	3,438.47	3,428.18	12.15	12.20	117.21	-88.01	171.16	193.42	169.24	24.18	7.999	
3,500.00	3,500.00	3,487.86	3,476.97	12.33	12.39	115.48	-84.93	178.22	198.48	173.94	24.53	8.090	
3,550.00	3,550.00	3,537.25	3,525.75	12.51	12.58	113.84	-81.85	185.28	203.71	178.83	24.88	8.186	
3,600.00	3,600.00	3,586.63	3,574.53	12.69	12.77	112.27	-78.77	192.34	209.10	183.87	25.24	8.286	
3,650.00	3,650.00	3,636.02	3,623.32	12.87	12.96	110.79	-75.69	199.40	214.64	189.05	25.59	8.389	
3,700.00	3,700.00	3,685.41	3,672.10	13.05	13.15	109.38	-72.61	206.46	220.32	194.38	25.94	8.494	
3,750.00	3,750.00	3,734.80	3,720.88	13.23	13.35	108.04	-69.53	213.53	226.12	199.83	26.29	8.601	
3,800.00	3,800.00	3,784.19	3,769.67	13.41	13.54	106.77	-66.45	220.59	232.04	205.40	26.64	8.709	
3,850.00	3,850.00	3,833.57	3,818.45	13.59	13.73	105.56	-63.37	227.65	238.07	211.08	27.00	8.819	
3,900.00	3,900.00	3,882.96	3,867.23	13.77	13.93	104.41	-60.29	234.71	244.20	216.85	27.35	8.929	
3,950.00	3,950.00	3,932.35	3,916.02	13.94	14.12	103.31	-57.21	241.77	250.42	222.72	27.70	9.040	
4,000.00	4,000.00	3,981.74	3,964.80	14.12	14.31	102.27	-54.13	248.83	256.73	228.68	28.06	9.151	
4,050.00	4,050.00	4,031.13	4,013.58	14.30	14.51	101.28	-51.05	255.90	263.12	234.71	28.41	9.262	
4,100.00	4,100.00	4,080.51	4,062.37	14.48	14.70	100.34	-47.97	262.96	269.58	240.82	28.76	9.373	
4,150.00	4,150.00	4,129.90	4,111.15	14.66	14.90	99.44	-44.89	270.02	276.11	247.00	29.12	9.483	
4,200.00	4,200.00	4,179.29	4,159.93	14.84	15.10	98.58	-41.81	277.08	282.71	253.24	29.47	9.593	
4,250.00	4,250.00	4,228.68	4,208.72	15.02	15.29	97.76	-38.73	284.14	289.37	259.54	29.83	9.702	
4,300.00	4,300.00	4,278.06	4,257.50	15.20	15.49	96.98	-35.65	291.20	296.08	265.90	30.18	9.810	
4,350.00	4,350.00	4,327.45	4,306.28	15.38	15.68	96.23	-32.57	298.26	302.84	272.31	30.54	9.918	
4,400.00	4,400.00	4,376.84	4,355.07	15.56	15.88	95.52	-29.49	305.33	309.65	278.76	30.89	10.024	
4,450.00	4,450.00	4,426.23	4,403.85	15.74	16.08	94.83	-26.41	312.39	316.51	285.27	31.25	10.130	
4,500.00	4,500.00	4,475.62	4,452.63	15.92	16.28	94.18	-23.33	319.45	323.41	291.81	31.60	10.234	
4,550.00	4,550.00	4,525.04	4,501.45	16.09	16.47	7.01	-20.25	326.51	330.14	298.19	31.95	10.332	
4,600.00	4,600.00	4,574.52	4,550.32	16.26	16.67	6.41	-17.16	333.59	336.47	304.17	32.30	10.416	
4,650.00	4,649.98	4,624.05	4,599.25	16.44	16.87	5.84	-14.07	340.67	342.41	309.76	32.65	10.486	
4,700.00	4,699.96	4,673.64	4,648.23	16.61	17.07	5.30	-10.98	347.76	347.95	314.94	33.00	10.543	
4,750.00	4,749.92	4,723.28	4,697.26	16.78	17.27	4.79	-7.88	354.86	353.08	319.73	33.35	10.586	
4,800.00	4,799.86	4,772.96	4,746.33	16.95	17.47	4.29	-4.78	361.96	357.81	324.10	33.70	10.617	
4,850.00	4,849.78	4,822.68	4,795.45	17.12	17.67	3.81	-1.68	369.07	362.13	328.07	34.05	10.634	
4,900.00	4,899.68	4,872.44	4,844.60	17.30	17.87	3.35	1.42	376.19	366.04	331.63	34.41	10.639	
4,950.00	4,949.54	4,922.24	4,893.79	17.47	18.07	2.90	4.53	383.31	369.54	334.78	34.76	10.632	
5,000.00	4,999.37	4,972.06	4,943.00	17.64	18.27	2.46	7.63	390.43	372.62	337.51	35.11	10.613	
5,050.00	5,049.16	5,021.91	4,992.24	17.82	18.47	2.03	10.74	397.56	375.29	339.83	35.46	10.583	
5,100.00	5,098.90	5,071.79	5,041.50	17.99	18.67	1.62	13.85	404.69	377.55	341.73	35.82	10.542	

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,150.00	5,148.61	5,121.68	5,090.78	18.16	18.87	1.20	16.96	411.82	379.41	343.24	36.17	10.490	
5,200.00	5,198.30	5,171.57	5,140.07	18.34	19.08	0.79	20.08	418.96	381.18	344.66	36.52	10.437	
5,250.00	5,247.99	5,221.47	5,189.35	18.52	19.28	0.39	23.19	426.09	382.97	346.09	36.88	10.385	
5,300.00	5,297.69	5,271.36	5,238.64	18.69	19.48	-0.01	26.30	433.23	384.77	347.54	37.23	10.335	
5,350.00	5,347.38	5,321.26	5,287.92	18.87	19.68	-0.41	29.41	440.36	386.60	349.01	37.58	10.286	
5,400.00	5,397.07	5,371.15	5,337.21	19.04	19.88	-0.80	32.52	447.49	388.44	350.50	37.94	10.238	
5,450.00	5,446.77	5,421.05	5,386.49	19.22	20.09	-1.19	35.63	454.63	390.31	352.01	38.29	10.192	
5,500.00	5,496.46	5,470.94	5,435.78	19.40	20.29	-1.57	38.75	461.76	392.19	353.54	38.65	10.147	
5,550.00	5,546.15	5,520.84	5,485.06	19.58	20.49	-1.96	41.86	468.90	394.08	355.08	39.01	10.103	
5,600.00	5,595.84	5,570.73	5,534.34	19.75	20.69	-2.33	44.97	476.03	396.00	356.64	39.36	10.061	
5,650.00	5,645.54	5,620.63	5,583.63	19.93	20.90	-2.71	48.08	483.16	397.93	358.21	39.72	10.019	
5,700.00	5,695.23	5,670.52	5,632.91	20.11	21.10	-3.08	51.19	490.30	399.88	359.81	40.07	9.979	
5,750.00	5,744.92	5,720.42	5,682.20	20.29	21.30	-3.45	54.31	497.43	401.85	361.41	40.43	9.939	
5,800.00	5,794.62	5,770.31	5,731.48	20.47	21.51	-3.81	57.42	504.57	403.83	363.04	40.79	9.901	
5,850.00	5,844.31	5,820.21	5,780.77	20.65	21.71	-4.17	60.53	511.70	405.83	364.68	41.14	9.864	
5,900.00	5,894.00	5,870.11	5,830.05	20.83	21.91	-4.53	63.64	518.83	407.84	366.34	41.50	9.827	
5,950.00	5,943.69	5,920.00	5,879.33	21.01	22.12	-4.88	66.75	525.97	409.87	368.01	41.86	9.792	
6,000.00	5,993.39	5,969.90	5,928.62	21.19	22.32	-5.23	69.87	533.10	411.91	369.70	42.22	9.757	
6,050.00	6,043.08	6,019.79	5,977.90	21.37	22.52	-5.58	72.98	540.24	413.97	371.40	42.57	9.723	
6,100.00	6,092.77	6,069.69	6,027.19	21.55	22.73	-5.92	76.09	547.37	416.05	373.12	42.93	9.691	
6,150.00	6,142.47	6,119.58	6,076.47	21.73	22.93	-6.26	79.20	554.50	418.14	374.85	43.29	9.659	
6,200.00	6,192.16	6,169.48	6,125.76	21.91	23.14	-6.59	82.31	561.64	420.24	376.59	43.65	9.628	
6,250.00	6,241.85	6,219.37	6,175.04	22.09	23.34	-6.93	85.42	568.77	422.36	378.35	44.01	9.597	
6,300.00	6,291.54	6,269.27	6,224.32	22.27	23.54	-7.26	88.54	575.91	424.50	380.13	44.37	9.568	
6,350.00	6,341.24	6,319.16	6,273.61	22.46	23.75	-7.58	91.65	583.04	426.64	381.92	44.73	9.539	
6,400.00	6,390.93	6,369.06	6,322.89	22.64	23.95	-7.90	94.76	590.17	428.80	383.72	45.09	9.510	
6,450.00	6,440.62	6,418.95	6,372.18	22.82	24.16	-8.22	97.87	597.31	430.98	385.53	45.45	9.483	
6,500.00	6,490.32	6,468.85	6,421.46	23.00	24.36	-8.54	100.98	604.44	433.17	387.36	45.81	9.456	
6,550.00	6,540.01	6,518.74	6,470.75	23.19	24.57	-8.85	104.10	611.58	435.37	389.20	46.17	9.430	
6,600.00	6,589.70	6,568.64	6,520.03	23.37	24.77	-9.16	107.21	618.71	437.58	391.05	46.53	9.404	
6,650.00	6,639.39	6,618.53	6,569.32	23.55	24.97	-9.47	110.32	625.84	439.81	392.92	46.89	9.380	
6,700.00	6,689.09	6,668.43	6,618.60	23.73	25.18	-9.77	113.43	632.98	442.04	394.79	47.25	9.355	
6,750.00	6,738.78	6,718.32	6,667.88	23.92	25.38	-10.07	116.54	640.11	444.29	396.68	47.61	9.332	
6,800.00	6,788.47	6,768.22	6,717.17	24.10	25.59	-10.37	119.65	647.25	446.56	398.58	47.97	9.308	
6,850.00	6,838.17	6,818.11	6,766.45	24.29	25.79	-10.67	122.77	654.38	448.83	400.50	48.34	9.286	
6,900.00	6,887.86	6,868.01	6,815.74	24.47	26.00	-10.96	125.88	661.51	451.12	402.42	48.70	9.264	
6,950.00	6,937.55	6,917.90	6,865.02	24.65	26.20	-11.25	128.99	668.65	453.42	404.36	49.06	9.242	
7,000.00	6,987.24	6,967.80	6,914.31	24.84	26.41	-11.53	132.10	675.78	455.73	406.30	49.42	9.221	
7,050.00	7,036.94	7,017.69	6,963.59	25.02	26.61	-11.82	135.21	682.92	458.05	408.26	49.78	9.201	
7,100.00	7,086.63	7,067.59	7,012.87	25.21	26.82	-12.10	138.33	690.05	460.38	410.23	50.15	9.180	
7,150.00	7,136.32	7,117.48	7,062.16	25.39	27.02	-12.37	141.44	697.18	462.72	412.21	50.51	9.161	
7,200.00	7,186.02	7,167.38	7,111.44	25.58	27.23	-12.65	144.55	704.32	465.07	414.20	50.87	9.142	
7,250.00	7,235.71	7,217.27	7,160.73	25.76	27.43	-12.92	147.66	711.45	467.44	416.20	51.24	9.123	
7,300.00	7,285.40	7,267.17	7,210.01	25.95	27.64	-13.19	150.77	718.59	469.81	418.21	51.60	9.105	
7,350.00	7,335.09	7,317.06	7,259.30	26.13	27.84	-13.45	153.89	725.72	472.20	420.23	51.97	9.087	
7,400.00	7,384.79	7,366.96	7,308.58	26.32	28.05	-13.72	157.00	732.85	474.59	422.26	52.33	9.069	
7,450.00	7,434.48	7,416.85	7,357.87	26.50	28.26	-13.98	160.11	739.99	477.00	424.30	52.69	9.052	
7,500.00	7,484.17	7,466.75	7,407.15	26.69	28.46	-14.24	163.22	747.12	479.41	426.35	53.06	9.036	
7,550.00	7,533.86	7,516.65	7,456.43	26.87	28.67	-14.49	166.33	754.26	481.84	428.41	53.42	9.019	
7,600.00	7,583.56	7,573.35	7,512.50	27.06	28.90	-14.78	169.72	762.02	483.94	430.08	53.86	8.985	
7,650.00	7,633.25	7,630.51	7,569.15	27.25	29.13	-15.05	172.80	769.07	485.31	431.02	54.29	8.939	
7,700.00	7,682.94	7,687.72	7,625.94	27.43	29.35	-15.32	175.53	775.35	485.94	431.23	54.71	8.882	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,750.00	7,732.64	7,744.94	7,682.84	27.62	29.57	-15.57	177.93	780.85	485.83	430.71	55.12	8.814	
7,800.00	7,782.33	7,802.15	7,739.82	27.81	29.79	-15.82	179.99	785.57	484.98	429.46	55.52	8.735	
7,850.00	7,832.02	7,859.32	7,796.83	27.99	29.99	-16.06	181.71	789.50	483.40	427.49	55.91	8.646	
7,900.00	7,881.71	7,916.43	7,853.83	28.18	30.20	-16.30	183.08	792.65	481.08	424.79	56.29	8.547	
7,950.00	7,931.41	7,973.45	7,910.80	28.37	30.40	-16.53	184.11	795.01	478.01	421.36	56.65	8.438	
8,000.00	7,981.10	8,030.36	7,967.68	28.55	30.60	-16.77	184.80	796.60	474.22	417.21	57.00	8.319	
8,050.00	8,030.79	8,087.13	8,024.44	28.74	30.79	-16.99	185.15	797.40	469.69	412.34	57.35	8.190	
8,100.00	8,080.49	8,140.57	8,077.89	28.93	30.96	-17.21	185.20	797.51	464.50	406.81	57.69	8.052	
8,150.00	8,130.18	8,209.73	8,127.58	29.11	31.19	-17.41	185.20	797.51	459.22	401.11	58.10	7.903	
8,200.00	8,179.87	8,239.96	8,177.27	29.30	31.29	-17.62	185.20	797.51	453.94	395.55	58.39	7.774	
8,250.00	8,229.56	8,289.65	8,226.96	29.49	31.45	-17.84	185.20	797.51	448.66	389.92	58.74	7.638	
8,300.00	8,279.26	8,339.35	8,276.66	29.68	31.62	-18.06	185.20	797.51	443.39	384.30	59.09	7.504	
8,350.00	8,328.95	8,389.04	8,326.35	29.86	31.78	-18.28	185.20	797.51	438.13	378.69	59.44	7.371	
8,400.00	8,378.64	8,438.73	8,376.04	30.05	31.94	-18.51	185.20	797.51	432.88	373.08	59.80	7.239	
8,450.00	8,428.34	8,496.44	8,433.74	30.24	32.13	-18.69	184.48	797.51	427.44	367.34	60.10	7.112	
8,500.00	8,478.03	8,564.45	8,501.31	30.43	32.32	-18.07	177.05	797.52	420.17	359.90	60.27	6.972	
8,550.00	8,527.72	8,629.73	8,564.89	30.62	32.50	-16.45	162.45	797.54	410.92	350.54	60.38	6.805	
8,600.00	8,577.41	8,690.88	8,622.59	30.80	32.64	-13.92	142.29	797.58	400.18	339.65	60.53	6.611	
8,650.00	8,627.11	8,747.04	8,673.42	30.99	32.76	-10.68	118.46	797.61	388.64	327.85	60.79	6.393	
8,700.00	8,676.80	8,797.84	8,717.19	31.18	32.86	-6.92	92.70	797.65	377.18	315.97	61.20	6.163	
8,750.00	8,726.49	8,843.34	8,754.32	31.37	32.93	-2.88	66.43	797.69	366.72	304.97	61.75	5.939	
8,800.00	8,776.19	8,883.84	8,785.52	31.56	32.98	1.24	40.63	797.73	358.23	295.88	62.35	5.745	
8,850.00	8,825.88	8,919.77	8,811.62	31.74	33.03	5.27	15.94	797.77	352.64	289.77	62.87	5.609	
8,897.99	8,873.57	8,950.42	8,832.63	31.93	33.06	8.95	-6.38	797.80	350.74	287.59	63.15	5.554	
8,900.00	8,875.57	8,951.63	8,833.43	31.93	33.06	9.10	-7.28	797.80	350.74	287.59	63.15	5.554 SF	
8,950.00	8,925.26	8,979.90	8,851.68	32.12	33.08	12.66	-28.88	797.84	353.15	290.10	63.05	5.601	
9,000.00	8,974.96	9,005.05	8,866.99	32.31	33.10	15.91	-48.82	797.87	360.23	297.72	62.51	5.763	
9,050.00	9,024.65	9,027.48	8,879.90	32.50	33.12	18.85	-67.15	797.89	372.05	310.54	61.51	6.048	
9,100.00	9,074.34	9,050.00	8,892.14	32.69	33.13	21.81	-86.06	797.92	388.48	328.25	60.23	6.450	
9,150.00	9,124.04	9,065.57	8,900.15	32.88	33.14	23.85	-99.41	797.94	409.16	350.61	58.54	6.989	
9,200.00	9,173.73	9,081.81	8,908.12	33.07	33.15	25.96	-113.55	797.96	433.66	376.86	56.80	7.635	
9,250.00	9,223.42	9,100.00	8,916.58	33.25	33.16	28.30	-129.67	797.99	461.52	406.35	55.17	8.366	
9,300.00	9,273.11	9,109.83	8,920.93	33.44	33.16	29.55	-138.48	798.00	492.22	438.89	53.32	9.231	
9,350.00	9,322.81	9,121.97	8,926.10	33.63	33.16	31.06	-149.47	798.02	525.38	473.67	51.71	10.160	
9,400.00	9,372.50	9,133.07	8,930.61	33.82	33.17	32.43	-159.60	798.03	560.63	510.40	50.23	11.162	
9,450.00	9,422.19	9,150.00	8,937.12	34.01	33.17	34.47	-175.23	798.06	597.71	548.59	49.13	12.167	
9,500.00	9,471.89	9,150.00	8,937.12	34.20	33.17	34.47	-175.23	798.06	636.15	588.55	47.60	13.365	
9,550.00	9,521.58	9,161.22	8,941.18	34.39	33.17	35.79	-185.69	798.07	675.91	629.29	46.62	14.499	
9,600.00	9,571.27	9,169.19	8,943.94	34.58	33.18	36.72	-193.17	798.09	716.76	671.09	45.67	15.694	
9,650.00	9,620.96	9,176.59	8,946.41	34.77	33.18	37.56	-200.14	798.10	758.54	713.70	44.84	16.916	
9,700.00	9,670.66	9,183.46	8,948.62	34.96	33.18	38.33	-206.65	798.11	801.12	757.00	44.11	18.161	
9,750.00	9,720.35	9,200.00	8,953.62	35.15	33.19	40.14	-222.41	798.13	844.54	800.79	43.75	19.304	
9,800.00	9,770.04	9,200.00	8,953.62	35.34	33.19	40.14	-222.41	798.13	888.29	845.26	43.03	20.645	
9,850.00	9,819.74	9,200.00	8,953.62	35.53	33.19	40.39	-222.41	798.13	932.68	890.27	42.41	21.994	
9,900.00	9,869.48	9,200.00	8,953.62	35.72	33.19	41.41	-222.41	798.13	977.76	935.88	41.88	23.347	
9,950.00	9,919.29	9,200.00	8,953.62	35.90	33.19	42.55	-222.41	798.13	1,023.50	982.05	41.44	24.698	
10,000.00	9,969.15	9,216.31	8,958.11	36.09	33.19	45.54	-238.09	798.15	1,069.44	1,028.04	41.40	25.829	
10,050.00	10,019.05	9,220.73	8,959.24	36.27	33.19	47.39	-242.36	798.16	1,116.02	1,074.84	41.17	27.105	
10,100.00	10,068.99	9,224.92	8,960.29	36.45	33.19	49.35	-246.42	798.17	1,162.98	1,121.99	40.99	28.375	
10,150.00	10,118.96	9,228.89	8,961.26	36.63	33.19	51.44	-250.27	798.17	1,210.28	1,169.44	40.84	29.636	
10,200.00	10,168.95	9,232.66	8,962.15	36.80	33.20	53.65	-253.94	798.18	1,257.87	1,217.15	40.72	30.888	
10,250.00	10,218.94	9,250.00	8,965.95	36.98	33.20	57.25	-270.86	798.20	1,305.96	1,265.11	40.86	31.964	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 534H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.00	10,268.94	9,250.00	8,965.95	37.15	33.20	144.25	-270.86	798.20	1,353.91	1,313.17	40.74	33.236	
10,350.00	10,318.94	9,250.00	8,965.95	37.32	33.20	144.25	-270.86	798.20	1,402.00	1,361.36	40.64	34.498	
10,400.00	10,368.94	9,250.00	8,965.95	37.49	33.20	144.25	-270.86	798.20	1,450.23	1,409.66	40.57	35.749	
10,450.00	10,418.94	9,250.00	8,965.95	37.67	33.20	144.25	-270.86	798.20	1,498.56	1,458.05	40.51	36.989	

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.30	-0.30	0.50	0.50	-90.36	-0.19	-30.02	30.02				
50.00	50.00	49.70	49.70	0.50	0.50	-90.36	-0.19	-30.02	30.02	29.01	1.01	29.828	
100.00	100.00	100.30	99.70	0.52	0.52	-90.36	-0.19	-30.02	30.02	28.98	1.04	28.983	
150.00	150.00	149.70	149.70	0.59	0.59	-90.36	-0.19	-30.02	30.02	28.84	1.18	25.443	
200.00	200.00	200.30	199.70	0.70	0.70	-90.36	-0.19	-30.02	30.02	28.62	1.40	21.368	
250.00	250.00	249.70	249.70	0.84	0.84	-90.36	-0.19	-30.02	30.02	28.35	1.67	17.927	
300.00	300.00	300.30	299.70	0.99	0.99	-90.36	-0.19	-30.02	30.02	28.05	1.98	15.196	
350.00	350.00	349.70	349.70	1.15	1.14	-90.36	-0.19	-30.02	30.02	27.73	2.29	13.109	
400.00	400.00	400.30	399.70	1.31	1.31	-90.36	-0.19	-30.02	30.02	27.40	2.62	11.462	
450.00	450.00	449.70	449.70	1.48	1.48	-90.36	-0.19	-30.02	30.02	27.07	2.95	10.171	
500.00	500.00	500.30	499.70	1.65	1.65	-90.36	-0.19	-30.02	30.02	26.73	3.29	9.116	
550.00	550.00	549.70	549.70	1.82	1.82	-90.36	-0.19	-30.02	30.02	26.39	3.63	8.260	
600.00	600.00	600.30	599.70	1.99	1.99	-90.36	-0.19	-30.02	30.02	26.04	3.98	7.539	
650.00	650.00	649.70	649.70	2.16	2.16	-90.36	-0.19	-30.02	30.02	25.69	4.33	6.936	
700.00	700.00	700.30	699.70	2.34	2.34	-90.36	-0.19	-30.02	30.02	25.34	4.68	6.415	
750.00	750.00	749.70	749.70	2.51	2.51	-90.36	-0.19	-30.02	30.02	24.99	5.03	5.970	
800.00	800.00	800.30	799.70	2.69	2.69	-90.36	-0.19	-30.02	30.02	24.64	5.38	5.578	
850.00	850.00	849.70	849.70	2.87	2.87	-90.36	-0.19	-30.02	30.02	24.29	5.73	5.237	
900.00	900.00	900.30	899.70	3.04	3.04	-90.36	-0.19	-30.02	30.02	23.93	6.09	4.931	Alert
950.00	950.00	949.70	949.70	3.22	3.22	-90.36	-0.19	-30.02	30.02	23.58	6.44	4.662	Alert
1,000.00	1,000.00	1,000.30	999.70	3.40	3.40	-90.36	-0.19	-30.02	30.02	23.22	6.80	4.417	Alert
1,050.00	1,050.00	1,049.70	1,049.70	3.58	3.57	-90.36	-0.19	-30.02	30.02	22.87	7.15	4.199	Alert
1,100.00	1,100.00	1,100.30	1,099.70	3.75	3.75	-90.36	-0.19	-30.02	30.02	22.51	7.51	3.999	Alert
1,150.00	1,150.00	1,149.70	1,149.70	3.93	3.93	-90.36	-0.19	-30.02	30.02	22.16	7.86	3.820	Alert
1,200.00	1,200.00	1,200.30	1,199.70	4.11	4.11	-90.36	-0.19	-30.02	30.02	21.80	8.22	3.653	Alert
1,250.00	1,250.00	1,249.70	1,249.70	4.29	4.29	-90.36	-0.19	-30.02	30.02	21.45	8.57	3.503	Alert
1,300.00	1,300.00	1,300.30	1,299.70	4.46	4.47	-90.36	-0.19	-30.02	30.02	21.09	8.93	3.362	Alert
1,350.00	1,350.00	1,349.70	1,349.70	4.64	4.64	-90.36	-0.19	-30.02	30.02	20.74	9.28	3.234	Alert
1,400.00	1,400.00	1,400.30	1,399.70	4.82	4.82	-90.36	-0.19	-30.02	30.02	20.38	9.64	3.113	Alert
1,450.00	1,450.00	1,449.70	1,449.70	5.00	5.00	-90.36	-0.19	-30.02	30.02	20.02	10.00	3.003	Alert
1,500.00	1,500.00	1,500.30	1,499.70	5.18	5.18	-90.36	-0.19	-30.02	30.02	19.67	10.36	2.899	Alert
1,550.00	1,550.00	1,549.70	1,549.70	5.36	5.35	-90.36	-0.19	-30.02	30.02	19.31	10.71	2.803	Alert
1,600.00	1,600.00	1,600.30	1,599.70	5.53	5.54	-90.36	-0.19	-30.02	30.02	18.95	11.07	2.712	Alert
1,650.00	1,650.00	1,649.70	1,649.70	5.71	5.71	-90.36	-0.19	-30.02	30.02	18.60	11.42	2.628	Alert
1,700.00	1,700.00	1,700.30	1,699.70	5.89	5.89	-90.36	-0.19	-30.02	30.02	18.24	11.78	2.548	Alert
1,750.00	1,750.00	1,749.70	1,749.70	6.07	6.07	-90.36	-0.19	-30.02	30.02	17.88	12.14	2.473	Minor Risk
1,800.00	1,800.00	1,800.30	1,799.70	6.25	6.25	-90.36	-0.19	-30.02	30.02	17.52	12.50	2.402	Minor Risk
1,850.00	1,850.00	1,849.70	1,849.70	6.43	6.43	-90.36	-0.19	-30.02	30.02	17.17	12.85	2.336	Minor Risk
1,900.00	1,900.00	1,900.30	1,899.70	6.61	6.61	-90.36	-0.19	-30.02	30.02	16.81	13.21	2.272	Minor Risk
1,950.00	1,950.00	1,949.70	1,949.70	6.78	6.78	-90.36	-0.19	-30.02	30.02	16.45	13.57	2.213	Minor Risk
2,000.00	2,000.00	2,000.30	1,999.70	6.96	6.96	-90.36	-0.19	-30.02	30.02	16.09	13.93	2.155	Minor Risk
2,050.00	2,050.00	2,049.70	2,049.70	7.14	7.14	-90.36	-0.19	-30.02	30.02	15.74	14.28	2.102	Minor Risk
2,100.00	2,100.00	2,100.30	2,099.70	7.32	7.32	-90.36	-0.19	-30.02	30.02	15.38	14.64	2.050	Minor Risk
2,150.00	2,150.00	2,149.70	2,149.70	7.50	7.50	-90.36	-0.19	-30.02	30.02	15.02	15.00	2.002	Minor Risk
2,200.00	2,200.00	2,200.30	2,199.70	7.68	7.68	-90.36	-0.19	-30.02	30.02	14.66	15.36	1.955	Minor Risk
2,250.00	2,250.00	2,249.70	2,249.70	7.86	7.86	-90.36	-0.19	-30.02	30.02	14.31	15.71	1.910	Minor Risk
2,300.00	2,300.00	2,300.30	2,299.70	8.04	8.04	-90.36	-0.19	-30.02	30.02	13.95	16.07	1.868	Minor Risk
2,350.00	2,350.00	2,349.70	2,349.70	8.22	8.21	-90.36	-0.19	-30.02	30.02	13.59	16.43	1.827	Minor Risk
2,400.00	2,400.00	2,400.30	2,399.70	8.39	8.40	-90.36	-0.19	-30.02	30.02	13.23	16.79	1.788	Minor Risk
2,450.00	2,450.00	2,449.70	2,449.70	8.57	8.57	-90.36	-0.19	-30.02	30.02	12.88	17.15	1.751	Minor Risk
2,500.00	2,500.00	2,500.30	2,499.70	8.75	8.75	-90.36	-0.19	-30.02	30.02	12.52	17.51	1.715	Minor Risk
2,550.00	2,550.00	2,549.70	2,549.70	8.93	8.93	-90.36	-0.19	-30.02	30.02	12.16	17.86	1.681	Minor Risk

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,600.00	2,600.30	2,599.70	9.11	9.11	-90.36	-0.19	-30.02	30.02	11.80	18.22	1.648	Minor Risk
2,650.00	2,650.00	2,649.70	2,649.70	9.29	9.29	-90.36	-0.19	-30.02	30.02	11.44	18.58	1.616	Minor Risk
2,700.00	2,700.00	2,700.30	2,699.70	9.47	9.47	-90.36	-0.19	-30.02	30.02	11.08	18.94	1.585	Minor Risk
2,750.00	2,750.00	2,749.70	2,749.70	9.65	9.65	-90.36	-0.19	-30.02	30.02	10.73	19.29	1.556	Minor Risk
2,800.00	2,800.00	2,800.30	2,799.70	9.83	9.83	-90.36	-0.19	-30.02	30.02	10.37	19.65	1.528	Minor Risk
2,850.00	2,850.00	2,849.70	2,849.70	10.00	10.00	-90.36	-0.19	-30.02	30.02	10.01	20.01	1.500	Minor Risk
2,900.00	2,900.00	2,900.30	2,899.70	10.18	10.18	-90.36	-0.19	-30.02	30.02	9.65	20.37	1.474	Major Risk
2,950.00	2,950.00	2,949.70	2,949.70	10.36	10.36	-90.36	-0.19	-30.02	30.02	9.30	20.72	1.449	Major Risk
3,000.00	3,000.00	2,999.70	2,999.70	10.54	10.54	-90.36	-0.19	-30.02	30.02	8.94	21.08	1.424	Major Risk
3,046.96	3,046.96	3,046.66	3,046.66	10.71	10.71	-90.00	0.00	-30.02	30.02	8.60	21.42	1.402	Major Risk, CC
3,050.00	3,050.00	3,049.70	3,049.70	10.72	10.72	-89.95	0.03	-30.02	30.02	8.58	21.44	1.400	Major Risk
3,100.00	3,100.00	3,099.69	3,099.69	10.90	10.90	-88.71	0.68	-30.02	30.03	8.23	21.80	1.377	Major Risk
3,150.00	3,150.00	3,149.67	3,149.66	11.08	11.08	-86.66	1.75	-30.02	30.07	7.91	22.16	1.357	Major Risk
3,200.00	3,200.00	3,200.34	3,199.63	11.26	11.26	-84.39	2.95	-30.02	30.16	7.65	22.52	1.340	Major Risk
3,250.00	3,250.00	3,249.65	3,249.60	11.44	11.44	-82.13	4.15	-30.02	30.31	7.43	22.87	1.325	Major Risk
3,300.00	3,300.00	3,300.37	3,299.57	11.62	11.62	-79.90	5.35	-30.02	30.49	7.26	23.23	1.313	Major Risk
3,350.00	3,350.00	3,349.62	3,349.54	11.80	11.79	-77.70	6.55	-30.02	30.73	7.14	23.59	1.303	Major Risk
3,400.00	3,400.00	3,400.40	3,399.51	11.97	11.98	-75.53	7.75	-30.02	31.00	7.06	23.95	1.295	Major Risk
3,450.00	3,450.00	3,449.59	3,449.49	12.15	12.15	-73.41	8.95	-30.02	31.33	7.02	24.30	1.289	Major Risk, ES
3,500.00	3,500.00	3,500.43	3,499.46	12.33	12.33	-71.33	10.14	-30.02	31.69	7.03	24.66	1.285	Major Risk
3,550.00	3,550.00	3,549.56	3,549.43	12.51	12.51	-69.30	11.34	-30.02	32.09	7.07	25.02	1.283	Major Risk
3,600.00	3,600.00	3,600.45	3,599.40	12.69	12.69	-67.32	12.54	-30.02	32.54	7.16	25.38	1.282	Major Risk, SF
3,650.00	3,650.00	3,649.53	3,649.37	12.87	12.87	-65.40	13.74	-30.02	33.02	7.28	25.73	1.283	Major Risk
3,700.00	3,700.00	3,700.48	3,699.34	13.05	13.05	-63.54	14.94	-30.02	33.53	7.44	26.10	1.285	Major Risk
3,750.00	3,750.00	3,749.50	3,749.31	13.23	13.23	-61.74	16.14	-30.02	34.09	7.64	26.45	1.289	Major Risk
3,800.00	3,800.00	3,800.51	3,799.28	13.41	13.41	-59.99	17.34	-30.02	34.67	7.86	26.81	1.293	Major Risk
3,850.00	3,850.00	3,849.47	3,849.26	13.59	13.58	-58.30	18.54	-30.02	35.29	8.12	27.17	1.299	Major Risk
3,900.00	3,900.00	3,899.46	3,899.23	13.77	13.76	-56.68	19.74	-30.02	35.93	8.41	27.52	1.305	Major Risk
3,950.00	3,950.00	3,949.44	3,949.20	13.94	13.94	-55.11	20.94	-30.02	36.60	8.72	27.88	1.313	Major Risk
4,000.00	4,000.00	4,000.57	3,999.17	14.12	14.13	-53.60	22.13	-30.02	37.30	9.06	28.24	1.321	Major Risk
4,050.00	4,050.00	4,049.42	4,049.14	14.30	14.30	-52.14	23.33	-30.02	38.03	9.43	28.60	1.330	Major Risk
4,100.00	4,100.00	4,100.60	4,099.11	14.48	14.48	-50.74	24.53	-30.02	38.77	9.81	28.96	1.339	Major Risk
4,150.00	4,150.00	4,149.39	4,149.08	14.66	14.66	-49.40	25.73	-30.02	39.54	10.23	29.31	1.349	Major Risk
4,200.00	4,200.00	4,200.63	4,199.05	14.84	14.84	-48.11	26.93	-30.02	40.33	10.66	29.68	1.359	Major Risk
4,250.00	4,250.00	4,249.36	4,249.03	15.02	15.02	-46.86	28.13	-30.02	41.15	11.11	30.03	1.370	Major Risk
4,300.00	4,300.00	4,300.66	4,299.00	15.20	15.20	-45.67	29.33	-30.02	41.97	11.58	30.39	1.381	Major Risk
4,350.00	4,350.00	4,349.33	4,348.97	15.38	15.37	-44.52	30.53	-30.02	42.82	12.07	30.75	1.393	Major Risk
4,400.00	4,400.00	4,400.69	4,398.94	15.56	15.56	-43.42	31.73	-30.02	43.68	12.57	31.11	1.404	Major Risk
4,450.00	4,450.00	4,449.30	4,448.91	15.74	15.73	-42.36	32.93	-30.02	44.56	13.10	31.46	1.416	Major Risk
4,500.00	4,500.00	4,500.71	4,498.88	15.92	15.92	-41.34	34.12	-30.02	45.46	13.63	31.83	1.428	Major Risk
4,550.00	4,550.00	4,549.27	4,548.85	16.09	16.09	-127.10	35.32	-30.02	46.50	14.32	32.18	1.445	Major Risk
4,600.00	4,600.00	4,600.75	4,598.82	16.26	16.28	-126.78	36.52	-30.02	47.80	15.27	32.53	1.469	Major Risk
4,650.00	4,649.98	4,649.23	4,648.78	16.44	16.45	-126.88	37.72	-30.02	49.37	16.49	32.88	1.502	Minor Risk
4,700.00	4,699.96	4,700.81	4,698.73	16.61	16.63	-127.37	38.92	-30.02	51.20	17.97	33.24	1.541	Minor Risk
4,750.00	4,749.92	4,749.14	4,748.67	16.78	16.81	-128.18	40.12	-30.02	53.31	19.73	33.58	1.587	Minor Risk
4,800.00	4,799.86	4,800.93	4,798.58	16.95	16.99	-129.28	41.32	-30.02	55.70	21.76	33.94	1.641	Minor Risk
4,850.00	4,849.78	4,848.98	4,848.48	17.12	17.17	-130.62	42.51	-30.02	58.39	24.11	34.28	1.703	Minor Risk
4,900.00	4,899.68	4,898.87	4,898.35	17.30	17.34	-132.13	43.71	-30.02	61.40	26.77	34.63	1.773	Minor Risk
4,950.00	4,949.54	4,948.72	4,948.19	17.47	17.52	-133.78	44.90	-30.02	64.76	29.77	34.98	1.851	Minor Risk
5,000.00	4,999.37	4,998.54	4,997.99	17.64	17.70	-135.52	46.10	-30.02	68.47	33.14	35.33	1.938	Minor Risk
5,050.00	5,049.16	5,048.32	5,047.76	17.82	17.88	-137.30	47.29	-30.02	72.56	36.88	35.68	2.034	Minor Risk
5,100.00	5,098.90	5,101.94	5,097.49	17.99	18.07	-139.11	48.49	-30.02	77.04	41.00	36.05	2.137	Minor Risk

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,150.00	5,148.61	5,147.76	5,147.17	18.16	18.24	-140.90	49.68	-30.02	81.92	45.54	36.38	2.252	Minor Risk
5,200.00	5,198.30	5,202.55	5,196.84	18.34	18.43	-142.56	50.87	-30.02	86.95	50.20	36.75	2.366	Minor Risk
5,250.00	5,247.99	5,247.13	5,246.51	18.52	18.59	-144.03	52.06	-30.02	92.05	54.97	37.08	2.482	Minor Risk
5,300.00	5,297.69	5,303.18	5,296.19	18.69	18.79	-145.35	53.25	-30.02	97.21	59.75	37.45	2.595	Alert
5,350.00	5,347.38	5,346.51	5,345.86	18.87	18.95	-146.53	54.45	-30.02	102.40	64.62	37.78	2.710	Alert
5,400.00	5,397.07	5,403.81	5,395.53	19.04	19.15	-147.60	55.64	-30.02	107.64	69.48	38.16	2.821	Alert
5,450.00	5,446.77	5,445.88	5,445.20	19.22	19.31	-148.58	56.83	-30.02	112.91	74.43	38.48	2.934	Alert
5,500.00	5,496.46	5,504.43	5,494.88	19.40	19.52	-149.46	58.02	-30.02	118.21	79.35	38.86	3.042	Alert
5,550.00	5,546.15	5,545.25	5,544.55	19.58	19.66	-150.27	59.21	-30.02	123.54	84.36	39.18	3.153	Alert
5,600.00	5,595.84	5,605.06	5,594.22	19.75	19.88	-151.01	60.41	-30.02	128.89	89.32	39.57	3.257	Alert
5,650.00	5,645.54	5,644.63	5,643.89	19.93	20.02	-151.69	61.60	-30.02	134.26	94.37	39.89	3.366	Alert
5,700.00	5,695.23	5,705.69	5,693.57	20.11	20.24	-152.32	62.79	-30.02	139.64	99.36	40.28	3.467	Alert
5,750.00	5,744.92	5,744.00	5,743.24	20.29	20.37	-152.90	63.98	-30.02	145.04	104.45	40.59	3.573	Alert
5,800.00	5,794.62	5,806.31	5,792.91	20.47	20.60	-153.44	65.17	-30.02	150.46	109.47	40.99	3.671	Alert
5,850.00	5,844.31	5,843.37	5,842.58	20.65	20.73	-153.95	66.36	-30.02	155.89	114.59	41.29	3.775	Alert
5,900.00	5,894.00	5,906.94	5,892.25	20.83	20.96	-154.42	67.56	-30.02	161.32	119.63	41.69	3.869	Alert
5,950.00	5,943.69	5,942.75	5,941.93	21.01	21.09	-154.86	68.75	-30.02	166.77	124.78	42.00	3.971	Alert
6,000.00	5,993.39	6,007.57	5,991.60	21.19	21.32	-155.27	69.94	-30.02	172.23	129.83	42.40	4.062	Alert
6,050.00	6,043.08	6,042.12	6,041.27	21.37	21.44	-155.65	71.13	-30.02	177.70	134.99	42.70	4.161	Alert
6,100.00	6,092.77	6,108.19	6,090.94	21.55	21.68	-156.02	72.32	-30.02	183.17	140.06	43.11	4.249	Alert
6,150.00	6,142.47	6,141.49	6,140.62	21.73	21.80	-156.36	73.52	-30.02	188.65	145.24	43.41	4.346	Alert
6,200.00	6,192.16	6,208.82	6,190.29	21.91	22.04	-156.68	74.71	-30.02	194.14	150.31	43.82	4.430	Alert
6,250.00	6,241.85	6,240.87	6,239.96	22.09	22.18	-156.99	75.90	-30.02	199.63	155.51	44.11	4.525	Alert
6,300.00	6,291.54	6,309.45	6,289.63	22.27	22.40	-157.27	77.09	-30.02	205.13	160.59	44.53	4.606	Alert
6,350.00	6,341.24	6,340.24	6,339.30	22.46	22.51	-157.55	78.28	-30.02	210.63	165.81	44.82	4.699	Alert
6,400.00	6,390.93	6,389.93	6,388.98	22.64	22.69	-157.81	79.47	-30.02	216.13	170.96	45.17	4.784	Alert
6,450.00	6,440.62	6,439.61	6,438.65	22.82	22.87	-158.05	80.67	-30.02	221.64	176.12	45.53	4.868	Alert
6,500.00	6,490.32	6,489.30	6,488.32	23.00	23.05	-158.29	81.86	-30.02	227.16	181.28	45.88	4.951	Alert
6,550.00	6,540.01	6,538.99	6,537.99	23.19	23.23	-158.51	83.05	-30.02	232.68	186.44	46.24	5.032	
6,600.00	6,589.70	6,588.67	6,587.67	23.37	23.40	-158.72	84.24	-30.02	238.20	191.61	46.59	5.113	
6,650.00	6,639.39	6,638.36	6,637.34	23.55	23.58	-158.93	85.43	-30.02	243.72	196.78	46.94	5.192	
6,700.00	6,689.09	6,688.05	6,687.01	23.73	23.76	-159.12	86.62	-30.02	249.25	201.95	47.30	5.270	
6,750.00	6,738.78	6,737.73	6,736.68	23.92	23.94	-159.31	87.82	-30.02	254.78	207.13	47.65	5.347	
6,800.00	6,788.47	6,787.42	6,786.36	24.10	24.12	-159.49	89.01	-30.02	260.31	212.31	48.01	5.423	
6,850.00	6,838.17	6,837.10	6,836.03	24.29	24.29	-159.66	90.20	-30.02	265.85	217.49	48.36	5.497	
6,900.00	6,887.86	6,886.79	6,885.70	24.47	24.47	-159.82	91.39	-30.02	271.39	222.67	48.72	5.571	
6,950.00	6,937.55	6,936.48	6,935.37	24.65	24.65	-159.98	92.58	-30.02	276.93	227.86	49.07	5.644	
7,000.00	6,987.24	6,986.16	6,985.04	24.84	24.83	-160.13	93.78	-30.02	282.47	233.04	49.42	5.715	
7,050.00	7,036.94	7,035.85	7,034.72	25.02	25.01	-160.27	94.97	-30.02	288.01	238.23	49.78	5.786	
7,100.00	7,086.63	7,085.54	7,084.39	25.21	25.19	-160.41	96.16	-30.02	293.56	243.42	50.13	5.855	
7,150.00	7,136.32	7,135.22	7,134.06	25.39	25.36	-160.55	97.35	-30.02	299.10	248.61	50.49	5.924	
7,200.00	7,186.02	7,184.91	7,183.73	25.58	25.54	-160.68	98.54	-30.02	304.65	253.81	50.85	5.992	
7,250.00	7,235.71	7,234.60	7,233.41	25.76	25.72	-160.80	99.73	-30.02	310.20	259.00	51.20	6.059	
7,300.00	7,285.40	7,284.28	7,283.08	25.95	25.90	-160.92	100.93	-30.02	315.75	264.20	51.56	6.125	
7,350.00	7,335.09	7,333.97	7,332.75	26.13	26.08	-161.04	102.12	-30.02	321.31	269.39	51.91	6.190	
7,400.00	7,384.79	7,383.66	7,382.42	26.32	26.26	-161.15	103.31	-30.02	326.86	274.59	52.27	6.254	
7,450.00	7,434.48	7,433.34	7,432.09	26.50	26.43	-161.26	104.50	-30.02	332.42	279.79	52.62	6.317	
7,500.00	7,484.17	7,483.03	7,481.77	26.69	26.61	-161.37	105.69	-30.02	337.97	284.99	52.98	6.379	
7,550.00	7,533.86	7,532.72	7,531.44	26.87	26.79	-161.47	106.89	-30.02	343.53	290.19	53.33	6.441	
7,600.00	7,583.56	7,582.40	7,581.11	27.06	26.97	-161.57	108.08	-30.02	349.09	295.40	53.69	6.502	
7,650.00	7,633.25	7,632.09	7,630.78	27.25	27.15	-161.66	109.27	-30.02	354.65	300.60	54.05	6.562	
7,700.00	7,682.94	7,681.78	7,680.46	27.43	27.32	-161.76	110.46	-30.02	360.21	305.81	54.40	6.621	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,750.00	7,732.64	7,731.46	7,730.13	27.62	27.50	-161.84	111.65	-30.02	365.77	311.01	54.76	6.680	
7,800.00	7,782.33	7,781.15	7,779.80	27.81	27.68	-161.93	112.84	-30.02	371.33	316.22	55.11	6.737	
7,850.00	7,832.02	7,830.84	7,829.47	27.99	27.86	-162.02	114.04	-30.02	376.89	321.42	55.47	6.795	
7,900.00	7,881.71	7,880.52	7,879.14	28.18	28.04	-162.10	115.23	-30.02	382.46	326.63	55.83	6.851	
7,950.00	7,931.41	7,930.21	7,928.82	28.37	28.22	-162.18	116.42	-30.02	388.02	331.84	56.18	6.906	
8,000.00	7,981.10	7,979.90	7,978.49	28.55	28.39	-162.26	117.61	-30.02	393.59	337.05	56.54	6.961	
8,050.00	8,030.79	8,029.58	8,028.16	28.74	28.57	-162.33	118.80	-30.02	399.15	342.26	56.90	7.015	
8,100.00	8,080.49	8,079.27	8,077.83	28.93	28.75	-162.40	120.00	-30.02	404.72	347.47	57.25	7.069	
8,150.00	8,130.18	8,128.96	8,127.51	29.11	28.93	-162.47	121.19	-30.02	410.29	352.68	57.61	7.122	
8,200.00	8,179.87	8,178.64	8,177.18	29.30	29.11	-162.54	122.38	-30.02	415.85	357.89	57.97	7.174	
8,250.00	8,229.56	8,228.33	8,226.85	29.49	29.29	-162.61	123.57	-30.02	421.42	363.10	58.32	7.226	
8,300.00	8,279.26	8,278.02	8,276.52	29.68	29.46	-162.68	124.76	-30.02	426.99	368.31	58.68	7.277	
8,350.00	8,328.95	8,327.70	8,326.20	29.86	29.64	-162.74	125.95	-30.02	432.56	373.52	59.04	7.327	
8,400.00	8,378.64	8,377.39	8,375.87	30.05	29.82	-162.80	127.15	-30.02	438.13	378.74	59.39	7.377	
8,450.00	8,428.34	8,427.07	8,425.54	30.24	30.00	-162.86	128.34	-30.02	443.70	383.95	59.75	7.426	
8,500.00	8,478.03	8,476.76	8,475.21	30.43	30.18	-162.92	129.53	-30.02	449.27	389.16	60.11	7.474	
8,550.00	8,527.72	8,526.45	8,524.88	30.62	30.36	-162.98	130.72	-30.02	454.84	394.38	60.46	7.522	
8,600.00	8,577.41	8,576.13	8,574.56	30.80	30.53	-163.04	131.91	-30.02	460.41	399.59	60.82	7.570	
8,650.00	8,627.11	8,625.82	8,624.23	30.99	30.71	-163.09	133.11	-30.02	465.99	404.81	61.18	7.617	
8,700.00	8,676.80	8,675.51	8,673.90	31.18	30.89	-163.15	134.30	-30.02	471.56	410.02	61.54	7.663	
8,750.00	8,726.49	8,725.19	8,723.57	31.37	31.07	-163.20	135.49	-30.02	477.13	415.24	61.89	7.709	
8,800.00	8,776.19	8,774.88	8,773.25	31.56	31.25	-163.25	136.68	-30.02	482.71	420.45	62.25	7.754	
8,850.00	8,825.88	8,824.57	8,822.92	31.74	31.43	-163.30	137.87	-30.02	488.28	425.67	62.61	7.799	
8,900.00	8,875.57	8,874.25	8,872.59	31.93	31.60	-163.35	139.06	-30.02	493.85	430.89	62.97	7.843	
8,950.00	8,925.26	8,923.94	8,922.26	32.12	31.78	-163.40	140.26	-30.02	499.43	436.10	63.32	7.887	
9,000.00	8,974.96	8,973.63	8,971.93	32.31	31.96	-163.44	141.45	-30.02	505.00	441.32	63.68	7.930	
9,050.00	9,024.65	9,023.31	9,021.61	32.50	32.14	-163.49	142.64	-30.02	510.58	446.54	64.04	7.973	
9,100.00	9,074.34	9,073.00	9,071.28	32.69	32.32	-163.53	143.83	-30.02	516.15	451.76	64.40	8.015	
9,150.00	9,124.04	9,122.69	9,120.95	32.88	32.50	-163.58	145.02	-30.02	521.73	456.98	64.75	8.057	
9,200.00	9,173.73	9,172.37	9,170.62	33.07	32.67	-163.62	146.22	-30.02	527.31	462.19	65.11	8.098	
9,250.00	9,223.42	9,222.06	9,220.30	33.25	32.85	-163.66	147.41	-30.02	532.88	467.41	65.47	8.139	
9,300.00	9,273.11	9,271.75	9,269.97	33.44	33.03	-163.70	148.60	-30.02	538.46	472.63	65.83	8.180	
9,350.00	9,322.81	9,321.43	9,319.64	33.63	33.21	-163.75	149.79	-30.02	544.04	477.85	66.19	8.220	
9,400.00	9,372.50	9,371.12	9,369.31	33.82	33.39	-163.78	150.98	-30.02	549.61	483.07	66.54	8.259	
9,450.00	9,422.19	9,420.81	9,418.99	34.01	33.57	-163.82	152.17	-30.02	555.19	488.29	66.90	8.299	
9,500.00	9,471.89	9,470.49	9,468.66	34.20	33.74	-163.86	153.37	-30.02	560.77	493.51	67.26	8.337	
9,550.00	9,521.58	9,520.18	9,518.33	34.39	33.92	-163.90	154.56	-30.02	566.35	498.73	67.62	8.376	
9,600.00	9,571.27	9,569.87	9,568.00	34.58	34.10	-163.93	155.75	-30.02	571.92	503.95	67.98	8.414	
9,650.00	9,620.96	9,619.55	9,617.67	34.77	34.28	-163.97	156.94	-30.02	577.50	509.17	68.33	8.451	
9,700.00	9,670.66	9,669.24	9,667.35	34.96	34.46	-164.01	158.13	-30.02	583.08	514.39	68.69	8.488	
9,750.00	9,720.35	9,718.93	9,717.02	35.15	34.64	-164.04	159.33	-30.02	588.66	519.61	69.05	8.525	
9,800.00	9,770.04	9,768.61	9,766.69	35.34	34.81	-164.07	160.52	-30.02	594.24	524.83	69.41	8.561	
9,850.00	9,819.74	9,818.30	9,816.37	35.53	34.99	-164.11	161.71	-30.02	599.80	530.03	69.77	8.597	
9,900.00	9,869.48	9,868.04	9,866.09	35.72	35.17	-164.15	162.90	-30.02	604.91	534.78	70.13	8.626	
9,950.00	9,919.29	9,917.84	9,915.87	35.90	35.35	-164.17	164.10	-30.02	609.39	538.91	70.48	8.646	
10,000.00	9,969.15	9,967.69	9,965.71	36.09	35.53	-164.18	165.29	-30.02	613.25	542.40	70.84	8.657	
10,050.00	10,019.05	10,017.58	10,015.59	36.27	35.71	-164.16	166.49	-30.02	616.47	545.27	71.20	8.658	
10,100.00	10,068.99	10,067.51	10,065.50	36.45	35.89	-164.12	167.69	-30.02	619.07	547.51	71.56	8.651	
10,150.00	10,118.96	10,117.47	10,115.45	36.63	36.07	-164.07	168.88	-30.02	621.04	549.13	71.91	8.636	
10,200.00	10,168.95	10,167.44	10,165.41	36.80	36.25	-163.99	170.08	-30.02	622.38	550.11	72.27	8.612	
10,250.00	10,218.94	10,217.43	10,215.37	36.98	36.43	-163.90	171.28	-30.02	623.10	550.47	72.63	8.579	
10,300.00	10,268.94	10,267.41	10,265.35	37.15	36.60	-77.26	172.48	-30.02	623.38	550.40	72.98	8.542	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,350.00	10,318.94	10,317.40	10,315.32	37.32	36.78	-77.15	173.68	-30.02	623.64	550.31	73.34	8.504	
10,400.00	10,368.94	10,367.38	10,365.29	37.49	36.96	-77.04	174.88	-30.02	623.91	550.22	73.69	8.467	
10,450.00	10,418.94	10,417.37	10,415.26	37.67	37.14	-76.94	176.08	-30.02	624.18	550.14	74.05	8.430	
10,500.00	10,468.94	10,467.35	10,465.23	37.84	37.32	-76.83	177.28	-30.02	624.45	550.05	74.40	8.393	
10,550.00	10,518.94	10,517.34	10,515.20	38.01	37.50	-76.72	178.48	-30.02	624.73	549.97	74.76	8.357	
10,600.00	10,568.94	10,567.32	10,565.17	38.19	37.68	-76.62	179.68	-30.02	625.01	549.89	75.11	8.321	
10,650.00	10,618.91	10,617.25	10,615.08	38.35	37.86	103.64	180.87	-30.02	625.59	550.13	75.46	8.290	
10,700.00	10,668.59	10,666.77	10,664.59	38.52	38.04	104.08	182.06	-30.02	627.23	551.42	75.81	8.274	
10,750.00	10,717.59	10,715.52	10,713.33	38.67	38.21	104.76	183.23	-30.02	630.04	553.90	76.14	8.275	
10,800.00	10,765.54	10,764.49	10,762.28	38.83	38.39	105.66	184.30	-30.02	634.20	557.72	76.48	8.292	
10,850.00	10,812.08	10,813.26	10,811.06	38.97	38.56	106.70	184.78	-30.02	639.79	562.97	76.81	8.329	
10,900.00	10,856.86	10,858.77	10,856.56	39.11	38.73	107.74	184.81	-30.02	647.08	569.95	77.13	8.390	
10,950.00	10,899.53	10,901.43	10,899.23	39.24	38.88	108.72	184.81	-30.02	656.47	579.04	77.43	8.479	
11,000.00	10,939.76	10,941.67	10,939.46	39.36	39.02	109.58	184.81	-30.02	668.24	590.53	77.71	8.599	
11,050.00	10,977.26	10,979.17	10,976.96	39.48	39.16	110.23	184.81	-30.02	682.64	604.67	77.97	8.755	
11,100.00	11,011.74	11,013.65	11,011.44	39.58	39.28	110.57	184.81	-30.02	699.85	621.64	78.21	8.948	
11,150.00	11,042.93	11,044.84	11,042.63	39.68	39.39	110.52	184.81	-30.02	720.02	641.59	78.43	9.180	
11,200.00	11,070.60	11,072.50	11,070.30	39.78	39.49	109.98	184.81	-30.02	743.17	664.54	78.62	9.453	
11,250.00	11,094.53	11,103.56	11,094.23	39.88	39.60	108.85	184.81	-30.02	769.25	690.44	78.81	9.761	
11,300.00	11,114.55	11,116.46	11,114.25	39.99	39.65	107.04	184.81	-30.02	798.15	719.23	78.92	10.113	
11,350.00	11,130.50	11,132.41	11,130.20	40.10	39.71	104.46	184.81	-30.02	829.64	750.61	79.02	10.498	
11,400.00	11,142.26	12,114.55	11,748.00	40.22	42.13	134.26	-425.45	-32.12	860.46	792.33	68.12	12.631	
11,450.00	11,149.74	12,163.97	11,748.00	40.35	42.25	134.26	-474.87	-32.29	855.38	786.82	68.56	12.477	
11,500.00	11,152.89	12,213.86	11,748.00	40.49	42.37	134.24	-524.75	-32.47	853.35	784.47	68.88	12.388	
11,538.41	11,153.35	12,252.26	11,748.00	40.60	42.48	134.21	-563.16	-32.60	853.17	784.07	69.10	12.348	
11,550.00	11,153.00	12,263.86	11,748.00	40.63	42.51	134.23	-574.75	-32.64	853.46	784.31	69.15	12.343	
11,600.00	11,153.00	12,313.86	11,748.00	40.78	42.66	134.22	-624.75	-32.81	853.63	784.22	69.41	12.298	
11,650.00	11,153.00	12,363.86	11,748.00	40.95	42.83	134.21	-674.75	-32.98	853.81	784.10	69.71	12.248	
11,700.00	11,153.00	12,413.86	11,748.00	41.13	43.00	134.19	-724.75	-33.16	853.99	783.97	70.02	12.197	
11,750.00	11,153.00	12,463.86	11,748.00	41.33	43.19	134.18	-774.75	-33.33	854.17	783.82	70.35	12.142	
11,800.00	11,153.00	12,513.85	11,748.00	41.52	43.38	134.17	-824.75	-33.50	854.34	783.65	70.69	12.086	
11,850.00	11,153.00	12,563.85	11,748.00	41.74	43.59	134.16	-874.75	-33.67	854.52	783.46	71.06	12.025	
11,900.00	11,153.00	12,613.85	11,748.00	41.96	43.81	134.15	-924.75	-33.85	854.70	783.26	71.44	11.964	
11,950.00	11,153.00	12,663.85	11,748.00	42.20	44.04	134.14	-974.74	-34.02	854.88	783.03	71.84	11.899	
12,000.00	11,153.00	12,713.85	11,748.00	42.45	44.28	134.12	-1,024.74	-34.19	855.05	782.80	72.25	11.834	
12,050.00	11,153.00	12,763.85	11,748.00	42.71	44.54	134.11	-1,074.74	-34.36	855.23	782.54	72.69	11.765	
12,100.00	11,153.00	12,813.85	11,748.00	42.97	44.80	134.10	-1,124.74	-34.54	855.41	782.27	73.14	11.696	
12,150.00	11,153.00	12,863.85	11,748.00	43.26	45.07	134.09	-1,174.74	-34.71	855.59	781.98	73.61	11.623	
12,200.00	11,153.00	12,913.85	11,748.00	43.54	45.35	134.08	-1,224.74	-34.88	855.76	781.68	74.09	11.551	
12,250.00	11,153.00	12,963.85	11,748.00	43.84	45.65	134.07	-1,274.74	-35.05	855.94	781.35	74.59	11.475	
12,300.00	11,153.00	13,013.85	11,748.00	44.15	45.94	134.06	-1,324.74	-35.23	856.12	781.02	75.10	11.400	
12,350.00	11,153.00	13,063.85	11,748.00	44.47	46.26	134.04	-1,374.74	-35.40	856.30	780.67	75.63	11.322	
12,400.00	11,153.00	13,113.85	11,748.00	44.80	46.58	134.03	-1,424.74	-35.57	856.48	780.30	76.17	11.244	
12,450.00	11,153.00	13,163.85	11,748.00	45.14	46.91	134.02	-1,474.74	-35.74	856.65	779.92	76.73	11.164	
12,500.00	11,153.00	13,213.85	11,748.00	45.48	47.24	134.01	-1,524.73	-35.91	856.83	779.53	77.30	11.084	
12,550.00	11,153.00	13,263.85	11,748.00	45.84	47.59	134.00	-1,574.73	-36.09	857.01	779.12	77.89	11.003	
12,600.00	11,153.00	13,313.85	11,748.00	46.20	47.94	133.99	-1,624.73	-36.26	857.19	778.70	78.49	10.922	
12,650.00	11,153.00	13,363.84	11,748.00	46.58	48.31	133.97	-1,674.73	-36.43	857.37	778.26	79.10	10.839	
12,700.00	11,153.00	13,413.84	11,748.00	46.95	48.68	133.96	-1,724.73	-36.60	857.54	777.82	79.72	10.756	
12,750.00	11,153.00	13,463.84	11,748.00	47.34	49.06	133.95	-1,774.73	-36.78	857.72	777.35	80.37	10.673	
12,800.00	11,153.00	13,513.84	11,748.00	47.74	49.45	133.94	-1,824.73	-36.95	857.90	776.89	81.01	10.590	
12,850.00	11,153.00	13,563.84	11,748.00	48.15	49.84	133.93	-1,874.73	-37.12	858.08	776.40	81.68	10.505	

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,900.00	11,153.00	13,613.84	11,748.00	48.55	50.24	133.92	-1,924.73	-37.29	858.26	775.91	82.35	10.422	
12,950.00	11,153.00	13,663.84	11,748.00	48.98	50.65	133.91	-1,974.73	-37.47	858.43	775.39	83.04	10.338	
13,000.00	11,153.00	13,713.84	11,748.00	49.40	51.07	133.89	-2,024.73	-37.64	858.61	774.88	83.73	10.254	
13,050.00	11,153.00	13,763.84	11,748.00	49.83	51.49	133.88	-2,074.72	-37.81	858.79	774.34	84.45	10.170	
13,100.00	11,153.00	13,813.84	11,748.00	50.27	51.92	133.87	-2,124.72	-37.98	858.97	773.81	85.16	10.086	
13,150.00	11,153.00	13,863.84	11,748.00	50.72	52.36	133.86	-2,174.72	-38.16	859.15	773.25	85.89	10.002	
13,200.00	11,153.00	13,913.84	11,748.00	51.17	52.80	133.85	-2,224.72	-38.33	859.33	772.70	86.63	9.919	
13,250.00	11,153.00	13,963.84	11,748.00	51.63	53.25	133.84	-2,274.72	-38.50	859.50	772.12	87.38	9.836	
13,300.00	11,153.00	14,013.84	11,748.00	52.09	53.70	133.83	-2,324.72	-38.67	859.68	771.54	88.14	9.754	
13,350.00	11,153.00	14,063.84	11,748.00	52.57	54.17	133.81	-2,374.72	-38.85	859.86	770.95	88.91	9.671	
13,400.00	11,153.00	14,113.84	11,748.00	53.04	54.63	133.80	-2,424.72	-39.02	860.04	770.35	89.69	9.589	
13,450.00	11,153.00	14,163.83	11,748.00	53.53	55.11	133.79	-2,474.72	-39.19	860.22	769.74	90.48	9.507	
13,500.00	11,153.00	14,213.83	11,748.00	54.01	55.58	133.78	-2,524.72	-39.36	860.40	769.13	91.27	9.427	
13,550.00	11,153.00	14,263.83	11,748.00	54.51	56.07	133.77	-2,574.72	-39.54	860.58	768.50	92.08	9.346	
13,600.00	11,153.00	14,313.83	11,748.00	55.00	56.55	133.76	-2,624.71	-39.71	860.75	767.87	92.89	9.266	
13,650.00	11,153.00	14,363.83	11,748.00	55.51	57.05	133.75	-2,674.71	-39.88	860.93	767.22	93.71	9.187	
13,700.00	11,153.00	14,413.83	11,748.00	56.02	57.54	133.73	-2,724.71	-40.05	861.11	766.57	94.54	9.109	
13,750.00	11,153.00	14,463.83	11,748.00	56.53	58.05	133.72	-2,774.71	-40.22	861.29	765.91	95.38	9.030	
13,800.00	11,153.00	14,513.83	11,748.00	57.05	58.55	133.71	-2,824.71	-40.40	861.47	765.25	96.22	8.953	
13,850.00	11,153.00	14,563.83	11,748.00	57.57	59.07	133.70	-2,874.71	-40.57	861.65	764.57	97.08	8.876	
13,900.00	11,153.00	14,613.83	11,748.00	58.09	59.58	133.69	-2,924.71	-40.74	861.83	763.90	97.93	8.800	
13,950.00	11,153.00	14,663.83	11,748.00	58.63	60.11	133.68	-2,974.71	-40.91	862.01	763.21	98.80	8.725	
14,000.00	11,153.00	14,713.83	11,748.00	59.16	60.63	133.67	-3,024.71	-41.09	862.19	762.51	99.67	8.650	
14,050.00	11,153.00	14,763.83	11,748.00	59.70	61.16	133.66	-3,074.71	-41.26	862.36	761.81	100.55	8.576	
14,100.00	11,153.00	14,813.83	11,748.00	60.24	61.69	133.64	-3,124.71	-41.43	862.54	761.11	101.44	8.503	
14,150.00	11,153.00	14,863.83	11,748.00	60.79	62.23	133.63	-3,174.70	-41.60	862.72	760.39	102.33	8.431	
14,200.00	11,153.00	14,913.83	11,748.00	61.34	62.77	133.62	-3,224.70	-41.78	862.90	759.67	103.23	8.359	
14,250.00	11,153.00	14,963.82	11,748.00	61.90	63.31	133.61	-3,274.70	-41.95	863.08	758.95	104.13	8.288	
14,300.00	11,153.00	15,013.82	11,748.00	62.45	63.86	133.60	-3,324.70	-42.12	863.26	758.22	105.04	8.218	
14,350.00	11,153.00	15,063.82	11,748.00	63.01	64.41	133.59	-3,374.70	-42.29	863.44	757.48	105.96	8.149	
14,400.00	11,153.00	15,113.82	11,748.00	63.58	64.97	133.58	-3,424.70	-42.47	863.62	756.74	106.88	8.080	
14,450.00	11,153.00	15,163.82	11,748.00	64.15	65.53	133.56	-3,474.70	-42.64	863.80	755.99	107.81	8.012	
14,500.00	11,153.00	15,213.82	11,748.00	64.72	66.09	133.55	-3,524.70	-42.81	863.98	755.23	108.74	7.945	
14,550.00	11,153.00	15,263.82	11,748.00	65.29	66.65	133.54	-3,574.70	-42.98	864.16	754.47	109.68	7.879	
14,600.00	11,153.00	15,313.82	11,748.00	65.87	67.22	133.53	-3,624.70	-43.16	864.34	753.71	110.62	7.813	
14,650.00	11,153.00	15,363.82	11,748.00	66.45	67.78	133.52	-3,674.70	-43.33	864.51	752.94	111.57	7.748	
14,700.00	11,153.00	15,413.82	11,748.00	67.03	68.37	133.51	-3,724.69	-43.50	864.69	752.17	112.52	7.685	
14,750.00	11,153.00	15,463.82	11,748.00	67.62	68.94	133.50	-3,774.69	-43.67	864.87	751.39	113.48	7.621	
14,800.00	11,153.00	15,513.82	11,748.00	68.20	69.52	133.49	-3,824.69	-43.85	865.05	750.61	114.44	7.559	
14,850.00	11,153.00	15,563.82	11,748.00	68.79	70.10	133.47	-3,874.69	-44.02	865.23	749.82	115.41	7.497	
14,900.00	11,153.00	15,613.82	11,748.00	69.39	70.69	133.46	-3,924.69	-44.19	865.41	749.03	116.38	7.436	
14,950.00	11,153.00	15,663.82	11,748.00	69.98	71.28	133.45	-3,974.69	-44.36	865.59	748.23	117.36	7.376	
15,000.00	11,153.00	15,713.82	11,748.00	70.58	71.87	133.44	-4,024.69	-44.53	865.77	747.43	118.34	7.316	
15,050.00	11,153.00	15,763.82	11,748.00	71.18	72.46	133.43	-4,074.69	-44.71	865.95	746.63	119.32	7.257	
15,100.00	11,153.00	15,813.81	11,748.00	71.79	73.05	133.42	-4,124.69	-44.88	866.13	745.82	120.31	7.199	
15,150.00	11,153.00	15,863.81	11,748.00	72.39	73.65	133.41	-4,174.69	-45.05	866.31	745.01	121.30	7.142	
15,200.00	11,153.00	15,913.81	11,748.00	73.00	74.25	133.40	-4,224.69	-45.22	866.49	744.19	122.30	7.085	
15,250.00	11,153.00	15,963.81	11,748.00	73.61	74.85	133.38	-4,274.68	-45.40	866.67	743.37	123.30	7.029	
15,300.00	11,153.00	16,013.81	11,748.00	74.22	75.46	133.37	-4,324.68	-45.57	866.85	742.55	124.30	6.974	
15,350.00	11,153.00	16,063.81	11,748.00	74.83	76.06	133.36	-4,374.68	-45.74	867.03	741.72	125.31	6.919	
15,400.00	11,153.00	16,113.81	11,748.00	75.45	76.67	133.35	-4,424.68	-45.91	867.21	740.89	126.31	6.865	
15,450.00	11,153.00	16,163.81	11,748.00	76.07	77.28	133.34	-4,474.68	-46.09	867.39	740.06	127.33	6.812	

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,500.00	11,153.00	16,213.81	11,748.00	76.69	77.89	133.33	-4,524.68	-46.26	867.57	739.22	128.34	6.760	
15,550.00	11,153.00	16,263.81	11,748.00	77.31	78.51	133.32	-4,574.68	-46.43	867.75	738.38	129.37	6.708	
15,600.00	11,153.00	16,313.81	11,748.00	77.93	79.12	133.31	-4,624.68	-46.60	867.93	737.54	130.39	6.656	
15,650.00	11,153.00	16,363.81	11,748.00	78.56	79.74	133.29	-4,674.68	-46.78	868.11	736.69	131.42	6.606	
15,700.00	11,153.00	16,413.81	11,748.00	79.18	80.36	133.28	-4,724.68	-46.95	868.29	735.85	132.44	6.556	
15,750.00	11,153.00	16,463.81	11,748.00	79.81	80.98	133.27	-4,774.68	-47.12	868.47	734.99	133.48	6.506	
15,800.00	11,153.00	16,513.81	11,748.00	80.44	81.60	133.26	-4,824.68	-47.29	868.65	734.14	134.51	6.458	
15,850.00	11,153.00	16,563.81	11,748.00	81.08	82.23	133.25	-4,874.67	-47.47	868.83	733.28	135.55	6.410	
15,900.00	11,153.00	16,613.80	11,748.00	81.71	82.85	133.24	-4,924.67	-47.64	869.01	732.42	136.59	6.362	
15,950.00	11,153.00	16,663.80	11,748.00	82.34	83.48	133.23	-4,974.67	-47.81	869.19	731.55	137.64	6.315	
16,000.00	11,153.00	16,713.80	11,748.00	82.98	84.11	133.22	-5,024.67	-47.98	869.37	730.69	138.68	6.269	
16,050.00	11,153.00	16,763.80	11,748.00	83.62	84.74	133.20	-5,074.67	-48.16	869.55	729.82	139.73	6.223	
16,100.00	11,153.00	16,813.80	11,748.00	84.26	85.37	133.19	-5,124.67	-48.33	869.73	728.95	140.78	6.178	
16,150.00	11,153.00	16,863.80	11,748.00	84.90	86.01	133.18	-5,174.67	-48.50	869.91	728.07	141.84	6.133	
16,200.00	11,153.00	16,913.80	11,748.00	85.54	86.64	133.17	-5,224.67	-48.67	870.09	727.20	142.90	6.089	
16,250.00	11,153.00	16,963.80	11,748.00	86.19	87.28	133.16	-5,274.67	-48.84	870.27	726.32	143.96	6.045	
16,300.00	11,153.00	17,013.80	11,748.00	86.83	87.92	133.15	-5,324.67	-49.02	870.45	725.44	145.02	6.002	
16,350.00	11,153.00	17,063.80	11,748.00	87.48	88.56	133.14	-5,374.67	-49.19	870.63	724.55	146.08	5.960	
16,400.00	11,153.00	17,113.80	11,748.00	88.12	89.20	133.13	-5,424.66	-49.36	870.81	723.67	147.15	5.918	
16,450.00	11,153.00	17,163.80	11,748.00	88.77	89.84	133.12	-5,474.66	-49.53	870.99	722.78	148.22	5.876	
16,500.00	11,153.00	17,213.80	11,748.00	89.42	90.48	133.10	-5,524.66	-49.71	871.18	721.89	149.29	5.836	
16,550.00	11,153.00	17,263.80	11,748.00	90.07	91.13	133.09	-5,574.66	-49.88	871.36	720.99	150.36	5.795	
16,600.00	11,153.00	17,313.80	11,748.00	90.72	91.77	133.08	-5,624.66	-50.05	871.54	720.10	151.44	5.755	
16,650.00	11,153.00	17,363.80	11,748.00	91.38	92.42	133.07	-5,674.66	-50.22	871.72	719.20	152.51	5.716	
16,700.00	11,153.00	17,413.79	11,748.00	92.03	93.07	133.06	-5,724.66	-50.40	871.90	718.30	153.59	5.677	
16,750.00	11,153.00	17,463.79	11,748.00	92.69	93.72	133.05	-5,774.66	-50.57	872.08	717.40	154.68	5.638	
16,800.00	11,153.00	17,513.79	11,748.00	93.34	94.37	133.04	-5,824.66	-50.74	872.26	716.50	155.76	5.600	
16,850.00	11,153.00	17,563.79	11,748.00	94.00	95.02	133.03	-5,874.66	-50.91	872.44	715.60	156.85	5.562	
16,900.00	11,153.00	17,613.79	11,748.00	94.66	95.67	133.02	-5,924.66	-51.09	872.62	714.69	157.93	5.525	
16,950.00	11,153.00	17,663.79	11,748.00	95.32	96.33	133.00	-5,974.65	-51.26	872.80	713.78	159.02	5.489	
17,000.00	11,153.00	17,713.79	11,748.00	95.98	96.98	132.99	-6,024.65	-51.43	872.98	712.87	160.11	5.452	
17,050.00	11,153.00	17,763.79	11,748.00	96.64	97.64	132.98	-6,074.65	-51.60	873.16	711.96	161.21	5.416	
17,100.00	11,153.00	17,813.79	11,748.00	97.30	98.29	132.97	-6,124.65	-51.78	873.35	711.05	162.30	5.381	
17,150.00	11,153.00	17,863.79	11,748.00	97.97	98.95	132.96	-6,174.65	-51.95	873.53	710.13	163.40	5.346	
17,200.00	11,153.00	17,913.79	11,748.00	98.63	99.61	132.95	-6,224.65	-52.12	873.71	709.21	164.49	5.311	
17,250.00	11,153.00	17,963.79	11,748.00	99.30	100.27	132.94	-6,274.65	-52.29	873.89	708.29	165.60	5.277	
17,300.00	11,153.00	18,013.79	11,748.00	99.96	100.93	132.93	-6,324.65	-52.47	874.07	707.37	166.70	5.243	
17,350.00	11,153.00	18,063.79	11,748.00	100.63	101.59	132.92	-6,374.65	-52.64	874.25	706.45	167.80	5.210	
17,400.00	11,153.00	18,113.79	11,748.00	101.30	102.25	132.91	-6,424.65	-52.81	874.43	705.53	168.90	5.177	
17,450.00	11,153.00	18,163.79	11,748.00	101.96	102.92	132.89	-6,474.65	-52.98	874.61	704.60	170.01	5.144	
17,500.00	11,153.00	18,213.79	11,748.00	102.63	103.58	132.88	-6,524.64	-53.15	874.79	703.68	171.12	5.112	
17,550.00	11,153.00	18,263.78	11,748.00	103.30	104.24	132.87	-6,574.64	-53.33	874.98	702.75	172.23	5.080	
17,600.00	11,153.00	18,313.78	11,748.00	103.97	104.91	132.86	-6,624.64	-53.50	875.16	701.82	173.34	5.049	
17,650.00	11,153.00	18,363.78	11,748.00	104.65	105.58	132.85	-6,674.64	-53.67	875.34	700.89	174.45	5.018	
17,700.00	11,153.00	18,413.78	11,748.00	105.32	106.24	132.84	-6,724.64	-53.84	875.52	699.95	175.57	4.987	Alert
17,750.00	11,153.00	18,463.78	11,748.00	105.99	106.91	132.83	-6,774.64	-54.02	875.70	699.02	176.68	4.956	Alert
17,800.00	11,153.00	18,513.78	11,748.00	106.66	107.58	132.82	-6,824.64	-54.19	875.88	698.08	177.80	4.926	Alert
17,850.00	11,153.00	18,563.78	11,748.00	107.34	108.25	132.81	-6,874.64	-54.36	876.06	697.15	178.92	4.896	Alert
17,900.00	11,153.00	18,613.78	11,748.00	108.01	108.92	132.80	-6,924.64	-54.53	876.25	696.21	180.04	4.867	Alert
17,950.00	11,153.00	18,663.78	11,748.00	108.69	109.59	132.78	-6,974.64	-54.71	876.43	695.27	181.16	4.838	Alert
18,000.00	11,153.00	18,713.78	11,748.00	109.37	110.26	132.77	-7,024.64	-54.88	876.61	694.33	182.28	4.809	Alert
18,050.00	11,153.00	18,763.78	11,748.00	110.04	110.93	132.76	-7,074.63	-55.05	876.79	693.39	183.40	4.781	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
18,100.00	11,153.00	18,813.78	11,748.00	110.72	111.60	132.75	-7,124.63	-55.22	876.97	692.44	184.53	4.753	Alert
18,150.00	11,153.00	18,863.78	11,748.00	111.40	112.28	132.74	-7,174.63	-55.40	877.15	691.50	185.65	4.725	Alert
18,200.00	11,153.00	18,913.78	11,748.00	112.08	112.95	132.73	-7,224.63	-55.57	877.34	690.55	186.78	4.697	Alert
18,250.00	11,153.00	18,963.78	11,748.00	112.76	113.63	132.72	-7,274.63	-55.74	877.52	689.61	187.91	4.670	Alert
18,300.00	11,153.00	19,013.78	11,748.00	113.44	114.30	132.71	-7,324.63	-55.91	877.70	688.66	189.04	4.643	Alert
18,350.00	11,153.00	19,063.77	11,748.00	114.12	114.98	132.70	-7,374.63	-56.09	877.88	687.71	190.17	4.616	Alert
18,400.00	11,153.00	19,113.77	11,748.00	114.80	115.65	132.69	-7,424.63	-56.26	878.06	686.76	191.30	4.590	Alert
18,450.00	11,153.00	19,163.77	11,748.00	115.48	116.33	132.67	-7,474.63	-56.43	878.24	685.81	192.44	4.564	Alert
18,500.00	11,153.00	19,213.77	11,748.00	116.16	117.01	132.66	-7,524.63	-56.60	878.43	684.86	193.57	4.538	Alert
18,550.00	11,153.00	19,263.77	11,748.00	116.84	117.69	132.65	-7,574.63	-56.78	878.61	683.90	194.71	4.512	Alert
18,600.00	11,153.00	19,313.77	11,748.00	117.53	118.36	132.64	-7,624.62	-56.95	878.79	682.95	195.84	4.487	Alert
18,650.00	11,153.00	19,363.77	11,748.00	118.21	119.04	132.63	-7,674.62	-57.12	878.97	681.99	196.98	4.462	Alert
18,700.00	11,153.00	19,413.77	11,748.00	118.90	119.72	132.62	-7,724.62	-57.29	879.15	681.03	198.12	4.437	Alert
18,750.00	11,153.00	19,463.77	11,748.00	119.58	120.40	132.61	-7,774.62	-57.46	879.34	680.08	199.26	4.413	Alert
18,800.00	11,153.00	19,513.77	11,748.00	120.27	121.08	132.60	-7,824.62	-57.64	879.52	679.12	200.40	4.389	Alert
18,850.00	11,153.00	19,563.77	11,748.00	120.95	121.77	132.59	-7,874.62	-57.81	879.70	678.16	201.54	4.365	Alert
18,900.00	11,153.00	19,613.77	11,748.00	121.64	122.45	132.58	-7,924.62	-57.98	879.88	677.20	202.69	4.341	Alert
18,950.00	11,153.00	19,663.77	11,748.00	122.32	123.13	132.57	-7,974.62	-58.15	880.07	676.23	203.83	4.318	Alert
19,000.00	11,153.00	19,713.77	11,748.00	123.01	123.81	132.55	-8,024.62	-58.33	880.25	675.27	204.98	4.294	Alert
19,050.00	11,153.00	19,763.77	11,748.00	123.70	124.50	132.54	-8,074.62	-58.50	880.43	674.31	206.12	4.271	Alert
19,100.00	11,153.00	19,813.77	11,748.00	124.39	125.18	132.53	-8,124.62	-58.67	880.61	673.34	207.27	4.249	Alert
19,150.00	11,153.00	19,863.77	11,748.00	125.08	125.86	132.52	-8,174.61	-58.84	880.79	672.38	208.42	4.226	Alert
19,200.00	11,153.00	19,913.76	11,748.00	125.76	126.55	132.51	-8,224.61	-59.02	880.98	671.41	209.57	4.204	Alert
19,250.00	11,153.00	19,963.76	11,748.00	126.45	127.23	132.50	-8,274.61	-59.19	881.16	670.44	210.72	4.182	Alert
19,300.00	11,153.00	20,013.76	11,748.00	127.14	127.92	132.49	-8,324.61	-59.36	881.34	669.47	211.87	4.160	Alert
19,350.00	11,153.00	20,063.76	11,748.00	127.83	128.61	132.48	-8,374.61	-59.53	881.52	668.50	213.02	4.138	Alert
19,400.00	11,153.00	20,113.76	11,748.00	128.52	129.29	132.47	-8,424.61	-59.71	881.71	667.53	214.17	4.117	Alert
19,450.00	11,153.00	20,163.76	11,748.00	129.22	129.98	132.46	-8,474.61	-59.88	881.89	666.56	215.33	4.096	Alert
19,500.00	11,153.00	20,213.76	11,748.00	129.91	130.67	132.45	-8,524.61	-60.05	882.07	665.59	216.48	4.075	Alert
19,550.00	11,153.00	20,263.76	11,748.00	130.60	131.35	132.43	-8,574.61	-60.22	882.25	664.62	217.64	4.054	Alert
19,600.00	11,153.00	20,313.76	11,748.00	131.29	132.04	132.42	-8,624.61	-60.40	882.44	663.64	218.79	4.033	Alert
19,650.00	11,153.00	20,363.76	11,748.00	131.98	132.73	132.41	-8,674.61	-60.57	882.62	662.67	219.95	4.013	Alert
19,700.00	11,153.00	20,413.76	11,748.00	132.68	133.42	132.40	-8,724.60	-60.74	882.80	661.69	221.11	3.993	Alert
19,750.00	11,153.00	20,463.76	11,748.00	133.37	134.11	132.39	-8,774.60	-60.91	882.98	660.72	222.27	3.973	Alert
19,800.00	11,153.00	20,513.76	11,748.00	134.06	134.80	132.38	-8,824.60	-61.09	883.17	659.74	223.43	3.953	Alert
19,850.00	11,153.00	20,563.76	11,748.00	134.76	135.49	132.37	-8,874.60	-61.26	883.35	658.76	224.59	3.933	Alert
19,900.00	11,153.00	20,613.76	11,748.00	135.45	136.18	132.36	-8,924.60	-61.43	883.53	657.79	225.75	3.914	Alert
19,950.00	11,153.00	20,663.76	11,748.00	136.15	136.87	132.35	-8,974.60	-61.60	883.72	656.81	226.91	3.895	Alert
20,000.00	11,153.00	20,713.75	11,748.00	136.84	137.56	132.34	-9,024.60	-61.77	883.90	655.83	228.07	3.876	Alert
20,050.00	11,153.00	20,763.75	11,748.00	137.54	138.25	132.33	-9,074.60	-61.95	884.08	654.84	229.24	3.857	Alert
20,100.00	11,153.00	20,813.75	11,748.00	138.23	138.95	132.32	-9,124.60	-62.12	884.26	653.86	230.40	3.838	Alert
20,150.00	11,153.00	20,863.75	11,748.00	138.93	139.64	132.31	-9,174.60	-62.29	884.45	652.88	231.57	3.819	Alert
20,200.00	11,153.00	20,913.75	11,748.00	139.62	140.33	132.29	-9,224.60	-62.46	884.63	651.90	232.73	3.801	Alert
20,250.00	11,153.00	20,963.75	11,748.00	140.32	141.02	132.28	-9,274.59	-62.64	884.81	650.91	233.90	3.783	Alert
20,300.00	11,153.00	21,013.75	11,748.00	141.02	141.72	132.27	-9,324.59	-62.81	885.00	649.93	235.07	3.765	Alert
20,350.00	11,153.00	21,063.75	11,748.00	141.71	142.41	132.26	-9,374.59	-62.98	885.18	648.94	236.23	3.747	Alert
20,400.00	11,153.00	21,113.75	11,748.00	142.41	143.10	132.25	-9,424.59	-63.15	885.36	647.96	237.40	3.729	Alert
20,450.00	11,153.00	21,163.75	11,748.00	143.11	143.80	132.24	-9,474.59	-63.33	885.55	646.97	238.57	3.712	Alert
20,500.00	11,153.00	21,213.75	11,748.00	143.81	144.49	132.23	-9,524.59	-63.50	885.73	645.99	239.74	3.694	Alert
20,550.00	11,153.00	21,263.75	11,748.00	144.51	145.19	132.22	-9,574.59	-63.67	885.91	645.00	240.91	3.677	Alert
20,600.00	11,153.00	21,313.75	11,748.00	145.20	145.88	132.21	-9,624.59	-63.84	886.10	644.01	242.09	3.660	Alert
20,650.00	11,153.00	21,363.75	11,748.00	145.90	146.58	132.20	-9,674.59	-64.02	886.28	643.02	243.26	3.643	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
20,700.00	11,153.00	21,413.75	11,748.00	146.60	147.27	132.19	-9,724.59	-64.19	886.46	642.03	244.43	3.627	Alert
20,750.00	11,153.00	21,463.75	11,748.00	147.30	147.97	132.18	-9,774.59	-64.36	886.65	641.04	245.61	3.610	Alert
20,800.00	11,153.00	21,513.74	11,748.00	148.00	148.66	132.17	-9,824.58	-64.53	886.83	640.05	246.78	3.594	Alert
20,850.00	11,153.00	21,563.74	11,748.00	148.70	149.36	132.15	-9,874.58	-64.71	887.01	639.06	247.96	3.577	Alert
20,900.00	11,153.00	21,613.74	11,748.00	149.40	150.06	132.14	-9,924.58	-64.88	887.20	638.06	249.13	3.561	Alert
20,950.00	11,153.00	21,663.74	11,748.00	150.10	150.76	132.13	-9,974.58	-65.05	887.38	637.07	250.31	3.545	Alert
21,000.00	11,153.00	21,713.74	11,748.00	150.80	151.45	132.12	-10,024.58	-65.22	887.56	636.08	251.48	3.529	Alert
21,050.00	11,153.00	21,763.74	11,748.00	151.50	152.15	132.11	-10,074.58	-65.40	887.75	635.08	252.66	3.514	Alert
21,100.00	11,153.00	21,813.74	11,748.00	152.20	152.85	132.10	-10,124.58	-65.57	887.93	634.09	253.84	3.498	Alert
21,150.00	11,153.00	21,863.74	11,748.00	152.90	153.55	132.09	-10,174.58	-65.74	888.11	633.09	255.02	3.483	Alert
21,200.00	11,153.00	21,913.74	11,748.00	153.61	154.24	132.08	-10,224.58	-65.91	888.30	632.10	256.20	3.467	Alert
21,250.00	11,153.00	21,963.74	11,748.00	154.31	154.94	132.07	-10,274.58	-66.08	888.48	631.10	257.38	3.452	Alert
21,300.00	11,153.00	22,013.74	11,748.00	155.01	155.64	132.06	-10,324.58	-66.26	888.66	630.10	258.56	3.437	Alert
21,305.11	11,153.00	22,018.85	11,748.00	155.08	155.71	132.06	-10,329.69	-66.27	888.68	630.00	258.68	3.435	Alert

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.20	-0.20	0.50	0.50	89.62	0.20	29.96	29.96				
50.00	50.00	49.80	49.80	0.50	0.50	89.62	0.20	29.96	29.96	28.95	1.01	29.768	
100.00	100.00	100.20	99.80	0.52	0.52	89.62	0.20	29.96	29.96	28.93	1.04	28.928	
150.00	150.00	149.80	149.80	0.59	0.59	89.62	0.20	29.96	29.96	28.78	1.18	25.388	
200.00	200.00	200.20	199.80	0.70	0.70	89.62	0.20	29.96	29.96	28.56	1.40	21.329	
250.00	250.00	249.80	249.80	0.84	0.84	89.62	0.20	29.96	29.96	28.29	1.67	17.889	
300.00	300.00	300.20	299.80	0.99	0.99	89.62	0.20	29.96	29.96	27.99	1.98	15.168	
350.00	350.00	349.80	349.80	1.15	1.14	89.62	0.20	29.96	29.96	27.67	2.29	13.081	
400.00	400.00	400.20	399.80	1.31	1.31	89.62	0.20	29.96	29.96	27.34	2.62	11.440	
450.00	450.00	449.80	449.80	1.48	1.48	89.62	0.20	29.96	29.96	27.01	2.95	10.149	
500.00	500.00	500.20	499.80	1.65	1.65	89.62	0.20	29.96	29.96	26.67	3.29	9.099	
550.00	550.00	549.80	549.80	1.82	1.82	89.62	0.20	29.96	29.96	26.33	3.63	8.243	
600.00	600.00	600.20	599.80	1.99	1.99	89.62	0.20	29.96	29.96	25.98	3.98	7.524	
650.00	650.00	649.80	649.80	2.16	2.16	89.62	0.20	29.96	29.96	25.63	4.33	6.922	
700.00	700.00	700.20	699.80	2.34	2.34	89.62	0.20	29.96	29.96	25.28	4.68	6.403	
750.00	750.00	749.80	749.80	2.51	2.51	89.62	0.20	29.96	29.96	24.93	5.03	5.958	
800.00	800.00	800.20	799.80	2.69	2.69	89.62	0.20	29.96	29.96	24.58	5.38	5.567	
850.00	850.00	849.80	849.80	2.87	2.87	89.62	0.20	29.96	29.96	24.23	5.73	5.226	
900.00	900.00	900.20	899.80	3.04	3.04	89.62	0.20	29.96	29.96	23.87	6.09	4.921	Alert
950.00	950.00	949.80	949.80	3.22	3.22	89.62	0.20	29.96	29.96	23.52	6.44	4.652	Alert
1,000.00	1,000.00	1,000.20	999.80	3.40	3.40	89.62	0.20	29.96	29.96	23.16	6.80	4.409	Alert
1,050.00	1,050.00	1,049.80	1,049.80	3.58	3.57	89.62	0.20	29.96	29.96	22.81	7.15	4.191	Alert
1,100.00	1,100.00	1,100.20	1,099.80	3.75	3.75	89.62	0.20	29.96	29.96	22.45	7.51	3.992	Alert
1,150.00	1,150.00	1,149.80	1,149.80	3.93	3.93	89.62	0.20	29.96	29.96	22.10	7.86	3.812	Alert
1,200.00	1,200.00	1,200.20	1,199.80	4.11	4.11	89.62	0.20	29.96	29.96	21.74	8.22	3.646	Alert
1,250.00	1,250.00	1,249.80	1,249.80	4.29	4.29	89.62	0.20	29.96	29.96	21.39	8.57	3.495	Alert
1,300.00	1,300.00	1,300.20	1,299.80	4.46	4.46	89.62	0.20	29.96	29.96	21.03	8.93	3.355	Alert
1,350.00	1,350.00	1,349.80	1,349.80	4.64	4.64	89.62	0.20	29.96	29.96	20.68	9.28	3.227	Alert
1,400.00	1,400.00	1,400.20	1,399.80	4.82	4.82	89.62	0.20	29.96	29.96	20.32	9.64	3.107	Alert
1,450.00	1,450.00	1,449.80	1,449.80	5.00	5.00	89.62	0.20	29.96	29.96	19.96	10.00	2.997	Alert
1,500.00	1,500.00	1,500.20	1,499.80	5.18	5.18	89.62	0.20	29.96	29.96	19.61	10.36	2.893	Alert
1,550.00	1,550.00	1,549.80	1,549.80	5.36	5.35	89.62	0.20	29.96	29.96	19.25	10.71	2.797	Alert
1,600.00	1,600.00	1,600.20	1,599.80	5.53	5.53	89.62	0.20	29.96	29.96	18.89	11.07	2.707	Alert
1,650.00	1,650.00	1,649.80	1,649.80	5.71	5.71	89.62	0.20	29.96	29.96	18.54	11.42	2.622	Alert
1,700.00	1,700.00	1,700.20	1,699.80	5.89	5.89	89.62	0.20	29.96	29.96	18.18	11.78	2.543	Alert
1,750.00	1,750.00	1,749.80	1,749.80	6.07	6.07	89.62	0.20	29.96	29.96	17.82	12.14	2.468	Minor Risk
1,800.00	1,800.00	1,800.20	1,799.80	6.25	6.25	89.62	0.20	29.96	29.96	17.46	12.50	2.397	Minor Risk
1,850.00	1,850.00	1,849.80	1,849.80	6.43	6.43	89.62	0.20	29.96	29.96	17.11	12.85	2.331	Minor Risk
1,900.00	1,900.00	1,900.20	1,899.80	6.61	6.61	89.62	0.20	29.96	29.96	16.75	13.21	2.268	Minor Risk
1,950.00	1,950.00	1,949.80	1,949.80	6.78	6.78	89.62	0.20	29.96	29.96	16.39	13.57	2.208	Minor Risk
2,000.00	2,000.00	2,000.20	1,999.80	6.96	6.96	89.62	0.20	29.96	29.96	16.03	13.93	2.151	Minor Risk
2,050.00	2,050.00	2,049.80	2,049.80	7.14	7.14	89.62	0.20	29.96	29.96	15.68	14.28	2.098	Minor Risk
2,100.00	2,100.00	2,100.20	2,099.80	7.32	7.32	89.62	0.20	29.96	29.96	15.32	14.64	2.046	Minor Risk
2,150.00	2,150.00	2,149.80	2,149.80	7.50	7.50	89.62	0.20	29.96	29.96	14.96	15.00	1.998	Minor Risk
2,200.00	2,200.00	2,200.20	2,199.80	7.68	7.68	89.62	0.20	29.96	29.96	14.60	15.36	1.951	Minor Risk
2,250.00	2,250.00	2,249.80	2,249.80	7.86	7.86	89.62	0.20	29.96	29.96	14.25	15.71	1.907	Minor Risk
2,300.00	2,300.00	2,300.20	2,299.80	8.04	8.04	89.62	0.20	29.96	29.96	13.89	16.07	1.864	Minor Risk
2,350.00	2,350.00	2,349.80	2,349.80	8.22	8.21	89.62	0.20	29.96	29.96	13.53	16.43	1.824	Minor Risk
2,400.00	2,400.00	2,400.20	2,399.80	8.39	8.39	89.62	0.20	29.96	29.96	13.17	16.79	1.785	Minor Risk
2,450.00	2,450.00	2,449.80	2,449.80	8.57	8.57	89.62	0.20	29.96	29.96	12.82	17.15	1.747	Minor Risk
2,500.00	2,500.00	2,499.80	2,499.80	8.75	8.75	89.62	0.20	29.96	29.96	12.46	17.50	1.712	Minor Risk, CC
2,550.00	2,550.00	2,549.49	2,549.49	8.93	8.93	89.46	0.29	30.21	30.22	12.36	17.86	1.692	Minor Risk, ES, SF

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
2,600.00	2,600.00	2,599.17	2,599.16	9.11	9.10	89.00	0.54	30.98	30.99	12.78	18.21	1.702	Minor Risk
2,650.00	2,650.00	2,648.82	2,648.80	9.29	9.27	88.27	0.97	32.25	32.28	13.73	18.55	1.740	Minor Risk
2,700.00	2,700.00	2,698.44	2,698.38	9.47	9.45	87.35	1.57	34.03	34.10	15.20	18.90	1.804	Minor Risk
2,750.00	2,750.00	2,748.02	2,747.90	9.65	9.62	86.30	2.35	36.32	36.44	17.20	19.24	1.894	Minor Risk
2,800.00	2,800.00	2,797.53	2,797.32	9.83	9.79	85.19	3.29	39.11	39.32	19.74	19.58	2.008	Minor Risk
2,850.00	2,850.00	2,847.15	2,846.82	10.00	9.96	84.08	4.39	42.37	42.70	22.78	19.93	2.143	Minor Risk
2,900.00	2,900.00	2,902.98	2,896.56	10.18	10.16	83.11	5.53	45.75	46.20	25.90	20.30	2.276	Minor Risk
2,950.00	2,950.00	2,946.89	2,946.31	10.36	10.31	82.27	6.67	49.13	49.71	29.08	20.63	2.410	Minor Risk
3,000.00	3,000.00	3,003.24	2,996.05	10.54	10.51	81.54	7.81	52.51	53.22	32.22	21.00	2.534	Alert
3,050.00	3,050.00	3,046.64	3,045.80	10.72	10.67	80.90	8.96	55.89	56.75	35.41	21.33	2.660	Alert
3,100.00	3,100.00	3,103.49	3,095.54	10.90	10.87	80.33	10.10	59.27	60.28	38.57	21.71	2.776	Alert
3,150.00	3,150.00	3,146.38	3,145.28	11.08	11.02	79.83	11.24	62.65	63.81	41.78	22.04	2.895	Alert
3,200.00	3,200.00	3,203.75	3,195.03	11.26	11.22	79.38	12.38	66.04	67.35	44.94	22.42	3.004	Alert
3,250.00	3,250.00	3,246.12	3,244.77	11.44	11.37	78.98	13.52	69.42	70.90	48.15	22.75	3.117	Alert
3,300.00	3,300.00	3,304.00	3,294.52	11.62	11.58	78.61	14.66	72.80	74.45	51.32	23.13	3.219	Alert
3,350.00	3,350.00	3,345.87	3,344.26	11.80	11.73	78.28	15.80	76.18	78.00	54.54	23.45	3.325	Alert
3,400.00	3,400.00	3,404.26	3,394.00	11.97	11.94	77.98	16.94	79.56	81.55	57.71	23.84	3.421	Alert
3,450.00	3,450.00	3,445.61	3,443.75	12.15	12.08	77.70	18.08	82.94	85.10	60.94	24.16	3.522	Alert
3,500.00	3,500.00	3,504.52	3,493.49	12.33	12.29	77.44	19.23	86.32	88.66	64.11	24.55	3.612	Alert
3,550.00	3,550.00	3,545.36	3,543.24	12.51	12.44	77.21	20.37	89.70	92.22	67.34	24.87	3.708	Alert
3,600.00	3,600.00	3,604.77	3,592.98	12.69	12.65	76.99	21.51	93.08	95.77	70.52	25.26	3.792	Alert
3,650.00	3,650.00	3,645.10	3,642.73	12.87	12.80	76.79	22.65	96.46	99.33	73.75	25.58	3.883	Alert
3,700.00	3,700.00	3,705.03	3,692.47	13.05	13.01	76.60	23.79	99.84	102.90	76.93	25.97	3.962	Alert
3,750.00	3,750.00	3,744.84	3,742.21	13.23	13.15	76.42	24.93	103.22	106.46	80.17	26.29	4.049	Alert
3,800.00	3,800.00	3,805.29	3,791.96	13.41	13.37	76.26	26.07	106.60	110.02	83.34	26.68	4.123	Alert
3,850.00	3,850.00	3,844.59	3,841.70	13.59	13.51	76.10	27.21	109.98	113.59	86.59	27.00	4.207	Alert
3,900.00	3,900.00	3,905.54	3,891.45	13.77	13.73	75.96	28.36	113.36	117.15	89.76	27.39	4.276	Alert
3,950.00	3,950.00	3,944.33	3,941.19	13.94	13.87	75.82	29.50	116.74	120.72	93.01	27.71	4.356	Alert
4,000.00	4,000.00	4,005.80	3,990.93	14.12	14.09	75.69	30.64	120.12	124.28	96.18	28.11	4.422	Alert
4,050.00	4,050.00	4,044.07	4,040.68	14.30	14.23	75.57	31.78	123.50	127.85	99.43	28.42	4.498	Alert
4,100.00	4,100.00	4,106.05	4,090.42	14.48	14.45	75.46	32.92	126.88	131.42	102.60	28.82	4.560	Alert
4,150.00	4,150.00	4,143.82	4,140.17	14.66	14.59	75.35	34.06	130.26	134.99	105.85	29.13	4.633	Alert
4,200.00	4,200.00	4,206.31	4,189.91	14.84	14.82	75.24	35.20	133.64	138.56	109.02	29.53	4.691	Alert
4,250.00	4,250.00	4,243.56	4,239.65	15.02	14.95	75.15	36.34	137.02	142.12	112.28	29.85	4.762	Alert
4,300.00	4,300.00	4,293.43	4,289.40	15.20	15.13	75.05	37.49	140.40	145.69	115.49	30.20	4.824	Alert
4,350.00	4,350.00	4,343.31	4,339.14	15.38	15.31	74.96	38.63	143.78	149.26	118.71	30.56	4.885	Alert
4,400.00	4,400.00	4,406.82	4,388.89	15.56	15.54	74.88	39.77	147.17	152.83	121.87	30.96	4.936	Alert
4,450.00	4,450.00	4,443.05	4,438.63	15.74	15.67	74.80	40.91	150.55	156.40	125.13	31.27	5.002	
4,500.00	4,500.00	4,507.08	4,488.38	15.92	15.91	74.72	42.05	153.93	159.97	128.30	31.68	5.050	
4,550.00	4,550.00	4,542.81	4,538.13	16.09	16.04	-11.90	43.19	157.31	163.33	131.35	31.98	5.107	
4,600.00	4,600.00	4,607.28	4,587.92	16.26	16.27	-12.01	44.33	160.69	166.27	133.88	32.38	5.134	
4,650.00	4,649.98	4,642.66	4,637.73	16.44	16.40	-12.15	45.48	164.08	168.77	136.09	32.68	5.164	
4,700.00	4,699.96	4,707.39	4,687.55	16.61	16.63	-12.31	46.62	167.46	170.85	137.77	33.08	5.165	
4,750.00	4,749.92	4,742.58	4,737.39	16.78	16.76	-12.51	47.76	170.85	172.51	139.13	33.38	5.168	
4,800.00	4,799.86	4,807.44	4,787.24	16.95	17.00	-12.73	48.91	174.24	173.75	139.97	33.78	5.143	
4,850.00	4,849.78	4,842.55	4,837.10	17.12	17.13	-12.99	50.05	177.62	174.56	140.48	34.08	5.122	
4,900.00	4,899.68	4,907.46	4,886.97	17.30	17.36	-13.27	51.19	181.01	174.95	140.47	34.48	5.074	
4,950.00	4,949.54	4,942.53	4,936.83	17.47	17.49	-13.59	52.34	184.40	174.92	140.14	34.78	5.030	
5,000.00	4,999.37	5,007.49	4,986.69	17.64	17.73	-13.94	53.48	187.79	174.48	139.29	35.18	4.959	Alert
5,050.00	5,049.16	5,042.49	5,036.54	17.82	17.85	-14.33	54.63	191.18	173.61	138.13	35.48	4.893	Alert
5,100.00	5,098.90	5,107.54	5,086.38	17.99	18.09	-14.77	55.77	194.56	172.34	136.45	35.88	4.802	Alert
5,150.00	5,148.61	5,142.41	5,136.20	18.16	18.22	-15.24	56.91	197.95	170.67	134.48	36.18	4.717	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.00	5,198.30	5,207.64	5,186.02	18.34	18.46	-15.74	58.05	201.34	168.90	132.31	36.59	4.616	Alert
5,250.00	5,247.99	5,242.30	5,235.84	18.52	18.58	-16.24	59.20	204.72	167.15	130.27	36.89	4.532	Alert
5,300.00	5,297.69	5,307.75	5,285.66	18.69	18.82	-16.75	60.34	208.11	165.41	128.12	37.29	4.436	Alert
5,350.00	5,347.38	5,342.20	5,335.48	18.87	18.95	-17.28	61.48	211.49	163.69	126.10	37.59	4.355	Alert
5,400.00	5,397.07	5,407.85	5,385.30	19.04	19.19	-17.81	62.63	214.88	161.98	123.98	38.00	4.263	Alert
5,450.00	5,446.77	5,442.09	5,435.12	19.22	19.31	-18.36	63.77	218.26	160.29	121.99	38.30	4.185	Alert
5,500.00	5,496.46	5,507.96	5,484.94	19.40	19.55	-18.92	64.91	221.65	158.60	119.90	38.71	4.098	Alert
5,550.00	5,546.15	5,541.99	5,534.76	19.58	19.68	-19.49	66.06	225.03	156.94	117.93	39.01	4.024	Alert
5,600.00	5,595.84	5,608.06	5,584.58	19.75	19.92	-20.07	67.20	228.42	155.29	115.87	39.42	3.940	Alert
5,650.00	5,645.54	5,641.89	5,634.40	19.93	20.04	-20.67	68.34	231.81	153.66	113.94	39.71	3.869	Alert
5,700.00	5,695.23	5,691.83	5,684.21	20.11	20.23	-21.28	69.48	235.19	152.04	111.97	40.07	3.794	Alert
5,750.00	5,744.92	5,741.78	5,734.03	20.29	20.41	-21.90	70.63	238.58	150.44	110.02	40.43	3.721	Alert
5,800.00	5,794.62	5,808.27	5,783.85	20.47	20.65	-22.53	71.77	241.96	148.86	108.02	40.84	3.645	Alert
5,850.00	5,844.31	5,841.68	5,833.67	20.65	20.77	-23.18	72.91	245.35	147.30	106.16	41.14	3.581	Alert
5,900.00	5,894.00	5,908.38	5,883.49	20.83	21.02	-23.84	74.06	248.73	145.76	104.20	41.56	3.507	Alert
5,950.00	5,943.69	5,941.57	5,933.31	21.01	21.14	-24.52	75.20	252.12	144.24	102.38	41.85	3.446	Alert
6,000.00	5,993.39	5,991.52	5,983.13	21.19	21.32	-25.21	76.34	255.50	142.74	100.52	42.21	3.381	Alert
6,050.00	6,043.08	6,041.47	6,032.95	21.37	21.51	-25.91	77.48	258.89	141.25	98.68	42.57	3.318	Alert
6,100.00	6,092.77	6,108.59	6,082.77	21.55	21.75	-26.63	78.63	262.28	139.80	96.80	42.99	3.252	Alert
6,150.00	6,142.47	6,141.36	6,132.59	21.73	21.87	-27.36	79.77	265.66	138.36	95.07	43.29	3.196	Alert
6,200.00	6,192.16	6,191.31	6,182.41	21.91	22.05	-28.11	80.91	269.05	136.94	93.29	43.65	3.137	Alert
6,250.00	6,241.85	6,241.26	6,232.23	22.09	22.24	-28.88	82.06	272.43	135.56	91.54	44.01	3.080	Alert
6,300.00	6,291.54	6,308.80	6,282.05	22.27	22.49	-29.66	83.20	275.82	134.19	89.75	44.44	3.020	Alert
6,350.00	6,341.24	6,341.15	6,331.87	22.46	22.60	-30.45	84.34	279.20	132.85	88.12	44.74	2.970	Alert
6,400.00	6,390.93	6,408.90	6,381.69	22.64	22.85	-31.27	85.49	282.59	131.54	86.38	45.16	2.913	Alert
6,450.00	6,440.62	6,441.05	6,431.51	22.82	22.97	-32.10	86.63	285.97	130.25	84.79	45.46	2.865	Alert
6,500.00	6,490.32	6,509.01	6,481.33	23.00	23.22	-32.94	87.77	289.36	128.99	83.10	45.89	2.811	Alert
6,550.00	6,540.01	6,540.94	6,531.15	23.19	23.34	-33.80	88.91	292.75	127.76	81.57	46.19	2.766	Alert
6,600.00	6,589.70	6,609.11	6,580.97	23.37	23.59	-34.68	90.06	296.13	126.56	79.94	46.62	2.715	Alert
6,650.00	6,639.39	6,640.84	6,630.79	23.55	23.70	-35.57	91.20	299.52	125.39	78.47	46.92	2.672	Alert
6,700.00	6,689.09	6,690.78	6,680.61	23.73	23.89	-36.49	92.34	302.90	124.25	76.97	47.29	2.628	Alert
6,750.00	6,738.78	6,740.73	6,730.43	23.92	24.07	-37.41	93.49	306.29	123.15	75.49	47.66	2.584	Alert
6,800.00	6,788.47	6,809.32	6,780.25	24.10	24.32	-38.36	94.63	309.67	122.07	73.98	48.09	2.538	Alert
6,850.00	6,838.17	6,840.63	6,830.07	24.29	24.44	-39.32	95.77	313.06	121.03	72.64	48.39	2.501	Alert
6,900.00	6,887.86	6,890.57	6,879.88	24.47	24.62	-40.30	96.91	316.44	120.03	71.27	48.76	2.462	Minor Risk
6,950.00	6,937.55	6,940.52	6,929.70	24.65	24.80	-41.29	98.06	319.83	119.06	69.93	49.13	2.423	Minor Risk
7,000.00	6,987.24	6,990.47	6,979.52	24.84	24.99	-42.30	99.20	323.21	118.12	68.62	49.50	2.386	Minor Risk
7,050.00	7,036.94	7,040.42	7,029.34	25.02	25.17	-43.32	100.34	326.60	117.23	67.35	49.87	2.350	Minor Risk
7,100.00	7,086.63	7,109.64	7,079.16	25.21	25.43	-44.36	101.49	329.99	116.37	66.05	50.32	2.313	Minor Risk
7,150.00	7,136.32	7,140.31	7,128.98	25.39	25.54	-45.42	102.63	333.37	115.55	64.93	50.62	2.283	Minor Risk
7,200.00	7,186.02	7,190.26	7,178.80	25.58	25.72	-46.49	103.77	336.76	114.77	63.78	50.99	2.251	Minor Risk
7,250.00	7,235.71	7,240.21	7,228.62	25.76	25.91	-47.57	104.91	340.14	114.03	62.66	51.37	2.220	Minor Risk
7,300.00	7,285.40	7,309.85	7,278.44	25.95	26.16	-48.67	106.06	343.53	113.34	61.52	51.82	2.187	Minor Risk
7,350.00	7,335.09	7,340.10	7,328.26	26.13	26.27	-49.78	107.20	346.91	112.68	60.56	52.12	2.162	Minor Risk
7,400.00	7,384.79	7,409.95	7,378.08	26.32	26.53	-50.91	108.34	350.30	112.07	59.50	52.57	2.132	Minor Risk
7,450.00	7,434.48	7,440.00	7,427.90	26.50	26.64	-52.04	109.49	353.68	111.50	58.63	52.87	2.109	Minor Risk
7,500.00	7,484.17	7,489.94	7,477.72	26.69	26.83	-53.19	110.63	357.07	110.98	57.72	53.25	2.084	Minor Risk
7,550.00	7,533.86	7,539.89	7,527.54	26.87	27.01	-54.35	111.77	360.46	110.50	56.87	53.63	2.060	Minor Risk
7,600.00	7,583.56	7,589.84	7,577.36	27.06	27.19	-55.51	112.92	363.84	110.06	56.05	54.01	2.038	Minor Risk
7,650.00	7,633.25	7,639.79	7,627.18	27.25	27.38	-56.69	114.06	367.23	109.68	55.29	54.39	2.017	Minor Risk
7,700.00	7,682.94	7,689.74	7,677.00	27.43	27.56	-57.87	115.20	370.61	109.34	54.57	54.77	1.996	Minor Risk
7,750.00	7,732.64	7,739.68	7,726.82	27.62	27.74	-59.06	116.34	374.00	109.04	53.89	55.15	1.977	Minor Risk

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,782.33	7,789.63	7,776.64	27.81	27.93	-60.26	117.49	377.38	108.80	53.27	55.53	1.959	Minor Risk
7,850.00	7,832.02	7,839.58	7,826.46	27.99	28.11	-61.46	118.63	380.77	108.60	52.69	55.91	1.942	Minor Risk
7,900.00	7,881.71	7,889.53	7,876.28	28.18	28.30	-62.66	119.77	384.15	108.45	52.15	56.29	1.926	Minor Risk
7,950.00	7,931.41	7,939.47	7,926.10	28.37	28.48	-63.87	120.92	387.54	108.34	51.67	56.67	1.912	Minor Risk
8,000.00	7,981.10	7,989.42	7,975.92	28.55	28.66	-65.08	122.06	390.93	108.29	51.23	57.06	1.898	Minor Risk
8,031.16	8,012.06	8,020.54	8,006.96	28.67	28.78	-65.83	122.77	393.04	108.28	50.99	57.29	1.890	Minor Risk
8,050.00	8,030.79	8,039.37	8,025.74	28.74	28.85	-66.29	123.20	394.31	108.28	50.85	57.44	1.885	Minor Risk
8,100.00	8,080.49	8,089.32	8,075.55	28.93	29.03	-67.50	124.34	397.70	108.33	50.51	57.82	1.874	Minor Risk
8,150.00	8,130.18	8,139.26	8,125.37	29.11	29.22	-68.71	125.49	401.08	108.42	50.22	58.20	1.863	Minor Risk
8,200.00	8,179.87	8,189.21	8,175.19	29.30	29.40	-69.91	126.63	404.47	108.55	49.97	58.58	1.853	Minor Risk
8,250.00	8,229.56	8,239.16	8,225.01	29.49	29.58	-71.12	127.77	407.85	108.74	49.78	58.96	1.844	Minor Risk
8,300.00	8,279.26	8,289.11	8,274.83	29.68	29.77	-72.31	128.92	411.24	108.98	49.63	59.34	1.836	Minor Risk
8,350.00	8,328.95	8,339.05	8,324.65	29.86	29.95	-73.51	130.06	414.62	109.26	49.53	59.73	1.829	Minor Risk
8,400.00	8,378.64	8,389.00	8,374.47	30.05	30.14	-74.69	131.20	418.01	109.59	49.48	60.11	1.823	Minor Risk
8,450.00	8,428.34	8,438.95	8,424.29	30.24	30.32	-75.87	132.35	421.40	109.96	49.48	60.49	1.818	Minor Risk
8,500.00	8,478.03	8,488.90	8,474.11	30.43	30.50	-77.04	133.49	424.78	110.39	49.52	60.87	1.814	Minor Risk
8,550.00	8,527.72	8,538.84	8,523.93	30.62	30.69	-78.20	134.63	428.17	110.85	49.61	61.25	1.810	Minor Risk
8,600.00	8,577.41	8,588.79	8,573.75	30.80	30.87	-79.35	135.77	431.55	111.37	49.74	61.63	1.807	Minor Risk
8,650.00	8,627.11	8,638.74	8,623.57	30.99	31.06	-80.48	136.92	434.94	111.93	49.92	62.00	1.805	Minor Risk
8,700.00	8,676.80	8,688.69	8,673.39	31.18	31.24	-81.61	138.06	438.32	112.53	50.14	62.38	1.804	Minor Risk
8,750.00	8,726.49	8,738.63	8,723.21	31.37	31.42	-82.73	139.20	441.71	113.17	50.41	62.76	1.803	Minor Risk
8,800.00	8,776.19	8,788.58	8,773.03	31.56	31.61	-83.83	140.35	445.09	113.86	50.72	63.14	1.803	Minor Risk
8,850.00	8,825.88	8,838.53	8,822.85	31.74	31.79	-84.91	141.49	448.48	114.59	51.07	63.51	1.804	Minor Risk
8,900.00	8,875.57	8,888.48	8,872.67	31.93	31.98	-85.99	142.63	451.87	115.36	51.47	63.89	1.806	Minor Risk
8,950.00	8,925.26	8,938.42	8,922.49	32.12	32.16	-87.05	143.77	455.25	116.17	51.90	64.27	1.808	Minor Risk
9,000.00	8,974.96	8,988.37	8,972.31	32.31	32.35	-88.09	144.92	458.64	117.01	52.37	64.64	1.810	Minor Risk
9,050.00	9,024.65	9,038.32	9,022.13	32.50	32.53	-89.12	146.06	462.02	117.90	52.89	65.01	1.813	Minor Risk
9,100.00	9,074.34	9,088.27	9,071.95	32.69	32.71	-90.13	147.20	465.41	118.83	53.44	65.39	1.817	Minor Risk
9,150.00	9,124.04	9,138.21	9,121.77	32.88	32.90	-91.13	148.35	468.79	119.79	54.02	65.76	1.822	Minor Risk
9,200.00	9,173.73	9,188.16	9,171.59	33.07	33.08	-92.11	149.49	472.18	120.78	54.65	66.13	1.826	Minor Risk
9,250.00	9,223.42	9,238.11	9,221.41	33.25	33.27	-93.08	150.63	475.56	121.81	55.31	66.51	1.832	Minor Risk
9,300.00	9,273.11	9,288.06	9,271.22	33.44	33.45	-94.02	151.78	478.95	122.88	56.00	66.88	1.837	Minor Risk
9,350.00	9,322.81	9,338.00	9,321.04	33.63	33.64	-94.96	152.92	482.34	123.98	56.73	67.25	1.844	Minor Risk
9,400.00	9,372.50	9,387.95	9,370.86	33.82	33.82	-95.87	154.06	485.72	125.11	57.49	67.62	1.850	Minor Risk
9,450.00	9,422.19	9,437.90	9,420.68	34.01	34.00	-96.77	155.20	489.11	126.27	58.28	67.99	1.857	Minor Risk
9,500.00	9,471.89	9,487.85	9,470.50	34.20	34.19	-97.65	156.35	492.49	127.47	59.11	68.36	1.865	Minor Risk
9,550.00	9,521.58	9,537.80	9,520.32	34.39	34.37	-98.52	157.49	495.88	128.69	59.96	68.73	1.872	Minor Risk
9,600.00	9,571.27	9,587.74	9,570.14	34.58	34.56	-99.37	158.63	499.26	129.94	60.84	69.09	1.881	Minor Risk
9,650.00	9,620.96	9,637.69	9,619.96	34.77	34.74	-100.20	159.78	502.65	131.22	61.76	69.46	1.889	Minor Risk
9,700.00	9,670.66	9,687.64	9,669.78	34.96	34.93	-101.02	160.92	506.03	132.53	62.70	69.83	1.898	Minor Risk
9,750.00	9,720.35	9,737.59	9,719.60	35.15	35.11	-101.82	162.06	509.42	133.86	63.66	70.20	1.907	Minor Risk
9,800.00	9,770.04	9,787.53	9,769.42	35.34	35.29	-102.60	163.20	512.81	135.22	64.65	70.56	1.916	Minor Risk
9,850.00	9,819.74	9,837.48	9,819.24	35.53	35.48	-103.37	164.35	516.19	136.60	65.67	70.93	1.926	Minor Risk
9,900.00	9,869.48	9,887.45	9,869.08	35.72	35.66	-103.94	165.49	519.58	137.88	66.59	71.30	1.934	Minor Risk
9,950.00	9,919.29	9,937.43	9,918.93	35.90	35.85	-104.24	166.63	522.97	139.02	67.36	71.66	1.940	Minor Risk
10,000.00	9,969.15	9,987.42	9,968.79	36.09	36.03	-104.28	167.78	526.35	140.00	67.97	72.03	1.944	Minor Risk
10,050.00	10,019.05	10,037.41	10,018.66	36.27	36.22	-104.05	168.92	529.74	140.82	68.42	72.40	1.945	Minor Risk
10,100.00	10,068.99	10,087.39	10,068.51	36.45	36.40	-103.57	170.07	533.13	141.49	68.72	72.77	1.944	Minor Risk
10,150.00	10,118.96	10,137.35	10,118.34	36.63	36.59	-102.83	171.21	536.52	142.02	68.88	73.14	1.942	Minor Risk
10,200.00	10,168.95	10,187.29	10,168.15	36.80	36.77	-101.84	172.35	539.90	142.44	68.93	73.51	1.938	Minor Risk
10,250.00	10,218.94	10,237.19	10,217.93	36.98	36.95	-100.60	173.49	543.28	142.78	68.90	73.88	1.933	Minor Risk
10,300.00	10,268.94	10,287.06	10,267.67	37.15	37.14	-12.65	174.63	546.66	143.11	68.87	74.24	1.928	Minor Risk

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,350.00	10,318.94	10,336.93	10,317.41	37.32	37.32	-11.23	175.78	550.05	143.53	68.92	74.61	1.924	Minor Risk
10,400.00	10,368.94	10,386.81	10,367.16	37.49	37.51	-9.82	176.92	553.43	144.04	69.07	74.97	1.921	Minor Risk
10,450.00	10,418.94	10,436.68	10,416.90	37.67	37.69	-8.43	178.06	556.81	144.63	69.30	75.34	1.920	Minor Risk
10,500.00	10,468.94	10,486.55	10,466.65	37.84	37.88	-7.04	179.20	560.19	145.31	69.61	75.70	1.920	Minor Risk
10,550.00	10,518.94	10,536.42	10,516.39	38.01	38.06	-5.67	180.34	563.57	146.07	70.02	76.06	1.921	Minor Risk
10,600.00	10,568.94	10,586.29	10,566.14	38.19	38.24	-4.32	181.48	566.95	146.92	70.51	76.41	1.923	Minor Risk
10,650.00	10,618.91	10,636.36	10,616.08	38.35	38.43	177.10	182.60	570.27	149.15	72.38	76.77	1.943	Minor Risk
10,700.00	10,668.59	10,686.41	10,666.04	38.52	38.61	178.23	183.54	573.05	155.52	78.41	77.11	2.017	Minor Risk
10,750.00	10,717.59	10,735.83	10,715.41	38.67	38.79	179.08	184.26	575.18	166.05	88.61	77.44	2.144	Minor Risk
10,800.00	10,765.54	10,784.29	10,763.84	38.83	38.96	179.64	184.77	576.69	180.64	102.87	77.77	2.323	Minor Risk
10,850.00	10,812.08	10,831.44	10,810.99	38.97	39.13	179.94	185.08	577.60	199.17	121.09	78.08	2.551	Alert
10,900.00	10,856.86	10,876.96	10,856.50	39.11	39.29	-179.95	185.20	577.95	221.50	143.13	78.37	2.826	Alert
10,950.00	10,899.53	10,919.78	10,899.33	39.24	39.44	-179.95	185.20	577.96	247.54	168.89	78.65	3.147	Alert
11,000.00	10,939.76	10,960.02	10,939.56	39.36	39.58	-179.95	185.20	577.96	277.20	198.30	78.90	3.513	Alert
11,050.00	10,977.26	11,002.48	10,977.06	39.48	39.72	-179.95	185.20	577.96	310.25	231.10	79.15	3.920	Alert
11,100.00	11,011.74	11,032.00	11,011.54	39.58	39.83	-179.95	185.20	577.96	346.44	267.10	79.34	4.366	Alert
11,150.00	11,042.93	11,063.19	11,042.73	39.68	39.93	-179.95	185.20	577.96	385.50	305.97	79.53	4.847	Alert
11,200.00	11,070.60	11,109.15	11,070.40	39.78	40.09	-179.95	185.20	577.96	427.12	347.38	79.75	5.356	
11,250.00	11,094.53	11,114.79	11,094.33	39.88	40.11	-179.95	185.20	577.96	471.00	391.19	79.82	5.901	
11,300.00	11,114.55	11,134.81	11,114.35	39.99	40.18	-179.94	185.20	577.96	516.81	436.88	79.93	6.466	
11,350.00	11,130.50	11,150.76	11,130.30	40.10	40.24	-179.93	185.20	577.96	564.18	484.16	80.01	7.051	
11,400.00	11,142.26	11,162.52	11,142.06	40.22	40.28	-179.91	185.20	577.96	612.76	532.68	80.07	7.652	
11,450.00	11,149.74	12,224.72	11,788.00	40.35	42.72	-179.98	-476.98	578.94	638.45	590.27	48.19	13.250	
11,500.00	11,152.89	12,274.60	11,788.00	40.49	42.86	-179.98	-526.86	579.02	635.31	586.98	48.33	13.145	
11,546.67	11,153.37	12,321.27	11,788.00	40.62	43.00	-179.98	-573.53	579.08	634.83	586.35	48.47	13.097	
11,550.00	11,153.00	12,324.60	11,788.00	40.63	43.01	-179.98	-576.86	579.09	635.20	586.72	48.48	13.102	
11,600.00	11,153.00	12,374.60	11,788.00	40.78	43.17	-179.98	-626.86	579.16	635.20	586.56	48.64	13.059	
11,650.00	11,153.00	12,424.60	11,788.00	40.95	43.35	-179.98	-676.86	579.24	635.20	586.38	48.82	13.012	
11,700.00	11,153.00	12,474.60	11,788.00	41.13	43.53	-179.98	-726.86	579.31	635.20	586.20	49.00	12.963	
11,750.00	11,153.00	12,524.60	11,788.00	41.33	43.72	-179.98	-776.86	579.39	635.20	586.00	49.20	12.910	
11,800.00	11,153.00	12,574.60	11,788.00	41.52	43.93	-179.98	-826.86	579.46	635.20	585.79	49.41	12.856	
11,850.00	11,153.00	12,624.60	11,788.00	41.74	44.14	-179.98	-876.86	579.53	635.20	585.57	49.63	12.798	
11,900.00	11,153.00	12,674.60	11,788.00	41.96	44.37	-179.99	-926.86	579.61	635.20	585.34	49.86	12.739	
11,950.00	11,153.00	12,724.60	11,788.00	42.20	44.61	-179.99	-976.86	579.68	635.20	585.09	50.11	12.676	
12,000.00	11,153.00	12,774.60	11,788.00	42.45	44.85	-179.99	-1,026.86	579.76	635.20	584.84	50.36	12.613	
12,050.00	11,153.00	12,824.60	11,788.00	42.71	45.11	-179.99	-1,076.86	579.83	635.20	584.57	50.63	12.546	
12,100.00	11,153.00	12,874.60	11,788.00	42.97	45.38	-179.99	-1,126.86	579.91	635.20	584.30	50.90	12.479	
12,150.00	11,153.00	12,924.60	11,788.00	43.26	45.65	-179.99	-1,176.86	579.98	635.20	584.01	51.19	12.408	
12,200.00	11,153.00	12,974.60	11,788.00	43.54	45.94	-179.99	-1,226.86	580.05	635.20	583.71	51.49	12.337	
12,250.00	11,153.00	13,024.60	11,788.00	43.84	46.23	-179.99	-1,276.86	580.13	635.20	583.40	51.80	12.263	
12,300.00	11,153.00	13,074.60	11,788.00	44.15	46.54	-179.99	-1,326.86	580.20	635.20	583.09	52.11	12.189	
12,350.00	11,153.00	13,124.60	11,788.00	44.47	46.85	-179.99	-1,376.86	580.28	635.20	582.76	52.44	12.112	
12,400.00	11,153.00	13,174.60	11,788.00	44.80	47.17	-179.99	-1,426.86	580.35	635.20	582.42	52.78	12.035	
12,450.00	11,153.00	13,224.60	11,788.00	45.14	47.50	-179.99	-1,476.86	580.42	635.20	582.07	53.13	11.956	
12,500.00	11,153.00	13,274.60	11,788.00	45.48	47.85	-179.99	-1,526.86	580.50	635.20	581.72	53.48	11.877	
12,550.00	11,153.00	13,324.60	11,788.00	45.84	48.19	-179.99	-1,576.86	580.57	635.20	581.35	53.85	11.796	
12,600.00	11,153.00	13,374.60	11,788.00	46.20	48.55	-179.99	-1,626.86	580.65	635.20	580.98	54.22	11.715	
12,650.00	11,153.00	13,424.60	11,788.00	46.58	48.92	-179.99	-1,676.86	580.72	635.20	580.59	54.61	11.633	
12,700.00	11,153.00	13,474.60	11,788.00	46.95	49.29	-179.99	-1,726.86	580.79	635.20	580.21	54.99	11.550	
12,750.00	11,153.00	13,524.60	11,788.00	47.34	49.67	-179.99	-1,776.86	580.87	635.20	579.80	55.40	11.467	
12,800.00	11,153.00	13,574.60	11,788.00	47.74	50.06	-179.99	-1,826.86	580.94	635.20	579.40	55.80	11.383	
12,850.00	11,153.00	13,624.60	11,788.00	48.15	50.45	-179.99	-1,876.86	581.02	635.20	578.98	56.22	11.299	

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,900.00	11,153.00	13,674.60	11,788.00	48.55	50.86	-179.99	-1,926.86	581.09	635.20	578.56	56.64	11.214	
12,950.00	11,153.00	13,724.60	11,788.00	48.98	51.27	-179.99	-1,976.86	581.17	635.20	578.13	57.07	11.129	
13,000.00	11,153.00	13,774.60	11,788.00	49.40	51.68	-179.99	-2,026.86	581.24	635.20	577.69	57.51	11.045	
13,050.00	11,153.00	13,824.60	11,788.00	49.83	52.11	-179.99	-2,076.86	581.31	635.20	577.24	57.96	10.959	
13,100.00	11,153.00	13,874.60	11,788.00	50.27	52.54	-179.99	-2,126.86	581.39	635.20	576.79	58.41	10.875	
13,150.00	11,153.00	13,924.60	11,788.00	50.72	52.98	-179.99	-2,176.86	581.46	635.20	576.33	58.87	10.789	
13,200.00	11,153.00	13,974.60	11,788.00	51.17	53.42	-179.99	-2,226.86	581.54	635.20	575.86	59.34	10.705	
13,250.00	11,153.00	14,024.60	11,788.00	51.63	53.87	-179.99	-2,276.86	581.61	635.20	575.39	59.81	10.620	
13,300.00	11,153.00	14,074.60	11,788.00	52.09	54.32	-179.99	-2,326.86	581.68	635.20	574.91	60.29	10.535	
13,350.00	11,153.00	14,124.60	11,788.00	52.57	54.78	-179.99	-2,376.86	581.76	635.20	574.42	60.78	10.451	
13,400.00	11,153.00	14,174.60	11,788.00	53.04	55.25	-179.99	-2,426.86	581.83	635.20	573.93	61.27	10.367	
13,450.00	11,153.00	14,224.60	11,788.00	53.53	55.72	-179.99	-2,476.86	581.91	635.20	573.43	61.77	10.283	
13,500.00	11,153.00	14,274.60	11,788.00	54.01	56.20	-179.99	-2,526.86	581.98	635.20	572.92	62.28	10.200	
13,550.00	11,153.00	14,324.60	11,788.00	54.51	56.68	-179.99	-2,576.86	582.05	635.20	572.41	62.79	10.117	
13,600.00	11,153.00	14,374.60	11,788.00	55.00	57.17	-179.99	-2,626.86	582.13	635.20	571.90	63.30	10.034	
13,650.00	11,153.00	14,424.60	11,788.00	55.51	57.67	-179.99	-2,676.86	582.20	635.20	571.37	63.83	9.952	
13,700.00	11,153.00	14,474.60	11,788.00	56.02	58.16	-179.99	-2,726.86	582.28	635.20	570.85	64.35	9.871	
13,750.00	11,153.00	14,524.60	11,788.00	56.53	58.67	-179.99	-2,776.86	582.35	635.20	570.32	64.88	9.790	
13,800.00	11,153.00	14,574.60	11,788.00	57.05	59.17	-179.99	-2,826.86	582.43	635.20	569.78	65.42	9.710	
13,850.00	11,153.00	14,624.60	11,788.00	57.57	59.69	-179.99	-2,876.86	582.50	635.20	569.24	65.96	9.630	
13,900.00	11,153.00	14,674.60	11,788.00	58.09	60.20	-179.99	-2,926.86	582.57	635.20	568.69	66.51	9.551	
13,950.00	11,153.00	14,724.60	11,788.00	58.63	60.72	-179.99	-2,976.86	582.65	635.20	568.14	67.06	9.472	
14,000.00	11,153.00	14,774.60	11,788.00	59.16	61.25	-179.99	-3,026.86	582.72	635.20	567.58	67.62	9.394	
14,050.00	11,153.00	14,824.60	11,788.00	59.70	61.78	-179.99	-3,076.86	582.80	635.20	567.02	68.18	9.317	
14,100.00	11,153.00	14,874.60	11,788.00	60.24	62.31	-179.99	-3,126.86	582.87	635.20	566.46	68.74	9.240	
14,150.00	11,153.00	14,924.60	11,788.00	60.79	62.85	-179.99	-3,176.86	582.94	635.20	565.89	69.31	9.164	
14,200.00	11,153.00	14,974.60	11,788.00	61.34	63.39	-179.99	-3,226.86	583.02	635.20	565.31	69.89	9.089	
14,250.00	11,153.00	15,024.60	11,788.00	61.90	63.93	-179.99	-3,276.86	583.09	635.20	564.73	70.47	9.014	
14,300.00	11,153.00	15,074.60	11,788.00	62.45	64.48	-179.99	-3,326.86	583.17	635.20	564.15	71.05	8.941	
14,350.00	11,153.00	15,124.60	11,788.00	63.01	65.03	-179.99	-3,376.86	583.24	635.20	563.57	71.63	8.867	
14,400.00	11,153.00	15,174.60	11,788.00	63.58	65.59	-179.99	-3,426.86	583.31	635.20	562.98	72.22	8.795	
14,450.00	11,153.00	15,224.60	11,788.00	64.15	66.14	-179.99	-3,476.86	583.39	635.20	562.38	72.82	8.723	
14,500.00	11,153.00	15,274.60	11,788.00	64.72	66.71	-179.99	-3,526.86	583.46	635.20	561.79	73.41	8.653	
14,550.00	11,153.00	15,324.60	11,788.00	65.29	67.27	-179.99	-3,576.86	583.54	635.20	561.19	74.01	8.582	
14,600.00	11,153.00	15,374.60	11,788.00	65.87	67.84	-179.99	-3,626.86	583.61	635.20	560.58	74.62	8.513	
14,650.00	11,153.00	15,424.60	11,788.00	66.45	68.41	-179.99	-3,676.86	583.69	635.20	559.98	75.22	8.444	
14,700.00	11,153.00	15,474.60	11,788.00	67.03	68.98	-179.99	-3,726.86	583.76	635.20	559.37	75.83	8.376	
14,750.00	11,153.00	15,524.60	11,788.00	67.62	69.56	-179.99	-3,776.86	583.83	635.20	558.75	76.45	8.309	
14,800.00	11,153.00	15,574.60	11,788.00	68.20	70.14	-179.99	-3,826.86	583.91	635.20	558.14	77.06	8.243	
14,850.00	11,153.00	15,624.60	11,788.00	68.79	70.72	-179.99	-3,876.86	583.98	635.20	557.52	77.68	8.177	
14,900.00	11,153.00	15,674.60	11,788.00	69.39	71.30	-179.99	-3,926.86	584.06	635.20	556.90	78.30	8.112	
14,950.00	11,153.00	15,724.60	11,788.00	69.98	71.89	-179.99	-3,976.86	584.13	635.20	556.27	78.93	8.048	
15,000.00	11,153.00	15,774.60	11,788.00	70.58	72.48	-179.99	-4,026.86	584.20	635.20	555.64	79.56	7.984	
15,050.00	11,153.00	15,824.60	11,788.00	71.18	73.07	-179.99	-4,076.86	584.28	635.20	555.01	80.19	7.921	
15,100.00	11,153.00	15,874.60	11,788.00	71.79	73.67	-179.99	-4,126.86	584.35	635.20	554.38	80.82	7.859	
15,150.00	11,153.00	15,924.60	11,788.00	72.39	74.26	-179.99	-4,176.86	584.43	635.20	553.74	81.46	7.798	
15,200.00	11,153.00	15,974.60	11,788.00	73.00	74.86	-179.99	-4,226.86	584.50	635.20	553.10	82.10	7.737	
15,250.00	11,153.00	16,024.60	11,788.00	73.61	75.46	-179.99	-4,276.86	584.57	635.20	552.46	82.74	7.677	
15,300.00	11,153.00	16,074.60	11,788.00	74.22	76.07	-179.99	-4,326.86	584.65	635.20	551.82	83.38	7.618	
15,350.00	11,153.00	16,124.60	11,788.00	74.83	76.67	-179.99	-4,376.86	584.72	635.20	551.17	84.03	7.559	
15,400.00	11,153.00	16,174.60	11,788.00	75.45	77.28	-179.99	-4,426.86	584.80	635.20	550.52	84.68	7.501	
15,450.00	11,153.00	16,224.60	11,788.00	76.07	77.89	-179.99	-4,476.86	584.87	635.20	549.87	85.33	7.444	

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,500.00	11,153.00	16,274.60	11,788.00	76.69	78.50	-179.99	-4,526.86	584.95	635.20	549.22	85.98	7.388	
15,550.00	11,153.00	16,324.60	11,788.00	77.31	79.12	-179.99	-4,576.86	585.02	635.20	548.56	86.64	7.332	
15,600.00	11,153.00	16,374.60	11,788.00	77.93	79.73	-179.99	-4,626.86	585.09	635.20	547.91	87.29	7.277	
15,650.00	11,153.00	16,424.60	11,788.00	78.56	80.35	-179.99	-4,676.86	585.17	635.20	547.25	87.95	7.222	
15,700.00	11,153.00	16,474.60	11,788.00	79.18	80.97	-179.99	-4,726.86	585.24	635.20	546.58	88.62	7.168	
15,750.00	11,153.00	16,524.60	11,788.00	79.81	81.59	-179.99	-4,776.86	585.32	635.20	545.92	89.28	7.115	
15,800.00	11,153.00	16,574.60	11,788.00	80.44	82.21	-179.99	-4,826.86	585.39	635.20	545.26	89.94	7.062	
15,850.00	11,153.00	16,624.60	11,788.00	81.08	82.84	-179.99	-4,876.86	585.46	635.20	544.59	90.61	7.010	
15,900.00	11,153.00	16,674.60	11,788.00	81.71	83.46	-179.99	-4,926.86	585.54	635.20	543.92	91.28	6.959	
15,950.00	11,153.00	16,724.60	11,788.00	82.34	84.09	-179.99	-4,976.86	585.61	635.20	543.25	91.95	6.908	
16,000.00	11,153.00	16,774.60	11,788.00	82.98	84.72	-179.99	-5,026.86	585.69	635.20	542.57	92.63	6.858	
16,050.00	11,153.00	16,824.60	11,788.00	83.62	85.35	-179.99	-5,076.86	585.76	635.20	541.90	93.30	6.808	
16,100.00	11,153.00	16,874.60	11,788.00	84.26	85.98	-179.99	-5,126.86	585.83	635.20	541.22	93.98	6.759	
16,150.00	11,153.00	16,924.60	11,788.00	84.90	86.62	-179.99	-5,176.86	585.91	635.20	540.55	94.65	6.711	
16,200.00	11,153.00	16,974.60	11,788.00	85.54	87.25	-179.99	-5,226.86	585.98	635.20	539.87	95.33	6.663	
16,250.00	11,153.00	17,024.60	11,788.00	86.19	87.89	-179.99	-5,276.86	586.06	635.20	539.18	96.02	6.616	
16,300.00	11,153.00	17,074.60	11,788.00	86.83	88.53	-179.99	-5,326.86	586.13	635.20	538.50	96.70	6.569	
16,350.00	11,153.00	17,124.60	11,788.00	87.48	89.17	-179.99	-5,376.86	586.21	635.20	537.82	97.38	6.523	
16,400.00	11,153.00	17,174.60	11,788.00	88.12	89.81	-179.99	-5,426.86	586.28	635.20	537.13	98.07	6.477	
16,450.00	11,153.00	17,224.60	11,788.00	88.77	90.45	-179.99	-5,476.86	586.35	635.20	536.44	98.76	6.432	
16,500.00	11,153.00	17,274.60	11,788.00	89.42	91.09	-179.99	-5,526.86	586.43	635.20	535.76	99.44	6.387	
16,550.00	11,153.00	17,324.60	11,788.00	90.07	91.74	-179.99	-5,576.86	586.50	635.20	535.07	100.13	6.343	
16,600.00	11,153.00	17,374.60	11,788.00	90.72	92.38	-179.99	-5,626.86	586.58	635.20	534.37	100.83	6.300	
16,650.00	11,153.00	17,424.60	11,788.00	91.38	93.03	-179.99	-5,676.86	586.65	635.20	533.68	101.52	6.257	
16,700.00	11,153.00	17,474.60	11,788.00	92.03	93.68	-179.99	-5,726.86	586.72	635.20	532.99	102.21	6.214	
16,750.00	11,153.00	17,524.60	11,788.00	92.69	94.33	-179.99	-5,776.86	586.80	635.20	532.29	102.91	6.172	
16,800.00	11,153.00	17,574.60	11,788.00	93.34	94.98	-179.99	-5,826.85	586.87	635.20	531.59	103.61	6.131	
16,850.00	11,153.00	17,624.60	11,788.00	94.00	95.63	-179.99	-5,876.85	586.95	635.20	530.90	104.30	6.090	
16,900.00	11,153.00	17,674.60	11,788.00	94.66	96.28	-179.99	-5,926.85	587.02	635.20	530.20	105.00	6.049	
16,950.00	11,153.00	17,724.60	11,788.00	95.32	96.94	-179.99	-5,976.85	587.09	635.20	529.50	105.70	6.009	
17,000.00	11,153.00	17,774.60	11,788.00	95.98	97.59	-179.99	-6,026.85	587.17	635.20	528.79	106.41	5.970	
17,050.00	11,153.00	17,824.60	11,788.00	96.64	98.25	-179.99	-6,076.85	587.24	635.20	528.09	107.11	5.930	
17,100.00	11,153.00	17,874.60	11,788.00	97.30	98.90	-179.99	-6,126.85	587.32	635.20	527.39	107.81	5.892	
17,150.00	11,153.00	17,924.60	11,788.00	97.97	99.56	-179.99	-6,176.85	587.39	635.20	526.68	108.52	5.853	
17,200.00	11,153.00	17,974.60	11,788.00	98.63	100.22	-179.99	-6,226.85	587.47	635.20	525.98	109.22	5.816	
17,250.00	11,153.00	18,024.60	11,788.00	99.30	100.88	-179.99	-6,276.85	587.54	635.20	525.27	109.93	5.778	
17,300.00	11,153.00	18,074.60	11,788.00	99.96	101.54	-179.99	-6,326.85	587.61	635.20	524.56	110.64	5.741	
17,350.00	11,153.00	18,124.60	11,788.00	100.63	102.20	-179.99	-6,376.85	587.69	635.20	523.85	111.35	5.705	
17,400.00	11,153.00	18,174.60	11,788.00	101.30	102.86	-179.99	-6,426.85	587.76	635.20	523.14	112.06	5.668	
17,450.00	11,153.00	18,224.60	11,788.00	101.96	103.53	-179.99	-6,476.85	587.84	635.20	522.43	112.77	5.633	
17,500.00	11,153.00	18,274.60	11,788.00	102.63	104.19	-179.99	-6,526.85	587.91	635.20	521.72	113.48	5.597	
17,550.00	11,153.00	18,324.60	11,788.00	103.30	104.86	-179.99	-6,576.85	587.98	635.20	521.00	114.20	5.562	
17,600.00	11,153.00	18,374.60	11,788.00	103.97	105.52	-179.99	-6,626.85	588.06	635.20	520.29	114.91	5.528	
17,650.00	11,153.00	18,424.60	11,788.00	104.65	106.19	-179.99	-6,676.85	588.13	635.20	519.58	115.62	5.494	
17,700.00	11,153.00	18,474.60	11,788.00	105.32	106.85	-179.99	-6,726.85	588.21	635.20	518.86	116.34	5.460	
17,750.00	11,153.00	18,524.60	11,788.00	105.99	107.52	-179.99	-6,776.85	588.28	635.20	518.14	117.06	5.426	
17,800.00	11,153.00	18,574.60	11,788.00	106.66	108.19	-179.99	-6,826.85	588.36	635.20	517.43	117.77	5.393	
17,850.00	11,153.00	18,624.60	11,788.00	107.34	108.86	-179.99	-6,876.85	588.43	635.20	516.71	118.49	5.361	
17,900.00	11,153.00	18,674.60	11,788.00	108.01	109.53	-179.99	-6,926.85	588.50	635.20	515.99	119.21	5.328	
17,950.00	11,153.00	18,724.60	11,788.00	108.69	110.20	-179.99	-6,976.85	588.58	635.20	515.27	119.93	5.296	
18,000.00	11,153.00	18,774.60	11,788.00	109.37	110.87	-179.99	-7,026.85	588.65	635.20	514.55	120.65	5.265	
18,050.00	11,153.00	18,824.60	11,788.00	110.04	111.55	-179.99	-7,076.85	588.73	635.20	513.82	121.38	5.233	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
18,100.00	11,153.00	18,874.60	11,788.00	110.72	112.22	-179.99	-7,126.85	588.80	635.20	513.10	122.10	5.202	
18,150.00	11,153.00	18,924.60	11,788.00	111.40	112.89	-179.99	-7,176.85	588.87	635.20	512.38	122.82	5.172	
18,200.00	11,153.00	18,974.60	11,788.00	112.08	113.57	-180.00	-7,226.85	588.95	635.20	511.65	123.55	5.141	
18,250.00	11,153.00	19,024.60	11,788.00	112.76	114.24	-180.00	-7,276.85	589.02	635.20	510.93	124.27	5.111	
18,300.00	11,153.00	19,074.60	11,788.00	113.44	114.92	-180.00	-7,326.85	589.10	635.20	510.20	125.00	5.082	
18,350.00	11,153.00	19,124.60	11,788.00	114.12	115.59	-180.00	-7,376.85	589.17	635.20	509.48	125.72	5.052	
18,400.00	11,153.00	19,174.60	11,788.00	114.80	116.27	-180.00	-7,426.85	589.24	635.20	508.75	126.45	5.023	
18,450.00	11,153.00	19,224.60	11,788.00	115.48	116.95	-180.00	-7,476.85	589.32	635.20	508.02	127.18	4.995	Alert
18,500.00	11,153.00	19,274.60	11,788.00	116.16	117.63	-180.00	-7,526.85	589.39	635.20	507.30	127.90	4.966	Alert
18,550.00	11,153.00	19,324.60	11,788.00	116.84	118.30	-180.00	-7,576.85	589.47	635.20	506.57	128.63	4.938	Alert
18,600.00	11,153.00	19,374.60	11,788.00	117.53	118.98	-180.00	-7,626.85	589.54	635.20	505.84	129.36	4.910	Alert
18,650.00	11,153.00	19,424.60	11,788.00	118.21	119.66	-180.00	-7,676.85	589.62	635.20	505.11	130.09	4.883	Alert
18,700.00	11,153.00	19,474.60	11,788.00	118.90	120.34	-180.00	-7,726.85	589.69	635.20	504.38	130.82	4.855	Alert
18,750.00	11,153.00	19,524.60	11,788.00	119.58	121.02	-180.00	-7,776.85	589.76	635.20	503.64	131.56	4.828	Alert
18,800.00	11,153.00	19,574.60	11,788.00	120.27	121.70	-180.00	-7,826.85	589.84	635.20	502.91	132.29	4.802	Alert
18,850.00	11,153.00	19,624.60	11,788.00	120.95	122.39	-180.00	-7,876.85	589.91	635.20	502.18	133.02	4.775	Alert
18,900.00	11,153.00	19,674.60	11,788.00	121.64	123.07	-180.00	-7,926.85	589.99	635.20	501.45	133.75	4.749	Alert
18,950.00	11,153.00	19,724.60	11,788.00	122.32	123.75	-180.00	-7,976.85	590.06	635.20	500.71	134.49	4.723	Alert
19,000.00	11,153.00	19,774.60	11,788.00	123.01	124.43	-180.00	-8,026.85	590.13	635.20	499.98	135.22	4.697	Alert
19,050.00	11,153.00	19,824.60	11,788.00	123.70	125.12	-180.00	-8,076.85	590.21	635.20	499.24	135.96	4.672	Alert
19,100.00	11,153.00	19,874.60	11,788.00	124.39	125.80	-180.00	-8,126.85	590.28	635.20	498.51	136.69	4.647	Alert
19,150.00	11,153.00	19,924.60	11,788.00	125.08	126.49	-180.00	-8,176.85	590.36	635.20	497.77	137.43	4.622	Alert
19,200.00	11,153.00	19,974.60	11,788.00	125.76	127.17	-180.00	-8,226.85	590.43	635.20	497.03	138.17	4.597	Alert
19,250.00	11,153.00	20,024.60	11,788.00	126.45	127.86	-180.00	-8,276.85	590.50	635.20	496.30	138.90	4.573	Alert
19,300.00	11,153.00	20,074.60	11,788.00	127.14	128.54	-180.00	-8,326.85	590.58	635.20	495.56	139.64	4.549	Alert
19,350.00	11,153.00	20,124.60	11,788.00	127.83	129.23	-180.00	-8,376.85	590.65	635.20	494.82	140.38	4.525	Alert
19,400.00	11,153.00	20,174.60	11,788.00	128.52	129.92	-180.00	-8,426.85	590.73	635.20	494.08	141.12	4.501	Alert
19,450.00	11,153.00	20,224.60	11,788.00	129.22	130.61	-180.00	-8,476.85	590.80	635.20	493.34	141.86	4.478	Alert
19,500.00	11,153.00	20,274.60	11,788.00	129.91	131.29	-180.00	-8,526.85	590.88	635.20	492.60	142.60	4.455	Alert
19,550.00	11,153.00	20,324.60	11,788.00	130.60	131.98	-180.00	-8,576.85	590.95	635.20	491.86	143.34	4.432	Alert
19,600.00	11,153.00	20,374.60	11,788.00	131.29	132.67	-180.00	-8,626.85	591.02	635.20	491.12	144.08	4.409	Alert
19,650.00	11,153.00	20,424.60	11,788.00	131.98	133.36	-180.00	-8,676.85	591.10	635.20	490.38	144.82	4.386	Alert
19,700.00	11,153.00	20,474.60	11,788.00	132.68	134.05	-180.00	-8,726.85	591.17	635.20	489.64	145.56	4.364	Alert
19,750.00	11,153.00	20,524.60	11,788.00	133.37	134.74	-180.00	-8,776.85	591.25	635.20	488.90	146.30	4.342	Alert
19,800.00	11,153.00	20,574.60	11,788.00	134.06	135.43	-180.00	-8,826.85	591.32	635.20	488.16	147.04	4.320	Alert
19,850.00	11,153.00	20,624.60	11,788.00	134.76	136.12	-180.00	-8,876.85	591.39	635.20	487.41	147.79	4.298	Alert
19,900.00	11,153.00	20,674.60	11,788.00	135.45	136.81	-180.00	-8,926.85	591.47	635.20	486.67	148.53	4.277	Alert
19,950.00	11,153.00	20,724.60	11,788.00	136.15	137.50	-180.00	-8,976.85	591.54	635.20	485.92	149.28	4.255	Alert
20,000.00	11,153.00	20,774.60	11,788.00	136.84	138.19	-180.00	-9,026.85	591.62	635.20	485.18	150.02	4.234	Alert
20,050.00	11,153.00	20,824.60	11,788.00	137.54	138.89	-180.00	-9,076.85	591.69	635.20	484.44	150.76	4.213	Alert
20,100.00	11,153.00	20,874.60	11,788.00	138.23	139.58	-180.00	-9,126.85	591.76	635.20	483.69	151.51	4.192	Alert
20,150.00	11,153.00	20,924.60	11,788.00	138.93	140.27	-180.00	-9,176.85	591.84	635.20	482.95	152.25	4.172	Alert
20,200.00	11,153.00	20,974.60	11,788.00	139.62	140.96	-180.00	-9,226.85	591.91	635.20	482.20	153.00	4.152	Alert
20,250.00	11,153.00	21,024.60	11,788.00	140.32	141.66	-180.00	-9,276.85	591.99	635.20	481.45	153.75	4.131	Alert
20,300.00	11,153.00	21,074.60	11,788.00	141.02	142.35	-180.00	-9,326.85	592.06	635.20	480.71	154.49	4.112	Alert
20,350.00	11,153.00	21,124.60	11,788.00	141.71	143.05	-180.00	-9,376.85	592.14	635.20	479.96	155.24	4.092	Alert
20,400.00	11,153.00	21,174.60	11,788.00	142.41	143.74	-180.00	-9,426.85	592.21	635.20	479.21	155.99	4.072	Alert
20,450.00	11,153.00	21,224.60	11,788.00	143.11	144.43	-180.00	-9,476.85	592.28	635.20	478.47	156.73	4.053	Alert
20,500.00	11,153.00	21,274.60	11,788.00	143.81	145.13	-180.00	-9,526.85	592.36	635.20	477.72	157.48	4.033	Alert
20,550.00	11,153.00	21,324.60	11,788.00	144.51	145.83	-180.00	-9,576.85	592.43	635.20	476.97	158.23	4.014	Alert
20,600.00	11,153.00	21,374.60	11,788.00	145.20	146.52	-180.00	-9,626.85	592.51	635.20	476.22	158.98	3.995	Alert
20,650.00	11,153.00	21,424.60	11,788.00	145.90	147.22	-180.00	-9,676.85	592.58	635.20	475.47	159.73	3.977	Alert

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 713H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
20,700.00	11,153.00	21,474.60	11,788.00	146.60	147.91	-180.00	-9,726.85	592.65	635.20	474.72	160.48	3.958	Alert
20,750.00	11,153.00	21,524.60	11,788.00	147.30	148.61	-180.00	-9,776.85	592.73	635.20	473.97	161.23	3.940	Alert
20,800.00	11,153.00	21,574.60	11,788.00	148.00	149.31	-180.00	-9,826.85	592.80	635.20	473.22	161.98	3.922	Alert
20,850.00	11,153.00	21,624.60	11,788.00	148.70	150.00	-180.00	-9,876.85	592.88	635.20	472.47	162.73	3.903	Alert
20,900.00	11,153.00	21,674.60	11,788.00	149.40	150.70	-180.00	-9,926.85	592.95	635.20	471.72	163.48	3.886	Alert
20,950.00	11,153.00	21,724.60	11,788.00	150.10	151.40	-180.00	-9,976.85	593.02	635.20	470.97	164.23	3.868	Alert
21,000.00	11,153.00	21,774.60	11,788.00	150.80	152.10	-180.00	-10,026.85	593.10	635.20	470.22	164.98	3.850	Alert
21,050.00	11,153.00	21,824.60	11,788.00	151.50	152.80	-180.00	-10,076.85	593.17	635.20	469.47	165.73	3.833	Alert
21,100.00	11,153.00	21,874.60	11,788.00	152.20	153.49	-180.00	-10,126.85	593.25	635.20	468.71	166.49	3.815	Alert
21,150.00	11,153.00	21,924.60	11,788.00	152.90	154.19	-180.00	-10,176.85	593.32	635.20	467.96	167.24	3.798	Alert
21,200.00	11,153.00	21,974.60	11,788.00	153.61	154.89	-180.00	-10,226.85	593.40	635.20	467.21	167.99	3.781	Alert
21,250.00	11,153.00	22,024.60	11,788.00	154.31	155.59	-180.00	-10,276.85	593.47	635.20	466.46	168.74	3.764	Alert
21,300.00	11,153.00	22,074.60	11,788.00	155.01	156.29	-180.00	-10,326.85	593.54	635.20	465.70	169.50	3.748	Alert
21,305.11	11,153.00	22,079.71	11,788.00	155.08	156.36	180.00	-10,331.96	593.55	635.20	465.63	169.57	3.746	Alert

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,450.00	9,422.19	9,528.11	9,515.44	34.01	34.06	-1.69	164.86	2,001.45	1,498.41	1,431.43	66.97	22.373	
9,500.00	9,471.89	9,577.34	9,564.56	34.20	34.24	-1.76	166.24	1,998.35	1,489.89	1,422.56	67.33	22.128	
9,550.00	9,521.58	9,626.58	9,613.68	34.39	34.42	-1.83	167.62	1,995.25	1,481.38	1,413.69	67.69	21.886	
9,600.00	9,571.27	9,675.81	9,662.80	34.58	34.60	-1.91	169.00	1,992.14	1,472.86	1,404.82	68.04	21.646	
9,650.00	9,620.96	9,725.05	9,711.92	34.77	34.79	-1.98	170.38	1,989.04	1,464.35	1,395.95	68.40	21.409	
9,700.00	9,670.66	9,774.29	9,761.04	34.96	34.97	-2.05	171.76	1,985.94	1,455.85	1,387.09	68.76	21.174	
9,750.00	9,720.35	9,823.52	9,810.15	35.15	35.15	-2.13	173.14	1,982.83	1,447.34	1,378.23	69.11	20.941	
9,800.00	9,770.04	9,872.76	9,859.27	35.34	35.33	-2.20	174.52	1,979.73	1,438.84	1,369.37	69.47	20.711	
9,850.00	9,819.74	9,922.00	9,908.39	35.53	35.51	-2.28	175.90	1,976.63	1,430.36	1,360.53	69.83	20.484	
9,900.00	9,869.48	9,971.31	9,957.59	35.72	35.69	-2.35	177.28	1,973.52	1,422.35	1,352.16	70.19	20.265	
9,950.00	9,919.29	10,020.73	10,006.89	35.90	35.87	-2.42	178.67	1,970.41	1,414.98	1,344.44	70.54	20.058	
10,000.00	9,969.15	10,070.24	10,056.29	36.09	36.05	-2.50	180.05	1,967.28	1,408.27	1,337.37	70.90	19.862	
10,050.00	10,019.05	10,119.84	10,105.77	36.27	36.23	-2.57	181.44	1,964.16	1,402.20	1,330.95	71.26	19.678	
10,100.00	10,068.99	10,169.51	10,155.32	36.45	36.41	-2.64	182.84	1,961.03	1,396.79	1,325.18	71.62	19.504	
10,150.00	10,118.96	10,219.25	10,204.94	36.63	36.60	-2.71	184.23	1,957.89	1,392.03	1,320.06	71.97	19.341	
10,200.00	10,168.95	10,269.05	10,254.62	36.80	36.78	-2.78	185.63	1,954.76	1,387.93	1,315.60	72.33	19.189	
10,250.00	10,218.94	10,318.90	10,304.35	36.98	36.96	-2.85	187.02	1,951.61	1,384.48	1,311.79	72.69	19.047	
10,300.00	10,268.94	10,368.78	10,354.11	37.15	37.15	83.61	188.42	1,948.47	1,381.48	1,308.44	73.04	18.913	
10,350.00	10,318.94	10,418.66	10,403.88	37.32	37.33	83.54	189.82	1,945.33	1,378.51	1,305.11	73.40	18.781	
10,400.00	10,368.94	10,468.54	10,453.64	37.49	37.51	83.47	191.22	1,942.18	1,375.53	1,301.78	73.75	18.650	
10,450.00	10,418.94	10,518.42	10,503.40	37.67	37.69	83.39	192.62	1,939.04	1,372.56	1,298.45	74.11	18.521	
10,500.00	10,468.94	10,568.30	10,553.16	37.84	37.88	83.32	194.01	1,935.89	1,369.59	1,295.12	74.47	18.392	
10,550.00	10,518.94	10,618.19	10,602.92	38.01	38.06	83.25	195.41	1,932.75	1,366.62	1,291.80	74.82	18.265	
10,600.00	10,568.94	10,668.38	10,643.03	38.19	38.21	83.19	196.49	1,930.34	1,363.80	1,288.64	75.17	18.144	
10,650.00	10,618.91	10,696.55	10,681.14	38.35	38.35	-96.98	197.35	1,928.39	1,361.57	1,286.07	75.50	18.034	
10,700.00	10,668.59	10,734.48	10,719.03	38.52	38.48	-97.32	198.06	1,926.81	1,360.29	1,284.47	75.82	17.940	
10,738.68	10,704.62	10,762.01	10,746.54	38.63	38.58	-97.58	198.47	1,925.87	1,360.00	1,283.95	76.06	17.881	CC
10,750.00	10,717.59	10,771.92	10,756.45	38.67	38.62	-97.68	198.60	1,925.58	1,360.04	1,283.90	76.14	17.862	
10,800.00	10,765.54	10,808.61	10,793.12	38.83	38.75	-98.05	198.99	1,924.70	1,360.90	1,284.44	76.45	17.800	
10,850.00	10,812.08	10,844.30	10,828.81	38.97	38.88	-98.40	199.24	1,924.15	1,362.95	1,286.19	76.76	17.757	
10,900.00	10,856.86	10,878.74	10,863.25	39.11	39.00	-98.71	199.34	1,923.91	1,366.28	1,289.23	77.05	17.732	
10,950.00	10,899.53	10,917.92	10,902.43	39.24	39.14	-99.10	199.35	1,923.89	1,370.96	1,293.60	77.36	17.722	
11,000.00	10,939.76	10,958.15	10,942.66	39.36	39.28	-99.50	199.35	1,923.89	1,376.88	1,299.21	77.67	17.728	
11,050.00	10,977.26	11,004.35	10,980.16	39.48	39.44	-99.79	199.35	1,923.89	1,384.20	1,306.20	78.00	17.745	
11,100.00	11,011.74	11,030.13	11,014.64	39.58	39.53	-99.93	199.35	1,923.89	1,393.08	1,314.81	78.27	17.798	
11,150.00	11,042.93	11,061.32	11,045.83	39.68	39.64	-99.88	199.35	1,923.89	1,403.64	1,325.08	78.56	17.867	
11,200.00	11,070.60	11,088.99	11,073.50	39.78	39.73	-99.57	199.35	1,923.89	1,415.99	1,337.15	78.84	17.961	
11,250.00	11,094.53	11,112.92	11,097.43	39.88	39.82	-98.98	199.35	1,923.89	1,430.21	1,351.10	79.11	18.079	
11,300.00	11,114.55	11,132.94	11,117.45	39.99	39.89	-98.05	199.35	1,923.89	1,446.33	1,366.96	79.37	18.223	
11,350.00	11,130.50	11,148.89	11,133.40	40.10	39.94	-96.77	199.35	1,923.89	1,464.32	1,384.70	79.61	18.393	
11,400.00	11,142.26	11,160.65	11,145.16	40.22	39.99	-95.11	199.35	1,923.89	1,484.11	1,404.27	79.84	18.588	
11,450.00	11,149.74	12,240.30	11,798.00	40.35	42.48	-115.48	-473.38	1,925.69	1,493.55	1,416.68	76.87	19.429	
11,500.00	11,152.89	12,309.81	11,798.00	40.49	42.68	-115.49	-523.26	1,925.82	1,492.25	1,415.03	77.21	19.326	
11,542.52	11,153.37	12,332.71	11,798.00	40.61	42.75	-115.47	-565.78	1,925.94	1,492.09	1,414.70	77.39	19.279	
11,550.00	11,153.00	12,340.19	11,798.00	40.63	42.77	-115.49	-573.26	1,925.96	1,492.25	1,414.83	77.43	19.273	
11,600.00	11,153.00	12,409.81	11,798.00	40.78	43.00	-115.48	-623.26	1,926.09	1,492.31	1,414.54	77.77	19.189	
11,650.00	11,153.00	12,440.19	11,798.00	40.95	43.11	-115.48	-673.26	1,926.23	1,492.36	1,414.34	78.02	19.128	
11,700.00	11,153.00	12,509.81	11,798.00	41.13	43.36	-115.48	-723.26	1,926.36	1,492.41	1,414.00	78.41	19.034	
11,750.00	11,153.00	12,540.19	11,798.00	41.33	43.49	-115.48	-773.26	1,926.49	1,492.47	1,413.77	78.70	18.965	
11,800.00	11,153.00	12,609.81	11,798.00	41.52	43.77	-115.48	-823.26	1,926.63	1,492.52	1,413.38	79.14	18.859	
11,850.00	11,153.00	12,640.19	11,798.00	41.74	43.91	-115.48	-873.26	1,926.76	1,492.57	1,413.11	79.46	18.784	
11,900.00	11,153.00	12,709.81	11,798.00	41.96	44.23	-115.48	-923.26	1,926.89	1,492.62	1,412.67	79.95	18.669	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,950.00	11,153.00	12,740.19	11,798.00	42.20	44.37	-115.48	-973.26	1,927.03	1,492.68	1,412.37	80.31	18.587	
12,000.00	11,153.00	12,809.81	11,798.00	42.45	44.72	-115.48	-1,023.26	1,927.16	1,492.73	1,411.88	80.85	18.463	
12,050.00	11,153.00	12,840.19	11,798.00	42.71	44.88	-115.48	-1,073.26	1,927.29	1,492.78	1,411.54	81.24	18.375	
12,100.00	11,153.00	12,909.81	11,798.00	42.97	45.25	-115.48	-1,123.26	1,927.43	1,492.84	1,411.01	81.83	18.243	
12,150.00	11,153.00	12,940.19	11,798.00	43.26	45.43	-115.47	-1,173.26	1,927.56	1,492.89	1,410.64	82.25	18.151	
12,200.00	11,153.00	13,009.81	11,798.00	43.54	45.83	-115.47	-1,223.26	1,927.69	1,492.94	1,410.06	82.88	18.012	
12,250.00	11,153.00	13,040.19	11,798.00	43.84	46.01	-115.47	-1,273.26	1,927.83	1,492.99	1,409.66	83.33	17.916	
12,300.00	11,153.00	13,109.81	11,798.00	44.15	46.44	-115.47	-1,323.26	1,927.96	1,493.05	1,409.03	84.01	17.772	
12,350.00	11,153.00	13,140.19	11,798.00	44.47	46.64	-115.47	-1,373.26	1,928.10	1,493.10	1,408.61	84.49	17.672	
12,400.00	11,153.00	13,209.81	11,798.00	44.80	47.09	-115.47	-1,423.26	1,928.23	1,493.15	1,407.94	85.21	17.522	
12,450.00	11,153.00	13,240.19	11,798.00	45.14	47.30	-115.47	-1,473.26	1,928.36	1,493.21	1,407.49	85.72	17.419	
12,500.00	11,153.00	13,309.81	11,798.00	45.48	47.77	-115.47	-1,523.26	1,928.50	1,493.26	1,406.78	86.48	17.266	
12,550.00	11,153.00	13,340.19	11,798.00	45.84	47.99	-115.47	-1,573.26	1,928.63	1,493.31	1,406.30	87.02	17.161	
12,600.00	11,153.00	13,409.81	11,798.00	46.20	48.49	-115.47	-1,623.26	1,928.76	1,493.36	1,405.55	87.82	17.005	
12,650.00	11,153.00	13,440.19	11,798.00	46.58	48.72	-115.46	-1,673.26	1,928.90	1,493.42	1,405.04	88.38	16.898	
12,700.00	11,153.00	13,509.81	11,798.00	46.95	49.24	-115.46	-1,723.26	1,929.03	1,493.47	1,404.26	89.22	16.740	
12,750.00	11,153.00	13,540.19	11,798.00	47.34	49.48	-115.46	-1,773.26	1,929.16	1,493.52	1,403.72	89.80	16.632	
12,800.00	11,153.00	13,609.81	11,798.00	47.74	50.02	-115.46	-1,823.26	1,929.30	1,493.58	1,402.90	90.67	16.472	
12,850.00	11,153.00	13,640.19	11,798.00	48.15	50.26	-115.46	-1,873.26	1,929.43	1,493.63	1,402.35	91.28	16.363	
12,900.00	11,153.00	13,709.81	11,798.00	48.55	50.83	-115.46	-1,923.26	1,929.56	1,493.68	1,401.50	92.19	16.203	
12,950.00	11,153.00	13,740.19	11,798.00	48.98	51.08	-115.46	-1,973.26	1,929.70	1,493.73	1,400.92	92.81	16.094	
13,000.00	11,153.00	13,809.81	11,798.00	49.40	51.67	-115.46	-2,023.26	1,929.83	1,493.79	1,400.03	93.75	15.933	
13,050.00	11,153.00	13,840.19	11,798.00	49.83	51.93	-115.46	-2,073.26	1,929.96	1,493.84	1,399.44	94.40	15.824	
13,100.00	11,153.00	13,909.81	11,798.00	50.27	52.53	-115.46	-2,123.26	1,930.10	1,493.89	1,398.52	95.37	15.664	
13,150.00	11,153.00	13,940.19	11,798.00	50.72	52.80	-115.45	-2,173.26	1,930.23	1,493.95	1,397.90	96.04	15.555	
13,200.00	11,153.00	14,009.81	11,798.00	51.17	53.42	-115.45	-2,223.26	1,930.37	1,494.00	1,396.96	97.04	15.396	
13,250.00	11,153.00	14,040.19	11,798.00	51.63	53.70	-115.45	-2,273.26	1,930.50	1,494.05	1,396.32	97.73	15.288	
13,300.00	11,153.00	14,109.81	11,798.00	52.09	54.34	-115.45	-2,323.26	1,930.63	1,494.10	1,395.35	98.76	15.129	
13,350.00	11,153.00	14,140.19	11,798.00	52.57	54.62	-115.45	-2,373.26	1,930.77	1,494.16	1,394.70	99.46	15.023	
13,400.00	11,153.00	14,209.81	11,798.00	53.04	55.27	-115.45	-2,423.26	1,930.90	1,494.21	1,393.70	100.51	14.866	
13,450.00	11,153.00	14,240.19	11,798.00	53.53	55.57	-115.45	-2,473.25	1,931.03	1,494.26	1,393.03	101.24	14.760	
13,500.00	11,153.00	14,309.81	11,798.00	54.01	56.23	-115.45	-2,523.25	1,931.17	1,494.32	1,392.00	102.31	14.605	
13,550.00	11,153.00	14,340.19	11,798.00	54.51	56.53	-115.45	-2,573.25	1,931.30	1,494.37	1,391.32	103.05	14.501	
13,600.00	11,153.00	14,409.81	11,798.00	55.00	57.21	-115.45	-2,623.25	1,931.43	1,494.42	1,390.27	104.15	14.348	
13,650.00	11,153.00	14,440.19	11,798.00	55.51	57.52	-115.45	-2,673.25	1,931.57	1,494.47	1,389.57	104.91	14.246	
13,700.00	11,153.00	14,509.81	11,798.00	56.02	58.21	-115.44	-2,723.25	1,931.70	1,494.53	1,388.50	106.03	14.095	
13,750.00	11,153.00	14,540.19	11,798.00	56.53	58.52	-115.44	-2,773.25	1,931.83	1,494.58	1,387.78	106.80	13.994	
13,800.00	11,153.00	14,609.81	11,798.00	57.05	59.23	-115.44	-2,823.25	1,931.97	1,494.63	1,386.69	107.94	13.847	
13,850.00	11,153.00	14,640.19	11,798.00	57.57	59.55	-115.44	-2,873.25	1,932.10	1,494.69	1,385.96	108.72	13.747	
13,900.00	11,153.00	14,709.81	11,798.00	58.09	60.27	-115.44	-2,923.25	1,932.24	1,494.74	1,384.85	109.89	13.602	
13,950.00	11,153.00	14,740.19	11,798.00	58.63	60.59	-115.44	-2,973.25	1,932.37	1,494.79	1,384.11	110.68	13.505	
14,000.00	11,153.00	14,809.81	11,798.00	59.16	61.32	-115.44	-3,023.25	1,932.50	1,494.84	1,382.98	111.87	13.363	
14,050.00	11,153.00	14,840.19	11,798.00	59.70	61.65	-115.44	-3,073.25	1,932.64	1,494.90	1,382.22	112.67	13.267	
14,100.00	11,153.00	14,909.81	11,798.00	60.24	62.39	-115.44	-3,123.25	1,932.77	1,494.95	1,381.08	113.88	13.128	
14,150.00	11,153.00	14,940.19	11,798.00	60.79	62.72	-115.44	-3,173.25	1,932.90	1,495.00	1,380.31	114.69	13.035	
14,200.00	11,153.00	15,009.81	11,798.00	61.34	63.48	-115.43	-3,223.25	1,933.04	1,495.06	1,379.14	115.91	12.898	
14,250.00	11,153.00	15,040.19	11,798.00	61.90	63.81	-115.43	-3,273.25	1,933.17	1,495.11	1,378.37	116.74	12.807	
14,300.00	11,153.00	15,109.81	11,798.00	62.45	64.58	-115.43	-3,323.25	1,933.30	1,495.16	1,377.19	117.98	12.673	
14,350.00	11,153.00	15,140.19	11,798.00	63.01	64.91	-115.43	-3,373.25	1,933.44	1,495.21	1,376.40	118.82	12.584	
14,400.00	11,153.00	15,209.81	11,798.00	63.58	65.69	-115.43	-3,423.25	1,933.57	1,495.27	1,375.20	120.07	12.454	
14,450.00	11,153.00	15,240.19	11,798.00	64.15	66.03	-115.43	-3,473.25	1,933.70	1,495.32	1,374.40	120.92	12.367	
14,500.00	11,153.00	15,309.81	11,798.00	64.72	66.82	-115.43	-3,523.25	1,933.84	1,495.37	1,373.19	122.18	12.239	

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
14,550.00	11,153.00	15,340.19	11,798.00	65.29	67.16	-115.43	-3,573.25	1,933.97	1,495.43	1,372.39	123.04	12.154	
14,600.00	11,153.00	15,409.81	11,798.00	65.87	67.95	-115.43	-3,623.25	1,934.10	1,495.48	1,371.16	124.32	12.029	
14,650.00	11,153.00	15,440.19	11,798.00	66.45	68.30	-115.43	-3,673.25	1,934.24	1,495.53	1,370.35	125.19	11.946	
14,700.00	11,153.00	15,509.81	11,798.00	67.03	69.11	-115.43	-3,723.25	1,934.37	1,495.58	1,369.11	126.48	11.825	
14,750.00	11,153.00	15,540.19	11,798.00	67.62	69.46	-115.42	-3,773.25	1,934.51	1,495.64	1,368.28	127.35	11.744	
14,800.00	11,153.00	15,609.81	11,798.00	68.20	70.27	-115.42	-3,823.25	1,934.64	1,495.69	1,367.03	128.66	11.625	
14,850.00	11,153.00	15,640.19	11,798.00	68.79	70.62	-115.42	-3,873.25	1,934.77	1,495.74	1,366.20	129.54	11.546	
14,900.00	11,153.00	15,709.81	11,798.00	69.39	71.44	-115.42	-3,923.25	1,934.91	1,495.80	1,364.94	130.86	11.431	
14,950.00	11,153.00	15,740.19	11,798.00	69.98	71.80	-115.42	-3,973.25	1,935.04	1,495.85	1,364.10	131.75	11.354	
15,000.00	11,153.00	15,809.81	11,798.00	70.58	72.62	-115.42	-4,023.25	1,935.17	1,495.90	1,362.82	133.08	11.241	
15,050.00	11,153.00	15,840.19	11,798.00	71.18	72.98	-115.42	-4,073.25	1,935.31	1,495.96	1,361.98	133.98	11.166	
15,100.00	11,153.00	15,909.81	11,798.00	71.79	73.81	-115.42	-4,123.25	1,935.44	1,496.01	1,360.69	135.32	11.056	
15,150.00	11,153.00	15,940.19	11,798.00	72.39	74.18	-115.42	-4,173.25	1,935.57	1,496.06	1,359.84	136.22	10.982	
15,200.00	11,153.00	16,009.81	11,798.00	73.00	75.02	-115.42	-4,223.25	1,935.71	1,496.11	1,358.54	137.57	10.875	
15,250.00	11,153.00	16,040.19	11,798.00	73.61	75.38	-115.41	-4,273.25	1,935.84	1,496.17	1,357.68	138.48	10.804	
15,300.00	11,153.00	16,109.81	11,798.00	74.22	76.23	-115.41	-4,323.25	1,935.97	1,496.22	1,356.38	139.84	10.699	
15,350.00	11,153.00	16,140.19	11,798.00	74.83	76.60	-115.41	-4,373.25	1,936.11	1,496.27	1,355.51	140.76	10.630	
15,400.00	11,153.00	16,209.81	11,798.00	75.45	77.44	-115.41	-4,423.25	1,936.24	1,496.33	1,354.20	142.13	10.528	
15,450.00	11,153.00	16,240.19	11,798.00	76.07	77.82	-115.41	-4,473.25	1,936.38	1,496.38	1,353.33	143.05	10.460	
15,500.00	11,153.00	16,309.81	11,798.00	76.69	78.67	-115.41	-4,523.25	1,936.51	1,496.43	1,352.00	144.43	10.361	
15,550.00	11,153.00	16,340.19	11,798.00	77.31	79.05	-115.41	-4,573.25	1,936.64	1,496.48	1,351.13	145.36	10.295	
15,600.00	11,153.00	16,409.81	11,798.00	77.93	79.90	-115.41	-4,623.25	1,936.78	1,496.54	1,349.79	146.74	10.198	
15,650.00	11,153.00	16,440.19	11,798.00	78.56	80.28	-115.41	-4,673.25	1,936.91	1,496.59	1,348.91	147.68	10.134	
15,700.00	11,153.00	16,509.81	11,798.00	79.18	81.15	-115.41	-4,723.25	1,937.04	1,496.64	1,347.57	149.07	10.040	
15,750.00	11,153.00	16,540.19	11,798.00	79.81	81.53	-115.40	-4,773.25	1,937.18	1,496.70	1,346.68	150.01	9.977	
15,800.00	11,153.00	16,609.81	11,798.00	80.44	82.39	-115.40	-4,823.24	1,937.31	1,496.75	1,345.34	151.41	9.885	
15,850.00	11,153.00	16,640.19	11,798.00	81.08	82.78	-115.40	-4,873.24	1,937.44	1,496.80	1,344.44	152.36	9.824	
15,900.00	11,153.00	16,709.81	11,798.00	81.71	83.65	-115.40	-4,923.24	1,937.58	1,496.85	1,343.09	153.77	9.735	
15,950.00	11,153.00	16,740.19	11,798.00	82.34	84.03	-115.40	-4,973.24	1,937.71	1,496.91	1,342.19	154.72	9.675	
16,000.00	11,153.00	16,809.81	11,798.00	82.98	84.91	-115.40	-5,023.24	1,937.84	1,496.96	1,340.83	156.13	9.588	
16,050.00	11,153.00	16,840.19	11,798.00	83.62	85.30	-115.40	-5,073.24	1,937.98	1,497.01	1,339.93	157.09	9.530	
16,100.00	11,153.00	16,909.81	11,798.00	84.26	86.18	-115.40	-5,123.24	1,938.11	1,497.07	1,338.56	158.51	9.445	
16,150.00	11,153.00	16,940.19	11,798.00	84.90	86.57	-115.40	-5,173.24	1,938.25	1,497.12	1,337.65	159.47	9.388	
16,200.00	11,153.00	17,009.81	11,798.00	85.54	87.45	-115.40	-5,223.24	1,938.38	1,497.17	1,336.28	160.89	9.305	
16,250.00	11,153.00	17,040.19	11,798.00	86.19	87.84	-115.40	-5,273.24	1,938.51	1,497.22	1,335.37	161.86	9.250	
16,300.00	11,153.00	17,109.81	11,798.00	86.83	88.73	-115.39	-5,323.24	1,938.65	1,497.28	1,333.99	163.29	9.169	
16,350.00	11,153.00	17,140.19	11,798.00	87.48	89.12	-115.39	-5,373.24	1,938.78	1,497.33	1,333.07	164.26	9.116	
16,400.00	11,153.00	17,209.82	11,798.00	88.12	90.01	-115.39	-5,423.24	1,938.91	1,497.38	1,331.69	165.70	9.037	
16,450.00	11,153.00	17,240.19	11,798.00	88.77	90.41	-115.39	-5,473.24	1,939.05	1,497.44	1,330.77	166.67	8.984	
16,500.00	11,153.00	17,309.82	11,798.00	89.42	91.30	-115.39	-5,523.24	1,939.18	1,497.49	1,329.37	168.11	8.908	
16,550.00	11,153.00	17,340.19	11,798.00	90.07	91.70	-115.39	-5,573.24	1,939.31	1,497.54	1,328.45	169.09	8.857	
16,600.00	11,153.00	17,409.82	11,798.00	90.72	92.60	-115.39	-5,623.24	1,939.45	1,497.59	1,327.06	170.54	8.782	
16,650.00	11,153.00	17,440.19	11,798.00	91.38	92.99	-115.39	-5,673.24	1,939.58	1,497.65	1,326.13	171.52	8.732	
16,700.00	11,153.00	17,509.82	11,798.00	92.03	93.90	-115.39	-5,723.24	1,939.71	1,497.70	1,324.73	172.97	8.659	
16,750.00	11,153.00	17,540.19	11,798.00	92.69	94.29	-115.39	-5,773.24	1,939.85	1,497.75	1,323.80	173.95	8.610	
16,800.00	11,153.00	17,609.82	11,798.00	93.34	95.20	-115.38	-5,823.24	1,939.98	1,497.81	1,322.39	175.41	8.539	
16,850.00	11,153.00	17,640.19	11,798.00	94.00	95.60	-115.38	-5,873.24	1,940.11	1,497.86	1,321.46	176.40	8.491	
16,900.00	11,153.00	17,709.82	11,798.00	94.66	96.51	-115.38	-5,923.24	1,940.25	1,497.91	1,320.05	177.86	8.422	
16,950.00	11,153.00	17,740.19	11,798.00	95.32	96.91	-115.38	-5,973.24	1,940.38	1,497.96	1,319.11	178.85	8.375	
17,000.00	11,153.00	17,809.82	11,798.00	95.98	97.82	-115.38	-6,023.24	1,940.52	1,498.02	1,317.70	180.32	8.307	
17,050.00	11,153.00	17,840.19	11,798.00	96.64	98.22	-115.38	-6,073.24	1,940.65	1,498.07	1,316.76	181.31	8.262	
17,100.00	11,153.00	17,909.82	11,798.00	97.30	99.13	-115.38	-6,123.24	1,940.78	1,498.12	1,315.34	182.79	8.196	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 716H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
17,150.00	11,153.00	17,940.19	11,798.00	97.97	99.54	-115.38	-6,173.24	1,940.92	1,498.18	1,314.40	183.78	8.152	
17,200.00	11,153.00	18,009.82	11,798.00	98.63	100.45	-115.38	-6,223.24	1,941.05	1,498.23	1,312.97	185.26	8.087	
17,250.00	11,153.00	18,040.19	11,798.00	99.30	100.86	-115.38	-6,273.24	1,941.18	1,498.28	1,312.03	186.25	8.044	
17,300.00	11,153.00	18,109.82	11,798.00	99.96	101.78	-115.38	-6,323.24	1,941.32	1,498.34	1,310.60	187.74	7.981	
17,350.00	11,153.00	18,140.19	11,798.00	100.63	102.18	-115.37	-6,373.24	1,941.45	1,498.39	1,309.65	188.74	7.939	
17,400.00	11,153.00	18,209.82	11,798.00	101.30	103.10	-115.37	-6,423.24	1,941.58	1,498.44	1,308.22	190.22	7.877	
17,450.00	11,153.00	18,240.19	11,798.00	101.96	103.51	-115.37	-6,473.24	1,941.72	1,498.49	1,307.27	191.22	7.836	
17,500.00	11,153.00	18,309.82	11,798.00	102.63	104.43	-115.37	-6,523.24	1,941.85	1,498.55	1,305.84	192.71	7.776	
17,550.00	11,153.00	18,340.18	11,798.00	103.30	104.84	-115.37	-6,573.24	1,941.98	1,498.60	1,304.88	193.72	7.736	
17,600.00	11,153.00	18,409.82	11,798.00	103.97	105.77	-115.37	-6,623.24	1,942.12	1,498.65	1,303.44	195.21	7.677	
17,650.00	11,153.00	18,440.18	11,798.00	104.65	106.17	-115.37	-6,673.24	1,942.25	1,498.71	1,302.49	196.22	7.638	
17,700.00	11,153.00	18,509.82	11,798.00	105.32	107.10	-115.37	-6,723.24	1,942.39	1,498.76	1,301.05	197.71	7.581	
17,750.00	11,153.00	18,540.18	11,798.00	105.99	107.51	-115.37	-6,773.24	1,942.52	1,498.81	1,300.09	198.72	7.542	
17,800.00	11,153.00	18,609.82	11,798.00	106.66	108.44	-115.37	-6,823.24	1,942.65	1,498.86	1,298.65	200.22	7.486	
17,850.00	11,153.00	18,640.18	11,798.00	107.34	108.85	-115.36	-6,873.24	1,942.79	1,498.92	1,297.69	201.23	7.449	
17,900.00	11,153.00	18,709.82	11,798.00	108.01	109.78	-115.36	-6,923.24	1,942.92	1,498.97	1,296.24	202.73	7.394	
17,950.00	11,153.00	18,740.18	11,798.00	108.69	110.19	-115.36	-6,973.24	1,943.05	1,499.02	1,295.28	203.75	7.357	
18,000.00	11,153.00	18,809.82	11,798.00	109.37	111.13	-115.36	-7,023.24	1,943.19	1,499.08	1,293.82	205.25	7.304	
18,050.00	11,153.00	18,840.18	11,798.00	110.04	111.54	-115.36	-7,073.24	1,943.32	1,499.13	1,292.86	206.27	7.268	
18,100.00	11,153.00	18,909.82	11,798.00	110.72	112.48	-115.36	-7,123.24	1,943.45	1,499.18	1,291.41	207.77	7.215	
18,150.00	11,153.00	18,940.18	11,798.00	111.40	112.89	-115.36	-7,173.24	1,943.59	1,499.23	1,290.44	208.79	7.181	
18,200.00	11,153.00	19,009.82	11,798.00	112.08	113.83	-115.36	-7,223.23	1,943.72	1,499.29	1,288.98	210.30	7.129	
18,250.00	11,153.00	19,040.18	11,798.00	112.76	114.24	-115.36	-7,273.23	1,943.85	1,499.34	1,288.02	211.32	7.095	
18,300.00	11,153.00	19,109.82	11,798.00	113.44	115.18	-115.36	-7,323.23	1,943.99	1,499.39	1,286.56	212.84	7.045	
18,350.00	11,153.00	19,140.18	11,798.00	114.12	115.59	-115.35	-7,373.23	1,944.12	1,499.45	1,285.59	213.86	7.011	
18,400.00	11,153.00	19,209.82	11,798.00	114.80	116.54	-115.35	-7,423.23	1,944.25	1,499.50	1,284.13	215.37	6.962	
18,450.00	11,153.00	19,240.18	11,798.00	115.48	116.95	-115.35	-7,473.23	1,944.39	1,499.55	1,283.16	216.40	6.930	
18,500.00	11,153.00	19,309.82	11,798.00	116.16	117.89	-115.35	-7,523.23	1,944.52	1,499.60	1,281.69	217.91	6.882	
18,550.00	11,153.00	19,340.18	11,798.00	116.84	118.31	-115.35	-7,573.23	1,944.66	1,499.66	1,280.72	218.94	6.850	
18,600.00	11,153.00	19,409.82	11,798.00	117.53	119.25	-115.35	-7,623.23	1,944.79	1,499.71	1,279.25	220.46	6.803	
18,650.00	11,153.00	19,440.18	11,798.00	118.21	119.67	-115.35	-7,673.23	1,944.92	1,499.76	1,278.28	221.49	6.771	
18,700.00	11,153.00	19,509.82	11,798.00	118.90	120.62	-115.35	-7,723.23	1,945.06	1,499.82	1,276.81	223.01	6.725	
18,750.00	11,153.00	19,540.18	11,798.00	119.58	121.03	-115.35	-7,773.23	1,945.19	1,499.87	1,275.83	224.04	6.695	
18,800.00	11,153.00	19,609.82	11,798.00	120.27	121.98	-115.35	-7,823.23	1,945.32	1,499.92	1,274.36	225.56	6.650	
18,850.00	11,153.00	19,640.18	11,798.00	120.95	122.40	-115.35	-7,873.23	1,945.46	1,499.98	1,273.38	226.59	6.620	ES, SF

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,150.00	9,124.04	9,219.00	9,209.78	32.88	32.84	2.91	44.51	1,975.56	1,499.28	1,434.60	64.68	23.179	
9,200.00	9,173.73	9,268.32	9,259.01	33.07	33.02	2.91	44.76	1,972.83	1,491.02	1,425.98	65.04	22.925	
9,250.00	9,223.42	9,317.63	9,308.25	33.25	33.20	2.91	45.00	1,970.11	1,482.77	1,417.37	65.39	22.674	
9,300.00	9,273.11	9,366.94	9,357.49	33.44	33.38	2.91	45.25	1,967.39	1,474.51	1,408.76	65.75	22.426	
9,350.00	9,322.81	9,416.26	9,406.73	33.63	33.56	2.91	45.50	1,964.67	1,466.25	1,400.15	66.11	22.180	
9,400.00	9,372.50	9,465.57	9,455.96	33.82	33.74	2.91	45.74	1,961.95	1,457.99	1,391.53	66.46	21.938	
9,450.00	9,422.19	9,514.88	9,505.20	34.01	33.92	2.91	45.99	1,959.23	1,449.74	1,382.92	66.82	21.697	
9,500.00	9,471.89	9,564.20	9,554.44	34.20	34.09	2.91	46.24	1,956.51	1,441.48	1,374.31	67.17	21.459	
9,550.00	9,521.58	9,613.51	9,603.68	34.39	34.27	2.91	46.48	1,953.79	1,433.22	1,365.69	67.53	21.224	
9,600.00	9,571.27	9,662.82	9,652.92	34.58	34.45	2.91	46.73	1,951.07	1,424.96	1,357.08	67.88	20.991	
9,650.00	9,620.96	9,712.14	9,702.15	34.77	34.63	2.91	46.98	1,948.35	1,416.71	1,348.47	68.24	20.761	
9,700.00	9,670.66	9,761.45	9,751.39	34.96	34.81	2.91	47.22	1,945.63	1,408.45	1,339.85	68.60	20.533	
9,750.00	9,720.35	9,810.76	9,800.63	35.15	34.99	2.91	47.47	1,942.91	1,400.19	1,331.24	68.95	20.307	
9,800.00	9,770.04	9,860.08	9,849.87	35.34	35.17	2.91	47.72	1,940.18	1,391.93	1,322.63	69.31	20.083	
9,850.00	9,819.74	9,909.39	9,899.11	35.53	35.35	2.91	47.96	1,937.46	1,383.70	1,314.03	69.66	19.862	
9,900.00	9,869.48	9,958.79	9,948.42	35.72	35.53	2.90	48.21	1,934.74	1,375.92	1,305.90	70.02	19.650	
9,950.00	9,919.29	10,008.27	9,997.84	35.90	35.71	2.89	48.46	1,932.01	1,368.80	1,298.42	70.38	19.450	
10,000.00	9,969.15	10,055.50	10,044.99	36.09	35.88	2.88	48.69	1,929.41	1,362.33	1,291.60	70.73	19.261	
10,050.00	10,019.05	10,092.20	10,081.65	36.27	36.02	2.88	48.85	1,927.62	1,356.82	1,285.75	71.07	19.092	
10,100.00	10,068.99	10,129.02	10,118.44	36.45	36.15	2.87	48.99	1,926.18	1,352.44	1,281.04	71.40	18.942	
10,150.00	10,118.96	10,165.93	10,155.33	36.63	36.28	2.87	49.08	1,925.09	1,349.19	1,277.46	71.73	18.810	
10,200.00	10,168.95	10,200.00	10,189.39	36.80	36.40	2.86	49.15	1,924.40	1,347.08	1,275.04	72.04	18.699	
10,250.00	10,218.94	10,239.91	10,229.30	36.98	36.55	2.86	49.18	1,923.98	1,346.09	1,273.73	72.36	18.602	
10,300.00	10,268.94	10,282.65	10,272.04	37.15	36.69	89.40	49.19	1,923.92	1,345.94	1,273.25	72.69	18.516 CC	
10,300.00	10,268.94	10,282.65	10,272.04	37.15	36.69	89.40	49.19	1,923.92	1,346.00	1,273.31	72.69	18.517	
10,350.00	10,318.94	10,332.65	10,322.04	37.32	36.87	89.40	49.19	1,923.92	1,346.00	1,272.96	73.04	18.428	
10,400.00	10,368.94	10,382.65	10,372.04	37.49	37.04	89.40	49.19	1,923.92	1,346.00	1,272.61	73.39	18.340	
10,450.00	10,418.94	10,432.65	10,422.04	37.67	37.21	89.40	49.19	1,923.92	1,346.00	1,272.26	73.74	18.253	
10,500.00	10,468.94	10,482.65	10,472.04	37.84	37.39	89.40	49.19	1,923.92	1,346.00	1,271.91	74.09	18.167	
10,550.00	10,518.94	10,532.65	10,522.04	38.01	37.56	89.40	49.19	1,923.92	1,346.00	1,271.56	74.44	18.082	
10,600.00	10,568.94	10,582.65	10,572.04	38.19	37.74	89.40	49.19	1,923.92	1,346.00	1,271.21	74.79	17.997	
10,650.00	10,618.91	10,633.08	10,622.46	38.35	37.91	-90.56	48.75	1,923.93	1,346.01	1,270.87	75.13	17.915	
10,700.00	10,668.59	10,684.14	10,673.33	38.52	38.08	-90.61	44.48	1,923.94	1,346.03	1,270.56	75.47	17.836	
10,750.00	10,717.59	10,735.33	10,723.74	38.67	38.24	-90.67	35.68	1,923.96	1,346.05	1,270.26	75.80	17.759	
10,800.00	10,765.54	10,786.63	10,773.27	38.83	38.41	-90.72	22.38	1,924.00	1,346.08	1,269.97	76.12	17.685	
10,850.00	10,812.08	10,838.04	10,821.51	38.97	38.56	-90.76	4.66	1,924.05	1,346.12	1,269.69	76.43	17.613	
10,900.00	10,856.86	10,889.55	10,868.06	39.11	38.71	-90.80	-17.36	1,924.10	1,346.16	1,269.42	76.74	17.543	
10,950.00	10,899.53	10,941.14	10,912.51	39.24	38.85	-90.83	-43.51	1,924.18	1,346.20	1,269.16	77.04	17.475	
11,000.00	10,939.76	10,992.80	10,954.48	39.36	38.98	-90.85	-73.60	1,924.26	1,346.24	1,268.91	77.33	17.409	
11,050.00	10,977.26	11,044.52	10,993.62	39.48	39.10	-90.87	-107.38	1,924.35	1,346.29	1,268.67	77.62	17.345	
11,100.00	11,011.74	11,096.28	11,029.58	39.58	39.22	-90.88	-144.58	1,924.45	1,346.34	1,268.44	77.90	17.282	
11,150.00	11,042.93	11,148.06	11,062.05	39.68	39.34	-90.89	-184.90	1,924.56	1,346.39	1,268.20	78.18	17.221	
11,200.00	11,070.60	11,199.86	11,090.76	39.78	39.46	-90.88	-228.00	1,924.67	1,346.44	1,267.97	78.47	17.160	
11,250.00	11,094.53	11,251.66	11,115.45	39.88	39.59	-90.87	-273.51	1,924.80	1,346.49	1,267.74	78.75	17.099	
11,300.00	11,114.55	11,303.44	11,135.94	39.99	39.72	-90.86	-321.04	1,924.93	1,346.54	1,267.51	79.03	17.039	
11,350.00	11,130.50	11,355.18	11,152.04	40.10	39.86	-90.83	-370.20	1,925.06	1,346.59	1,267.28	79.31	16.978	
11,400.00	11,142.26	11,406.88	11,163.63	40.22	40.01	-90.80	-420.57	1,925.20	1,346.64	1,267.05	79.60	16.919	
11,450.00	11,149.74	11,458.52	11,170.63	40.35	40.16	-90.77	-471.71	1,925.33	1,346.69	1,266.82	79.88	16.859	
11,500.00	11,152.89	11,510.08	11,173.00	40.49	40.30	-90.72	-523.20	1,925.47	1,346.74	1,266.58	80.16	16.801	
11,550.00	11,153.00	11,560.10	11,173.00	40.63	40.46	-90.72	-573.22	1,925.61	1,346.80	1,266.35	80.45	16.740	
11,600.00	11,153.00	11,610.10	11,173.00	40.78	40.62	-90.72	-623.22	1,925.74	1,346.86	1,266.11	80.76	16.678	
11,650.00	11,153.00	11,660.10	11,173.00	40.95	40.79	-90.72	-673.22	1,925.88	1,346.92	1,265.82	81.10	16.608	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1

Offset Site Error: 0.00 ft

Survey Program: 0-MWD+HDGM

Offset Well Error: 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,700.00	11,153.00	11,710.10	11,173.00	41.13	40.97	-90.72	-723.22	1,926.02	1,346.98	1,265.54	81.45	16.538	
11,750.00	11,153.00	11,760.10	11,173.00	41.33	41.17	-90.72	-773.21	1,926.15	1,347.04	1,265.20	81.84	16.459	
11,800.00	11,153.00	11,810.10	11,173.00	41.52	41.38	-90.72	-823.21	1,926.29	1,347.10	1,264.87	82.24	16.381	
11,850.00	11,153.00	11,860.10	11,173.00	41.74	41.60	-90.72	-873.21	1,926.42	1,347.16	1,264.49	82.68	16.294	
11,900.00	11,153.00	11,910.10	11,173.00	41.96	41.83	-90.72	-923.21	1,926.56	1,347.22	1,264.10	83.12	16.208	
11,950.00	11,153.00	11,960.10	11,173.00	42.20	42.07	-90.72	-973.21	1,926.69	1,347.29	1,263.68	83.61	16.114	
12,000.00	11,153.00	12,010.10	11,173.00	42.45	42.32	-90.72	-1,023.21	1,926.83	1,347.35	1,263.25	84.10	16.021	
12,050.00	11,153.00	12,060.10	11,173.00	42.71	42.59	-90.72	-1,073.21	1,926.96	1,347.41	1,262.78	84.63	15.922	
12,100.00	11,153.00	12,110.10	11,173.00	42.97	42.86	-90.72	-1,123.21	1,927.10	1,347.47	1,262.31	85.16	15.823	
12,150.00	11,153.00	12,160.10	11,173.00	43.26	43.14	-90.72	-1,173.21	1,927.23	1,347.53	1,261.79	85.73	15.718	
12,200.00	11,153.00	12,210.10	11,173.00	43.54	43.43	-90.72	-1,223.21	1,927.37	1,347.59	1,261.28	86.31	15.613	
12,250.00	11,153.00	12,260.10	11,173.00	43.84	43.74	-90.72	-1,273.21	1,927.50	1,347.65	1,260.72	86.92	15.504	
12,300.00	11,153.00	12,310.10	11,173.00	44.15	44.05	-90.72	-1,323.21	1,927.64	1,347.71	1,260.17	87.54	15.395	
12,350.00	11,153.00	12,360.10	11,173.00	44.47	44.38	-90.72	-1,373.21	1,927.77	1,347.77	1,259.58	88.19	15.282	
12,400.00	11,153.00	12,410.10	11,173.00	44.80	44.71	-90.72	-1,423.21	1,927.91	1,347.83	1,258.98	88.85	15.170	
12,450.00	11,153.00	12,460.10	11,173.00	45.14	45.05	-90.72	-1,473.21	1,928.05	1,347.89	1,258.35	89.54	15.054	
12,500.00	11,153.00	12,510.10	11,173.00	45.48	45.40	-90.72	-1,523.21	1,928.18	1,347.95	1,257.72	90.23	14.939	
12,550.00	11,153.00	12,560.10	11,173.00	45.84	45.76	-90.72	-1,573.21	1,928.32	1,348.01	1,257.05	90.95	14.821	
12,600.00	11,153.00	12,610.10	11,173.00	46.20	46.13	-90.72	-1,623.21	1,928.45	1,348.07	1,256.39	91.68	14.704	
12,650.00	11,153.00	12,660.10	11,173.00	46.58	46.51	-90.72	-1,673.21	1,928.59	1,348.13	1,255.69	92.44	14.583	
12,700.00	11,153.00	12,710.10	11,173.00	46.95	46.89	-90.72	-1,723.21	1,928.72	1,348.19	1,254.98	93.21	14.465	
12,750.00	11,153.00	12,760.10	11,173.00	47.34	47.28	-90.72	-1,773.21	1,928.86	1,348.25	1,254.25	94.00	14.343	
12,800.00	11,153.00	12,810.10	11,173.00	47.74	47.68	-90.72	-1,823.21	1,928.99	1,348.31	1,253.52	94.79	14.224	
12,850.00	11,153.00	12,860.10	11,173.00	48.15	48.09	-90.72	-1,873.21	1,929.13	1,348.37	1,252.76	95.61	14.102	
12,900.00	11,153.00	12,910.10	11,173.00	48.55	48.51	-90.72	-1,923.21	1,929.26	1,348.43	1,251.99	96.44	13.982	
12,950.00	11,153.00	12,960.10	11,173.00	48.98	48.93	-90.72	-1,973.21	1,929.40	1,348.49	1,251.20	97.29	13.860	
13,000.00	11,153.00	13,010.10	11,173.00	49.40	49.36	-90.72	-2,023.21	1,929.53	1,348.55	1,250.41	98.15	13.740	
13,050.00	11,153.00	13,060.10	11,173.00	49.83	49.80	-90.72	-2,073.21	1,929.67	1,348.61	1,249.59	99.03	13.619	
13,100.00	11,153.00	13,110.10	11,173.00	50.27	50.24	-90.72	-2,123.21	1,929.80	1,348.67	1,248.76	99.91	13.499	
13,150.00	11,153.00	13,160.10	11,173.00	50.72	50.69	-90.72	-2,173.21	1,929.94	1,348.73	1,247.92	100.82	13.378	
13,200.00	11,153.00	13,210.10	11,173.00	51.17	51.15	-90.72	-2,223.21	1,930.08	1,348.79	1,247.07	101.72	13.259	
13,250.00	11,153.00	13,260.10	11,173.00	51.63	51.61	-90.72	-2,273.21	1,930.21	1,348.85	1,246.20	102.65	13.140	
13,300.00	11,153.00	13,310.10	11,173.00	52.09	52.08	-90.72	-2,323.21	1,930.35	1,348.91	1,245.33	103.59	13.022	
13,350.00	11,153.00	13,360.10	11,173.00	52.57	52.55	-90.72	-2,373.21	1,930.48	1,348.97	1,244.43	104.54	12.904	
13,400.00	11,153.00	13,410.10	11,173.00	53.04	53.03	-90.72	-2,423.21	1,930.62	1,349.03	1,243.53	105.50	12.787	
13,450.00	11,153.00	13,460.10	11,173.00	53.53	53.52	-90.72	-2,473.21	1,930.75	1,349.10	1,242.62	106.48	12.670	
13,500.00	11,153.00	13,510.10	11,173.00	54.01	54.01	-90.72	-2,523.21	1,930.89	1,349.16	1,241.70	107.46	12.555	
13,550.00	11,153.00	13,560.10	11,173.00	54.51	54.51	-90.72	-2,573.21	1,931.02	1,349.22	1,240.76	108.45	12.440	
13,600.00	11,153.00	13,610.10	11,173.00	55.00	55.01	-90.72	-2,623.21	1,931.16	1,349.28	1,239.82	109.45	12.327	
13,650.00	11,153.00	13,660.10	11,173.00	55.51	55.52	-90.72	-2,673.21	1,931.29	1,349.34	1,238.86	110.47	12.214	
13,700.00	11,153.00	13,710.10	11,173.00	56.02	56.03	-90.72	-2,723.21	1,931.43	1,349.40	1,237.90	111.49	12.103	
13,750.00	11,153.00	13,760.10	11,173.00	56.53	56.54	-90.72	-2,773.21	1,931.56	1,349.46	1,236.93	112.53	11.992	
13,800.00	11,153.00	13,810.10	11,173.00	57.05	57.06	-90.72	-2,823.21	1,931.70	1,349.52	1,235.95	113.57	11.883	
13,850.00	11,153.00	13,860.10	11,173.00	57.57	57.59	-90.72	-2,873.21	1,931.84	1,349.58	1,234.95	114.62	11.774	
13,900.00	11,153.00	13,910.10	11,173.00	58.09	58.12	-90.72	-2,923.21	1,931.97	1,349.64	1,233.96	115.68	11.667	
13,950.00	11,153.00	13,960.10	11,173.00	58.63	58.65	-90.72	-2,973.21	1,932.11	1,349.70	1,232.94	116.75	11.560	
14,000.00	11,153.00	14,010.10	11,173.00	59.16	59.19	-90.72	-3,023.20	1,932.24	1,349.76	1,231.93	117.83	11.455	
14,050.00	11,153.00	14,060.10	11,173.00	59.70	59.73	-90.72	-3,073.20	1,932.38	1,349.82	1,230.90	118.92	11.351	
14,100.00	11,153.00	14,110.10	11,173.00	60.24	60.28	-90.72	-3,123.20	1,932.51	1,349.88	1,229.87	120.01	11.248	
14,150.00	11,153.00	14,160.10	11,173.00	60.79	60.83	-90.72	-3,173.20	1,932.65	1,349.94	1,228.83	121.11	11.146	
14,200.00	11,153.00	14,210.10	11,173.00	61.34	61.38	-90.72	-3,223.20	1,932.78	1,350.00	1,227.79	122.21	11.046	
14,250.00	11,153.00	14,260.10	11,173.00	61.90	61.94	-90.72	-3,273.20	1,932.92	1,350.06	1,226.73	123.33	10.947	

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

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
14,300.00	11,153.00	14,310.10	11,173.00	62.45	62.50	-90.72	-3,323.20	1,933.05	1,350.12	1,225.67	124.45	10.849	
14,350.00	11,153.00	14,360.10	11,173.00	63.01	63.06	-90.72	-3,373.20	1,933.19	1,350.18	1,224.60	125.58	10.751	
14,400.00	11,153.00	14,410.10	11,173.00	63.58	63.63	-90.72	-3,423.20	1,933.32	1,350.24	1,223.53	126.72	10.656	
14,450.00	11,153.00	14,460.10	11,173.00	64.15	64.20	-90.72	-3,473.20	1,933.46	1,350.30	1,222.44	127.86	10.561	
14,500.00	11,153.00	14,510.10	11,173.00	64.72	64.77	-90.72	-3,523.20	1,933.59	1,350.36	1,221.36	129.01	10.468	
14,550.00	11,153.00	14,560.10	11,173.00	65.29	65.35	-90.72	-3,573.20	1,933.73	1,350.42	1,220.26	130.16	10.375	
14,600.00	11,153.00	14,610.10	11,173.00	65.87	65.93	-90.72	-3,623.20	1,933.87	1,350.48	1,219.16	131.32	10.284	
14,650.00	11,153.00	14,660.10	11,173.00	66.45	66.51	-90.72	-3,673.20	1,934.00	1,350.54	1,218.06	132.49	10.194	
14,700.00	11,153.00	14,710.10	11,173.00	67.03	67.09	-90.72	-3,723.20	1,934.14	1,350.60	1,216.95	133.66	10.105	
14,750.00	11,153.00	14,760.10	11,173.00	67.62	67.68	-90.72	-3,773.20	1,934.27	1,350.66	1,215.83	134.84	10.017	
14,800.00	11,153.00	14,810.10	11,173.00	68.20	68.27	-90.72	-3,823.20	1,934.41	1,350.72	1,214.71	136.02	9.931	
14,850.00	11,153.00	14,860.10	11,173.00	68.79	68.87	-90.72	-3,873.20	1,934.54	1,350.78	1,213.58	137.21	9.845	
14,900.00	11,153.00	14,910.10	11,173.00	69.39	69.46	-90.72	-3,923.20	1,934.68	1,350.84	1,212.45	138.40	9.761	
14,950.00	11,153.00	14,960.10	11,173.00	69.98	70.06	-90.72	-3,973.20	1,934.81	1,350.91	1,211.31	139.60	9.677	
15,000.00	11,153.00	15,010.10	11,173.00	70.58	70.66	-90.72	-4,023.20	1,934.95	1,350.97	1,210.17	140.80	9.595	
15,050.00	11,153.00	15,060.10	11,173.00	71.18	71.26	-90.72	-4,073.20	1,935.08	1,351.03	1,209.02	142.01	9.514	
15,100.00	11,153.00	15,110.10	11,173.00	71.79	71.87	-90.72	-4,123.20	1,935.22	1,351.09	1,207.87	143.22	9.434	
15,150.00	11,153.00	15,160.10	11,173.00	72.39	72.48	-90.72	-4,173.20	1,935.35	1,351.15	1,206.71	144.43	9.355	
15,200.00	11,153.00	15,210.10	11,173.00	73.00	73.09	-90.72	-4,223.20	1,935.49	1,351.21	1,205.55	145.65	9.277	
15,250.00	11,153.00	15,260.10	11,173.00	73.61	73.70	-90.72	-4,273.20	1,935.62	1,351.27	1,204.39	146.88	9.200	
15,300.00	11,153.00	15,310.10	11,173.00	74.22	74.31	-90.72	-4,323.20	1,935.76	1,351.33	1,203.22	148.11	9.124	
15,350.00	11,153.00	15,360.10	11,173.00	74.83	74.93	-90.72	-4,373.20	1,935.90	1,351.39	1,202.05	149.34	9.049	
15,400.00	11,153.00	15,410.10	11,173.00	75.45	75.54	-90.72	-4,423.20	1,936.03	1,351.45	1,200.87	150.58	8.975	
15,450.00	11,153.00	15,460.10	11,173.00	76.07	76.16	-90.72	-4,473.20	1,936.17	1,351.51	1,199.69	151.82	8.902	
15,500.00	11,153.00	15,510.10	11,173.00	76.69	76.79	-90.72	-4,523.20	1,936.30	1,351.57	1,198.51	153.06	8.830	
15,550.00	11,153.00	15,560.10	11,173.00	77.31	77.41	-90.72	-4,573.20	1,936.44	1,351.63	1,197.32	154.31	8.759	
15,600.00	11,153.00	15,610.10	11,173.00	77.93	78.03	-90.72	-4,623.20	1,936.57	1,351.69	1,196.13	155.56	8.689	
15,650.00	11,153.00	15,660.10	11,173.00	78.56	78.66	-90.72	-4,673.20	1,936.71	1,351.75	1,194.93	156.82	8.620	
15,700.00	11,153.00	15,710.10	11,173.00	79.18	79.29	-90.72	-4,723.20	1,936.84	1,351.81	1,193.73	158.08	8.552	
15,750.00	11,153.00	15,760.10	11,173.00	79.81	79.92	-90.72	-4,773.20	1,936.98	1,351.87	1,192.53	159.34	8.484	
15,800.00	11,153.00	15,810.10	11,173.00	80.44	80.55	-90.72	-4,823.20	1,937.11	1,351.93	1,191.33	160.60	8.418	
15,850.00	11,153.00	15,860.10	11,173.00	81.08	81.19	-90.72	-4,873.20	1,937.25	1,351.99	1,190.12	161.87	8.352	
15,900.00	11,153.00	15,910.10	11,173.00	81.71	81.82	-90.72	-4,923.20	1,937.38	1,352.05	1,188.91	163.14	8.288	
15,950.00	11,153.00	15,960.10	11,173.00	82.34	82.46	-90.72	-4,973.20	1,937.52	1,352.11	1,187.69	164.42	8.224	
16,000.00	11,153.00	16,010.10	11,173.00	82.98	83.10	-90.72	-5,023.20	1,937.65	1,352.17	1,186.48	165.69	8.161	
16,050.00	11,153.00	16,060.10	11,173.00	83.62	83.74	-90.72	-5,073.20	1,937.79	1,352.23	1,185.26	166.98	8.098	
16,100.00	11,153.00	16,110.10	11,173.00	84.26	84.38	-90.72	-5,123.20	1,937.93	1,352.29	1,184.04	168.26	8.037	
16,150.00	11,153.00	16,160.10	11,173.00	84.90	85.02	-90.72	-5,173.20	1,938.06	1,352.35	1,182.81	169.54	7.976	
16,200.00	11,153.00	16,210.10	11,173.00	85.54	85.66	-90.72	-5,223.20	1,938.20	1,352.41	1,181.58	170.83	7.917	
16,250.00	11,153.00	16,260.10	11,173.00	86.19	86.31	-90.72	-5,273.20	1,938.33	1,352.47	1,180.35	172.12	7.858	
16,300.00	11,153.00	16,310.10	11,173.00	86.83	86.95	-90.72	-5,323.19	1,938.47	1,352.53	1,179.12	173.42	7.799	
16,350.00	11,153.00	16,360.10	11,173.00	87.48	87.60	-90.72	-5,373.19	1,938.60	1,352.59	1,177.88	174.71	7.742	
16,400.00	11,153.00	16,410.10	11,173.00	88.12	88.25	-90.72	-5,423.19	1,938.74	1,352.65	1,176.64	176.01	7.685	
16,450.00	11,153.00	16,460.10	11,173.00	88.77	88.90	-90.72	-5,473.19	1,938.87	1,352.72	1,175.40	177.31	7.629	
16,500.00	11,153.00	16,510.10	11,173.00	89.42	89.55	-90.72	-5,523.19	1,939.01	1,352.78	1,174.16	178.62	7.574	
16,550.00	11,153.00	16,560.10	11,173.00	90.07	90.20	-90.72	-5,573.19	1,939.14	1,352.84	1,172.91	179.92	7.519	
16,600.00	11,153.00	16,610.10	11,173.00	90.72	90.86	-90.72	-5,623.19	1,939.28	1,352.90	1,171.67	181.23	7.465	
16,650.00	11,153.00	16,660.10	11,173.00	91.38	91.51	-90.72	-5,673.19	1,939.41	1,352.96	1,170.42	182.54	7.412	
16,700.00	11,153.00	16,710.10	11,173.00	92.03	92.17	-90.72	-5,723.19	1,939.55	1,353.02	1,169.17	183.85	7.359	
16,750.00	11,153.00	16,760.10	11,173.00	92.69	92.82	-90.72	-5,773.19	1,939.68	1,353.08	1,167.91	185.17	7.307	
16,800.00	11,153.00	16,810.10	11,173.00	93.34	93.48	-90.72	-5,823.19	1,939.82	1,353.14	1,166.66	186.48	7.256	
16,850.00	11,153.00	16,860.10	11,173.00	94.00	94.14	-90.72	-5,873.19	1,939.96	1,353.20	1,165.40	187.80	7.205	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1

Offset Site Error: 0.00 ft

Survey Program: 0-MWD+HDGM

Offset Well Error: 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
16,900.00	11,153.00	16,910.10	11,173.00	94.66	94.80	-90.72	-5,923.19	1,940.09	1,353.26	1,164.14	189.12	7.156	
16,950.00	11,153.00	16,960.10	11,173.00	95.32	95.46	-90.72	-5,973.19	1,940.23	1,353.32	1,162.87	190.44	7.106	
17,000.00	11,153.00	17,010.10	11,173.00	95.98	96.12	-90.72	-6,023.19	1,940.36	1,353.38	1,161.61	191.77	7.057	
17,050.00	11,153.00	17,060.10	11,173.00	96.64	96.79	-90.72	-6,073.19	1,940.50	1,353.44	1,160.34	193.09	7.009	
17,100.00	11,153.00	17,110.10	11,173.00	97.30	97.45	-90.72	-6,123.19	1,940.63	1,353.50	1,159.08	194.42	6.962	
17,150.00	11,153.00	17,160.10	11,173.00	97.97	98.11	-90.72	-6,173.19	1,940.77	1,353.56	1,157.81	195.75	6.915	
17,200.00	11,153.00	17,210.10	11,173.00	98.63	98.78	-90.72	-6,223.19	1,940.90	1,353.62	1,156.54	197.08	6.868	
17,250.00	11,153.00	17,260.10	11,173.00	99.30	99.45	-90.72	-6,273.19	1,941.04	1,353.68	1,155.26	198.42	6.822	
17,300.00	11,153.00	17,310.10	11,173.00	99.96	100.11	-90.72	-6,323.19	1,941.17	1,353.74	1,153.99	199.75	6.777	
17,350.00	11,153.00	17,360.10	11,173.00	100.63	100.78	-90.72	-6,373.19	1,941.31	1,353.80	1,152.71	201.09	6.732	
17,400.00	11,153.00	17,410.10	11,173.00	101.30	101.45	-90.72	-6,423.19	1,941.44	1,353.86	1,151.43	202.43	6.688	
17,450.00	11,153.00	17,460.10	11,173.00	101.96	102.12	-90.72	-6,473.19	1,941.58	1,353.92	1,150.15	203.77	6.644	
17,500.00	11,153.00	17,510.10	11,173.00	102.63	102.79	-90.72	-6,523.19	1,941.71	1,353.98	1,148.87	205.11	6.601	
17,550.00	11,153.00	17,560.10	11,173.00	103.30	103.46	-90.72	-6,573.19	1,941.85	1,354.04	1,147.59	206.45	6.559	
17,600.00	11,153.00	17,610.10	11,173.00	103.97	104.13	-90.72	-6,623.19	1,941.99	1,354.10	1,146.31	207.79	6.517	
17,650.00	11,153.00	17,660.10	11,173.00	104.65	104.81	-90.72	-6,673.19	1,942.12	1,354.16	1,145.02	209.14	6.475	
17,700.00	11,153.00	17,710.10	11,173.00	105.32	105.48	-90.72	-6,723.19	1,942.26	1,354.22	1,143.74	210.49	6.434	
17,750.00	11,153.00	17,760.10	11,173.00	105.99	106.15	-90.72	-6,773.19	1,942.39	1,354.28	1,142.45	211.84	6.393	
17,800.00	11,153.00	17,810.10	11,173.00	106.66	106.83	-90.71	-6,823.19	1,942.53	1,354.34	1,141.16	213.19	6.353	
17,850.00	11,153.00	17,860.10	11,173.00	107.34	107.50	-90.71	-6,873.19	1,942.66	1,354.40	1,139.87	214.54	6.313	
17,900.00	11,153.00	17,910.10	11,173.00	108.01	108.18	-90.71	-6,923.19	1,942.80	1,354.46	1,138.57	215.89	6.274	
17,950.00	11,153.00	17,960.10	11,173.00	108.69	108.85	-90.71	-6,973.19	1,942.93	1,354.52	1,137.28	217.24	6.235	
18,000.00	11,153.00	18,010.10	11,173.00	109.37	109.53	-90.71	-7,023.19	1,943.07	1,354.59	1,135.99	218.60	6.197	
18,050.00	11,153.00	18,060.10	11,173.00	110.04	110.21	-90.71	-7,073.19	1,943.20	1,354.65	1,134.69	219.96	6.159	
18,100.00	11,153.00	18,110.10	11,173.00	110.72	110.89	-90.71	-7,123.19	1,943.34	1,354.71	1,133.39	221.31	6.121	
18,150.00	11,153.00	18,160.10	11,173.00	111.40	111.57	-90.71	-7,173.19	1,943.47	1,354.77	1,132.09	222.67	6.084	
18,200.00	11,153.00	18,210.10	11,173.00	112.08	112.25	-90.71	-7,223.19	1,943.61	1,354.83	1,130.79	224.03	6.047	
18,250.00	11,153.00	18,260.10	11,173.00	112.76	112.93	-90.71	-7,273.19	1,943.74	1,354.89	1,129.49	225.39	6.011	
18,300.00	11,153.00	18,310.10	11,173.00	113.44	113.61	-90.71	-7,323.19	1,943.88	1,354.95	1,128.19	226.76	5.975	
18,350.00	11,153.00	18,360.10	11,173.00	114.12	114.29	-90.71	-7,373.19	1,944.02	1,355.01	1,126.89	228.12	5.940	
18,400.00	11,153.00	18,410.10	11,173.00	114.80	114.97	-90.71	-7,423.19	1,944.15	1,355.07	1,125.58	229.48	5.905	
18,450.00	11,153.00	18,460.10	11,173.00	115.48	115.66	-90.71	-7,473.19	1,944.29	1,355.13	1,124.28	230.85	5.870	
18,500.00	11,153.00	18,510.10	11,173.00	116.16	116.34	-90.71	-7,523.19	1,944.42	1,355.19	1,122.97	232.22	5.836	
18,550.00	11,153.00	18,560.10	11,173.00	116.84	117.02	-90.71	-7,573.19	1,944.56	1,355.25	1,121.66	233.59	5.802	
18,600.00	11,153.00	18,610.09	11,173.00	117.53	117.71	-90.71	-7,623.18	1,944.69	1,355.31	1,120.36	234.95	5.768	
18,650.00	11,153.00	18,660.09	11,173.00	118.21	118.39	-90.71	-7,673.18	1,944.83	1,355.37	1,119.05	236.32	5.735	
18,700.00	11,153.00	18,710.09	11,173.00	118.90	119.08	-90.71	-7,723.18	1,944.96	1,355.43	1,117.74	237.69	5.702	
18,750.00	11,153.00	18,760.09	11,173.00	119.58	119.76	-90.71	-7,773.18	1,945.10	1,355.49	1,116.42	239.07	5.670	
18,800.00	11,153.00	18,810.09	11,173.00	120.27	120.45	-90.71	-7,823.18	1,945.23	1,355.55	1,115.11	240.44	5.638	
18,850.00	11,153.00	18,860.09	11,173.00	120.95	121.13	-90.71	-7,873.18	1,945.37	1,355.61	1,113.80	241.81	5.606	
18,900.00	11,153.00	18,910.09	11,173.00	121.64	121.82	-90.71	-7,923.18	1,945.50	1,355.67	1,112.48	243.19	5.575	
18,950.00	11,153.00	18,960.09	11,173.00	122.32	122.51	-90.71	-7,973.18	1,945.64	1,355.73	1,111.17	244.56	5.543	
19,000.00	11,153.00	19,010.09	11,173.00	123.01	123.20	-90.71	-8,023.18	1,945.78	1,355.79	1,109.85	245.94	5.513	
19,050.00	11,153.00	19,060.09	11,173.00	123.70	123.89	-90.71	-8,073.18	1,945.91	1,355.85	1,108.54	247.32	5.482	
19,100.00	11,153.00	19,110.09	11,173.00	124.39	124.57	-90.71	-8,123.18	1,946.05	1,355.91	1,107.22	248.70	5.452	
19,150.00	11,153.00	19,160.09	11,173.00	125.08	125.26	-90.71	-8,173.18	1,946.18	1,355.97	1,105.90	250.07	5.422	
19,200.00	11,153.00	19,210.09	11,173.00	125.76	125.95	-90.71	-8,223.18	1,946.32	1,356.03	1,104.58	251.45	5.393	
19,250.00	11,153.00	19,260.09	11,173.00	126.45	126.64	-90.71	-8,273.18	1,946.45	1,356.09	1,103.26	252.84	5.364	
19,300.00	11,153.00	19,310.09	11,173.00	127.14	127.33	-90.71	-8,323.18	1,946.59	1,356.15	1,101.94	254.22	5.335	
19,350.00	11,153.00	19,360.09	11,173.00	127.83	128.03	-90.71	-8,373.18	1,946.72	1,356.21	1,100.62	255.60	5.306	
19,400.00	11,153.00	19,410.09	11,173.00	128.52	128.72	-90.71	-8,423.18	1,946.86	1,356.27	1,099.29	256.98	5.278	
19,450.00	11,153.00	19,460.09	11,173.00	129.22	129.41	-90.71	-8,473.18	1,946.99	1,356.33	1,097.97	258.37	5.250	

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

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

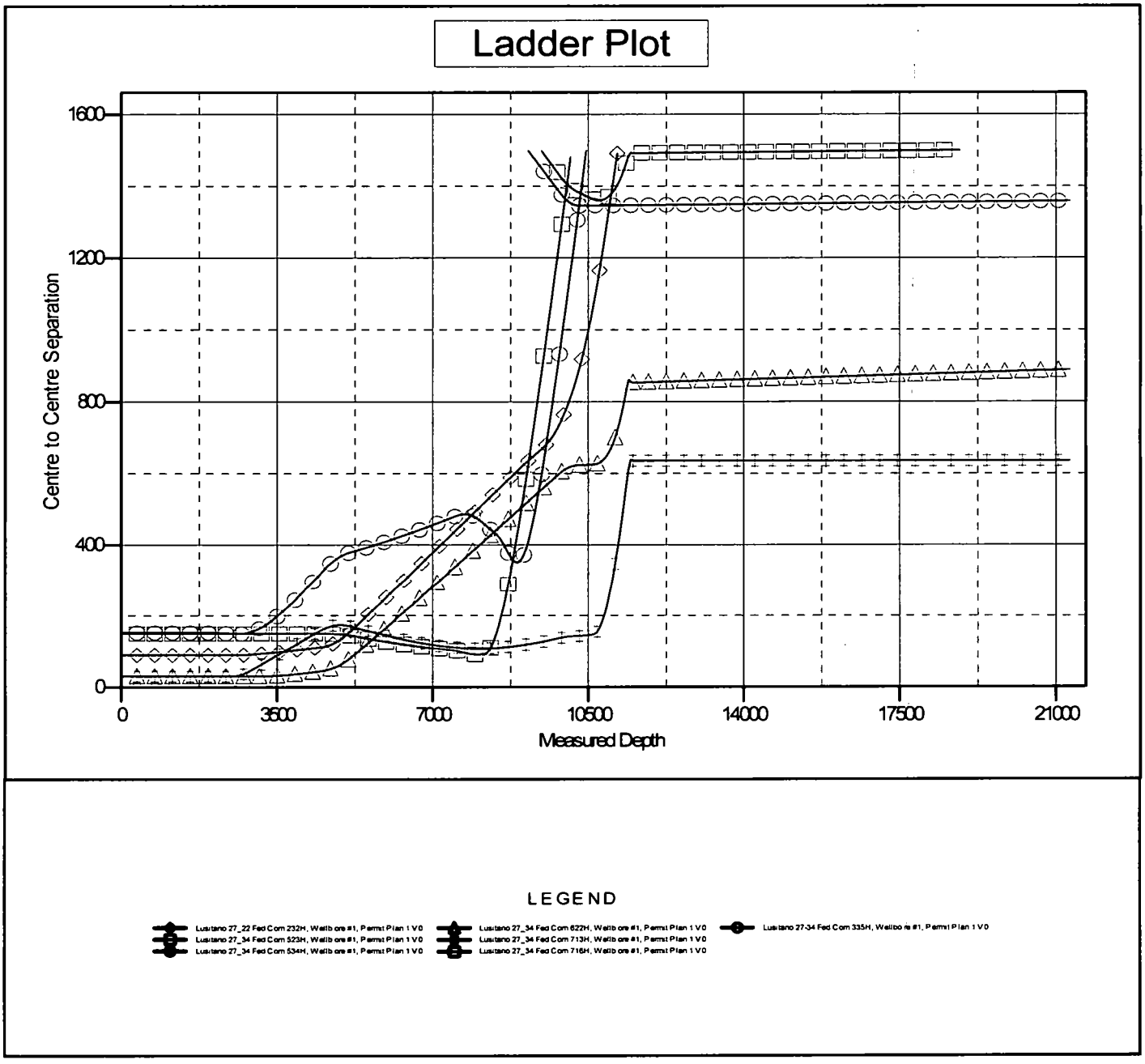
Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 335H - Wellbore #1 - Permit Plan 1 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+HDGM — **Offset Well Error:** 0.50 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
19,500.00	11,153.00	19,510.09	11,173.00	129.91	130.10	-90.71	-8,523.18	1,947.13	1,356.40	1,096.64	259.75	5.222	
19,550.00	11,153.00	19,560.09	11,173.00	130.60	130.79	-90.71	-8,573.18	1,947.26	1,356.46	1,095.32	261.14	5.194	
19,600.00	11,153.00	19,610.09	11,173.00	131.29	131.49	-90.71	-8,623.18	1,947.40	1,356.52	1,093.99	262.52	5.167	
19,650.00	11,153.00	19,660.09	11,173.00	131.98	132.18	-90.71	-8,673.18	1,947.53	1,356.58	1,092.67	263.91	5.140	
19,700.00	11,153.00	19,710.09	11,173.00	132.68	132.87	-90.71	-8,723.18	1,947.67	1,356.64	1,091.34	265.30	5.114	
19,750.00	11,153.00	19,760.09	11,173.00	133.37	133.57	-90.71	-8,773.18	1,947.81	1,356.70	1,090.01	266.69	5.087	
19,800.00	11,153.00	19,810.09	11,173.00	134.06	134.26	-90.71	-8,823.18	1,947.94	1,356.76	1,088.68	268.07	5.061	
19,850.00	11,153.00	19,860.09	11,173.00	134.76	134.96	-90.71	-8,873.18	1,948.08	1,356.82	1,087.35	269.46	5.035	
19,900.00	11,153.00	19,910.09	11,173.00	135.45	135.65	-90.71	-8,923.18	1,948.21	1,356.88	1,086.02	270.85	5.010	
19,950.00	11,153.00	19,960.09	11,173.00	136.15	136.35	-90.71	-8,973.18	1,948.35	1,356.94	1,084.69	272.24	4.984	Alert
20,000.00	11,153.00	20,010.09	11,173.00	136.84	137.04	-90.71	-9,023.18	1,948.48	1,357.00	1,083.36	273.64	4.959	Alert
20,050.00	11,153.00	20,060.09	11,173.00	137.54	137.74	-90.71	-9,073.18	1,948.62	1,357.06	1,082.03	275.03	4.934	Alert
20,100.00	11,153.00	20,110.09	11,173.00	138.23	138.43	-90.71	-9,123.18	1,948.75	1,357.12	1,080.70	276.42	4.910	Alert
20,150.00	11,153.00	20,160.09	11,173.00	138.93	139.13	-90.71	-9,173.18	1,948.89	1,357.18	1,079.36	277.82	4.885	Alert
20,200.00	11,153.00	20,210.09	11,173.00	139.62	139.83	-90.71	-9,223.18	1,949.02	1,357.24	1,078.03	279.21	4.861	Alert
20,250.00	11,153.00	20,260.09	11,173.00	140.32	140.52	-90.71	-9,273.18	1,949.16	1,357.30	1,076.70	280.60	4.837	Alert
20,300.00	11,153.00	20,310.09	11,173.00	141.02	141.22	-90.71	-9,323.18	1,949.29	1,357.36	1,075.36	282.00	4.813	Alert
20,350.00	11,153.00	20,360.09	11,173.00	141.71	141.92	-90.71	-9,373.18	1,949.43	1,357.42	1,074.03	283.40	4.790	Alert
20,400.00	11,153.00	20,410.09	11,173.00	142.41	142.62	-90.71	-9,423.18	1,949.56	1,357.48	1,072.69	284.79	4.767	Alert
20,450.00	11,153.00	20,460.09	11,173.00	143.11	143.32	-90.71	-9,473.18	1,949.70	1,357.54	1,071.35	286.19	4.744	Alert
20,500.00	11,153.00	20,510.09	11,173.00	143.81	144.02	-90.71	-9,523.18	1,949.84	1,357.60	1,070.02	287.59	4.721	Alert
20,550.00	11,153.00	20,560.09	11,173.00	144.51	144.71	-90.71	-9,573.18	1,949.97	1,357.66	1,068.68	288.98	4.698	Alert
20,600.00	11,153.00	20,610.09	11,173.00	145.20	145.41	-90.71	-9,623.18	1,950.11	1,357.72	1,067.34	290.38	4.676	Alert
20,650.00	11,153.00	20,660.09	11,173.00	145.90	146.11	-90.71	-9,673.18	1,950.24	1,357.78	1,066.00	291.78	4.653	Alert
20,700.00	11,153.00	20,710.09	11,173.00	146.60	146.81	-90.71	-9,723.18	1,950.38	1,357.84	1,064.66	293.18	4.631	Alert
20,750.00	11,153.00	20,760.09	11,173.00	147.30	147.51	-90.71	-9,773.18	1,950.51	1,357.90	1,063.32	294.58	4.610	Alert
20,800.00	11,153.00	20,810.09	11,173.00	148.00	148.21	-90.71	-9,823.18	1,950.65	1,357.96	1,061.98	295.98	4.588	Alert
20,850.00	11,153.00	20,860.09	11,173.00	148.70	148.91	-90.71	-9,873.18	1,950.78	1,358.02	1,060.64	297.38	4.567	Alert
20,900.00	11,153.00	20,910.09	11,173.00	149.40	149.61	-90.71	-9,923.17	1,950.92	1,358.08	1,059.30	298.79	4.545	Alert
20,950.00	11,153.00	20,960.09	11,173.00	150.10	150.32	-90.71	-9,973.17	1,951.05	1,358.14	1,057.96	300.19	4.524	Alert
21,000.00	11,153.00	21,010.09	11,173.00	150.80	151.02	-90.71	-10,023.17	1,951.19	1,358.21	1,056.61	301.59	4.503	Alert
21,050.00	11,153.00	21,060.09	11,173.00	151.50	151.72	-90.71	-10,073.17	1,951.32	1,358.27	1,055.27	303.00	4.483	Alert
21,100.00	11,153.00	21,110.09	11,173.00	152.20	152.42	-90.71	-10,123.17	1,951.46	1,358.33	1,053.93	304.40	4.462	Alert
21,150.00	11,153.00	21,160.09	11,173.00	152.90	153.12	-90.71	-10,173.17	1,951.59	1,358.39	1,052.58	305.80	4.442	Alert
21,200.00	11,153.00	21,210.09	11,173.00	153.61	153.82	-90.71	-10,223.17	1,951.73	1,358.45	1,051.24	307.21	4.422	Alert
21,250.00	11,153.00	21,260.09	11,173.00	154.31	154.53	-90.71	-10,273.17	1,951.87	1,358.51	1,049.89	308.61	4.402	Alert
21,300.00	11,153.00	21,310.09	11,173.00	155.01	155.23	-90.71	-10,323.17	1,952.00	1,358.57	1,048.55	310.02	4.382	Alert
21,305.11	11,153.00	21,315.20	11,173.00	155.08	155.30	-90.71	-10,328.28	1,952.01	1,358.57	1,048.41	310.16	4.380	Alert, ES, SF

Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

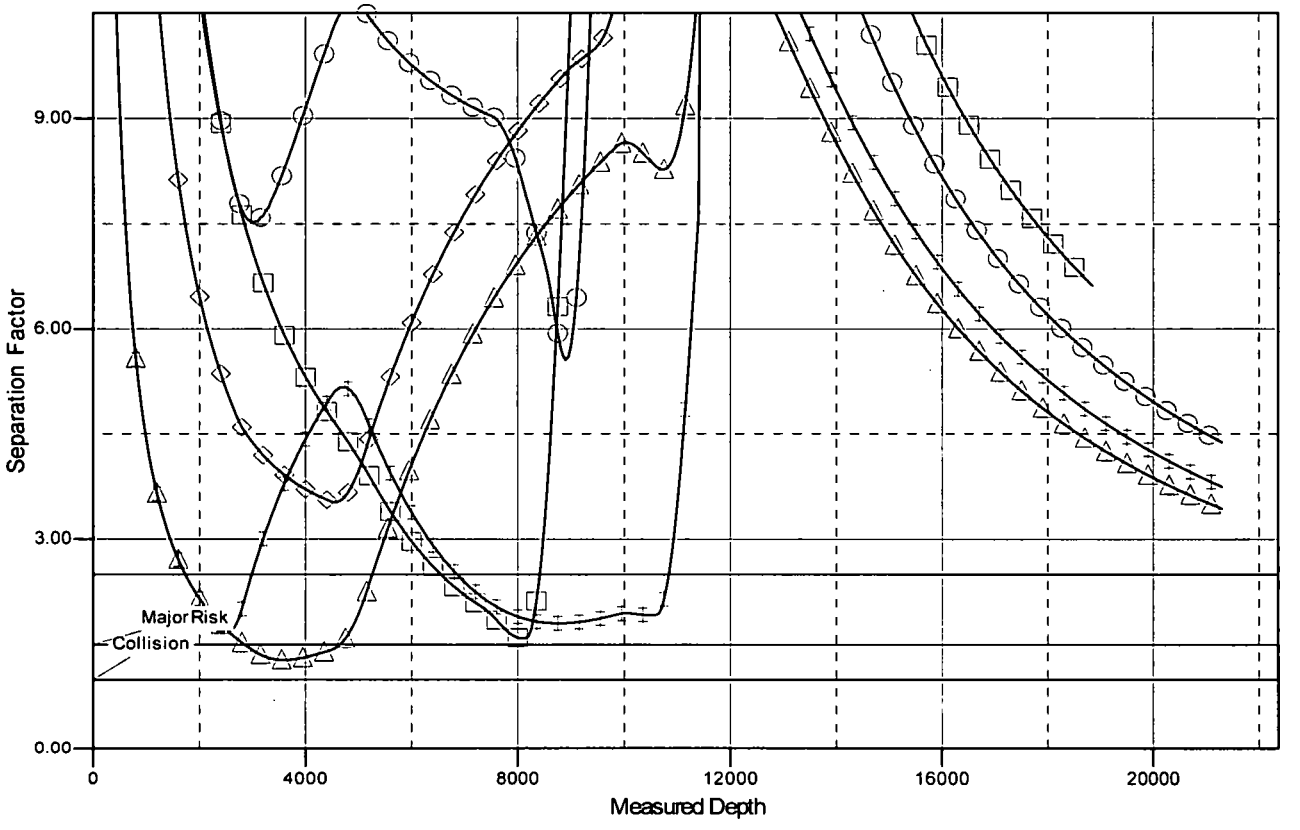
Reference Depths are relative to RKB @ 3360.20ft	Coordinates are relative to: Lusitano 27-34 Fed Com 333H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Central Meridian is -104.333334	Grid Convergence at Surface is: 0.30°



Company:	WCDSC Permian NM	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3360.20ft
Reference Site:	Sec 27-T25S-R31E	**MD Reference:**	RKB @ 3360.20ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.50 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB @ 3360.20ft	Coordinates are relative to: Lusitano 27-34 Fed Com 333H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Central Meridian is -104.333334	Grid Convergence at Surface is: 0.30°

Separation Factor Plot



LEGEND

Lusitano 27_22 Fed Com 232H, Wellbore #1, Permit Plan 1 V0
Lusitano 27_34 Fed Com 523H, Wellbore #1, Permit Plan 1 V0
Lusitano 27_34 Fed Com 534H, Wellbore #1, Permit Plan 1 V0
Lusitano 27_34 Fed Com 622H, Wellbore #1, Permit Plan 1 V0
Lusitano 27_34 Fed Com 713H, Wellbore #1, Permit Plan 1 V0
Lusitano 27_34 Fed Com 716H, Wellbore #1, Permit Plan 1 V0
Lusitano 27-34 Fed Com 335H, Wellbore #1, Permit Plan 1 V0

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

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)
Sec 27-T25S-R31E
Lusitano 27-34 Fed Com 333H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

21 August, 2018

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.20ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.20ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Project	Eddy County (NAD 83 NM Eastern)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 27-T25S-R31E				
Site Position:		**Northing:**	403,674.44 usft	**Latitude:**	32.108547
From:	Map	**Easting:**	714,373.23 usft	**Longitude:**	-103.774477
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.30 °

Well	Lusitano 27-34 Fed Com 333H					
Well Position	**+N/-S**	0.00 ft	**Northing:**	403,449.84 usft	**Latitude:**	32.107905
	+E/-W	0.00 ft	**Easting:**	716,104.25 usft	**Longitude:**	-103.768890
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,335.20 ft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	8/20/2018	6.91	59.91	47,728.30603141

Design	Permit Plan 1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.00	0.00	0.00	176.71	

Plan Survey Tool Program **Date** 8/21/2018

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	21,305.11	Permit Plan 1 (Wellbore #1)	MWD+HDGM	
				OWSG MWD + HDGM	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,135.42	6.35	86.53	5,134.12	2.13	35.13	1.00	1.00	0.00	86.53	
9,837.44	6.35	86.53	9,807.25	33.58	554.58	0.00	0.00	0.00	0.00	
10,261.06	0.00	0.00	10,230.00	35.00	578.00	1.50	-1.50	0.00	180.00	
10,611.10	0.00	0.00	10,580.04	35.00	578.00	0.00	0.00	0.00	0.00	
11,511.10	90.00	179.91	11,153.00	-537.96	578.86	10.00	10.00	0.00	179.91	PBHL - Lusitano 27_3
21,305.11	90.00	179.91	11,153.00	-10,331.96	593.55	0.00	0.00	0.00	0.00	PBHL - Lusitano 27_3

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.20ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.20ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
100.00	0.00	0.00	100.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
200.00	0.00	0.00	200.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
300.00	0.00	0.00	300.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
400.00	0.00	0.00	400.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
500.00	0.00	0.00	500.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
600.00	0.00	0.00	600.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
700.00	0.00	0.00	700.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
800.00	0.00	0.00	800.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
900.00	0.00	0.00	900.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,000.00	0.00	0.00	1,000.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,100.00	0.00	0.00	1,100.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,200.00	0.00	0.00	1,200.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,300.00	0.00	0.00	1,300.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,400.00	0.00	0.00	1,400.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,500.00	0.00	0.00	1,500.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,600.00	0.00	0.00	1,600.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,700.00	0.00	0.00	1,700.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,800.00	0.00	0.00	1,800.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
1,900.00	0.00	0.00	1,900.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,000.00	0.00	0.00	2,000.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,100.00	0.00	0.00	2,100.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,200.00	0.00	0.00	2,200.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,300.00	0.00	0.00	2,300.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,400.00	0.00	0.00	2,400.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,500.00	0.00	0.00	2,500.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,600.00	0.00	0.00	2,600.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,700.00	0.00	0.00	2,700.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,800.00	0.00	0.00	2,800.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
2,900.00	0.00	0.00	2,900.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,000.00	0.00	0.00	3,000.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,100.00	0.00	0.00	3,100.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,200.00	0.00	0.00	3,200.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,300.00	0.00	0.00	3,300.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,400.00	0.00	0.00	3,400.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,500.00	0.00	0.00	3,500.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,600.00	0.00	0.00	3,600.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,700.00	0.00	0.00	3,700.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,800.00	0.00	0.00	3,800.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
3,900.00	0.00	0.00	3,900.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,000.00	0.00	0.00	4,000.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,100.00	0.00	0.00	4,100.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,200.00	0.00	0.00	4,200.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,300.00	0.00	0.00	4,300.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,400.00	0.00	0.00	4,400.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,500.00	0.00	0.00	4,500.00	0.00	0.00	403,449.84	716,104.25	32.107905	-103.768890
4,600.00	1.00	86.53	4,600.00	0.05	0.87	403,449.89	716,105.12	32.107905	-103.768887
4,700.00	2.00	86.53	4,699.96	0.21	3.48	403,450.05	716,107.73	32.107906	-103.768879
4,800.00	3.00	86.53	4,799.86	0.47	7.84	403,450.31	716,112.08	32.107906	-103.768865
4,900.00	4.00	86.53	4,899.68	0.84	13.93	403,450.68	716,118.18	32.107907	-103.768845
5,000.00	5.00	86.53	4,999.37	1.32	21.76	403,451.16	716,126.01	32.107908	-103.768820
5,100.00	6.00	86.53	5,098.90	1.90	31.33	403,451.74	716,135.58	32.107910	-103.768789
5,135.42	6.35	86.53	5,134.12	2.13	35.13	403,451.97	716,139.38	32.107910	-103.768777
5,200.00	6.35	86.53	5,198.30	2.56	42.27	403,452.40	716,146.51	32.107912	-103.768754
5,300.00	6.35	86.53	5,297.69	3.23	53.32	403,453.07	716,157.56	32.107913	-103.768718

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.20ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.20ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	6.35	86.53	5,397.07	3.90	64.36	403,453.74	716,168.61	32.107915	-103.768682
5,500.00	6.35	86.53	5,496.46	4.57	75.41	403,454.41	716,179.66	32.107917	-103.768647
5,600.00	6.35	86.53	5,595.84	5.24	86.46	403,455.07	716,190.70	32.107918	-103.768611
5,700.00	6.35	86.53	5,695.23	5.90	97.50	403,455.74	716,201.75	32.107920	-103.768575
5,800.00	6.35	86.53	5,794.62	6.57	108.55	403,456.41	716,212.80	32.107922	-103.768539
5,900.00	6.35	86.53	5,894.00	7.24	119.60	403,457.08	716,223.84	32.107923	-103.768504
6,000.00	6.35	86.53	5,993.39	7.91	130.65	403,457.75	716,234.89	32.107925	-103.768468
6,100.00	6.35	86.53	6,092.77	8.58	141.69	403,458.42	716,245.94	32.107927	-103.768432
6,200.00	6.35	86.53	6,192.16	9.25	152.74	403,459.09	716,256.99	32.107928	-103.768397
6,300.00	6.35	86.53	6,291.54	9.92	163.79	403,459.76	716,268.03	32.107930	-103.768361
6,400.00	6.35	86.53	6,390.93	10.59	174.84	403,460.43	716,279.08	32.107932	-103.768325
6,500.00	6.35	86.53	6,490.32	11.26	185.88	403,461.09	716,290.13	32.107933	-103.768290
6,600.00	6.35	86.53	6,589.70	11.92	196.93	403,461.76	716,301.18	32.107935	-103.768254
6,700.00	6.35	86.53	6,689.09	12.59	207.98	403,462.43	716,312.22	32.107937	-103.768218
6,800.00	6.35	86.53	6,788.47	13.26	219.02	403,463.10	716,323.27	32.107938	-103.768183
6,900.00	6.35	86.53	6,887.86	13.93	230.07	403,463.77	716,334.32	32.107940	-103.768147
7,000.00	6.35	86.53	6,987.24	14.60	241.12	403,464.44	716,345.36	32.107942	-103.768111
7,100.00	6.35	86.53	7,086.63	15.27	252.17	403,465.11	716,356.41	32.107943	-103.768075
7,200.00	6.35	86.53	7,186.02	15.94	263.21	403,465.78	716,367.46	32.107945	-103.768040
7,300.00	6.35	86.53	7,285.40	16.61	274.26	403,466.45	716,378.51	32.107947	-103.768004
7,400.00	6.35	86.53	7,384.79	17.28	285.31	403,467.12	716,389.55	32.107949	-103.767968
7,500.00	6.35	86.53	7,484.17	17.95	296.35	403,467.78	716,400.60	32.107950	-103.767933
7,600.00	6.35	86.53	7,583.56	18.61	307.40	403,468.45	716,411.65	32.107952	-103.767897
7,700.00	6.35	86.53	7,682.94	19.28	318.45	403,469.12	716,422.69	32.107954	-103.767861
7,800.00	6.35	86.53	7,782.33	19.95	329.50	403,469.79	716,433.74	32.107955	-103.767826
7,900.00	6.35	86.53	7,881.71	20.62	340.54	403,470.46	716,444.79	32.107957	-103.767790
8,000.00	6.35	86.53	7,981.10	21.29	351.59	403,471.13	716,455.84	32.107959	-103.767754
8,100.00	6.35	86.53	8,080.49	21.96	362.64	403,471.80	716,466.88	32.107960	-103.767719
8,200.00	6.35	86.53	8,179.87	22.63	373.69	403,472.47	716,477.93	32.107962	-103.767683
8,300.00	6.35	86.53	8,279.26	23.30	384.73	403,473.14	716,488.98	32.107964	-103.767647
8,400.00	6.35	86.53	8,378.64	23.97	395.78	403,473.80	716,500.02	32.107965	-103.767612
8,500.00	6.35	86.53	8,478.03	24.63	406.83	403,474.47	716,511.07	32.107967	-103.767576
8,600.00	6.35	86.53	8,577.41	25.30	417.87	403,475.14	716,522.12	32.107969	-103.767540
8,700.00	6.35	86.53	8,676.80	25.97	428.92	403,475.81	716,533.17	32.107970	-103.767504
8,800.00	6.35	86.53	8,776.19	26.64	439.97	403,476.48	716,544.21	32.107972	-103.767469
8,900.00	6.35	86.53	8,875.57	27.31	451.02	403,477.15	716,555.26	32.107974	-103.767433
9,000.00	6.35	86.53	8,974.96	27.98	462.06	403,477.82	716,566.31	32.107975	-103.767397
9,100.00	6.35	86.53	9,074.34	28.65	473.11	403,478.49	716,577.36	32.107977	-103.767362
9,200.00	6.35	86.53	9,173.73	29.32	484.16	403,479.16	716,588.40	32.107979	-103.767326
9,300.00	6.35	86.53	9,273.11	29.99	495.20	403,479.83	716,599.45	32.107980	-103.767290
9,400.00	6.35	86.53	9,372.50	30.66	506.25	403,480.49	716,610.50	32.107982	-103.767255
9,500.00	6.35	86.53	9,471.89	31.32	517.30	403,481.16	716,621.54	32.107984	-103.767219
9,600.00	6.35	86.53	9,571.27	31.99	528.35	403,481.83	716,632.59	32.107985	-103.767183
9,700.00	6.35	86.53	9,670.66	32.66	539.39	403,482.50	716,643.64	32.107987	-103.767148
9,800.00	6.35	86.53	9,770.04	33.33	550.44	403,483.17	716,654.69	32.107989	-103.767112
9,837.44	6.35	86.53	9,807.25	33.58	554.58	403,483.42	716,658.82	32.107989	-103.767099
9,900.00	5.42	86.53	9,869.48	33.97	560.98	403,483.81	716,665.22	32.107990	-103.767078
10,000.00	3.92	86.53	9,969.15	34.46	569.10	403,484.30	716,673.34	32.107992	-103.767052
10,100.00	2.42	86.53	10,068.99	34.79	574.61	403,484.63	716,678.86	32.107992	-103.767034
10,200.00	0.92	86.53	10,168.95	34.97	577.51	403,484.81	716,681.76	32.107993	-103.767024
10,261.06	0.00	0.00	10,230.00	35.00	578.00	403,484.84	716,682.24	32.107993	-103.767023
10,300.00	0.00	0.00	10,268.94	35.00	578.00	403,484.84	716,682.24	32.107993	-103.767023
10,400.00	0.00	0.00	10,368.94	35.00	578.00	403,484.84	716,682.24	32.107993	-103.767023
10,500.00	0.00	0.00	10,468.94	35.00	578.00	403,484.84	716,682.24	32.107993	-103.767023
10,600.00	0.00	0.00	10,568.94	35.00	578.00	403,484.84	716,682.24	32.107993	-103.767023

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.20ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.20ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,611.10	0.00	0.00	10,580.04	35.00	578.00	403,484.84	716,682.24	32.107993	-103.767023
KOP @ 10611' MD, 200' FNL, 2310' FWL									
10,700.00	8.89	179.91	10,668.59	28.12	578.01	403,477.96	716,682.26	32.107974	-103.767023
10,800.00	18.89	179.91	10,765.54	4.14	578.05	403,453.98	716,682.29	32.107908	-103.767023
10,900.00	28.89	179.91	10,856.86	-36.31	578.11	403,413.53	716,682.35	32.107797	-103.767024
11,000.00	38.89	179.91	10,939.76	-92.00	578.19	403,357.84	716,682.44	32.107644	-103.767024
11,100.00	48.89	179.91	11,011.74	-161.24	578.29	403,288.60	716,682.54	32.107454	-103.767025
11,111.10	50.00	179.91	11,018.95	-169.67	578.31	403,280.17	716,682.55	32.107430	-103.767025
FTP @ 11111' MD, 405' FNL, 2310' FWL									
11,200.00	58.89	179.91	11,070.60	-241.92	578.42	403,207.92	716,682.66	32.107232	-103.767026
11,300.00	68.89	179.91	11,114.55	-331.60	578.55	403,118.23	716,682.79	32.106985	-103.767027
11,400.00	78.89	179.91	11,142.26	-427.56	578.69	403,022.28	716,682.94	32.106722	-103.767028
11,500.00	88.89	179.91	11,152.89	-526.86	578.84	402,922.98	716,683.09	32.106449	-103.767030
11,511.10	90.00	179.91	11,153.00	-537.96	578.86	402,911.88	716,683.10	32.106418	-103.767030
11,600.00	90.00	179.91	11,153.00	-626.86	578.99	402,822.98	716,683.24	32.106174	-103.767031
11,700.00	90.00	179.91	11,153.00	-726.86	579.14	402,722.98	716,683.39	32.105899	-103.767032
11,800.00	90.00	179.91	11,153.00	-826.86	579.29	402,622.98	716,683.54	32.105624	-103.767033
11,900.00	90.00	179.91	11,153.00	-926.86	579.44	402,522.98	716,683.69	32.105349	-103.767035
12,000.00	90.00	179.91	11,153.00	-1,026.86	579.59	402,422.98	716,683.84	32.105074	-103.767036
12,100.00	90.00	179.91	11,153.00	-1,126.86	579.74	402,322.98	716,683.99	32.104799	-103.767037
12,200.00	90.00	179.91	11,153.00	-1,226.86	579.89	402,222.98	716,684.14	32.104524	-103.767038
12,300.00	90.00	179.91	11,153.00	-1,326.86	580.04	402,122.98	716,684.29	32.104249	-103.767039
12,400.00	90.00	179.91	11,153.00	-1,426.86	580.19	402,022.98	716,684.44	32.103975	-103.767041
12,500.00	90.00	179.91	11,153.00	-1,526.86	580.34	401,922.98	716,684.59	32.103700	-103.767042
12,600.00	90.00	179.91	11,153.00	-1,626.86	580.49	401,822.98	716,684.74	32.103425	-103.767043
12,700.00	90.00	179.91	11,153.00	-1,726.86	580.64	401,722.98	716,684.89	32.103150	-103.767044
12,800.00	90.00	179.91	11,153.00	-1,826.86	580.79	401,622.98	716,685.04	32.102875	-103.767045
12,900.00	90.00	179.91	11,153.00	-1,926.86	580.94	401,522.98	716,685.19	32.102600	-103.767047
13,000.00	90.00	179.91	11,153.00	-2,026.86	581.09	401,422.98	716,685.34	32.102325	-103.767048
13,100.00	90.00	179.91	11,153.00	-2,126.86	581.24	401,322.98	716,685.49	32.102050	-103.767049
13,200.00	90.00	179.91	11,153.00	-2,226.86	581.39	401,222.98	716,685.64	32.101776	-103.767050
13,300.00	90.00	179.91	11,153.00	-2,326.86	581.54	401,122.98	716,685.79	32.101501	-103.767051
13,400.00	90.00	179.91	11,153.00	-2,426.86	581.69	401,022.99	716,685.94	32.101226	-103.767053
13,500.00	90.00	179.91	11,153.00	-2,526.86	581.84	400,922.99	716,686.09	32.100951	-103.767054
13,600.00	90.00	179.91	11,153.00	-2,626.86	581.99	400,822.99	716,686.24	32.100676	-103.767055
13,700.00	90.00	179.91	11,153.00	-2,726.86	582.14	400,722.99	716,686.39	32.100401	-103.767056
13,800.00	90.00	179.91	11,153.00	-2,826.86	582.29	400,622.99	716,686.54	32.100126	-103.767058
13,900.00	90.00	179.91	11,153.00	-2,926.86	582.44	400,522.99	716,686.69	32.099851	-103.767059
14,000.00	90.00	179.91	11,153.00	-3,026.86	582.59	400,422.99	716,686.84	32.099576	-103.767060
14,100.00	90.00	179.91	11,153.00	-3,126.86	582.74	400,322.99	716,686.99	32.099302	-103.767061
14,200.00	90.00	179.91	11,153.00	-3,226.86	582.89	400,222.99	716,687.14	32.099027	-103.767062
14,300.00	90.00	179.91	11,153.00	-3,326.86	583.04	400,122.99	716,687.29	32.098752	-103.767064
14,400.00	90.00	179.91	11,153.00	-3,426.86	583.19	400,022.99	716,687.44	32.098477	-103.767065
14,500.00	90.00	179.91	11,153.00	-3,526.86	583.34	399,922.99	716,687.59	32.098202	-103.767066
14,600.00	90.00	179.91	11,153.00	-3,626.86	583.49	399,822.99	716,687.74	32.097927	-103.767067
14,700.00	90.00	179.91	11,153.00	-3,726.86	583.64	399,722.99	716,687.89	32.097652	-103.767068
14,800.00	90.00	179.91	11,153.00	-3,826.86	583.79	399,622.99	716,688.04	32.097377	-103.767070
14,900.00	90.00	179.91	11,153.00	-3,926.86	583.94	399,522.99	716,688.19	32.097102	-103.767071
15,000.00	90.00	179.91	11,153.00	-4,026.86	584.09	399,422.99	716,688.34	32.096828	-103.767072
15,100.00	90.00	179.91	11,153.00	-4,126.86	584.24	399,322.99	716,688.49	32.096553	-103.767073
15,200.00	90.00	179.91	11,153.00	-4,226.86	584.39	399,222.99	716,688.64	32.096278	-103.767075
15,300.00	90.00	179.91	11,153.00	-4,326.86	584.54	399,122.99	716,688.79	32.096003	-103.767076
15,400.00	90.00	179.91	11,153.00	-4,426.86	584.69	399,022.99	716,688.94	32.095728	-103.767077
15,500.00	90.00	179.91	11,153.00	-4,526.86	584.84	398,922.99	716,689.09	32.095453	-103.767078

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.20ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.20ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,600.00	90.00	179.91	11,153.00	-4,626.86	584.99	398,822.99	716,689.24	32.095178	-103.767079
15,700.00	90.00	179.91	11,153.00	-4,726.86	585.14	398,722.99	716,689.39	32.094903	-103.767081
15,800.00	90.00	179.91	11,153.00	-4,826.86	585.29	398,622.99	716,689.54	32.094629	-103.767082
15,900.00	90.00	179.91	11,153.00	-4,926.86	585.44	398,522.99	716,689.69	32.094354	-103.767083
16,000.00	90.00	179.91	11,153.00	-5,026.86	585.59	398,422.99	716,689.84	32.094079	-103.767084
16,100.00	90.00	179.91	11,153.00	-5,126.86	585.74	398,322.99	716,689.99	32.093804	-103.767085
16,200.00	90.00	179.91	11,153.00	-5,226.86	585.89	398,222.99	716,690.14	32.093529	-103.767087
16,300.00	90.00	179.91	11,153.00	-5,326.86	586.04	398,122.99	716,690.29	32.093254	-103.767088
16,400.00	90.00	179.91	11,153.00	-5,426.86	586.19	398,022.99	716,690.44	32.092979	-103.767089
16,500.00	90.00	179.91	11,153.00	-5,526.86	586.34	397,922.99	716,690.59	32.092704	-103.767090
16,600.00	90.00	179.91	11,153.00	-5,626.86	586.49	397,822.99	716,690.74	32.092429	-103.767091
16,700.00	90.00	179.91	11,153.00	-5,726.86	586.64	397,723.00	716,690.89	32.092155	-103.767093
16,800.00	90.00	179.91	11,153.00	-5,826.86	586.79	397,623.00	716,691.04	32.091880	-103.767094
16,900.00	90.00	179.91	11,153.00	-5,926.86	586.94	397,523.00	716,691.19	32.091605	-103.767095
17,000.00	90.00	179.91	11,153.00	-6,026.85	587.09	397,423.00	716,691.34	32.091330	-103.767096
17,100.00	90.00	179.91	11,153.00	-6,126.85	587.24	397,323.00	716,691.49	32.091055	-103.767098
17,200.00	90.00	179.91	11,153.00	-6,226.85	587.39	397,223.00	716,691.64	32.090780	-103.767099
17,300.00	90.00	179.91	11,153.00	-6,326.85	587.54	397,123.00	716,691.79	32.090505	-103.767100
17,400.00	90.00	179.91	11,153.00	-6,426.85	587.69	397,023.00	716,691.94	32.090230	-103.767101
17,500.00	90.00	179.91	11,153.00	-6,526.85	587.84	396,923.00	716,692.09	32.089955	-103.767102
17,600.00	90.00	179.91	11,153.00	-6,626.85	587.99	396,823.00	716,692.24	32.089681	-103.767104
17,700.00	90.00	179.91	11,153.00	-6,726.85	588.14	396,723.00	716,692.39	32.089406	-103.767105
17,800.00	90.00	179.91	11,153.00	-6,826.85	588.29	396,623.00	716,692.54	32.089131	-103.767106
17,900.00	90.00	179.91	11,153.00	-6,926.85	588.44	396,523.00	716,692.69	32.088856	-103.767107
18,000.00	90.00	179.91	11,153.00	-7,026.85	588.59	396,423.00	716,692.84	32.088581	-103.767108
18,100.00	90.00	179.91	11,153.00	-7,126.85	588.74	396,323.00	716,692.99	32.088306	-103.767110
18,200.00	90.00	179.91	11,153.00	-7,226.85	588.89	396,223.00	716,693.14	32.088031	-103.767111
18,300.00	90.00	179.91	11,153.00	-7,326.85	589.04	396,123.00	716,693.29	32.087756	-103.767112
18,400.00	90.00	179.91	11,153.00	-7,426.85	589.19	396,023.00	716,693.44	32.087482	-103.767113
18,500.00	90.00	179.91	11,153.00	-7,526.85	589.34	395,923.00	716,693.59	32.087207	-103.767114
18,600.00	90.00	179.91	11,153.00	-7,626.85	589.49	395,823.00	716,693.74	32.086932	-103.767116
18,700.00	90.00	179.91	11,153.00	-7,726.85	589.64	395,723.00	716,693.89	32.086657	-103.767117
18,800.00	90.00	179.91	11,153.00	-7,826.85	589.79	395,623.00	716,694.04	32.086382	-103.767118
18,900.00	90.00	179.91	11,153.00	-7,926.85	589.94	395,523.00	716,694.19	32.086107	-103.767119
19,000.00	90.00	179.91	11,153.00	-8,026.85	590.09	395,423.00	716,694.34	32.085832	-103.767121
19,100.00	90.00	179.91	11,153.00	-8,126.85	590.24	395,323.00	716,694.49	32.085557	-103.767122
19,200.00	90.00	179.91	11,153.00	-8,226.85	590.39	395,223.00	716,694.64	32.085282	-103.767123
19,300.00	90.00	179.91	11,153.00	-8,326.85	590.54	395,123.00	716,694.79	32.085008	-103.767124
19,400.00	90.00	179.91	11,153.00	-8,426.85	590.69	395,023.00	716,694.94	32.084733	-103.767125
19,500.00	90.00	179.91	11,153.00	-8,526.85	590.84	394,923.00	716,695.09	32.084458	-103.767127
19,600.00	90.00	179.91	11,153.00	-8,626.85	590.99	394,823.00	716,695.24	32.084183	-103.767128
19,700.00	90.00	179.91	11,153.00	-8,726.85	591.14	394,723.00	716,695.39	32.083908	-103.767129
19,800.00	90.00	179.91	11,153.00	-8,826.85	591.29	394,623.00	716,695.54	32.083633	-103.767130
19,900.00	90.00	179.91	11,153.00	-8,926.85	591.44	394,523.01	716,695.69	32.083358	-103.767131
20,000.00	90.00	179.91	11,153.00	-9,026.85	591.59	394,423.01	716,695.84	32.083083	-103.767133
20,100.00	90.00	179.91	11,153.00	-9,126.85	591.74	394,323.01	716,695.99	32.082809	-103.767134
20,200.00	90.00	179.91	11,153.00	-9,226.85	591.89	394,223.01	716,696.14	32.082534	-103.767135
20,300.00	90.00	179.91	11,153.00	-9,326.85	592.04	394,123.01	716,696.29	32.082259	-103.767136
20,400.00	90.00	179.91	11,153.00	-9,426.85	592.19	394,023.01	716,696.44	32.081984	-103.767137
20,500.00	90.00	179.91	11,153.00	-9,526.85	592.34	393,923.01	716,696.59	32.081709	-103.767139
20,600.00	90.00	179.91	11,153.00	-9,626.85	592.49	393,823.01	716,696.74	32.081434	-103.767140
20,700.00	90.00	179.91	11,153.00	-9,726.85	592.64	393,723.01	716,696.89	32.081159	-103.767141
20,800.00	90.00	179.91	11,153.00	-9,826.85	592.79	393,623.01	716,697.04	32.080884	-103.767142
20,900.00	90.00	179.91	11,153.00	-9,926.85	592.94	393,523.01	716,697.19	32.080609	-103.767144
21,000.00	90.00	179.91	11,153.00	-10,026.85	593.09	393,423.01	716,697.34	32.080335	-103.767145

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27-34 Fed Com 333H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.20ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.20ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27-34 Fed Com 333H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
21,100.00	90.00	179.91	11,153.00	-10,126.85	593.24	393,323.01	716,697.49	32.080060	-103.767146
21,200.00	90.00	179.91	11,153.00	-10,226.85	593.39	393,223.01	716,697.64	32.079785	-103.767147
21,225.11	90.00	179.91	11,153.00	-10,251.96	593.43	393,197.90	716,697.68	32.079716	-103.767147
LTP @ 21205' MD, 100' FSL, 2310' FWL									
21,300.00	90.00	179.91	11,153.00	-10,326.85	593.54	393,123.01	716,697.79	32.079510	-103.767148
21,305.11	90.00	179.91	11,153.00	-10,331.96	593.55	393,117.90	716,697.80	32.079496	-103.767148
PBHL; 20' FSL, 2310' FWL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Lusitano 27_34 I	0.00	0.00	0.00	-10,331.96	593.55	393,117.90	716,697.80	32.079496	-103.767148
- plan misses target center by 10349.00ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
10,611.10	10,580.04	35.00	578.00	KOP @ 10611' MD, 200' FNL, 2310' FWL
11,111.10	11,018.95	-169.67	578.31	FTP @ 11111' MD, 405' FNL, 2310' FWL
21,225.11	11,153.00	-10,251.96	593.43	LTP @ 21205' MD, 100' FSL, 2310' FWL
21,305.11	11,153.00	-10,331.96	593.55	PBHL; 20' FSL, 2310' FWL

WCDSC Permian NM
Lusitano 27-34 Fed Com 333H - Permit Plan 1

Eddy County (NAD 83 NM Eastern)
Sec 27-T25S-R31E
Your Ref:

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0	0	0	0	0	0	0	0
100	0	0	100	0	0	0	0
200	0	0	200	0	0	0	0
300	0	0	300	0	0	0	0
400	0	0	400	0	0	0	0
500	0	0	500	0	0	0	0
600	0	0	600	0	0	0	0
700	0	0	700	0	0	0	0
800	0	0	800	0	0	0	0
900	0	0	900	0	0	0	0
1000	0	0	1000	0	0	0	0
1100	0	0	1100	0	0	0	0
1200	0	0	1200	0	0	0	0
1300	0	0	1300	0	0	0	0
1400	0	0	1400	0	0	0	0
1500	0	0	1500	0	0	0	0
1600	0	0	1600	0	0	0	0
1700	0	0	1700	0	0	0	0
1800	0	0	1800	0	0	0	0
1900	0	0	1900	0	0	0	0
2000	0	0	2000	0	0	0	0
2100	0	0	2100	0	0	0	0
2200	0	0	2200	0	0	0	0
2300	0	0	2300	0	0	0	0
2400	0	0	2400	0	0	0	0
2500	0	0	2500	0	0	0	0
2600	0	0	2600	0	0	0	0
2700	0	0	2700	0	0	0	0
2800	0	0	2800	0	0	0	0
2900	0	0	2900	0	0	0	0
3000	0	0	3000	0	0	0	0
3100	0	0	3100	0	0	0	0

3200	0	0	3200	0	0	0	0
3300	0	0	3300	0	0	0	0
3400	0	0	3400	0	0	0	0
3500	0	0	3500	0	0	0	0
3600	0	0	3600	0	0	0	0
3700	0	0	3700	0	0	0	0
3800	0	0	3800	0	0	0	0
3900	0	0	3900	0	0	0	0
4000	0	0	4000	0	0	0	0
4100	0	0	4100	0	0	0	0
4200	0	0	4200	0	0	0	0
4300	0	0	4300	0	0	0	0
4400	0	0	4400	0	0	0	0
4500	0	0	4500	0	0	0	0
4600	1	86.535	4599.99	0.05	0.87	0	1
4700	2	86.535	4699.96	0.21	3.48	-0.01	1
4800	3	86.535	4799.86	0.47	7.84	-0.02	1
4900	4	86.535	4899.68	0.84	13.93	-0.04	1
5000	5	86.535	4999.37	1.32	21.76	-0.07	1
5100	6	86.535	5098.9	1.9	31.33	-0.1	1
5200	6.354	86.535	5198.3	2.56	42.27	-0.13	0.35
5300	6.354	86.535	5297.69	3.23	53.32	-0.17	0
5400	6.354	86.535	5397.07	3.9	64.36	-0.2	0
5500	6.354	86.535	5496.46	4.57	75.41	-0.23	0
5600	6.354	86.535	5595.84	5.24	86.46	-0.27	0
5700	6.354	86.535	5695.23	5.9	97.5	-0.3	0
5800	6.354	86.535	5794.62	6.57	108.55	-0.34	0
5900	6.354	86.535	5894	7.24	119.6	-0.37	0
6000	6.354	86.535	5993.39	7.91	130.65	-0.41	0
6100	6.354	86.535	6092.77	8.58	141.69	-0.44	0
6200	6.354	86.535	6192.16	9.25	152.74	-0.47	0
6300	6.354	86.535	6291.54	9.92	163.79	-0.51	0
6400	6.354	86.535	6390.93	10.59	174.84	-0.54	0
6500	6.354	86.535	6490.32	11.26	185.88	-0.58	0
6600	6.354	86.535	6589.7	11.92	196.93	-0.61	0
6700	6.354	86.535	6689.09	12.59	207.98	-0.64	0
6800	6.354	86.535	6788.47	13.26	219.02	-0.68	0
6900	6.354	86.535	6887.86	13.93	230.07	-0.71	0
7000	6.354	86.535	6987.24	14.6	241.12	-0.75	0
7100	6.354	86.535	7086.63	15.27	252.17	-0.78	0
7200	6.354	86.535	7186.01	15.94	263.21	-0.82	0
7300	6.354	86.535	7285.4	16.61	274.26	-0.85	0
7400	6.354	86.535	7384.79	17.28	285.31	-0.88	0
7500	6.354	86.535	7484.17	17.95	296.35	-0.92	0
7600	6.354	86.535	7583.56	18.61	307.4	-0.95	0
7700	6.354	86.535	7682.94	19.28	318.45	-0.99	0
7800	6.354	86.535	7782.33	19.95	329.5	-1.02	0

7900	6.354	86.535	7881.71	20.62	340.54	-1.06	0
8000	6.354	86.535	7981.1	21.29	351.59	-1.09	0
8100	6.354	86.535	8080.49	21.96	362.64	-1.12	0
8200	6.354	86.535	8179.87	22.63	373.69	-1.16	0
8300	6.354	86.535	8279.26	23.3	384.73	-1.19	0
8400	6.354	86.535	8378.64	23.97	395.78	-1.23	0
8500	6.354	86.535	8478.03	24.63	406.83	-1.26	0
8600	6.354	86.535	8577.41	25.3	417.87	-1.3	0
8700	6.354	86.535	8676.8	25.97	428.92	-1.33	0
8800	6.354	86.535	8776.19	26.64	439.97	-1.36	0
8900	6.354	86.535	8875.57	27.31	451.02	-1.4	0
9000	6.354	86.535	8974.96	27.98	462.06	-1.43	0
9100	6.354	86.535	9074.34	28.65	473.11	-1.47	0
9200	6.354	86.535	9173.73	29.32	484.16	-1.5	0
9300	6.354	86.535	9273.11	29.99	495.2	-1.54	0
9400	6.354	86.535	9372.5	30.66	506.25	-1.57	0
9500	6.354	86.535	9471.89	31.32	517.3	-1.6	0
9600	6.354	86.535	9571.27	31.99	528.35	-1.64	0
9700	6.354	86.535	9670.66	32.66	539.39	-1.67	0
9800	6.354	86.535	9770.04	33.33	550.44	-1.71	0
9900	5.416	86.535	9869.48	33.97	560.98	-1.74	0.94
10000	3.916	86.535	9969.15	34.46	569.1	-1.76	1.5
10100	2.416	86.535	10068.99	34.79	574.61	-1.78	1.5
10200	0.916	86.535	10168.95	34.97	577.51	-1.79	1.5
10300	0	0	10268.94	35	578	-1.79	0.92
10400	0	0	10368.94	35	578	-1.79	0
10500	0	0	10468.94	35	578	-1.79	0
10600	0	0	10568.94	35	578	-1.79	0
10700	8.89	179.914	10668.59	28.12	578.01	5.08	8.89
10800	18.89	179.914	10765.54	4.14	578.05	29.02	10
10900	28.89	179.914	10856.86	-36.31	578.11	69.4	10
11000	38.89	179.914	10939.76	-92	578.19	125.01	10
11100	48.89	179.914	11011.74	-161.24	578.29	194.14	10
11200	58.89	179.914	11070.6	-241.92	578.42	274.7	10
11300	68.89	179.914	11114.55	-331.6	578.55	364.24	10
11400	78.89	179.914	11142.26	-427.56	578.69	460.04	10
11500	88.89	179.914	11152.89	-526.86	578.84	559.19	10
11600	90	179.914	11153	-626.86	578.99	659.04	1.11
11700	90	179.914	11153	-726.86	579.14	758.88	0
11800	90	179.914	11153	-826.86	579.29	858.72	0
11900	90	179.914	11153	-926.86	579.44	958.57	0
12000	90	179.914	11153	-1026.86	579.59	1058.41	0
12100	90	179.914	11153	-1126.86	579.74	1158.26	0
12200	90	179.914	11153	-1226.86	579.89	1258.1	0
12300	90	179.914	11153	-1326.86	580.04	1357.94	0
12400	90	179.914	11153	-1426.86	580.19	1457.79	0
12500	90	179.914	11153	-1526.86	580.34	1557.63	0

12600	90	179.914	11153	-1626.86	580.49	1657.48	0
12700	90	179.914	11153	-1726.86	580.64	1757.32	0
12800	90	179.914	11153	-1826.86	580.79	1857.16	0
12900	90	179.914	11153	-1926.86	580.94	1957.01	0
13000	90	179.914	11153	-2026.86	581.09	2056.85	0
13100	90	179.914	11153	-2126.86	581.24	2156.69	0
13200	90	179.914	11153	-2226.86	581.39	2256.54	0
13300	90	179.914	11153	-2326.86	581.54	2356.38	0
13400	90	179.914	11153	-2426.86	581.69	2456.23	0
13500	90	179.914	11153	-2526.86	581.84	2556.07	0
13600	90	179.914	11153	-2626.86	581.99	2655.91	0
13700	90	179.914	11153	-2726.86	582.14	2755.76	0
13800	90	179.914	11153	-2826.86	582.29	2855.6	0
13900	90	179.914	11153	-2926.86	582.44	2955.45	0
14000	90	179.914	11153	-3026.86	582.59	3055.29	0
14100	90	179.914	11153	-3126.86	582.74	3155.13	0
14200	90	179.914	11153	-3226.86	582.89	3254.98	0
14300	90	179.914	11153	-3326.86	583.04	3354.82	0
14400	90	179.914	11153	-3426.86	583.19	3454.67	0
14500	90	179.914	11153	-3526.86	583.34	3554.51	0
14600	90	179.914	11153	-3626.86	583.49	3654.35	0
14700	90	179.914	11153	-3726.86	583.64	3754.2	0
14800	90	179.914	11153	-3826.86	583.79	3854.04	0
14900	90	179.914	11153	-3926.86	583.94	3953.88	0
15000	90	179.914	11153	-4026.86	584.09	4053.73	0
15100	90	179.914	11153	-4126.86	584.24	4153.57	0
15200	90	179.914	11153	-4226.86	584.39	4253.42	0
15300	90	179.914	11153	-4326.86	584.54	4353.26	0
15400	90	179.914	11153	-4426.86	584.69	4453.1	0
15500	90	179.914	11153	-4526.86	584.84	4552.95	0
15600	90	179.914	11153	-4626.86	584.99	4652.79	0
15700	90	179.914	11153	-4726.86	585.14	4752.64	0
15800	90	179.914	11153	-4826.86	585.29	4852.48	0
15900	90	179.914	11153	-4926.86	585.44	4952.32	0
16000	90	179.914	11153	-5026.86	585.59	5052.17	0
16100	90	179.914	11153	-5126.86	585.74	5152.01	0
16200	90	179.914	11153	-5226.86	585.89	5251.85	0
16300	90	179.914	11153	-5326.86	586.04	5351.7	0
16400	90	179.914	11153	-5426.86	586.19	5451.54	0
16500	90	179.914	11153	-5526.86	586.34	5551.39	0
16600	90	179.914	11153	-5626.86	586.49	5651.23	0
16700	90	179.914	11153	-5726.86	586.64	5751.07	0
16800	90	179.914	11153	-5826.85	586.79	5850.92	0
16900	90	179.914	11153	-5926.85	586.94	5950.76	0
17000	90	179.914	11153	-6026.85	587.09	6050.61	0
17100	90	179.914	11153	-6126.85	587.24	6150.45	0
17200	90	179.914	11153	-6226.85	587.39	6250.29	0

17300	90	179.914	11153	-6326.85	587.54	6350.14	0
17400	90	179.914	11153	-6426.85	587.69	6449.98	0
17500	90	179.914	11153	-6526.85	587.84	6549.83	0
17600	90	179.914	11153	-6626.85	587.99	6649.67	0
17700	90	179.914	11153	-6726.85	588.14	6749.51	0
17800	90	179.914	11153	-6826.85	588.29	6849.36	0
17900	90	179.914	11153	-6926.85	588.44	6949.2	0
18000	90	179.914	11153	-7026.85	588.59	7049.04	0
18100	90	179.914	11153	-7126.85	588.74	7148.89	0
18200	90	179.914	11153	-7226.85	588.89	7248.73	0
18300	90	179.914	11153	-7326.85	589.04	7348.58	0
18400	90	179.914	11153	-7426.85	589.19	7448.42	0
18500	90	179.914	11153	-7526.85	589.34	7548.26	0
18600	90	179.914	11153	-7626.85	589.49	7648.11	0
18700	90	179.914	11153	-7726.85	589.64	7747.95	0
18800	90	179.914	11153	-7826.85	589.79	7847.8	0
18900	90	179.914	11153	-7926.85	589.94	7947.64	0
19000	90	179.914	11153	-8026.85	590.09	8047.48	0
19100	90	179.914	11153	-8126.85	590.24	8147.33	0
19200	90	179.914	11153	-8226.85	590.39	8247.17	0
19300	90	179.914	11153	-8326.85	590.54	8347.02	0
19400	90	179.914	11153	-8426.85	590.69	8446.86	0
19500	90	179.914	11153	-8526.85	590.84	8546.7	0
19600	90	179.914	11153	-8626.85	590.99	8646.55	0
19700	90	179.914	11153	-8726.85	591.14	8746.39	0
19800	90	179.914	11153	-8826.85	591.29	8846.23	0
19900	90	179.914	11153	-8926.85	591.44	8946.08	0
20000	90	179.914	11153	-9026.85	591.59	9045.92	0
20100	90	179.914	11153	-9126.85	591.74	9145.77	0
20200	90	179.914	11153	-9226.85	591.89	9245.61	0
20300	90	179.914	11153	-9326.85	592.04	9345.45	0
20400	90	179.914	11153	-9426.85	592.19	9445.3	0
20500	90	179.914	11153	-9526.85	592.34	9545.14	0
20600	90	179.914	11153	-9626.85	592.49	9644.99	0
20700	90	179.914	11153	-9726.85	592.64	9744.83	0
20800	90	179.914	11153	-9826.85	592.79	9844.67	0
20900	90	179.914	11153	-9926.85	592.94	9944.52	0
21000	90	179.914	11153	-10026.9	593.09	10044.36	0
21100	90	179.914	11153	-10126.9	593.24	10144.21	0
21200	90	179.914	11153	-10226.9	593.39	10244.05	0
21300	90	179.914	11153	-10326.9	593.54	10343.89	0
21305.11	90	179.914	11153	-10332	593.55	10349	0

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to RKB. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 176.712° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.
Central meridian is -104.333°.
Grid Convergence at Surface is 0.300°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 21305.11ft.,
the Bottom Hole Displacement is 10349.00ft., in the Direction of 176.712° (Grid).

Devon Energy

WELL DETAILS: Lusitano 27-34 Fed Com 333H

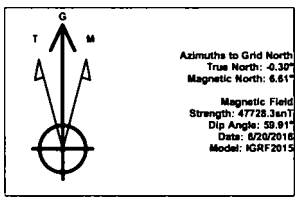
RKB @ 3360.20ft
3335.20

Northing	Easting	Latitude	Longitude
403449.84	716104.25	32.107905	-103.768890

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	
5135.42	6.35	86.53	5134.12	2.13	35.13	1.00	-0.11	
9837.44	6.35	86.53	9807.25	33.58	554.58	0.00	-1.72	
10261.06	0.00	0.00	10230.00	35.00	578.00	1.50	-1.79	
10611.10	0.00	0.00	10580.04	35.00	578.00	0.00	-1.79	KOP @ 10611' MD, 200' FNL, 2310' FWL
11511.10	90.00	179.91	11153.00	-537.96	578.86	10.00	570.27	
21305.11	90.00	179.91	11153.00	-10331.96	593.55	0.00	10349.00	PBHL; 20' FSL, 2310' FWL

devon



Azimuths to Grid North
True North: -0.30°
Magnetic North: 6.61°

Magnetic Field
Strength: 47728.3snT
Dip Angle: 59.91°
Date: 8/20/2018
Model: IGRF2015

devon

Commitment Runs Deep

Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
June 2010

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

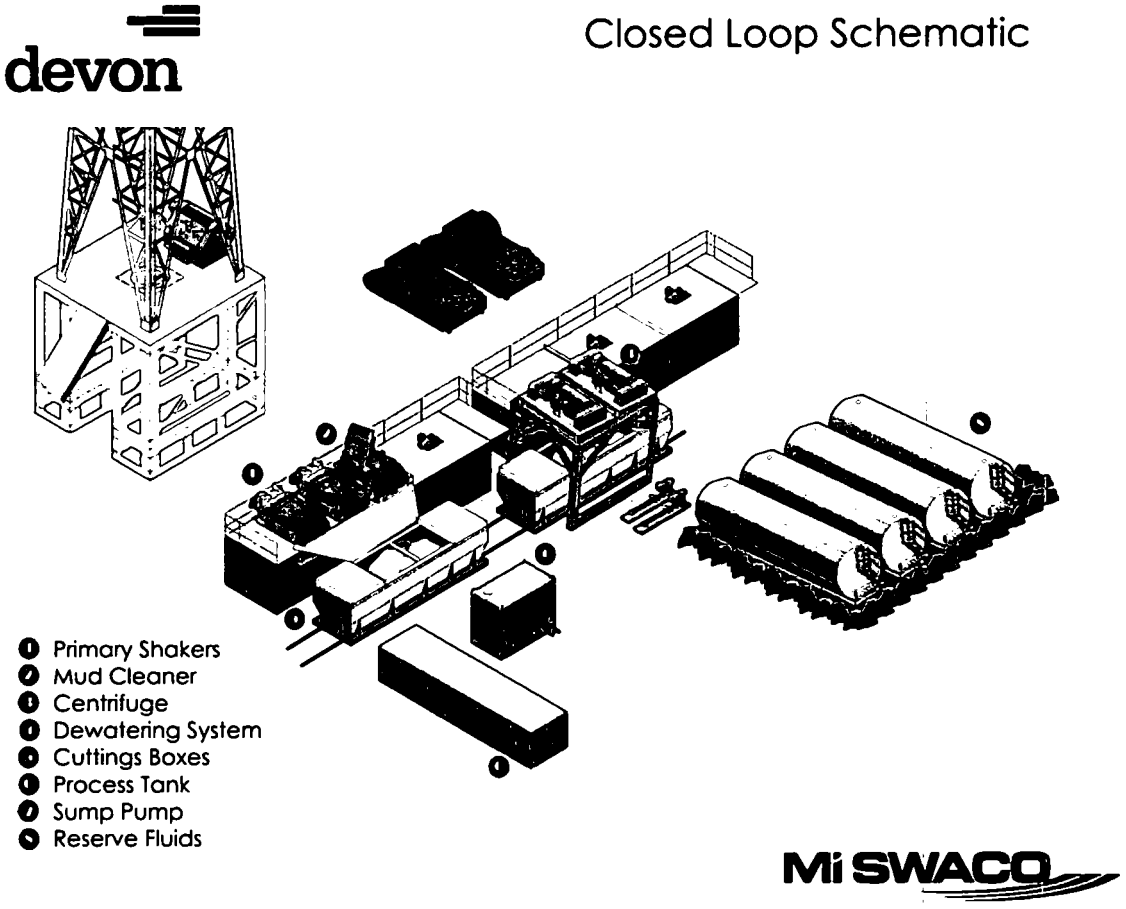
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

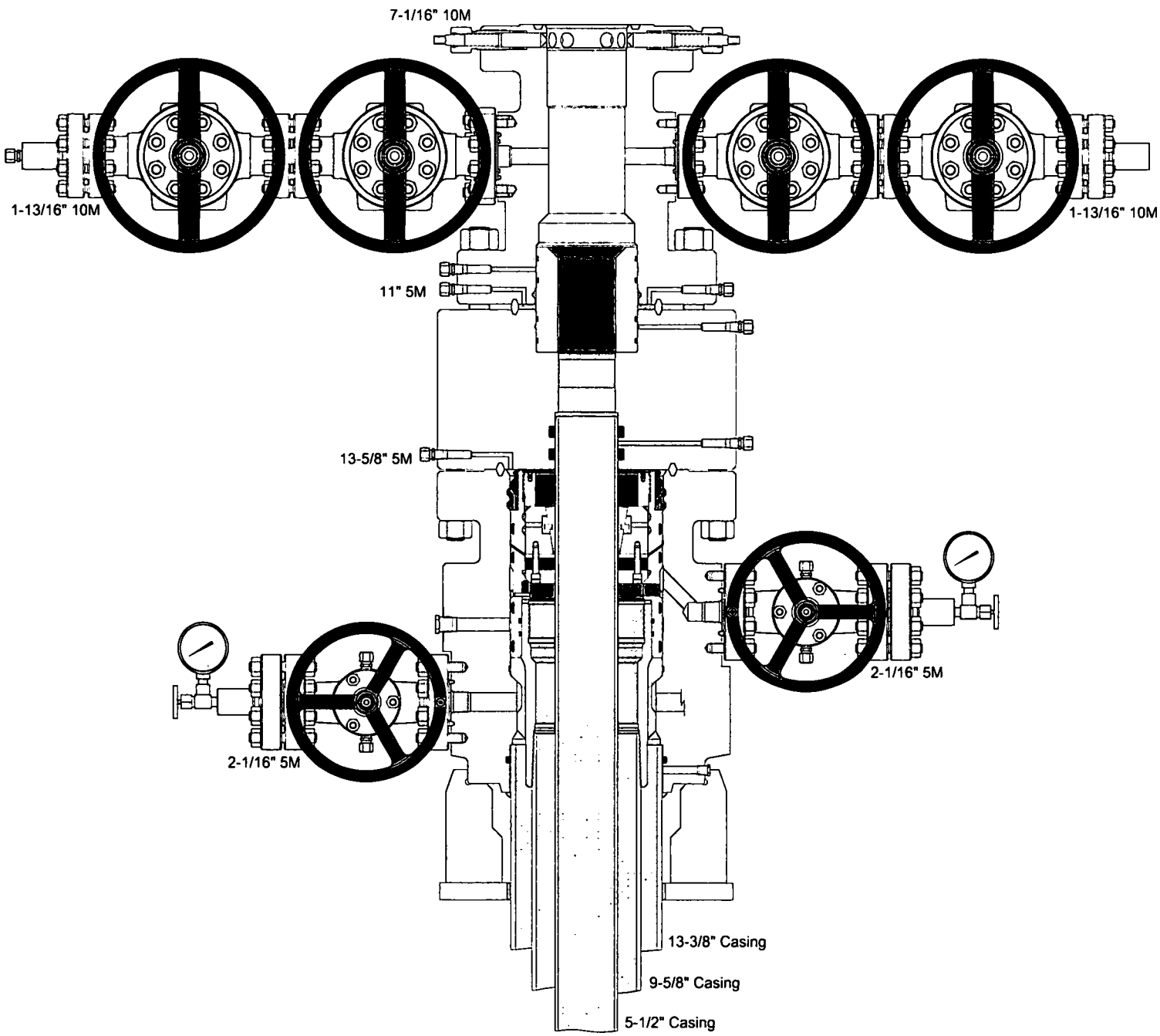
dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.


7-1/16" 10M
1-13/16" 10M
1-13/16" 10M
11" 5M
13-5/8" 5M
2-1/16" 5M
2-1/16" 5M
13-3/8" Casing
9-5/8" Casing
5-1/2" Casing

OCTG Casing Data Sheet

VALLOUREC & MANNESMANN TUBES

O.D.	T&C LB/FT	PE LB/FT	GRADE
9.625	40.00	38.97	P110 EC

Grade - Material Properties

Minimum Yield Strength:	125.0	ksi
Maximum Yield Strength:	140	ksi
Minimum Tensile Strength:	135	ksi

Pipe Body Data (PE)

Geometry

Nominal ID:	8.835	inch
Wall:	0.395	inch
Nominal Area:	11.454	$inch^2$
API Drift:	8.679	inch
Alternate Drift:	8.750	inch

Performance

Pipe Body Yield Strength:	1,432	kips
Collapse Resistance:	4,230	psi
Internal Yield Pressure (*API Historical*):	8,980	psi

Lamé - Internal Yield Pressure

Lamé open:	8,950	psi
Lamé capped:	9,970	psi
Lamé ductile rupture:	9,700	psi

API Connection Data

STC Internal Pressure:	8,980	psi
STC Joint Strength:	861	kips
LC Internal Pressure:	8,980	psi
LC Joint Strength:	988	kips
BC Internal Pressure:	8,980	psi
BC Joint Strength:	1,266	kips

LC Torque (ft-lbs)

minimum: 7,410 optimum: 9,880 maximum: 12,350

API grades with enhanced performance are supplied with API couplings produced from standard API grades.

7/5/2011 12:40

U. S. Steel Tubular Products

5/4/2018 9:23:38 AM

8.625" 32.00lbs/ft (0.352" Wall) L80 HC

MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	80,000	--	--	--	psi
Maximum Yield Strength	95,000	--	--	--	psi
Minimum Tensile Strength	95,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	8.625	--	--	--	in.
Wall Thickness	0.352	--	--	--	in.
Inside Diameter	7.921	--	--	--	in.
Standard Drift	7.796	7.796	--	--	in.
Alternate Drift	7.875	7.875	--	--	in.
Nominal Linear Weight, T&C	32.00	--	--	--	lbs/ft
Plain End Weight	31.13	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	3,820	3,820	--	--	psi
Minimum Internal Yield Pressure	5,710	5,710	--	--	psi
Minimum Pipe Body Yield Strength	732	--	--	--	1,000 lbs
Joint Strength	--	--	--	--	1,000 lbs
Reference Length	--	--	--	--	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	--	--	--	in.
Minimum Make-Up Torque	--	--	--	--	ft-lbs
Maximum Make-Up Torque	--	--	--	--	ft-lbs

U. S. Steel Tubular Products
460 Wildwood Forest Drive, Suite 300S
Spring, Texas 77380

1-877-893-9461
connections@uss.com
www.usstubular.com

Devon Energy, Lusitano 27-33 Fed Com 333H

1. Geologic Formations

TVD of target	11153	Pilot hole depth	N/A
MD at TD:	21305	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	840		
Base of Salt	4210		
Delaware	4265		
Bone Spring	8200		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program (3-String Primary Design)

Hole Size	Casing Interval		Csg. Size	Weight (PPF)	Grade	Conn.
	From	To				
17.5"	0	908'	13.375"	48	H-40	STC
12.25"	0	4,500'	9.625"	40	J-55	BTC
	4,500'	9,978'	9.625"	40	P-110EC	BTC
8.75"	0	TD	5.5"	17	P-110	BTC
BLM Minimum Safety Factor				Collapse: 1.125	Burst: 1.00	Tension: 1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing
- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
- Int casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.
- Variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing. No losses are expected in subsequent hole section.

Casing Program (3-String Alternate Design)

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn
	From	To				
17.5"	0	908'	13.375"	48	H-40	BTC
10.625"	0	9,978	8.625"	32	L80HC	BTC
7.875"	0	TD	5.5"	17	P-110	BTC
BLM Minimum Safety Factor				Collapse: 1.125	Burst: 1.00	Tension: 1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing
- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

- Variance is requested for collapse rating on 8-5/8" casing. Operator will keep pipe full while running casing. No losses are expected in subsequent hole section.
- Int casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.
- A variance is requested to wave the centralizer requirement for the 10-5/8" casing and 5-1/2" casing.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program (3-String Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	752	Surf	13.2	1.33	Lead: Class C Cement + additives
Int	1734	Surf	9	1.85	Lead: Class H Cement + additives
	625	2000' above shoe	13.2	1.33	Tail: Class H + additives
Int Two Stage	745	Surf	9	1.85	1st stage Lead: Class H Cement + additives

(DV @ ~4500' MD)	131	500' above shoe	13.2	1.33	1st stage Tail: Class H + additives
	553	Surf	9	1.85	2st stage Lead: Class H Cement + additives
	187	500' above DV	13.2	1.33	2st stage Tail: Class H + additives
Int Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class H Cement + additives
	1734	Surf	9	3.31	Lead: Class H Cement + additives
	625	2000' above shoe	13.2	1.33	Tail: Class H + additives
Production	2086	500' tieback	13.2	1.46	Lead: Class H / C + additives

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned Braden head squeeze will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate	30%
Intermediate (Two Stage)	25%
Production	10%

Cementing Program (3-String Alternate Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	752	Surf	13.2	1.33	Lead: Class C Cement + additives
Int	1270	Surf	9	1.85	Lead: Class H Cement + additives
	423	2000' above shoe	13.2	1.33	Tail: Class H + additives
Int Two Stage (DV @ ~4500' MD)	635	Surf	9	1.85	1st stage Lead: Class H Cement + additives
	131	500' above shoe	13.2	1.33	1st stage Tail: Class H + additives
	635	Surf	9	1.85	2st stage Lead: Class H Cement + additives
	187	500' above DV	13.2	1.33	2st stage Tail: Class H + additives

Int Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class H Cement + additives
	1270	Surf	9	3.31	Lead: Class H Cement + additives
	423	2000' above shoe	13.2	1.33	Tail: Class H + additives
Production	1395	500' tieback	13.2	1.46	Lead: Class H / C + additives

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned Braden head squeeze will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate	30%
Intermediate (Two Stage)	25%
Production	10%

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	5M	Annular (5M)	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

5. Mud Program

6. Depth	Type		Vis	Water Loss

From	To		Weight (ppg)		
0	908'	FW Gel	8.4-8.6	28-34	N/C
908'	9978'	DBE / Cut Brine	8.6 – 10	28-34	N/C
9978'	TD	OBM / WBM	9.5 – 10.0	28-34	N/C

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

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5800 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? Potentially

1. If operator elects, drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

1. Spudder rig will move in and drill surface hole.
    a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).

3. The wellhead will be installed and tested once the 10 ¾" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
    a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments
_x_ Directional Plan
___ Other, describe

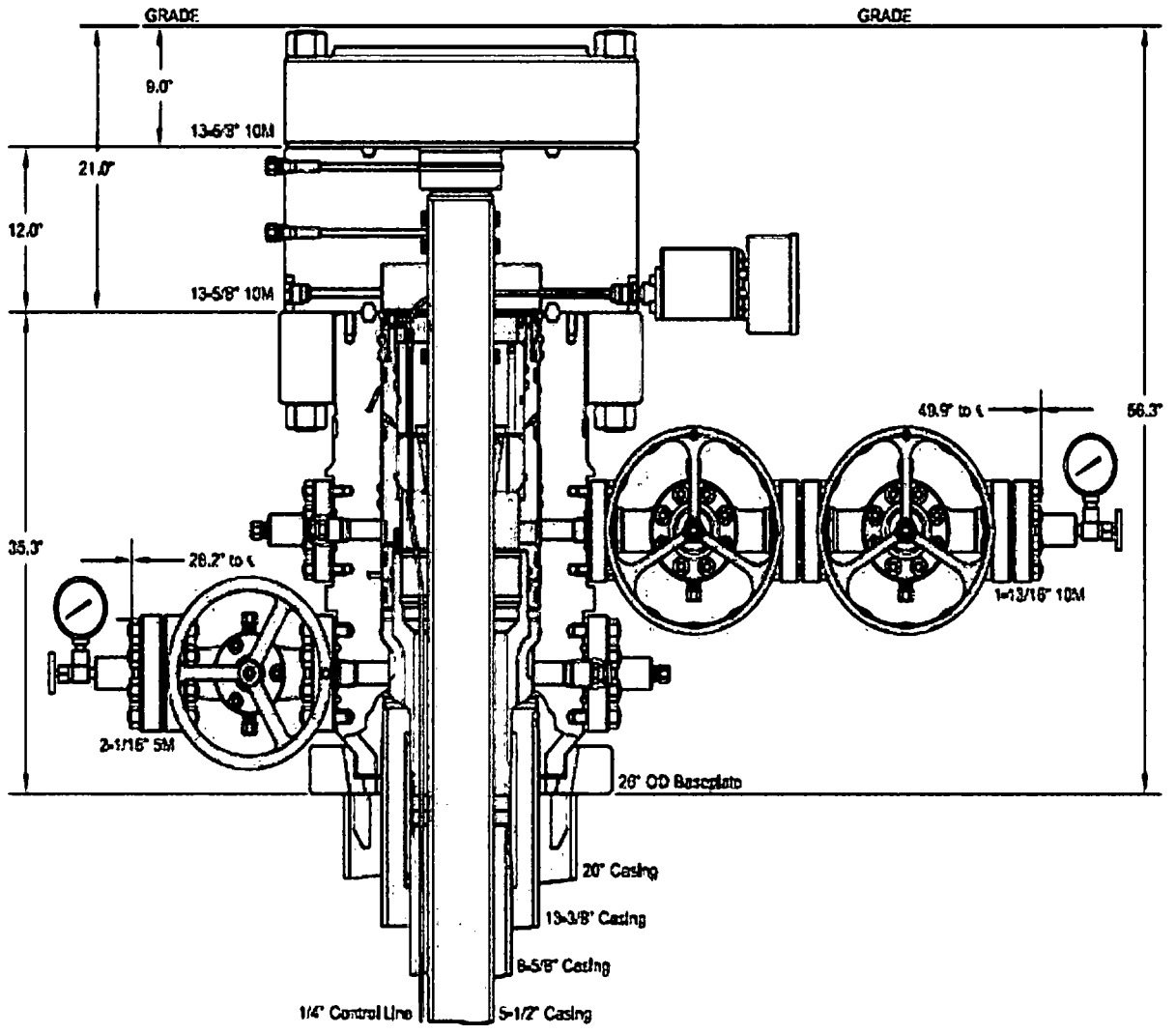
A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.
Devon proposes using a multi-bowl wellhead assembly. 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.
• Wellhead will be installed by wellhead representatives.
• If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
• Wellhead representative will install the test plug for the initial BOP test.
• Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 5M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
• If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
• Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
• Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the 13 3/8" surface casing, a BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the 8 5/8" intermediate casing with a mandrel hanger, the BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.

Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.


GRADE
GRADE
9.0"
13-5/8" 10M
21.0"
12.0"
13-5/8" 10M
40.9" to ℄
56.3"
35.3"
28.2" to ℄
1-13/16" 10M
2-1/16" 5M
26" OD Baseplate
20" Casing
13-3/8" Casing
8-5/8" Casing
1/4" Control Line
5-1/2" Casing

Continental CONTITECH

Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly It is good practice to use lifting & safety equipment but not mandatory

Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com

RIG 212

PHOENIX

QUALITY DOCUMENT

PHOENIX RUBBER INDUSTRIAL LTD.

6728 Szeged, Budapesti út 10. Hungary • H-6701 Szeged, P. O. Box 152
Phone: (3662) 566-737 • Fax: (3662) 566-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44. Hungary • H-1440 Budapest, P. O. Box 26
Phone: (361) 456-4200 · Fax: (361) 217-2872, 456-4273 · www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.				P.O. N°: 1519FA-871	
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID		Choke and Kill Hose	
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH:		11,43 m	
W.P. 68,96 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration: 60	min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 25 MPa

COUPLINGS

Type	Serial N°	Quality	Heat N°
3" coupling with 4 1/16" Flange end	720 719	AISI 4130 AISI 4130	C7626 47357

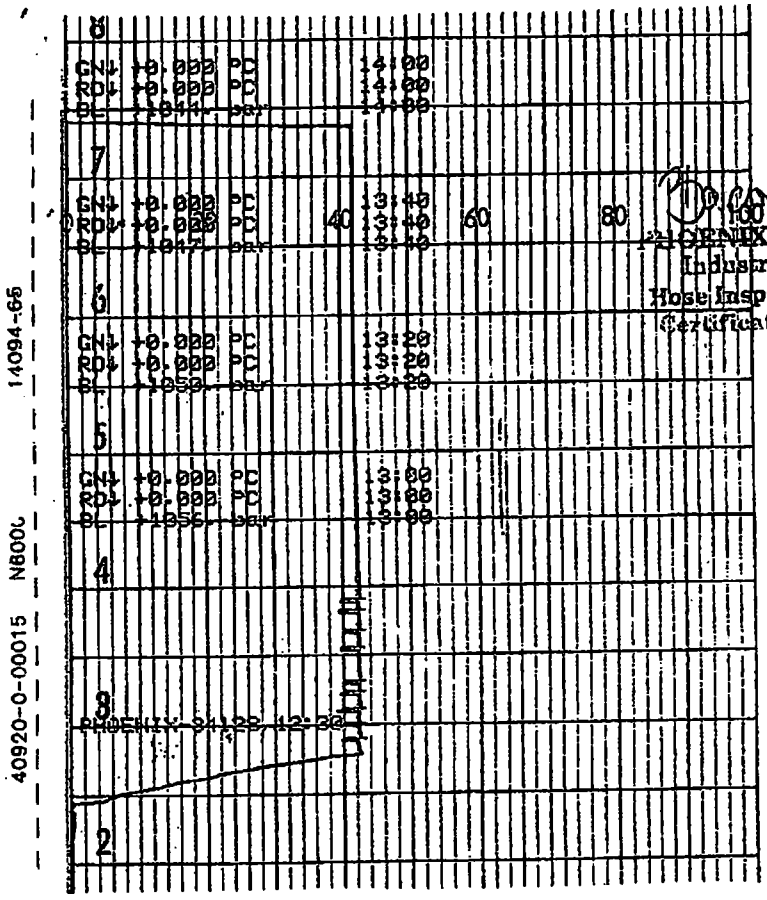
API Spec 16 C
Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

Date:	Inspector	Quality Control
29. April. 2002.		PHOENIX RUBBER Industrial Ltd. Hose Inspection and Test Dept.

CERTIFIED TRUE COPY
PHOENIX RUBBER Q.C.



PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE CO
PHOENIX RUBBER Q.C.

APD ID: 10400033592 **Submission Date:** 08/29/2018

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Lusitano_27_34_Fed_Com_333H_Ex_Access_Rd_20180829061858.pdf

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

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Lusitano_27_34_Fed_Com_333H_Access_Rds_20180829062017.pdf

New road type: COLLECTOR,RESOURCE

Length: 9442 Feet **Width (ft.):** 30

Max slope (%): 6 **Max grade (%):** 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: WATER DRAINAGE DITCH

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: GRAVEL

Access topsoil source: ONSITE

Access surfacing type description:

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: SEE INTERIM RECLAMATION DIAGRAM

Access other construction information:

Access miscellaneous information:

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

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: N/A

Road Drainage Control Structures (DCS) description: N/A

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Lusitano_27_34_Fed_Com_333H_1mile_Map_20180829062042.pdf

Existing Wells description:

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: All flowlines will be buried going to the Lusitano 27 CTB 3 (also know as Cotton Draw Unit 27-34 CTB 3)

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Water source use type: STIMULATION **Water source type:** RECYCLED

Describe type:

Source latitude: **Source longitude:**

Source datum:

Water source permit type: OTHER

Source land ownership: FEDERAL

Water source transport method: PIPELINE,TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 500000 **Source volume (acre-feet):** 64.44655

Source volume (gal): 21000000

Water source and transportation map:

Lusitano_27_34_Fed_Com_333H_Wtr_Xfr_Map_20180829062145.pdf

Water source comments: The attached Water Transfer Map is a proposal only and the final route and documentation will be provided by a Devon contractor prior to installation. When available Devon will always follow existing disturbance.
New water well? NO

New Water Well Info

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

Well target aquifer:

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

Aquifer comments:

Aquifer documentation:

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

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

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

Drilling method: **Drill material:**

Grout material: **Grout depth:**

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

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

Section 6 - Construction Materials

Construction Materials description: Dirt fill and caliche will be used to construct well pad

Construction Materials source location attachment:

Lusitano_27_34_Fed_Com_333H_Caliche_Pit_20180829062206.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: DRILL CUTTINGS

Amount of waste: 2436 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

Disposal location description: ALL CUTTINGS WILL BE DISPOSED OF AT R360, SUNDANCE OR EQUIVALENT.

Waste type: COMPLETIONS/STIMULATION

Waste content description: Flow back water during completion operations.

Amount of waste: 3000 barrels

Waste disposal frequency : One Time Only

Safe containment description: N.A

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Various disposal locations in Lea and Eddy counties.

Waste type: PRODUCED WATER

Waste content description: Produced water during production operations. This amount is a daily average during the first year of production (BWPD).

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: OFF-LEASE INJECTION **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: One of three company owned SWD facilities in the area: CDU 181, CDU 89, CDU 84.

Waste type: FLOWBACK

Waste content description: Produced water during flowback operations. This amount is a daily average during flowback (BWPD).
Amount of waste: 1500 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

Waste disposal type: OFF-LEASE INJECTION **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: One of three company owned SWD facilities in the area: CDU 181, CDU 89, CDU 84.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

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

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

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

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

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

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Lusitano_27_34_Fed_Com_333H_Rig_Layout_20180829062316.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** LUSITANO 27 WELLPAD

Multiple Well Pad Number: 3

Recontouring attachment:

Lusitano_27_34_Fed_Com_333H_Reclamation_20180829062340.pdf

Drainage/Erosion control construction: All areas disturbed shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable **Drainage/Erosion control reclamation:** Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season.

Well pad proposed disturbance (acres): 5.62
Road proposed disturbance (acres): 6.502
Powerline proposed disturbance (acres): 0.621
Pipeline proposed disturbance (acres): 0.185
Other proposed disturbance (acres): 4.219
Total proposed disturbance: 17.147

Well pad interim reclamation (acres): 1.921
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 1.921

Well pad long term disturbance (acres): 3.699
Road long term disturbance (acres): 6.502
Powerline long term disturbance (acres): 0.621
Pipeline long term disturbance (acres): 0.185
Other long term disturbance (acres): 4.219
Total long term disturbance: 15.226

Disturbance Comments:

Reconstruction method: Operator will use Best Management Practices"BMP" to mechanically recontour to obtain the desired outcome.
Topsoil redistribution: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
Soil treatment: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: JACOB **Last Name:** OCHOA

Phone: (575)748-9934 **Email:** jacob.ochoa@dvn.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: MAINTAIN WEEDS ON AN AS NEED BASIS.

Weed treatment plan attachment:

Monitoring plan description: MONITOR AS NEEDED.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Section 12 - Other Information

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

ROW Type(s):

ROW Applications

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM **Well Number:** 333H

SUPO Additional Information: BATTERY CONNECT CTB ELECTRIC FLOWLINE

Use a previously conducted onsite? YES

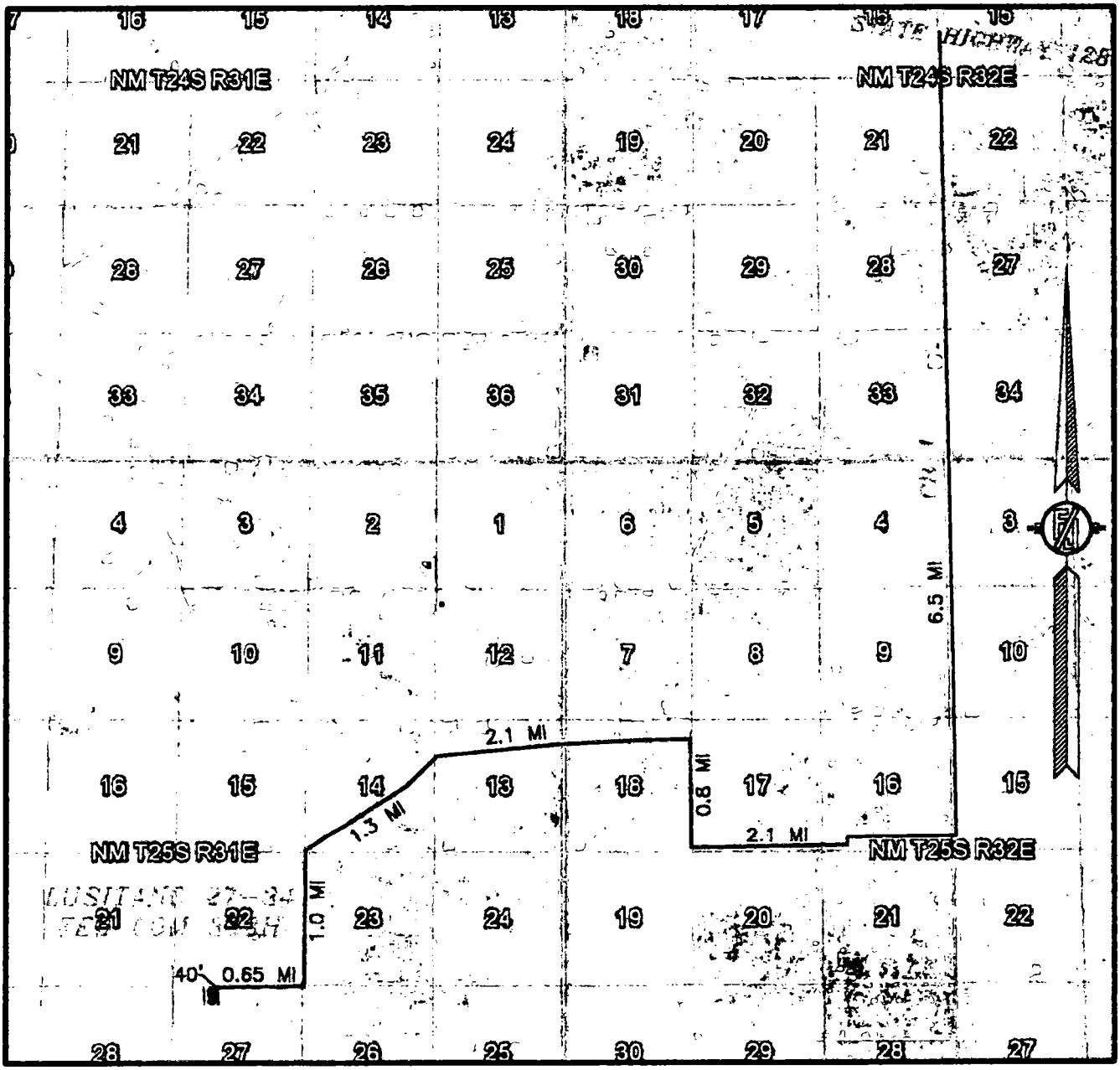
Previous Onsite information: 6/1/2016 - Cotton Draw Unit MDP 1

Other SUPO Attachment

Lusitano_27_34_Fed_Com_333H_Battery_Connect_Electric_20180829062617.pdf
Lusitano_27_34_Fed_Com_333H_CTB_20180829062638.pdf
Lusitano_27_34_Fed_Com_333H_Electric_20180829062641.pdf
Lusitano_27_34_Fed_Com_333H_Flowline_20180829062646.pdf

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED COM 333H

LOCATED 235 FT. FROM THE NORTH LINE
AND 1732 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018

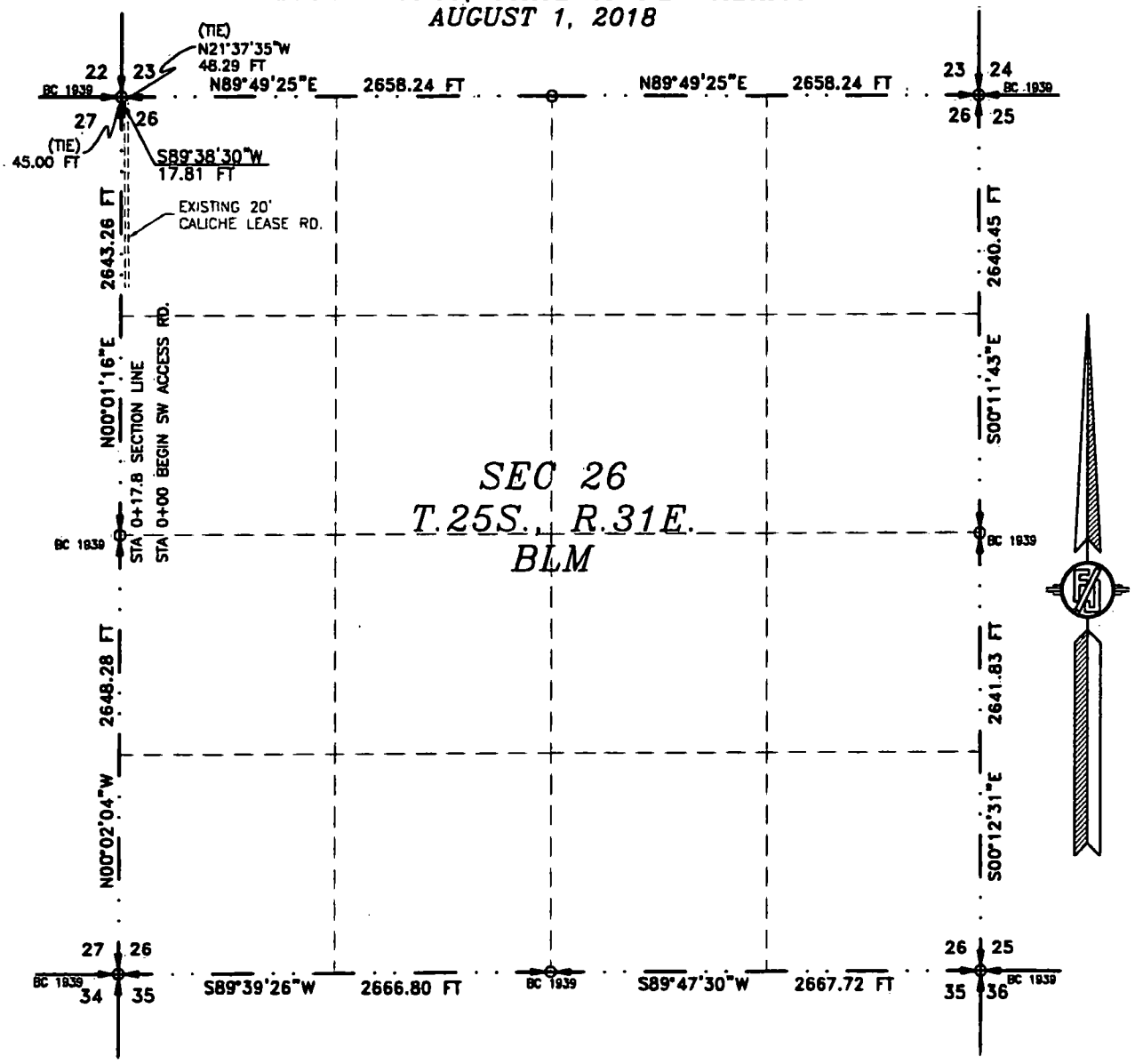
SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000

Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 27TH DAY OF AUGUST 2018.

FILIMON F. JARAMILLO, PLS 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1-4

SURVEY NO. 6428

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

SOUTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N21°37'35"W, A DISTANCE OF 48.29 FEET;

THENCE S89°38'30"W A DISTANCE OF 17.81 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

SAID STRIP OF LAND BEING 17.81 FEET OR 1.08 RODS IN LENGTH, CONTAINING 0.012 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4	17.81 L.F.	1.08 RODS	0.012 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 22nd DAY OF AUGUST 2018

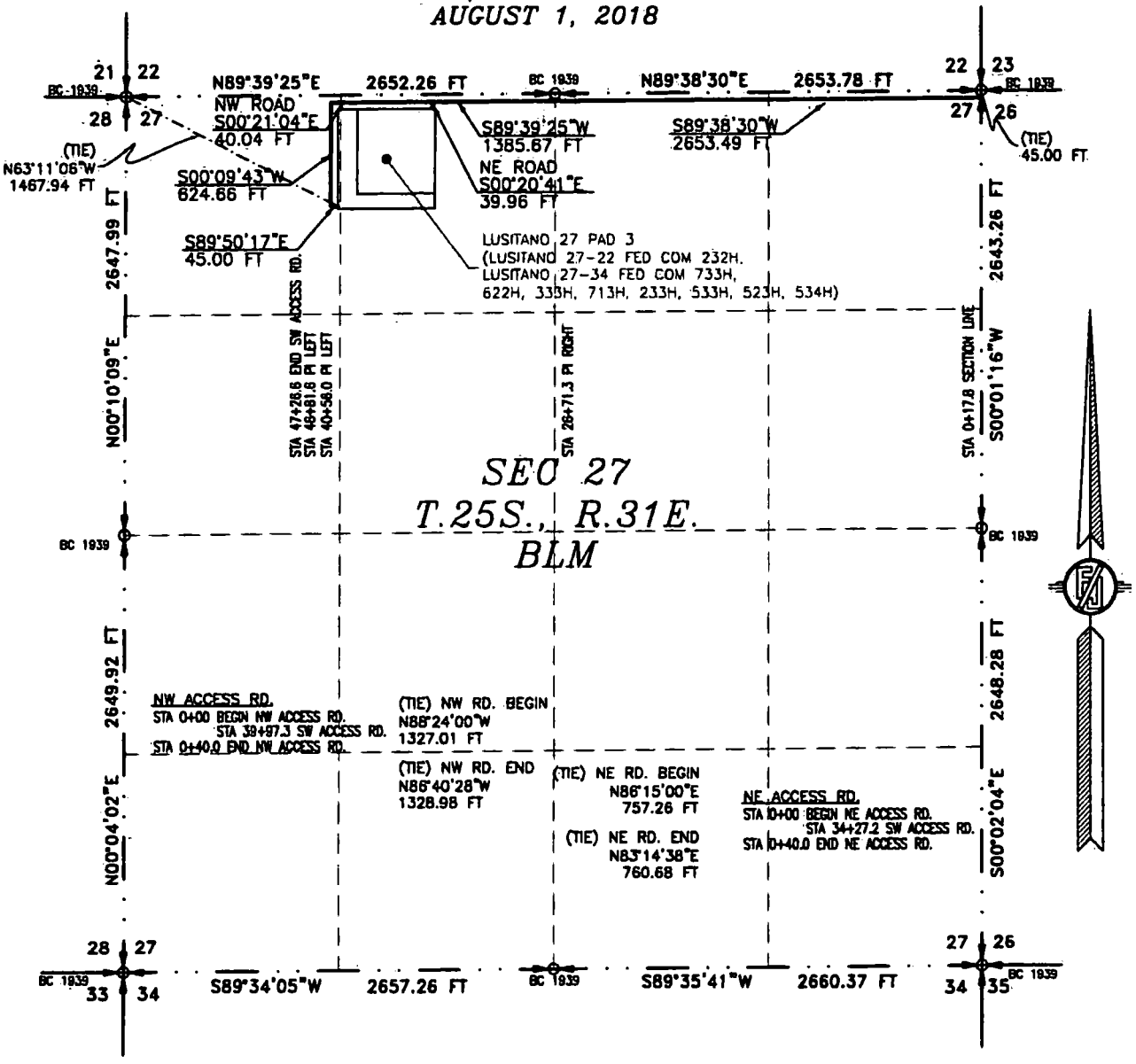
FILIMON F. JARAMILLO PLS: 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018



SEE NEXT SHEET (4-4) FOR DESCRIPTION

1000 0 1000

Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 3 DAY OF AUGUST 2018

FILIMON F. JARAMILLO, P.L.S. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 3-4

SURVEY NO. 6428

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 1, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

SOUTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;
THENCE S89°38'30"W A DISTANCE OF 2653.49 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°39'25"W A DISTANCE OF 1385.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°09'43"W A DISTANCE OF 624.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°50'17"E A DISTANCE OF 45.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°11'06"W, A DISTANCE OF 1467.94 FEET;

SAID STRIP OF LAND BEING 4708.82 FEET OR 285.38 RODS IN LENGTH, CONTAINING 3.243 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1326.91 L.F.	80.42 RODS	0.914 ACRES
NW/4 NE/4	1326.91 L.F.	80.42 RODS	0.914 ACRES
NE/4 NW/4	1326.17 L.F.	80.37 RODS	0.913 ACRES
NW/4 NW/4	728.83 L.F.	44.17 RODS	0.502 ACRES

NORTHEAST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°15'00"E, A DISTANCE OF 757.26 FEET;
THENCE S00°20'41"E A DISTANCE OF 39.96 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°14'38"E, A DISTANCE OF 760.68 FEET;

SAID STRIP OF LAND BEING 39.96 FEET OR 2.42 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	39.96 L.F.	2.42 RODS	0.028 ACRES

NORTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°24'00"W, A DISTANCE OF 1327.01 FEET;
THENCE S00°21'04"E A DISTANCE OF 40.04 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°40'28"W, A DISTANCE OF 1328.98 FEET;

SAID STRIP OF LAND BEING 40.04 FEET OR 2.43 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	40.04 L.F.	2.43 RODS	0.028 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 15 DAY OF AUGUST 2018.

FILIMON F. JARAMILLO, P.L.S. 12797

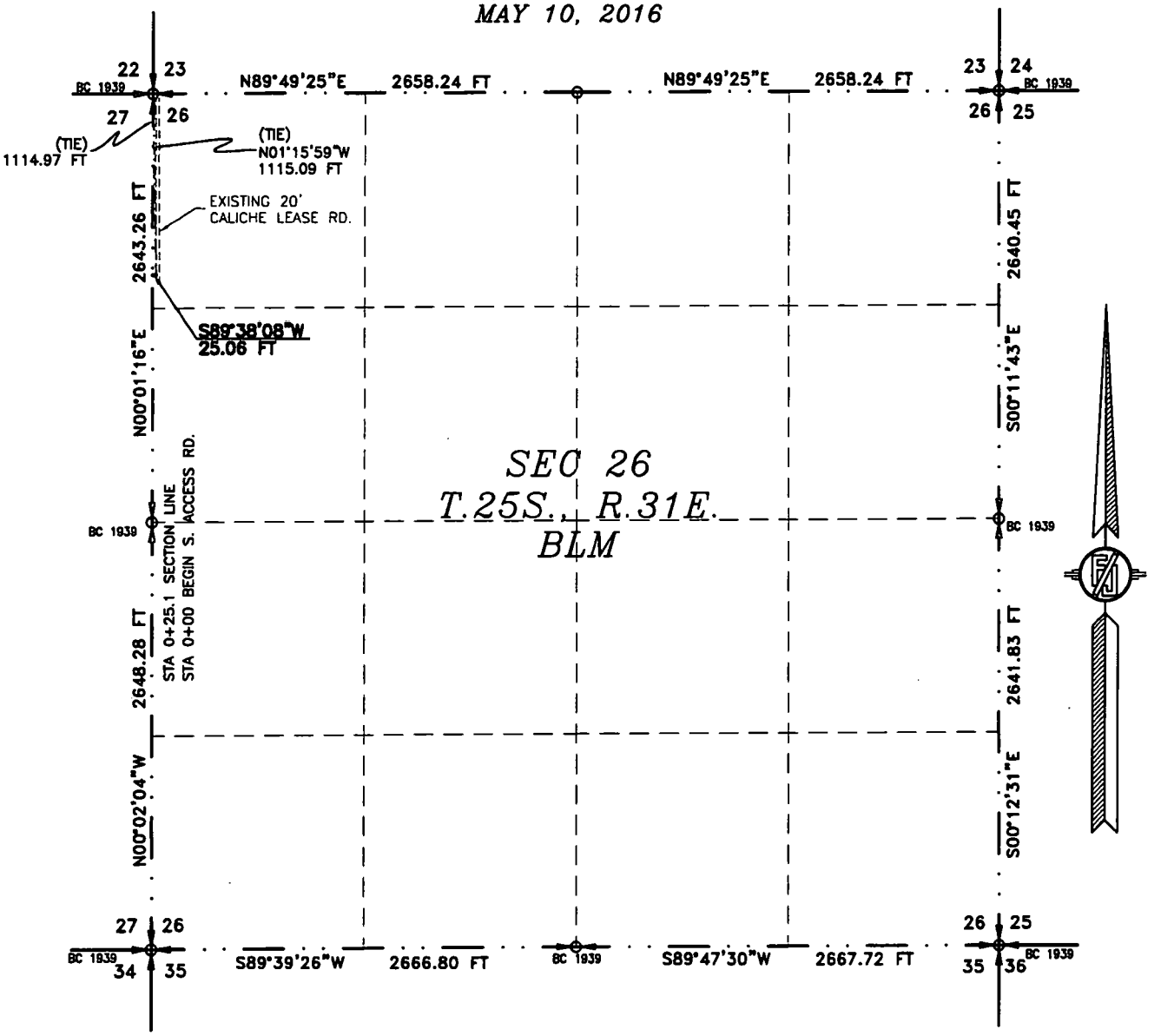
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE COTTON DRAW UNIT 27-34 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SEE NEXT SHEET (2-6) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 11 DAY OF MAY 2016

FILIMON F. JARAMILLO, PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1-6

SURVEY NO. 4666

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE COTTON DRAW UNIT 27-34 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N01°15'59"W, A DISTANCE OF 1115.09 FEET;
THENCE S89°38'08"W A DISTANCE OF 25.06 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 1114.97 FEET;

SAID STRIP OF LAND BEING 25.06 FEET OR 1.52 RODS IN LENGTH, CONTAINING 0.017 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4	25.06 L.F.	1.52 RODS	0.017 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 11 DAY OF MAY 2016.

FILIMON F. JARAMILLO — NEW MEXICO — 12797 — REGISTERED PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO PLS 12797

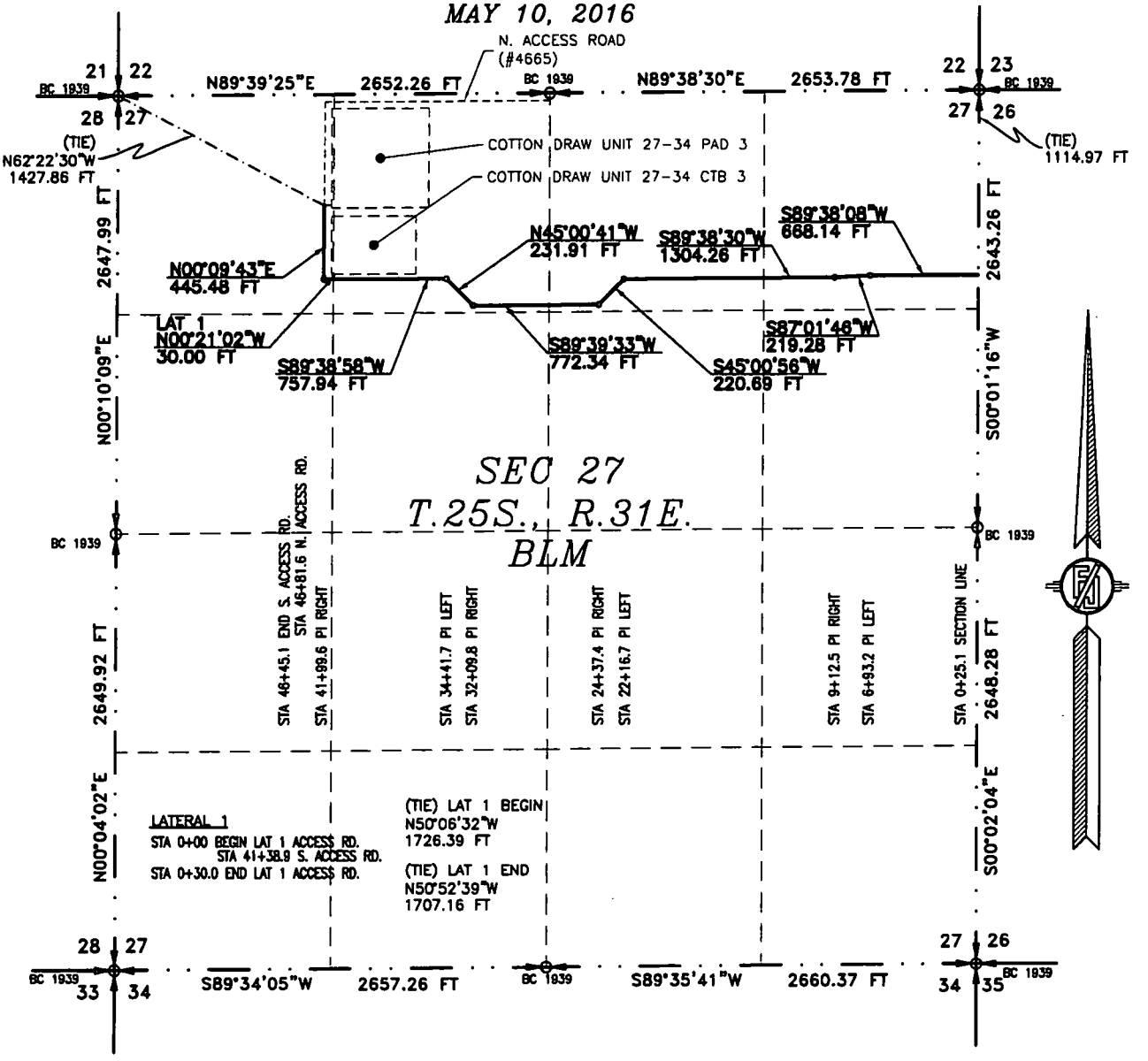
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE COTTON DRAW UNIT 27-34 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SEE NEXT SHEET (4-6) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 11 DAY OF MAY 2016

FILIMON F. JARAMILLO 12797 REGISTERED PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO P.S. 12797
301 SOUTH CANAL
(575) 234-3341

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE COTTON DRAW UNIT 27-34 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

SOUTH ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 1114.97 FEET;
THENCE S89°38'08"W A DISTANCE OF 668.14 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S87°01'46"W A DISTANCE OF 219.28 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°38'30"W A DISTANCE OF 1304.26 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S45°00'56"W A DISTANCE OF 220.69 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°39'33"W A DISTANCE OF 772.34 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N45°00'41"W A DISTANCE OF 231.91 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°38'58"W A DISTANCE OF 757.94 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°09'43"E A DISTANCE OF 445.48 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N62°22'30"W, A DISTANCE OF 1427.86 FEET;

SAID STRIP OF LAND BEING 4620.04 FEET OR 280.01 RODS IN LENGTH, CONTAINING 3.182 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1327.61 L.F.	80.46 RODS	0.914 ACRES
NW/4 NE/4	1392.08 L.F.	84.37 RODS	0.959 ACRES
NE/4 NW/4	1394.86 L.F.	84.54 RODS	0.961 ACRES
NW/4 NW/4	505.49 L.F.	30.64 RODS	0.348 ACRES

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N50°06'32"W, A DISTANCE OF 1726.39 FEET;
THENCE N00°21'02"W A DISTANCE OF 30.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N50°52'39"W, A DISTANCE OF 1707.16 FEET;

SAID STRIP OF LAND BEING 30.00 FEET OR 1.82 RODS IN LENGTH, CONTAINING 0.021 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4	30.00 L.F.	1.82 RODS	0.021 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 11 DAY OF MAY 2016

FILIMON F. JARAMILLO, P.S. 12797

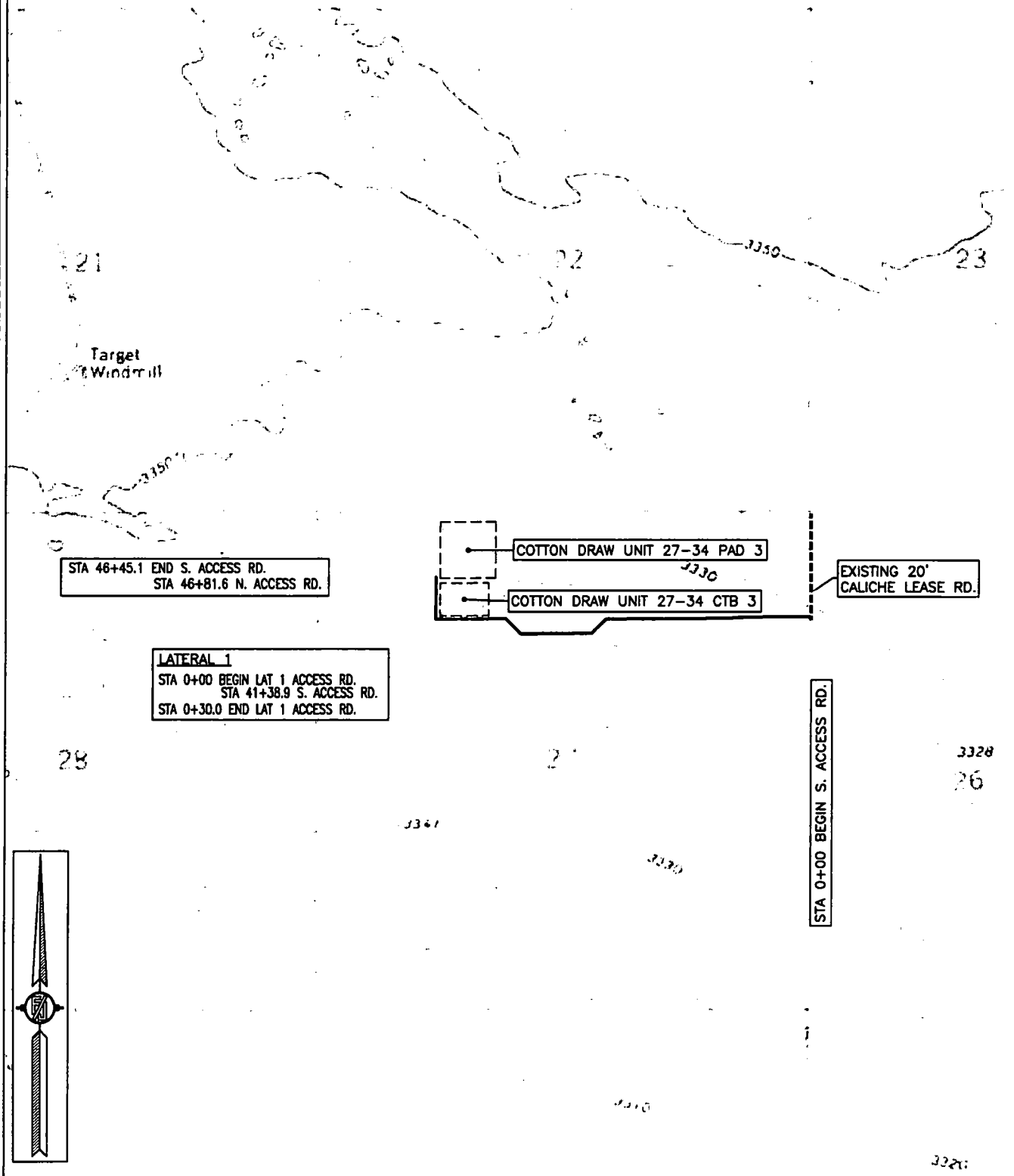
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE COTTON DRAW UNIT 27-34 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 26, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SHEET: 5-6

SURVEY NO. 4666

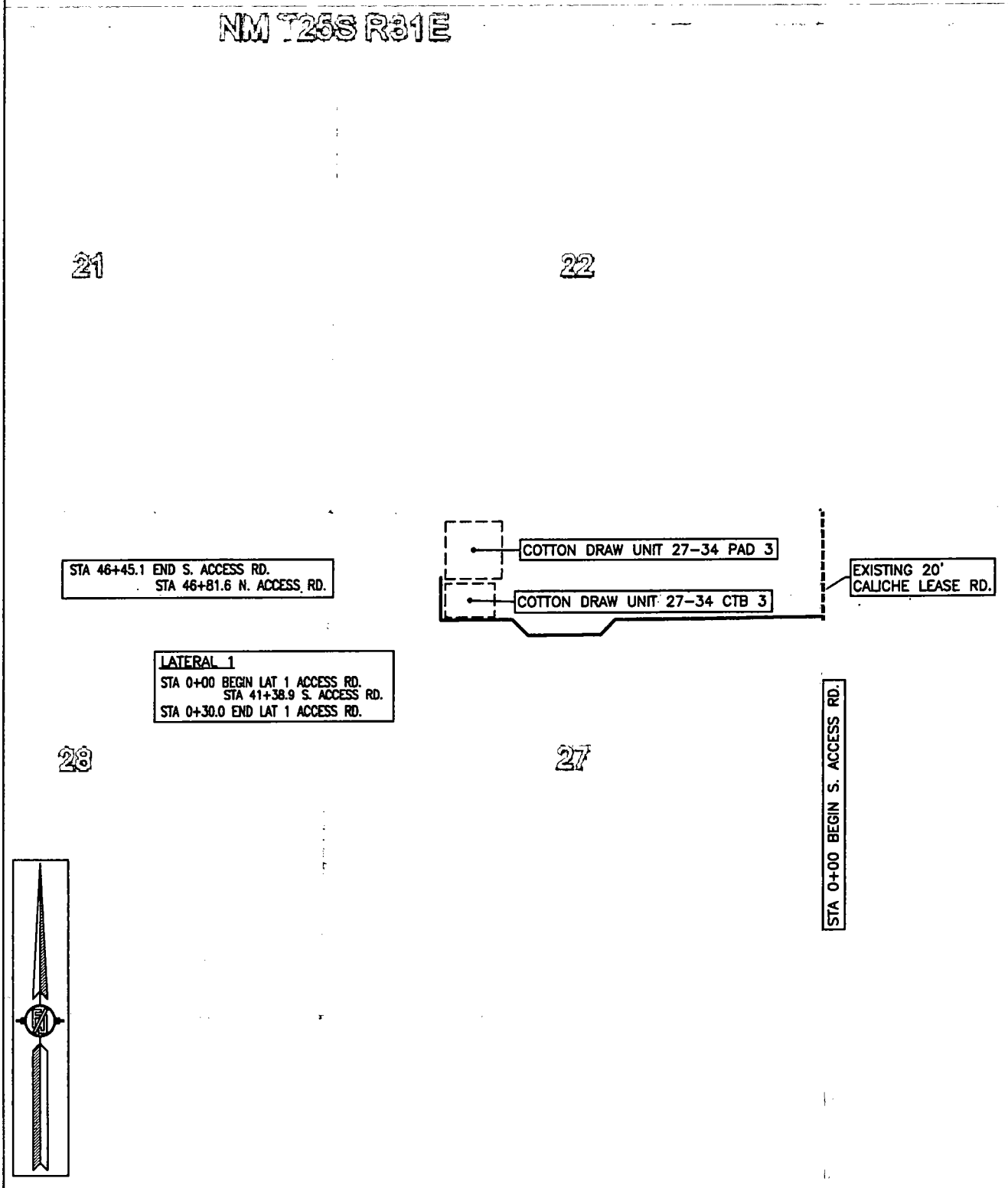
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3 & TO THE COTTON DRAW UNIT 27-34 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 26, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SHEET: 6-6

SURVEY NO. 4666

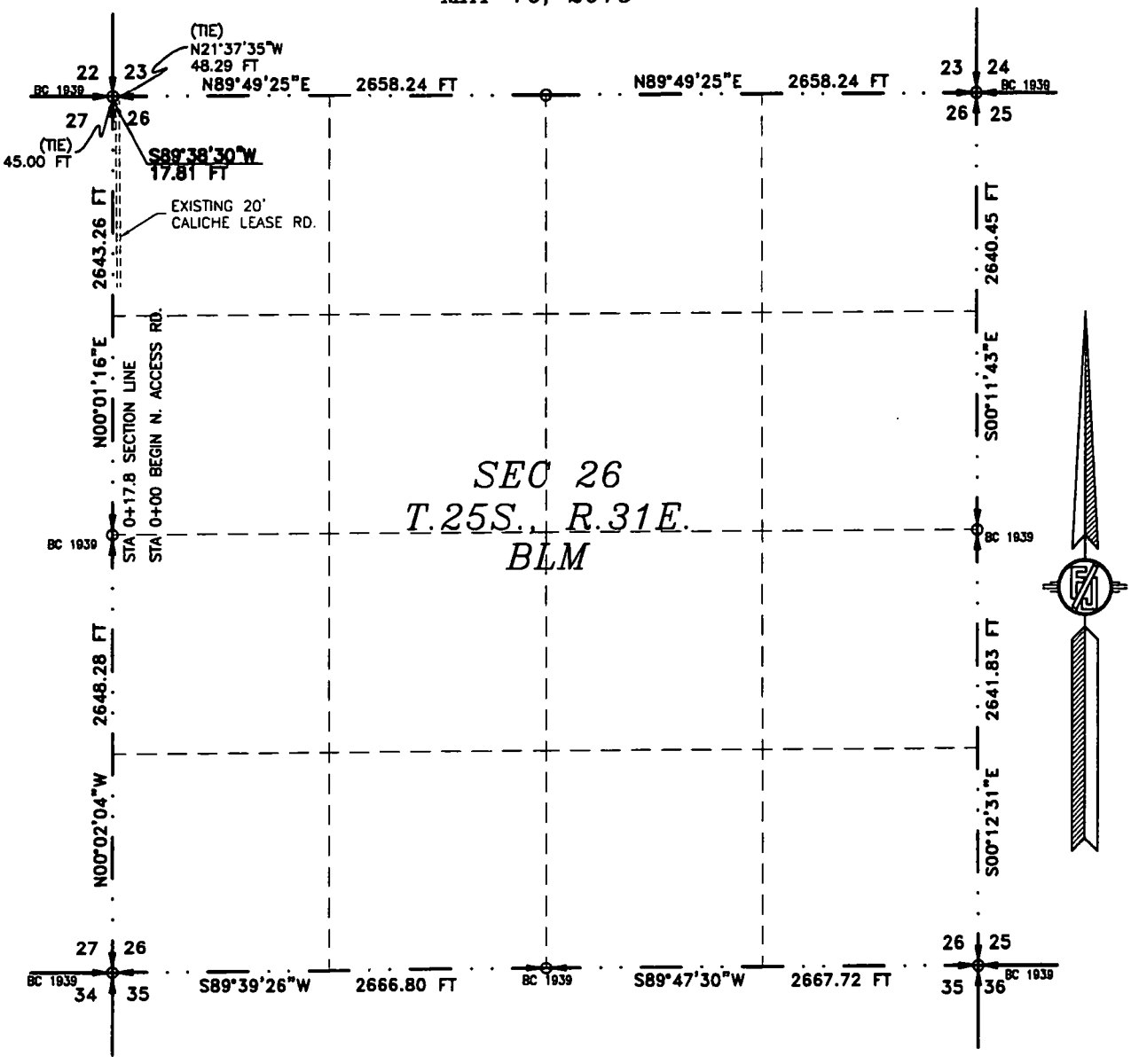
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SEE NEXT SHEET (2-6) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 11 DAY OF MAY 2016

FILIMON F. JARAMILLO, PLS 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N21°37'35"W, A DISTANCE OF 48.29 FEET;
THENCE S89°38'30"W A DISTANCE OF 17.81 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

SAID STRIP OF LAND BEING 17.81 FEET OR 1.08 RODS IN LENGTH, CONTAINING 0.012 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4 17.81 L.F. 1.08 RODS 0.012 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 12TH DAY OF MAY 2016

FILIMON F. JARAMILLO, PLS 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 4665

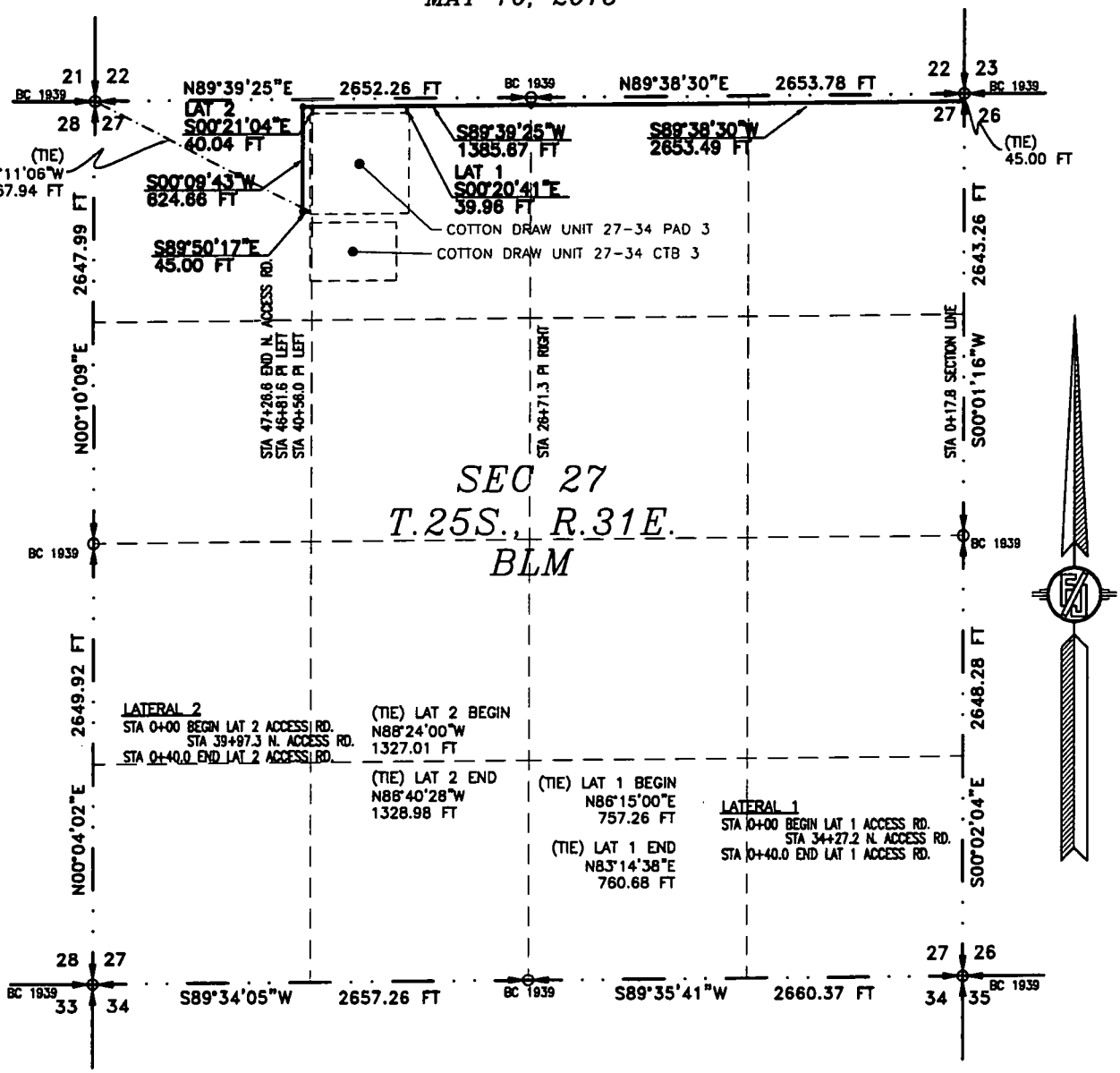
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SEE NEXT SHEET (4-6) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 11TH DAY OF MAY 2016.

FILIMON F. JARAMILLO 12797 REGISTERED PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO PLS 12797
301 SOUTH CANAL
(575) 234-3341

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

NORTH ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;
THENCE S89°38'30"W A DISTANCE OF 2653.49 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°39'25"W A DISTANCE OF 1385.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°09'43"W A DISTANCE OF 624.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°50'17"E A DISTANCE OF 45.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°11'06"W, A DISTANCE OF 1467.94 FEET;

SAID STRIP OF LAND BEING 4708.82 FEET OR 285.38 RODS IN LENGTH, CONTAINING 3.243 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1326.91 L.F.	80.42 RODS	0.914 ACRES
NW/4 NE/4	1326.91 L.F.	80.42 RODS	0.914 ACRES
NE/4 NW/4	1326.17 L.F.	80.37 RODS	0.913 ACRES
NW/4 NW/4	728.83 L.F.	44.17 RODS	0.502 ACRES

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°15'00"E, A DISTANCE OF 757.26 FEET;
THENCE S00°20'41"E A DISTANCE OF 39.96 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°14'38"E, A DISTANCE OF 760.68 FEET;

SAID STRIP OF LAND BEING 39.96 FEET OR 2.42 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	39.96 L.F.	2.42 RODS	0.028 ACRES

LATERAL 2 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°24'00"W, A DISTANCE OF 1327.01 FEET;
THENCE S00°21'04"E A DISTANCE OF 40.04 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°40'28"W, A DISTANCE OF 1328.98 FEET;

SAID STRIP OF LAND BEING 40.04 FEET OR 2.43 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	40.04 L.F.	2.43 RODS	0.028 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS ___ DAY OF MAY 2016

FILIMON F. JARAMILLO, PLS 12797

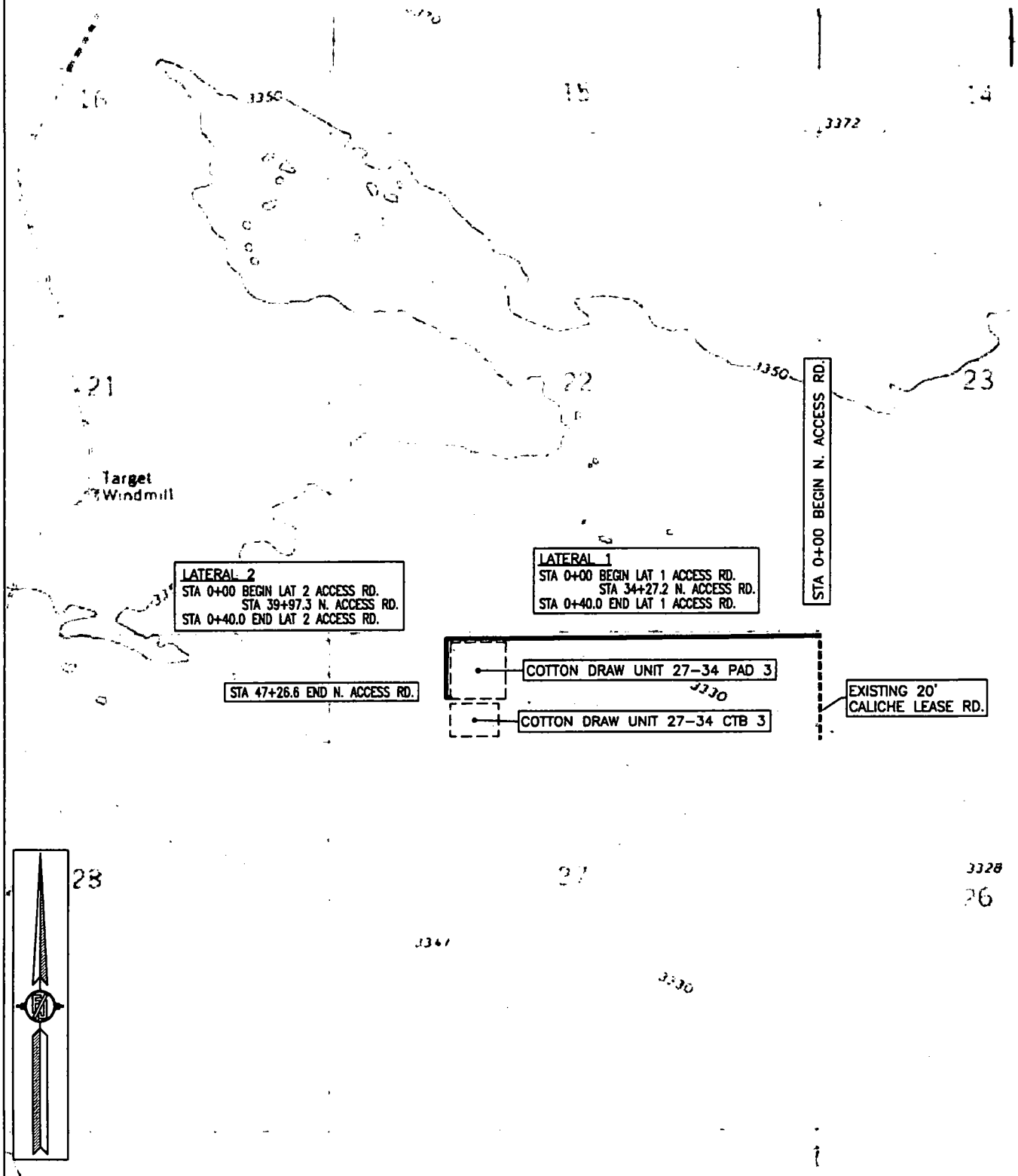
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT (AA000055110)

NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 26, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SHEET: 5-6

SURVEY NO. 4665

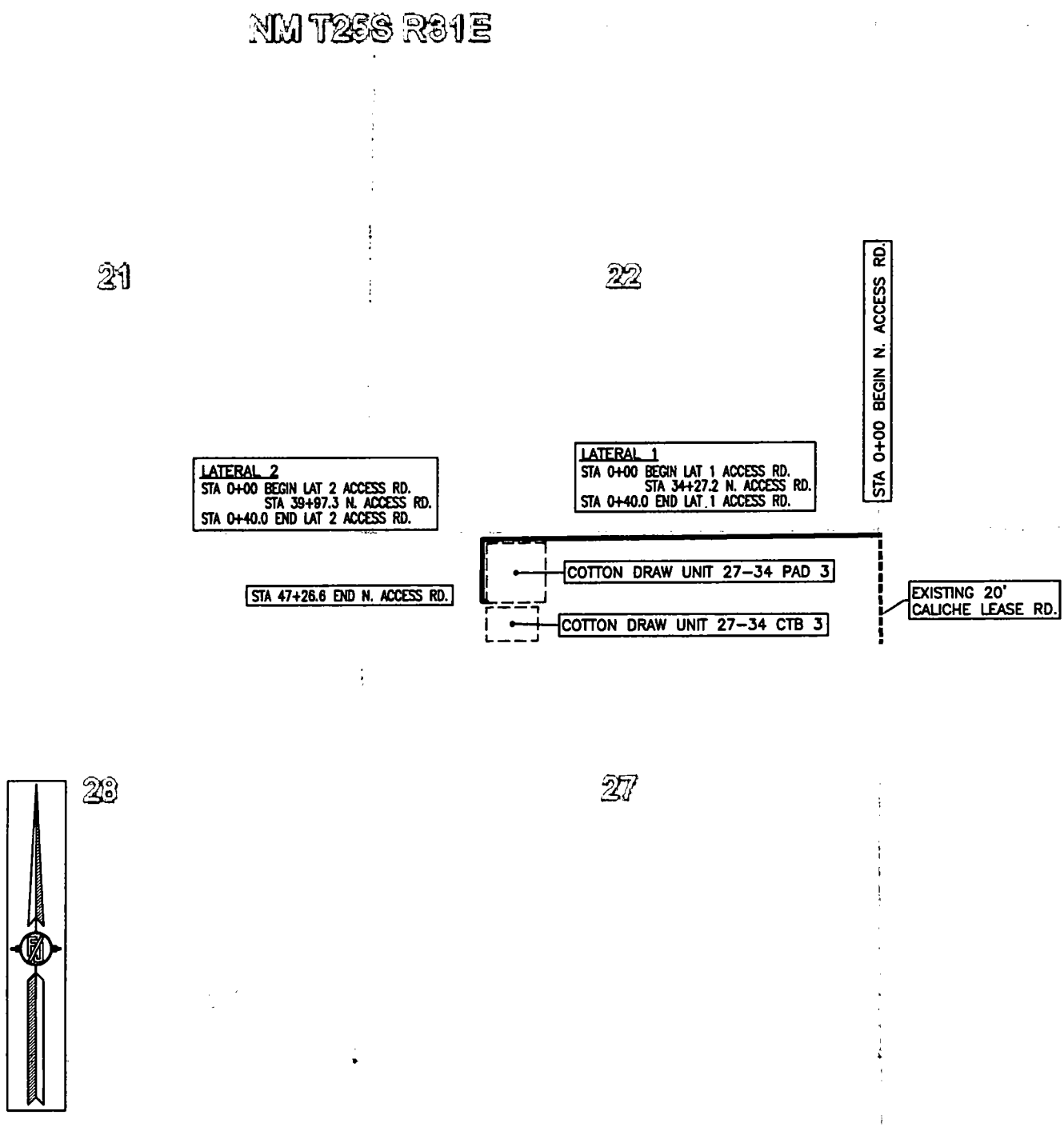
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055110)

NORTH ACCESS ROAD TO THE COTTON DRAW UNIT 27-34 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTIONS 26, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



SHEET: 6-6

SURVEY NO. 4665

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

PLAT

One Mile Radius Map

devon

This map is for illustrative purposes only and is neither a legally recorded map nor a survey and is not intended to be used as one. Devon makes no warranty,representation, or guarantee of any kind regarding this map.

USA Contiguous Equidistant Conic
Datum: North American 1983
Created by: FME Server
Map is current as of 8/15/2018

Miles
0 0.3

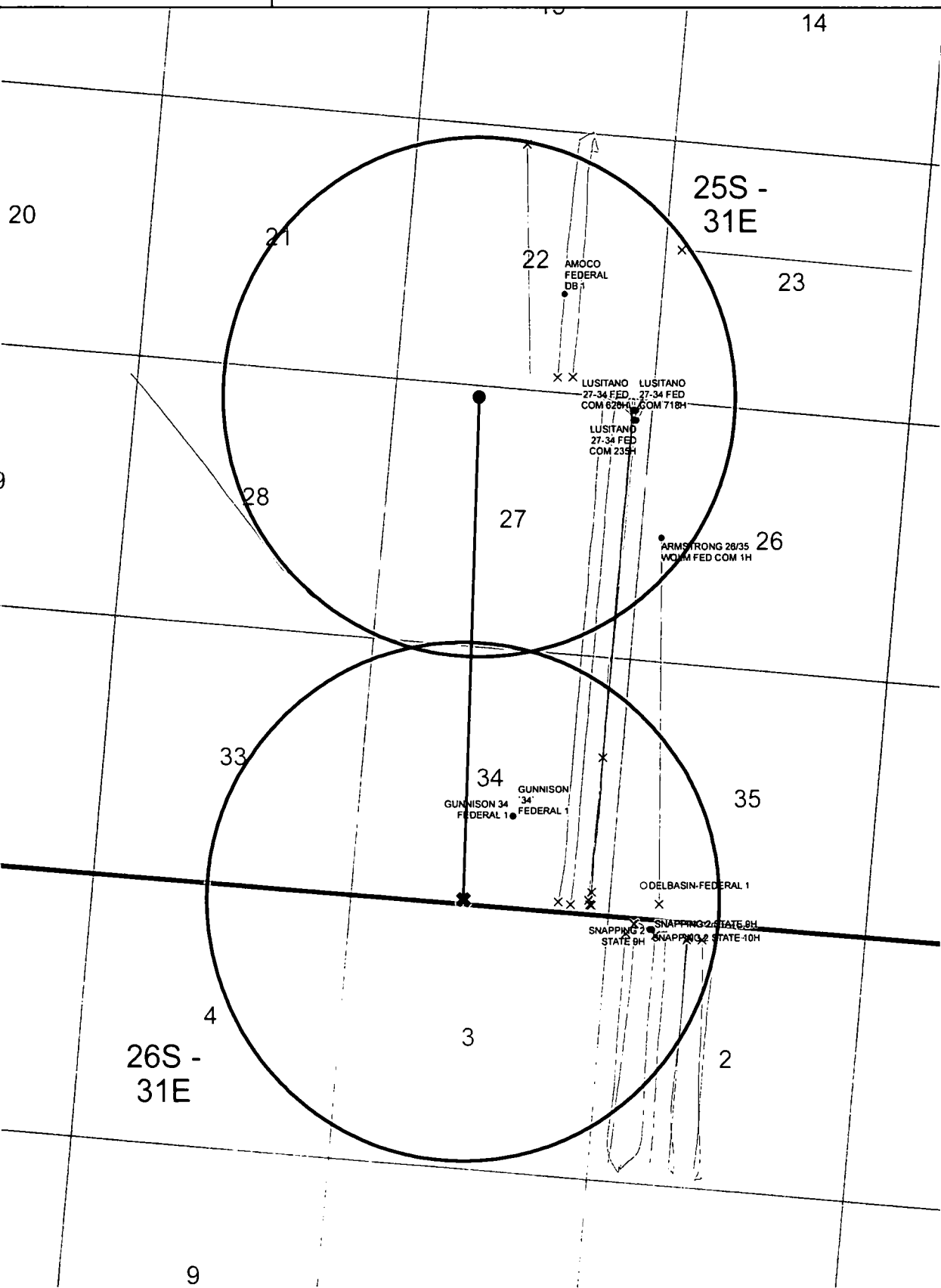
1 inch = 0.44 miles

LUSITANO 27-34 FED COM 333H
WA017161519

SHIRE 22 FED 5H
Nearest wellbore to SHL: 1126 ft.

LUSITANO 27-34 FED COM 626H
Nearest wellbore to BHL: 1955 ft.

- ○ Unknown SHL
- • Active SHL
- ○ Inactive SHL
- × BHL



LUSITANO 27-34 FED COM

713H/622H/534H/523H/333H

devon

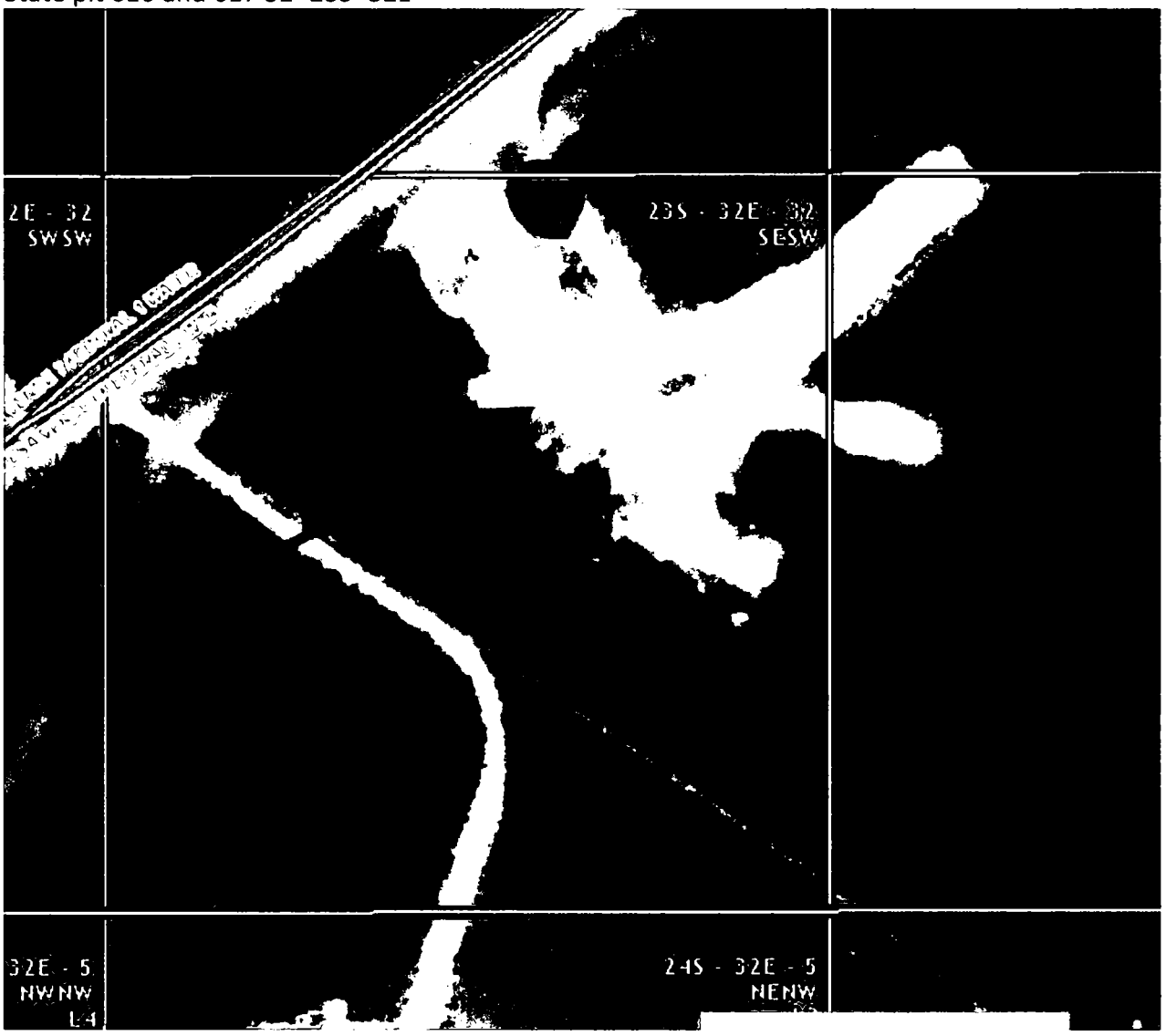
WGS_1984 Web_Mercator_Auxiliary_Sphere
Prepared by: User
Map is current as of: 17-Aug-2018

N

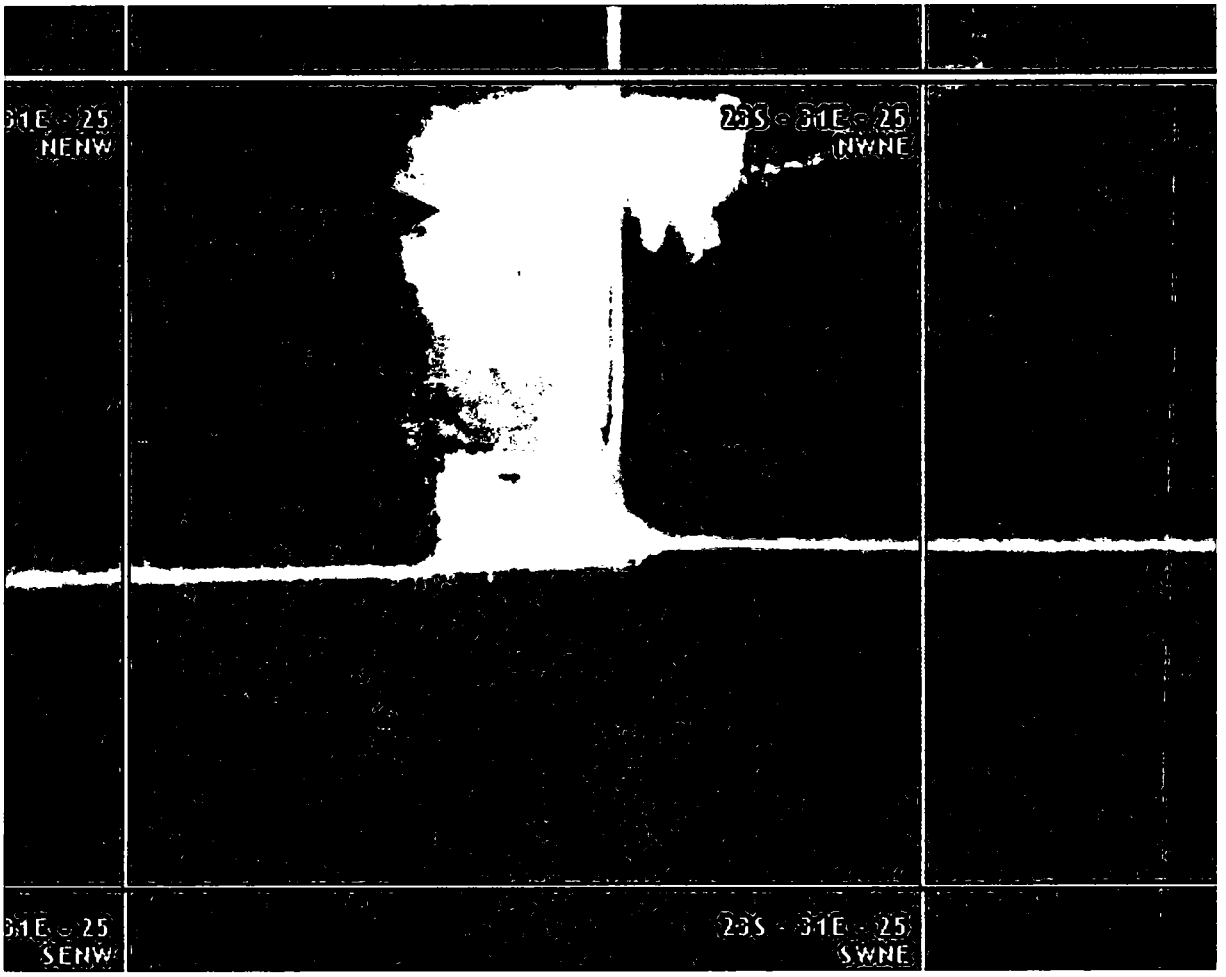
Miles

1:28,457

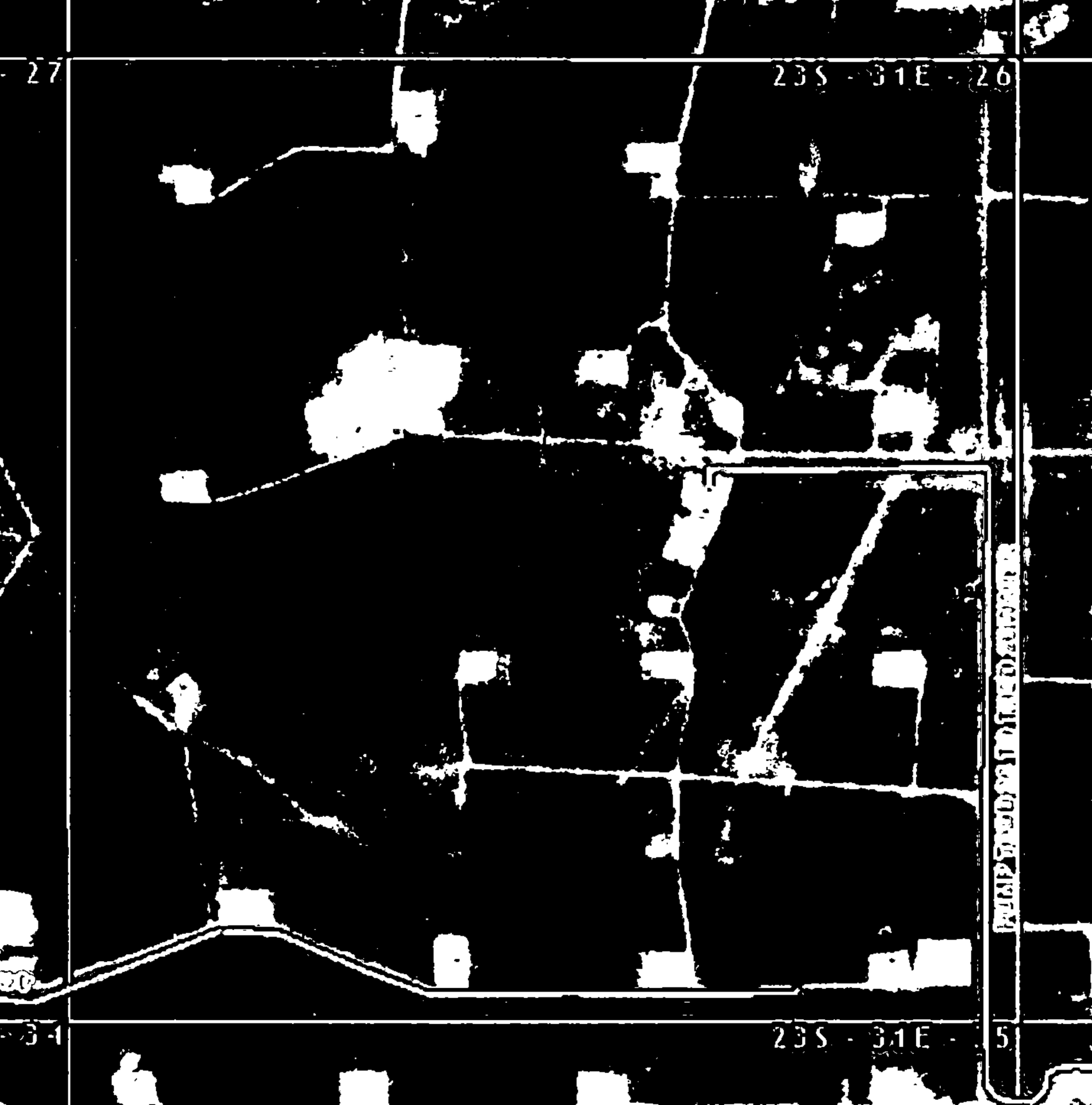
- State pit 616 and 617 32- 23S- 32E

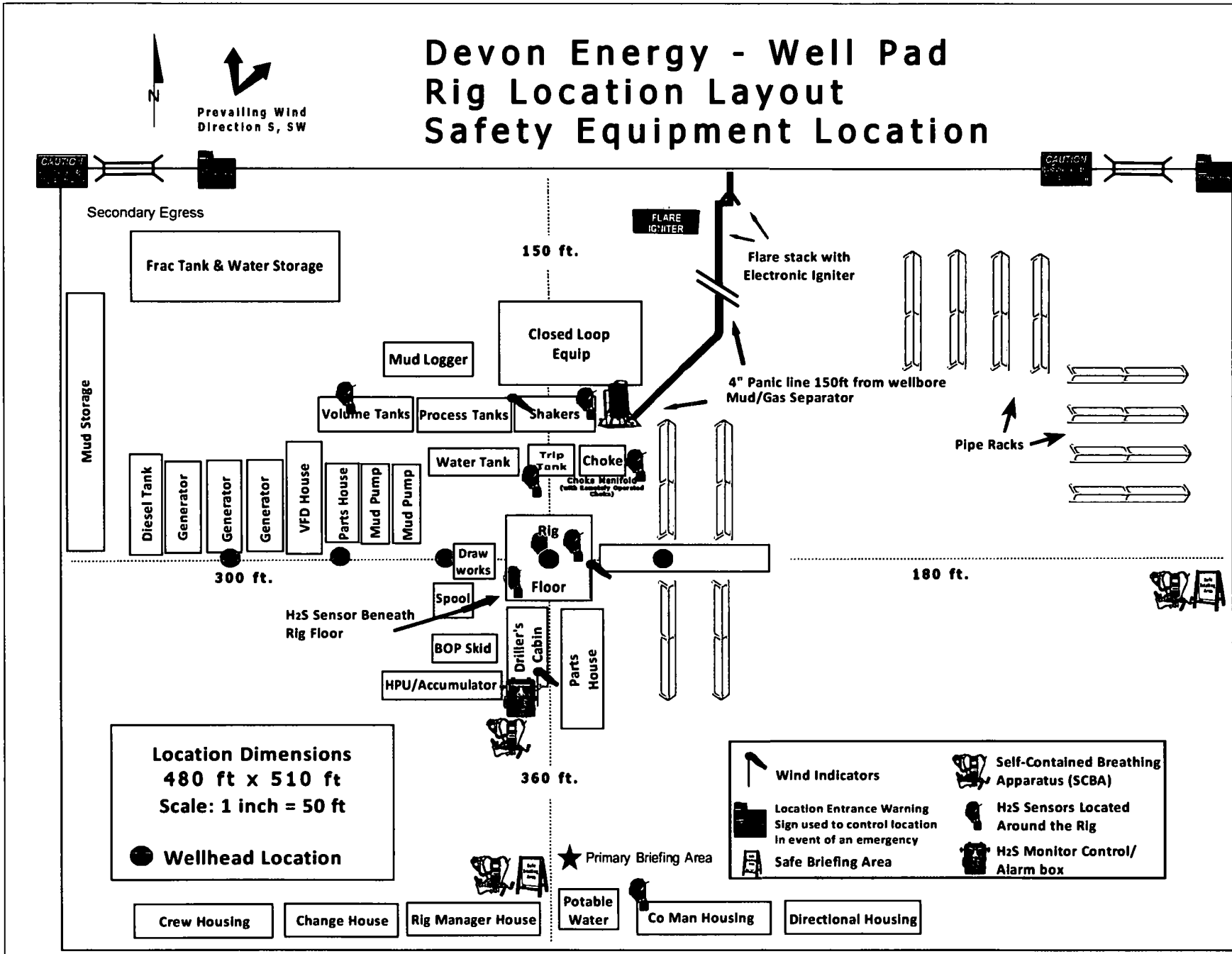


- Fed pit 25- 23S- 31E



- Private pit 26- 23S- 31E

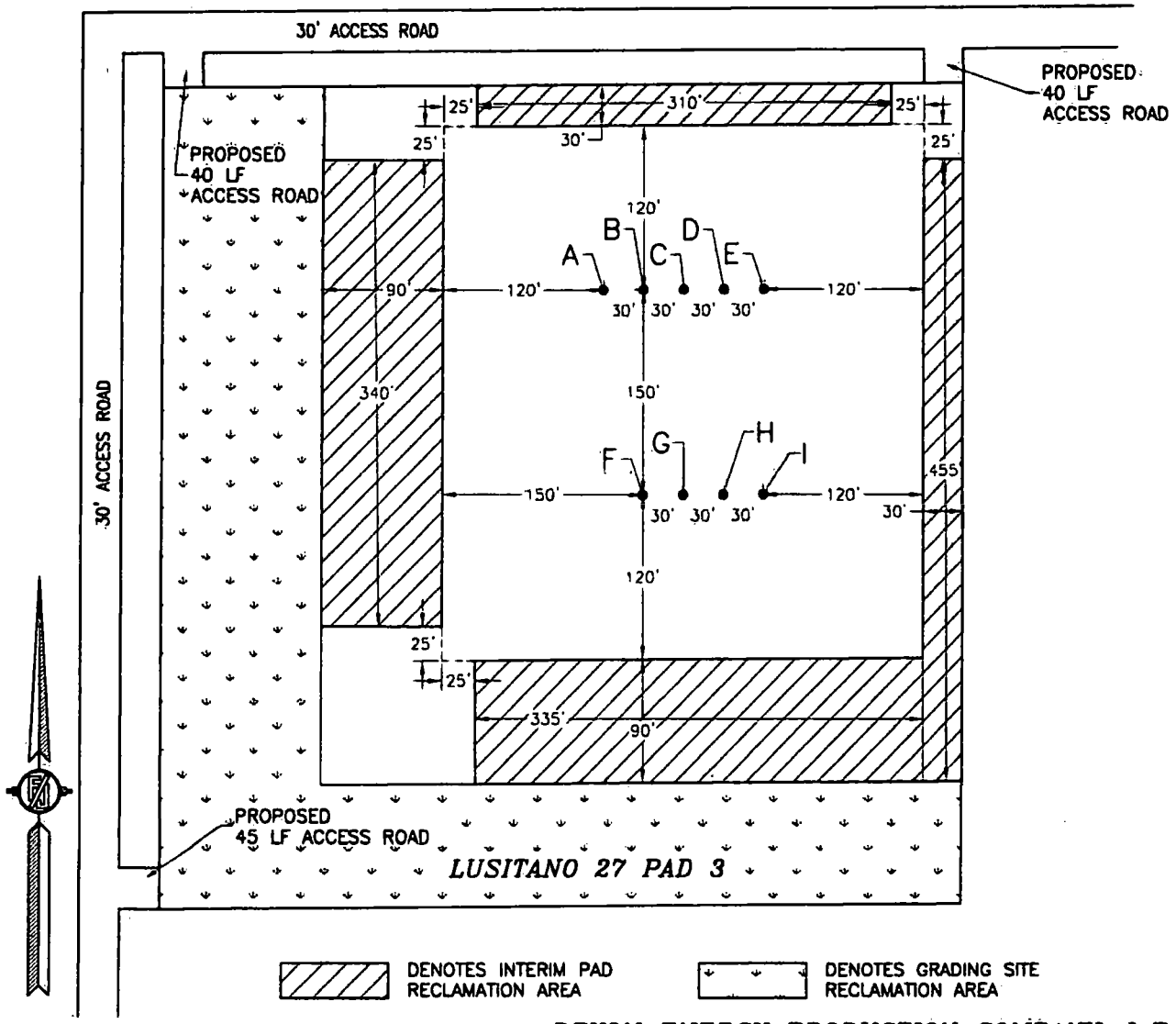

27
23S - 31E - 26
34
23S - 31E - 5


Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location
N
Prevailing Wind Direction S, SW
CAUTION
CAUTION
Secondary Egress
Frac Tank & Water Storage
150 ft.
FLARE IGNITER
Flare stack with Electronic Igniter
Closed Loop Equip
Mud Logger
4" Panic line 150ft from wellbore Mud/Gas Separator
Mud Storage
Volume Tanks
Process Tanks
Shakers
Pipe Racks
Water Tank
Trip Tank
Choke
Choke Manifold
Diesel Tank
Generator
Generator
Generator
VFD House
Parts House
Mud Pump
Mud Pump
Rig Floor
Draw works
300 ft.
180 ft.
Spool
H2S Sensor Beneath Rig Floor
BOP Skid
Driller's Cabin
Parts House
HPU/Accumulator
Location Dimensions
480 ft x 510 ft
Scale: 1 inch = 50 ft
Wellhead Location
360 ft.
Wind Indicators
Self-Contained Breathing Apparatus (SCBA)
Location Entrance Warning Sign used to control location in event of an emergency
H2S Sensors Located Around the Rig
Safe Briefing Area
H2S Monitor Control/ Alarm box
Primary Briefing Area
Crew Housing
Change House
Rig Manager House
Potable Water
Co Man Housing
Directional Housing

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN

A – LUSITANO 27–22 FED COM 232H
B – LUSITANO 27–34 FED COM 733H
C – LUSITANO 27–34 FED COM 622H
D – LUSITANO 27–34 FED COM 333H
E – LUSITANO 27–34 FED COM 713H
F – LUSITANO 27–34 FED COM 233H
G – LUSITANO 27–34 FED COM 533H
H – LUSITANO 27–34 FED COM 523H
I – LUSITANO 27–34 FED COM 534H

SEC. 22
SEC. 27



DENOTES INTERIM PAD RECLAMATION AREA

DENOTES GRADING SITE RECLAMATION AREA

012 60 120 240
SCALE 1" = 120'

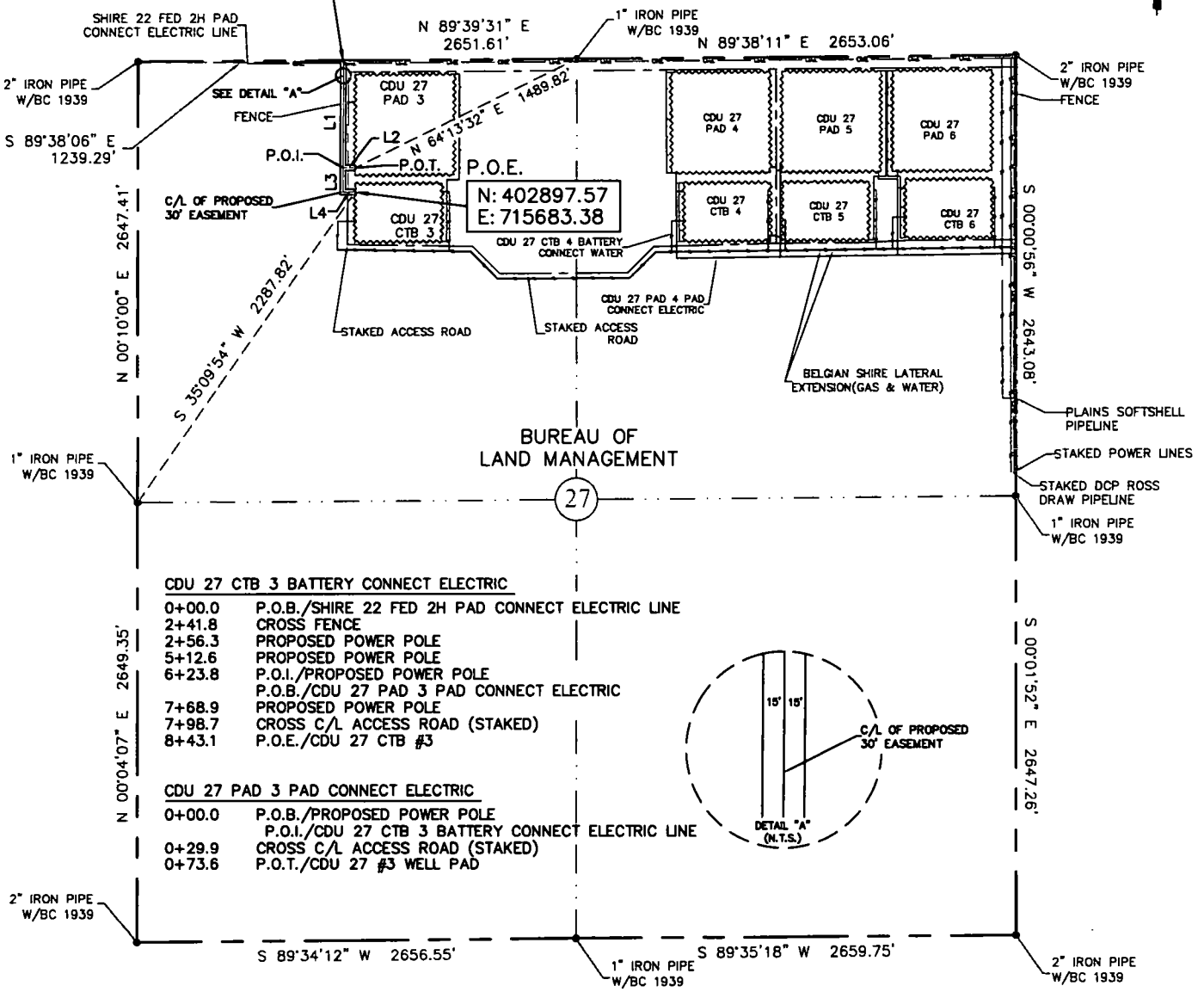
1.921± ACRES INTERIM PAD RECLAMATION AREA
2.646± ACRES GRADING SITE RECLAMATION AREA
3.699± ACRES NON–RECLAIMED AREA
8.266± ACRES LUSITANO 27 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27–34 FED COM 333H
LOCATED 235 FT. FROM THE NORTH LINE AND 1732 FT. FROM THE WEST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

AUGUST 1, 2018
SURVEY NO. 6428

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

EXHIBIT "A"
PAGE 1 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 CTB 3 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./SHIRE 22 FED 2H PAD CONNECT ELECTRIC LINE
2+41.8	CROSS FENCE
2+56.3	PROPOSED POWER POLE
5+12.6	PROPOSED POWER POLE
6+23.8	P.O.I./PROPOSED POWER POLE
	P.O.B./CDU 27 PAD 3 PAD CONNECT ELECTRIC
7+68.9	PROPOSED POWER POLE
7+98.7	CROSS C/L ACCESS ROAD (STAKED)
8+43.1	P.O.E./CDU 27 CTB #3

CDU 27 PAD 3 PAD CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE
	P.O.I./CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE
0+29.9	CROSS C/L ACCESS ROAD (STAKED)
0+73.6	P.O.T./CDU 27 #3 WELL PAD

30' EASEMENT AREA = 0.621 ACRE(S)
916.72 FEET OR 55.56 RODS

LINE	BEARING	DISTANCE
L1	S 00°16'02" W	623.83'
L2	S 89°45'48" E	73.61'
L3	S 00°16'02" W	145.03'
L4	S 89°42'35" E	74.25'

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7800

HORIZON ROW LLC

Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 CTB 3 BATTERY CONNECT AND CDU 27 PAD 3 PAD CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 1 OF 17

Drawn by: WAYNE BEETS
Date: 05/09/2016

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 89°38'06" E a distance of 1239.29' to the **Point of Beginning** of this easement having coordinates of Northing=403666.79 feet, Easting=715612.71 feet, and continuing the following courses;

Thence S 00°16'02" W, a distance of 623.83' to the Point of Intersection;

Thence S 89°45'48" E, a distance of 73.61' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 64°13'32" E a distance of 1489.82';

Thence continuing from said point of intersection the following courses;

Thence S 00°16'02" W, a distance of 145.03' to an angle point;

Thence S 89°42'35" E, a distance of 74.25' to the **Point of Ending** having coordinates of Northing=402897.57 feet, Easting=715683.38 feet, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 35°09'54" W a distance of 2287.82', covering **916.72' or 55.56 rods** and having an area of **0.621 acres.**

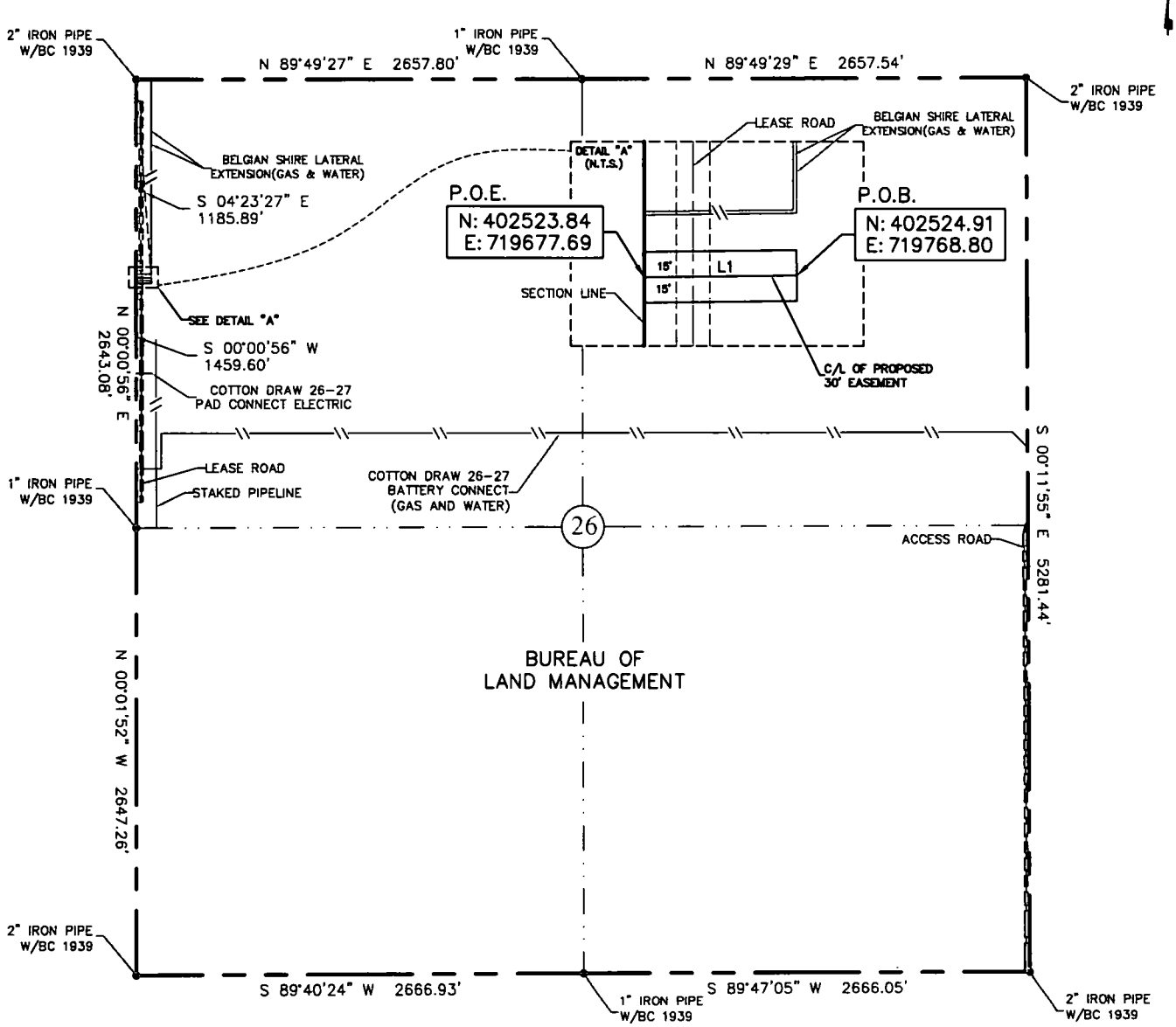
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 4 of 17
ELECTRIC LINE PLAT
SECTION 26, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.063 ACRE(S)
91.12 FEET OR 5.52 RODS

0+00.0 P.O.B.
0+35.0 PROPOSED POWER POLE
0+49.9 EDGE OF LEASE ROAD
0+61.3 C/L LEASE ROAD
0+72.6 EDGE OF LEASE ROAD
0+91.1 P.O.E. SECTION LINE

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

LINE	BEARING	DISTANCE
L1	S 89°19'37" W	91.12'

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX. 75951
(409) 202-5111
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for: devon

Drawn by: WAYNE BEETS
Date: 05/05/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 4 PAD
CONNECT-ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 26, T25S–R31E, N.M.P.M.

LINE NUMBER: EL7801
WBS NUMBER: CC-112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 4 OF 17

SECTION 26, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 26, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 04°23'27" E a distance of 1185.89' to the **Point of Beginning** of this easement having coordinates of Northing=402524.91 feet, Easting=719768.80 feet, and continuing the following course;

Thence S 89°19'37" W, a distance of 91.12' to the **Point of Ending** having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, being in the west line of Section 26, T25S-R31E, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 00°00'56" W a distance of 1459.60', covering **91.12' or 5.52 rods** and having an area of **0.063 acres**.

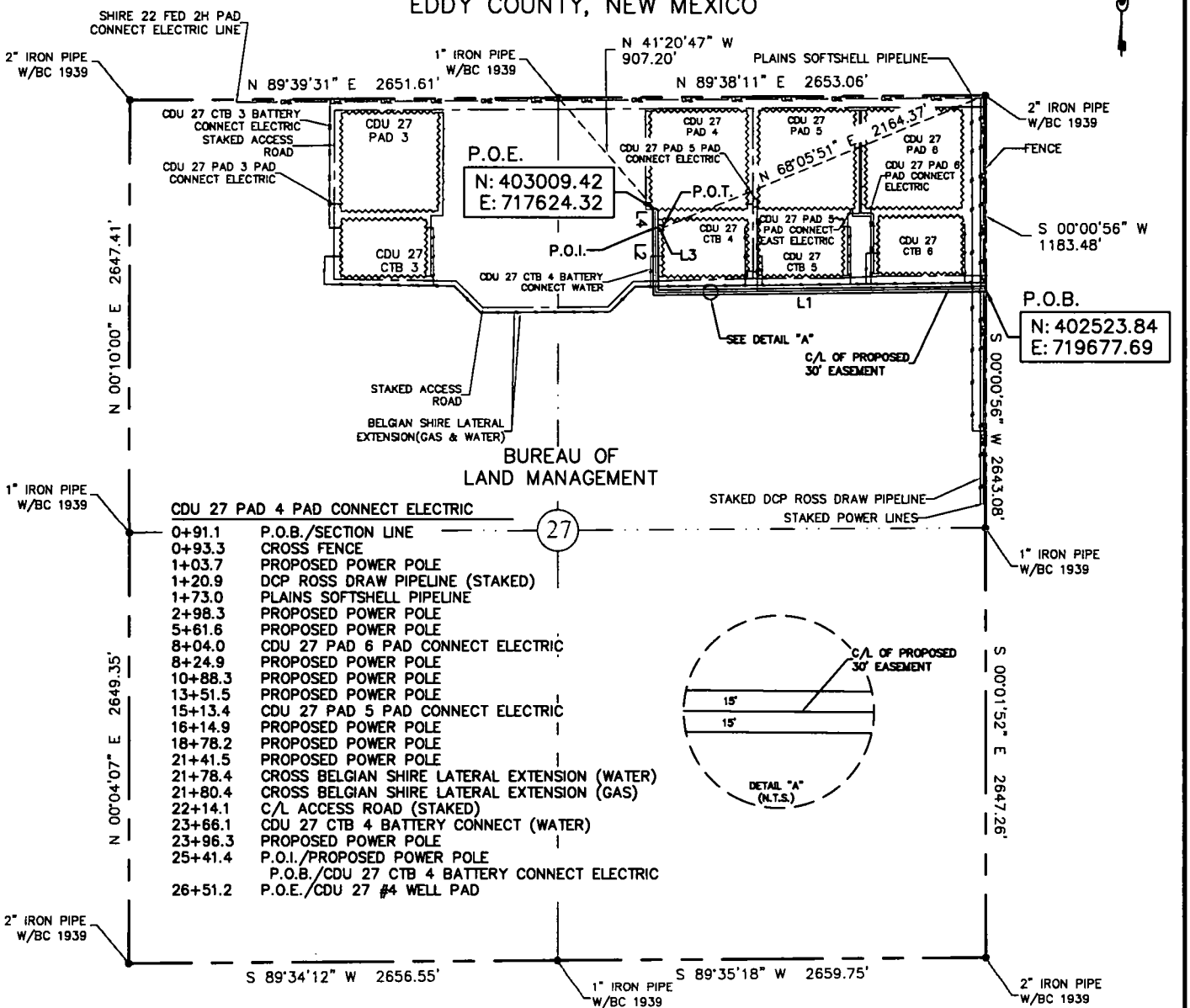
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 6 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 PAD 4 PAD CONNECT ELECTRIC

0+91.1	P.O.B./SECTION LINE
0+93.3	CROSS FENCE
1+03.7	PROPOSED POWER POLE
1+20.9	DCP ROSS DRAW PIPELINE (STAKED)
1+73.0	PLAINS SOFTSHELL PIPELINE
2+98.3	PROPOSED POWER POLE
5+61.6	PROPOSED POWER POLE
8+04.0	CDU 27 PAD 6 PAD CONNECT ELECTRIC
8+24.9	PROPOSED POWER POLE
10+88.3	PROPOSED POWER POLE
13+51.5	PROPOSED POWER POLE
15+13.4	CDU 27 PAD 5 PAD CONNECT ELECTRIC
16+14.9	PROPOSED POWER POLE
18+78.2	PROPOSED POWER POLE
21+41.5	PROPOSED POWER POLE
21+78.4	CROSS BELGIAN SHIRE LATERAL EXTENSION (WATER)
21+80.4	CROSS BELGIAN SHIRE LATERAL EXTENSION (GAS)
22+14.1	C/L ACCESS ROAD (STAKED)
23+66.1	CDU 27 CTB 4 BATTERY CONNECT (WATER)
23+96.3	PROPOSED POWER POLE
25+41.4	P.O.I./PROPOSED POWER POLE P.O.B./CDU 27 CTB 4 BATTERY CONNECT ELECTRIC
26+51.2	P.O.E./CDU 27 #4 WELL PAD

CDU 27 CTB 4 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE P.O.I./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+44.9	P.O.T./CDU 27 CTB 4 PAD

LINE	BEARING	DISTANCE
L1	S 89°19'37" W	2050.37'
L2	N 00°21'11" W	399.93'
L3	N 89°39'00" E	44.87'
L4	N 00°21'11" W	109.74'

30' EASEMENT AREA = 1.784 ACRE(S)
2604.91 FEET OR 157.87 RODS

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX. 75951
(409) 202-5111
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 4 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7795

HORIZON ROW LLC
Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 4 PAD CONNECT AND CDU 27 CTB 4 BATTERY CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 6 OF 17

Drawn by: WAYNE BEETS
Date: 05/09/2016

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 00°00'56" W a distance of 1183.48' to the **Point of Beginning** of this easement having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, and continuing the following courses;

Thence S 89°19'37" W, a distance of 2050.37' to an angle point;

Thence N 00°21'11" W, a distance of 399.93' to the Point of Intersection;

Thence N 89°39'00" E, a distance of 44.87' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 68°05'51" E a distance of 2164.37';

Thence continuing from said point of intersection the following courses;

Thence N 00°21'11" W, a distance of 109.74' to the **Point of Ending** having coordinates of Northing=403009.42 feet, Easting=717624.32 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 41°20'47" W a distance of 907.20', covering **2604.91' or 157.87 rods** and having an area of **1.784 acres**.

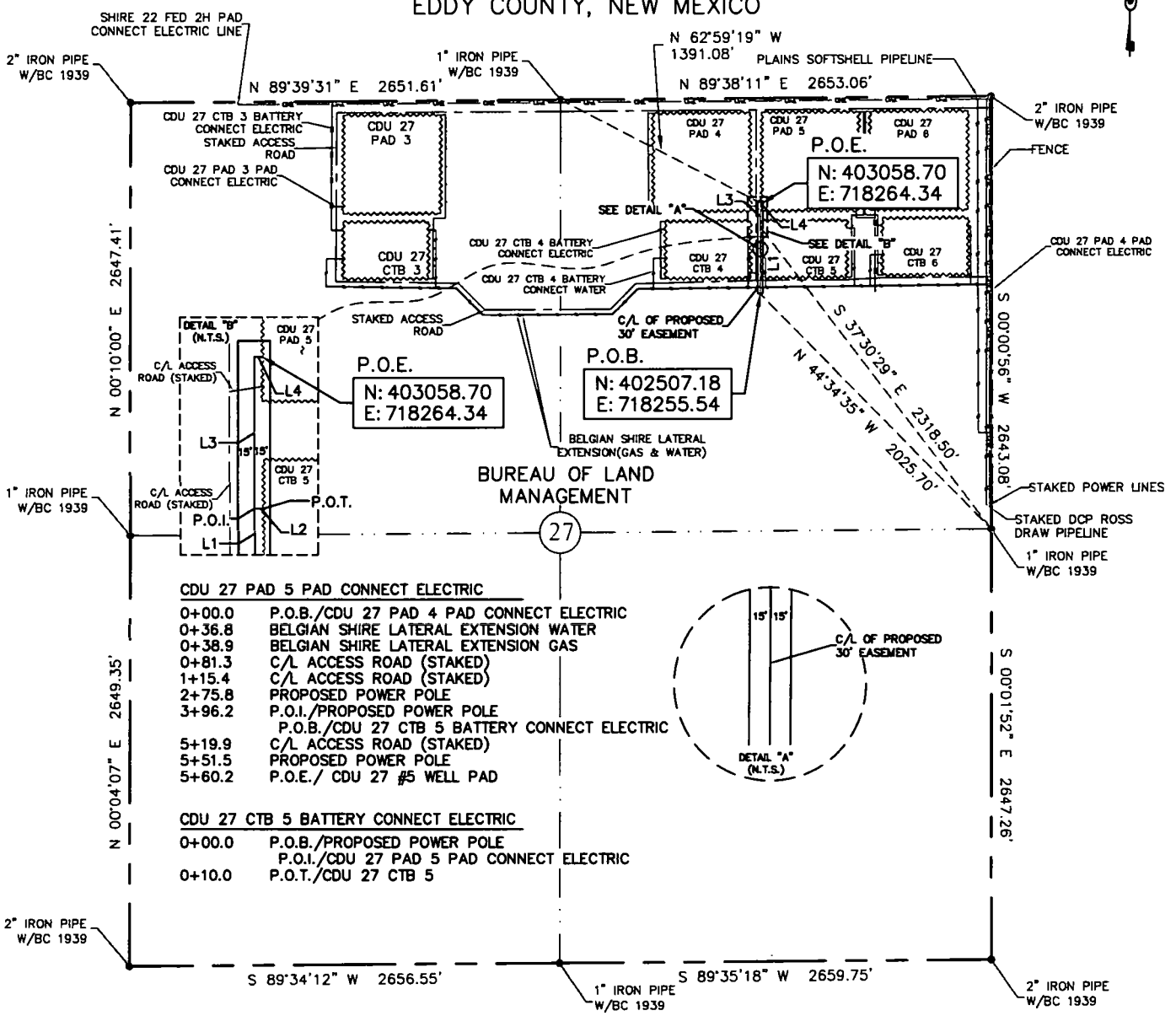
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 9 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 PAD 5 PAD CONNECT ELECTRIC

0+00.0	P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+36.8	BELGIAN SHIRE LATERAL EXTENSION WATER
0+38.9	BELGIAN SHIRE LATERAL EXTENSION GAS
0+81.3	C/L ACCESS ROAD (STAKED)
1+15.4	C/L ACCESS ROAD (STAKED)
2+75.8	PROPOSED POWER POLE
3+96.2	P.O.I./PROPOSED POWER POLE P.O.B./CDU 27 CTB 5 BATTERY CONNECT ELECTRIC
5+19.9	C/L ACCESS ROAD (STAKED)
5+51.5	PROPOSED POWER POLE
5+60.2	P.O.E./ CDU 27 #5 WELL PAD

CDU 27 CTB 5 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE P.O.I./CDU 27 PAD 5 PAD CONNECT ELECTRIC
0+10.0	P.O.T./CDU 27 CTB 5

LINE	BEARING	DISTANCE
L1	N 00°00'59" E	396.22'
L2	N 89°50'02" E	9.97'
L3	N 00°00'59" E	155.30'
L4	N 89°59'36" E	8.65'

30' EASEMENT AREA = 0.390 ACRE(S)
570.14 FEET OR 34.55 RODS

0 1000 2000

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 5 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7796

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/09/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 5 PAD CONNECT AND CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 9 OF 17

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 44°34'35" W a distance of 2025.70' to the **Point of Beginning** of this easement having coordinates of Northing=402507.18 feet, Easting=718255.54 feet, and continuing the following courses;

Thence N 00°00'59" E, a distance of 396.22' to the Point of Intersection;

Thence N 89°50'02" E, a distance of 9.97' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 37°30'29" E a distance of 2318.50';

Thence continuing from said point of intersection the following courses;

Thence N 00°00'59" E, a distance of 155.30' to an angle point;

Thence N 89°59'36" E, a distance of 8.65' to the **Point of Ending** having coordinates of Northing=403058.70 feet, Easting=718264.34 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 62°59'19" W a distance of 1391.08', covering **570.14' or 34.55 rods** and having an area of **0.390 acres**.

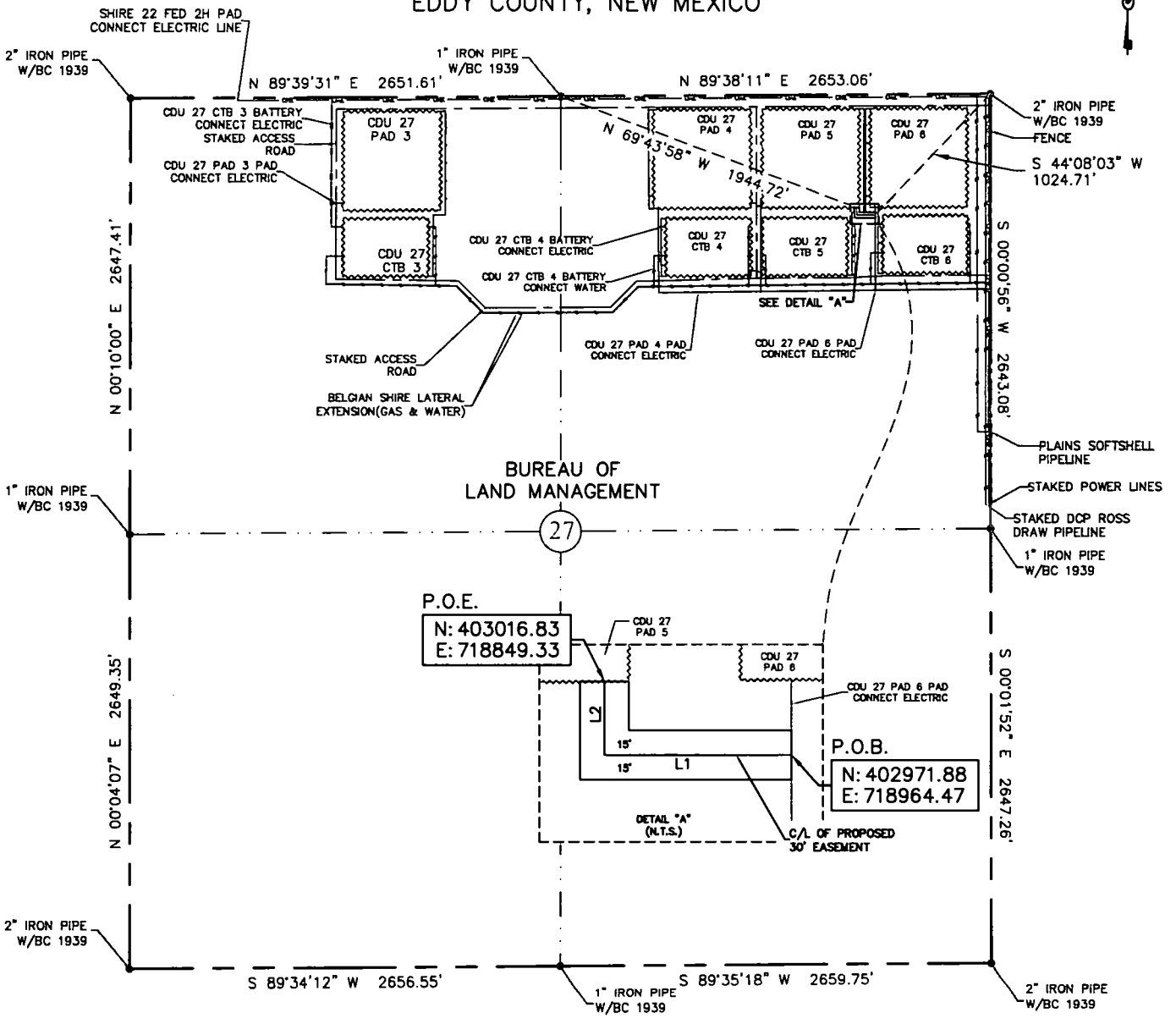
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 12 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.110 ACRE(S)
160.17 FEET OR 9.71 RODS

0+00.0	P.O.B./CDU 27 PAD 6 PAD CONNECT ELECTRIC
1+15.2	PROPOSED POWER POLE
1+60.2	P.O.E./CDU 27 #5 WELL PAD

LINE	BEARING	DISTANCE
L1	S 89°58'05" W	115.15'
L2	N 00°01'04" E	45.02'

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 LAMAN PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/10/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 5 PAD
CONNECT EAST–ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

LINE NUMBER: EL7814
WBS NUMBER: CC–112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 12 OF 17

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 44°08'03" W a distance of 1024.71' to the **Point of Beginning** of this easement having coordinates of Northing=402971.88 feet, Easting=718964.47 feet, and continuing the following courses;

Thence S 89°58'05" W, a distance of 115.15' to an angle point;

Thence N 00°01'04" E, a distance of 45.02' to the **Point of Ending** having coordinates of Northing=403016.83 feet, Easting=718849.33 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 69°43'58" W a distance of 1944.72', covering **160.17' or 9.71 rods** and having an area of **0.110 acres**.

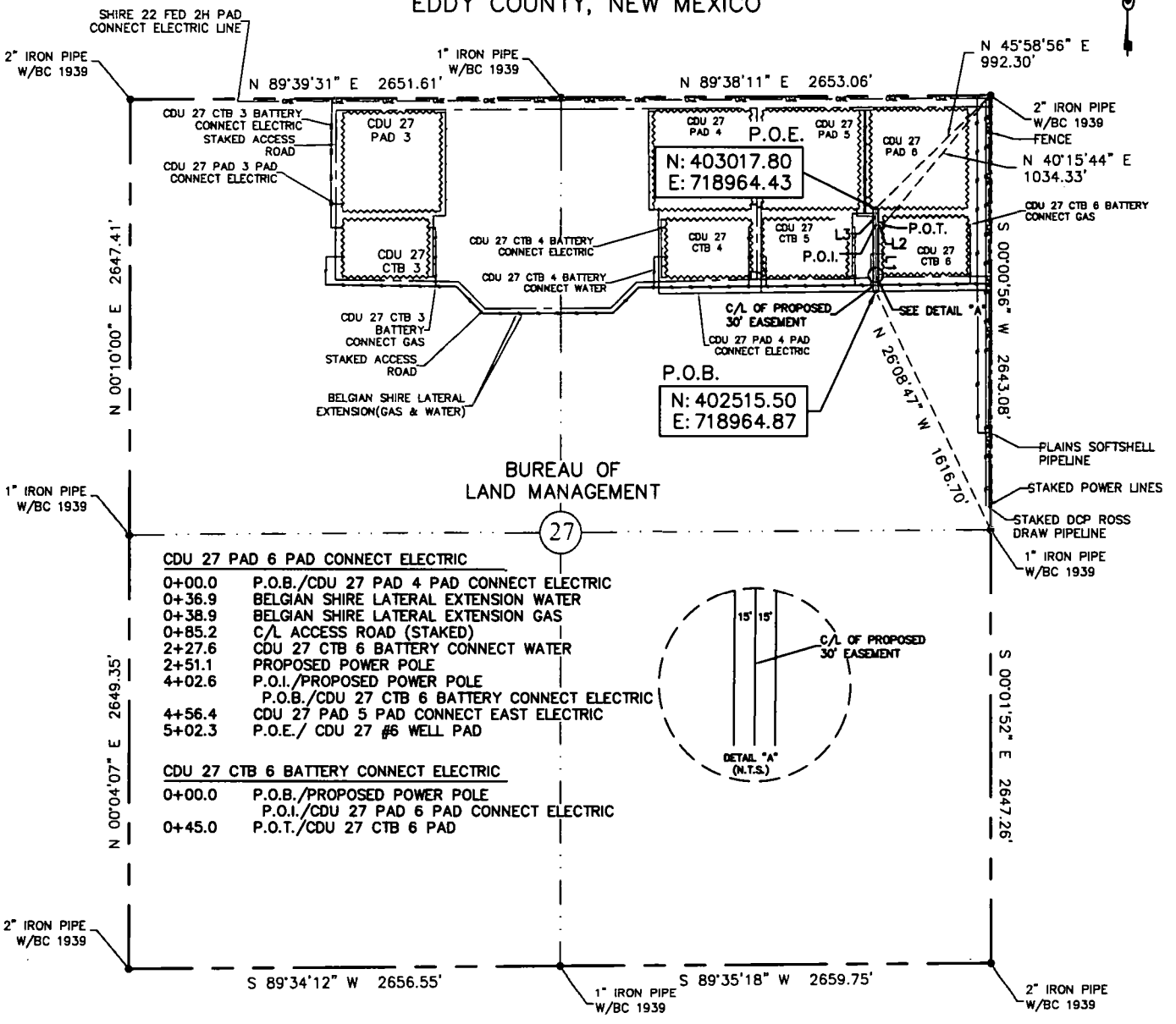
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 14 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 PAD 6 PAD CONNECT ELECTRIC

0+00.0	P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+36.9	BELGIAN SHIRE LATERAL EXTENSION WATER
0+38.9	BELGIAN SHIRE LATERAL EXTENSION GAS
0+85.2	C/L ACCESS ROAD (STAKED)
2+27.6	CDU 27 CTB 6 BATTERY CONNECT WATER
2+51.1	PROPOSED POWER POLE
4+02.6	P.O.I./PROPOSED POWER POLE P.O.B./CDU 27 CTB 6 BATTERY CONNECT ELECTRIC
4+56.4	CDU 27 PAD 5 PAD CONNECT EAST ELECTRIC
5+02.3	P.O.E./ CDU 27 #6 WELL PAD

CDU 27 CTB 6 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE P.O.I./CDU 27 PAD 6 PAD CONNECT ELECTRIC
0+45.0	P.O.T./CDU 27 CTB 6 PAD

LINE	BEARING	DISTANCE
L1	N 00°03'00" W	402.56'
L2	S 89°58'05" E	45.02'
L3	N 00°03'00" W	99.74'

30' EASEMENT AREA = 0.367 ACRE(S)
547.32 FEET OR 33.17 RODS

0 1000 2000

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 LAMAN PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 6 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7797

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/09/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 6 PAD CONNECT AND CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 14 OF 17

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 26°08'47" W a distance of 1616.70' to the **Point of Beginning** of this easement having coordinates of Northing=402515.50 feet, Easting=718964.87 feet, and continuing the following courses;

Thence N 00°03'00" W, a distance of 402.56' to the Point of Intersection;

Thence S 89°58'05" E, a distance of 45.02' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 40°15'44" E a distance of 1034.33';

Thence continuing from said point of intersection the following course;

Thence N 00°03'00" W, a distance of 99.74' to the **Point of Ending** having coordinates of Northing=403017.80 feet, Easting=718964.43 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 45°58'56" E a distance of 992.30', covering **547.32' or 33.17 rods** and having an area of **0.367 acres**.

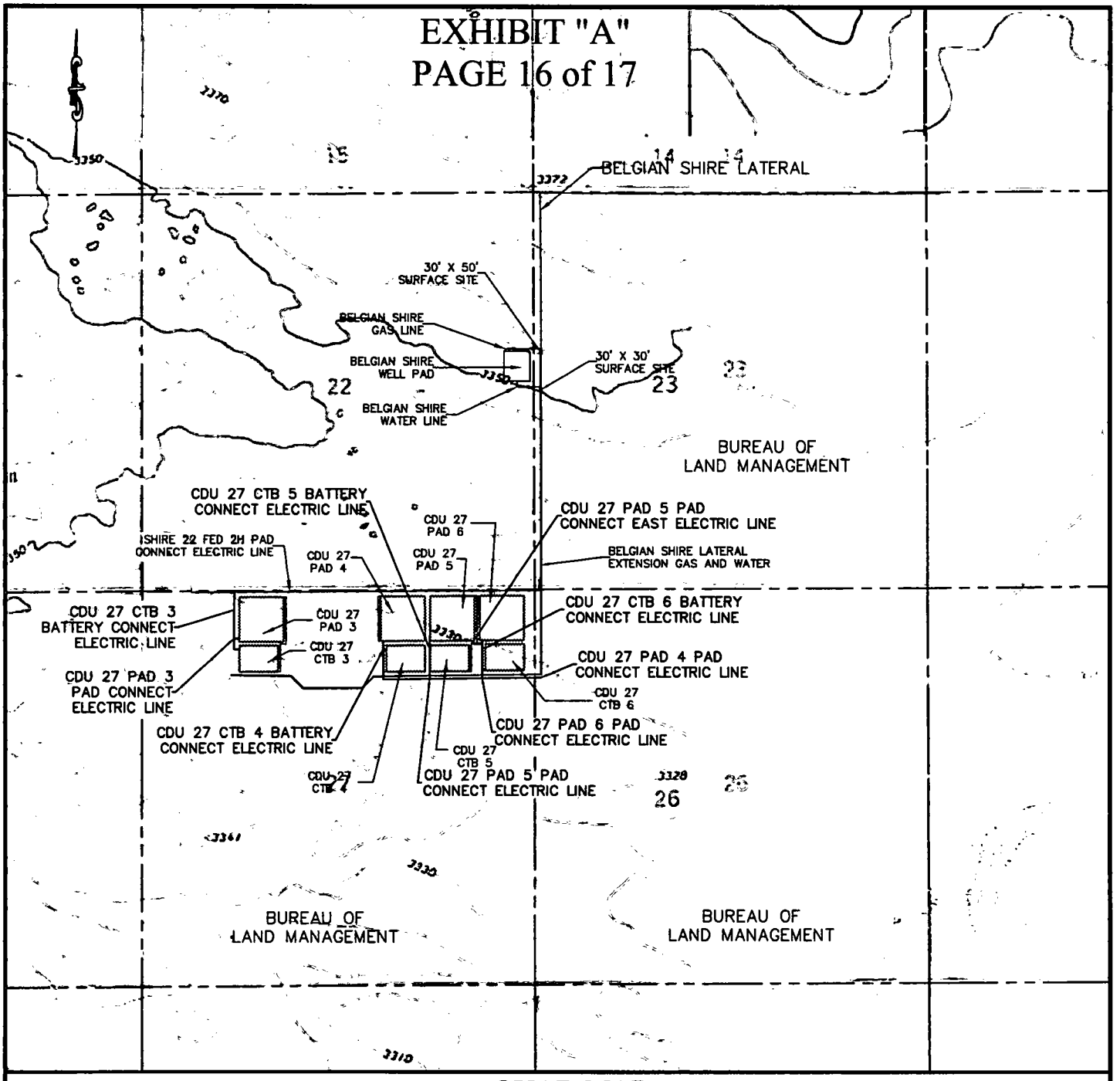
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 16 of 17



QUAD MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT–ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT–ELECTRIC LINE	CC-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT–ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT–ELECTRIC LINE	CC-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST–ELECTRIC LINE	CC-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT–ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT–ELECTRIC LINE	CC-112971.AL	EL7796
CDU 27 PAD 6 PAD CONNECT–ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT–ELECTRIC LINE	CC-112971.AL	EL7797

Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT

Drawn by: WAYNE BEETS

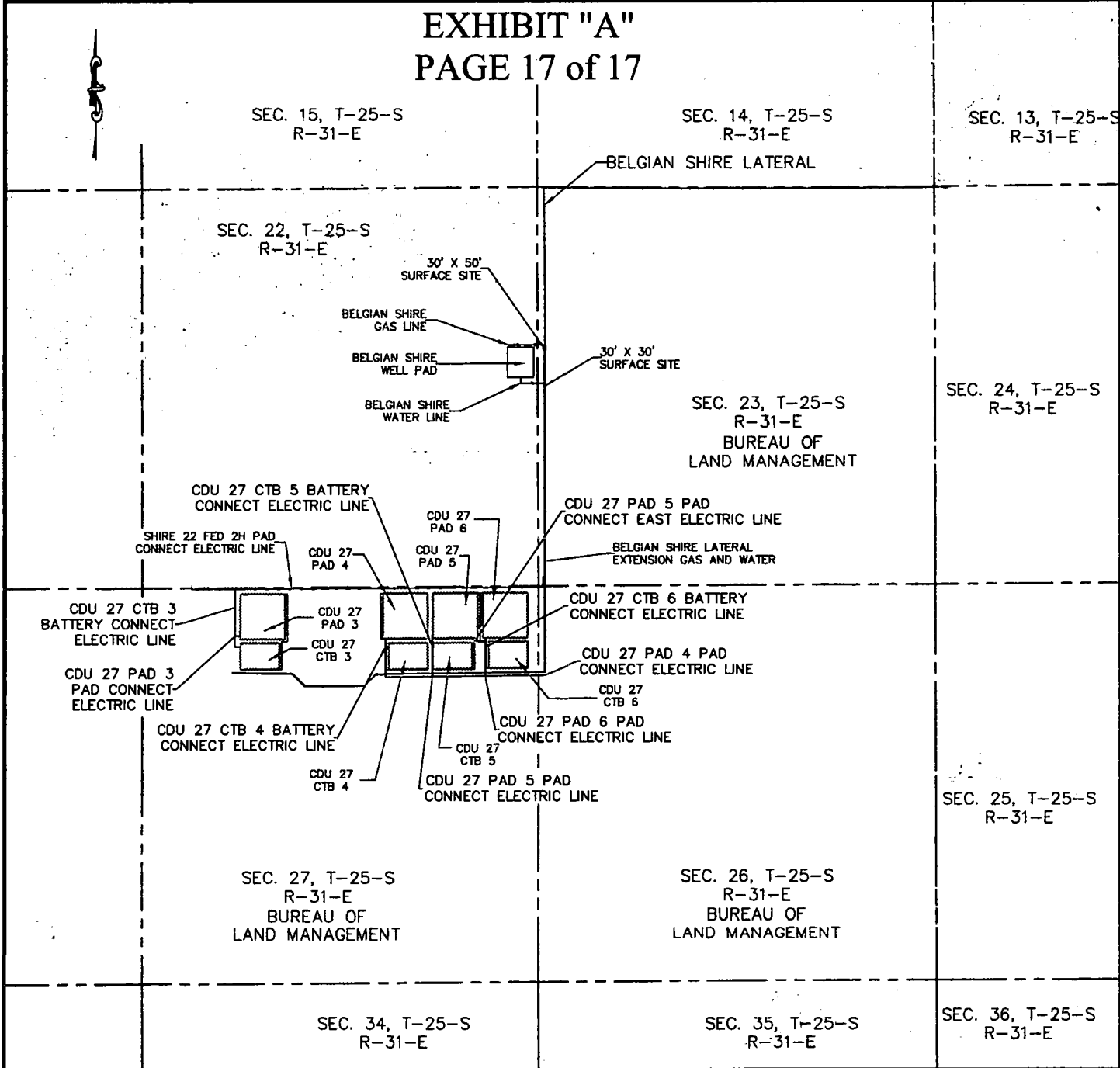
Date: 05/10/2016

SCALE: 1" = 2000'

REVISIONS:

SHEET: 16 OF 17

HORIZON ROW LLC



AERIAL MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7796
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7797

Drawn for: devon

Drawn by: WAYNE SEETS

Date: 05/10/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT

SCALE: 1" = 2000'

REVISIONS:

SHEET: 17 OF 17

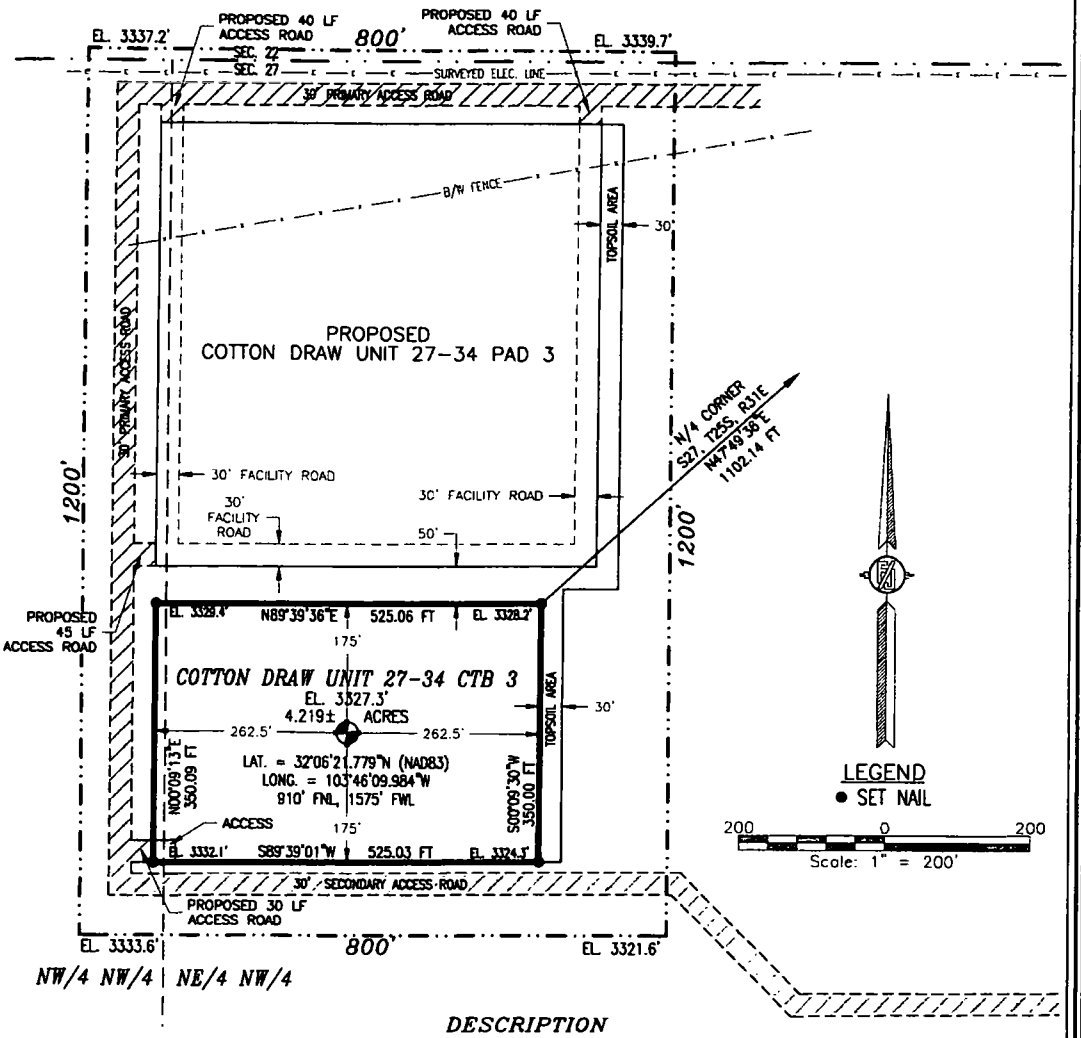
HORIZON ROW LLC

COTTON DRAW UNIT 27-34 CTB 3 (AA000056029)

DEVON ENERGY PRODUCTION COMPANY, L.P.

IN THE NE/4 NW/4 & NW/4 NW/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016



DESCRIPTION

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN THE NE/4 NW/4 & NW/4 NW/4 OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHEAST CORNER OF THE PARCEL, WHENCE THE NORTH QUARTER CORNER OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N47°49'36"E, A DISTANCE OF 1102.14 FEET;
THENCE S00°09'30"W A DISTANCE OF 350.00 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;
THENCE S89°39'01"W A DISTANCE OF 525.03 FEET TO THE SOUTHWEST CORNER OF THE PARCEL;
THENCE N00°09'13"E A DISTANCE OF 350.09 FEET TO THE NORTHWEST CORNER OF THE PARCEL;
THENCE N89°39'36"E A DISTANCE OF 525.06 FEET TO THE NORTHEAST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING;
CONTAINING 4.104 ACRES IN THE NE/4 NW/4 & 0.115 ACRES IN THE NW/4 NW/4 FOR A TOTAL 4.219 ACRES MORE OR LESS.

GENERAL NOTES

1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL TANK BATTERY

2.) BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)

DRIVING DIRECTION: FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.2 MILE TO BEGIN ROAD SURVEY, GO WEST 178' TO THE SOUTHEAST CORNER FOR CDU "27-27" CTB 6, FROM SOUTHWEST CORNER GO WEST 631' TO THE SOUTHEAST CORNER FOR CDU "27-27" CTB 5, FROM SOUTHWEST CORNER GO WEST APPROX. 360' TO THE SOUTHEAST CORNER FOR CDU "27-27" CTB 4, THEN GO WEST 0.38 MILE, GO NORTH 30' TO THE SOUTHWEST CORNER FOR THIS LOCATION.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 20 DAY OF JUNE 2016.

12797

FILIMON F. JARAMILLO NM 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1-3

SURVEY NO. 4494B

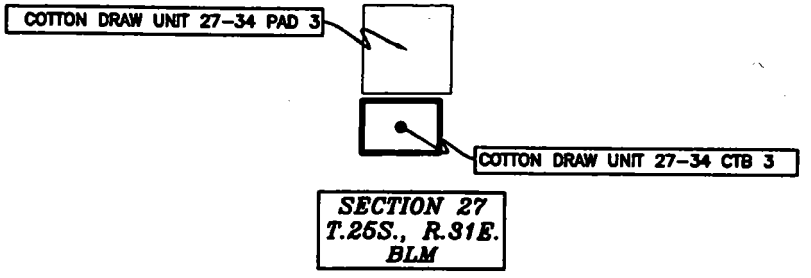
COTTON DRAW UNIT 27-34 CTB 3 (AA000056029)

DEVON ENERGY PRODUCTION COMPANY, L.P.

IN THE NE/4 NW/4 & NW/4 NW/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016

QUAD MAP



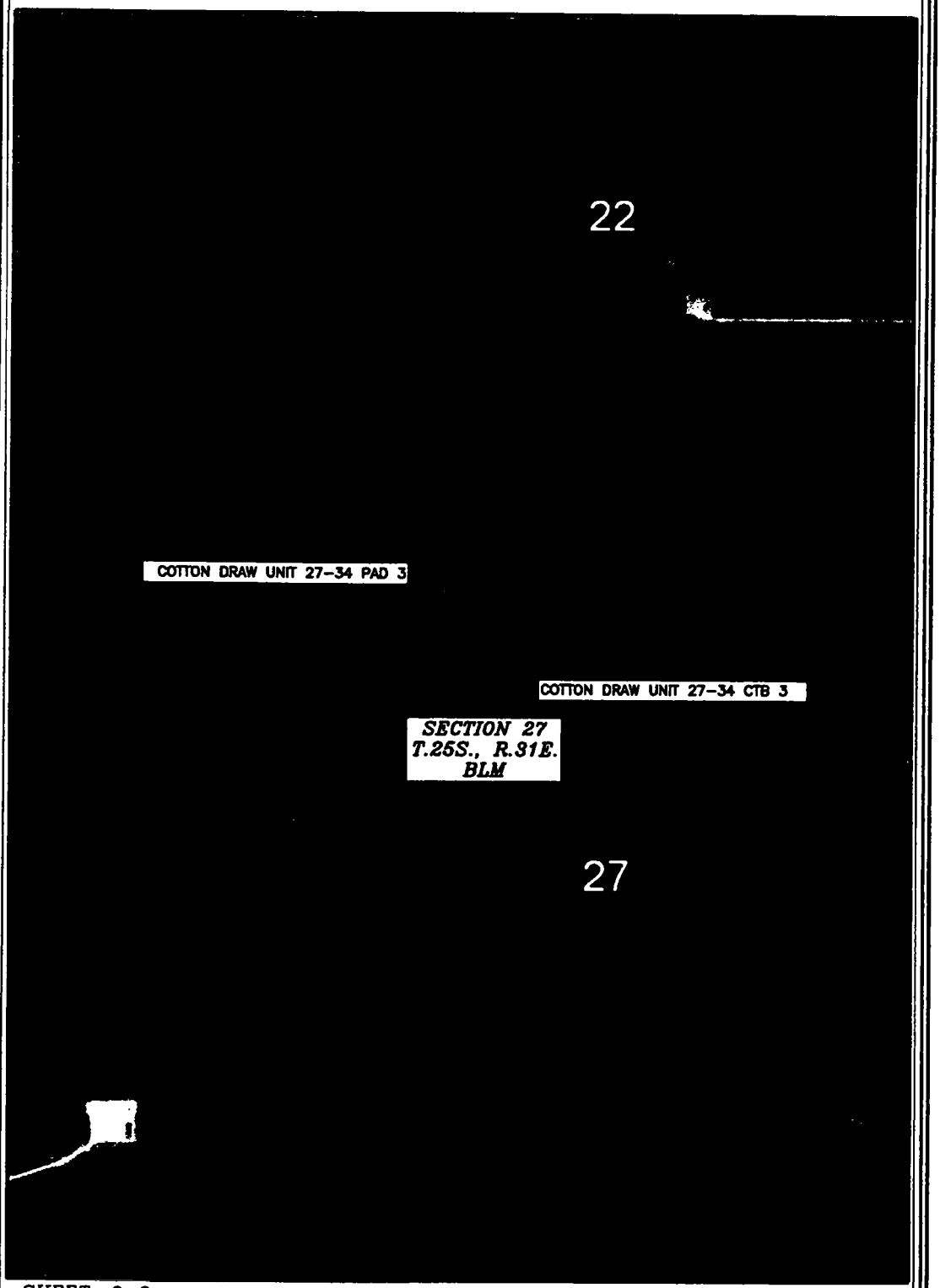
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

COTTON DRAW UNIT 27-34 CTB 3 (AA000056029)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE NE/4 NW/4 & NW/4 NW/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016

AERIAL PHOTO

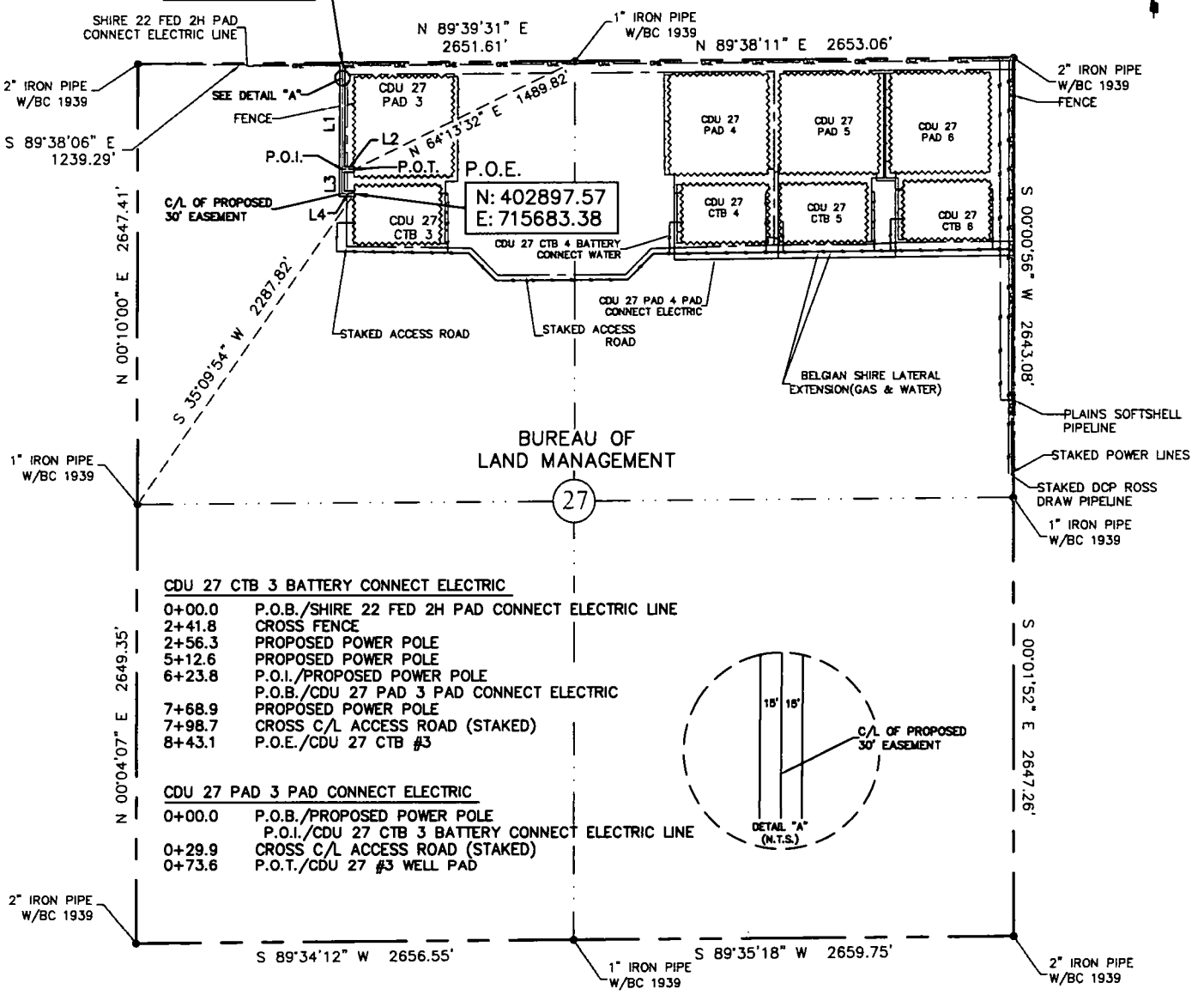


SHEET: 3-3

SURVEY NO. 4494B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

EXHIBIT "A"
PAGE 1 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 CTB 3 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./SHIRE 22 FED 2H PAD CONNECT ELECTRIC LINE
2+41.8	CROSS FENCE
2+56.3	PROPOSED POWER POLE
5+12.6	PROPOSED POWER POLE
6+23.8	P.O.I./PROPOSED POWER POLE
	P.O.B./CDU 27 PAD 3 PAD CONNECT ELECTRIC
7+68.9	PROPOSED POWER POLE
7+98.7	CROSS C/L ACCESS ROAD (STAKED)
8+43.1	P.O.E./CDU 27 CTB #3

CDU 27 PAD 3 PAD CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE
	P.O.I./CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE
0+29.9	CROSS C/L ACCESS ROAD (STAKED)
0+73.6	P.O.T./CDU 27 #3 WELL PAD

30' EASEMENT AREA = 0.621 ACRE(S)
916.72 FEET OR 55.56 RODS

LINE	BEARING	DISTANCE
L1	S 00°16'02" W	623.83'
L2	S 89°45'48" E	73.61'
L3	S 00°16'02" W	145.03'
L4	S 89°42'35" E	74.25'

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7800

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/09/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 CTB 3 BATTERY CONNECT AND CDU 27 PAD 3 PAD CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 1 OF 17

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 89°38'06" E a distance of 1239.29' to the **Point of Beginning** of this easement having coordinates of Northing=403666.79 feet, Easting=715612.71 feet, and continuing the following courses;

Thence S 00°16'02" W, a distance of 623.83' to the Point of Intersection;

Thence S 89°45'48" E, a distance of 73.61' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 64°13'32" E a distance of 1489.82';

Thence continuing from said point of intersection the following courses;

Thence S 00°16'02" W, a distance of 145.03' to an angle point;

Thence S 89°42'35" E, a distance of 74.25' to the **Point of Ending** having coordinates of Northing=402897.57 feet, Easting=715683.38 feet, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 35°09'54" W a distance of 2287.82', covering **916.72' or 55.56 rods** and having an area of **0.621 acres**.

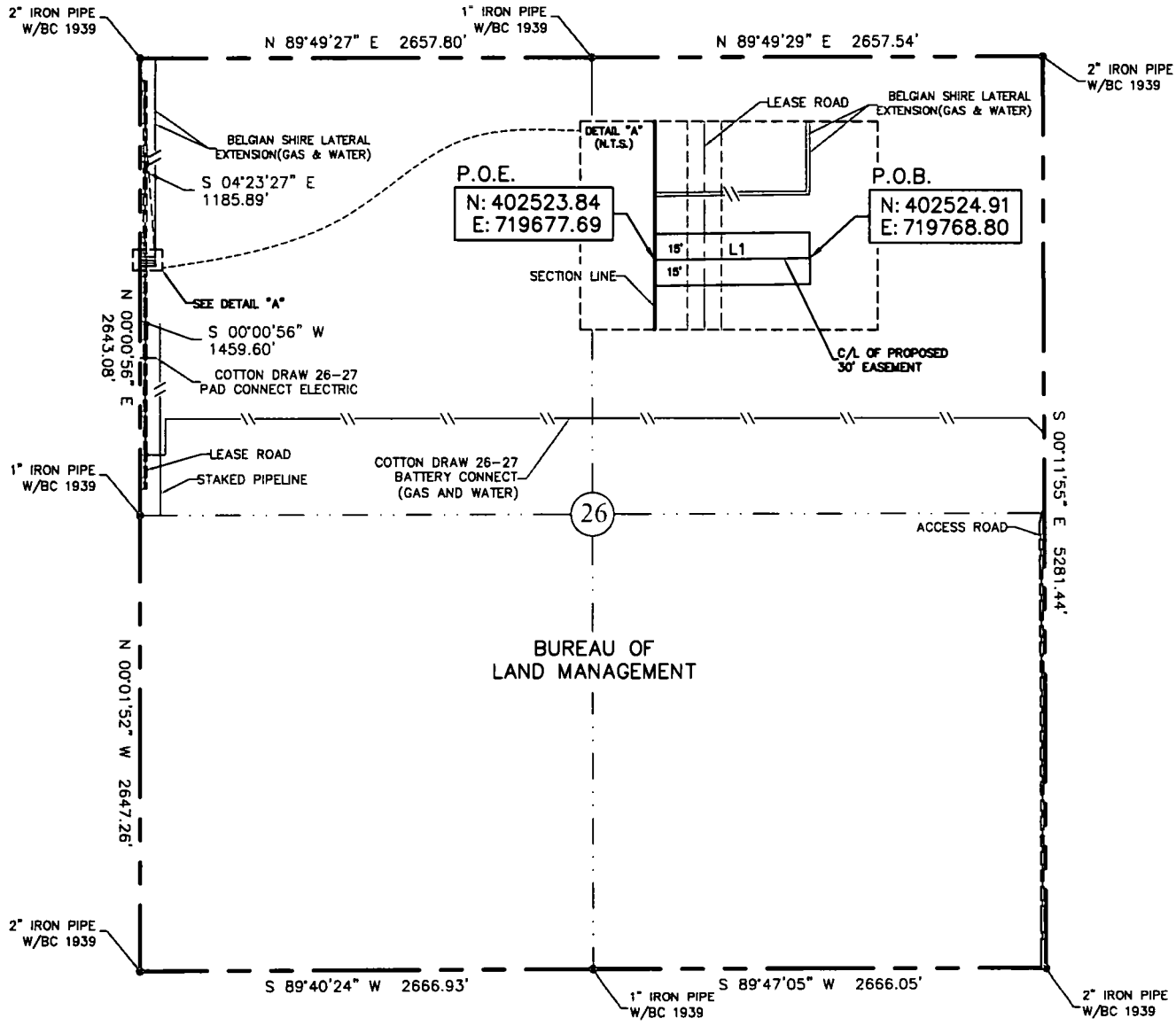
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 4 of 17
ELECTRIC LINE PLAT
SECTION 26, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.063 ACRE(S)
91.12 FEET OR 5.52 RODS

0+00.0 P.O.B.
0+35.0 PROPOSED POWER POLE
0+49.9 EDGE OF LEASE ROAD
0+61.3 C/L LEASE ROAD
0+72.6 EDGE OF LEASE ROAD
0+91.1 P.O.E. SECTION LINE

LINE	BEARING	DISTANCE
L1	S 89°19'37" W	91.12'

SEE THE ATTACHED LEGAL DESCRIPTION
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/05/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 4 PAD
CONNECT–ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 26, T25S–R31E, N.M.P.M.

LINE NUMBER: EL7601
WBS NUMBER: CC–112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 4 OF 17

SECTION 26, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 26, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northwest corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 04°23'27" E a distance of 1185.89' to the **Point of Beginning** of this easement having coordinates of Northing=402524.91 feet, Easting=719768.80 feet, and continuing the following course;

Thence S 89°19'37" W, a distance of 91.12' to the **Point of Ending** having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, being in the west line of Section 26, T25S-R31E, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 00°00'56" W a distance of 1459.60', covering **91.12' or 5.52 rods** and having an area of **0.063 acres**.

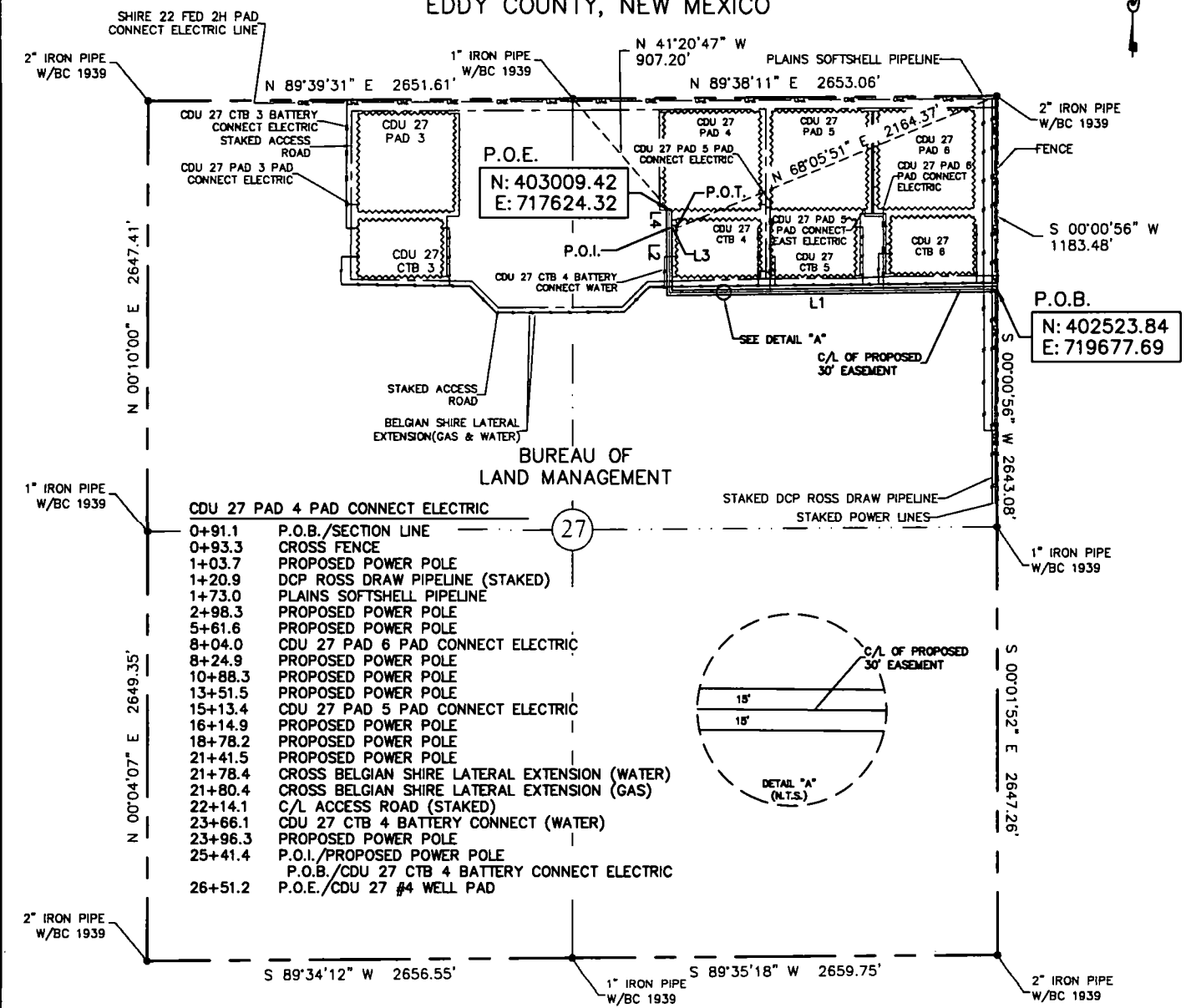
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 6 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 PAD 4 PAD CONNECT ELECTRIC

0+91.1	P.O.B./SECTION LINE
0+93.3	CROSS FENCE
1+03.7	PROPOSED POWER POLE
1+20.9	DCP ROSS DRAW PIPELINE (STAKED)
1+73.0	PLAINS SOFTSHELL PIPELINE
2+98.3	PROPOSED POWER POLE
5+61.6	PROPOSED POWER POLE
8+04.0	CDU 27 PAD 6 PAD CONNECT ELECTRIC
8+24.9	PROPOSED POWER POLE
10+88.3	PROPOSED POWER POLE
13+51.5	PROPOSED POWER POLE
15+13.4	CDU 27 PAD 5 PAD CONNECT ELECTRIC
16+14.9	PROPOSED POWER POLE
18+78.2	PROPOSED POWER POLE
21+41.5	PROPOSED POWER POLE
21+78.4	CROSS BELGIAN SHIRE LATERAL EXTENSION (WATER)
21+80.4	CROSS BELGIAN SHIRE LATERAL EXTENSION (GAS)
22+14.1	C/L ACCESS ROAD (STAKED)
23+66.1	CDU 27 CTB 4 BATTERY CONNECT (WATER)
23+96.3	PROPOSED POWER POLE
25+41.4	P.O.I./PROPOSED POWER POLE P.O.B./CDU 27 CTB 4 BATTERY CONNECT ELECTRIC
26+51.2	P.O.E./CDU 27 #4 WELL PAD

CDU 27 CTB 4 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE P.O.I./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+44.9	P.O.T./CDU 27 CTB 4 PAD

LINE	BEARING	DISTANCE
L1	S 89°19'37" W	2050.37'
L2	N 00°21'11" W	399.93'
L3	N 89°39'00" E	44.87'
L4	N 00°21'11" W	109.74'

30' EASEMENT AREA = 1.784 ACRE(S)
2604.91 FEET OR 157.87 RODS

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 4 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7795

HORIZON ROW LLC
Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 4 PAD CONNECT AND CDU 27 CTB 4 BATTERY CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 6 OF 17

Drawn by: WAYNE BEETS
Date: 05/09/2016

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 00°00'56" W a distance of 1183.48' to the **Point of Beginning** of this easement having coordinates of Northing=402523.84 feet, Easting=719677.69 feet, and continuing the following courses;

Thence S 89°19'37" W, a distance of 2050.37' to an angle point;

Thence N 00°21'11" W, a distance of 399.93' to the Point of Intersection;

Thence N 89°39'00" E, a distance of 44.87' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 68°05'51" E a distance of 2164.37';

Thence continuing from said point of intersection the following courses;

Thence N 00°21'11" W, a distance of 109.74' to the **Point of Ending** having coordinates of Northing=403009.42 feet, Easting=717624.32 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 41°20'47" W a distance of 907.20', covering **2604.91' or 157.87 rods** and having an area of **1.784 acres**.

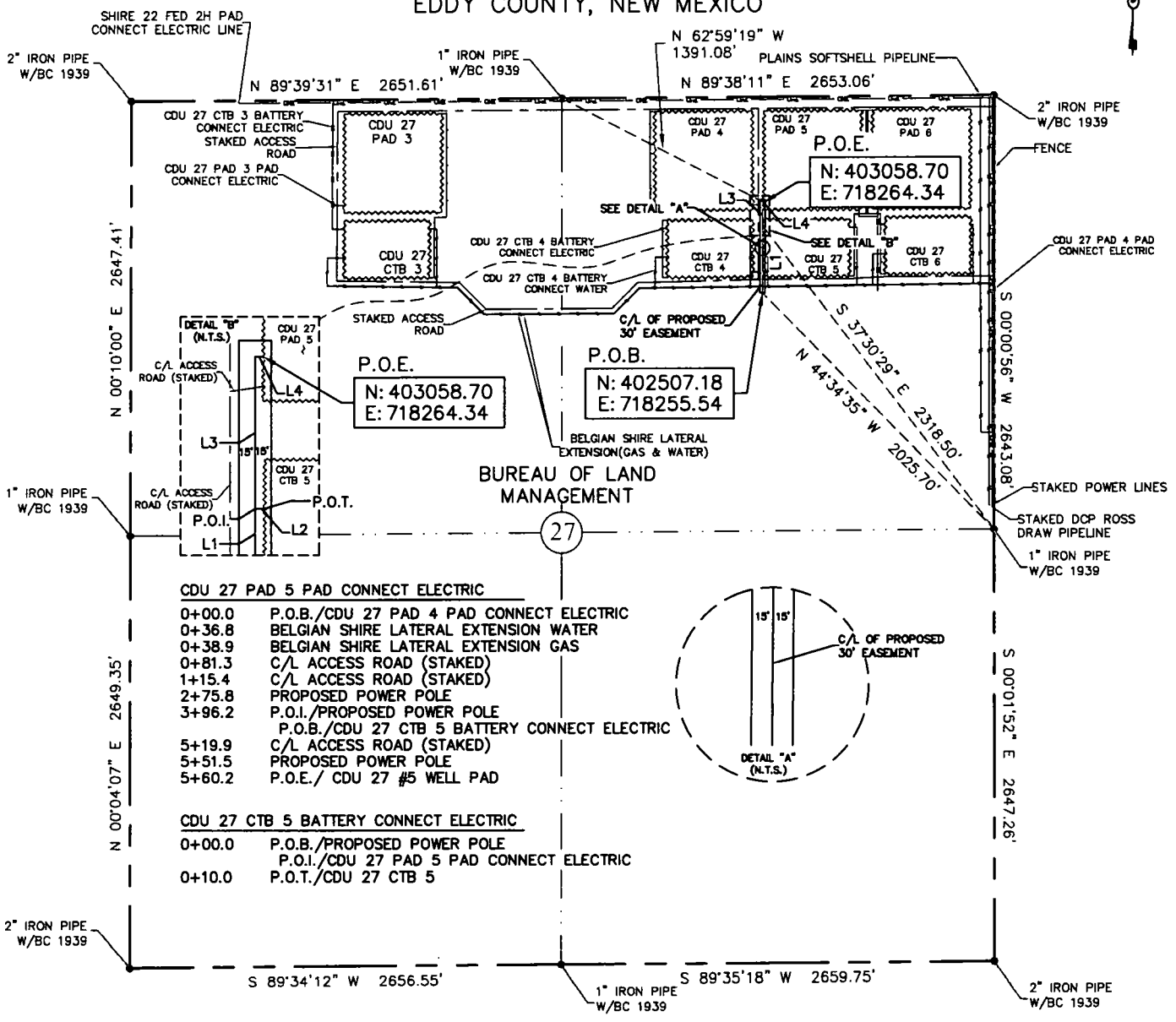
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 9 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 PAD 5 PAD CONNECT ELECTRIC

0+00.0	P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+36.8	BELGIAN SHIRE LATERAL EXTENSION WATER
0+38.9	BELGIAN SHIRE LATERAL EXTENSION GAS
0+81.3	C/L ACCESS ROAD (STAKED)
1+15.4	C/L ACCESS ROAD (STAKED)
2+75.8	PROPOSED POWER POLE
3+96.2	P.O.I./PROPOSED POWER POLE
	P.O.B./CDU 27 CTB 5 BATTERY CONNECT ELECTRIC
5+19.9	C/L ACCESS ROAD (STAKED)
5+51.5	PROPOSED POWER POLE
5+60.2	P.O.E./ CDU 27 #5 WELL PAD

CDU 27 CTB 5 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE
	P.O.I./CDU 27 PAD 5 PAD CONNECT ELECTRIC
0+10.0	P.O.T./CDU 27 CTB 5

LINE	BEARING	DISTANCE
L1	N 00°00'59" E	396.22'
L2	N 89°50'02" E	9.97'
L3	N 00°00'59" E	155.30'
L4	N 89°59'36" E	8.65'

30' EASEMENT AREA = 0.390 ACRE(S)
570.14 FEET OR 34.55 RODS

0 1000 2000

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 5 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7796

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/09/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 5 PAD CONNECT AND CDU 27 CTB 5 BATTERY CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 9 OF 17

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 44°34'35" W a distance of 2025.70' to the **Point of Beginning** of this easement having coordinates of Northing=402507.18 feet, Easting=718255.54 feet, and continuing the following courses;

Thence N 00°00'59" E, a distance of 396.22' to the Point of Intersection;

Thence N 89°50'02" E, a distance of 9.97' to the point of termination of this portion of said easement, from said point a 1" iron pipe w/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 37°30'29" E a distance of 2318.50';

Thence continuing from said point of intersection the following courses;

Thence N 00°00'59" E, a distance of 155.30' to an angle point;

Thence N 89°59'36" E, a distance of 8.65' to the **Point of Ending** having coordinates of Northing=403058.70 feet, Easting=718264.34 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 62°59'19" W a distance of 1391.08', covering **570.14' or 34.55 rods** and having an area of **0.390 acres**.

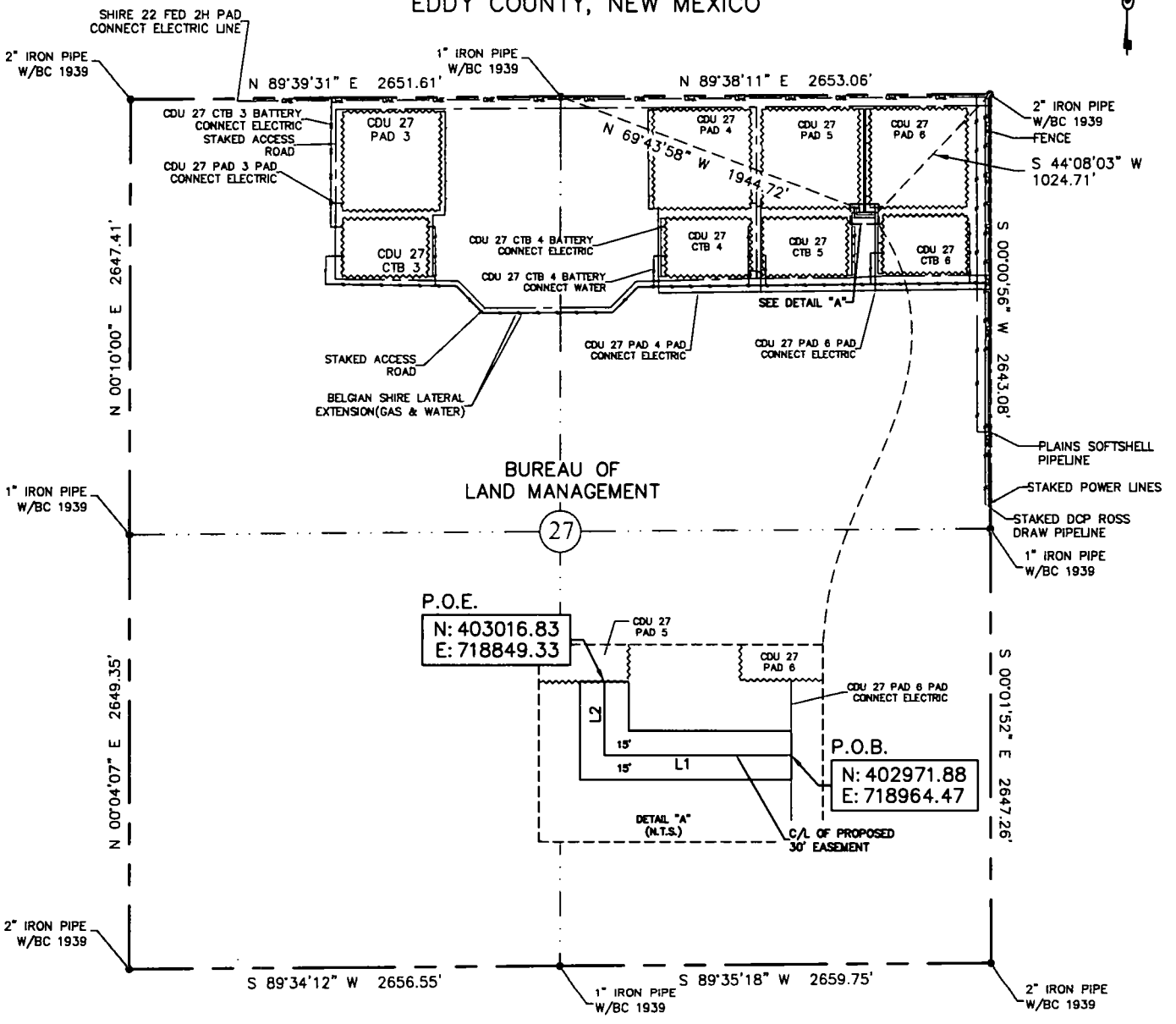
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 12 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.110 ACRE(S)
160.17 FEET OR 9.71 RODS

0+00.0	P.O.B./CDU 27 PAD 6 PAD CONNECT ELECTRIC
1+15.2	PROPOSED POWER POLE
1+60.2	P.O.E./CDU 27 #5 WELL PAD

LINE	BEARING	DISTANCE
L1	S 89°58'05" W	115.15'
L2	N 00°01'04" E	45.02'

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

0 1000 2000

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for: devon
Drawn by: WAYNE BEETS
Date: 05/10/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 5 PAD
CONNECT EAST–ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

LINE NUMBER: EL7814
WBS NUMBER: CC-112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 12 OF 17

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC 1939 for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 44°08'03" W a distance of 1024.71' to the **Point of Beginning** of this easement having coordinates of Northing=402971.88 feet, Easting=718964.47 feet, and continuing the following courses;

Thence S 89°58'05" W, a distance of 115.15' to an angle point;

Thence N 00°01'04" E, a distance of 45.02' to the **Point of Ending** having coordinates of Northing=403016.83 feet, Easting=718849.33 feet, from said point a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 69°43'58" W a distance of 1944.72', covering **160.17' or 9.71 rods** and having an area of **0.110 acres**.

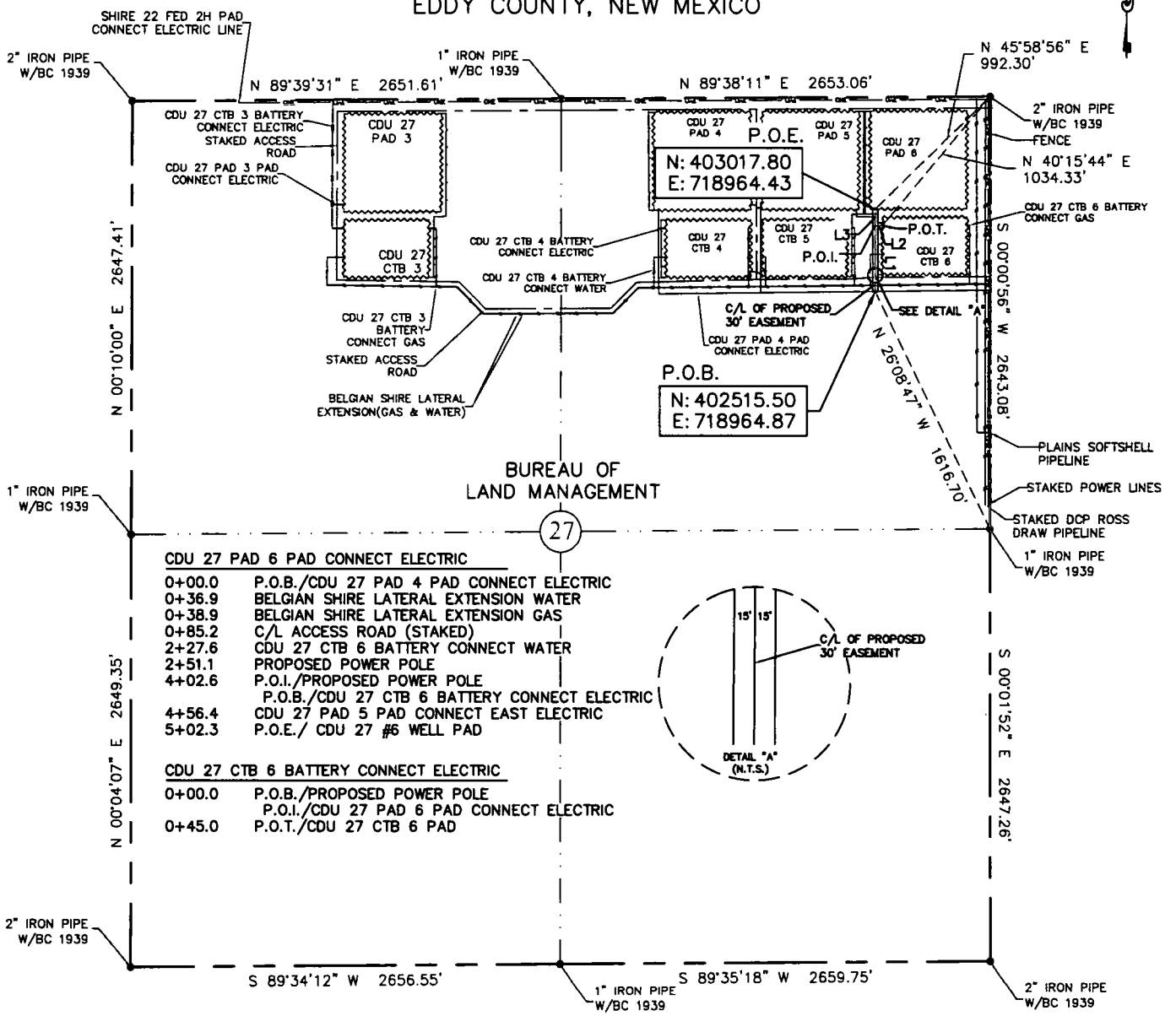
NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 14 of 17
ELECTRIC LINE PLAT
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



CDU 27 PAD 6 PAD CONNECT ELECTRIC

0+00.0	P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
0+36.9	BELGIAN SHIRE LATERAL EXTENSION WATER
0+38.9	BELGIAN SHIRE LATERAL EXTENSION GAS
0+85.2	C/L ACCESS ROAD (STAKED)
2+27.6	CDU 27 CTB 6 BATTERY CONNECT WATER
2+51.1	PROPOSED POWER POLE
4+02.6	P.O.I./PROPOSED POWER POLE P.O.B./CDU 27 CTB 6 BATTERY CONNECT ELECTRIC
4+56.4	CDU 27 PAD 5 PAD CONNECT EAST ELECTRIC
5+02.3	P.O.E./ CDU 27 #6 WELL PAD

CDU 27 CTB 6 BATTERY CONNECT ELECTRIC

0+00.0	P.O.B./PROPOSED POWER POLE P.O.I./CDU 27 PAD 6 PAD CONNECT ELECTRIC
0+45.0	P.O.T./CDU 27 CTB 6 PAD

LINE	BEARING	DISTANCE
L1	N 00°03'00" W	402.56'
L2	S 89°58'05" E	45.02'
L3	N 00°03'00" W	99.74'

30' EASEMENT AREA = 0.367 ACRE(S)
547.32 FEET OR 33.17 RODS

0 1000 2000

SEE THE ATTACHED LEGAL DESCRIPTION

Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. LAMAN NEW MEXICO 22404 PROFESSIONAL SURVEYOR

B.L. Laman PLS #22404
Date Signed: 05-13-2016
Horizonrow, LLC
571 State Street Jasper, TX. 75951
(409) 202-5111
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 27 PAD 6 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7797

HORIZON ROW LLC
Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 PAD 6 PAD CONNECT AND CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 14 OF 17

Drawn by: WAYNE BEETS
Date: 05/09/2016

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 26°08'47" W a distance of 1616.70' to the **Point of Beginning** of this easement having coordinates of Northing=402515.50 feet, Easting=718964.87 feet, and continuing the following courses;

Thence N 00°03'00" W, a distance of 402.56' to the Point of Intersection;

Thence S 89°58'05" E, a distance of 45.02' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 40°15'44" E a distance of 1034.33';

Thence continuing from said point of intersection the following course;

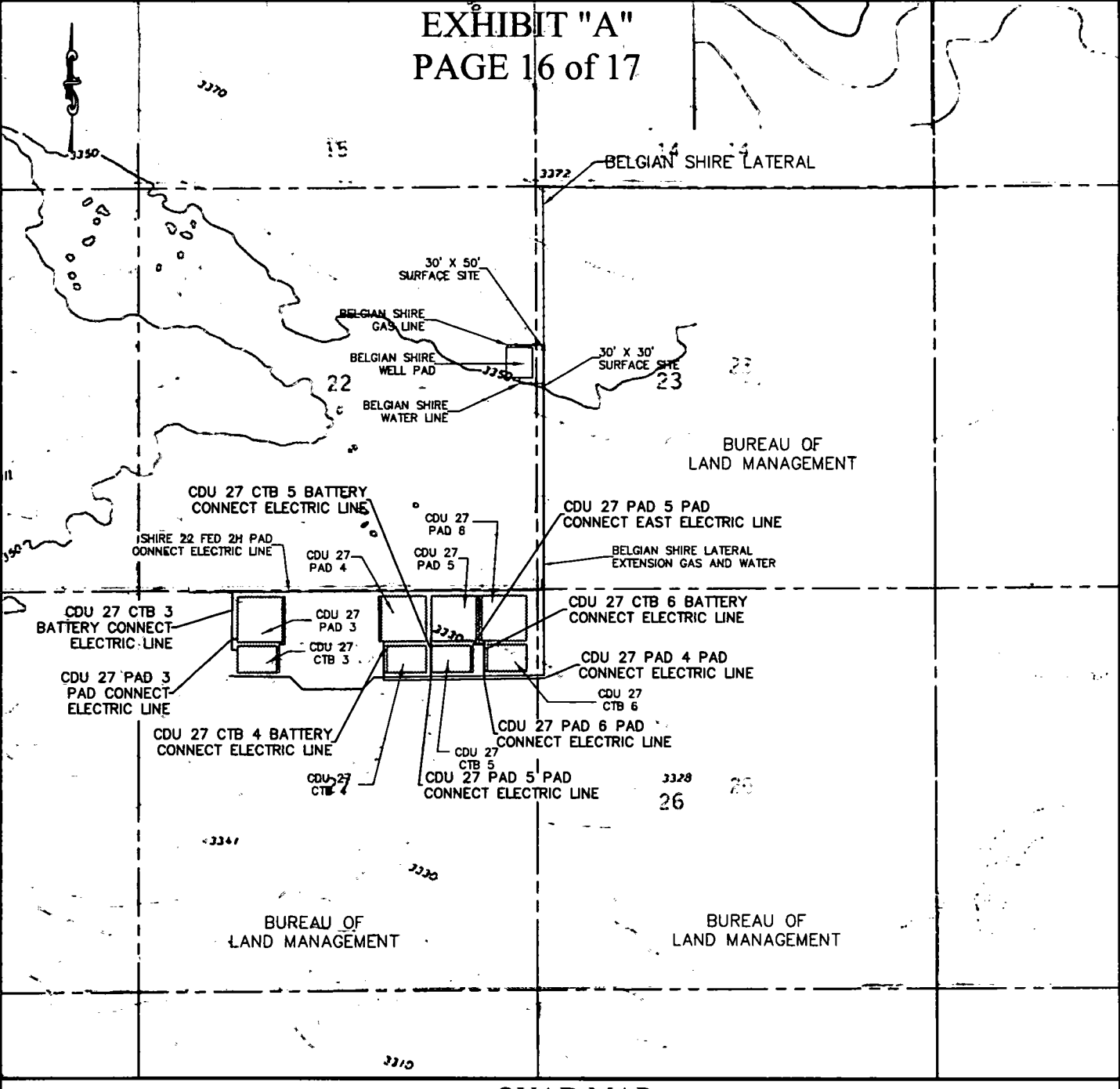
Thence N 00°03'00" W, a distance of 99.74' to the **Point of Ending** having coordinates of Northing=403017.80 feet, Easting=718964.43 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 45°58'56" E a distance of 992.30', covering **547.32' or 33.17 rods** and having an area of **0.367 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC



QUAD MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7796
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7797

Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT

SCALE: 1" = 2000'

REVISIONS:

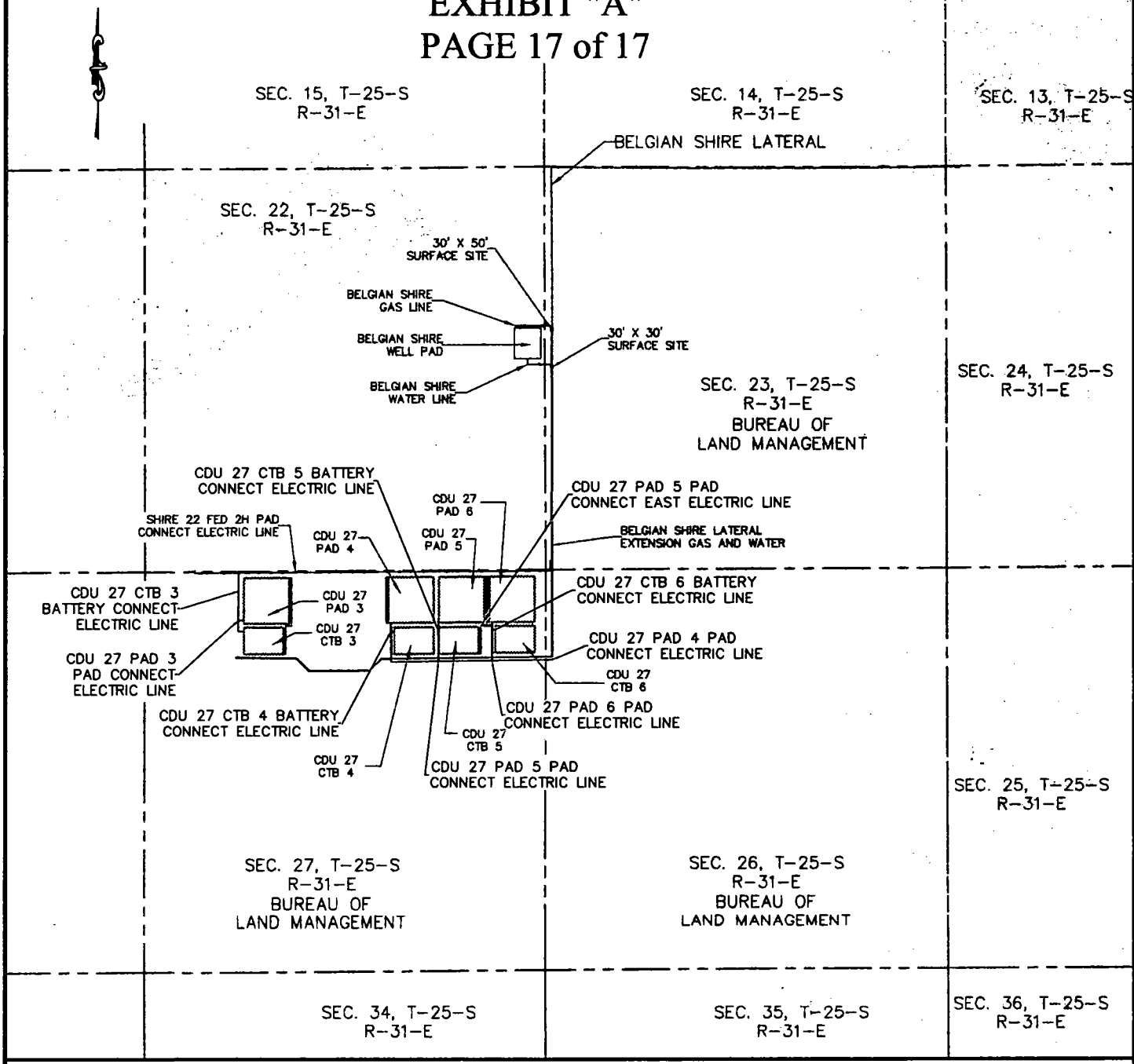
SHEET: 16 OF 17

Drawn by: WAYNE SEETS

Date: 05/10/2018

HORIZON ROW LLC

EXHIBIT "A"
PAGE 17 of 17



AERIAL MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WES NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT-ELECTRIC LINE	OC-112971.AL	EL7794
CDU 27 PAD 3 PAD CONNECT-ELECTRIC LINE	OC-112971.AL	EL7800
CDU 27 PAD 4 PAD CONNECT-ELECTRIC LINE	OC-112971.AL	EL7801
CDU 27 CTB 4 BATTERY CONNECT-ELECTRIC LINE	OC-112971.AL	EL7795
CDU 27 PAD 5 PAD CONNECT EAST-ELECTRIC LINE	OC-112971.AL	EL7814
CDU 27 PAD 5 PAD CONNECT-ELECTRIC LINE	OC-112971.AL	EL7802
CDU 27 CTB 5 BATTERY CONNECT-ELECTRIC LINE	OC-112971.AL	EL7796
CDU 27 PAD 6 PAD CONNECT-ELECTRIC LINE	OC-112971.AL	EL7803
CDU 27 CTB 6 BATTERY CONNECT-ELECTRIC LINE	OC-112971.AL	EL7797

Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT

SCALE: 1" = 2000'

REVISIONS:

SHEET: 17 OF 17

Drawn by: WAYNE BEETS

Date: 05/10/2016

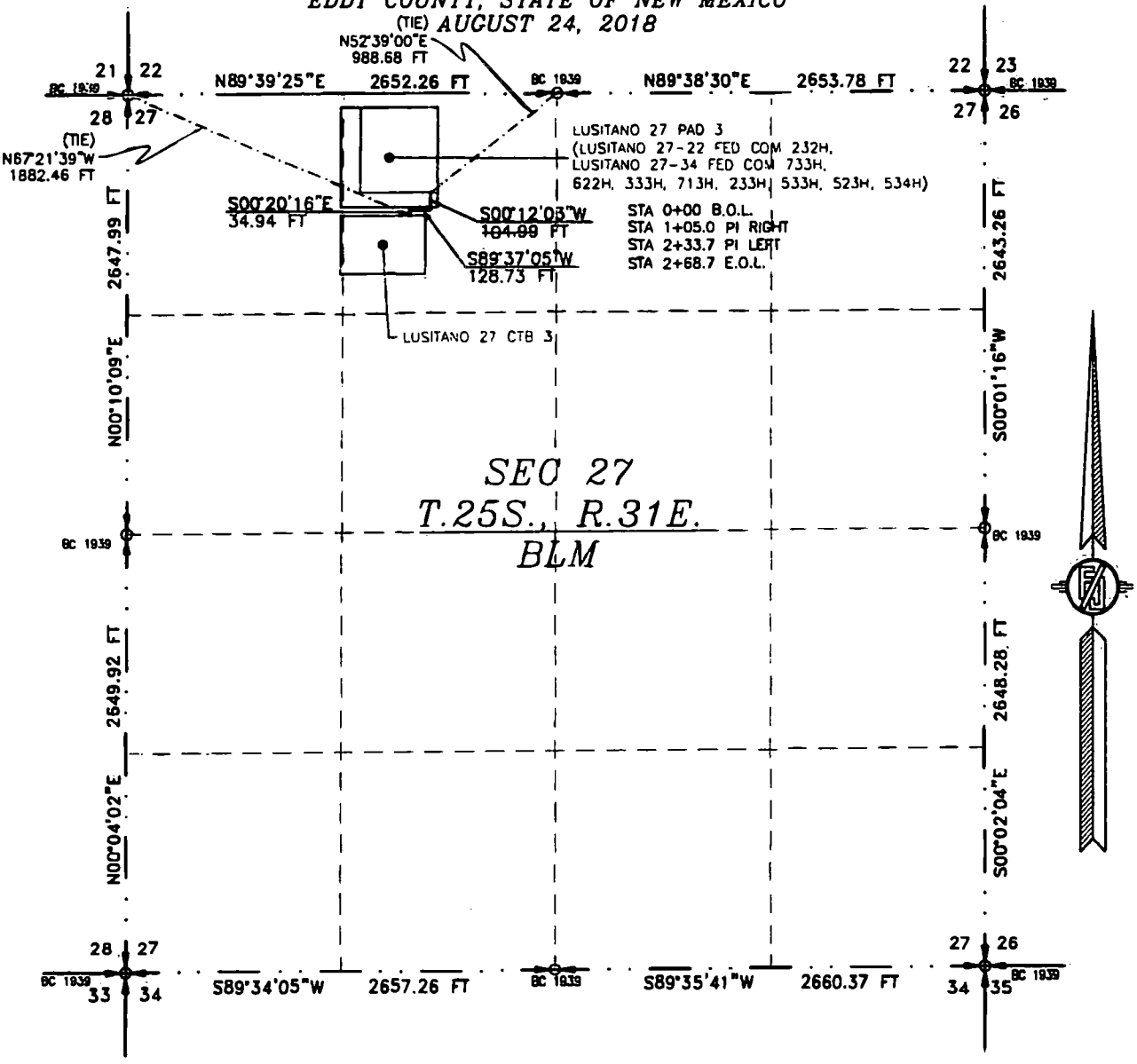
HORIZON ROW LLC

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
(TIE) AUGUST 24, 2018



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 27 DAY OF AUGUST 2018

FILIMON F. JARAMILLO, NO. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 6504

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 24, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N52°39'00"E, A DISTANCE OF 988.68 FEET;
THENCE S00°12'03"W A DISTANCE OF 104.99 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°37'05"W A DISTANCE OF 128.73 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°20'16"E A DISTANCE OF 34.94 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N67°21'39"W, A DISTANCE OF 1882.46 FEET;

SAID STRIP OF LAND BEING 268.66 FEET OR 16.28 RODS IN LENGTH, CONTAINING 0.185 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	268.66 L.F.	16.28 RODS	0.185 ACRES

GENERAL NOTES

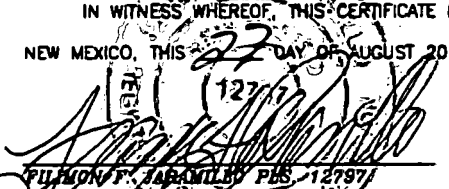
1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 22 DAY OF AUGUST 2018



FILIMON F. JARAMILLO PLS. 12797

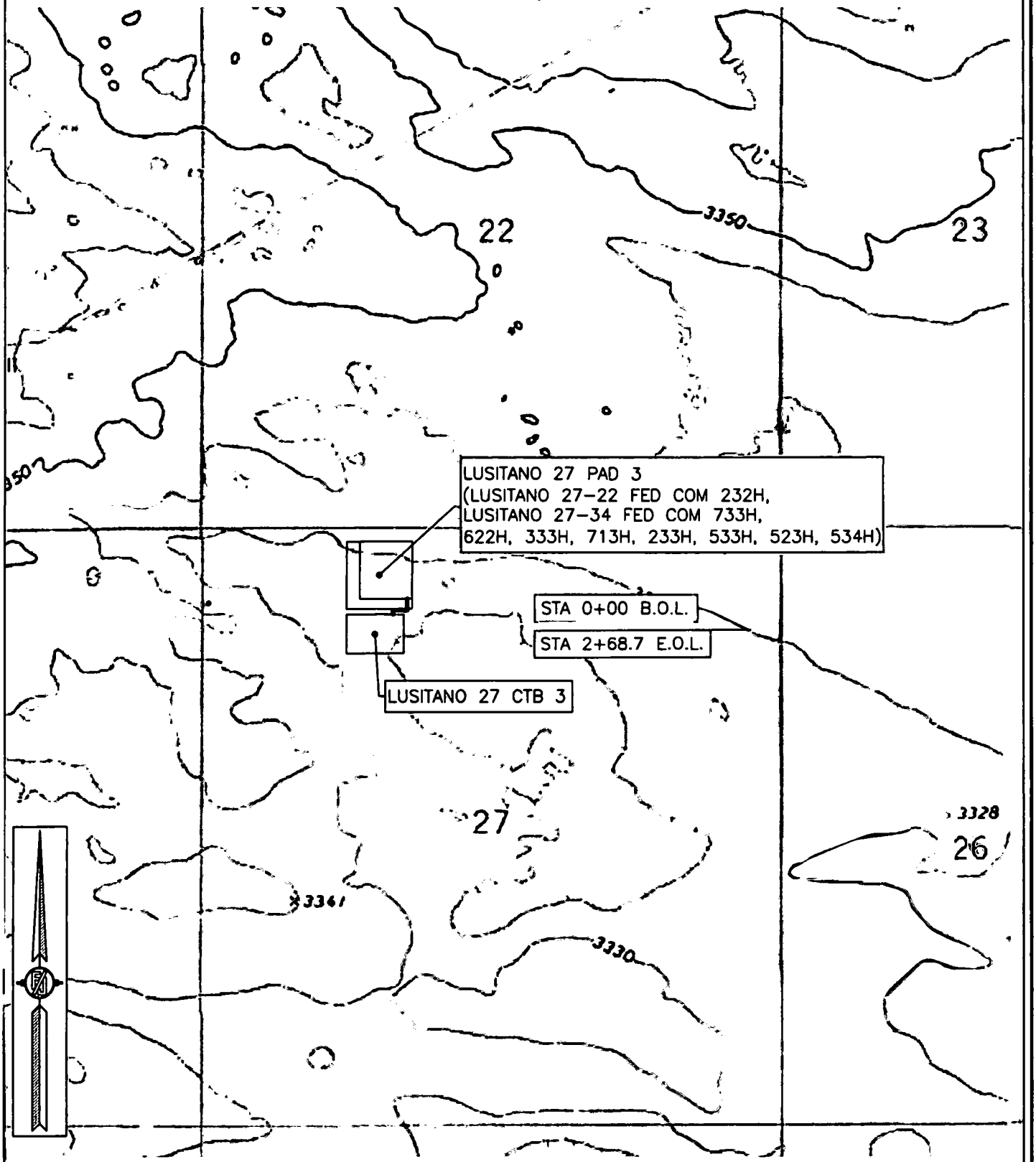
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 24, 2018



SHEET: 3-4

SURVEY NO. 6504

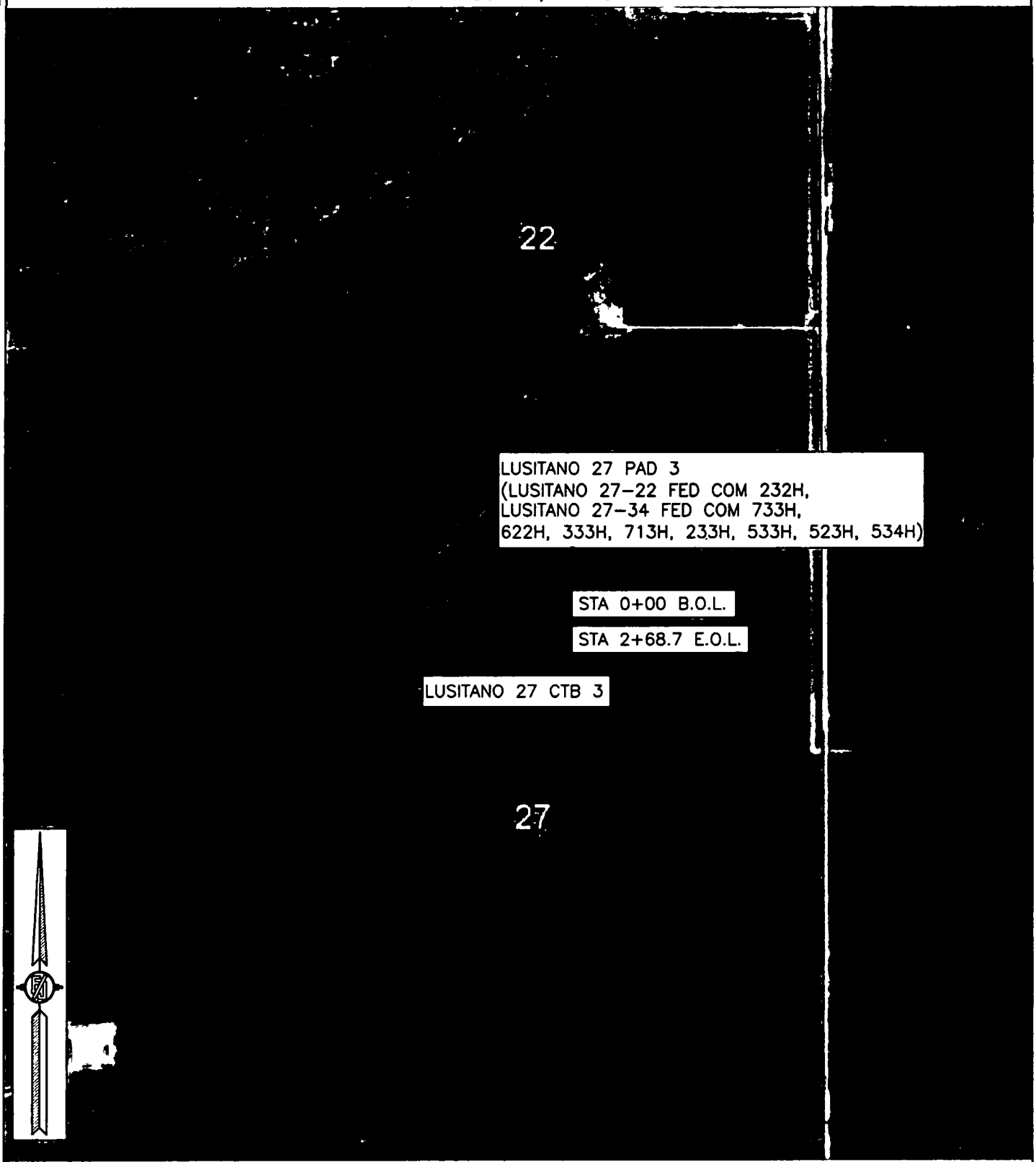
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT

NINE 8" BURIED COMPOSITE FLOWLINES AND ONE 8" GAS LIFT LINE FROM THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 733H, 622H, 333H, 713H, 233H, 533H, 523H, 534H) TO THE LUSITANO 27 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AUGUST 24, 2018



SHEET: 4-4 *SURVEY NO. 6504*

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

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

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

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

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

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

01/18/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: