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.
NMNM125635

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 34-15 FED COM
523H 326158

2. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP

9. API Well No.
30-015-46329

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	WILLOW LAKE SE / BONESPRING

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NENW / 610 FNL / 1750 FWL / LAT 32.0923222 / LONG -103.7689512
At proposed prod. zone NENW / 20 FNL / 2310 FWL / LAT 32.137629 / LONG -103.7669156

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 34 / 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
610 feet	720	520

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
120 feet	8765 feet / 25647 feet	FED: NMB000801

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3333 feet	01/14/2020	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)	Jenny Harms / Ph: (405)524-4902	06/13/2019

Title
Regulatory Compliance Professional

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	09/30/2019

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS
Approval Date: 09/30/2019

(Continued on page 2)

*(Instructions on page 2)

RJP 10-3-19.

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 / 610 FNL / 1750 FWL / TWSP: 25S / RANGE: 31E / SECTION: 34 / LAT: 32.0923222 / LONG: -103.7689512 (TVD: 0 feet, MD: 0 feet)
   PPP: SESW / 1 FSL / 2478 FWL / TWSP: 25S / RANGE: 31E / SECTION: 22 / LAT: 32.108649 / LONG: -103.766512 (TVD: 8765 feet, MD: 15100 feet)
   PPP: NENW / 1224 FNL / 2310 FWL / TWSP: 25S / RANGE: 31E / SECTION: 34 / LAT: 32.0906377 / LONG: -103.7671442 (TVD: 8192 feet, MD: 8257 feet)
   BHL: NENW / 20 FNL / 2310 FWL / TWSP: 25S / RANGE: 31E / SECTION: 15 / LAT: 32.137629 / LONG: -103.7669156 (TVD: 8765 feet, MD: 25647 feet)

BLM Point of Contact

Name: Candy Vigil
Title: Admin Support Assistant
Phone: 5752345982
Email: cvigil@blm.gov

Review and Appeal Rights

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

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company LP**
LEASE NO.:	**NMNM125635**
WELL NAME & NO.:	Lusitano 34-15 Fed Com 523H
SURFACE HOLE FOOTAGE:	610'/N & 1750'/W
BOTTOM HOLE FOOTAGE	20'/N & 2310'/W
LOCATION:	Section 34, T.25 S., R.31 E., NMP
COUNTY:	Eddy County, New Mexico

COA

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

A. HYDROGEN SULFIDE

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** inch surface casing shall be set at approximately **1035 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to

include the lead cement)

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

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

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing shall be set at approximately **4235 feet** is:

Option 1 (Single Stage):

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

Option 2:

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

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

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

❖ In Medium 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.

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 BLM.

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

    - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
      Cement excess is less than 25%, more cement might be required. (13%)

C. PRESSURE CONTROL

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

2.

Option 1:

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

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

Option 2:

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

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

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

A. CASING

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

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

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

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

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

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

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

B. PRESSURE CONTROL

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

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

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

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

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

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

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

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
WELL NAME & NO.:	Lusitano 34-15 Fed Com 523H
SURFACE HOLE FOOTAGE:	610'/N & 1750'/W
BOTTOM HOLE FOOTAGE	20'/N & 2310'/W
LOCATION:	Section 34, T.25 S., R.31 E., NMP
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

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)

Build as you go sub-pad Pad: No Grading full Pad

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.

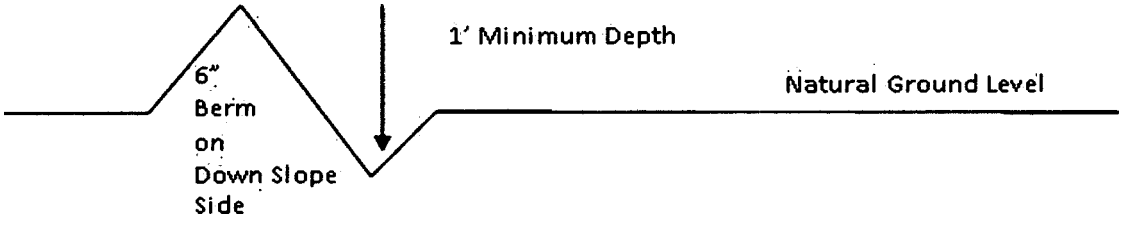
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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:

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

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

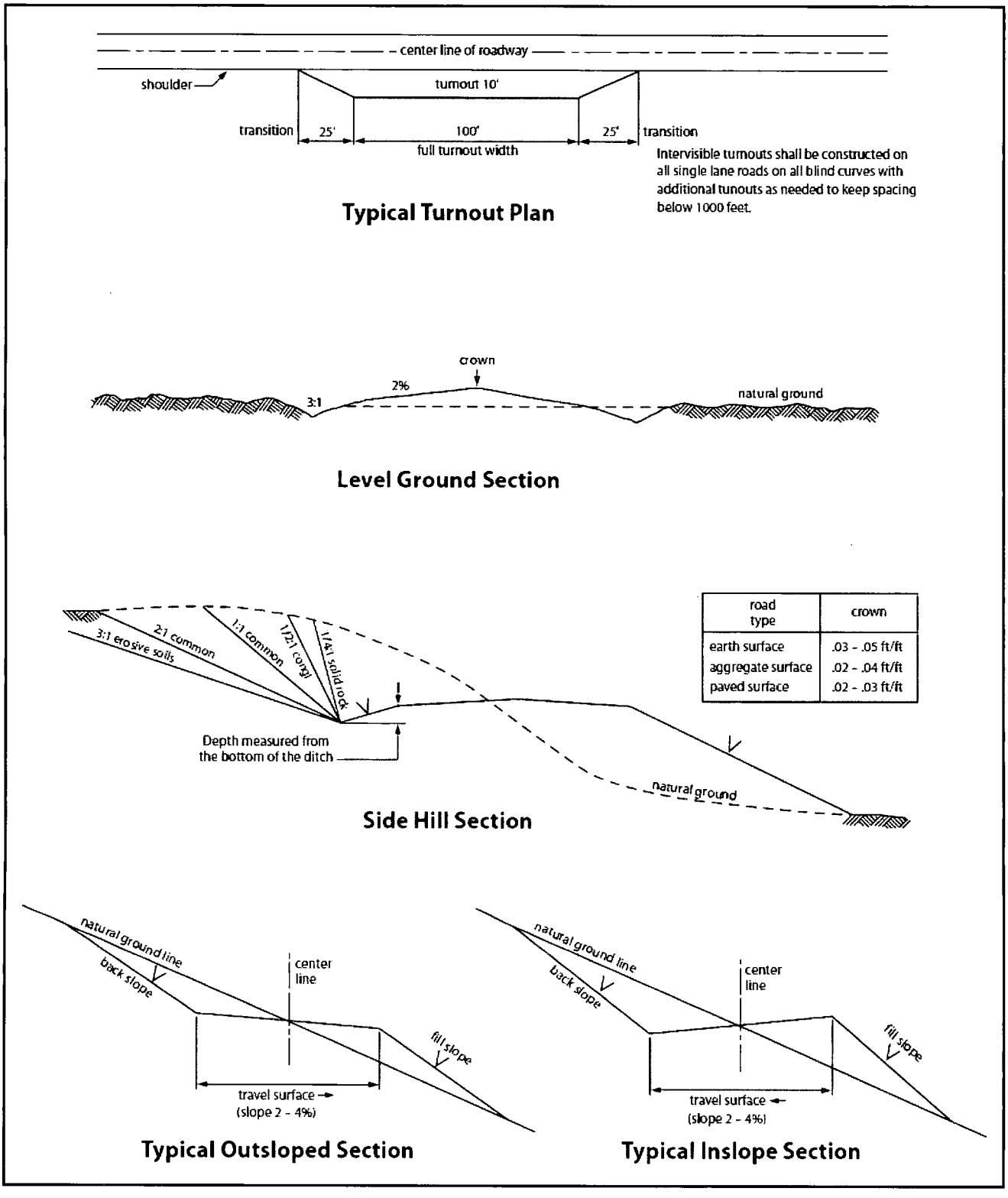


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures

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

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

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

AFMSS

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

Operator Certification Data Report

09/30/2019

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: Jenny Harms **Signed on:** 06/13/2019

Title: Regulatory Compliance Professional

Street Address: 333 W SHERDIAN AVE

City: OKLAHOMA CITY **State:** OK **Zip:** 73170

Phone: (405)524-4902

Email address: RAY.VAZ@DVN.COM

Field Representative

Representative Name: Ray Vaz

Street Address: 333 WEST SHERIDAN AVENUE

City: OKLAHOMA CITY **State:** OK **Zip:** 73102-5015

Phone: (405)552-4902

Email address: ray.vaz@dvn.com

AFMSS

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

Application Data Report

09/30/2019

APD ID: 10400042741 **Submission Date:** 06/13/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400042741 **Tie to previous NOS?** **Submission Date:** 06/13/2019

BLM Office: CARLSBAD **User:** Jenny Harms **Title:** Regulatory Compliance Professional

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

Lease number: NMNM125635 **Lease Acres:** 720

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? NEW **Master Development Plan name:** COTTON DRAW MDP 1

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

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

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WILLOW LAKE SE **Pool Name:** BONESPRING

Is the proposed well in an area containing other mineral resources? POTASH

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

Is the proposed well in an area containing other mineral resources? POTASH

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 34 WELL PAD **Number:** 1

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: **Distance to nearest well:** 120 FT **Distance to lease line:** 610 FT

Reservoir well spacing assigned acres Measurement: 520 Acres

Well plat: LUSITANO_34_15_FED_COM_523H_WL_P_R1_signed_C102_20190613094221.pdf

Well work start Date: 01/14/2020 **Duration:** 45 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

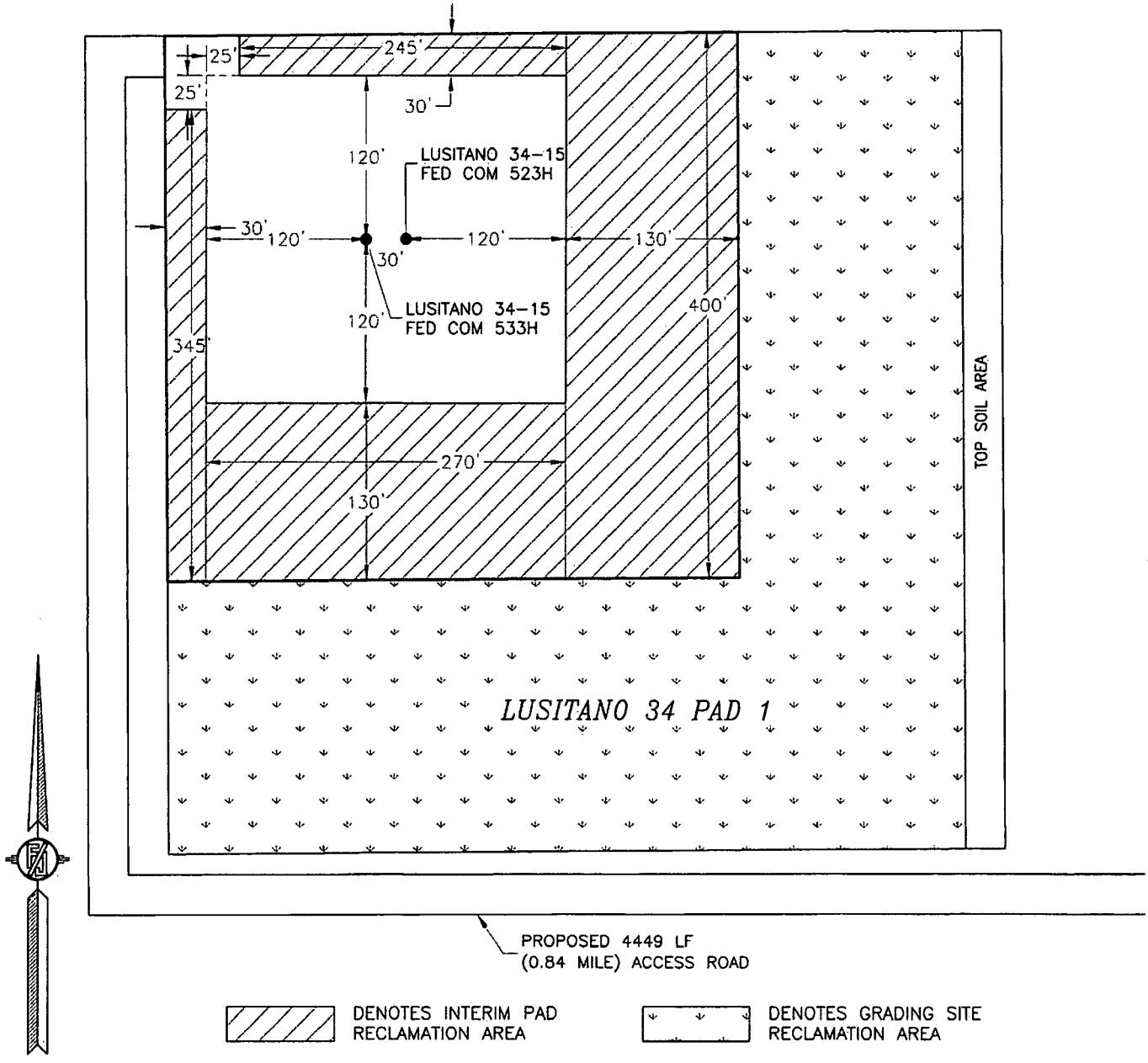
Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 7299A **Reference Datum:**

	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	610	FNL	1750	FWL	25S	31E	34	Aliquot NENW	32.0923222	-103.7689512	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 125635	3333	0	0
KOP Leg #1	1170	FNL	2310	FWL	25S	31E	34	Aliquot NENW	32.090775	-103.7671442	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 125635	-4859	8257	8192
PPP Leg #1	1224	FNL	2310	FWL	25S	31E	34	Aliquot NENW	32.0906377	-103.7671442	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 125635	-4859	8257	8192

SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



012 60 120 240
SCALE 1" = 120'

2.409± ACRES INTERIM PAD RECLAMATION AREA
4.312± ACRES GRADING SITE RECLAMATION AREA
1.544± ACRES NON-RECLAIMED AREA
8.265± ACRES LUSITANO 34 PAD 1

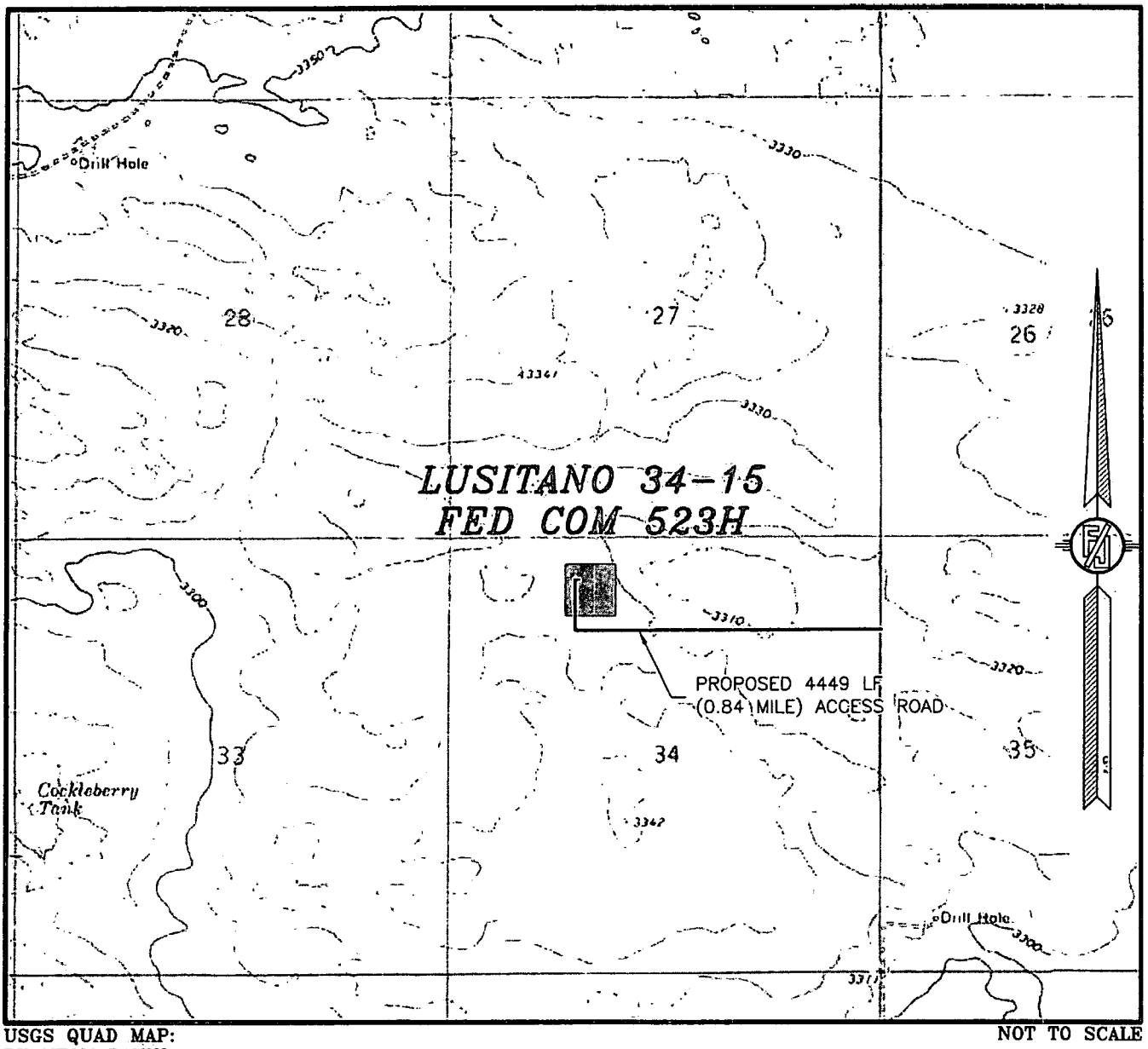
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 34-15 FED COM 523H
LOCATED 610 FT. FROM THE NORTH LINE AND 1750 FT. FROM THE WEST LINE OF SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

JUNE 10, 2019
SURVEY NO. 7299A

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

SECTION 34, 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 34-15 FED COM 523H
LOCATED 610 FT. FROM THE NORTH LINE
AND 1750 FT. FROM THE WEST LINE OF
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

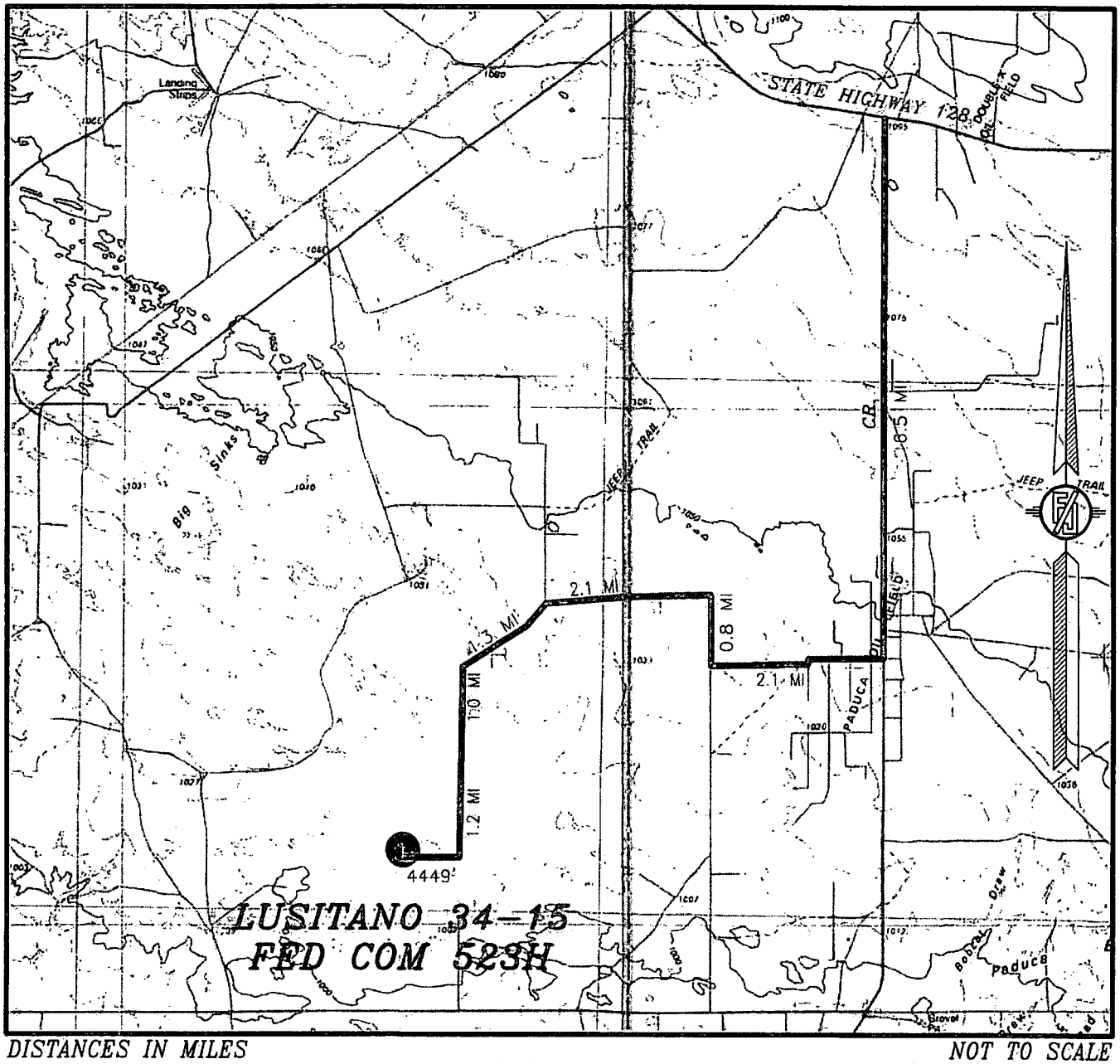
JUNE 10, 2019

SURVEY NO. 7299A

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

SECTION 34, 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 34-15 FED COM 523H

LOCATED 610 FT. FROM THE NORTH LINE
AND 1750 FT. FROM THE WEST LINE OF
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

JUNE 10, 2019

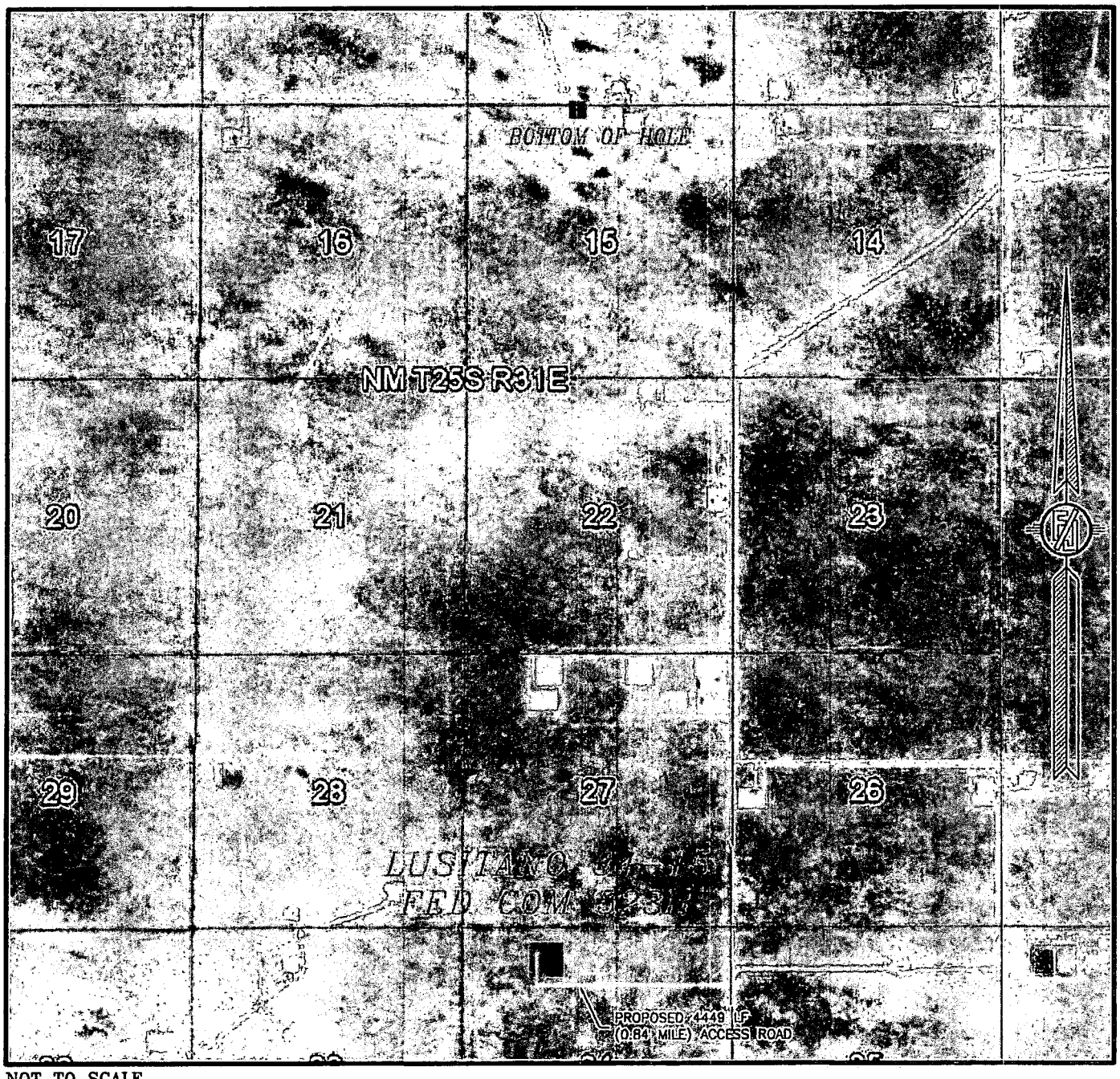
DIRECTIONS TO LOCATION
FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.0 MILE, CONTINUE SOUTH ON 25' CALICHE LEASE ROAD FOR APPROX. 1.2 MILE TO BEGIN ROAD SURVEY, FOLLOW ROAD SURVEY WEST 3789', TURN RIGHT GO NORTH 660' (TOTAL OF 4449') TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

SURVEY NO. 7299A

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

SECTION 34, 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
FEBRUARY 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34-15 FED COM 523H

LOCATED 610 FT. FROM THE NORTH LINE
AND 1750 FT. FROM THE WEST LINE OF
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

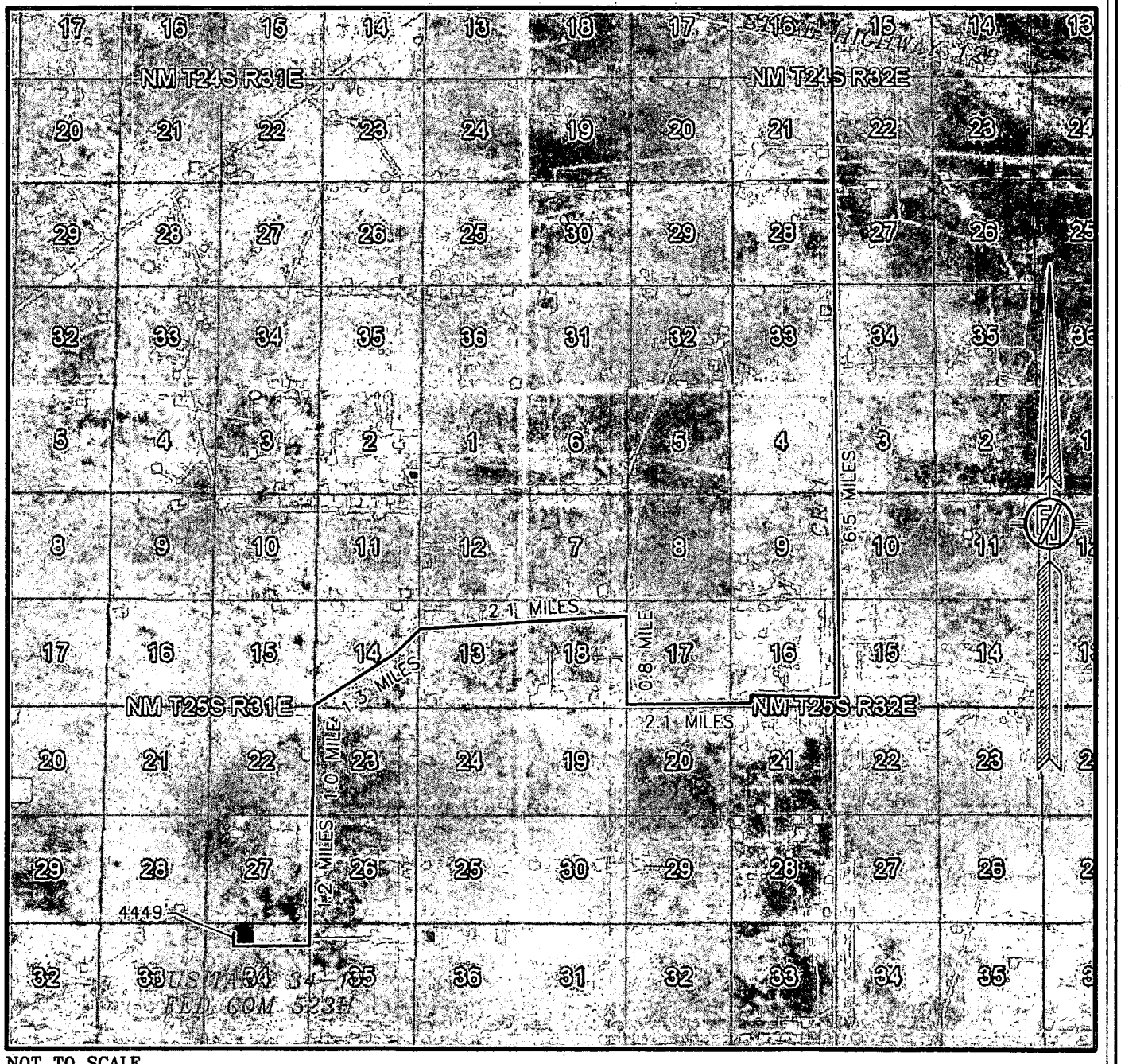
JUNE 10, 2019

SURVEY NO. 7299A

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

SECTION 34, 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
FEBRUARY 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34-15 FED COM 523H

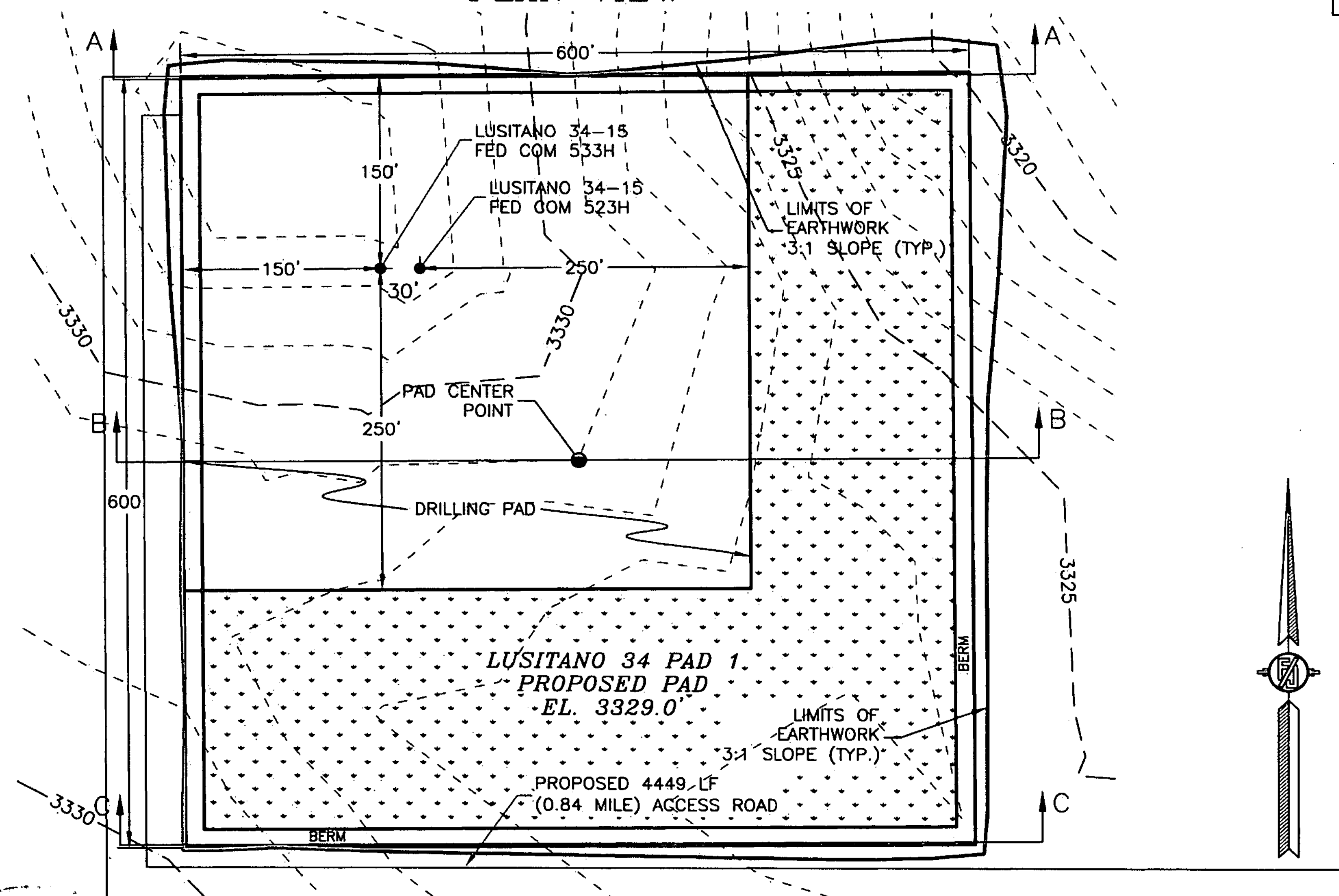
LOCATED 610 FT. FROM THE NORTH LINE
AND 1750 FT. FROM THE WEST LINE OF
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

JUNE 10, 2019

SURVEY NO. 7299A

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

PLAN VIEW



I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

6/11/19

FILIMON F. JARAMILLO PLS 12797 DATE

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 34-15 FED COM 523H
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

0 1 2 60 120 240

SCALE 1" = 120'

CUT	FILL	NET
8058 CU. YD	25565 CU. YD	17507 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

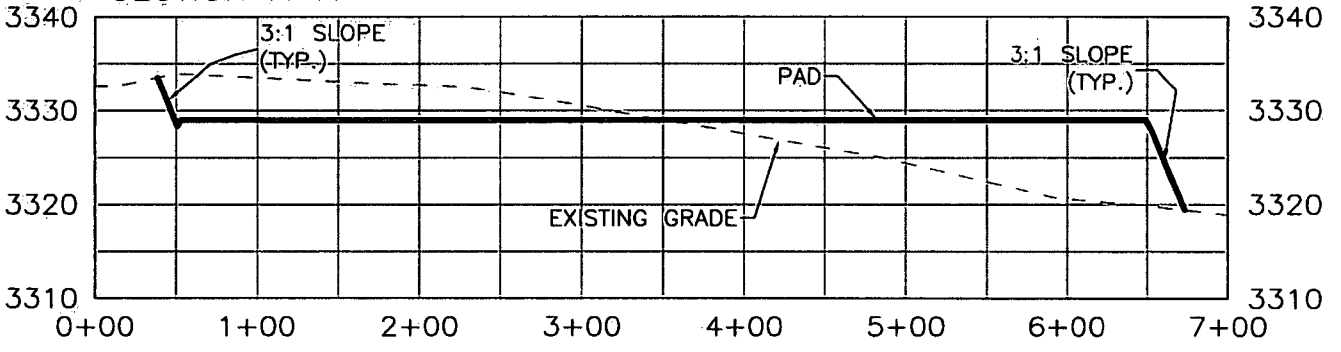
JUNE 10, 2019

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

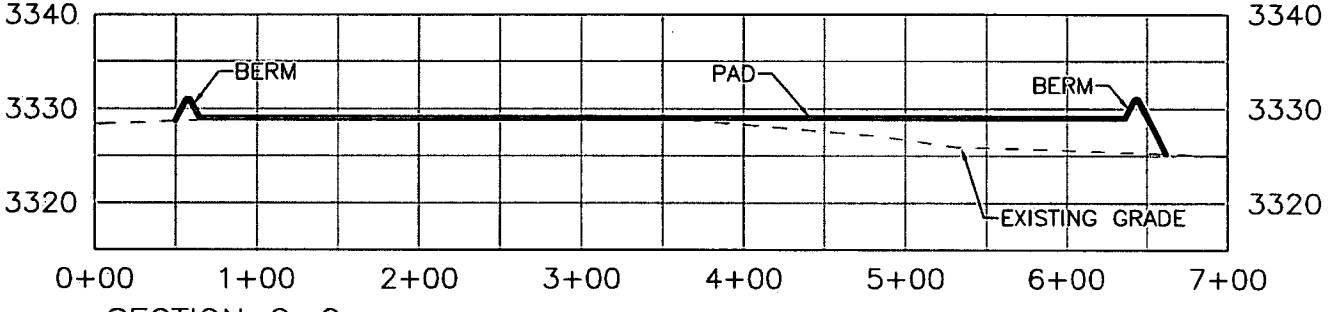
SHEET 1-2
SURVEY NO. 7299A

CROSS SECTIONS

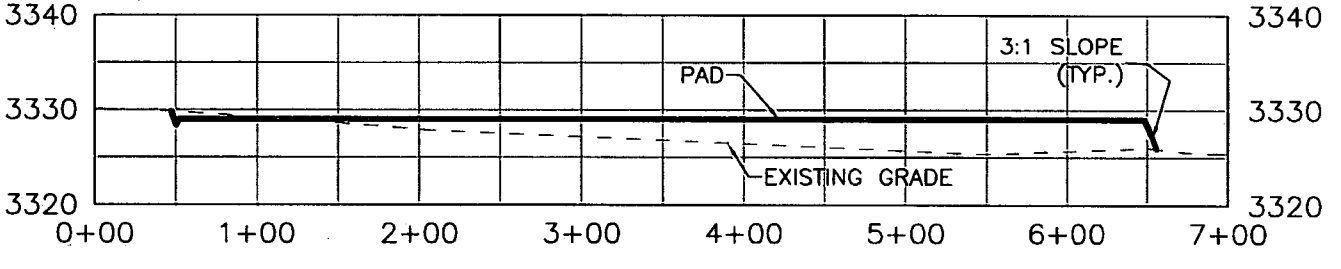
SECTION A–A



SECTION B–B



SECTION C–C



I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

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

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 34–15 FED COM 523H
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 10, 2019

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

CUT	FILL	NET
8058 CU. YD	25565 CU. YD	17507 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

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

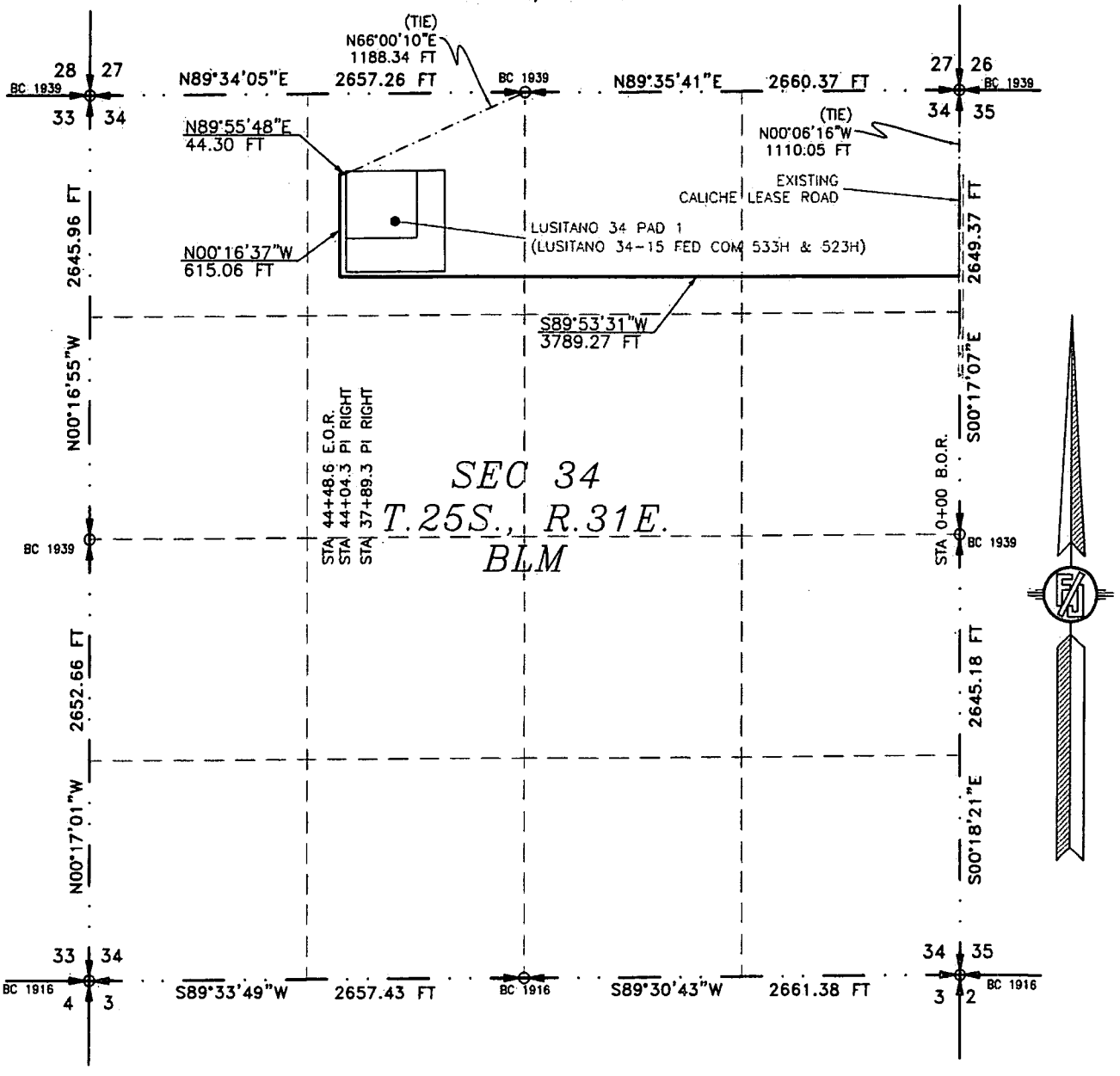
SHEET 2–2
SURVEY NO. 7299A

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 533H & 523H)

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 10, 2019



SEE NEXT SHEET (2-2) 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 10 DAY OF JUNE 2019

FILIMON F. JARAMILLO PLS 12797

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

SHEET: 1-2

SURVEY NO. 7299A

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 533H & 523H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 10, 2019

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, 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 NE/4 OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°06'16"W, A DISTANCE OF 1110.05 FEET;
THENCE S89°53'31"W A DISTANCE OF 3789.27 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°16'37"W A DISTANCE OF 615.06 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°55'48"E A DISTANCE OF 44.30 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N66°00'10"E, A DISTANCE OF 1188.34 FEET;

SAID STRIP OF LAND BEING 4448.63 FEET OR 269.62 RODS IN LENGTH, CONTAINING 3.064 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1326.69 L.F.	80.41 RODS	0.914 ACRES
NW/4 NE/4	1330.19 L.F.	80.62 RODS	0.916 ACRES
NE/4 NW/4	1791.75 L.F.	108.59 RODS	1.234 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 10 DAY OF JUNE 2019.

FILIMON F. JARAMILLO, PLS 12797

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

SURVEY NO. 7299A

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

APD ID: 10400042741 **Submission Date:** 06/13/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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	3333	0	0	ALLUVIUM	NONE	N
2	RUSTLER	2323	1010	1010	SALT	NONE	N
3	TOP SALT	2033	1300	1300		NONE	N
4	BASE OF SALT	-692	4025	4025	SALT	NONE	N
5	DELAWARE	-927	4260	4260	SANDSTONE	NATURAL GAS,OIL	N
6	BONE SPRING	-4867	8200	8200	LIMESTONE	NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 4235

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:

5M_BOPE__CK_20190516140732.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190516140744.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

Pressure Rating (PSI): 5M **Rating Depth:** 8765

Equipment: BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermediate 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:

5M_BOPE__CK_20190416143350.pdf

BOP Diagram Attachment:

5M_BOPE__CK_20190416143359.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	1035	0	1035	-6768	-7557	1035	H-40	48	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4235	0	4235	-6768	-11036	4235	J-55	40	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6
3	PRODUCTION	8.75	5.5	NEW	API	N	0	25647	0	8765	-6768	-16768	25647	P-110	17	OTHER - BTC	1.125	1	BUOY	1.6	BUOY	1.6

Casing Attachments

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surf_Csg_Ass_20181126124403.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Int_Csg_Ass_20181126124414.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Prod_Csg_Ass_20181126124428.pdf

Section 4 - Cement

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1035	787.5	1.44	13.2	1134	50	C	Class C + adds
INTERMEDIATE	Lead		0	3735	455.3	3.3	9	1489	30	C	Class C + adds
INTERMEDIATE	Tail		3735	4235	153.8	1.44	13.2	221.5	30	C	Class C + adds
PRODUCTION	Lead		3735	8257	385.6	3.3	9	1260.9	10	TUNED	Class C + adds
PRODUCTION	Tail		8257	25647	3355.6	1.44	13.2	4832.1	10	H	Class H / C + additives

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1035	OTHER : FW Gel	8.5	9				2			
1035	4235	OTHER : BRINE	10	10.5				2			
4235	8765	WATER-BASED MUD	8.5	9							

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

Section 6 - Test, Logging, Coring

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

Will run GRMWD from TD to from KOP. Cement bond logs will be run in vertical to determine top of cement. 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:

CALIPER,CBL,DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4102 **Anticipated Surface Pressure:** 2173.69

Anticipated Bottom Hole Temperature(F): 123

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_34_15_Fed_Com_523H_H2S_20190613091710.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Devon_Lusitano_34_15_Fed_Com_523H_AC_Report_Permit_Plan_2_20190613091740.pdf

Devon_Lusitano_34_15_Fed_Com_523H_Permit_Plan_2_20190613091741.pdf

Devon_Lusitano_34_15_Fed_Com_523H_Plot_Permit_Plan_2_20190613091742.pdf

Lusitano_34_15_Fed_Com_523H_Permit_Plan_2_20190613091743.pdf

Other proposed operations facets description:

Multi-Bowl Verbiage
Multi-Bowl Wellhead
Closed-Loop Design Plan
DRILL PLAN
GAS CAPTURE PLAN
SPUDDER RIG

Other proposed operations facets attachment:

Spudder_Rig_Info_20190426131159.pdf

Clsd_Loop_20181126130115.pdf

MB_Wellhd_5M_13.375_9.625_20190516142338.pdf

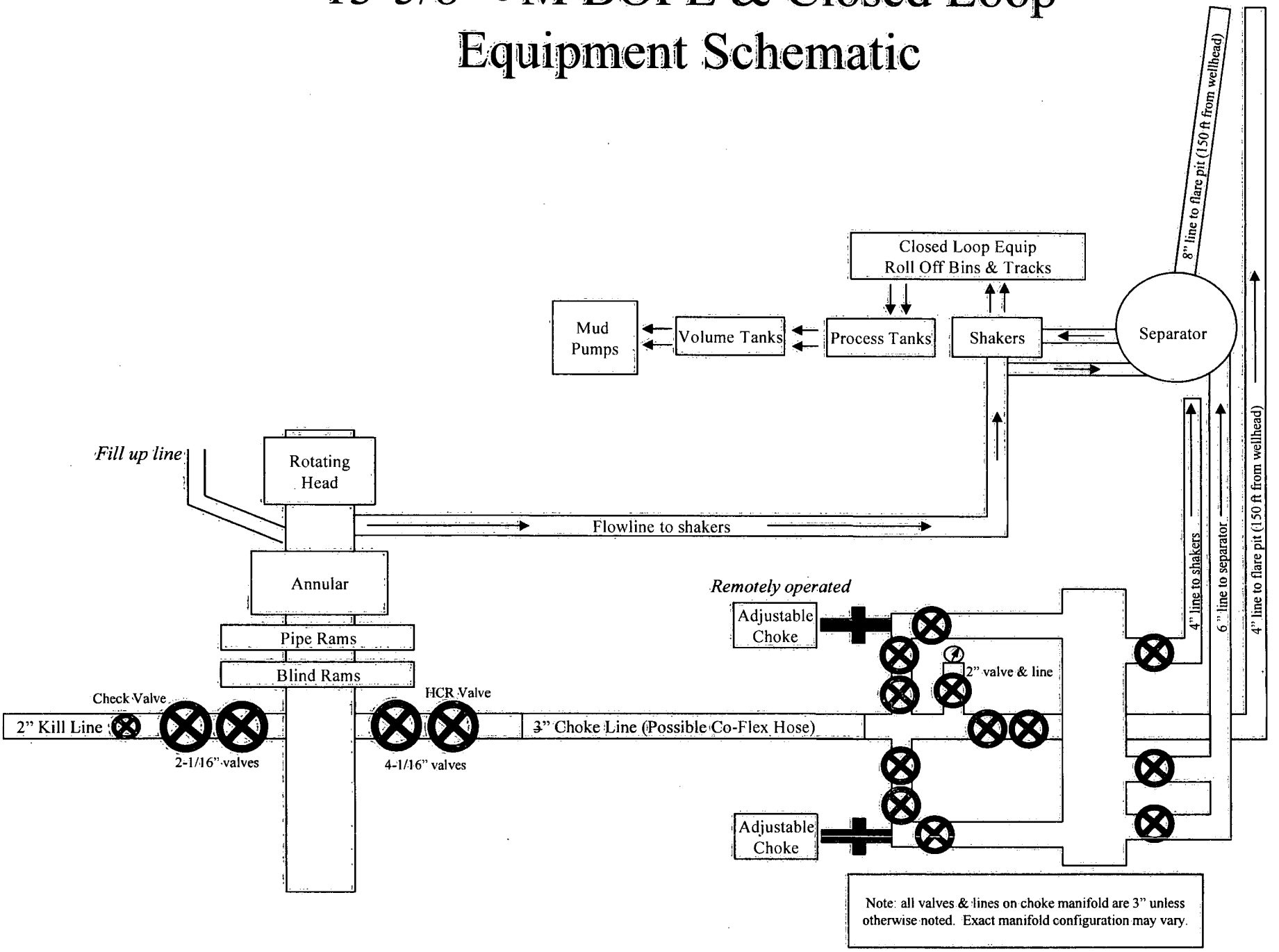
MB_Verb_5M_20190516142336.pdf

GasCapturePlan_LUSITANO_27_CTB_4_20190613092221.pdf

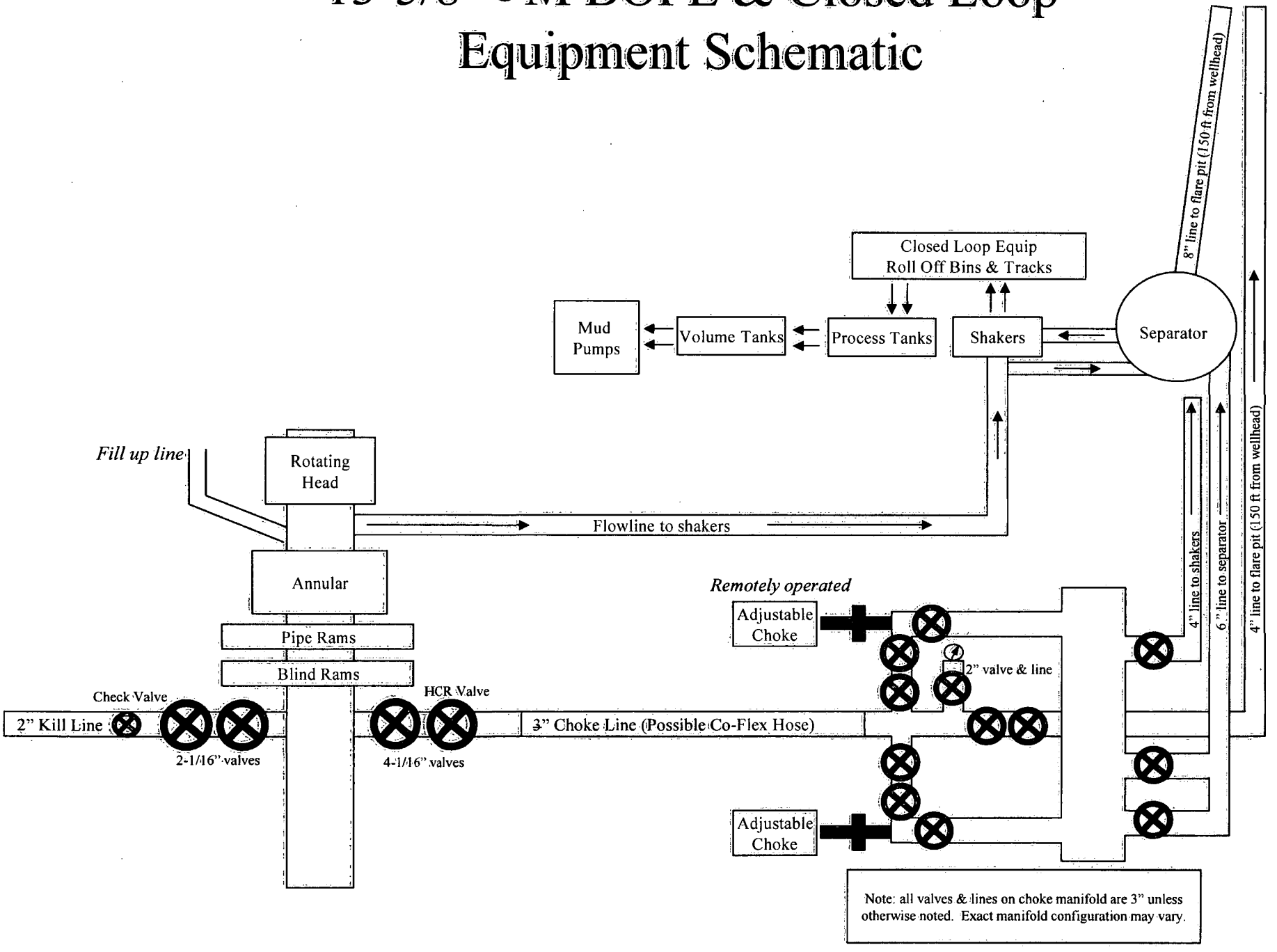
Other Variance attachment:

Co_flex_20181126130144.pdf

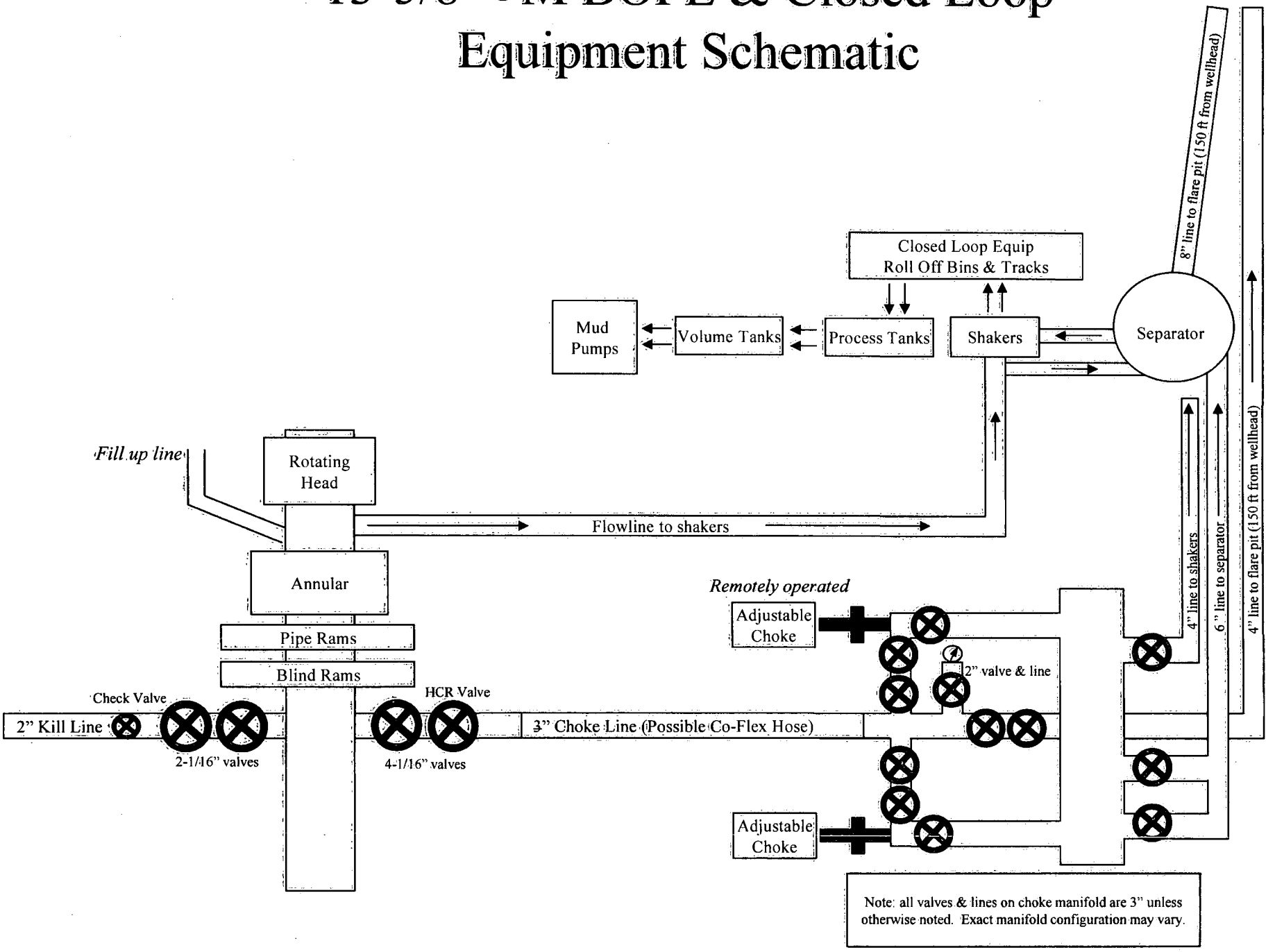
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



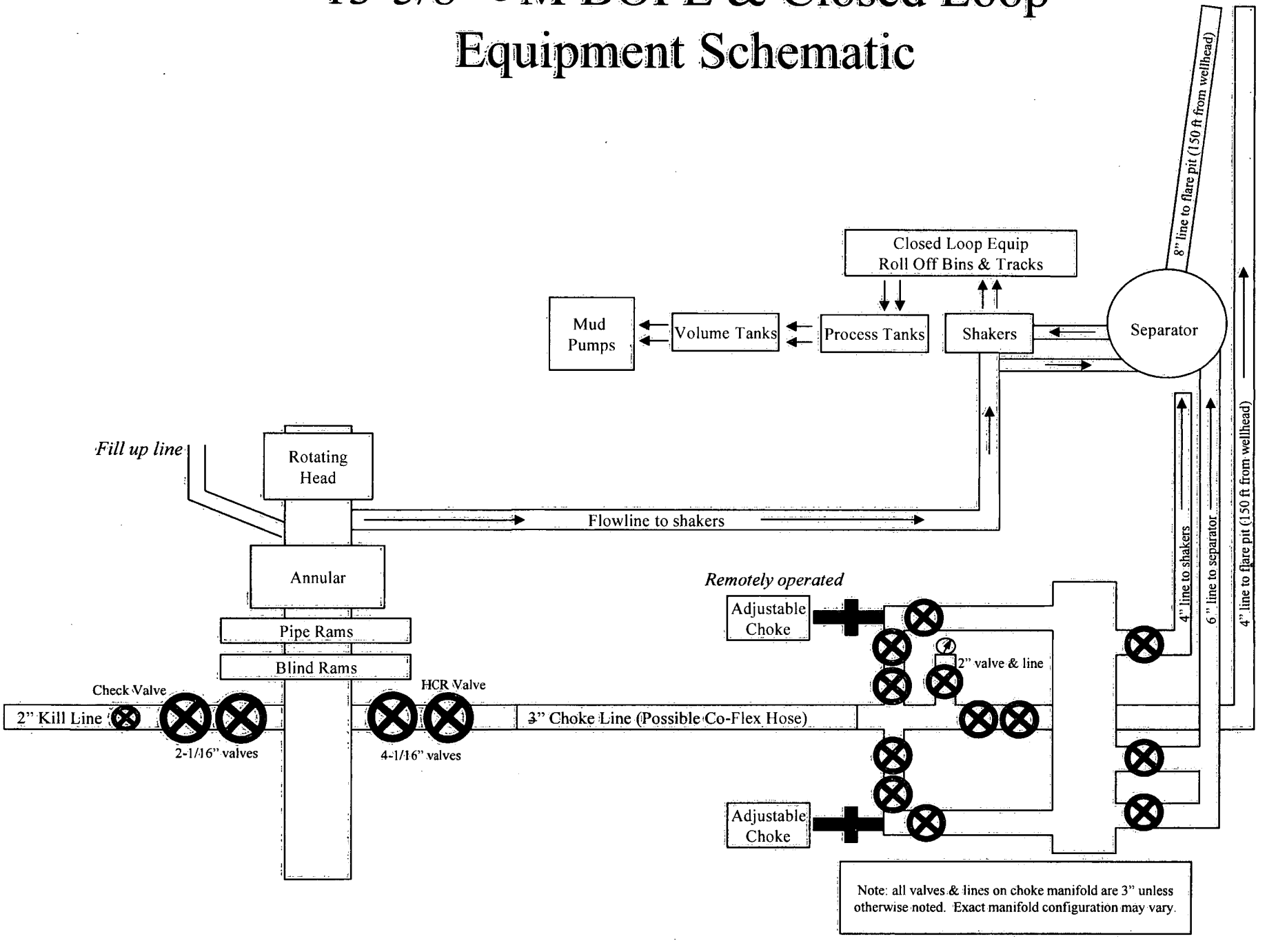
13-5/8" 5M BOPE & Closed Loop Equipment Schematic



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

Casing Assumptions and Load Cases

Production

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

devon

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

Hydrogen Sulfide (H_2S) Contingency Plan

For

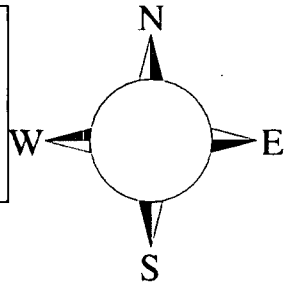
Lusitano 34-15 Fed Com 523H

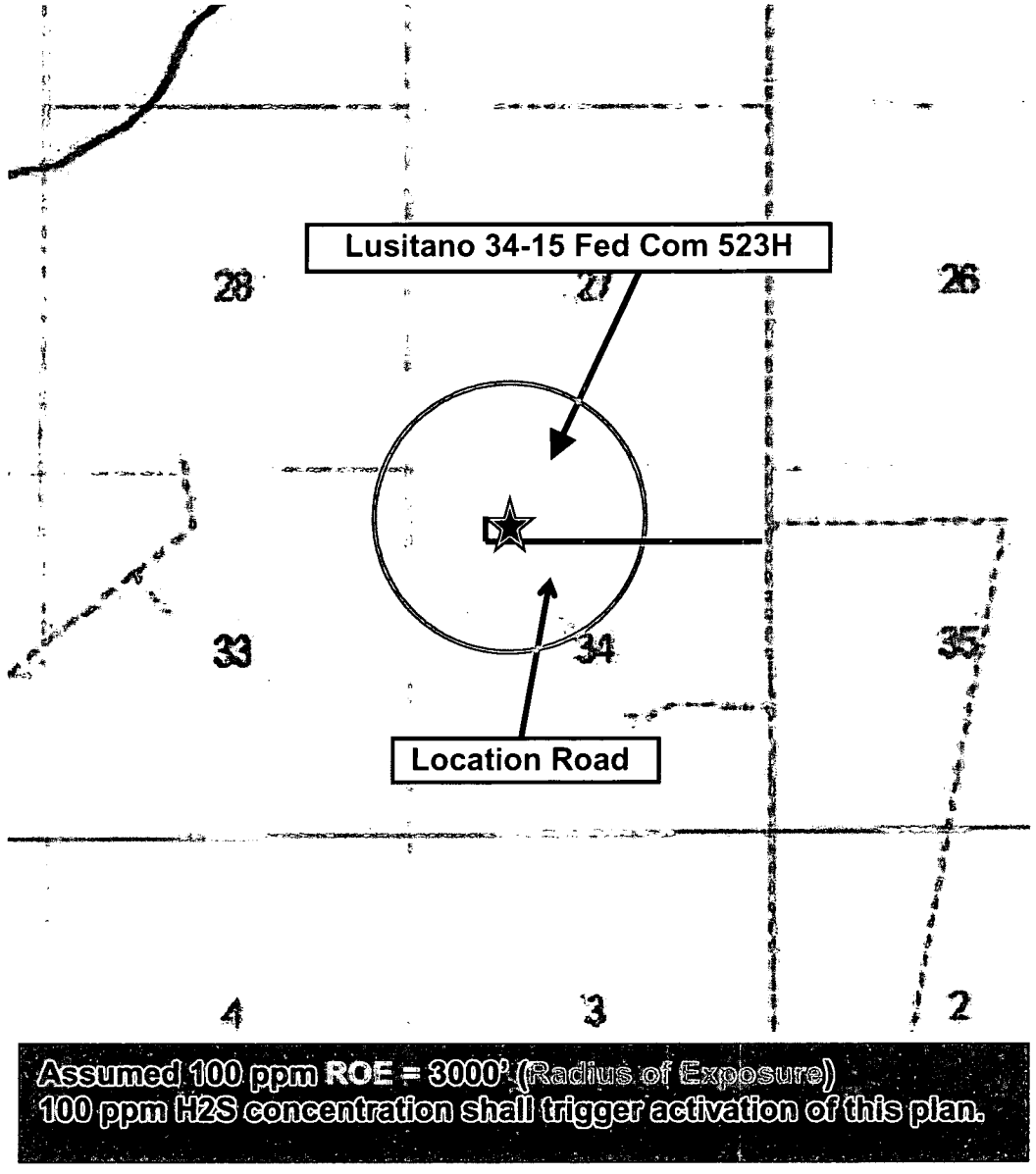
Sec-34 T-25S R-31E
610' FNL & 1750' FWL
LAT. = 32.0923222' N (NAD83)
LONG = 103.7689512' W

Eddy County NM

Lusitano 34-15 Fed Com 523H

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.





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 (TX & NM)	(800) 642-7828
	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 34-T25S-R31E
Lusitano 34-15 Fed Com 523H

Wellbore #1
Permit Plan 2

Anticollision Report

10 June, 2019

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Reference	Permit Plan 2		
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** 6/10/2019

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	25,647.39	Permit Plan 2 (Wellbore #1)	MWD+IFR1	OWSG MWD + IFR1

Summary

Site Name Offset Well - Wellbore - Design	Reference Measure	Offset Measured	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation	Warning
Sec 15-T25S-R31E						
Amoco Federal DB 1 / NVD - Amoco DB Federal 1 - Amo	16,960.14	8,802.07	846.37	730.09	7.279	CC, ES
Amoco Federal DB 1 / NVD - Amoco DB Federal 1 - Amo	17,000.00	8,802.81	847.31	730.71	7.267	SF
Belgian 15 Fed Com 1H - Original Hole - Actuals	20,424.02	8,899.83	1,002.15	854.17	6.772	CC, ES
Belgian 15 Fed Com 1H - Original Hole - Actuals	20,450.00	8,899.95	1,002.49	854.28	6.764	SF
Belgian 15 Fed Com 1H - Original Hole - Plan Rev2	20,431.98	8,874.54	972.11	823.09	6.523	CC
Belgian 15 Fed Com 1H - Original Hole - Plan Rev2	20,450.00	8,874.69	972.28	823.09	6.517	ES, SF
Belgian 15 Fed Com 1H - Original Hole - Plan Rev4	20,429.90	8,890.46	980.98	839.90	6.954	CC, ES
Belgian 15 Fed Com 1H - Original Hole - Plan Rev4	20,450.00	8,890.64	981.18	839.93	6.946	SF
Belgian 15 Fed Com 1H - Original Hole - Plan Rev5	20,424.02	8,899.83	1,002.15	854.17	6.772	CC, ES
Belgian 15 Fed Com 1H - Original Hole - Plan Rev5	20,450.00	8,899.95	1,002.49	854.28	6.764	SF
Belgian 15 Fed Com 1H - Original Hole - Plan Rev6	20,424.02	8,899.83	1,002.15	854.17	6.772	CC, ES
Belgian 15 Fed Com 1H - Original Hole - Plan Rev6	20,450.00	8,899.95	1,002.49	854.28	6.764	SF
Belgian 15 Fed Com 1H - Original Hole - PTL	20,424.02	8,899.83	1,002.15	854.17	6.772	CC, ES
Belgian 15 Fed Com 1H - Original Hole - PTL	20,450.00	8,899.95	1,002.49	854.28	6.764	SF
Belgian 15 Fed Com 1H - Original Hole - TAD	20,369.32	8,809.85	1,333.49	1,211.70	10.950	CC, ES
Belgian 15 Fed Com 1H - Original Hole - TAD	20,450.00	8,809.85	1,335.92	1,213.50	10.912	SF
Cotton Draw 15 Fed 2H - Pilot Hole - Wellbore #1	25,300.98	8,842.84	1,148.95	954.41	5.906	CC, ES
Cotton Draw 15 Fed 2H - Pilot Hole - Wellbore #1	25,350.00	8,843.15	1,149.99	955.08	5.900	SF
Cotton Draw 15 Fed 2H - Wellbore #2 - Wellbore #2	25,300.98	8,842.84	1,148.95	954.41	5.906	CC, ES
Cotton Draw 15 Fed 2H - Wellbore #2 - Wellbore #2	25,350.00	8,843.15	1,149.99	955.08	5.900	SF
Shire 22 Fed 1H - Original Hole - Actuals	20,222.57	8,831.25	997.78	851.37	6.815	CC, ES
Shire 22 Fed 1H - Original Hole - Actuals	20,250.00	8,831.10	998.16	851.48	6.805	SF
Sec 22-T25S-R31E						
Amoco DB Fed #001 (Active) - Wellbore #1 - Wellbore #	17,046.13	8,767.30	944.88	681.20	3.583	Alert, CC
Amoco DB Fed #001 (Active) - Wellbore #1 - Wellbore #	17,050.00	8,767.30	944.89	681.16	3.583	Alert, ES, SF
SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual	15,265.73	13,707.00	1,215.77	1,058.34	7.723	CC
SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual	15,300.00	13,707.00	1,216.45	1,058.28	7.691	ES
SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual	15,350.00	13,707.00	1,219.89	1,060.82	7.669	SF

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured (ft)	Offset Measured (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation (ft)	Warning
Sec 27-T25S-R31E						
Gunnison 34 Fed #001 (P&A) - Wellbore #1 - Wellbore #						Out of range
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Wellbore	15,046.85	8,755.65	818.87	720.36	8.313	CC
Lusitano 27_34 Fed Com 622H - Wellbore #1 - Wellbore	15,050.00	8,755.64	818.87	720.35	8.311	ES, SF
Lusitano 27_34 Fed Com 713H - Wellbore #1 - Wellbore	14,986.70	8,798.98	153.21	54.93	1.559	Minor Risk, CC, ES, SF
Lusitano 27-34 Fed Com 333H - Wellbore #1 - Wellbore #	15,028.70	8,791.65	299.62	200.93	3.036	Alert, CC, ES, SF
Lusitano 27-34 Fed Com 734H - Wellbore #1 - Wellbore #	14,959.32	8,809.47	1,189.49	1,091.61	12.152	CC, ES
Lusitano 27-34 Fed Com 734H - Wellbore #1 - Wellbore #	15,050.00	8,809.30	1,194.37	1,095.71	12.106	SF
Sec 34-T25S-R31E						
Gunnison 34 Fed 1 (P&A) - Wellbore #1 - Wellbore #1						Out of range
Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Pla	2,500.00	2,500.40	30.09	12.59	1.719	Minor Risk, CC
Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Pla	2,550.00	2,549.60	30.24	12.39	1.694	Minor Risk, ES
Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Pla	2,600.00	2,600.41	30.71	12.50	1.687	Minor Risk, SF

Offset Design Sec 15-T25S-R31E - Amoco Federal DB 1 / NVD - Amoco DB Federal 1 - Amoco DB Federal 1

Offset Site Error: 5.00 ft

Survey Program: 15-GYRO-NS

Offset Well Error: 0.00 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
15,750.00	8,765.00	8,782.49	8,779.90	74.51	31.01	89.97	7,806.54	1,477.29	1,474.06	1,393.46	80.60	18.289	
15,800.00	8,765.00	8,783.19	8,780.61	74.96	31.01	90.02	7,806.55	1,477.28	1,434.72	1,352.98	81.74	17.553	
15,850.00	8,765.00	8,783.89	8,781.30	75.40	31.01	90.07	7,806.56	1,477.26	1,395.50	1,312.59	82.91	16.832	
15,900.00	8,765.00	8,784.58	8,782.00	75.85	31.02	90.11	7,806.57	1,477.25	1,356.44	1,272.31	84.13	16.123	
15,950.00	8,765.00	8,785.28	8,782.69	76.29	31.02	90.16	7,806.58	1,477.24	1,317.74	1,232.35	85.39	15.431	
16,000.00	8,765.00	8,785.98	8,783.40	76.73	31.02	90.21	7,806.59	1,477.22	1,279.83	1,193.10	86.73	14.756	
16,050.00	8,765.00	8,786.70	8,784.11	77.18	31.02	90.26	7,806.60	1,477.21	1,242.77	1,154.63	88.14	14.100	
16,100.00	8,765.00	8,787.43	8,784.84	77.62	31.03	90.31	7,806.61	1,477.19	1,206.64	1,117.02	89.62	13.464	
16,150.00	8,765.00	8,788.17	8,785.58	78.07	31.03	90.36	7,806.63	1,477.18	1,171.53	1,080.36	91.17	12.850	
16,200.00	8,765.00	8,788.92	8,786.33	78.51	31.03	90.41	7,806.64	1,477.16	1,137.54	1,044.75	92.79	12.260	
16,250.00	8,765.00	8,789.68	8,787.09	78.96	31.03	90.46	7,806.65	1,477.15	1,104.76	1,010.29	94.47	11.694	
16,300.00	8,765.00	8,790.48	8,787.89	79.40	31.04	90.51	7,806.66	1,477.13	1,073.31	977.10	96.22	11.155	
16,350.00	8,765.00	8,791.32	8,788.73	79.85	31.04	90.57	7,806.67	1,477.11	1,043.31	945.30	98.01	10.645	
16,400.00	8,765.00	8,792.16	8,789.57	80.30	31.04	90.63	7,806.68	1,477.09	1,014.89	915.05	99.84	10.165	
16,450.00	8,765.00	8,793.00	8,790.41	80.74	31.04	90.68	7,806.70	1,477.08	988.18	886.48	101.70	9.717	
16,500.00	8,765.00	8,793.86	8,791.27	81.19	31.05	90.74	7,806.71	1,477.06	963.33	859.77	103.56	9.302	
16,550.00	8,765.00	8,794.72	8,792.13	81.64	31.05	90.80	7,806.72	1,477.04	940.48	835.07	105.41	8.922	
16,600.00	8,765.00	8,795.59	8,793.00	82.09	31.05	90.86	7,806.74	1,477.02	919.78	812.57	107.22	8.579	
16,650.00	8,765.00	8,796.47	8,793.87	82.54	31.06	90.92	7,806.75	1,477.00	901.39	792.44	108.95	8.273	
16,700.00	8,765.00	8,797.35	8,794.76	82.99	31.06	90.98	7,806.76	1,476.98	885.43	774.85	110.58	8.007	
16,750.00	8,765.00	8,798.24	8,795.65	83.44	31.06	91.04	7,806.78	1,476.96	872.06	759.98	112.08	7.781	
16,800.00	8,765.00	8,799.14	8,796.55	83.89	31.07	91.10	7,806.79	1,476.94	861.38	747.96	113.42	7.595	
16,850.00	8,765.00	8,800.05	8,797.45	84.34	31.07	91.16	7,806.81	1,476.92	853.50	738.95	114.56	7.450	
16,900.00	8,765.00	8,800.96	8,798.37	84.79	31.07	91.22	7,806.82	1,476.90	848.50	733.02	115.48	7.348	
16,950.00	8,765.00	8,801.88	8,799.29	85.24	31.07	91.29	7,806.83	1,476.88	846.43	730.26	116.16	7.286	
16,960.14	8,765.00	8,802.07	8,799.48	85.33	31.08	91.30	7,806.84	1,476.88	846.37	730.09	116.27	7.279	CC, ES
17,000.00	8,765.00	8,802.81	8,800.22	85.69	31.08	91.35	7,806.85	1,476.86	847.31	730.71	116.60	7.267	SF
17,050.00	8,765.00	8,803.75	8,801.16	86.15	31.08	91.41	7,806.86	1,476.84	851.12	734.34	116.78	7.288	
17,100.00	8,765.00	8,804.70	8,802.10	86.60	31.08	91.48	7,806.88	1,476.82	857.84	741.12	116.72	7.349	
17,150.00	8,765.00	8,805.65	8,803.06	87.05	31.09	91.54	7,806.89	1,476.79	867.39	750.97	116.42	7.450	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Amoco Federal DB 1 / NVD - Amoco DB Federal 1 - Amoco DB Federal 1 — Offset Site Error: 5.00 ft

Survey Program: 15-GYRO-NS — Offset Well Error: 0.00 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
17,200.00	8,765.00	8,806.62	8,804.02	87.50	31.09	91.61	7,806.91	1,476.77	879.69	763.78	115.91	7.589	
17,250.00	8,765.00	8,807.59	8,805.00	87.96	31.09	91.67	7,806.93	1,476.75	894.61	779.41	115.20	7.765	
17,300.00	8,765.00	8,808.51	8,805.91	88.41	31.10	91.73	7,806.94	1,476.73	912.03	797.70	114.33	7.977	
17,350.00	8,765.00	8,809.48	8,806.89	88.87	31.10	91.80	7,806.96	1,476.70	931.82	818.49	113.32	8.223	
17,400.00	8,765.00	8,810.47	8,807.87	89.32	31.10	91.87	7,806.97	1,476.68	953.81	841.61	112.20	8.501	
17,450.00	8,765.00	8,811.46	8,808.87	89.78	31.11	91.93	7,806.99	1,476.66	977.87	866.87	111.00	8.810	
17,500.00	8,765.00	8,812.47	8,809.87	90.23	31.11	92.00	7,807.01	1,476.63	1,003.84	894.11	109.73	9.148	
17,550.00	8,765.00	8,813.49	8,810.89	90.69	31.11	92.07	7,807.02	1,476.61	1,031.58	923.15	108.43	9.513	
17,600.00	8,765.00	8,814.51	8,811.91	91.14	31.12	92.14	7,807.04	1,476.58	1,060.96	953.84	107.11	9.905	
17,650.00	8,765.00	8,815.55	8,812.95	91.60	31.12	92.21	7,807.06	1,476.56	1,091.83	986.04	105.79	10.321	
17,700.00	8,765.00	8,816.59	8,814.00	92.06	31.13	92.28	7,807.08	1,476.53	1,124.08	1,019.60	104.48	10.759	
17,750.00	8,765.00	8,817.65	8,815.05	92.51	31.13	92.35	7,807.09	1,476.50	1,157.59	1,054.40	103.19	11.218	
17,800.00	8,765.00	8,818.72	8,816.12	92.97	31.13	92.43	7,807.11	1,476.48	1,192.26	1,090.33	101.92	11.698	
17,850.00	8,765.00	8,819.80	8,817.20	93.43	31.14	92.50	7,807.13	1,476.45	1,227.98	1,127.29	100.69	12.195	
17,900.00	8,765.00	8,820.89	8,818.29	93.89	31.14	92.57	7,807.15	1,476.42	1,264.67	1,165.17	99.50	12.710	
17,950.00	8,765.00	8,822.00	8,819.40	94.34	31.14	92.65	7,807.17	1,476.39	1,302.24	1,203.89	98.35	13.241	
18,000.00	8,765.00	8,822.74	8,820.14	94.80	31.15	92.70	7,807.18	1,476.37	1,340.63	1,243.38	97.25	13.786	
18,050.00	8,765.00	8,823.71	8,821.11	95.26	31.15	92.76	7,807.20	1,476.35	1,379.76	1,283.58	96.19	14.345	
18,100.00	8,765.00	8,824.69	8,822.08	95.72	31.15	92.83	7,807.22	1,476.32	1,419.57	1,324.40	95.17	14.916	
18,150.00	8,765.00	8,825.66	8,823.06	96.18	31.16	92.89	7,807.23	1,476.30	1,460.01	1,365.81	94.20	15.499	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - Actuals — **Offset Site Error:** 5.00 ft

Survey Program: 175-MWD+IGRF — **Offset Well Error:** 0.00 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
19,350.00	8,765.00	8,894.11	8,872.96	107.27	31.73	94.45	11,272.04	1,595.18	1,468.94	1,360.64	108.30	13.563	
19,400.00	8,765.00	8,894.40	8,873.24	107.73	31.73	94.47	11,272.04	1,595.15	1,432.79	1,322.63	110.16	13.006	
19,450.00	8,765.00	8,894.68	8,873.53	108.20	31.73	94.48	11,272.04	1,595.13	1,397.50	1,285.41	112.09	12.468	
19,500.00	8,765.00	8,894.96	8,873.81	108.66	31.73	94.50	11,272.04	1,595.10	1,363.12	1,249.04	114.08	11.949	
19,550.00	8,765.00	8,895.25	8,874.09	109.13	31.73	94.52	11,272.05	1,595.08	1,329.74	1,213.61	116.13	11.450	
19,600.00	8,765.00	8,895.53	8,874.37	109.59	31.73	94.53	11,272.05	1,595.06	1,297.42	1,179.18	118.24	10.973	
19,650.00	8,765.00	8,895.80	8,874.65	110.06	31.74	94.55	11,272.05	1,595.03	1,266.25	1,145.86	120.39	10.518	
19,700.00	8,765.00	8,896.08	8,874.92	110.52	31.74	94.56	11,272.05	1,595.01	1,236.32	1,113.74	122.59	10.085	
19,750.00	8,765.00	8,896.35	8,875.19	110.99	31.74	94.58	11,272.05	1,594.99	1,207.72	1,082.91	124.82	9.676	
19,800.00	8,765.00	8,896.62	8,875.46	111.46	31.74	94.59	11,272.05	1,594.97	1,180.55	1,053.49	127.06	9.291	
19,850.00	8,765.00	8,896.89	8,875.73	111.92	31.74	94.61	11,272.05	1,594.94	1,154.90	1,025.60	129.31	8.932	
19,900.00	8,765.00	8,897.15	8,875.99	112.39	31.74	94.62	11,272.05	1,594.92	1,130.88	999.35	131.53	8.598	
19,950.00	8,765.00	8,897.42	8,876.26	112.86	31.74	94.64	11,272.05	1,594.90	1,108.60	974.88	133.73	8.290	
20,000.00	8,765.00	8,897.68	8,876.52	113.32	31.74	94.65	11,272.06	1,594.88	1,088.16	952.30	135.86	8.009	
20,050.00	8,765.00	8,897.94	8,876.78	113.79	31.74	94.67	11,272.06	1,594.86	1,069.67	931.76	137.91	7.756	
20,100.00	8,765.00	8,898.20	8,877.04	114.26	31.74	94.68	11,272.06	1,594.83	1,053.23	913.39	139.84	7.531	
20,150.00	8,765.00	8,898.46	8,877.29	114.72	31.75	94.70	11,272.06	1,594.81	1,038.94	897.30	141.64	7.335	
20,200.00	8,765.00	8,898.71	8,877.54	115.19	31.75	94.71	11,272.06	1,594.79	1,026.89	883.61	143.28	7.167	
20,250.00	8,765.00	8,898.96	8,877.80	115.66	31.75	94.73	11,272.06	1,594.77	1,017.15	872.42	144.73	7.028	
20,300.00	8,765.00	8,899.21	8,878.05	116.13	31.75	94.74	11,272.06	1,594.75	1,009.80	863.84	145.96	6.918	
20,350.00	8,765.00	8,899.46	8,878.29	116.59	31.75	94.76	11,272.06	1,594.73	1,004.88	857.92	146.96	6.838	
20,400.00	8,765.00	8,899.71	8,878.54	117.06	31.75	94.77	11,272.06	1,594.71	1,002.44	854.73	147.72	6.786	
20,424.02	8,765.00	8,899.83	8,878.66	117.29	31.75	94.78	11,272.06	1,594.70	1,002.15	854.17	147.99	6.772	CC, ES
20,450.00	8,765.00	8,899.95	8,878.78	117.53	31.75	94.78	11,272.07	1,594.69	1,002.49	854.28	148.21	6.764	SF
20,500.00	8,765.00	8,900.20	8,879.03	118.00	31.75	94.80	11,272.07	1,594.67	1,005.03	856.58	148.45	6.770	
20,550.00	8,765.00	8,900.44	8,879.27	118.47	31.75	94.81	11,272.07	1,594.65	1,010.04	861.61	148.43	6.805	
20,600.00	8,765.00	8,900.68	8,879.51	118.93	31.75	94.83	11,272.07	1,594.63	1,017.49	869.33	148.16	6.867	
20,650.00	8,765.00	8,900.92	8,879.74	119.40	31.75	94.84	11,272.07	1,594.61	1,027.32	879.66	147.66	6.957	
20,700.00	8,765.00	8,901.15	8,879.98	119.87	31.76	94.85	11,272.07	1,594.59	1,039.46	892.53	146.93	7.074	
20,750.00	8,765.00	8,901.39	8,880.21	120.34	31.76	94.87	11,272.07	1,594.57	1,053.84	907.83	146.01	7.218	
20,800.00	8,765.00	8,901.62	8,880.44	120.81	31.76	94.88	11,272.07	1,594.55	1,070.36	925.45	144.91	7.386	
20,850.00	8,765.00	8,901.85	8,880.67	121.28	31.76	94.89	11,272.07	1,594.53	1,088.93	945.27	143.66	7.580	
20,900.00	8,765.00	8,902.08	8,880.90	121.75	31.76	94.91	11,272.07	1,594.51	1,109.45	967.16	142.28	7.798	
20,950.00	8,765.00	8,902.31	8,881.13	122.22	31.76	94.92	11,272.07	1,594.49	1,131.80	991.00	140.80	8.038	
21,000.00	8,765.00	8,902.53	8,881.36	122.69	31.76	94.93	11,272.08	1,594.47	1,155.88	1,016.64	139.24	8.301	
21,050.00	8,765.00	8,902.76	8,881.58	123.16	31.76	94.94	11,272.08	1,594.45	1,181.59	1,043.97	137.62	8.586	
21,100.00	8,765.00	8,902.98	8,881.80	123.63	31.76	94.96	11,272.08	1,594.44	1,208.83	1,072.87	135.96	8.891	
21,150.00	8,765.00	8,903.20	8,882.02	124.10	31.76	94.97	11,272.08	1,594.42	1,237.48	1,103.21	134.27	9.216	
21,200.00	8,765.00	8,903.42	8,882.24	124.57	31.76	94.98	11,272.08	1,594.40	1,267.46	1,134.88	132.58	9.560	
21,250.00	8,765.00	8,903.64	8,882.46	125.04	31.76	95.00	11,272.08	1,594.38	1,298.67	1,167.78	130.89	9.922	
21,300.00	8,765.00	8,903.86	8,882.68	125.51	31.77	95.01	11,272.08	1,594.36	1,331.03	1,201.82	129.21	10.301	
21,350.00	8,765.00	8,904.08	8,882.89	125.98	31.77	95.02	11,272.08	1,594.35	1,364.46	1,236.90	127.56	10.697	
21,400.00	8,765.00	8,904.29	8,883.10	126.45	31.77	95.03	11,272.08	1,594.33	1,398.87	1,272.94	125.93	11.108	
21,450.00	8,765.00	8,904.50	8,883.32	126.92	31.77	95.04	11,272.08	1,594.31	1,434.20	1,309.86	124.34	11.534	
21,500.00	8,765.00	8,904.71	8,883.53	127.39	31.77	95.06	11,272.08	1,594.29	1,470.38	1,347.59	122.79	11.975	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - Plan Rev2 — **Offset Site Error:** 5.00 ft

Survey Program: 0-MWD+IGRF — **Offset Well Error:** 0.00 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
19,300.00	8,765.00	8,864.53	8,848.59	106.80	32.64	93.15	11,279.64	1,566.66	1,492.07	1,385.92	106.14	14.057	
19,350.00	8,765.00	8,864.99	8,849.05	107.27	32.65	93.18	11,279.64	1,566.63	1,454.50	1,346.57	107.93	13.476	
19,400.00	8,765.00	8,865.46	8,849.52	107.73	32.65	93.20	11,279.65	1,566.60	1,417.71	1,307.92	109.79	12.913	
19,450.00	8,765.00	8,865.92	8,849.97	108.20	32.65	93.23	11,279.65	1,566.57	1,381.74	1,270.02	111.72	12.368	
19,500.00	8,765.00	8,866.37	8,850.43	108.66	32.65	93.26	11,279.66	1,566.54	1,346.67	1,232.94	113.72	11.842	
19,550.00	8,765.00	8,866.83	8,850.89	109.13	32.65	93.28	11,279.66	1,566.51	1,312.56	1,196.77	115.79	11.336	
19,600.00	8,765.00	8,867.28	8,851.34	109.59	32.65	93.31	11,279.67	1,566.48	1,279.50	1,161.58	117.92	10.850	
19,650.00	8,765.00	8,867.74	8,851.79	110.06	32.66	93.34	11,279.67	1,566.44	1,247.57	1,127.46	120.11	10.387	
19,700.00	8,765.00	8,868.19	8,852.24	110.52	32.66	93.36	11,279.68	1,566.41	1,216.86	1,094.51	122.35	9.946	
19,750.00	8,765.00	8,868.63	8,852.68	110.99	32.66	93.39	11,279.68	1,566.38	1,187.46	1,062.84	124.62	9.528	
19,800.00	8,765.00	8,869.08	8,853.13	111.46	32.66	93.42	11,279.69	1,566.35	1,159.47	1,032.54	126.93	9.135	
19,850.00	8,765.00	8,869.52	8,853.57	111.92	32.66	93.44	11,279.69	1,566.32	1,132.99	1,003.76	129.24	8.767	
19,900.00	8,765.00	8,869.96	8,854.01	112.39	32.66	93.47	11,279.70	1,566.29	1,108.14	976.60	131.54	8.424	
19,950.00	8,765.00	8,870.40	8,854.45	112.86	32.67	93.49	11,279.70	1,566.27	1,085.03	951.21	133.82	8.108	
20,000.00	8,765.00	8,870.84	8,854.89	113.32	32.67	93.52	11,279.71	1,566.24	1,063.76	927.72	136.05	7.819	
20,050.00	8,765.00	8,871.28	8,855.32	113.79	32.67	93.55	11,279.71	1,566.21	1,044.46	906.27	138.19	7.558	
20,100.00	8,765.00	8,871.71	8,855.75	114.26	32.67	93.57	11,279.72	1,566.18	1,027.23	887.00	140.23	7.325	
20,150.00	8,765.00	8,872.14	8,856.19	114.72	32.67	93.60	11,279.72	1,566.15	1,012.18	870.05	142.13	7.121	
20,200.00	8,765.00	8,872.57	8,856.61	115.19	32.67	93.62	11,279.72	1,566.12	999.41	855.54	143.87	6.947	
20,250.00	8,765.00	8,873.00	8,857.04	115.66	32.68	93.65	11,279.73	1,566.09	989.00	843.58	145.42	6.801	
20,300.00	8,765.00	8,873.43	8,857.47	116.13	32.68	93.67	11,279.73	1,566.07	981.03	834.29	146.74	6.686	
20,350.00	8,765.00	8,873.85	8,857.89	116.59	32.68	93.70	11,279.74	1,566.04	975.56	827.74	147.82	6.600	
20,400.00	8,765.00	8,874.27	8,858.31	117.06	32.68	93.72	11,279.74	1,566.01	972.64	824.00	148.64	6.543	
20,431.98	8,765.00	8,874.54	8,858.58	117.36	32.68	93.74	11,279.75	1,565.99	972.11	823.09	149.03	6.523 CC	
20,450.00	8,765.00	8,874.69	8,858.73	117.53	32.68	93.75	11,279.75	1,565.98	972.28	823.09	149.20	6.517 ES, SF	
20,500.00	8,765.00	8,875.11	8,859.15	118.00	32.68	93.77	11,279.75	1,565.96	974.49	825.02	149.47	6.520	
20,550.00	8,765.00	8,875.53	8,859.56	118.47	32.68	93.80	11,279.76	1,565.93	979.25	829.78	149.47	6.551	
20,600.00	8,765.00	8,875.94	8,859.98	118.93	32.69	93.82	11,279.76	1,565.90	986.53	837.32	149.21	6.612	
20,650.00	8,765.00	8,876.35	8,860.39	119.40	32.69	93.85	11,279.76	1,565.87	996.26	847.57	148.69	6.700	
20,700.00	8,765.00	8,876.77	8,860.80	119.87	32.69	93.87	11,279.77	1,565.85	1,008.38	860.45	147.93	6.816	
20,750.00	8,765.00	8,877.17	8,861.21	120.34	32.69	93.89	11,279.77	1,565.82	1,022.80	875.83	146.97	6.959	
20,800.00	8,765.00	8,877.58	8,861.61	120.81	32.69	93.92	11,279.78	1,565.80	1,039.44	893.61	145.82	7.128	
20,850.00	8,765.00	8,877.99	8,862.02	121.28	32.69	93.94	11,279.78	1,565.77	1,058.17	913.65	144.52	7.322	
20,900.00	8,765.00	8,878.39	8,862.42	121.75	32.70	93.97	11,279.79	1,565.74	1,078.90	935.82	143.08	7.541	
20,950.00	8,765.00	8,878.79	8,862.82	122.22	32.70	93.99	11,279.79	1,565.72	1,101.51	959.98	141.53	7.783	
21,000.00	8,765.00	8,879.19	8,863.22	122.69	32.70	94.01	11,279.79	1,565.69	1,125.89	985.98	139.90	8.048	
21,050.00	8,765.00	8,879.59	8,863.62	123.16	32.70	94.04	11,279.80	1,565.67	1,151.92	1,013.70	138.22	8.334	
21,100.00	8,765.00	8,879.99	8,864.02	123.63	32.70	94.06	11,279.80	1,565.64	1,179.50	1,043.01	136.49	8.642	
21,150.00	8,765.00	8,880.39	8,864.41	124.10	32.70	94.08	11,279.81	1,565.62	1,208.51	1,073.77	134.74	8.969	
21,200.00	8,765.00	8,880.78	8,864.80	124.57	32.70	94.11	11,279.81	1,565.59	1,238.87	1,105.88	132.99	9.316	
21,250.00	8,765.00	8,881.17	8,865.20	125.04	32.71	94.13	11,279.81	1,565.57	1,270.47	1,139.23	131.24	9.680	
21,300.00	8,765.00	8,881.56	8,865.59	125.51	32.71	94.15	11,279.82	1,565.54	1,303.22	1,173.70	129.52	10.062	
21,350.00	8,765.00	8,881.95	8,865.97	125.98	32.71	94.17	11,279.82	1,565.52	1,337.04	1,209.22	127.82	10.460	
21,400.00	8,765.00	8,882.34	8,866.36	126.45	32.71	94.20	11,279.83	1,565.49	1,371.85	1,245.70	126.15	10.875	
21,450.00	8,765.00	8,882.72	8,866.74	126.92	32.71	94.22	11,279.83	1,565.47	1,407.58	1,283.05	124.53	11.303	
21,500.00	8,765.00	8,883.11	8,867.13	127.39	32.71	94.24	11,279.83	1,565.45	1,444.15	1,321.20	122.95	11.746	
21,550.00	8,765.00	8,883.49	8,867.51	127.86	32.71	94.27	11,279.84	1,565.42	1,481.50	1,360.09	121.41	12.202	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - Plan Rev4 — **Offset Site Error:** 5.00 ft

Survey Program: 175-MWD+IGRF, 6258-MWD(OWSG) — **Offset Well Error:** 0.00 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
19,300.00	8,765.00	8,880.00	8,857.00	106.80	24.75	93.61	11,277.64	1,575.06	1,496.28	1,397.62	98.67	15.165	
19,350.00	8,765.00	8,880.48	8,857.47	107.27	24.75	93.64	11,277.64	1,575.03	1,458.90	1,358.44	100.46	14.523	
19,400.00	8,765.00	8,880.95	8,857.94	107.73	24.75	93.67	11,277.65	1,574.99	1,422.29	1,319.97	102.31	13.901	
19,450.00	8,765.00	8,881.42	8,858.41	108.20	24.75	93.69	11,277.65	1,574.96	1,386.52	1,282.27	104.24	13.301	
19,500.00	8,765.00	8,881.89	8,858.88	108.66	24.75	93.72	11,277.66	1,574.92	1,351.64	1,245.40	106.24	12.722	
19,550.00	8,765.00	8,882.36	8,859.35	109.13	24.75	93.75	11,277.66	1,574.89	1,317.75	1,209.45	108.30	12.167	
19,600.00	8,765.00	8,882.83	8,859.81	109.59	24.75	93.78	11,277.67	1,574.85	1,284.91	1,174.48	110.43	11.636	
19,650.00	8,765.00	8,883.30	8,860.28	110.06	24.75	93.80	11,277.67	1,574.82	1,253.20	1,140.59	112.60	11.129	
19,700.00	8,765.00	8,883.76	8,860.75	110.52	24.75	93.83	11,277.68	1,574.78	1,222.71	1,107.88	114.83	10.648	
19,750.00	8,765.00	8,884.23	8,861.21	110.99	24.75	93.86	11,277.68	1,574.75	1,193.54	1,076.45	117.09	10.193	
19,800.00	8,765.00	8,884.69	8,861.67	111.46	24.75	93.89	11,277.69	1,574.71	1,165.78	1,046.41	119.37	9.766	
19,850.00	8,765.00	8,885.16	8,862.13	111.92	24.75	93.91	11,277.69	1,574.68	1,139.55	1,017.88	121.66	9.366	
19,900.00	8,765.00	8,885.62	8,862.60	112.39	24.76	93.94	11,277.70	1,574.64	1,114.94	990.99	123.94	8.995	
19,950.00	8,765.00	8,886.08	8,863.06	112.86	24.76	93.97	11,277.70	1,574.61	1,092.06	965.87	126.19	8.654	
20,000.00	8,765.00	8,886.54	8,863.52	113.32	24.76	93.99	11,277.70	1,574.57	1,071.03	942.65	128.39	8.342	
20,050.00	8,765.00	8,887.00	8,863.97	113.79	24.76	94.02	11,277.71	1,574.54	1,051.96	921.46	130.50	8.061	
20,100.00	8,765.00	8,887.46	8,864.43	114.26	24.76	94.05	11,277.71	1,574.51	1,034.96	902.45	132.51	7.811	
20,150.00	8,765.00	8,887.92	8,864.89	114.72	24.76	94.07	11,277.72	1,574.47	1,020.12	885.75	134.37	7.592	
20,200.00	8,765.00	8,888.38	8,865.34	115.19	24.76	94.10	11,277.72	1,574.44	1,007.55	871.48	136.08	7.404	
20,250.00	8,765.00	8,888.83	8,865.80	115.66	24.76	94.13	11,277.73	1,574.40	997.34	859.75	137.59	7.249	
20,300.00	8,765.00	8,889.29	8,866.25	116.13	24.76	94.15	11,277.73	1,574.37	989.54	850.66	138.88	7.125	
20,350.00	8,765.00	8,889.74	8,866.70	116.59	24.76	94.18	11,277.74	1,574.34	984.23	844.30	139.93	7.034	
20,400.00	8,765.00	8,890.19	8,867.15	117.06	24.76	94.21	11,277.74	1,574.30	981.43	840.71	140.73	6.974	
20,429.90	8,765.00	8,890.46	8,867.42	117.34	24.76	94.22	11,277.74	1,574.28	980.98	839.90	141.08	6.954	CC, ES
20,450.00	8,765.00	8,890.64	8,867.61	117.53	24.76	94.23	11,277.74	1,574.27	981.18	839.93	141.26	6.946	SF
20,500.00	8,765.00	8,891.10	8,868.06	118.00	24.76	94.26	11,277.75	1,574.24	983.48	841.96	141.52	6.950	
20,550.00	8,765.00	8,891.55	8,868.50	118.47	24.76	94.29	11,277.75	1,574.20	988.30	846.80	141.50	6.984	
20,600.00	8,765.00	8,891.99	8,868.95	118.93	24.77	94.31	11,277.76	1,574.17	995.62	854.38	141.23	7.050	
20,650.00	8,765.00	8,892.44	8,869.40	119.40	24.77	94.34	11,277.76	1,574.14	1,005.37	864.65	140.71	7.145	
20,700.00	8,765.00	8,892.89	8,869.84	119.87	24.77	94.36	11,277.77	1,574.11	1,017.48	877.52	139.96	7.270	
20,750.00	8,765.00	8,893.34	8,870.29	120.34	24.77	94.39	11,277.77	1,574.07	1,031.88	892.87	139.01	7.423	
20,800.00	8,765.00	8,893.78	8,870.73	120.81	24.77	94.42	11,277.78	1,574.04	1,048.47	910.60	137.87	7.605	
20,850.00	8,765.00	8,894.23	8,871.18	121.28	24.77	94.44	11,277.78	1,574.01	1,067.14	930.57	136.57	7.814	
20,900.00	8,765.00	8,894.67	8,871.62	121.75	24.77	94.47	11,277.78	1,573.98	1,087.79	952.65	135.15	8.049	
20,950.00	8,765.00	8,895.11	8,872.06	122.22	24.77	94.49	11,277.79	1,573.94	1,110.32	976.70	133.62	8.310	
21,000.00	8,765.00	8,895.55	8,872.50	122.69	24.77	94.52	11,277.79	1,573.91	1,134.59	1,002.59	132.01	8.595	
21,050.00	8,765.00	8,895.99	8,872.94	123.16	24.77	94.55	11,277.80	1,573.88	1,160.52	1,030.19	130.34	8.904	
21,100.00	8,765.00	8,896.43	8,873.38	123.63	24.77	94.57	11,277.80	1,573.85	1,187.99	1,059.36	128.63	9.236	
21,150.00	8,765.00	8,896.87	8,873.82	124.10	24.77	94.60	11,277.81	1,573.82	1,216.89	1,089.99	126.89	9.590	
21,200.00	8,765.00	8,897.31	8,874.25	124.57	24.77	94.62	11,277.81	1,573.78	1,247.13	1,121.97	125.16	9.965	
21,250.00	8,765.00	8,897.75	8,874.69	125.04	24.78	94.65	11,277.81	1,573.75	1,278.60	1,155.18	123.43	10.359	
21,300.00	8,765.00	8,898.18	8,875.12	125.51	24.78	94.67	11,277.82	1,573.72	1,311.23	1,189.52	121.71	10.773	
21,350.00	8,765.00	8,898.62	8,875.56	125.98	24.78	94.70	11,277.82	1,573.69	1,344.93	1,224.90	120.02	11.206	
21,400.00	8,765.00	8,899.05	8,875.99	126.45	24.78	94.72	11,277.83	1,573.66	1,379.61	1,261.25	118.37	11.655	
21,450.00	8,765.00	8,899.49	8,876.42	126.92	24.78	94.75	11,277.83	1,573.63	1,415.21	1,298.46	116.75	12.122	
21,500.00	8,765.00	8,899.92	8,876.85	127.39	24.78	94.77	11,277.83	1,573.59	1,451.67	1,336.49	115.18	12.604	
21,550.00	8,765.00	8,900.35	8,877.28	127.86	24.78	94.80	11,277.84	1,573.56	1,488.90	1,375.26	113.65	13.101	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - Plan Rev5 — Offset Site Error: 5.00 ft

Survey Program: 175-MWD+IGRF, 10794-MWD(OWSG) — Offset Well Error: 0.00 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
19,350.00	8,765.00	8,894.11	8,872.96	107.27	31.73	94.45	11,272.04	1,595.18	1,468.94	1,360.64	108.30	13.563	
19,400.00	8,765.00	8,894.40	8,873.24	107.73	31.73	94.47	11,272.04	1,595.15	1,432.79	1,322.63	110.16	13.006	
19,450.00	8,765.00	8,894.68	8,873.53	108.20	31.73	94.48	11,272.04	1,595.13	1,397.50	1,285.41	112.09	12.468	
19,500.00	8,765.00	8,894.96	8,873.81	108.66	31.73	94.50	11,272.04	1,595.10	1,363.12	1,249.04	114.08	11.949	
19,550.00	8,765.00	8,895.25	8,874.09	109.13	31.73	94.52	11,272.05	1,595.08	1,329.74	1,213.61	116.13	11.451	
19,600.00	8,765.00	8,895.53	8,874.37	109.59	31.73	94.53	11,272.05	1,595.06	1,297.42	1,179.19	118.23	10.973	
19,650.00	8,765.00	8,895.80	8,874.65	110.06	31.74	94.55	11,272.05	1,595.03	1,266.25	1,145.86	120.39	10.518	
19,700.00	8,765.00	8,896.08	8,874.92	110.52	31.74	94.56	11,272.05	1,595.01	1,236.32	1,113.74	122.59	10.085	
19,750.00	8,765.00	8,896.35	8,875.19	110.99	31.74	94.58	11,272.05	1,594.99	1,207.72	1,082.91	124.81	9.676	
19,800.00	8,765.00	8,896.62	8,875.46	111.46	31.74	94.59	11,272.05	1,594.97	1,180.55	1,053.49	127.06	9.292	
19,850.00	8,765.00	8,896.89	8,875.73	111.92	31.74	94.61	11,272.05	1,594.94	1,154.90	1,025.60	129.30	8.932	
19,900.00	8,765.00	8,897.15	8,875.99	112.39	31.74	94.62	11,272.05	1,594.92	1,130.88	999.35	131.53	8.598	
19,950.00	8,765.00	8,897.42	8,876.26	112.86	31.74	94.64	11,272.05	1,594.90	1,108.60	974.88	133.72	8.290	
20,000.00	8,765.00	8,897.68	8,876.52	113.32	31.74	94.65	11,272.06	1,594.88	1,088.16	952.31	135.86	8.010	
20,050.00	8,765.00	8,897.94	8,876.78	113.79	31.74	94.67	11,272.06	1,594.86	1,069.67	931.77	137.90	7.757	
20,100.00	8,765.00	8,898.20	8,877.04	114.26	31.74	94.68	11,272.06	1,594.83	1,053.23	913.39	139.84	7.532	
20,150.00	8,765.00	8,898.46	8,877.29	114.72	31.75	94.70	11,272.06	1,594.81	1,038.94	897.30	141.64	7.335	
20,200.00	8,765.00	8,898.71	8,877.54	115.19	31.75	94.71	11,272.06	1,594.79	1,026.89	883.61	143.28	7.167	
20,250.00	8,765.00	8,898.96	8,877.80	115.66	31.75	94.73	11,272.06	1,594.77	1,017.15	872.43	144.72	7.028	
20,300.00	8,765.00	8,899.21	8,878.05	116.13	31.75	94.74	11,272.06	1,594.75	1,009.80	863.84	145.96	6.919	
20,350.00	8,765.00	8,899.46	8,878.29	116.59	31.75	94.76	11,272.06	1,594.73	1,004.88	857.93	146.96	6.838	
20,400.00	8,765.00	8,899.71	8,878.54	117.06	31.75	94.77	11,272.06	1,594.71	1,002.44	854.73	147.71	6.786	
20,424.02	8,765.00	8,899.83	8,878.66	117.29	31.75	94.78	11,272.06	1,594.70	1,002.15	854.17	147.98	6.772	CC, ES
20,450.00	8,765.00	8,899.95	8,878.78	117.53	31.75	94.78	11,272.07	1,594.69	1,002.49	854.28	148.21	6.764	SF
20,500.00	8,765.00	8,900.20	8,879.03	118.00	31.75	94.80	11,272.07	1,594.67	1,005.03	856.58	148.45	6.770	
20,550.00	8,765.00	8,900.44	8,879.27	118.47	31.75	94.81	11,272.07	1,594.65	1,010.04	861.61	148.43	6.805	
20,600.00	8,765.00	8,900.68	8,879.51	118.93	31.75	94.83	11,272.07	1,594.63	1,017.49	869.33	148.16	6.867	
20,650.00	8,765.00	8,900.92	8,879.74	119.40	31.75	94.84	11,272.07	1,594.61	1,027.32	879.66	147.65	6.958	
20,700.00	8,765.00	8,901.15	8,879.98	119.87	31.76	94.85	11,272.07	1,594.59	1,039.46	892.53	146.93	7.075	
20,750.00	8,765.00	8,901.39	8,880.21	120.34	31.76	94.87	11,272.07	1,594.57	1,053.84	907.83	146.01	7.218	
20,800.00	8,765.00	8,901.62	8,880.44	120.81	31.76	94.88	11,272.07	1,594.55	1,070.36	925.46	144.91	7.387	
20,850.00	8,765.00	8,901.85	8,880.67	121.28	31.76	94.89	11,272.07	1,594.53	1,088.93	945.28	143.66	7.580	
20,900.00	8,765.00	8,902.08	8,880.90	121.75	31.76	94.91	11,272.07	1,594.51	1,109.45	967.17	142.28	7.798	
20,950.00	8,765.00	8,902.31	8,881.13	122.22	31.76	94.92	11,272.07	1,594.49	1,131.80	991.00	140.80	8.038	
21,000.00	8,765.00	8,902.53	8,881.36	122.69	31.76	94.93	11,272.08	1,594.47	1,155.88	1,016.65	139.24	8.302	
21,050.00	8,765.00	8,902.76	8,881.58	123.16	31.76	94.94	11,272.08	1,594.45	1,181.59	1,043.98	137.62	8.586	
21,100.00	8,765.00	8,902.98	8,881.80	123.63	31.76	94.96	11,272.08	1,594.44	1,208.83	1,072.87	135.96	8.891	
21,150.00	8,765.00	8,903.20	8,882.02	124.10	31.76	94.97	11,272.08	1,594.42	1,237.48	1,103.21	134.27	9.216	
21,200.00	8,765.00	8,903.42	8,882.24	124.57	31.76	94.98	11,272.08	1,594.40	1,267.46	1,134.88	132.58	9.560	
21,250.00	8,765.00	8,903.64	8,882.46	125.04	31.76	95.00	11,272.08	1,594.38	1,298.67	1,167.79	130.89	9.922	
21,300.00	8,765.00	8,903.86	8,882.68	125.51	31.77	95.01	11,272.08	1,594.36	1,331.03	1,201.82	129.21	10.301	
21,350.00	8,765.00	8,904.08	8,882.89	125.98	31.77	95.02	11,272.08	1,594.35	1,364.46	1,236.90	127.56	10.697	
21,400.00	8,765.00	8,904.29	8,883.10	126.45	31.77	95.03	11,272.08	1,594.33	1,398.87	1,272.94	125.93	11.108	
21,450.00	8,765.00	8,904.50	8,883.32	126.92	31.77	95.04	11,272.08	1,594.31	1,434.20	1,309.86	124.34	11.534	
21,500.00	8,765.00	8,904.71	8,883.53	127.39	31.77	95.06	11,272.08	1,594.29	1,470.38	1,347.59	122.79	11.975	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - Plan Rev6 — **Offset Site Error:** 5.00 ft

Survey Program: 175-MWD+IGRF, 11294- — **Offset Well Error:** 0.00 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
19,350.00	8,765.00	8,894.11	8,872.96	107.27	31.73	94.45	11,272.04	1,595.18	1,468.94	1,360.64	108.30	13.563	
19,400.00	8,765.00	8,894.40	8,873.24	107.73	31.73	94.47	11,272.04	1,595.15	1,432.79	1,322.63	110.16	13.006	
19,450.00	8,765.00	8,894.68	8,873.53	108.20	31.73	94.48	11,272.04	1,595.13	1,397.50	1,285.41	112.09	12.468	
19,500.00	8,765.00	8,894.96	8,873.81	108.66	31.73	94.50	11,272.04	1,595.10	1,363.12	1,249.04	114.08	11.949	
19,550.00	8,765.00	8,895.25	8,874.09	109.13	31.73	94.52	11,272.05	1,595.08	1,329.74	1,213.61	116.13	11.451	
19,600.00	8,765.00	8,895.53	8,874.37	109.59	31.73	94.53	11,272.05	1,595.06	1,297.42	1,179.19	118.23	10.973	
19,650.00	8,765.00	8,895.80	8,874.65	110.06	31.74	94.55	11,272.05	1,595.03	1,266.25	1,145.86	120.39	10.518	
19,700.00	8,765.00	8,896.08	8,874.92	110.52	31.74	94.56	11,272.05	1,595.01	1,236.32	1,113.74	122.59	10.085	
19,750.00	8,765.00	8,896.35	8,875.19	110.99	31.74	94.58	11,272.05	1,594.99	1,207.72	1,082.91	124.81	9.676	
19,800.00	8,765.00	8,896.62	8,875.46	111.46	31.74	94.59	11,272.05	1,594.97	1,180.55	1,053.49	127.06	9.292	
19,850.00	8,765.00	8,896.89	8,875.73	111.92	31.74	94.61	11,272.05	1,594.94	1,154.90	1,025.60	129.30	8.932	
19,900.00	8,765.00	8,897.15	8,875.99	112.39	31.74	94.62	11,272.05	1,594.92	1,130.88	999.35	131.53	8.598	
19,950.00	8,765.00	8,897.42	8,876.26	112.86	31.74	94.64	11,272.05	1,594.90	1,108.60	974.88	133.72	8.290	
20,000.00	8,765.00	8,897.68	8,876.52	113.32	31.74	94.65	11,272.06	1,594.88	1,088.16	952.31	135.86	8.010	
20,050.00	8,765.00	8,897.94	8,876.78	113.79	31.74	94.67	11,272.06	1,594.86	1,069.67	931.77	137.90	7.757	
20,100.00	8,765.00	8,898.20	8,877.04	114.26	31.74	94.68	11,272.06	1,594.83	1,053.23	913.39	139.84	7.532	
20,150.00	8,765.00	8,898.46	8,877.29	114.72	31.75	94.70	11,272.06	1,594.81	1,038.94	897.30	141.64	7.335	
20,200.00	8,765.00	8,898.71	8,877.54	115.19	31.75	94.71	11,272.06	1,594.79	1,026.89	883.61	143.28	7.167	
20,250.00	8,765.00	8,898.96	8,877.80	115.66	31.75	94.73	11,272.06	1,594.77	1,017.15	872.43	144.72	7.028	
20,300.00	8,765.00	8,899.21	8,878.05	116.13	31.75	94.74	11,272.06	1,594.75	1,009.80	863.84	145.96	6.919	
20,350.00	8,765.00	8,899.46	8,878.29	116.59	31.75	94.76	11,272.06	1,594.73	1,004.88	857.93	146.96	6.838	
20,400.00	8,765.00	8,899.71	8,878.54	117.06	31.75	94.77	11,272.06	1,594.71	1,002.44	854.73	147.71	6.786	
20,424.02	8,765.00	8,899.83	8,878.66	117.29	31.75	94.78	11,272.06	1,594.70	1,002.15	854.17	147.98	6.772	CC, ES
20,450.00	8,765.00	8,899.95	8,878.78	117.53	31.75	94.78	11,272.07	1,594.69	1,002.49	854.28	148.21	6.764	SF
20,500.00	8,765.00	8,900.20	8,879.03	118.00	31.75	94.80	11,272.07	1,594.67	1,005.03	856.58	148.45	6.770	
20,550.00	8,765.00	8,900.44	8,879.27	118.47	31.75	94.81	11,272.07	1,594.65	1,010.04	861.61	148.43	6.805	
20,600.00	8,765.00	8,900.68	8,879.51	118.93	31.75	94.83	11,272.07	1,594.63	1,017.49	869.33	148.16	6.867	
20,650.00	8,765.00	8,900.92	8,879.74	119.40	31.75	94.84	11,272.07	1,594.61	1,027.32	879.66	147.65	6.958	
20,700.00	8,765.00	8,901.15	8,879.98	119.87	31.76	94.85	11,272.07	1,594.59	1,039.46	892.53	146.93	7.075	
20,750.00	8,765.00	8,901.39	8,880.21	120.34	31.76	94.87	11,272.07	1,594.57	1,053.84	907.83	146.01	7.218	
20,800.00	8,765.00	8,901.62	8,880.44	120.81	31.76	94.88	11,272.07	1,594.55	1,070.36	925.46	144.91	7.387	
20,850.00	8,765.00	8,901.85	8,880.67	121.28	31.76	94.89	11,272.07	1,594.53	1,088.93	945.28	143.66	7.580	
20,900.00	8,765.00	8,902.08	8,880.90	121.75	31.76	94.91	11,272.07	1,594.51	1,109.45	967.17	142.28	7.798	
20,950.00	8,765.00	8,902.31	8,881.13	122.22	31.76	94.92	11,272.07	1,594.49	1,131.80	991.00	140.80	8.038	
21,000.00	8,765.00	8,902.53	8,881.36	122.69	31.76	94.93	11,272.08	1,594.47	1,155.88	1,016.65	139.24	8.302	
21,050.00	8,765.00	8,902.76	8,881.58	123.16	31.76	94.94	11,272.08	1,594.45	1,181.59	1,043.98	137.62	8.586	
21,100.00	8,765.00	8,902.98	8,881.80	123.63	31.76	94.96	11,272.08	1,594.44	1,208.83	1,072.87	135.96	8.891	
21,150.00	8,765.00	8,903.20	8,882.02	124.10	31.76	94.97	11,272.08	1,594.42	1,237.48	1,103.21	134.27	9.216	
21,200.00	8,765.00	8,903.42	8,882.24	124.57	31.76	94.98	11,272.08	1,594.40	1,267.46	1,134.88	132.58	9.560	
21,250.00	8,765.00	8,903.64	8,882.46	125.04	31.76	95.00	11,272.08	1,594.38	1,298.67	1,167.79	130.89	9.922	
21,300.00	8,765.00	8,903.86	8,882.68	125.51	31.77	95.01	11,272.08	1,594.36	1,331.03	1,201.82	129.21	10.301	
21,350.00	8,765.00	8,904.08	8,882.89	125.98	31.77	95.02	11,272.08	1,594.35	1,364.46	1,236.90	127.56	10.697	
21,400.00	8,765.00	8,904.29	8,883.10	126.45	31.77	95.03	11,272.08	1,594.33	1,398.87	1,272.94	125.93	11.108	
21,450.00	8,765.00	8,904.50	8,883.32	126.92	31.77	95.04	11,272.08	1,594.31	1,434.20	1,309.86	124.34	11.534	
21,500.00	8,765.00	8,904.71	8,883.53	127.39	31.77	95.06	11,272.08	1,594.29	1,470.38	1,347.59	122.79	11.975	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - PTL — **Offset Site Error:** 5.00 ft

Survey Program: 175-MWD+IGRF, 10481- — **Offset Well Error:** 0.00 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
19,350.00	8,765.00	8,894.11	8,872.96	107.27	31.73	94.45	11,272.04	1,595.18	1,468.94	1,360.64	108.30	13.563	
19,400.00	8,765.00	8,894.40	8,873.24	107.73	31.73	94.47	11,272.04	1,595.15	1,432.79	1,322.63	110.16	13.006	
19,450.00	8,765.00	8,894.68	8,873.53	108.20	31.73	94.48	11,272.04	1,595.13	1,397.50	1,285.41	112.09	12.468	
19,500.00	8,765.00	8,894.96	8,873.81	108.66	31.73	94.50	11,272.04	1,595.10	1,363.12	1,249.04	114.08	11.949	
19,550.00	8,765.00	8,895.25	8,874.09	109.13	31.73	94.52	11,272.05	1,595.08	1,329.74	1,213.61	116.13	11.451	
19,600.00	8,765.00	8,895.53	8,874.37	109.59	31.73	94.53	11,272.05	1,595.06	1,297.42	1,179.19	118.23	10.973	
19,650.00	8,765.00	8,895.80	8,874.65	110.06	31.74	94.55	11,272.05	1,595.03	1,266.25	1,145.86	120.39	10.518	
19,700.00	8,765.00	8,896.08	8,874.92	110.52	31.74	94.56	11,272.05	1,595.01	1,236.32	1,113.74	122.59	10.085	
19,750.00	8,765.00	8,896.35	8,875.19	110.99	31.74	94.58	11,272.05	1,594.99	1,207.72	1,082.91	124.81	9.676	
19,800.00	8,765.00	8,896.62	8,875.46	111.46	31.74	94.59	11,272.05	1,594.97	1,180.55	1,053.49	127.06	9.292	
19,850.00	8,765.00	8,896.89	8,875.73	111.92	31.74	94.61	11,272.05	1,594.94	1,154.90	1,025.60	129.30	8.932	
19,900.00	8,765.00	8,897.15	8,875.99	112.39	31.74	94.62	11,272.05	1,594.92	1,130.88	999.35	131.53	8.598	
19,950.00	8,765.00	8,897.42	8,876.26	112.86	31.74	94.64	11,272.05	1,594.90	1,108.60	974.88	133.72	8.290	
20,000.00	8,765.00	8,897.68	8,876.52	113.32	31.74	94.65	11,272.06	1,594.88	1,088.16	952.31	135.86	8.010	
20,050.00	8,765.00	8,897.94	8,876.78	113.79	31.74	94.67	11,272.06	1,594.86	1,069.67	931.77	137.90	7.757	
20,100.00	8,765.00	8,898.20	8,877.04	114.26	31.74	94.68	11,272.06	1,594.83	1,053.23	913.39	139.84	7.532	
20,150.00	8,765.00	8,898.46	8,877.29	114.72	31.75	94.70	11,272.06	1,594.81	1,038.94	897.30	141.64	7.335	
20,200.00	8,765.00	8,898.71	8,877.54	115.19	31.75	94.71	11,272.06	1,594.79	1,026.89	883.61	143.28	7.167	
20,250.00	8,765.00	8,898.96	8,877.80	115.66	31.75	94.73	11,272.06	1,594.77	1,017.15	872.43	144.72	7.028	
20,300.00	8,765.00	8,899.21	8,878.05	116.13	31.75	94.74	11,272.06	1,594.75	1,009.80	863.84	145.96	6.919	
20,350.00	8,765.00	8,899.46	8,878.29	116.59	31.75	94.76	11,272.06	1,594.73	1,004.88	857.93	146.96	6.838	
20,400.00	8,765.00	8,899.71	8,878.54	117.06	31.75	94.77	11,272.06	1,594.71	1,002.44	854.73	147.71	6.786	
20,424.02	8,765.00	8,899.83	8,878.66	117.29	31.75	94.78	11,272.06	1,594.70	1,002.15	854.17	147.98	6.772	CC, ES
20,450.00	8,765.00	8,899.95	8,878.78	117.53	31.75	94.78	11,272.07	1,594.69	1,002.49	854.28	148.21	6.764	SF
20,500.00	8,765.00	8,900.20	8,879.03	118.00	31.75	94.80	11,272.07	1,594.67	1,005.03	856.58	148.45	6.770	
20,550.00	8,765.00	8,900.44	8,879.27	118.47	31.75	94.81	11,272.07	1,594.65	1,010.04	861.61	148.43	6.805	
20,600.00	8,765.00	8,900.68	8,879.51	118.93	31.75	94.83	11,272.07	1,594.63	1,017.49	869.33	148.16	6.867	
20,650.00	8,765.00	8,900.92	8,879.74	119.40	31.75	94.84	11,272.07	1,594.61	1,027.32	879.66	147.65	6.958	
20,700.00	8,765.00	8,901.15	8,879.98	119.87	31.76	94.85	11,272.07	1,594.59	1,039.46	892.53	146.93	7.075	
20,750.00	8,765.00	8,901.39	8,880.21	120.34	31.76	94.87	11,272.07	1,594.57	1,053.84	907.83	146.01	7.218	
20,800.00	8,765.00	8,901.62	8,880.44	120.81	31.76	94.88	11,272.07	1,594.55	1,070.36	925.46	144.91	7.387	
20,850.00	8,765.00	8,901.85	8,880.67	121.28	31.76	94.89	11,272.07	1,594.53	1,088.93	945.28	143.66	7.580	
20,900.00	8,765.00	8,902.08	8,880.90	121.75	31.76	94.91	11,272.07	1,594.51	1,109.45	967.17	142.28	7.798	
20,950.00	8,765.00	8,902.31	8,881.13	122.22	31.76	94.92	11,272.07	1,594.49	1,131.80	991.00	140.80	8.038	
21,000.00	8,765.00	8,902.53	8,881.36	122.69	31.76	94.93	11,272.08	1,594.47	1,155.88	1,016.65	139.24	8.302	
21,050.00	8,765.00	8,902.76	8,881.58	123.16	31.76	94.94	11,272.08	1,594.45	1,181.59	1,043.98	137.62	8.586	
21,100.00	8,765.00	8,902.98	8,881.80	123.63	31.76	94.96	11,272.08	1,594.44	1,208.83	1,072.87	135.96	8.891	
21,150.00	8,765.00	8,903.20	8,882.02	124.10	31.76	94.97	11,272.08	1,594.42	1,237.48	1,103.21	134.27	9.216	
21,200.00	8,765.00	8,903.42	8,882.24	124.57	31.76	94.98	11,272.08	1,594.40	1,267.46	1,134.88	132.58	9.560	
21,250.00	8,765.00	8,903.64	8,882.46	125.04	31.76	95.00	11,272.08	1,594.38	1,298.67	1,167.79	130.89	9.922	
21,300.00	8,765.00	8,903.86	8,882.68	125.51	31.77	95.01	11,272.08	1,594.36	1,331.03	1,201.82	129.21	10.301	
21,350.00	8,765.00	8,904.08	8,882.89	125.98	31.77	95.02	11,272.08	1,594.35	1,364.46	1,236.90	127.56	10.697	
21,400.00	8,765.00	8,904.29	8,883.10	126.45	31.77	95.03	11,272.08	1,594.33	1,398.87	1,272.94	125.93	11.108	
21,450.00	8,765.00	8,904.50	8,883.32	126.92	31.77	95.04	11,272.08	1,594.31	1,434.20	1,309.86	124.34	11.534	
21,500.00	8,765.00	8,904.71	8,883.53	127.39	31.77	95.06	11,272.08	1,594.29	1,470.38	1,347.59	122.79	11.975	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Belgian 15 Fed Com 1H - Original Hole - TAD — **Offset Site Error:** 5.00 ft

Survey Program: — **Offset Well Error:** 0.00 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
19,700.00	8,765.00	8,809.85	8,789.14	110.52		89.74	11,220.73	1,930.03	1,492.04	1,387.53	104.51	14.276	
19,750.00	8,765.00	8,809.85	8,789.14	110.99		89.74	11,220.73	1,930.03	1,470.29	1,364.03	106.26	13.837	
19,800.00	8,765.00	8,809.85	8,789.14	111.46		89.74	11,220.73	1,930.03	1,449.93	1,341.96	107.97	13.429	
19,850.00	8,765.00	8,809.85	8,789.14	111.92		89.74	11,220.73	1,930.03	1,431.04	1,321.40	109.64	13.052	
19,900.00	8,765.00	8,809.85	8,789.14	112.39		89.74	11,220.73	1,930.03	1,413.66	1,302.40	111.26	12.706	
19,950.00	8,765.00	8,809.85	8,789.14	112.86		89.74	11,220.73	1,930.03	1,397.86	1,285.04	112.82	12.390	
20,000.00	8,765.00	8,809.85	8,789.14	113.32		89.74	11,220.73	1,930.03	1,383.68	1,269.39	114.29	12.106	
20,050.00	8,765.00	8,809.85	8,789.14	113.79		89.74	11,220.73	1,930.03	1,371.19	1,255.50	115.68	11.853	
20,100.00	8,765.00	8,809.85	8,789.14	114.26		89.74	11,220.73	1,930.03	1,360.41	1,243.44	116.97	11.630	
20,150.00	8,765.00	8,809.85	8,789.14	114.72		89.74	11,220.73	1,930.03	1,351.40	1,233.25	118.15	11.438	
20,200.00	8,765.00	8,809.85	8,789.14	115.19		89.74	11,220.73	1,930.03	1,344.19	1,224.99	119.21	11.276	
20,250.00	8,765.00	8,809.85	8,789.14	115.66		89.74	11,220.73	1,930.03	1,338.81	1,218.68	120.13	11.144	
20,300.00	8,765.00	8,809.85	8,789.14	116.13		89.74	11,220.73	1,930.03	1,335.29	1,214.36	120.92	11.042	
20,350.00	8,765.00	8,809.85	8,789.14	116.59		89.74	11,220.73	1,930.03	1,333.63	1,212.05	121.57	10.970	
20,369.32	8,765.00	8,809.85	8,789.14	116.77		89.74	11,220.73	1,930.03	1,333.49	1,211.70	121.78	10.950	CC, ES
20,400.00	8,765.00	8,809.85	8,789.14	117.06		89.74	11,220.73	1,930.03	1,333.84	1,211.77	122.07	10.927	
20,450.00	8,765.00	8,809.85	8,789.14	117.53		89.74	11,220.73	1,930.03	1,335.92	1,213.50	122.42	10.912	SF
20,500.00	8,765.00	8,809.85	8,789.14	118.00		89.74	11,220.73	1,930.03	1,339.87	1,217.25	122.63	10.926	
20,550.00	8,765.00	8,809.85	8,789.14	118.47		89.74	11,220.73	1,930.03	1,345.67	1,222.99	122.68	10.969	
20,600.00	8,765.00	8,809.85	8,789.14	118.93		89.74	11,220.73	1,930.03	1,353.29	1,230.69	122.60	11.039	
20,650.00	8,765.00	8,809.85	8,789.14	119.40		89.74	11,220.73	1,930.03	1,362.70	1,240.33	122.37	11.136	
20,700.00	8,765.00	8,809.85	8,789.13	119.87		89.74	11,220.73	1,930.03	1,373.87	1,251.86	122.01	11.260	
20,750.00	8,765.00	8,809.84	8,789.13	120.34		89.74	11,220.73	1,930.03	1,386.76	1,265.23	121.53	11.411	
20,800.00	8,765.00	8,809.84	8,789.13	120.81		89.74	11,220.73	1,930.03	1,401.31	1,280.37	120.94	11.587	
20,850.00	8,765.00	8,809.84	8,789.13	121.28		89.74	11,220.73	1,930.03	1,417.48	1,297.24	120.24	11.789	
20,900.00	8,765.00	8,809.84	8,789.13	121.75		89.74	11,220.73	1,930.03	1,435.20	1,315.76	119.44	12.016	
20,950.00	8,765.00	8,809.84	8,789.13	122.22		89.74	11,220.73	1,930.03	1,454.43	1,335.87	118.57	12.267	
21,000.00	8,765.00	8,809.84	8,789.13	122.69		89.74	11,220.73	1,930.03	1,475.11	1,357.49	117.61	12.542	
21,050.00	8,765.00	8,809.84	8,789.13	123.16		89.74	11,220.73	1,930.03	1,497.17	1,380.57	116.60	12.841	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Cotton Draw 15 Fed 2H - Pilot Hole - Wellbore #1 — **Offset Site Error:** 5.00 ft

Survey Program: 100-GYRO-NS-CT — **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
24,350.00	8,765.00	8,836.49	8,831.72	154.37	31.33	90.64	16,150.25	1,696.06	1,491.44	1,339.27	152.17	9.801	
24,400.00	8,765.00	8,836.83	8,832.06	154.85	31.33	90.66	16,150.25	1,696.06	1,460.07	1,305.18	154.89	9.426	
24,450.00	8,765.00	8,837.17	8,832.40	155.33	31.33	90.68	16,150.25	1,696.05	1,429.76	1,272.11	157.65	9.069	
24,500.00	8,765.00	8,837.51	8,832.74	155.80	31.33	90.70	16,150.26	1,696.05	1,400.58	1,240.13	160.45	8.729	
24,550.00	8,765.00	8,837.85	8,833.08	156.28	31.33	90.71	16,150.26	1,696.04	1,372.60	1,209.34	163.26	8.407	
24,600.00	8,765.00	8,838.19	8,833.42	156.75	31.34	90.73	16,150.26	1,696.03	1,345.89	1,179.82	166.08	8.104	
24,650.00	8,765.00	8,838.53	8,833.76	157.23	31.34	90.75	16,150.26	1,696.03	1,320.54	1,151.66	168.89	7.819	
24,700.00	8,765.00	8,838.87	8,834.10	157.70	31.34	90.76	16,150.26	1,696.02	1,296.63	1,124.96	171.67	7.553	
24,750.00	8,765.00	8,839.20	8,834.43	158.18	31.34	90.78	16,150.27	1,696.02	1,274.22	1,099.82	174.40	7.306	
24,800.00	8,765.00	8,839.54	8,834.77	158.66	31.34	90.80	16,150.27	1,696.01	1,253.41	1,076.35	177.06	7.079	
24,850.00	8,765.00	8,839.87	8,835.10	159.13	31.34	90.81	16,150.27	1,696.01	1,234.28	1,054.65	179.63	6.871	
24,900.00	8,765.00	8,840.20	8,835.43	159.61	31.34	90.83	16,150.27	1,696.00	1,216.90	1,034.82	182.08	6.683	
24,950.00	8,765.00	8,840.53	8,835.76	160.09	31.34	90.85	16,150.27	1,696.00	1,201.36	1,016.97	184.39	6.515	
25,000.00	8,765.00	8,840.87	8,836.10	160.56	31.35	90.86	16,150.28	1,695.99	1,187.71	1,001.19	186.52	6.368	
25,050.00	8,765.00	8,841.20	8,836.43	161.04	31.35	90.88	16,150.28	1,695.98	1,176.04	987.57	188.47	6.240	
25,100.00	8,765.00	8,841.52	8,836.75	161.51	31.35	90.90	16,150.28	1,695.98	1,166.39	976.20	190.19	6.133	
25,150.00	8,765.00	8,841.85	8,837.08	161.99	31.35	90.91	16,150.28	1,695.97	1,158.82	967.15	191.68	6.046	
25,200.00	8,765.00	8,842.18	8,837.41	162.47	31.35	90.93	16,150.28	1,695.97	1,153.37	960.47	192.90	5.979	
25,250.00	8,765.00	8,842.51	8,837.73	162.94	31.35	90.94	16,150.29	1,695.96	1,150.08	956.22	193.86	5.933	
25,300.00	8,765.00	8,842.83	8,838.06	163.42	31.35	90.96	16,150.29	1,695.96	1,148.95	954.42	194.53	5.906	
25,300.98	8,765.00	8,842.84	8,838.07	163.43	31.35	90.96	16,150.29	1,695.96	1,148.95	954.41	194.54	5.906	CC, ES
25,350.00	8,765.00	8,843.15	8,838.38	163.90	31.35	90.98	16,150.29	1,695.95	1,149.99	955.08	194.91	5.900	SF
25,400.00	8,765.00	8,843.48	8,838.71	164.37	31.35	90.99	16,150.29	1,695.95	1,153.20	958.20	195.01	5.914	
25,450.00	8,765.00	8,843.80	8,839.03	164.85	31.36	91.01	16,150.29	1,695.94	1,158.57	963.75	194.82	5.947	
25,500.00	8,765.00	8,844.12	8,839.35	165.33	31.36	91.02	16,150.30	1,695.94	1,166.05	971.70	194.35	6.000	
25,550.00	8,765.00	8,844.44	8,839.67	165.80	31.36	91.04	16,150.30	1,695.93	1,175.62	982.00	193.62	6.072	
25,600.00	8,765.00	8,844.76	8,839.99	166.28	31.36	91.06	16,150.30	1,695.92	1,187.22	994.57	192.65	6.162	
25,647.39	8,765.00	8,845.06	8,840.29	166.73	31.36	91.07	16,150.30	1,695.92	1,200.03	1,008.51	191.52	6.266	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Cotton Draw 15 Fed 2H - Wellbore #2 - Wellbore #2 — **Offset Site Error:** 5.00 ft

Survey Program: 100-GYRO-NS-CT, 9189-MWD+IGRF — **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
24,350.00	8,765.00	8,836.49	8,831.72	154.37	31.33	90.64	16,150.25	1,696.06	1,491.44	1,339.27	152.17	9.801	
24,400.00	8,765.00	8,836.83	8,832.06	154.85	31.33	90.66	16,150.25	1,696.06	1,460.07	1,305.18	154.89	9.426	
24,450.00	8,765.00	8,837.17	8,832.40	155.33	31.33	90.68	16,150.25	1,696.05	1,429.76	1,272.11	157.65	9.069	
24,500.00	8,765.00	8,837.51	8,832.74	155.80	31.33	90.70	16,150.26	1,696.05	1,400.58	1,240.13	160.45	8.729	
24,550.00	8,765.00	8,837.85	8,833.08	156.28	31.33	90.71	16,150.26	1,696.04	1,372.60	1,209.34	163.26	8.407	
24,600.00	8,765.00	8,838.19	8,833.42	156.75	31.34	90.73	16,150.26	1,696.03	1,345.89	1,179.82	166.08	8.104	
24,650.00	8,765.00	8,838.53	8,833.76	157.23	31.34	90.75	16,150.26	1,696.03	1,320.54	1,151.66	168.89	7.819	
24,700.00	8,765.00	8,838.87	8,834.10	157.70	31.34	90.76	16,150.26	1,696.02	1,296.63	1,124.96	171.67	7.553	
24,750.00	8,765.00	8,839.20	8,834.43	158.18	31.34	90.78	16,150.27	1,696.02	1,274.22	1,099.82	174.40	7.306	
24,800.00	8,765.00	8,839.54	8,834.77	158.66	31.34	90.80	16,150.27	1,696.01	1,253.41	1,076.35	177.06	7.079	
24,850.00	8,765.00	8,839.87	8,835.10	159.13	31.34	90.81	16,150.27	1,696.01	1,234.28	1,054.65	179.63	6.871	
24,900.00	8,765.00	8,840.20	8,835.43	159.61	31.34	90.83	16,150.27	1,696.00	1,216.90	1,034.82	182.08	6.683	
24,950.00	8,765.00	8,840.53	8,835.76	160.09	31.34	90.85	16,150.27	1,696.00	1,201.36	1,016.97	184.39	6.515	
25,000.00	8,765.00	8,840.87	8,836.10	160.56	31.35	90.86	16,150.28	1,695.99	1,187.71	1,001.19	186.52	6.368	
25,050.00	8,765.00	8,841.20	8,836.43	161.04	31.35	90.88	16,150.28	1,695.98	1,176.04	987.57	188.47	6.240	
25,100.00	8,765.00	8,841.52	8,836.75	161.51	31.35	90.90	16,150.28	1,695.98	1,166.39	976.20	190.19	6.133	
25,150.00	8,765.00	8,841.85	8,837.08	161.99	31.35	90.91	16,150.28	1,695.97	1,158.82	967.15	191.68	6.046	
25,200.00	8,765.00	8,842.18	8,837.41	162.47	31.35	90.93	16,150.28	1,695.97	1,153.37	960.47	192.90	5.979	
25,250.00	8,765.00	8,842.51	8,837.73	162.94	31.35	90.94	16,150.29	1,695.96	1,150.08	956.22	193.86	5.933	
25,300.00	8,765.00	8,842.83	8,838.06	163.42	31.35	90.96	16,150.29	1,695.96	1,148.95	954.42	194.53	5.906	
25,300.98	8,765.00	8,842.84	8,838.07	163.43	31.35	90.96	16,150.29	1,695.96	1,148.95	954.41	194.54	5.906	CC, ES
25,350.00	8,765.00	8,843.15	8,838.38	163.90	31.35	90.98	16,150.29	1,695.95	1,149.99	955.08	194.91	5.900	SF
25,400.00	8,765.00	8,843.48	8,838.71	164.37	31.35	90.99	16,150.29	1,695.95	1,153.20	958.20	195.01	5.914	
25,450.00	8,765.00	8,843.80	8,839.03	164.85	31.36	91.01	16,150.29	1,695.94	1,158.57	963.75	194.82	5.947	
25,500.00	8,765.00	8,844.12	8,839.35	165.33	31.36	91.02	16,150.30	1,695.94	1,166.05	971.70	194.35	6.000	
25,550.00	8,765.00	8,844.44	8,839.67	165.80	31.36	91.04	16,150.30	1,695.93	1,175.62	982.00	193.62	6.072	
25,600.00	8,765.00	8,844.76	8,839.99	166.28	31.36	91.06	16,150.30	1,695.92	1,187.22	994.57	192.65	6.162	
25,647.39	8,765.00	8,845.06	8,840.29	166.73	31.36	91.07	16,150.30	1,695.92	1,200.03	1,008.51	191.52	6.266	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 15-T25S-R31E - Shire 22 Fed 1H - Original Hole - Actuals — Offset Site Error: 5.00 ft

Survey Program: 273-MWD+IGRF — Offset Well Error: 0.00 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
19,150.00	8,765.00	8,836.61	8,822.63	105.41	31.54	91.60	11,070.58	1,595.45	1,464.90	1,358.40	106.50	13.755	
19,200.00	8,765.00	8,836.38	8,822.41	105.87	31.54	91.59	11,070.58	1,595.46	1,428.70	1,320.36	108.34	13.187	
19,250.00	8,765.00	8,836.15	8,822.18	106.34	31.54	91.57	11,070.58	1,595.46	1,393.35	1,283.10	110.25	12.638	
19,300.00	8,765.00	8,835.92	8,821.94	106.80	31.54	91.56	11,070.59	1,595.47	1,358.92	1,246.70	112.22	12.109	
19,350.00	8,765.00	8,835.68	8,821.71	107.27	31.54	91.55	11,070.59	1,595.47	1,325.49	1,211.23	114.26	11.601	
19,400.00	8,765.00	8,835.45	8,821.47	107.73	31.54	91.53	11,070.59	1,595.48	1,293.12	1,176.76	116.36	11.113	
19,450.00	8,765.00	8,835.21	8,821.23	108.20	31.54	91.52	11,070.59	1,595.48	1,261.91	1,143.40	118.51	10.649	
19,500.00	8,765.00	8,834.97	8,820.99	108.66	31.54	91.50	11,070.59	1,595.49	1,231.93	1,111.23	120.70	10.207	
19,550.00	8,765.00	8,834.72	8,820.75	109.13	31.54	91.49	11,070.59	1,595.49	1,203.29	1,080.36	122.92	9.789	
19,600.00	8,765.00	8,834.48	8,820.51	109.59	31.53	91.48	11,070.59	1,595.50	1,176.07	1,050.90	125.17	9.396	
19,650.00	8,765.00	8,834.23	8,820.26	110.06	31.53	91.46	11,070.60	1,595.50	1,150.39	1,022.97	127.42	9.028	
19,700.00	8,765.00	8,833.98	8,820.01	110.52	31.53	91.45	11,070.60	1,595.51	1,126.34	996.68	129.66	8.687	
19,750.00	8,765.00	8,833.73	8,819.76	110.99	31.53	91.43	11,070.60	1,595.52	1,104.03	972.16	131.86	8.372	
19,800.00	8,765.00	8,833.48	8,819.51	111.46	31.53	91.42	11,070.60	1,595.52	1,083.57	949.56	134.01	8.085	
19,850.00	8,765.00	8,833.22	8,819.25	111.92	31.53	91.40	11,070.60	1,595.53	1,065.07	928.98	136.08	7.826	
19,900.00	8,765.00	8,832.97	8,818.99	112.39	31.53	91.39	11,070.60	1,595.53	1,048.62	910.58	138.05	7.596	
19,950.00	8,765.00	8,832.71	8,818.73	112.86	31.53	91.37	11,070.61	1,595.54	1,034.34	894.46	139.88	7.395	
20,000.00	8,765.00	8,832.44	8,818.47	113.32	31.53	91.36	11,070.61	1,595.54	1,022.30	880.76	141.55	7.222	
20,050.00	8,765.00	8,832.18	8,818.21	113.79	31.53	91.34	11,070.61	1,595.55	1,012.59	869.57	143.03	7.080	
20,100.00	8,765.00	8,831.91	8,817.94	114.26	31.53	91.33	11,070.61	1,595.56	1,005.28	860.98	144.30	6.967	
20,150.00	8,765.00	8,831.64	8,817.67	114.72	31.52	91.31	11,070.61	1,595.56	1,000.42	855.08	145.34	6.883	
20,200.00	8,765.00	8,831.37	8,817.40	115.19	31.52	91.30	11,070.61	1,595.57	998.04	851.90	146.13	6.830	
20,222.57	8,765.00	8,831.25	8,817.28	115.40	31.52	91.29	11,070.61	1,595.57	997.78	851.37	146.41	6.815	CC, ES
20,250.00	8,765.00	8,831.10	8,817.13	115.66	31.52	91.28	11,070.62	1,595.57	998.16	851.48	146.67	6.805	SF
20,300.00	8,765.00	8,830.82	8,816.85	116.13	31.52	91.27	11,070.62	1,595.58	1,000.78	853.83	146.95	6.810	
20,350.00	8,765.00	8,830.54	8,816.57	116.59	31.52	91.25	11,070.62	1,595.59	1,005.89	858.91	146.97	6.844	
20,400.00	8,765.00	8,830.26	8,816.29	117.06	31.52	91.23	11,070.62	1,595.59	1,013.43	866.69	146.74	6.906	
20,450.00	8,765.00	8,829.98	8,816.00	117.53	31.52	91.22	11,070.62	1,595.60	1,023.37	877.10	146.28	6.996	
20,500.00	8,765.00	8,829.69	8,815.72	118.00	31.52	91.20	11,070.62	1,595.61	1,035.63	890.04	145.59	7.113	
20,550.00	8,765.00	8,829.40	8,815.43	118.47	31.52	91.18	11,070.63	1,595.61	1,050.13	905.43	144.70	7.257	
20,600.00	8,765.00	8,829.11	8,815.14	118.93	31.52	91.17	11,070.63	1,595.62	1,066.78	923.14	143.64	7.427	
20,650.00	8,765.00	8,828.82	8,814.84	119.40	31.51	91.15	11,070.63	1,595.63	1,085.48	943.06	142.42	7.622	
20,700.00	8,765.00	8,828.52	8,814.55	119.87	31.51	91.13	11,070.63	1,595.63	1,106.12	965.05	141.07	7.841	
20,750.00	8,765.00	8,828.22	8,814.25	120.34	31.51	91.12	11,070.63	1,595.64	1,128.60	988.98	139.62	8.083	
20,800.00	8,765.00	8,827.91	8,813.94	120.81	31.51	91.10	11,070.64	1,595.65	1,152.82	1,014.72	138.09	8.348	
20,850.00	8,765.00	8,827.61	8,813.64	121.28	31.51	91.08	11,070.64	1,595.65	1,178.65	1,042.15	136.50	8.635	
20,900.00	8,765.00	8,827.30	8,813.33	121.75	31.51	91.06	11,070.64	1,595.66	1,206.01	1,071.15	134.87	8.942	
20,950.00	8,765.00	8,826.99	8,813.02	122.22	31.51	91.05	11,070.64	1,595.67	1,234.79	1,101.58	133.21	9.270	
21,000.00	8,765.00	8,826.67	8,812.70	122.69	31.51	91.03	11,070.65	1,595.68	1,264.89	1,133.35	131.54	9.616	
21,050.00	8,765.00	8,826.36	8,812.38	123.16	31.51	91.01	11,070.65	1,595.68	1,296.22	1,166.35	129.87	9.981	
21,100.00	8,765.00	8,826.03	8,812.06	123.63	31.50	90.99	11,070.65	1,595.69	1,328.69	1,200.47	128.22	10.363	
21,150.00	8,765.00	8,825.71	8,811.74	124.10	31.50	90.97	11,070.65	1,595.70	1,362.23	1,235.64	126.59	10.761	
21,200.00	8,765.00	8,825.38	8,811.41	124.57	31.50	90.95	11,070.65	1,595.71	1,396.75	1,271.76	124.99	11.175	
21,250.00	8,765.00	8,825.05	8,811.08	125.04	31.50	90.93	11,070.66	1,595.71	1,432.18	1,308.76	123.42	11.604	
21,300.00	8,765.00	8,824.72	8,810.75	125.51	31.50	90.92	11,070.66	1,595.72	1,468.46	1,346.57	121.89	12.047	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 22-T25S-R31E - Amoco DB Fed #001 (Active) - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 5.00 ft

Survey Program: 10-INC-ONLY — **Offset Well Error:** 10.00 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
15,900.00	8,765.00	8,767.30	8,767.30	75.85	177.59	90.00	7,893.81	1,574.74	1,485.39	1,254.04	231.36	6.420	
15,950.00	8,765.00	8,767.30	8,767.30	76.29	177.59	90.00	7,893.81	1,574.74	1,447.17	1,214.62	232.55	6.223	
16,000.00	8,765.00	8,767.30	8,767.30	76.73	177.59	90.00	7,893.81	1,574.74	1,409.67	1,175.88	233.80	6.029	
16,050.00	8,765.00	8,767.30	8,767.30	77.18	177.59	90.00	7,893.81	1,574.74	1,372.98	1,137.87	235.11	5.840	
16,100.00	8,765.00	8,767.30	8,767.30	77.62	177.59	90.00	7,893.81	1,574.74	1,337.15	1,100.66	236.48	5.654	
16,150.00	8,765.00	8,767.30	8,767.30	78.07	177.59	90.00	7,893.81	1,574.74	1,302.25	1,064.34	237.91	5.474	
16,200.00	8,765.00	8,767.30	8,767.30	78.51	177.59	90.00	7,893.81	1,574.74	1,268.36	1,028.96	239.40	5.298	
16,250.00	8,765.00	8,767.30	8,767.30	78.96	177.59	90.00	7,893.81	1,574.74	1,235.56	994.62	240.94	5.128	
16,300.00	8,765.00	8,767.30	8,767.30	79.40	177.59	90.00	7,893.81	1,574.74	1,203.95	961.42	242.53	4.964	Alert
16,350.00	8,765.00	8,767.30	8,767.30	79.85	177.59	90.00	7,893.81	1,574.74	1,173.62	929.45	244.17	4.807	Alert
16,400.00	8,765.00	8,767.30	8,767.30	80.30	177.59	90.00	7,893.81	1,574.74	1,144.67	898.83	245.84	4.656	Alert
16,450.00	8,765.00	8,767.30	8,767.30	80.74	177.59	90.00	7,893.81	1,574.74	1,117.21	869.67	247.54	4.513	Alert
16,500.00	8,765.00	8,767.30	8,767.30	81.19	177.59	90.00	7,893.81	1,574.74	1,091.35	842.09	249.26	4.378	Alert
16,550.00	8,765.00	8,767.30	8,767.30	81.64	177.59	90.00	7,893.81	1,574.74	1,067.21	816.24	250.98	4.252	Alert
16,600.00	8,765.00	8,767.30	8,767.30	82.09	177.59	90.00	7,893.81	1,574.74	1,044.91	792.23	252.68	4.135	Alert
16,650.00	8,765.00	8,767.30	8,767.30	82.54	177.59	90.00	7,893.81	1,574.74	1,024.56	770.22	254.34	4.028	Alert
16,700.00	8,765.00	8,767.30	8,767.30	82.99	177.59	90.00	7,893.81	1,574.74	1,006.28	750.34	255.95	3.932	Alert
16,750.00	8,765.00	8,767.30	8,767.30	83.44	177.59	90.00	7,893.81	1,574.74	990.20	732.72	257.47	3.846	Alert
16,800.00	8,765.00	8,767.30	8,767.30	83.89	177.59	90.00	7,893.81	1,574.74	976.41	717.51	258.90	3.771	Alert
16,850.00	8,765.00	8,767.30	8,767.30	84.34	177.59	90.00	7,893.81	1,574.74	965.02	704.83	260.20	3.709	Alert
16,900.00	8,765.00	8,767.30	8,767.30	84.79	177.59	90.00	7,893.81	1,574.74	956.11	694.77	261.34	3.658	Alert
16,950.00	8,765.00	8,767.30	8,767.30	85.24	177.59	90.00	7,893.81	1,574.74	949.76	687.43	262.33	3.621	Alert
17,000.00	8,765.00	8,767.30	8,767.30	85.69	177.59	90.00	7,893.81	1,574.74	946.01	682.88	263.12	3.595	Alert
17,046.13	8,765.00	8,767.30	8,767.30	86.11	177.59	90.00	7,893.81	1,574.74	944.88	681.20	263.68	3.583	Alert, CC
17,050.00	8,765.00	8,767.30	8,767.30	86.15	177.59	90.00	7,893.81	1,574.74	944.89	681.16	263.72	3.583	Alert, ES, SF
17,100.00	8,765.00	8,767.30	8,767.30	86.60	177.59	90.00	7,893.81	1,574.74	946.41	682.29	264.12	3.583	Alert
17,150.00	8,765.00	8,767.30	8,767.30	87.05	177.59	90.00	7,893.81	1,574.74	950.57	686.26	264.31	3.596	Alert
17,200.00	8,765.00	8,767.30	8,767.30	87.50	177.59	90.00	7,893.81	1,574.74	957.33	693.02	264.30	3.622	Alert
17,250.00	8,765.00	8,767.30	8,767.30	87.96	177.59	90.00	7,893.81	1,574.74	966.62	702.52	264.10	3.660	Alert
17,300.00	8,765.00	8,767.30	8,767.30	88.41	177.59	90.00	7,893.81	1,574.74	978.39	714.67	263.72	3.710	Alert
17,350.00	8,765.00	8,767.30	8,767.30	88.87	177.59	90.00	7,893.81	1,574.74	992.54	729.36	263.18	3.771	Alert
17,400.00	8,765.00	8,767.30	8,767.30	89.32	177.59	90.00	7,893.81	1,574.74	1,008.97	746.48	262.49	3.844	Alert
17,450.00	8,765.00	8,767.30	8,767.30	89.78	177.59	90.00	7,893.81	1,574.74	1,027.58	765.90	261.67	3.927	Alert
17,500.00	8,765.00	8,767.30	8,767.30	90.23	177.59	90.00	7,893.81	1,574.74	1,048.24	787.48	260.75	4.020	Alert
17,550.00	8,765.00	8,767.30	8,767.30	90.69	177.59	90.00	7,893.81	1,574.74	1,070.83	811.08	259.75	4.123	Alert
17,600.00	8,765.00	8,767.30	8,767.30	91.14	177.59	90.00	7,893.81	1,574.74	1,095.25	836.57	258.68	4.234	Alert
17,650.00	8,765.00	8,767.30	8,767.30	91.60	177.59	90.00	7,893.81	1,574.74	1,121.36	863.80	257.56	4.354	Alert
17,700.00	8,765.00	8,767.30	8,767.30	92.06	177.59	90.00	7,893.81	1,574.74	1,149.06	892.65	256.41	4.481	Alert
17,750.00	8,765.00	8,767.30	8,767.30	92.51	177.59	90.00	7,893.81	1,574.74	1,178.23	922.99	255.24	4.616	Alert
17,800.00	8,765.00	8,767.30	8,767.30	92.97	177.59	90.00	7,893.81	1,574.74	1,208.77	954.70	254.07	4.758	Alert
17,850.00	8,765.00	8,767.30	8,767.30	93.43	177.59	90.00	7,893.81	1,574.74	1,240.57	987.67	252.90	4.905	Alert
17,900.00	8,765.00	8,767.30	8,767.30	93.89	177.59	90.00	7,893.81	1,574.74	1,273.54	1,021.80	251.73	5.059	
17,950.00	8,765.00	8,767.30	8,767.30	94.34	177.59	90.00	7,893.81	1,574.74	1,307.59	1,057.00	250.59	5.218	
18,000.00	8,765.00	8,767.30	8,767.30	94.80	177.59	90.00	7,893.81	1,574.74	1,342.64	1,093.17	249.47	5.382	
18,050.00	8,765.00	8,767.30	8,767.30	95.26	177.59	90.00	7,893.81	1,574.74	1,378.61	1,130.23	248.38	5.550	
18,100.00	8,765.00	8,767.30	8,767.30	95.72	177.59	90.00	7,893.81	1,574.74	1,415.43	1,168.12	247.31	5.723	
18,150.00	8,765.00	8,767.30	8,767.30	96.18	177.59	90.00	7,893.81	1,574.74	1,453.04	1,206.76	246.28	5.900	
18,200.00	8,765.00	8,767.30	8,767.30	96.64	177.59	90.00	7,893.81	1,574.74	1,491.38	1,246.09	245.29	6.080	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 22-T25S-R31E - SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual — **Offset Site Error:** 5.00 ft

Survey Program: 100-GYRO-NS-CT, 4405-MWD+IGRF — **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	8,765.00	13,707.00	9,089.01	64.07	92.18	105.50	6,246.12	1,881.70	1,482.44	1,353.66	128.78	11.511	
14,600.00	8,765.00	13,707.00	9,089.01	64.46	92.18	105.27	6,246.12	1,881.70	1,449.50	1,318.63	130.87	11.076	
14,650.00	8,765.00	13,707.00	9,089.01	64.87	92.18	105.06	6,246.12	1,881.70	1,418.21	1,285.18	133.03	10.661	
14,700.00	8,765.00	13,707.00	9,089.01	65.28	92.18	104.87	6,246.12	1,881.70	1,388.71	1,253.47	135.24	10.268	
14,750.00	8,765.00	13,707.00	9,089.01	65.69	92.18	104.70	6,246.12	1,881.70	1,361.11	1,223.61	137.50	9.899	
14,800.00	8,765.00	13,707.00	9,089.01	66.11	92.18	104.55	6,246.12	1,881.70	1,335.54	1,195.77	139.77	9.555	
14,850.00	8,765.00	13,707.00	9,089.01	66.53	92.18	104.42	6,246.12	1,881.70	1,312.13	1,170.09	142.04	9.238	
14,900.00	8,765.00	13,707.00	9,089.01	66.95	92.18	104.30	6,246.12	1,881.70	1,291.01	1,146.72	144.29	8.947	
14,950.00	8,765.00	13,707.00	9,089.01	67.38	92.18	104.20	6,246.12	1,881.70	1,272.28	1,125.80	146.48	8.685	
15,000.00	8,765.00	13,707.00	9,089.01	67.81	92.18	104.12	6,246.12	1,881.70	1,256.08	1,107.48	148.60	8.453	
15,050.00	8,765.00	13,707.00	9,089.01	68.25	92.18	104.05	6,246.12	1,881.70	1,242.49	1,091.88	150.61	8.250	
15,100.00	8,765.00	13,707.00	9,089.01	68.68	92.18	103.99	6,246.12	1,881.70	1,231.61	1,079.13	152.48	8.077	
15,150.00	8,765.00	13,707.00	9,089.01	69.12	92.18	103.95	6,246.12	1,881.70	1,223.52	1,069.33	154.20	7.935	
15,200.00	8,765.00	13,707.00	9,089.01	69.56	92.18	103.93	6,246.12	1,881.70	1,218.28	1,062.55	155.73	7.823	
15,250.00	8,765.00	13,707.00	9,089.01	70.01	92.18	103.92	6,246.12	1,881.70	1,215.92	1,058.86	157.06	7.742	
15,265.73	8,765.00	13,707.00	9,089.01	70.15	92.18	103.92	6,246.12	1,881.70	1,215.77	1,058.34	157.43	7.723	CC
15,300.00	8,765.00	13,707.00	9,089.01	70.45	92.18	103.92	6,246.12	1,881.70	1,216.45	1,058.28	158.17	7.691	ES
15,350.00	8,765.00	13,707.00	9,089.01	70.90	92.18	103.94	6,246.12	1,881.70	1,219.89	1,060.82	159.06	7.669	SF
15,400.00	8,765.00	13,703.79	9,088.94	71.35	92.12	103.96	6,249.32	1,881.69	1,226.19	1,066.52	159.67	7.680	
15,450.00	8,765.00	13,654.43	9,087.83	71.80	91.21	103.83	6,298.67	1,881.63	1,234.12	1,074.83	159.29	7.748	
15,500.00	8,765.00	13,603.34	9,086.47	72.25	90.26	103.64	6,349.75	1,881.58	1,241.56	1,082.68	158.88	7.814	
15,550.00	8,765.00	13,554.93	9,084.87	72.70	89.36	103.46	6,398.13	1,881.57	1,248.13	1,089.60	158.53	7.873	
15,600.00	8,765.00	13,509.18	9,083.42	73.16	88.52	103.30	6,443.86	1,881.66	1,253.99	1,095.78	158.22	7.926	
15,650.00	8,765.00	13,459.27	9,081.96	73.61	87.60	103.16	6,493.74	1,881.85	1,259.13	1,101.31	157.82	7.978	
15,700.00	8,765.00	13,403.82	9,080.25	74.06	86.57	103.01	6,549.17	1,881.89	1,263.26	1,105.95	157.31	8.030	
15,750.00	8,765.00	13,353.18	9,078.58	74.51	85.64	102.89	6,599.78	1,881.79	1,266.40	1,109.51	156.89	8.072	
15,800.00	8,765.00	13,304.28	9,076.97	74.96	84.74	102.78	6,648.65	1,881.73	1,268.72	1,112.23	156.50	8.107	
15,850.00	8,765.00	13,265.14	9,075.65	75.40	84.02	102.69	6,687.77	1,881.83	1,270.39	1,114.11	156.28	8.129	
15,900.00	8,765.00	13,228.60	9,074.34	75.85	83.35	102.62	6,724.28	1,882.34	1,271.72	1,115.63	156.09	8.147	
15,950.00	8,765.00	13,191.58	9,072.93	76.29	82.67	102.54	6,761.27	1,883.27	1,273.04	1,117.15	155.88	8.167	
16,000.00	8,765.00	13,152.36	9,071.95	76.73	81.95	102.48	6,800.46	1,884.51	1,274.80	1,119.17	155.62	8.191	
16,050.00	8,765.00	13,115.60	9,071.74	77.18	81.28	102.46	6,837.19	1,885.81	1,276.97	1,121.59	155.38	8.219	
16,100.00	8,765.00	13,064.42	9,072.38	77.62	80.35	102.46	6,888.33	1,887.74	1,279.43	1,124.52	154.91	8.259	
16,150.00	8,765.00	13,014.00	9,073.41	78.07	79.43	102.49	6,938.71	1,889.50	1,281.85	1,127.40	154.44	8.300	
16,200.00	8,765.00	12,950.83	9,074.98	78.51	78.29	102.53	7,001.83	1,891.32	1,284.01	1,130.23	153.78	8.350	
16,250.00	8,765.00	12,892.23	9,076.41	78.96	77.22	102.58	7,060.40	1,892.45	1,285.70	1,132.52	153.18	8.393	
16,300.00	8,765.00	12,839.68	9,077.96	79.40	76.26	102.63	7,112.92	1,893.22	1,287.22	1,134.55	152.67	8.431	
16,350.00	8,765.00	12,783.47	9,079.68	79.85	75.24	102.69	7,169.11	1,893.86	1,288.60	1,136.50	152.10	8.472	
16,400.00	8,765.00	12,725.20	9,080.56	80.30	74.18	102.72	7,227.36	1,894.35	1,289.67	1,138.17	151.50	8.513	
16,450.00	8,765.00	12,668.14	9,080.74	80.74	73.15	102.72	7,284.43	1,894.65	1,290.44	1,139.51	150.94	8.550	
16,500.00	8,765.00	12,607.01	9,080.53	81.19	72.04	102.71	7,345.55	1,894.66	1,290.91	1,140.62	150.30	8.589	
16,550.00	8,765.00	12,538.88	9,080.62	81.64	70.80	102.71	7,413.67	1,893.75	1,290.77	1,141.27	149.50	8.634	
16,600.00	8,765.00	12,484.00	9,080.60	82.09	69.81	102.72	7,468.54	1,892.54	1,290.17	1,141.22	148.96	8.661	
16,650.00	8,765.00	12,432.50	9,079.99	82.54	68.87	102.70	7,520.02	1,891.36	1,289.41	1,140.92	148.49	8.683	
16,700.00	8,765.00	12,391.06	9,079.75	82.99	68.12	102.69	7,561.45	1,890.50	1,288.83	1,140.61	148.23	8.695	
16,750.00	8,765.00	12,350.17	9,080.09	83.44	67.39	102.71	7,602.34	1,889.81	1,288.59	1,140.63	147.96	8.709	
16,800.00	8,765.00	12,294.82	9,080.75	83.89	66.39	102.74	7,657.67	1,888.92	1,288.42	1,141.01	147.41	8.740	
16,850.00	8,765.00	12,240.52	9,080.92	84.34	65.41	102.75	7,711.97	1,887.94	1,288.06	1,141.17	146.89	8.769	
16,900.00	8,765.00	12,189.46	9,080.63	84.79	64.50	102.74	7,763.02	1,887.01	1,287.61	1,141.16	146.44	8.793	
16,950.00	8,765.00	12,137.74	9,080.04	85.24	63.57	102.72	7,814.73	1,886.10	1,287.11	1,141.12	145.99	8.817	
17,000.00	8,765.00	12,085.03	9,080.29	85.69	62.63	102.74	7,867.42	1,884.87	1,286.51	1,141.01	145.50	8.842	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 22-T25S-R31E - SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual — **Offset Site Error:** 5.00 ft

Survey Program: 100-GYRO-NS-CT, 4405-MWD+IGRF — **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
17,050.00	8,765.00	12,040.48	9,081.35	86.15	61.83	102.79	7,911.94	1,883.63	1,285.91	1,140.74	145.16	8.858	
17,100.00	8,765.00	12,001.34	9,082.85	86.60	61.14	102.86	7,951.04	1,882.72	1,285.69	1,140.76	144.93	8.871	
17,101.23	8,765.00	12,000.38	9,082.89	86.61	61.12	102.87	7,951.99	1,882.70	1,285.69	1,140.77	144.92	8.872	
17,150.00	8,765.00	11,958.30	9,085.07	87.05	60.37	102.96	7,994.02	1,881.95	1,285.88	1,141.28	144.60	8.893	
17,200.00	8,765.00	11,896.27	9,087.82	87.50	59.27	103.09	8,055.97	1,880.73	1,285.91	1,141.99	143.91	8.935	
17,250.00	8,765.00	11,849.11	9,089.29	87.96	58.44	103.16	8,103.09	1,879.68	1,285.66	1,142.13	143.53	8.957	
17,261.03	8,765.00	11,840.42	9,089.55	88.06	58.29	103.17	8,111.78	1,879.52	1,285.65	1,142.17	143.48	8.961	
17,300.00	8,765.00	11,809.73	9,090.46	88.41	57.75	103.21	8,142.45	1,879.10	1,285.77	1,142.48	143.30	8.973	
17,350.00	8,765.00	11,769.76	9,091.65	88.87	57.04	103.26	8,182.41	1,878.85	1,286.30	1,143.25	143.05	8.992	
17,400.00	8,765.00	11,727.97	9,092.64	89.32	56.32	103.30	8,224.19	1,878.95	1,287.17	1,144.40	142.77	9.016	
17,450.00	8,765.00	11,686.69	9,093.30	89.78	55.60	103.32	8,265.46	1,879.39	1,288.36	1,145.86	142.51	9.041	
17,500.00	8,765.00	11,626.54	9,093.77	90.23	54.56	103.33	8,325.60	1,880.13	1,289.54	1,147.59	141.95	9.085	
17,550.00	8,765.00	11,568.60	9,093.79	90.69	53.56	103.32	8,383.54	1,880.49	1,290.33	1,148.90	141.43	9.124	
17,600.00	8,765.00	11,513.88	9,093.53	91.14	52.62	103.30	8,438.26	1,880.65	1,290.91	1,149.94	140.97	9.157	
17,650.00	8,765.00	11,454.65	9,092.94	91.60	51.60	103.27	8,497.49	1,880.60	1,291.24	1,150.81	140.43	9.195	
17,700.00	8,765.00	11,394.23	9,091.86	92.06	50.57	103.22	8,557.89	1,880.14	1,291.15	1,151.27	139.88	9.230	
17,750.00	8,765.00	11,339.80	9,090.58	92.51	49.64	103.17	8,612.30	1,879.49	1,290.79	1,151.35	139.44	9.257	
17,800.00	8,765.00	11,292.98	9,089.32	92.97	48.85	103.11	8,659.10	1,878.86	1,290.32	1,151.17	139.14	9.273	
17,828.38	8,765.00	11,272.93	9,088.88	93.23	48.51	103.09	8,679.15	1,878.69	1,290.22	1,151.13	139.09	9.276	
17,850.00	8,765.00	11,257.66	9,088.62	93.43	48.26	103.08	8,694.42	1,878.64	1,290.28	1,151.23	139.05	9.279	
17,900.00	8,765.00	11,228.58	9,088.24	93.89	47.76	103.06	8,723.49	1,878.66	1,290.77	1,151.74	139.03	9.284	
17,950.00	8,765.00	11,171.90	9,087.98	94.34	46.82	103.04	8,780.17	1,879.24	1,291.70	1,153.12	138.58	9.321	
18,000.00	8,765.00	11,115.76	9,087.10	94.80	45.89	102.99	8,836.30	1,879.65	1,292.37	1,154.23	138.14	9.356	
18,050.00	8,765.00	11,070.16	9,086.47	95.26	45.15	102.96	8,881.89	1,879.94	1,293.01	1,155.14	137.87	9.378	
18,100.00	8,765.00	11,025.31	9,086.40	95.72	44.41	102.95	8,926.75	1,880.26	1,293.83	1,156.22	137.61	9.402	
18,150.00	8,765.00	10,957.48	9,086.32	96.18	43.31	102.93	8,994.57	1,880.41	1,294.41	1,157.42	137.00	9.449	
18,200.00	8,765.00	10,894.02	9,085.38	96.64	42.29	102.89	9,058.03	1,879.93	1,294.36	1,157.91	136.45	9.486	
18,250.00	8,765.00	10,833.92	9,083.88	97.10	41.33	102.83	9,118.10	1,879.08	1,293.88	1,157.92	135.96	9.516	
18,300.00	8,765.00	10,778.43	9,081.98	97.56	40.45	102.75	9,173.55	1,878.08	1,293.11	1,157.54	135.57	9.538	
18,350.00	8,765.00	10,724.26	9,079.69	98.02	39.60	102.66	9,227.65	1,876.97	1,292.13	1,156.92	135.22	9.556	
18,400.00	8,765.00	10,673.25	9,078.09	98.48	38.81	102.60	9,278.63	1,875.71	1,291.07	1,156.16	134.91	9.570	
18,450.00	8,765.00	10,626.40	9,077.37	98.94	38.09	102.57	9,325.45	1,874.38	1,290.01	1,155.33	134.68	9.578	
18,500.00	8,765.00	10,584.75	9,077.12	99.40	37.46	102.57	9,367.08	1,873.34	1,289.21	1,154.67	134.55	9.582	
18,550.00	8,765.00	10,541.32	9,077.17	99.86	36.81	102.58	9,410.51	1,872.47	1,288.74	1,154.36	134.38	9.590	
18,600.00	8,765.00	10,488.92	9,077.26	100.32	36.04	102.58	9,462.90	1,871.47	1,288.31	1,154.24	134.07	9.609	
18,650.00	8,765.00	10,434.52	9,077.23	100.78	35.24	102.59	9,517.29	1,870.33	1,287.78	1,154.03	133.74	9.629	
18,700.00	8,765.00	10,376.45	9,077.94	101.25	34.41	102.63	9,575.33	1,868.64	1,286.98	1,153.62	133.36	9.651	
18,750.00	8,765.00	10,306.60	9,079.15	101.71	33.44	102.70	9,645.11	1,865.81	1,285.70	1,152.93	132.77	9.684	
18,800.00	8,765.00	10,244.54	9,079.00	102.17	32.59	102.72	9,707.09	1,862.60	1,283.61	1,151.27	132.34	9.700	
18,850.00	8,765.00	10,197.08	9,079.34	102.63	31.95	102.76	9,754.47	1,859.95	1,281.46	1,149.28	132.17	9.695	
18,900.00	8,765.00	10,148.04	9,080.48	103.09	31.31	102.83	9,803.41	1,857.13	1,279.39	1,147.40	131.99	9.693	
18,950.00	8,765.00	10,097.26	9,082.41	103.56	30.66	102.94	9,854.06	1,854.01	1,277.31	1,145.53	131.78	9.693	
19,000.00	8,765.00	10,033.75	9,085.50	104.02	29.88	103.11	9,917.35	1,849.70	1,275.05	1,143.70	131.35	9.707	
19,050.00	8,765.00	9,967.13	9,088.25	104.48	29.09	103.28	9,983.69	1,844.29	1,272.04	1,141.14	130.89	9.718	
19,100.00	8,765.00	9,913.26	9,089.87	104.95	28.49	103.40	10,037.33	1,839.67	1,268.69	1,137.99	130.70	9.707	
19,150.00	8,765.00	9,864.56	9,090.81	105.41	27.96	103.48	10,085.85	1,835.51	1,265.24	1,134.62	130.62	9.686	
19,200.00	8,765.00	9,820.39	9,091.24	105.87	27.51	103.53	10,129.87	1,832.00	1,261.98	1,131.32	130.65	9.659	
19,250.00	8,765.00	9,776.27	9,091.25	106.34	27.07	103.56	10,173.88	1,828.80	1,258.94	1,128.23	130.71	9.632	
19,300.00	8,765.00	9,732.25	9,090.91	106.80	26.66	103.57	10,217.80	1,825.90	1,256.14	1,125.34	130.79	9.604	
19,350.00	8,765.00	9,699.00	9,090.42	107.27	26.35	103.57	10,250.99	1,823.91	1,253.62	1,122.59	131.03	9.568	
19,400.00	8,765.00	9,657.87	9,089.82	107.73	26.01	103.56	10,292.06	1,821.88	1,251.57	1,120.38	131.19	9.540	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 22-T25S-R31E - SOFTSHELL 22 FEDERAL 1H - Original Hole - Actual — **Offset Site Error:** 5.00 ft

Survey Program: 100-GYRO-NS-CT, 4405-MWD+IGRF — **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
19,450.00	8,765.00	9,624.81	9,089.51	108.20	25.73	103.55	10,325.10	1,820.71	1,250.24	1,118.81	131.44	9.512	
19,500.00	8,765.00	9,604.00	9,089.40	108.66	25.56	103.55	10,345.90	1,820.20	1,249.68	1,117.90	131.78	9.483	
19,512.90	8,765.00	9,586.75	9,089.36	108.78	25.44	103.55	10,363.16	1,819.93	1,249.57	1,117.80	131.77	9.483	
19,550.00	8,765.00	9,566.38	9,089.40	109.13	25.29	103.55	10,383.52	1,819.86	1,249.82	1,117.84	131.98	9.470	
19,600.00	8,765.00	9,538.96	9,089.57	109.59	25.09	103.55	10,410.94	1,820.18	1,250.94	1,118.71	132.23	9.460	
19,650.00	8,765.00	9,510.00	9,089.91	110.06	24.88	103.55	10,439.88	1,821.03	1,252.97	1,120.53	132.44	9.461	
19,700.00	8,765.00	9,480.82	9,090.01	110.52	24.71	103.54	10,469.03	1,822.44	1,255.82	1,123.16	132.66	9.466	
19,750.00	8,765.00	9,449.96	9,089.38	110.99	24.53	103.49	10,499.81	1,824.57	1,259.44	1,126.57	132.87	9.479	
19,800.00	8,765.00	9,419.27	9,088.03	111.46	24.34	103.39	10,530.34	1,827.34	1,263.80	1,130.75	133.06	9.498	
19,850.00	8,765.00	9,391.34	9,086.13	111.92	24.18	103.27	10,558.04	1,830.42	1,268.93	1,135.71	133.22	9.525	
19,900.00	8,765.00	9,141.77	9,001.20	112.39	23.22	99.28	10,788.61	1,853.53	1,269.82	1,135.71	134.11	9.469	
19,950.00	8,765.00	8,961.37	8,883.03	112.86	22.89	93.93	10,923.77	1,858.14	1,267.57	1,132.99	134.58	9.419	
20,000.00	8,765.00	8,943.02	8,868.99	113.32	22.86	93.29	10,935.59	1,857.92	1,263.45	1,128.07	135.38	9.333	
20,050.00	8,765.00	8,912.75	8,845.56	113.79	22.81	92.23	10,954.75	1,857.80	1,260.69	1,124.61	136.08	9.264	
20,100.00	8,765.00	8,891.16	8,828.77	114.26	22.78	91.46	10,968.32	1,857.81	1,259.26	1,122.54	136.72	9.211	
20,124.30	8,765.00	8,881.45	8,821.19	114.48	22.77	91.12	10,974.38	1,857.87	1,259.09	1,122.10	136.99	9.191	
20,150.00	8,765.00	8,867.12	8,809.93	114.72	22.75	90.61	10,983.24	1,858.02	1,259.28	1,122.01	137.27	9.174	
20,200.00	8,765.00	8,841.27	8,789.32	115.19	22.71	89.67	10,998.86	1,858.33	1,260.64	1,122.90	137.74	9.152	
20,250.00	8,765.00	8,818.80	8,771.08	115.66	22.67	88.84	11,011.96	1,858.69	1,263.42	1,125.31	138.11	9.148	
20,300.00	8,765.00	8,816.00	8,768.78	116.13	22.67	88.74	11,013.56	1,858.74	1,267.85	1,129.57	138.28	9.169	
20,350.00	8,765.00	8,800.56	8,755.97	116.59	22.64	88.15	11,022.16	1,859.22	1,273.91	1,135.52	138.39	9.205	
20,400.00	8,765.00	8,785.00	8,742.80	117.06	22.61	87.56	11,030.40	1,860.12	1,281.88	1,143.50	138.38	9.263	
20,450.00	8,765.00	8,785.00	8,742.80	117.53	22.61	87.56	11,030.40	1,860.12	1,291.41	1,153.28	138.13	9.349	
20,500.00	8,765.00	8,785.00	8,742.80	118.00	22.61	87.56	11,030.40	1,860.12	1,302.79	1,165.06	137.74	9.459	
20,550.00	8,765.00	8,768.48	8,728.62	118.47	22.58	86.92	11,038.77	1,861.45	1,315.67	1,178.27	137.40	9.575	
20,600.00	8,765.00	8,753.00	8,715.23	118.93	22.56	86.32	11,046.37	1,863.02	1,330.28	1,193.31	136.96	9.713	
20,650.00	8,765.00	8,753.00	8,715.23	119.40	22.56	86.32	11,046.37	1,863.02	1,346.32	1,210.07	136.24	9.882	
20,700.00	8,765.00	8,753.00	8,715.23	119.87	22.56	86.32	11,046.37	1,863.02	1,364.00	1,228.58	135.42	10.072	
20,750.00	8,765.00	8,738.51	8,702.57	120.34	22.53	85.75	11,053.20	1,864.75	1,383.01	1,248.28	134.72	10.265	
20,800.00	8,765.00	8,722.00	8,687.96	120.81	22.51	85.11	11,060.56	1,867.03	1,403.63	1,269.64	134.00	10.475	
20,850.00	8,765.00	8,722.00	8,687.96	121.28	22.51	85.11	11,060.56	1,867.03	1,425.38	1,292.42	132.96	10.720	
20,900.00	8,765.00	8,722.00	8,687.96	121.75	22.51	85.11	11,060.56	1,867.03	1,448.52	1,316.66	131.86	10.985	
20,950.00	8,765.00	8,712.26	8,679.26	122.22	22.49	84.72	11,064.68	1,868.49	1,472.91	1,342.03	130.88	11.254	
21,000.00	8,765.00	8,705.41	8,673.10	122.69	22.48	84.45	11,067.48	1,869.55	1,498.48	1,368.66	129.82	11.543	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 150-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
13,700.00	8,765.00	8,762.85	8,756.44	57.61	30.53	-89.21	5,857.03	-91.26	1,458.85	1,390.09	68.76	21.215	
13,750.00	8,765.00	8,762.59	8,756.19	57.99	30.53	-89.21	5,857.03	-91.26	1,417.06	1,347.67	69.40	20.420	
13,800.00	8,765.00	8,762.32	8,755.92	58.38	30.53	-89.21	5,857.03	-91.25	1,376.33	1,306.24	70.09	19.638	
13,850.00	8,765.00	8,762.03	8,755.63	58.75	30.52	-89.21	5,857.03	-91.24	1,336.76	1,265.89	70.86	18.864	
13,900.00	8,765.00	8,761.72	8,755.32	59.13	30.52	-89.20	5,857.03	-91.24	1,298.47	1,226.77	71.70	18.110	
13,950.00	8,765.00	8,761.39	8,754.99	59.50	30.52	-89.19	5,857.04	-91.23	1,261.55	1,188.93	72.62	17.371	
14,000.00	8,765.00	8,761.07	8,754.66	59.87	30.52	-89.17	5,857.04	-91.22	1,225.67	1,152.05	73.62	16.648	
14,050.00	8,765.00	8,760.74	8,754.33	60.25	30.52	-89.15	5,857.04	-91.21	1,190.82	1,116.13	74.69	15.944	
14,100.00	8,765.00	8,760.41	8,754.01	60.62	30.52	-89.13	5,857.04	-91.21	1,157.07	1,081.24	75.83	15.259	
14,150.00	8,765.00	8,760.08	8,753.68	61.00	30.52	-89.11	5,857.04	-91.20	1,124.53	1,047.50	77.04	14.598	
14,200.00	8,765.00	8,759.75	8,753.35	61.37	30.52	-89.08	5,857.04	-91.19	1,093.32	1,015.00	78.31	13.961	
14,250.00	8,765.00	8,759.43	8,753.03	61.75	30.52	-89.06	5,857.04	-91.19	1,063.54	983.88	79.65	13.352	
14,300.00	8,765.00	8,759.10	8,752.70	62.13	30.51	-89.04	5,857.04	-91.18	1,035.31	954.26	81.05	12.773	
14,350.00	8,765.00	8,758.78	8,752.37	62.52	30.51	-89.02	5,857.04	-91.17	1,008.78	926.28	82.50	12.227	
14,400.00	8,765.00	8,758.45	8,752.05	62.90	30.51	-89.00	5,857.04	-91.16	984.07	900.08	83.99	11.716	
14,450.00	8,765.00	8,758.13	8,751.72	63.28	30.51	-88.97	5,857.04	-91.16	961.28	875.77	85.50	11.242	
14,500.00	8,765.00	8,757.82	8,751.42	63.67	30.51	-88.94	5,857.05	-91.15	939.94	852.92	87.02	10.802	
14,550.00	8,765.00	8,757.53	8,751.13	64.07	30.51	-88.92	5,857.05	-91.14	920.01	831.49	88.52	10.393	
14,600.00	8,765.00	8,757.26	8,750.85	64.46	30.51	-88.89	5,857.05	-91.14	901.59	811.61	89.98	10.019	
14,650.00	8,765.00	8,757.00	8,750.60	64.87	30.51	-88.87	5,857.05	-91.13	884.79	793.39	91.40	9.680	
14,700.00	8,765.00	8,756.77	8,750.37	65.28	30.51	-88.84	5,857.05	-91.13	869.69	776.95	92.74	9.377	
14,750.00	8,765.00	8,756.55	8,750.15	65.69	30.51	-88.82	5,857.05	-91.12	856.40	762.41	94.00	9.111	
14,800.00	8,765.00	8,756.35	8,749.95	66.11	30.50	-88.80	5,857.05	-91.12	845.01	749.87	95.14	8.882	
14,850.00	8,765.00	8,756.17	8,749.77	66.53	30.50	-88.79	5,857.05	-91.11	835.59	739.45	96.15	8.691	
14,900.00	8,765.00	8,756.01	8,749.61	66.95	30.50	-88.77	5,857.05	-91.11	828.22	731.22	97.00	8.538	
14,950.00	8,765.00	8,755.87	8,749.47	67.38	30.50	-88.76	5,857.05	-91.11	822.95	725.26	97.69	8.424	
15,000.00	8,765.00	8,755.75	8,749.35	67.81	30.50	-88.75	5,857.05	-91.10	819.83	721.62	98.20	8.348	
15,046.85	8,765.00	8,755.65	8,749.25	68.22	30.50	-88.74	5,857.05	-91.10	818.87	720.36	98.51	8.313	CC
15,050.00	8,765.00	8,755.64	8,749.24	68.25	30.50	-88.74	5,857.05	-91.10	818.87	720.35	98.52	8.311	ES, SF
15,100.00	8,765.00	8,755.56	8,749.15	68.68	30.50	-88.74	5,857.05	-91.10	820.10	721.45	98.65	8.313	
15,150.00	8,765.00	8,755.49	8,749.09	69.12	30.50	-88.73	5,857.05	-91.10	823.50	724.91	98.59	8.353	
15,200.00	8,765.00	8,755.44	8,749.04	69.56	30.50	-88.73	5,857.05	-91.10	829.03	730.70	98.33	8.431	
15,250.00	8,765.00	8,755.41	8,749.01	70.01	30.50	-88.74	5,857.05	-91.10	836.67	738.77	97.90	8.546	
15,300.00	8,765.00	8,755.40	8,749.00	70.45	30.50	-88.74	5,857.05	-91.10	846.34	749.04	97.30	8.698	
15,350.00	8,765.00	8,755.41	8,749.00	70.90	30.50	-88.74	5,857.05	-91.10	857.98	761.42	96.56	8.886	
15,400.00	8,765.00	8,755.43	8,749.03	71.35	30.50	-88.75	5,857.05	-91.10	871.50	775.82	95.67	9.109	
15,450.00	8,765.00	8,755.47	8,749.07	71.80	30.50	-88.76	5,857.05	-91.10	886.90	792.22	94.68	9.367	
15,500.00	8,765.00	8,755.51	8,749.10	72.25	30.50	-88.75	5,857.05	-91.10	905.25	811.64	93.60	9.671	
15,550.00	8,765.00	8,755.52	8,749.12	72.70	30.50	-88.74	5,857.05	-91.10	926.72	834.25	92.47	10.021	
15,600.00	8,765.00	8,755.51	8,749.11	73.16	30.50	-88.73	5,857.05	-91.10	951.09	859.77	91.32	10.415	
15,650.00	8,765.00	8,755.49	8,749.09	73.61	30.50	-88.71	5,857.05	-91.10	978.15	887.99	90.15	10.850	
15,700.00	8,765.00	8,755.45	8,749.04	74.06	30.50	-88.69	5,857.05	-91.10	1,007.65	918.64	89.01	11.320	
15,750.00	8,765.00	8,755.39	8,748.98	74.51	30.50	-88.67	5,857.05	-91.10	1,039.40	951.50	87.90	11.825	
15,800.00	8,765.00	8,755.31	8,748.90	74.96	30.50	-88.64	5,857.05	-91.10	1,073.18	986.34	86.83	12.359	
15,850.00	8,765.00	8,755.21	8,748.81	75.40	30.50	-88.61	5,857.05	-91.09	1,108.79	1,022.97	85.81	12.921	
15,900.00	8,765.00	8,755.09	8,748.69	75.85	30.50	-88.57	5,857.05	-91.09	1,146.05	1,061.19	84.86	13.505	
15,950.00	8,765.00	8,754.96	8,748.56	76.29	30.50	-88.56	5,857.05	-91.09	1,184.61	1,100.65	83.96	14.109	
16,000.00	8,765.00	8,754.83	8,748.43	76.73	30.50	-88.55	5,857.05	-91.09	1,224.00	1,140.89	83.11	14.727	
16,050.00	8,765.00	8,754.71	8,748.30	77.18	30.50	-88.54	5,857.05	-91.08	1,264.15	1,181.85	82.30	15.360	
16,100.00	8,765.00	8,754.58	8,748.18	77.62	30.50	-88.53	5,857.05	-91.08	1,304.97	1,223.43	81.54	16.005	
16,150.00	8,765.00	8,754.45	8,748.05	78.07	30.50	-88.52	5,857.06	-91.08	1,346.42	1,265.60	80.82	16.660	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27_34 Fed Com 622H - Wellbore #1 - Wellbore #1

Offset Site Error: 0.00 ft

Survey Program: 150-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
16,200.00	8,765.00	8,754.32	8,747.92	78.51	30.50	-88.51	5,857.06	-91.07	1,388.42	1,308.29	80.14	17.326	
16,250.00	8,765.00	8,754.19	8,747.79	78.96	30.50	-88.50	5,857.06	-91.07	1,430.95	1,351.45	79.50	18.000	
16,300.00	8,765.00	8,754.06	8,747.66	79.40	30.50	-88.49	5,857.06	-91.07	1,473.94	1,395.04	78.89	18.683	

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 213-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
13,500.00	8,765.00	8,818.60	8,784.15	56.05	31.59	-135.31	5,826.93	575.18	1,471.05	1,407.77	63.28	23.246	
13,550.00	8,765.00	8,817.95	8,783.50	56.44	31.59	-111.15	5,826.94	575.19	1,421.07	1,357.77	63.30	22.449	
13,600.00	8,765.00	8,817.29	8,782.84	56.83	31.59	-103.21	5,826.94	575.20	1,371.11	1,307.79	63.32	21.653	
13,650.00	8,765.00	8,816.61	8,782.16	57.22	31.59	-99.41	5,826.95	575.22	1,321.20	1,257.86	63.34	20.859	
13,700.00	8,765.00	8,815.92	8,781.47	57.61	31.58	-97.20	5,826.96	575.23	1,271.35	1,208.00	63.36	20.066	
13,750.00	8,765.00	8,815.22	8,780.77	57.99	31.58	-95.75	5,826.97	575.24	1,221.60	1,158.22	63.38	19.275	
13,800.00	8,765.00	8,814.51	8,780.06	58.38	31.58	-94.72	5,826.97	575.26	1,171.97	1,108.57	63.40	18.485	
13,850.00	8,765.00	8,813.79	8,779.34	58.75	31.58	-93.95	5,826.98	575.27	1,122.49	1,059.06	63.43	17.696	
13,900.00	8,765.00	8,813.05	8,778.60	59.13	31.58	-93.35	5,826.99	575.28	1,073.21	1,009.74	63.46	16.910	
13,950.00	8,765.00	8,812.31	8,777.86	59.50	31.57	-92.96	5,827.00	575.30	1,024.14	960.63	63.51	16.125	
14,000.00	8,765.00	8,811.57	8,777.12	59.87	31.57	-92.75	5,827.01	575.31	975.20	911.62	63.57	15.340	
14,050.00	8,765.00	8,810.84	8,776.39	60.25	31.57	-92.55	5,827.01	575.33	926.37	862.72	63.65	14.554	
14,100.00	8,765.00	8,810.11	8,775.66	60.62	31.57	-92.34	5,827.02	575.34	877.67	813.92	63.75	13.768	
14,150.00	8,765.00	8,809.39	8,774.94	61.00	31.56	-92.14	5,827.03	575.35	829.13	765.25	63.88	12.980	
14,200.00	8,765.00	8,808.67	8,774.22	61.37	31.56	-91.94	5,827.04	575.37	780.77	716.72	64.04	12.191	
14,250.00	8,765.00	8,807.96	8,773.51	61.75	31.56	-91.74	5,827.04	575.38	732.63	668.37	64.26	11.401	
14,300.00	8,765.00	8,807.26	8,772.81	62.13	31.56	-91.55	5,827.05	575.39	684.75	620.21	64.54	10.610	
14,350.00	8,765.00	8,806.56	8,772.11	62.52	31.55	-91.35	5,827.06	575.41	637.21	572.30	64.91	9.817	
14,400.00	8,765.00	8,805.86	8,771.42	62.90	31.55	-91.15	5,827.07	575.42	590.06	524.67	65.39	9.024	
14,450.00	8,765.00	8,805.18	8,770.73	63.28	31.55	-90.98	5,827.07	575.43	543.40	477.37	66.03	8.230	
14,500.00	8,765.00	8,804.50	8,770.06	63.67	31.55	-90.82	5,827.08	575.44	497.11	430.25	66.86	7.435	
14,550.00	8,765.00	8,803.85	8,769.41	64.07	31.55	-90.65	5,827.09	575.46	451.24	383.32	67.92	6.644	
14,600.00	8,765.00	8,803.22	8,768.78	64.46	31.54	-90.48	5,827.09	575.47	405.94	336.63	69.30	5.857	
14,650.00	8,765.00	8,802.61	8,768.16	64.87	31.54	-90.29	5,827.10	575.48	361.45	290.33	71.12	5.082	
14,700.00	8,765.00	8,802.02	8,767.57	65.28	31.54	-90.09	5,827.11	575.49	318.13	244.60	73.52	4.327	Alert
14,750.00	8,765.00	8,801.44	8,767.00	65.69	31.54	-89.89	5,827.11	575.50	276.53	199.81	76.73	3.604	Alert
14,800.00	8,765.00	8,800.89	8,766.44	66.11	31.54	-89.69	5,827.12	575.51	237.60	156.64	80.96	2.935	Alert
14,850.00	8,765.00	8,800.35	8,765.91	66.53	31.54	-89.49	5,827.12	575.52	202.87	116.55	86.32	2.350	Minor Risk
14,900.00	8,765.00	8,799.84	8,765.39	66.95	31.53	-89.29	5,827.13	575.53	174.90	82.55	92.34	1.894	Minor Risk
14,950.00	8,765.00	8,799.34	8,764.89	67.38	31.53	-89.10	5,827.13	575.54	157.32	60.13	97.19	1.619	Minor Risk
14,986.70	8,765.00	8,798.98	8,764.54	67.70	31.53	-88.97	5,827.14	575.54	153.21	54.93	98.28	1.559	Minor Risk, CC, ES, SF
15,000.00	8,765.00	8,798.86	8,764.41	67.81	31.53	-88.92	5,827.14	575.55	153.76	55.78	97.98	1.569	Minor Risk
15,050.00	8,765.00	8,798.40	8,763.95	68.25	31.53	-88.75	5,827.14	575.55	165.13	71.11	94.01	1.756	Minor Risk
15,100.00	8,765.00	8,797.95	8,763.51	68.68	31.53	-88.60	5,827.15	575.56	188.74	100.94	87.80	2.150	Minor Risk
15,150.00	8,765.00	8,797.53	8,763.08	69.12	31.53	-88.47	5,827.15	575.57	220.69	138.83	81.87	2.696	Alert
15,200.00	8,765.00	8,797.12	8,762.67	69.56	31.52	-88.35	5,827.16	575.58	257.90	180.77	77.13	3.344	Alert
15,250.00	8,765.00	8,796.73	8,762.28	70.01	31.52	-88.25	5,827.16	575.58	298.40	224.80	73.60	4.054	Alert
15,300.00	8,765.00	8,796.35	8,761.91	70.45	31.52	-88.18	5,827.16	575.59	341.00	269.98	71.02	4.801	Alert
15,350.00	8,765.00	8,796.00	8,761.55	70.90	31.52	-88.12	5,827.17	575.60	385.00	315.85	69.15	5.568	
15,400.00	8,765.00	8,795.66	8,761.22	71.35	31.52	-88.08	5,827.17	575.60	429.96	362.18	67.78	6.344	
15,450.00	8,765.00	8,795.34	8,760.89	71.80	31.52	-88.00	5,827.17	575.61	475.62	408.85	66.78	7.122	
15,500.00	8,765.00	8,795.01	8,760.57	72.25	31.52	-87.80	5,827.18	575.61	522.25	456.16	66.09	7.902	
15,550.00	8,765.00	8,794.67	8,760.22	72.70	31.52	-87.56	5,827.18	575.62	569.72	504.10	65.63	8.681	
15,600.00	8,765.00	8,794.31	8,759.86	73.16	31.52	-87.28	5,827.18	575.63	617.83	552.51	65.31	9.459	
15,650.00	8,765.00	8,793.94	8,759.49	73.61	31.51	-86.93	5,827.19	575.63	666.41	601.31	65.10	10.236	
15,700.00	8,765.00	8,793.55	8,759.11	74.06	31.51	-86.49	5,827.19	575.64	715.37	650.41	64.97	11.011	
15,750.00	8,765.00	8,793.15	8,758.71	74.51	31.51	-85.94	5,827.19	575.65	764.62	699.74	64.88	11.785	
15,800.00	8,765.00	8,792.74	8,758.30	74.96	31.51	-85.21	5,827.20	575.65	814.09	749.26	64.83	12.558	
15,850.00	8,765.00	8,792.32	8,757.88	75.40	31.51	-84.20	5,827.20	575.66	863.72	798.93	64.80	13.330	
15,900.00	8,765.00	8,791.89	8,757.44	75.85	31.51	-82.74	5,827.21	575.67	913.49	848.71	64.78	14.100	
15,950.00	8,765.00	8,791.44	8,757.00	76.29	31.51	-82.16	5,827.21	575.68	963.33	898.54	64.78	14.870	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 213-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
16,000.00	8,765.00	8,791.01	8,756.56	76.73	31.51	-81.83	5,827.21	575.68	1,013.18	948.39	64.79	15.638	
16,050.00	8,765.00	8,790.57	8,756.13	77.18	31.50	-81.51	5,827.22	575.69	1,063.05	998.25	64.80	16.406	
16,100.00	8,765.00	8,790.13	8,755.69	77.62	31.50	-81.18	5,827.22	575.70	1,112.93	1,048.12	64.81	17.172	
16,150.00	8,765.00	8,789.70	8,755.26	78.07	31.50	-80.86	5,827.23	575.71	1,162.81	1,097.99	64.82	17.938	
16,200.00	8,765.00	8,789.27	8,754.83	78.51	31.50	-80.53	5,827.23	575.71	1,212.71	1,147.87	64.84	18.703	
16,250.00	8,765.00	8,788.85	8,754.40	78.96	31.50	-80.22	5,827.24	575.72	1,262.62	1,197.76	64.86	19.467	
16,300.00	8,765.00	8,788.42	8,753.98	79.40	31.50	-79.90	5,827.24	575.73	1,312.53	1,247.65	64.88	20.230	
16,350.00	8,765.00	8,788.00	8,753.55	79.85	31.50	-79.58	5,827.24	575.73	1,362.45	1,297.55	64.90	20.993	
16,400.00	8,765.00	8,787.58	8,753.13	80.30	31.49	-79.27	5,827.25	575.74	1,412.38	1,347.45	64.93	21.754	
16,450.00	8,765.00	8,787.16	8,752.72	80.74	31.49	-78.96	5,827.25	575.75	1,462.31	1,397.36	64.95	22.514	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.00 ft

Survey Program: 213-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
13,550.00	8,765.00	8,780.61	8,754.77	56.44	31.19	-86.17	5,861.78	428.21	1,461.53	1,398.53	63.00	23.200	
13,600.00	8,765.00	8,781.02	8,755.18	56.83	31.19	-86.72	5,861.78	428.21	1,412.03	1,348.97	63.06	22.393	
13,650.00	8,765.00	8,781.42	8,755.58	57.22	31.20	-87.14	5,861.78	428.20	1,362.71	1,299.58	63.13	21.585	
13,700.00	8,765.00	8,781.81	8,755.97	57.61	31.20	-87.48	5,861.79	428.20	1,313.60	1,250.38	63.22	20.779	
13,750.00	8,765.00	8,782.19	8,756.35	57.99	31.20	-87.75	5,861.79	428.20	1,264.73	1,201.41	63.32	19.972	
13,800.00	8,765.00	8,782.57	8,756.73	58.38	31.20	-87.98	5,861.79	428.20	1,216.17	1,152.72	63.45	19.167	
13,850.00	8,765.00	8,782.93	8,757.10	58.75	31.20	-88.17	5,861.79	428.19	1,167.95	1,104.34	63.61	18.361	
13,900.00	8,765.00	8,783.29	8,757.45	59.13	31.20	-88.33	5,861.80	428.19	1,120.14	1,056.34	63.80	17.558	
13,950.00	8,765.00	8,783.64	8,757.81	59.50	31.20	-88.44	5,861.80	428.19	1,072.79	1,008.76	64.03	16.754	
14,000.00	8,765.00	8,784.00	8,758.16	59.87	31.20	-88.49	5,861.80	428.19	1,025.75	961.43	64.31	15.949	
14,050.00	8,765.00	8,784.35	8,758.51	60.25	31.21	-88.55	5,861.81	428.18	979.00	914.35	64.65	15.144	
14,100.00	8,765.00	8,784.70	8,758.86	60.62	31.21	-88.61	5,861.81	428.18	932.59	867.54	65.04	14.338	
14,150.00	8,765.00	8,785.05	8,759.21	61.00	31.21	-88.66	5,861.81	428.18	886.56	821.05	65.52	13.532	
14,200.00	8,765.00	8,785.40	8,759.56	61.37	31.21	-88.72	5,861.81	428.18	840.99	774.91	66.08	12.727	
14,250.00	8,765.00	8,785.75	8,759.91	61.75	31.21	-88.78	5,861.82	428.17	795.96	729.20	66.75	11.924	
14,300.00	8,765.00	8,786.10	8,760.26	62.13	31.21	-88.83	5,861.82	428.17	751.55	683.99	67.56	11.124	
14,350.00	8,765.00	8,786.45	8,760.61	62.52	31.21	-88.89	5,861.82	428.17	707.88	639.36	68.52	10.331	
14,400.00	8,765.00	8,786.80	8,760.96	62.90	31.21	-88.95	5,861.82	428.17	665.11	595.44	69.68	9.546	
14,450.00	8,765.00	8,787.15	8,761.32	63.28	31.21	-88.99	5,861.83	428.16	623.38	552.33	71.05	8.774	
14,500.00	8,765.00	8,787.51	8,761.67	63.67	31.22	-89.03	5,861.83	428.16	582.53	509.87	72.66	8.017	
14,550.00	8,765.00	8,787.88	8,762.04	64.07	31.22	-89.07	5,861.83	428.16	542.65	468.13	74.52	7.282	
14,600.00	8,765.00	8,788.25	8,762.41	64.46	31.22	-89.11	5,861.84	428.16	504.00	427.33	76.67	6.574	
14,650.00	8,765.00	8,788.62	8,762.78	64.87	31.22	-89.16	5,861.84	428.15	466.90	387.77	79.13	5.900	
14,700.00	8,765.00	8,789.01	8,763.17	65.28	31.22	-89.22	5,861.84	428.15	431.75	349.83	81.91	5.271	
14,750.00	8,765.00	8,789.39	8,763.56	65.69	31.22	-89.28	5,861.85	428.15	399.08	314.09	84.99	4.696	Alert
14,800.00	8,765.00	8,789.79	8,763.95	66.11	31.22	-89.34	5,861.85	428.15	369.56	281.28	88.29	4.186	Alert
14,850.00	8,765.00	8,790.19	8,764.35	66.53	31.23	-89.41	5,861.85	428.14	344.03	252.40	91.63	3.755	Alert
14,900.00	8,765.00	8,790.59	8,764.75	66.95	31.23	-89.48	5,861.85	428.14	323.42	228.70	94.71	3.415	Alert
14,950.00	8,765.00	8,791.00	8,765.16	67.38	31.23	-89.55	5,861.86	428.14	308.73	211.58	97.15	3.178	Alert
15,000.00	8,765.00	8,791.41	8,765.58	67.81	31.23	-89.63	5,861.86	428.14	300.85	202.33	98.51	3.054	Alert
15,028.70	8,765.00	8,791.65	8,765.82	68.06	31.23	-89.68	5,861.86	428.14	299.62	200.93	98.69	3.036	Alert, CC, ES, SF
15,050.00	8,765.00	8,791.83	8,765.99	68.25	31.23	-89.71	5,861.86	428.13	300.30	201.78	98.51	3.048	Alert
15,100.00	8,765.00	8,792.25	8,766.41	68.68	31.23	-89.79	5,861.87	428.13	307.12	209.98	97.14	3.162	Alert
15,150.00	8,765.00	8,792.68	8,766.84	69.12	31.23	-89.87	5,861.87	428.13	320.85	226.18	94.67	3.389	Alert
15,200.00	8,765.00	8,793.10	8,767.26	69.56	31.24	-89.96	5,861.87	428.13	340.64	249.11	91.53	3.722	Alert
15,250.00	8,765.00	8,793.53	8,767.69	70.01	31.24	-90.04	5,861.88	428.12	365.51	277.36	88.15	4.146	Alert
15,300.00	8,765.00	8,793.96	8,768.13	70.45	31.24	-90.12	5,861.88	428.12	394.49	309.68	84.81	4.651	Alert
15,350.00	8,765.00	8,794.40	8,768.56	70.90	31.24	-90.19	5,861.88	428.12	426.74	345.01	81.72	5.222	
15,400.00	8,765.00	8,794.83	8,769.00	71.35	31.24	-90.27	5,861.89	428.12	461.55	382.61	78.94	5.847	
15,450.00	8,765.00	8,795.27	8,769.43	71.80	31.24	-90.34	5,861.89	428.12	498.46	421.95	76.51	6.515	
15,500.00	8,765.00	8,795.70	8,769.86	72.25	31.24	-90.43	5,861.89	428.11	537.77	463.29	74.48	7.220	
15,550.00	8,765.00	8,796.13	8,770.29	72.70	31.25	-90.52	5,861.90	428.11	579.21	506.38	72.83	7.953	
15,600.00	8,765.00	8,796.55	8,770.71	73.16	31.25	-90.62	5,861.90	428.11	622.34	550.85	71.49	8.705	
15,650.00	8,765.00	8,796.97	8,771.13	73.61	31.25	-90.72	5,861.90	428.11	666.82	596.41	70.41	9.470	
15,700.00	8,765.00	8,797.38	8,771.54	74.06	31.25	-90.83	5,861.91	428.10	712.39	642.84	69.56	10.242	
15,750.00	8,765.00	8,797.78	8,771.94	74.51	31.25	-90.96	5,861.91	428.10	758.84	689.97	68.87	11.019	
15,800.00	8,765.00	8,798.18	8,772.34	74.96	31.25	-91.10	5,861.91	428.10	806.00	737.68	68.32	11.797	
15,850.00	8,765.00	8,798.57	8,772.73	75.40	31.25	-91.25	5,861.92	428.10	853.74	785.86	67.88	12.577	
15,900.00	8,765.00	8,798.96	8,773.12	75.85	31.26	-91.43	5,861.92	428.10	901.96	834.42	67.54	13.355	
15,950.00	8,765.00	8,799.34	8,773.51	76.29	31.26	-91.55	5,861.92	428.09	950.49	883.24	67.26	14.132	
16,000.00	8,765.00	8,799.73	8,773.89	76.73	31.26	-91.65	5,861.92	428.09	999.18	932.16	67.02	14.910	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 333H - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.00 ft

Survey Program: 213-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
16,050.00	8,765.00	8,800.11	8,774.27	77.18	31.26	-91.75	5,861.93	428.09	1,047.99	981.18	66.81	15.686	
16,100.00	8,765.00	8,800.49	8,774.65	77.62	31.26	-91.84	5,861.93	428.09	1,096.90	1,030.27	66.63	16.462	
16,150.00	8,765.00	8,800.87	8,775.03	78.07	31.26	-91.94	5,861.93	428.09	1,145.91	1,079.43	66.48	17.237	
16,200.00	8,765.00	8,801.25	8,775.41	78.51	31.26	-92.04	5,861.94	428.09	1,195.00	1,128.65	66.35	18.011	
16,250.00	8,765.00	8,801.63	8,775.79	78.96	31.26	-92.14	5,861.94	428.08	1,244.16	1,177.93	66.23	18.784	
16,300.00	8,765.00	8,802.00	8,776.16	79.40	31.27	-92.23	5,861.94	428.08	1,293.39	1,227.25	66.14	19.556	
16,350.00	8,765.00	8,802.38	8,776.54	79.85	31.27	-92.33	5,861.94	428.08	1,342.67	1,276.62	66.05	20.327	
16,400.00	8,765.00	8,802.75	8,776.91	80.30	31.27	-92.43	5,861.95	428.08	1,392.01	1,326.03	65.98	21.097	
16,450.00	8,765.00	8,803.13	8,777.29	80.74	31.27	-92.52	5,861.95	428.08	1,441.39	1,375.47	65.92	21.866	
16,500.00	8,765.00	8,803.50	8,777.66	81.19	31.27	-92.62	5,861.95	428.08	1,490.81	1,424.94	65.87	22.634	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 27-T25S-R31E - Lusitano 27-34 Fed Com 734H - Wellbore #1 - Wellbore #1 — **Offset Site Error:** 0.00 ft

Survey Program: 170-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
14,200.00	8,765.00	8,812.70	8,799.04	61.37	30.76	91.55	5,814.65	1,918.16	1,485.14	1,399.75	85.39	17.393	
14,250.00	8,765.00	8,812.43	8,798.78	61.75	30.76	91.53	5,814.65	1,918.17	1,452.82	1,366.58	86.24	16.847	
14,300.00	8,765.00	8,812.17	8,798.52	62.13	30.76	91.52	5,814.65	1,918.18	1,421.52	1,334.42	87.10	16.320	
14,350.00	8,765.00	8,811.90	8,798.25	62.52	30.76	91.51	5,814.66	1,918.18	1,391.32	1,303.34	87.98	15.814	
14,400.00	8,765.00	8,811.64	8,797.98	62.90	30.76	91.49	5,814.66	1,918.19	1,362.28	1,273.41	88.87	15.329	
14,450.00	8,765.00	8,811.37	8,797.72	63.28	30.75	91.47	5,814.66	1,918.19	1,334.55	1,244.77	89.77	14.866	
14,500.00	8,765.00	8,811.12	8,797.47	63.67	30.75	91.44	5,814.66	1,918.20	1,308.74	1,218.06	90.68	14.433	
14,550.00	8,765.00	8,810.88	8,797.23	64.07	30.75	91.42	5,814.66	1,918.21	1,285.14	1,193.54	91.60	14.031	
14,600.00	8,765.00	8,810.65	8,797.00	64.46	30.75	91.40	5,814.66	1,918.21	1,263.87	1,171.37	92.50	13.663	
14,650.00	8,765.00	8,810.44	8,796.79	64.87	30.75	91.38	5,814.66	1,918.21	1,245.05	1,151.66	93.40	13.331	
14,700.00	8,765.00	8,810.25	8,796.59	65.28	30.75	91.36	5,814.66	1,918.22	1,228.82	1,134.56	94.26	13.036	
14,750.00	8,765.00	8,810.07	8,796.41	65.69	30.75	91.34	5,814.66	1,918.22	1,215.27	1,120.17	95.09	12.780	
14,800.00	8,765.00	8,809.90	8,796.25	66.11	30.75	91.33	5,814.66	1,918.23	1,204.49	1,108.63	95.87	12.564	
14,850.00	8,765.00	8,809.75	8,796.10	66.53	30.75	91.32	5,814.66	1,918.23	1,196.58	1,100.00	96.58	12.389	
14,900.00	8,765.00	8,809.61	8,795.96	66.95	30.75	91.31	5,814.66	1,918.23	1,191.58	1,094.36	97.23	12.256	
14,950.00	8,765.00	8,809.49	8,795.84	67.38	30.75	91.30	5,814.66	1,918.24	1,189.55	1,091.75	97.79	12.164	
14,959.32	8,765.00	8,809.47	8,795.82	67.46	30.75	91.30	5,814.66	1,918.24	1,189.49	1,091.61	97.89	12.152	CC, ES
15,000.00	8,765.00	8,809.39	8,795.74	67.81	30.75	91.30	5,814.66	1,918.24	1,190.48	1,092.21	98.27	12.114	
15,050.00	8,765.00	8,809.30	8,795.65	68.25	30.75	91.30	5,814.66	1,918.24	1,194.37	1,095.71	98.66	12.106	SF
15,100.00	8,765.00	8,809.23	8,795.57	68.68	30.75	91.30	5,814.66	1,918.24	1,201.21	1,102.25	98.96	12.139	
15,150.00	8,765.00	8,809.17	8,795.52	69.12	30.75	91.30	5,814.66	1,918.24	1,210.92	1,111.75	99.17	12.211	
15,200.00	8,765.00	8,809.13	8,795.47	69.56	30.75	91.30	5,814.66	1,918.24	1,223.45	1,124.16	99.29	12.322	
15,250.00	8,765.00	8,809.10	8,795.45	70.01	30.75	91.31	5,814.66	1,918.25	1,238.69	1,139.36	99.33	12.470	
15,300.00	8,765.00	8,809.09	8,795.43	70.45	30.75	91.31	5,814.66	1,918.25	1,256.56	1,157.26	99.30	12.654	
15,350.00	8,765.00	8,809.09	8,795.44	70.90	30.75	91.33	5,814.66	1,918.25	1,276.93	1,177.73	99.20	12.872	
15,400.00	8,765.00	8,809.11	8,795.46	71.35	30.75	91.34	5,814.66	1,918.24	1,299.68	1,200.63	99.05	13.122	
15,450.00	8,765.00	8,809.14	8,795.49	71.80	30.75	91.34	5,814.66	1,918.24	1,324.60	1,225.76	98.84	13.401	
15,500.00	8,765.00	8,809.17	8,795.51	72.25	30.75	91.33	5,814.66	1,918.24	1,350.51	1,251.92	98.59	13.699	
15,550.00	8,765.00	8,809.18	8,795.52	72.70	30.75	91.32	5,814.66	1,918.24	1,377.01	1,278.72	98.29	14.010	
15,600.00	8,765.00	8,809.17	8,795.52	73.16	30.75	91.30	5,814.66	1,918.24	1,404.08	1,306.13	97.95	14.335	
15,650.00	8,765.00	8,809.15	8,795.50	73.61	30.75	91.29	5,814.66	1,918.24	1,431.66	1,334.09	97.57	14.673	
15,700.00	8,765.00	8,809.11	8,795.46	74.06	30.75	91.27	5,814.66	1,918.24	1,459.73	1,362.56	97.17	15.023	
15,750.00	8,765.00	8,809.06	8,795.41	74.51	30.75	91.25	5,814.66	1,918.25	1,488.23	1,391.51	96.73	15.386	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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	0.40	-0.40	0.50	0.50	-90.36	-0.19	-30.09	30.09				
50.00	50.00	49.60	49.60	0.50	0.50	-90.36	-0.19	-30.09	30.09	29.08	1.01	29.898	
100.00	100.00	100.40	99.60	0.52	0.52	-90.36	-0.19	-30.09	30.09	29.05	1.04	29.048	
150.00	150.00	149.60	149.60	0.59	0.59	-90.36	-0.19	-30.09	30.09	28.91	1.18	25.507	
200.00	200.00	200.40	199.60	0.70	0.70	-90.36	-0.19	-30.09	30.09	28.69	1.41	21.414	
250.00	250.00	249.60	249.60	0.84	0.84	-90.36	-0.19	-30.09	30.09	28.42	1.67	17.972	
300.00	300.00	300.40	299.60	0.99	0.99	-90.36	-0.19	-30.09	30.09	28.11	1.98	15.229	
350.00	350.00	349.60	349.60	1.15	1.14	-90.36	-0.19	-30.09	30.09	27.80	2.29	13.142	
400.00	400.00	400.40	399.60	1.31	1.31	-90.36	-0.19	-30.09	30.09	27.47	2.62	11.487	
450.00	450.00	449.60	449.60	1.48	1.47	-90.36	-0.19	-30.09	30.09	27.14	2.95	10.196	
500.00	500.00	500.40	499.60	1.65	1.65	-90.36	-0.19	-30.09	30.09	26.80	3.29	9.136	
550.00	550.00	549.60	549.60	1.82	1.82	-90.36	-0.19	-30.09	30.09	26.46	3.63	8.280	
600.00	600.00	600.40	599.60	1.99	1.99	-90.36	-0.19	-30.09	30.09	26.11	3.98	7.556	
650.00	650.00	649.60	649.60	2.16	2.16	-90.36	-0.19	-30.09	30.09	25.76	4.33	6.953	
700.00	700.00	700.40	699.60	2.34	2.34	-90.36	-0.19	-30.09	30.09	25.41	4.68	6.430	
750.00	750.00	749.60	749.60	2.51	2.51	-90.36	-0.19	-30.09	30.09	25.06	5.03	5.985	
800.00	800.00	800.40	799.60	2.69	2.69	-90.36	-0.19	-30.09	30.09	24.71	5.38	5.590	
850.00	850.00	849.60	849.60	2.87	2.87	-90.36	-0.19	-30.09	30.09	24.36	5.73	5.249	
900.00	900.00	900.40	899.60	3.04	3.04	-90.36	-0.19	-30.09	30.09	24.00	6.09	4.942	Alert
950.00	950.00	949.60	949.60	3.22	3.22	-90.36	-0.19	-30.09	30.09	23.65	6.44	4.673	Alert
1,000.00	1,000.00	1,000.40	999.60	3.40	3.40	-90.36	-0.19	-30.09	30.09	23.29	6.80	4.427	Alert
1,050.00	1,050.00	1,049.60	1,049.60	3.58	3.57	-90.36	-0.19	-30.09	30.09	22.94	7.15	4.209	Alert
1,100.00	1,100.00	1,100.40	1,099.60	3.75	3.75	-90.36	-0.19	-30.09	30.09	22.58	7.51	4.009	Alert
1,150.00	1,150.00	1,149.60	1,149.60	3.93	3.93	-90.36	-0.19	-30.09	30.09	22.23	7.86	3.829	Alert
1,200.00	1,200.00	1,200.40	1,199.60	4.11	4.11	-90.36	-0.19	-30.09	30.09	21.87	8.22	3.662	Alert
1,250.00	1,250.00	1,249.60	1,249.60	4.29	4.28	-90.36	-0.19	-30.09	30.09	21.52	8.57	3.511	Alert
1,300.00	1,300.00	1,300.40	1,299.60	4.46	4.47	-90.36	-0.19	-30.09	30.09	21.16	8.93	3.370	Alert
1,350.00	1,350.00	1,349.60	1,349.60	4.64	4.64	-90.36	-0.19	-30.09	30.09	20.81	9.28	3.241	Alert
1,400.00	1,400.00	1,400.40	1,399.60	4.82	4.82	-90.36	-0.19	-30.09	30.09	20.45	9.64	3.121	Alert
1,450.00	1,450.00	1,449.60	1,449.60	5.00	5.00	-90.36	-0.19	-30.09	30.09	20.09	10.00	3.010	Alert
1,500.00	1,500.00	1,500.40	1,499.60	5.18	5.18	-90.36	-0.19	-30.09	30.09	19.73	10.36	2.906	Alert
1,550.00	1,550.00	1,549.60	1,549.60	5.36	5.35	-90.36	-0.19	-30.09	30.09	19.38	10.71	2.810	Alert
1,600.00	1,600.00	1,600.40	1,599.60	5.53	5.54	-90.36	-0.19	-30.09	30.09	19.02	11.07	2.718	Alert
1,650.00	1,650.00	1,649.60	1,649.60	5.71	5.71	-90.36	-0.19	-30.09	30.09	18.67	11.42	2.634	Alert
1,700.00	1,700.00	1,700.40	1,699.60	5.89	5.89	-90.36	-0.19	-30.09	30.09	18.31	11.78	2.554	Alert
1,750.00	1,750.00	1,749.60	1,749.60	6.07	6.07	-90.36	-0.19	-30.09	30.09	17.95	12.14	2.479	Minor Risk
1,800.00	1,800.00	1,800.40	1,799.60	6.25	6.25	-90.36	-0.19	-30.09	30.09	17.59	12.50	2.408	Minor Risk
1,850.00	1,850.00	1,849.60	1,849.60	6.43	6.43	-90.36	-0.19	-30.09	30.09	17.24	12.85	2.341	Minor Risk
1,900.00	1,900.00	1,900.40	1,899.60	6.61	6.61	-90.36	-0.19	-30.09	30.09	16.88	13.21	2.277	Minor Risk
1,950.00	1,950.00	1,949.60	1,949.60	6.78	6.78	-90.36	-0.19	-30.09	30.09	16.52	13.57	2.218	Minor Risk
2,000.00	2,000.00	2,000.40	1,999.60	6.96	6.96	-90.36	-0.19	-30.09	30.09	16.16	13.93	2.160	Minor Risk
2,050.00	2,050.00	2,049.60	2,049.60	7.14	7.14	-90.36	-0.19	-30.09	30.09	15.81	14.28	2.107	Minor Risk
2,100.00	2,100.00	2,100.40	2,099.60	7.32	7.32	-90.36	-0.19	-30.09	30.09	15.45	14.64	2.055	Minor Risk
2,150.00	2,150.00	2,149.60	2,149.60	7.50	7.50	-90.36	-0.19	-30.09	30.09	15.09	15.00	2.006	Minor Risk
2,200.00	2,200.00	2,200.40	2,199.60	7.68	7.68	-90.36	-0.19	-30.09	30.09	14.73	15.36	1.959	Minor Risk
2,250.00	2,250.00	2,249.60	2,249.60	7.86	7.86	-90.36	-0.19	-30.09	30.09	14.38	15.71	1.915	Minor Risk
2,300.00	2,300.00	2,300.40	2,299.60	8.04	8.04	-90.36	-0.19	-30.09	30.09	14.02	16.07	1.872	Minor Risk
2,350.00	2,350.00	2,349.60	2,349.60	8.22	8.21	-90.36	-0.19	-30.09	30.09	13.66	16.43	1.832	Minor Risk
2,400.00	2,400.00	2,400.40	2,399.60	8.39	8.40	-90.36	-0.19	-30.09	30.09	13.30	16.79	1.792	Minor Risk
2,450.00	2,450.00	2,449.60	2,449.60	8.57	8.57	-90.36	-0.19	-30.09	30.09	12.95	17.14	1.755	Minor Risk
2,500.00	2,500.00	2,500.40	2,499.60	8.75	8.75	-90.36	-0.19	-30.09	30.09	12.59	17.51	1.719	Minor Risk, CC

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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
2,550.00	2,550.00	2,549.60	2,549.60	8.92	8.93	134.93	-0.19	-30.09	30.24	12.39	17.85	1.694	Minor Risk, ES
2,600.00	2,599.99	2,600.41	2,599.59	9.09	9.11	135.79	-0.19	-30.09	30.71	12.50	18.21	1.687	Minor Risk, SF
2,650.00	2,649.98	2,649.58	2,649.58	9.26	9.29	137.17	-0.19	-30.09	31.50	12.96	18.55	1.699	Minor Risk
2,700.00	2,699.96	2,700.44	2,699.56	9.42	9.47	138.99	-0.19	-30.09	32.64	13.75	18.89	1.728	Minor Risk
2,750.00	2,749.92	2,749.52	2,749.52	9.59	9.65	141.14	-0.19	-30.09	34.14	14.91	19.23	1.775	Minor Risk
2,800.00	2,799.86	2,800.54	2,799.46	9.75	9.83	143.52	-0.19	-30.09	36.04	16.46	19.58	1.841	Minor Risk
2,850.00	2,849.78	2,849.38	2,849.38	9.92	10.00	146.02	-0.19	-30.09	38.36	18.44	19.92	1.926	Minor Risk
2,900.00	2,899.68	2,900.72	2,899.28	10.09	10.19	148.55	-0.19	-30.09	41.11	20.84	20.27	2.028	Minor Risk
2,950.00	2,949.54	2,949.14	2,949.14	10.26	10.36	151.04	-0.19	-30.09	44.32	23.71	20.61	2.150	Minor Risk
3,000.00	2,999.37	3,001.03	2,998.97	10.42	10.55	153.41	-0.19	-30.09	47.99	27.02	20.96	2.289	Minor Risk
3,050.00	3,049.16	3,048.76	3,048.76	10.59	10.72	155.65	-0.19	-30.09	52.12	30.82	21.30	2.447	Minor Risk
3,100.00	3,098.90	3,101.50	3,098.50	10.76	10.91	157.71	-0.19	-30.09	56.73	35.07	21.66	2.619	Alert
3,150.00	3,148.61	3,148.21	3,148.21	10.93	11.07	159.61	-0.19	-30.09	61.80	39.81	21.99	2.810	Alert
3,200.00	3,198.26	3,202.14	3,197.86	11.10	11.27	161.33	-0.19	-30.09	67.34	44.99	22.35	3.013	Alert
3,250.00	3,247.86	3,247.46	3,247.46	11.27	11.43	162.89	-0.19	-30.09	73.35	50.67	22.69	3.234	Alert
3,300.00	3,297.40	3,303.00	3,297.00	11.44	11.63	164.30	-0.19	-30.09	79.83	56.77	23.05	3.463	Alert
3,350.00	3,346.89	3,346.49	3,346.49	11.61	11.78	165.56	-0.19	-30.09	86.76	63.38	23.38	3.711	Alert
3,400.00	3,396.30	3,404.10	3,395.90	11.79	11.99	166.70	-0.19	-30.09	94.15	70.40	23.75	3.964	Alert
3,450.00	3,445.65	3,445.25	3,445.25	11.96	12.14	167.72	-0.19	-30.09	101.99	77.92	24.07	4.237	Alert
3,500.00	3,494.93	3,494.53	3,494.53	12.13	12.31	168.64	-0.19	-30.09	110.28	85.87	24.42	4.517	Alert
3,550.00	3,544.18	3,544.21	3,544.21	12.31	12.48	169.39	-0.36	-30.11	118.70	93.94	24.76	4.795	Alert
3,600.00	3,593.42	3,594.02	3,594.01	12.48	12.65	169.88	-0.96	-30.18	126.93	101.83	25.10	5.058	
3,650.00	3,642.67	3,643.91	3,643.89	12.66	12.81	170.14	-1.98	-30.30	134.96	109.53	25.43	5.307	
3,700.00	3,691.92	3,693.87	3,693.84	12.83	12.98	170.21	-3.45	-30.47	142.79	117.03	25.76	5.543	
3,750.00	3,741.16	3,743.90	3,743.83	13.01	13.14	170.13	-5.35	-30.69	150.41	124.32	26.10	5.764	
3,800.00	3,790.41	3,793.99	3,793.86	13.19	13.30	169.92	-7.68	-30.96	157.83	131.40	26.43	5.972	
3,850.00	3,839.66	3,844.13	3,843.92	13.37	13.46	169.59	-10.45	-31.29	165.04	138.27	26.76	6.166	
3,900.00	3,888.90	3,894.31	3,894.00	13.55	13.63	169.16	-13.66	-31.66	172.06	144.96	27.10	6.349	
3,950.00	3,938.15	3,944.52	3,944.08	13.73	13.79	168.64	-17.31	-32.09	178.88	151.45	27.44	6.520	
4,000.00	3,987.40	3,994.76	3,994.15	13.90	13.96	168.03	-21.39	-32.56	185.53	157.75	27.77	6.680	
4,050.00	4,036.64	4,045.03	4,044.20	14.08	14.12	167.34	-25.92	-33.09	192.00	163.89	28.11	6.830	
4,100.00	4,085.89	4,095.30	4,094.23	14.27	14.29	166.59	-30.88	-33.67	198.31	169.86	28.45	6.970	
4,150.00	4,135.14	4,145.58	4,144.21	14.45	14.45	165.77	-36.28	-34.30	204.48	175.69	28.79	7.102	
4,200.00	4,184.38	4,195.85	4,194.14	14.63	14.62	164.88	-42.11	-34.98	210.51	181.37	29.13	7.226	
4,250.00	4,233.63	4,246.11	4,244.01	14.81	14.78	163.94	-48.37	-35.71	216.42	186.94	29.48	7.342	
4,300.00	4,282.87	4,296.36	4,293.79	14.99	14.95	162.94	-55.07	-36.49	222.22	192.40	29.82	7.452	
4,350.00	4,332.12	4,346.57	4,343.50	15.17	15.12	161.90	-62.20	-37.32	227.93	197.76	30.16	7.556	
4,400.00	4,381.37	4,396.75	4,393.10	15.36	15.28	160.80	-69.75	-38.21	233.56	203.05	30.51	7.656	
4,450.00	4,430.61	4,446.33	4,442.06	15.54	15.45	159.70	-77.48	-39.11	239.19	208.33	30.86	7.752	
4,500.00	4,479.86	4,504.19	4,490.92	15.72	15.64	158.66	-85.20	-40.01	244.90	213.67	31.23	7.842	
4,550.00	4,529.11	4,545.28	4,539.78	15.91	15.78	157.66	-92.93	-40.91	250.68	219.13	31.55	7.945	
4,600.00	4,578.35	4,605.24	4,588.65	16.09	15.98	156.71	-100.65	-41.81	256.54	224.61	31.93	8.034	
4,650.00	4,627.60	4,644.24	4,637.51	16.27	16.11	155.80	-108.37	-42.71	262.46	230.22	32.25	8.139	
4,700.00	4,676.85	4,706.28	4,686.37	16.46	16.32	154.93	-116.09	-43.61	268.45	235.81	32.64	8.225	
4,750.00	4,726.09	4,743.20	4,735.24	16.64	16.45	154.10	-123.81	-44.51	274.50	241.55	32.95	8.331	
4,800.00	4,775.34	4,807.33	4,784.10	16.83	16.67	153.30	-131.53	-45.41	280.60	247.25	33.35	8.414	
4,850.00	4,824.59	4,842.15	4,832.96	17.01	16.79	152.54	-139.25	-46.31	286.75	253.10	33.65	8.521	
4,900.00	4,873.83	4,908.37	4,881.83	17.20	17.02	151.81	-146.97	-47.21	292.95	258.89	34.06	8.601	
4,950.00	4,923.08	4,941.11	4,930.69	17.39	17.13	151.11	-154.69	-48.12	299.20	264.84	34.36	8.709	
5,000.00	4,972.33	5,009.42	4,979.55	17.57	17.37	150.44	-162.41	-49.02	305.49	270.71	34.78	8.785	
5,050.00	5,021.57	5,040.06	5,028.42	17.76	17.47	149.80	-170.14	-49.92	311.82	276.75	35.07	8.893	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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
5,100.00	5,070.82	5,089.54	5,077.28	17.94	17.64	149.18	-177.86	-50.82	318.18	282.76	35.42	8.983	
5,150.00	5,120.06	5,139.02	5,126.14	18.13	17.82	148.58	-185.58	-51.72	324.58	288.81	35.78	9.073	
5,200.00	5,169.31	5,188.50	5,175.01	18.32	17.99	148.01	-193.30	-52.62	331.02	294.88	36.13	9.161	
5,250.00	5,218.56	5,237.97	5,223.87	18.51	18.16	147.46	-201.02	-53.52	337.48	300.99	36.49	9.249	
5,300.00	5,267.80	5,287.45	5,272.73	18.69	18.33	146.93	-208.74	-54.42	343.98	307.13	36.85	9.336	
5,350.00	5,317.05	5,336.93	5,321.60	18.88	18.51	146.42	-216.46	-55.32	350.50	313.29	37.20	9.421	
5,400.00	5,366.30	5,386.41	5,370.46	19.07	18.68	145.93	-224.18	-56.22	357.05	319.48	37.56	9.506	
5,450.00	5,415.54	5,435.89	5,419.32	19.26	18.86	145.46	-231.90	-57.12	363.62	325.70	37.92	9.589	
5,500.00	5,464.79	5,485.36	5,468.19	19.44	19.03	145.00	-239.62	-58.02	370.22	331.94	38.28	9.671	
5,550.00	5,514.04	5,534.84	5,517.05	19.63	19.21	144.56	-247.35	-58.92	376.84	338.20	38.64	9.752	
5,600.00	5,563.28	5,584.32	5,565.91	19.82	19.38	144.14	-255.07	-59.83	383.48	344.48	39.00	9.833	
5,650.00	5,612.53	5,633.80	5,614.78	20.01	19.56	143.73	-262.79	-60.73	390.14	350.78	39.36	9.912	
5,700.00	5,661.78	5,683.27	5,663.64	20.20	19.73	143.33	-270.51	-61.63	396.82	357.10	39.72	9.990	
5,750.00	5,711.02	5,732.75	5,712.50	20.39	19.91	142.95	-278.23	-62.53	403.52	363.43	40.08	10.067	
5,800.00	5,760.27	5,782.23	5,761.37	20.58	20.09	142.57	-285.95	-63.43	410.23	369.79	40.45	10.143	
5,850.00	5,809.51	5,831.71	5,810.23	20.77	20.26	142.21	-293.67	-64.33	416.96	376.16	40.81	10.217	
5,900.00	5,858.76	5,881.19	5,859.09	20.95	20.44	141.87	-301.39	-65.23	423.71	382.54	41.17	10.291	
5,950.00	5,908.01	5,930.66	5,907.96	21.14	20.62	141.53	-309.11	-66.13	430.47	388.94	41.54	10.364	
6,000.00	5,957.25	5,980.14	5,956.82	21.33	20.80	141.20	-316.83	-67.03	437.25	395.35	41.90	10.436	
6,050.00	6,006.50	6,029.62	6,005.68	21.52	20.97	140.89	-324.56	-67.93	444.04	401.78	42.26	10.506	
6,100.00	6,055.75	6,079.10	6,054.55	21.71	21.15	140.58	-332.28	-68.83	450.84	408.22	42.63	10.576	
6,150.00	6,104.99	6,128.57	6,103.41	21.90	21.33	140.28	-340.00	-69.73	457.66	414.67	42.99	10.645	
6,200.00	6,154.24	6,178.05	6,152.27	22.09	21.51	139.99	-347.72	-70.64	464.49	421.13	43.36	10.713	
6,250.00	6,203.49	6,227.53	6,201.14	22.28	21.69	139.71	-355.44	-71.54	471.33	427.60	43.72	10.780	
6,300.00	6,252.73	6,277.01	6,250.00	22.47	21.87	139.44	-363.16	-72.44	478.18	434.09	44.09	10.845	
6,350.00	6,301.98	6,326.49	6,298.86	22.66	22.05	139.17	-370.88	-73.34	485.04	440.58	44.46	10.910	
6,400.00	6,351.23	6,375.96	6,347.73	22.85	22.22	138.91	-378.60	-74.24	491.91	447.08	44.82	10.974	
6,450.00	6,400.47	6,425.44	6,396.59	23.05	22.40	138.66	-386.32	-75.14	498.79	453.60	45.19	11.038	
6,500.00	6,449.72	6,474.92	6,445.45	23.24	22.58	138.42	-394.04	-76.04	505.67	460.12	45.56	11.100	
6,550.00	6,498.97	6,524.40	6,494.32	23.43	22.76	138.18	-401.77	-76.94	512.57	466.65	45.92	11.161	
6,600.00	6,548.21	6,573.87	6,543.18	23.62	22.94	137.95	-409.49	-77.84	519.48	473.18	46.29	11.222	
6,650.00	6,597.46	6,623.35	6,592.05	23.81	23.12	137.73	-417.21	-78.74	526.39	479.73	46.66	11.281	
6,700.00	6,646.70	6,672.83	6,640.91	24.00	23.31	137.51	-424.93	-79.64	533.31	486.28	47.03	11.340	
6,750.00	6,695.95	6,722.31	6,689.77	24.19	23.49	137.29	-432.65	-80.54	540.24	492.84	47.40	11.398	
6,800.00	6,745.20	6,771.79	6,738.64	24.38	23.67	137.08	-440.37	-81.44	547.18	499.41	47.77	11.455	
6,850.00	6,794.44	6,821.26	6,787.50	24.57	23.85	136.88	-448.09	-82.35	554.12	505.98	48.14	11.512	
6,900.00	6,843.69	6,870.74	6,836.36	24.76	24.03	136.68	-455.81	-83.25	561.07	512.57	48.51	11.567	
6,950.00	6,892.94	6,920.22	6,885.23	24.96	24.21	136.49	-463.53	-84.15	568.03	519.15	48.88	11.622	
7,000.00	6,942.18	6,969.70	6,934.09	25.15	24.39	136.30	-471.25	-85.05	574.99	525.74	49.25	11.676	
7,050.00	6,991.43	7,019.17	6,982.95	25.34	24.57	136.12	-478.98	-85.95	581.96	532.34	49.62	11.729	
7,100.00	7,040.68	7,068.65	7,031.82	25.53	24.76	135.94	-486.70	-86.85	588.93	538.95	49.99	11.782	
7,150.00	7,089.92	7,118.13	7,080.68	25.72	24.94	135.76	-494.42	-87.75	595.91	545.55	50.36	11.834	
7,200.00	7,139.17	7,167.61	7,129.54	25.92	25.12	135.59	-502.14	-88.65	602.90	552.17	50.73	11.885	
7,250.00	7,188.42	7,217.09	7,178.41	26.11	25.30	135.43	-509.86	-89.55	609.88	558.78	51.10	11.935	
7,300.00	7,237.73	7,266.59	7,227.30	26.30	25.48	135.31	-517.59	-90.45	616.58	565.11	51.47	11.980	
7,350.00	7,287.16	7,316.14	7,276.23	26.49	25.67	135.15	-525.32	-91.35	622.83	570.99	51.84	12.015	
7,400.00	7,336.67	7,365.72	7,325.19	26.68	25.85	134.94	-533.05	-92.26	628.62	576.41	52.21	12.040	
7,450.00	7,386.27	7,415.32	7,374.17	26.86	26.03	134.70	-540.79	-93.16	633.98	581.40	52.58	12.058	
7,500.00	7,435.95	7,464.93	7,423.17	27.05	26.22	134.41	-548.54	-94.06	638.89	585.94	52.95	12.067	
7,550.00	7,485.70	7,515.01	7,472.64	27.23	26.40	134.08	-556.29	-94.97	643.37	590.05	53.32	12.067	
7,600.00	7,535.51	7,565.82	7,522.91	27.41	26.59	133.75	-563.62	-95.82	647.35	593.66	53.69	12.057	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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
7,650.00	7,585.38	7,616.76	7,573.40	27.59	26.78	133.44	-570.29	-96.60	650.81	596.75	54.06	12.038	
7,700.00	7,635.29	7,667.80	7,624.08	27.77	26.96	133.14	-576.31	-97.30	653.75	599.32	54.43	12.010	
7,750.00	7,685.23	7,718.94	7,674.93	27.95	27.15	132.86	-581.66	-97.93	656.16	601.36	54.80	11.973	
7,800.00	7,735.20	7,770.16	7,725.94	28.12	27.33	132.59	-586.34	-98.47	658.05	602.88	55.17	11.928	
7,850.00	7,785.19	7,821.46	7,777.08	28.29	27.52	132.33	-590.35	-98.94	659.40	603.87	55.53	11.875	
7,900.00	7,835.19	7,872.83	7,828.34	28.46	27.70	132.07	-593.68	-99.33	660.22	604.33	55.89	11.813	
7,950.00	7,885.19	7,924.26	7,879.70	28.63	27.88	-93.15	-596.33	-99.64	660.66	604.41	56.24	11.746	
8,000.00	7,935.19	7,975.76	7,931.16	28.80	28.07	-93.32	-598.29	-99.87	660.99	604.39	56.60	11.679	
8,050.00	7,985.19	8,027.30	7,982.68	28.96	28.25	-93.43	-599.57	-100.02	661.21	604.26	56.95	11.611	
8,100.00	8,035.19	8,078.86	8,034.24	29.13	28.42	-93.48	-600.15	-100.09	661.31	604.01	57.29	11.543	
8,150.00	8,085.19	8,129.40	8,084.79	29.29	28.59	-93.48	-600.19	-100.09	661.31	603.68	57.63	11.475	
8,200.00	8,135.19	8,179.40	8,134.79	29.46	28.76	-93.48	-600.19	-100.09	661.31	603.35	57.97	11.409	
8,250.00	8,185.19	8,229.40	8,184.79	29.62	28.93	-93.48	-600.19	-100.09	661.31	603.01	58.30	11.343	
8,300.00	8,235.14	8,279.36	8,234.74	29.79	29.10	-93.56	-600.19	-100.09	661.41	602.78	58.64	11.280	
8,350.00	8,284.78	8,328.99	8,284.38	29.95	29.27	-94.03	-600.19	-100.09	661.81	602.83	58.97	11.222	
8,400.00	8,333.70	8,377.92	8,333.30	30.11	29.43	-94.81	-600.19	-100.09	662.61	603.31	59.31	11.173	
8,450.00	8,381.55	8,425.76	8,381.15	30.27	29.60	-95.86	-600.19	-100.09	664.02	604.39	59.64	11.134	
8,500.00	8,427.95	8,476.92	8,432.29	30.42	29.77	-97.22	-599.39	-100.09	666.20	606.21	59.98	11.107	
8,550.00	8,472.56	8,533.33	8,488.38	30.57	29.96	-98.67	-593.65	-100.10	668.84	608.51	60.33	11.086	
8,600.00	8,515.04	8,592.20	8,546.03	30.70	30.15	-100.10	-581.80	-100.11	671.84	611.18	60.66	11.075	
8,650.00	8,555.05	8,653.73	8,604.64	30.83	30.35	-101.47	-563.18	-100.12	675.09	614.14	60.95	11.077	
8,700.00	8,592.31	8,718.06	8,663.41	30.96	30.55	-102.78	-537.10	-100.15	678.48	617.30	61.18	11.091	
8,750.00	8,626.51	8,785.27	8,721.28	31.07	30.75	-104.00	-503.01	-100.18	681.86	620.53	61.34	11.117	
8,800.00	8,657.41	8,855.36	8,776.96	31.18	30.94	-105.11	-460.50	-100.22	685.10	623.68	61.42	11.153	
8,850.00	8,684.77	8,928.22	8,828.87	31.28	31.14	-106.08	-409.45	-100.27	688.03	626.58	61.45	11.197	
8,900.00	8,708.38	9,003.57	8,875.31	31.38	31.32	-106.88	-350.18	-100.32	690.51	629.07	61.44	11.239	
8,950.00	8,728.06	9,080.99	8,914.50	31.46	31.50	-107.47	-283.48	-100.39	692.39	630.96	61.42	11.273	
9,000.00	8,743.66	9,159.91	8,944.83	31.55	31.67	-107.84	-210.70	-100.45	693.56	632.12	61.45	11.287	
9,050.00	8,755.06	9,239.60	8,965.03	31.62	31.82	-107.97	-133.67	-100.53	693.97	632.42	61.54	11.276	
9,100.00	8,762.18	9,319.30	8,974.35	31.69	31.96	-107.85	-54.58	-100.60	693.57	631.84	61.74	11.234	
9,150.00	8,764.96	9,379.37	8,975.00	31.75	32.06	-107.68	5.48	-100.66	692.85	630.89	61.96	11.182	
9,194.70	8,765.25	9,424.07	8,975.00	31.80	32.14	-107.66	50.18	-100.70	692.76	630.64	62.12	11.152	
9,200.00	8,765.00	9,429.37	8,975.00	31.81	32.15	-107.68	55.48	-100.70	692.84	630.70	62.13	11.151	
9,250.00	8,765.00	9,479.37	8,975.00	31.88	32.24	-107.68	105.48	-100.75	692.84	630.51	62.33	11.116	
9,300.00	8,765.00	9,529.37	8,975.00	31.95	32.34	-107.68	155.48	-100.80	692.84	630.31	62.52	11.081	
9,350.00	8,765.00	9,579.37	8,975.00	32.04	32.45	-107.68	205.48	-100.84	692.83	630.09	62.74	11.043	
9,400.00	8,765.00	9,629.37	8,975.00	32.12	32.57	-107.68	255.48	-100.89	692.83	629.87	62.97	11.003	
9,450.00	8,765.00	9,679.37	8,975.00	32.23	32.69	-107.68	305.48	-100.94	692.83	629.62	63.21	10.960	
9,500.00	8,765.00	9,729.37	8,975.00	32.33	32.82	-107.68	355.48	-100.99	692.83	629.37	63.47	10.917	
9,550.00	8,765.00	9,779.37	8,975.00	32.44	32.95	-107.68	405.48	-101.03	692.83	629.10	63.74	10.870	
9,600.00	8,765.00	9,829.37	8,975.00	32.56	33.10	-107.68	455.48	-101.08	692.83	628.82	64.02	10.823	
9,650.00	8,765.00	9,879.37	8,975.00	32.69	33.24	-107.68	505.48	-101.13	692.83	628.52	64.31	10.773	
9,700.00	8,765.00	9,929.37	8,975.00	32.82	33.40	-107.68	555.48	-101.17	692.83	628.21	64.62	10.722	
9,750.00	8,765.00	9,979.37	8,975.00	32.97	33.56	-107.68	605.48	-101.22	692.83	627.89	64.94	10.669	
9,800.00	8,765.00	10,029.37	8,975.00	33.11	33.73	-107.68	655.48	-101.27	692.83	627.56	65.27	10.615	
9,850.00	8,765.00	10,079.37	8,975.00	33.27	33.90	-107.68	705.48	-101.31	692.83	627.21	65.62	10.559	
9,900.00	8,765.00	10,129.37	8,975.00	33.43	34.08	-107.68	755.48	-101.36	692.83	626.86	65.97	10.502	
9,950.00	8,765.00	10,179.37	8,975.00	33.60	34.26	-107.68	805.48	-101.41	692.83	626.48	66.34	10.443	
10,000.00	8,765.00	10,229.37	8,975.00	33.77	34.45	-107.68	855.48	-101.45	692.82	626.11	66.72	10.384	
10,050.00	8,765.00	10,279.37	8,975.00	33.96	34.65	-107.68	905.48	-101.50	692.82	625.71	67.11	10.323	
10,100.00	8,765.00	10,329.37	8,975.00	34.14	34.85	-107.68	955.48	-101.55	692.82	625.31	67.51	10.262	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2

Survey Program: 0-MWD+IFR1

Offset Site Error: 0.00 ft

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
10,150.00	8,765.00	10,379.37	8,975.00	34.34	35.06	-107.68	1,005.48	-101.59	692.82	624.89	67.93	10.199	
10,200.00	8,765.00	10,429.37	8,975.00	34.54	35.27	-107.68	1,055.48	-101.64	692.82	624.47	68.35	10.136	
10,250.00	8,765.00	10,479.37	8,975.00	34.74	35.49	-107.68	1,105.48	-101.69	692.82	624.03	68.79	10.072	
10,300.00	8,765.00	10,529.37	8,975.00	34.95	35.71	-107.68	1,155.48	-101.73	692.82	623.59	69.23	10.008	
10,350.00	8,765.00	10,579.37	8,975.00	35.17	35.94	-107.68	1,205.48	-101.78	692.82	623.13	69.69	9.942	
10,400.00	8,765.00	10,629.37	8,975.00	35.39	36.17	-107.68	1,255.48	-101.83	692.82	622.67	70.15	9.876	
10,450.00	8,765.00	10,679.37	8,975.00	35.62	36.41	-107.68	1,305.48	-101.88	692.82	622.19	70.63	9.810	
10,500.00	8,765.00	10,729.37	8,975.00	35.85	36.66	-107.68	1,355.48	-101.92	692.82	621.71	71.11	9.743	
10,550.00	8,765.00	10,779.37	8,975.00	36.09	36.90	-107.68	1,405.48	-101.97	692.82	621.21	71.61	9.676	
10,600.00	8,765.00	10,829.37	8,975.00	36.33	37.16	-107.68	1,455.48	-102.02	692.82	620.71	72.11	9.608	
10,650.00	8,765.00	10,879.37	8,975.00	36.58	37.41	-107.68	1,505.48	-102.06	692.82	620.19	72.62	9.540	
10,700.00	8,765.00	10,929.37	8,975.00	36.83	37.68	-107.68	1,555.48	-102.11	692.81	619.67	73.14	9.473	
10,750.00	8,765.00	10,979.37	8,975.00	37.09	37.94	-107.68	1,605.48	-102.16	692.81	619.14	73.67	9.404	
10,800.00	8,765.00	11,029.37	8,975.00	37.35	38.21	-107.68	1,655.48	-102.20	692.81	618.61	74.21	9.336	
10,850.00	8,765.00	11,079.37	8,975.00	37.61	38.49	-107.68	1,705.48	-102.25	692.81	618.06	74.76	9.268	
10,900.00	8,765.00	11,129.37	8,975.00	37.88	38.77	-107.68	1,755.48	-102.30	692.81	617.50	75.31	9.200	
10,950.00	8,765.00	11,179.37	8,975.00	38.16	39.05	-107.68	1,805.48	-102.34	692.81	616.94	75.87	9.131	
11,000.00	8,765.00	11,229.37	8,975.00	38.43	39.34	-107.68	1,855.48	-102.39	692.81	616.37	76.44	9.063	
11,050.00	8,765.00	11,279.37	8,975.00	38.72	39.63	-107.68	1,905.48	-102.44	692.81	615.79	77.02	8.995	
11,100.00	8,765.00	11,329.37	8,975.00	39.00	39.92	-107.68	1,955.48	-102.48	692.81	615.21	77.60	8.928	
11,150.00	8,765.00	11,379.37	8,975.00	39.29	40.22	-107.68	2,005.48	-102.53	692.81	614.61	78.20	8.860	
11,200.00	8,765.00	11,429.37	8,975.00	39.59	40.52	-107.68	2,055.48	-102.58	692.81	614.01	78.79	8.793	
11,250.00	8,765.00	11,479.37	8,975.00	39.89	40.82	-107.68	2,105.48	-102.62	692.81	613.40	79.40	8.725	
11,300.00	8,765.00	11,529.37	8,975.00	40.19	41.13	-107.68	2,155.48	-102.67	692.81	612.79	80.01	8.659	
11,350.00	8,765.00	11,579.37	8,975.00	40.49	41.44	-107.68	2,205.48	-102.72	692.80	612.17	80.63	8.592	
11,400.00	8,765.00	11,629.37	8,975.00	40.80	41.76	-107.68	2,255.48	-102.76	692.80	611.54	81.26	8.526	
11,450.00	8,765.00	11,679.37	8,975.00	41.11	42.08	-107.68	2,305.48	-102.81	692.80	610.91	81.89	8.460	
11,500.00	8,765.00	11,729.37	8,975.00	41.43	42.40	-107.68	2,355.48	-102.86	692.80	610.27	82.53	8.395	
11,550.00	8,765.00	11,779.37	8,975.00	41.75	42.72	-107.68	2,405.48	-102.91	692.80	609.63	83.18	8.329	
11,600.00	8,765.00	11,829.37	8,975.00	42.07	43.05	-107.68	2,455.48	-102.95	692.80	608.98	83.82	8.265	
11,650.00	8,765.00	11,879.37	8,975.00	42.39	43.38	-107.68	2,505.48	-103.00	692.80	608.32	84.48	8.201	
11,700.00	8,765.00	11,929.37	8,975.00	42.72	43.71	-107.68	2,555.48	-103.05	692.80	607.66	85.14	8.137	
11,750.00	8,765.00	11,979.37	8,975.00	43.05	44.05	-107.68	2,605.48	-103.09	692.80	606.99	85.81	8.074	
11,800.00	8,765.00	12,029.37	8,975.00	43.38	44.39	-107.68	2,655.48	-103.14	692.80	606.32	86.48	8.011	
11,850.00	8,765.00	12,079.37	8,975.00	43.72	44.73	-107.68	2,705.48	-103.19	692.80	605.64	87.16	7.949	
11,900.00	8,765.00	12,129.37	8,975.00	44.06	45.07	-107.68	2,755.48	-103.23	692.80	604.95	87.84	7.887	
11,950.00	8,765.00	12,179.37	8,975.00	44.40	45.42	-107.68	2,805.48	-103.28	692.80	604.26	88.53	7.825	
12,000.00	8,765.00	12,229.37	8,975.00	44.75	45.77	-107.68	2,855.48	-103.33	692.79	603.57	89.22	7.765	
12,050.00	8,765.00	12,279.37	8,975.00	45.10	46.12	-107.68	2,905.48	-103.37	692.79	602.87	89.92	7.705	
12,100.00	8,765.00	12,329.37	8,975.00	45.44	46.47	-107.68	2,955.48	-103.42	692.79	602.17	90.62	7.645	
12,150.00	8,765.00	12,379.37	8,975.00	45.80	46.83	-107.68	3,005.48	-103.47	692.79	601.46	91.33	7.586	
12,200.00	8,765.00	12,429.37	8,975.00	46.15	47.19	-107.68	3,055.48	-103.51	692.79	600.75	92.04	7.527	
12,250.00	8,765.00	12,479.37	8,975.00	46.51	47.55	-107.68	3,105.48	-103.56	692.79	600.04	92.76	7.469	
12,300.00	8,765.00	12,529.37	8,975.00	46.87	47.91	-107.68	3,155.48	-103.61	692.79	599.32	93.47	7.412	
12,350.00	8,765.00	12,579.37	8,975.00	47.23	48.28	-107.68	3,205.48	-103.65	692.79	598.59	94.20	7.355	
12,400.00	8,765.00	12,629.37	8,975.00	47.59	48.64	-107.68	3,255.48	-103.70	692.79	597.86	94.93	7.298	
12,450.00	8,765.00	12,679.37	8,975.00	47.96	49.01	-107.68	3,305.48	-103.75	692.79	597.13	95.66	7.242	
12,500.00	8,765.00	12,729.37	8,975.00	48.32	49.38	-107.68	3,355.48	-103.80	692.79	596.39	96.39	7.187	
12,550.00	8,765.00	12,779.37	8,975.00	48.69	49.76	-107.68	3,405.48	-103.84	692.79	595.65	97.13	7.132	
12,600.00	8,765.00	12,829.37	8,975.00	49.07	50.13	-107.68	3,455.48	-103.89	692.79	594.91	97.88	7.078	
12,650.00	8,765.00	12,879.37	8,975.00	49.44	50.51	-107.68	3,505.48	-103.94	692.78	594.16	98.62	7.025	

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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
12,700.00	8,765.00	12,929.37	8,975.00	49.81	50.89	-107.68	3,555.48	-103.98	692.78	593.41	99.37	6.972	
12,750.00	8,765.00	12,979.37	8,975.00	50.19	51.27	-107.68	3,605.48	-104.03	692.78	592.66	100.13	6.919	
12,800.00	8,765.00	13,029.37	8,975.00	50.57	51.65	-107.68	3,655.48	-104.08	692.78	591.90	100.88	6.867	
12,850.00	8,765.00	13,079.37	8,975.00	50.95	52.03	-107.68	3,705.48	-104.12	692.78	591.14	101.64	6.816	
12,900.00	8,765.00	13,129.37	8,975.00	51.34	52.42	-107.68	3,755.48	-104.17	692.78	590.37	102.41	6.765	
12,950.00	8,765.00	13,179.37	8,975.00	51.72	52.81	-107.68	3,805.48	-104.22	692.78	589.61	103.17	6.715	
13,000.00	8,765.00	13,229.37	8,975.00	52.11	53.19	-107.68	3,855.48	-104.26	692.78	588.84	103.94	6.665	
13,050.00	8,765.00	13,279.37	8,975.00	52.49	53.58	-107.68	3,905.48	-104.31	692.78	588.06	104.72	6.616	
13,100.00	8,765.00	13,329.37	8,975.00	52.88	53.98	-107.68	3,955.48	-104.36	692.78	587.29	105.49	6.567	
13,150.00	8,765.00	13,379.37	8,975.00	53.27	54.37	-107.68	4,005.48	-104.40	692.78	586.51	106.27	6.519	
13,200.00	8,765.00	13,429.37	8,975.00	53.67	54.76	-107.68	4,055.48	-104.45	692.78	585.73	107.05	6.472	
13,250.00	8,765.00	13,479.37	8,975.00	54.06	55.16	-107.68	4,105.48	-104.50	692.78	584.94	107.83	6.424	
13,300.00	8,765.00	13,529.37	8,975.00	54.46	55.56	-107.68	4,155.48	-104.54	692.77	584.15	108.62	6.378	
13,350.00	8,765.00	13,579.37	8,975.00	54.85	55.96	-107.68	4,205.48	-104.59	692.77	583.36	109.41	6.332	
13,400.00	8,765.00	13,629.37	8,975.00	55.25	56.36	-107.68	4,255.48	-104.64	692.77	582.57	110.20	6.286	
13,400.10	8,765.00	13,629.48	8,975.00	55.25	56.36	-107.68	4,255.59	-104.64	692.77	582.57	110.20	6.286	
13,450.00	8,765.00	13,679.37	8,975.00	55.65	56.76	-107.68	4,305.48	-104.69	692.85	581.86	111.00	6.242	
13,500.00	8,765.00	13,729.37	8,975.00	56.05	57.16	-107.66	4,355.47	-104.73	693.64	581.84	111.79	6.205	
13,550.00	8,765.00	13,779.34	8,975.00	56.44	57.56	-107.63	4,405.44	-104.78	695.25	582.66	112.59	6.175	
13,600.00	8,765.00	13,818.73	8,975.00	56.83	57.88	-107.59	4,444.84	-105.17	698.12	584.84	113.27	6.163	
13,650.00	8,765.00	13,859.11	8,975.00	57.22	58.21	-107.52	4,485.20	-106.14	702.48	588.53	113.95	6.165	
13,700.00	8,765.00	13,900.00	8,975.00	57.61	58.55	-107.43	4,526.06	-107.69	708.35	593.71	114.64	6.179	
13,750.00	8,765.00	13,939.21	8,975.00	57.99	58.88	-107.33	4,565.22	-109.73	715.70	600.42	115.29	6.208	
13,800.00	8,765.00	13,978.82	8,975.00	58.38	59.21	-107.21	4,604.75	-112.33	724.54	608.61	115.94	6.250	
13,850.00	8,765.00	14,018.08	8,975.00	58.75	59.54	-107.07	4,643.88	-115.45	734.86	618.29	116.57	6.304	
13,900.00	8,765.00	14,056.92	8,975.00	59.13	59.87	-106.92	4,682.55	-119.06	746.64	629.45	117.19	6.371	
13,950.00	8,765.00	14,095.31	8,975.00	59.50	60.19	-106.73	4,720.72	-123.14	759.81	642.02	117.79	6.451	
14,000.00	8,765.00	14,133.36	8,975.00	59.87	60.52	-106.48	4,758.50	-127.70	773.76	655.39	118.37	6.537	
14,050.00	8,765.00	14,171.10	8,975.00	60.25	60.85	-106.24	4,795.91	-132.71	788.35	669.40	118.95	6.628	
14,100.00	8,765.00	14,208.52	8,975.00	60.62	61.17	-105.99	4,832.93	-138.16	803.56	684.06	119.50	6.724	
14,150.00	8,765.00	14,245.62	8,975.00	61.00	61.49	-105.74	4,869.55	-144.05	819.38	699.34	120.04	6.826	
14,200.00	8,765.00	14,284.82	8,975.00	61.37	61.83	-105.48	4,908.18	-150.76	835.80	715.17	120.63	6.929	
14,250.00	8,765.00	14,331.79	8,975.00	61.75	62.25	-105.17	4,954.42	-158.97	852.40	730.95	121.46	7.018	
14,300.00	8,765.00	14,378.75	8,975.00	62.13	62.66	-104.88	5,000.67	-167.17	869.03	746.75	122.28	7.107	
14,350.00	8,765.00	14,425.72	8,975.00	62.52	63.08	-104.59	5,046.91	-175.37	885.68	762.57	123.11	7.194	
14,400.00	8,765.00	14,472.69	8,975.00	62.90	63.49	-104.32	5,093.16	-183.58	902.35	778.42	123.94	7.281	
14,450.00	8,765.00	14,519.68	8,975.00	63.28	63.91	-104.02	5,139.42	-191.79	918.98	794.22	124.76	7.366	
14,500.00	8,765.00	14,566.90	8,975.00	63.67	64.33	-103.70	5,185.92	-200.03	934.97	809.38	125.59	7.445	
14,550.00	8,765.00	14,614.41	8,975.00	64.07	64.76	-103.40	5,232.70	-208.33	950.17	823.74	126.43	7.515	
14,600.00	8,765.00	14,662.18	8,975.00	64.46	65.18	-103.13	5,279.73	-216.68	964.57	837.30	127.27	7.579	
14,650.00	8,765.00	14,710.20	8,975.00	64.87	65.62	-102.89	5,327.02	-225.07	978.17	850.04	128.12	7.635	
14,700.00	8,765.00	14,758.46	8,975.00	65.28	66.05	-102.66	5,374.53	-233.50	990.95	861.98	128.98	7.683	
14,750.00	8,765.00	14,824.23	8,975.00	65.69	66.65	-102.41	5,439.37	-244.55	1,002.63	872.32	130.31	7.694	
14,800.00	8,765.00	14,898.93	8,975.00	66.11	67.32	-102.18	5,513.29	-255.33	1,012.31	880.49	131.82	7.679	
14,850.00	8,765.00	14,974.58	8,975.00	66.53	68.00	-102.01	5,588.40	-264.29	1,019.89	886.60	133.28	7.652	
14,900.00	8,765.00	15,050.95	8,975.00	66.95	68.68	-101.89	5,664.44	-271.31	1,025.33	890.66	134.68	7.613	
14,950.00	8,765.00	15,127.80	8,975.00	67.38	69.36	-101.81	5,741.13	-276.33	1,028.63	892.62	136.01	7.563	
15,000.00	8,765.00	15,204.90	8,975.00	67.81	70.04	-101.79	5,818.17	-279.30	1,029.76	892.50	137.26	7.502	
15,050.00	8,765.00	15,282.01	8,975.00	68.25	70.71	-101.81	5,895.27	-280.20	1,028.71	890.28	138.43	7.431	
15,100.00	8,765.00	15,358.88	8,975.00	68.68	71.37	-101.88	5,972.12	-279.02	1,025.50	885.99	139.51	7.351	
15,150.00	8,765.00	15,435.27	8,975.00	69.12	72.01	-102.00	6,048.44	-275.81	1,020.13	879.63	140.50	7.261	

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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — Offset Site Error: 0.00 ft

Survey Program: 0-MWD+IFR1 — 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
15,200.00	8,765.00	15,510.94	8,975.00	69.56	72.64	-102.17	6,123.94	-270.63	1,012.64	871.23	141.40	7.161	
15,250.00	8,765.00	15,585.69	8,975.00	70.01	73.26	-102.40	6,198.35	-263.55	1,003.04	860.83	142.21	7.053	
15,300.00	8,765.00	15,659.29	8,975.00	70.45	73.85	-102.67	6,271.41	-254.69	991.38	848.46	142.92	6.937	
15,350.00	8,765.00	15,731.55	8,975.00	70.90	74.43	-103.01	6,342.90	-244.17	977.70	834.15	143.55	6.811	
15,400.00	8,765.00	15,788.17	8,975.00	71.35	74.87	-103.34	6,398.73	-234.74	962.20	817.96	144.24	6.671	
15,450.00	8,765.00	15,823.84	8,975.00	71.80	75.16	-103.54	6,433.93	-228.98	946.26	801.12	145.13	6.520	
15,500.00	8,765.00	15,859.92	8,975.00	72.25	75.44	-103.63	6,469.61	-223.59	931.35	785.33	146.02	6.378	
15,550.00	8,765.00	15,900.00	8,975.00	72.70	75.77	-103.73	6,509.32	-218.15	917.88	771.00	146.87	6.249	
15,600.00	8,765.00	15,933.46	8,975.00	73.16	76.04	-103.80	6,542.52	-214.02	905.81	758.04	147.78	6.130	
15,650.00	8,765.00	15,970.83	8,975.00	73.61	76.35	-103.87	6,579.66	-209.87	895.20	746.56	148.64	6.023	
15,700.00	8,765.00	16,008.55	8,975.00	74.06	76.66	-103.94	6,617.19	-206.18	886.06	736.56	149.50	5.927	
15,750.00	8,765.00	16,046.55	8,975.00	74.51	76.98	-104.00	6,655.06	-202.96	878.38	728.03	150.35	5.842	
15,800.00	8,765.00	16,084.80	8,975.00	74.96	77.30	-104.04	6,693.21	-200.22	872.18	721.00	151.18	5.769	
15,850.00	8,765.00	16,123.24	8,975.00	75.40	77.63	-104.08	6,731.59	-197.99	867.48	715.47	152.01	5.707	
15,900.00	8,765.00	16,161.82	8,975.00	75.85	77.97	-104.11	6,770.13	-196.26	864.27	711.45	152.82	5.656	
15,950.00	8,765.00	16,200.00	8,975.00	76.29	78.30	-104.13	6,808.29	-195.07	862.26	708.65	153.60	5.614	
16,000.00	8,765.00	16,239.17	8,975.00	76.73	78.64	-104.15	6,847.46	-194.37	860.91	706.53	154.38	5.576	
16,050.00	8,765.00	16,286.76	8,975.00	77.18	79.06	-104.16	6,895.04	-193.97	860.02	704.78	155.24	5.540	
16,100.00	8,765.00	16,336.75	8,975.00	77.62	79.50	-104.18	6,945.03	-193.56	859.14	703.02	156.11	5.503	
16,150.00	8,765.00	16,386.74	8,975.00	78.07	79.94	-104.19	6,995.02	-193.16	858.26	701.27	156.99	5.467	
16,200.00	8,765.00	16,436.74	8,975.00	78.51	80.39	-104.21	7,045.01	-192.75	857.38	699.51	157.87	5.431	
16,250.00	8,765.00	16,486.73	8,975.00	78.96	80.83	-104.22	7,095.00	-192.35	856.50	697.75	158.74	5.395	
16,300.00	8,765.00	16,536.72	8,975.00	79.40	81.27	-104.24	7,144.99	-191.94	855.62	696.00	159.62	5.360	
16,350.00	8,765.00	16,586.71	8,975.00	79.85	81.72	-104.25	7,194.98	-191.53	854.74	694.24	160.50	5.325	
16,400.00	8,765.00	16,636.70	8,975.00	80.30	82.16	-104.27	7,244.97	-191.13	853.86	692.48	161.39	5.291	
16,450.00	8,765.00	16,686.69	8,975.00	80.74	82.61	-104.28	7,294.96	-190.72	852.98	690.72	162.27	5.257	
16,500.00	8,765.00	16,736.69	8,975.00	81.19	83.05	-104.30	7,344.95	-190.32	852.10	688.95	163.15	5.223	
16,550.00	8,765.00	16,786.68	8,975.00	81.64	83.50	-104.31	7,394.94	-189.91	851.22	687.19	164.03	5.189	
16,600.00	8,765.00	16,836.67	8,975.00	82.09	83.94	-104.33	7,444.93	-189.50	850.35	685.43	164.92	5.156	
16,650.00	8,765.00	16,886.66	8,975.00	82.54	84.39	-104.34	7,494.92	-189.10	849.47	683.66	165.80	5.123	
16,700.00	8,765.00	16,936.65	8,975.00	82.99	84.84	-104.36	7,544.91	-188.69	848.59	681.90	166.69	5.091	
16,750.00	8,765.00	16,986.65	8,975.00	83.44	85.28	-104.37	7,594.90	-188.28	847.71	680.14	167.57	5.059	
16,800.00	8,765.00	17,036.64	8,975.00	83.89	85.73	-104.39	7,644.89	-187.88	846.83	678.37	168.46	5.027	
16,850.00	8,765.00	17,086.63	8,975.00	84.34	86.18	-104.40	7,694.88	-187.47	845.95	676.60	169.35	4.995	Alert
16,900.00	8,765.00	17,136.62	8,975.00	84.79	86.63	-104.42	7,744.87	-187.07	845.08	674.84	170.24	4.964	Alert
16,950.00	8,765.00	17,186.61	8,975.00	85.24	87.08	-104.43	7,794.86	-186.66	844.20	673.07	171.13	4.933	Alert
17,000.00	8,765.00	17,236.60	8,975.00	85.69	87.53	-104.45	7,844.85	-186.25	843.32	671.30	172.02	4.903	Alert
17,050.00	8,765.00	17,286.60	8,975.00	86.15	87.98	-104.47	7,894.84	-185.85	842.44	669.53	172.91	4.872	Alert
17,100.00	8,765.00	17,336.59	8,975.00	86.60	88.43	-104.48	7,944.83	-185.44	841.56	667.76	173.80	4.842	Alert
17,150.00	8,765.00	17,386.58	8,975.00	87.05	88.87	-104.50	7,994.82	-185.04	840.68	665.99	174.69	4.812	Alert
17,200.00	8,765.00	17,436.57	8,975.00	87.50	89.33	-104.51	8,044.81	-184.63	839.81	664.22	175.58	4.783	Alert
17,250.00	8,765.00	17,486.56	8,975.00	87.96	89.78	-104.53	8,094.80	-184.22	838.93	662.45	176.48	4.754	Alert
17,300.00	8,765.00	17,536.55	8,975.00	88.41	90.23	-104.54	8,144.79	-183.82	838.05	660.68	177.37	4.725	Alert
17,350.00	8,765.00	17,586.55	8,975.00	88.87	90.68	-104.56	8,194.78	-183.41	837.17	658.91	178.26	4.696	Alert
17,400.00	8,765.00	17,636.54	8,975.00	89.32	91.13	-104.57	8,244.77	-183.01	836.29	657.14	179.16	4.668	Alert
17,450.00	8,765.00	17,686.53	8,975.00	89.78	91.58	-104.59	8,294.76	-182.60	835.42	655.36	180.05	4.640	Alert
17,500.00	8,765.00	17,736.52	8,975.00	90.23	92.03	-104.61	8,344.75	-182.19	834.54	653.59	180.95	4.612	Alert
17,550.00	8,765.00	17,786.51	8,975.00	90.69	92.49	-104.62	8,394.74	-181.79	833.66	651.82	181.84	4.584	Alert
17,600.00	8,765.00	17,836.51	8,975.00	91.14	92.94	-104.64	8,444.73	-181.38	832.78	650.04	182.74	4.557	Alert
17,650.00	8,765.00	17,886.50	8,975.00	91.60	93.39	-104.65	8,494.73	-180.98	831.91	648.27	183.64	4.530	Alert
17,700.00	8,765.00	17,936.49	8,975.00	92.06	93.85	-104.67	8,544.72	-180.57	831.03	646.49	184.54	4.503	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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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
17,750.00	8,765.00	17,986.48	8,975.00	92.51	94.30	-104.68	8,594.71	-180.16	830.15	644.72	185.43	4.477	Alert
17,800.00	8,765.00	18,036.47	8,975.00	92.97	94.75	-104.70	8,644.70	-179.76	829.27	642.94	186.33	4.450	Alert
17,850.00	8,765.00	18,086.46	8,975.00	93.43	95.21	-104.72	8,694.69	-179.35	828.40	641.16	187.23	4.424	Alert
17,900.00	8,765.00	18,136.46	8,975.00	93.89	95.66	-104.73	8,744.68	-178.94	827.52	639.39	188.13	4.399	Alert
17,950.00	8,765.00	18,186.45	8,975.00	94.34	96.12	-104.75	8,794.67	-178.54	826.64	637.61	189.03	4.373	Alert
18,000.00	8,765.00	18,236.44	8,975.00	94.80	96.57	-104.76	8,844.66	-178.13	825.77	635.83	189.93	4.348	Alert
18,050.00	8,765.00	18,286.43	8,975.00	95.26	97.03	-104.78	8,894.65	-177.73	824.89	634.05	190.83	4.323	Alert
18,100.00	8,765.00	18,336.42	8,975.00	95.72	97.48	-104.80	8,944.64	-177.32	824.01	632.28	191.74	4.298	Alert
18,150.00	8,765.00	18,386.42	8,975.00	96.18	97.94	-104.81	8,994.63	-176.91	823.14	630.50	192.64	4.273	Alert
18,200.00	8,765.00	18,436.41	8,975.00	96.64	98.40	-104.83	9,044.62	-176.51	822.26	628.72	193.54	4.248	Alert
18,250.00	8,765.00	18,486.40	8,975.00	97.10	98.85	-104.84	9,094.61	-176.10	821.38	626.94	194.44	4.224	Alert
18,300.00	8,765.00	18,536.39	8,975.00	97.56	99.31	-104.86	9,144.60	-175.70	820.51	625.16	195.35	4.200	Alert
18,350.00	8,765.00	18,586.38	8,975.00	98.02	99.77	-104.88	9,194.59	-175.29	819.63	623.38	196.25	4.176	Alert
18,400.00	8,765.00	18,636.37	8,975.00	98.48	100.22	-104.89	9,244.58	-174.88	818.75	621.60	197.16	4.153	Alert
18,450.00	8,765.00	18,686.37	8,975.00	98.94	100.68	-104.91	9,294.57	-174.48	817.88	619.82	198.06	4.129	Alert
18,500.00	8,765.00	18,736.36	8,975.00	99.40	101.14	-104.93	9,344.56	-174.07	817.00	618.03	198.97	4.106	Alert
18,550.00	8,765.00	18,786.35	8,975.00	99.86	101.60	-104.94	9,394.55	-173.67	816.12	616.25	199.87	4.083	Alert
18,600.00	8,765.00	18,836.34	8,975.00	100.32	102.05	-104.96	9,444.54	-173.26	815.25	614.47	200.78	4.060	Alert
18,650.00	8,765.00	18,886.33	8,975.00	100.78	102.51	-104.98	9,494.53	-172.85	814.37	612.69	201.68	4.038	Alert
18,700.00	8,765.00	18,936.32	8,975.00	101.25	102.97	-104.99	9,544.52	-172.45	813.50	610.91	202.59	4.015	Alert
18,750.00	8,765.00	18,986.32	8,975.00	101.71	103.43	-105.01	9,594.51	-172.04	812.62	609.12	203.50	3.993	Alert
18,800.00	8,765.00	19,036.31	8,975.00	102.17	103.89	-105.02	9,644.50	-171.63	811.74	607.34	204.40	3.971	Alert
18,850.00	8,765.00	19,086.30	8,975.00	102.63	104.35	-105.04	9,694.49	-171.23	810.87	605.56	205.31	3.949	Alert
18,900.00	8,765.00	19,136.29	8,975.00	103.09	104.81	-105.06	9,744.48	-170.82	809.99	603.77	206.22	3.928	Alert
18,950.00	8,765.00	19,186.28	8,975.00	103.56	105.26	-105.07	9,794.47	-170.42	809.12	601.99	207.13	3.906	Alert
19,000.00	8,765.00	19,236.28	8,975.00	104.02	105.72	-105.09	9,844.46	-170.01	808.24	600.20	208.04	3.885	Alert
19,050.00	8,765.00	19,286.27	8,975.00	104.48	106.18	-105.11	9,894.45	-169.60	807.36	598.42	208.94	3.864	Alert
19,100.00	8,765.00	19,336.26	8,975.00	104.95	106.64	-105.12	9,944.44	-169.20	806.49	596.64	209.85	3.843	Alert
19,150.00	8,765.00	19,386.25	8,975.00	105.41	107.10	-105.14	9,994.43	-168.79	805.61	594.85	210.76	3.822	Alert
19,200.00	8,765.00	19,436.24	8,975.00	105.87	107.56	-105.16	10,044.42	-168.39	804.74	593.06	211.67	3.802	Alert
19,250.00	8,765.00	19,486.23	8,975.00	106.34	108.03	-105.18	10,094.41	-167.98	803.86	591.28	212.58	3.781	Alert
19,300.00	8,765.00	19,536.23	8,975.00	106.80	108.49	-105.19	10,144.40	-167.57	802.99	589.49	213.49	3.761	Alert
19,350.00	8,765.00	19,586.22	8,975.00	107.27	108.95	-105.21	10,194.39	-167.17	802.11	587.71	214.40	3.741	Alert
19,400.00	8,765.00	19,636.21	8,975.00	107.73	109.41	-105.23	10,244.38	-166.76	801.24	585.92	215.32	3.721	Alert
19,450.00	8,765.00	19,686.20	8,975.00	108.20	109.87	-105.24	10,294.37	-166.36	800.36	584.13	216.23	3.701	Alert
19,500.00	8,765.00	19,736.19	8,975.00	108.66	110.33	-105.26	10,344.36	-165.95	799.49	582.35	217.14	3.682	Alert
19,550.00	8,765.00	19,786.18	8,975.00	109.13	110.79	-105.28	10,394.35	-165.54	798.61	580.56	218.05	3.663	Alert
19,600.00	8,765.00	19,836.18	8,975.00	109.59	111.25	-105.29	10,444.34	-165.14	797.74	578.77	218.96	3.643	Alert
19,650.00	8,765.00	19,886.17	8,975.00	110.06	111.72	-105.31	10,494.33	-164.73	796.86	576.99	219.88	3.624	Alert
19,700.00	8,765.00	19,936.16	8,975.00	110.52	112.18	-105.33	10,544.32	-164.32	795.99	575.20	220.79	3.605	Alert
19,750.00	8,765.00	19,986.15	8,975.00	110.99	112.64	-105.35	10,594.31	-163.92	795.11	573.41	221.70	3.586	Alert
19,800.00	8,765.00	20,036.14	8,975.00	111.46	113.10	-105.36	10,644.30	-163.51	794.24	571.62	222.61	3.568	Alert
19,850.00	8,765.00	20,086.14	8,975.00	111.92	113.57	-105.38	10,694.29	-163.11	793.36	569.84	223.53	3.549	Alert
19,900.00	8,765.00	20,136.13	8,975.00	112.39	114.03	-105.40	10,744.28	-162.70	792.49	568.05	224.44	3.531	Alert
19,950.00	8,765.00	20,186.12	8,975.00	112.86	114.49	-105.42	10,794.27	-162.29	791.62	566.26	225.36	3.513	Alert
20,000.00	8,765.00	20,236.11	8,975.00	113.32	114.96	-105.43	10,844.26	-161.89	790.74	564.47	226.27	3.495	Alert
20,050.00	8,765.00	20,286.10	8,975.00	113.79	115.42	-105.45	10,894.25	-161.48	789.87	562.68	227.18	3.477	Alert
20,100.00	8,765.00	20,336.09	8,975.00	114.26	115.88	-105.47	10,944.24	-161.08	788.99	560.89	228.10	3.459	Alert
20,150.00	8,765.00	20,386.09	8,975.00	114.72	116.35	-105.49	10,994.23	-160.67	788.12	559.10	229.01	3.441	Alert
20,200.00	8,765.00	20,436.08	8,975.00	115.19	116.81	-105.50	11,044.22	-160.26	787.25	557.32	229.93	3.424	Alert
20,250.00	8,765.00	20,486.07	8,975.00	115.66	117.27	-105.52	11,094.21	-159.86	786.37	555.53	230.84	3.406	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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — Offset Site Error: 0.00 ft

Survey Program: 0-MWD+IFR1 — 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
20,300.00	8,765.00	20,536.06	8,975.00	116.13	117.74	-105.54	11,144.20	-159.45	785.50	553.74	231.76	3.389	Alert
20,350.00	8,765.00	20,586.05	8,975.00	116.59	118.20	-105.56	11,194.19	-159.05	784.62	551.95	232.68	3.372	Alert
20,400.00	8,765.00	20,636.04	8,975.00	117.06	118.67	-105.57	11,244.18	-158.64	783.75	550.16	233.59	3.355	Alert
20,450.00	8,765.00	20,686.04	8,975.00	117.53	119.13	-105.59	11,294.17	-158.23	782.88	548.37	234.51	3.338	Alert
20,500.00	8,765.00	20,736.03	8,975.00	118.00	119.60	-105.61	11,344.16	-157.83	782.00	546.58	235.42	3.322	Alert
20,550.00	8,765.00	20,786.02	8,975.00	118.47	120.06	-105.63	11,394.15	-157.42	781.13	544.79	236.34	3.305	Alert
20,600.00	8,765.00	20,836.01	8,975.00	118.93	120.52	-105.65	11,444.14	-157.02	780.26	543.00	237.26	3.289	Alert
20,650.00	8,765.00	20,886.00	8,975.00	119.40	120.99	-105.66	11,494.13	-156.61	779.38	541.21	238.18	3.272	Alert
20,700.00	8,765.00	20,936.00	8,975.00	119.87	121.45	-105.68	11,544.12	-156.20	778.51	539.42	239.09	3.256	Alert
20,750.00	8,765.00	20,985.99	8,975.00	120.34	121.92	-105.70	11,594.11	-155.80	777.64	537.63	240.01	3.240	Alert
20,800.00	8,765.00	21,035.98	8,975.00	120.81	122.39	-105.72	11,644.10	-155.39	776.76	535.84	240.93	3.224	Alert
20,850.00	8,765.00	21,085.97	8,975.00	121.28	122.85	-105.74	11,694.09	-154.98	775.89	534.05	241.84	3.208	Alert
20,900.00	8,765.00	21,135.96	8,975.00	121.75	123.32	-105.75	11,744.08	-154.58	775.02	532.25	242.76	3.192	Alert
20,950.00	8,765.00	21,185.95	8,975.00	122.22	123.78	-105.77	11,794.07	-154.17	774.14	530.46	243.68	3.177	Alert
21,000.00	8,765.00	21,235.95	8,975.00	122.69	124.25	-105.79	11,844.06	-153.77	773.27	528.67	244.60	3.161	Alert
21,050.00	8,765.00	21,285.94	8,975.00	123.16	124.71	-105.81	11,894.05	-153.36	772.40	526.88	245.52	3.146	Alert
21,100.00	8,765.00	21,335.93	8,975.00	123.63	125.18	-105.83	11,944.04	-152.95	771.53	525.09	246.44	3.131	Alert
21,150.00	8,765.00	21,385.92	8,975.00	124.10	125.65	-105.85	11,994.03	-152.55	770.65	523.30	247.35	3.116	Alert
21,200.00	8,765.00	21,435.91	8,975.00	124.57	126.11	-105.86	12,044.02	-152.14	769.78	521.51	248.27	3.101	Alert
21,250.00	8,765.00	21,485.91	8,975.00	125.04	126.58	-105.88	12,094.01	-151.74	768.91	519.72	249.19	3.086	Alert
21,300.00	8,765.00	21,535.90	8,975.00	125.51	127.05	-105.90	12,144.00	-151.33	768.04	517.93	250.11	3.071	Alert
21,350.00	8,765.00	21,585.89	8,975.00	125.98	127.51	-105.92	12,193.99	-150.92	767.17	516.13	251.03	3.056	Alert
21,400.00	8,765.00	21,635.88	8,975.00	126.45	127.98	-105.94	12,243.98	-150.52	766.29	514.34	251.95	3.041	Alert
21,450.00	8,765.00	21,685.87	8,975.00	126.92	128.45	-105.96	12,293.97	-150.11	765.42	512.55	252.87	3.027	Alert
21,500.00	8,765.00	21,735.86	8,975.00	127.39	128.91	-105.98	12,343.96	-149.71	764.55	510.76	253.79	3.013	Alert
21,550.00	8,765.00	21,785.86	8,975.00	127.86	129.38	-105.99	12,393.95	-149.30	763.68	508.97	254.71	2.998	Alert
21,600.00	8,765.00	21,835.85	8,975.00	128.33	129.85	-106.01	12,443.95	-148.89	762.81	507.18	255.63	2.984	Alert
21,650.00	8,765.00	21,885.84	8,975.00	128.80	130.32	-106.03	12,493.94	-148.49	761.93	505.38	256.55	2.970	Alert
21,700.00	8,765.00	21,935.83	8,975.00	129.27	130.78	-106.05	12,543.93	-148.08	761.06	503.59	257.47	2.956	Alert
21,750.00	8,765.00	21,985.82	8,975.00	129.74	131.25	-106.07	12,593.92	-147.67	760.19	501.80	258.39	2.942	Alert
21,800.00	8,765.00	22,035.81	8,975.00	130.22	131.72	-106.09	12,643.91	-147.27	759.32	500.01	259.31	2.928	Alert
21,850.00	8,765.00	22,085.81	8,975.00	130.69	132.19	-106.11	12,693.90	-146.86	758.45	498.22	260.23	2.915	Alert
21,900.00	8,765.00	22,135.80	8,975.00	131.16	132.65	-106.13	12,743.89	-146.46	757.58	496.42	261.15	2.901	Alert
21,950.00	8,765.00	22,185.79	8,975.00	131.63	133.12	-106.15	12,793.88	-146.05	756.71	494.63	262.07	2.887	Alert
22,000.00	8,765.00	22,235.78	8,975.00	132.10	133.59	-106.17	12,843.87	-145.64	755.83	492.84	262.99	2.874	Alert
22,050.00	8,765.00	22,285.77	8,975.00	132.57	134.06	-106.18	12,893.86	-145.24	754.96	491.05	263.92	2.861	Alert
22,100.00	8,765.00	22,335.77	8,975.00	133.05	134.53	-106.20	12,943.85	-144.83	754.09	489.26	264.84	2.847	Alert
22,150.00	8,765.00	22,385.76	8,975.00	133.52	134.99	-106.22	12,993.84	-144.43	753.22	487.46	265.76	2.834	Alert
22,200.00	8,765.00	22,435.75	8,975.00	133.99	135.46	-106.24	13,043.83	-144.02	752.35	485.67	266.68	2.821	Alert
22,250.00	8,765.00	22,485.74	8,975.00	134.46	135.93	-106.26	13,093.82	-143.61	751.48	483.88	267.60	2.808	Alert
22,300.00	8,765.00	22,535.73	8,975.00	134.94	136.40	-106.28	13,143.81	-143.21	750.61	482.09	268.52	2.795	Alert
22,350.00	8,765.00	22,585.72	8,975.00	135.41	136.87	-106.30	13,193.80	-142.80	749.74	480.30	269.44	2.783	Alert
22,400.00	8,765.00	22,635.72	8,975.00	135.88	137.34	-106.32	13,243.79	-142.40	748.87	478.50	270.37	2.770	Alert
22,450.00	8,765.00	22,685.71	8,975.00	136.35	137.81	-106.34	13,293.78	-141.99	748.00	476.71	271.29	2.757	Alert
22,500.00	8,765.00	22,735.70	8,975.00	136.83	138.28	-106.36	13,343.77	-141.58	747.13	474.92	272.21	2.745	Alert
22,550.00	8,765.00	22,785.69	8,975.00	137.30	138.75	-106.38	13,393.76	-141.18	746.26	473.13	273.13	2.732	Alert
22,600.00	8,765.00	22,835.68	8,975.00	137.77	139.21	-106.40	13,443.75	-140.77	745.39	471.33	274.05	2.720	Alert
22,650.00	8,765.00	22,885.67	8,975.00	138.24	139.68	-106.42	13,493.74	-140.36	744.52	469.54	274.98	2.708	Alert
22,700.00	8,765.00	22,935.67	8,975.00	138.72	140.15	-106.44	13,543.73	-139.96	743.65	467.75	275.90	2.695	Alert
22,750.00	8,765.00	22,985.66	8,975.00	139.19	140.62	-106.46	13,593.72	-139.55	742.78	465.96	276.82	2.683	Alert
22,800.00	8,765.00	23,035.65	8,975.00	139.66	141.09	-106.48	13,643.71	-139.15	741.91	464.17	277.74	2.671	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 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD+IFR1 — **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
22,850.00	8,765.00	23,085.64	8,975.00	140.14	141.56	-106.50	13,693.70	-138.74	741.04	462.37	278.67	2.659	Alert
22,900.00	8,765.00	23,135.63	8,975.00	140.61	142.03	-106.52	13,743.69	-138.33	740.17	460.58	279.59	2.647	Alert
22,950.00	8,765.00	23,185.63	8,975.00	141.08	142.50	-106.54	13,793.68	-137.93	739.30	458.79	280.51	2.636	Alert
23,000.00	8,765.00	23,235.62	8,975.00	141.56	142.97	-106.56	13,843.67	-137.52	738.43	457.00	281.43	2.624	Alert
23,050.00	8,765.00	23,285.61	8,975.00	142.03	143.44	-106.58	13,893.66	-137.12	737.56	455.20	282.36	2.612	Alert
23,100.00	8,765.00	23,335.60	8,975.00	142.51	143.91	-106.60	13,943.65	-136.71	736.69	453.41	283.28	2.601	Alert
23,150.00	8,765.00	23,385.59	8,975.00	142.98	144.38	-106.62	13,993.64	-136.30	735.82	451.62	284.20	2.589	Alert
23,200.00	8,765.00	23,435.58	8,975.00	143.45	144.85	-106.64	14,043.63	-135.90	734.95	449.83	285.12	2.578	Alert
23,250.00	8,765.00	23,485.58	8,975.00	143.93	145.32	-106.66	14,093.62	-135.49	734.09	448.04	286.05	2.566	Alert
23,300.00	8,765.00	23,535.57	8,975.00	144.40	145.79	-106.68	14,143.61	-135.09	733.22	446.25	286.97	2.555	Alert
23,350.00	8,765.00	23,585.56	8,975.00	144.88	146.26	-106.70	14,193.60	-134.68	732.35	444.45	287.89	2.544	Alert
23,400.00	8,765.00	23,635.55	8,975.00	145.35	146.73	-106.72	14,243.59	-134.27	731.48	442.66	288.82	2.533	Alert
23,450.00	8,765.00	23,685.54	8,975.00	145.82	147.20	-106.74	14,293.58	-133.87	730.61	440.87	289.74	2.522	Alert
23,500.00	8,765.00	23,735.54	8,975.00	146.30	147.67	-106.76	14,343.57	-133.46	729.74	439.08	290.66	2.511	Alert
23,550.00	8,765.00	23,785.53	8,975.00	146.77	148.14	-106.78	14,393.56	-133.06	728.87	437.29	291.59	2.500	Minor Risk
23,600.00	8,765.00	23,835.52	8,975.00	147.25	148.62	-106.80	14,443.55	-132.65	728.01	435.49	292.51	2.489	Minor Risk
23,650.00	8,765.00	23,885.51	8,975.00	147.72	149.09	-106.82	14,493.54	-132.24	727.14	433.70	293.43	2.478	Minor Risk
23,700.00	8,765.00	23,935.50	8,975.00	148.20	149.56	-106.84	14,543.53	-131.84	726.27	431.91	294.36	2.467	Minor Risk
23,750.00	8,765.00	23,985.49	8,975.00	148.67	150.03	-106.86	14,593.52	-131.43	725.40	430.12	295.28	2.457	Minor Risk
23,800.00	8,765.00	24,035.49	8,975.00	149.15	150.50	-106.88	14,643.51	-131.02	724.53	428.33	296.20	2.446	Minor Risk
23,850.00	8,765.00	24,085.48	8,975.00	149.62	150.97	-106.91	14,693.50	-130.62	723.67	426.54	297.13	2.436	Minor Risk
23,900.00	8,765.00	24,135.47	8,975.00	150.10	151.44	-106.93	14,743.49	-130.21	722.80	424.75	298.05	2.425	Minor Risk
23,950.00	8,765.00	24,185.46	8,975.00	150.57	151.91	-106.95	14,793.48	-129.81	721.93	422.96	298.97	2.415	Minor Risk
24,000.00	8,765.00	24,235.45	8,975.00	151.05	152.38	-106.97	14,843.47	-129.40	721.06	421.16	299.90	2.404	Minor Risk
24,050.00	8,765.00	24,285.44	8,975.00	151.52	152.86	-106.99	14,893.46	-128.99	720.20	419.37	300.82	2.394	Minor Risk
24,100.00	8,765.00	24,335.44	8,975.00	152.00	153.33	-107.01	14,943.45	-128.59	719.33	417.58	301.75	2.384	Minor Risk
24,150.00	8,765.00	24,385.43	8,975.00	152.47	153.80	-107.03	14,993.44	-128.18	718.46	415.79	302.67	2.374	Minor Risk
24,200.00	8,765.00	24,435.42	8,975.00	152.95	154.27	-107.05	15,043.43	-127.78	717.59	414.00	303.59	2.364	Minor Risk
24,250.00	8,765.00	24,485.41	8,975.00	153.42	154.74	-107.07	15,093.42	-127.37	716.73	412.21	304.52	2.354	Minor Risk
24,300.00	8,765.00	24,535.40	8,975.00	153.90	155.21	-107.09	15,143.41	-126.96	715.86	410.42	305.44	2.344	Minor Risk
24,350.00	8,765.00	24,585.40	8,975.00	154.37	155.69	-107.12	15,193.40	-126.56	714.99	408.63	306.36	2.334	Minor Risk
24,400.00	8,765.00	24,635.39	8,975.00	154.85	156.16	-107.14	15,243.39	-126.15	714.13	406.84	307.29	2.324	Minor Risk
24,450.00	8,765.00	24,685.38	8,975.00	155.33	156.63	-107.16	15,293.38	-125.75	713.26	405.05	308.21	2.314	Minor Risk
24,500.00	8,765.00	24,735.37	8,975.00	155.80	157.10	-107.18	15,343.37	-125.34	712.39	403.26	309.14	2.304	Minor Risk
24,550.00	8,765.00	24,785.36	8,975.00	156.28	157.57	-107.20	15,393.36	-124.93	711.53	401.47	310.06	2.295	Minor Risk
24,600.00	8,765.00	24,835.35	8,975.00	156.75	158.04	-107.22	15,443.35	-124.53	710.66	399.68	310.98	2.285	Minor Risk
24,650.00	8,765.00	24,885.35	8,975.00	157.23	158.52	-107.25	15,493.34	-124.12	709.79	397.89	311.91	2.276	Minor Risk
24,700.00	8,765.00	24,935.34	8,975.00	157.70	158.99	-107.27	15,543.33	-123.71	708.93	396.10	312.83	2.266	Minor Risk
24,750.00	8,765.00	24,985.33	8,975.00	158.18	159.46	-107.29	15,593.32	-123.31	708.06	394.31	313.76	2.257	Minor Risk
24,800.00	8,765.00	25,035.32	8,975.00	158.66	159.93	-107.31	15,643.31	-122.90	707.20	392.52	314.68	2.247	Minor Risk
24,850.00	8,765.00	25,085.31	8,975.00	159.13	160.41	-107.33	15,693.30	-122.50	706.33	390.73	315.60	2.238	Minor Risk
24,900.00	8,765.00	25,135.30	8,975.00	159.61	160.88	-107.35	15,743.29	-122.09	705.46	388.94	316.53	2.229	Minor Risk
24,950.00	8,765.00	25,185.30	8,975.00	160.09	161.35	-107.38	15,793.28	-121.68	704.60	387.15	317.45	2.220	Minor Risk
25,000.00	8,765.00	25,235.29	8,975.00	160.56	161.82	-107.40	15,843.27	-121.28	703.73	385.36	318.37	2.210	Minor Risk
25,050.00	8,765.00	25,285.28	8,975.00	161.04	162.30	-107.42	15,893.26	-120.87	702.87	383.57	319.30	2.201	Minor Risk
25,100.00	8,765.00	25,335.27	8,975.00	161.51	162.77	-107.44	15,943.25	-120.47	702.00	381.78	320.22	2.192	Minor Risk
25,150.00	8,765.00	25,385.26	8,975.00	161.99	163.24	-107.47	15,993.24	-120.06	701.14	379.99	321.15	2.183	Minor Risk
25,200.00	8,765.00	25,435.26	8,975.00	162.47	163.71	-107.49	16,043.23	-119.65	700.27	378.20	322.07	2.174	Minor Risk
25,250.00	8,765.00	25,485.25	8,975.00	162.94	164.19	-107.51	16,093.22	-119.25	699.41	376.41	322.99	2.165	Minor Risk
25,300.00	8,765.00	25,535.24	8,975.00	163.42	164.66	-107.53	16,143.21	-118.84	698.54	374.63	323.92	2.157	Minor Risk
25,350.00	8,765.00	25,585.23	8,975.00	163.90	165.13	-107.55	16,193.20	-118.44	697.68	372.84	324.84	2.148	Minor Risk

Anticollision Report

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Offset Design Sec 34-T25S-R31E - Lusitano 34-15 Fed Com 533H - Wellbore #1 - Permit Plan 2

Offset Site Error: 0.00 ft

Survey Program: 0-MWD+IFR1

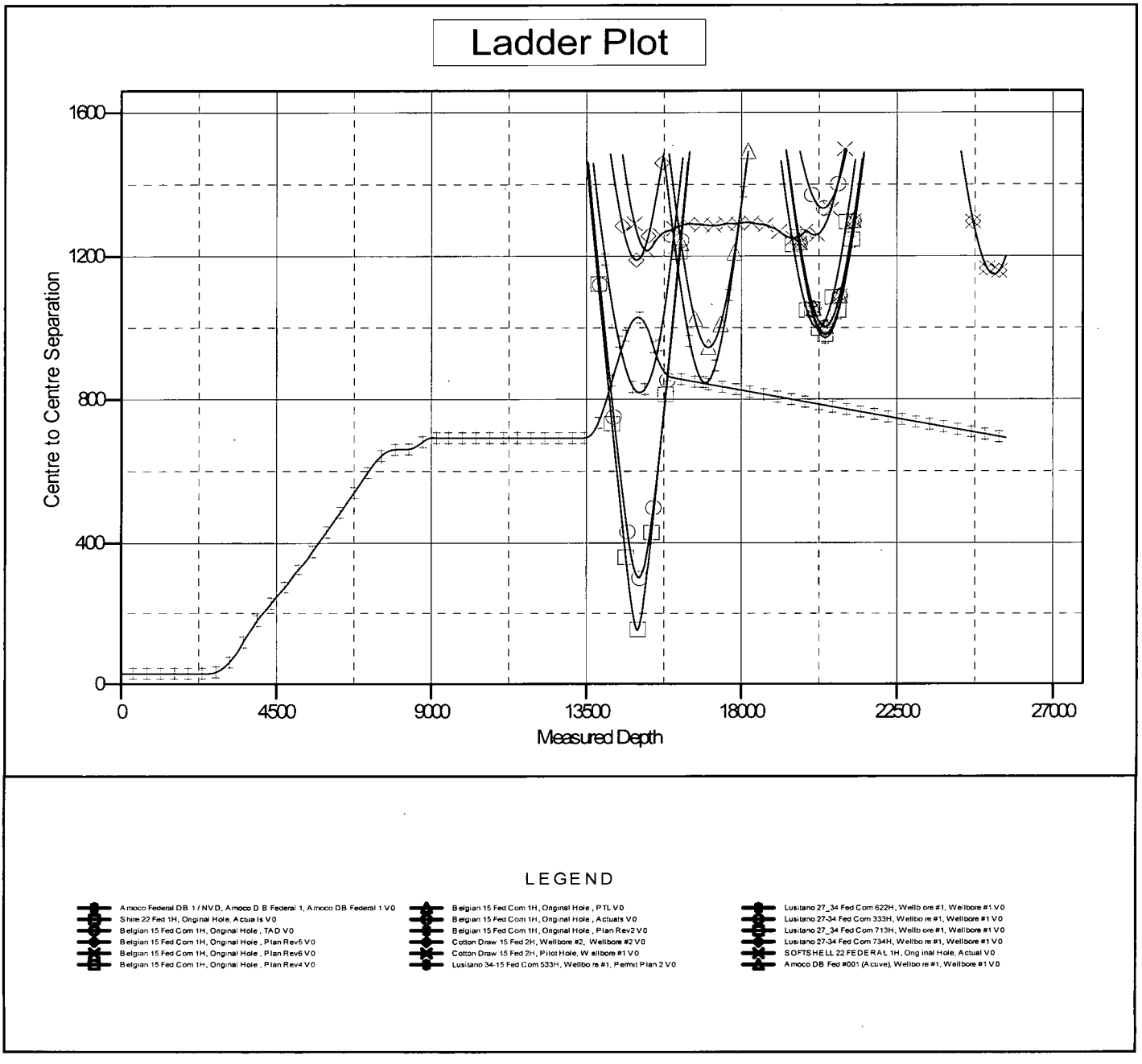
Offset Well Error: 0.50 ft

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
25,400.00	8,765.00	25,635.22	8,975.00	164.37	165.61	-107.58	16,243.19	-118.03	696.81	371.05	325.76	2.139	Minor Risk
25,450.00	8,765.00	25,685.21	8,975.00	164.85	166.08	-107.60	16,293.18	-117.62	695.95	369.26	326.69	2.130	Minor Risk
25,500.00	8,765.00	25,735.21	8,975.00	165.33	166.55	-107.62	16,343.17	-117.22	695.08	367.47	327.61	2.122	Minor Risk
25,550.00	8,765.00	25,785.20	8,975.00	165.80	167.03	-107.65	16,393.17	-116.81	694.22	365.68	328.54	2.113	Minor Risk
25,600.00	8,765.00	25,835.19	8,975.00	166.28	167.50	-107.67	16,443.16	-116.41	693.36	363.90	329.46	2.105	Minor Risk
25,647.39	8,765.00	25,873.94	8,975.00	166.73	167.86	-107.69	16,481.90	-116.09	692.59	362.36	330.23	2.097	Minor Risk

Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB @ 3357.70ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Lusitano 34-15 Fed Com 523H
Coordinate System is US State Plane 1983. New Mexico Eastern Zone
Grid Convergence at Surface is: 0.30°

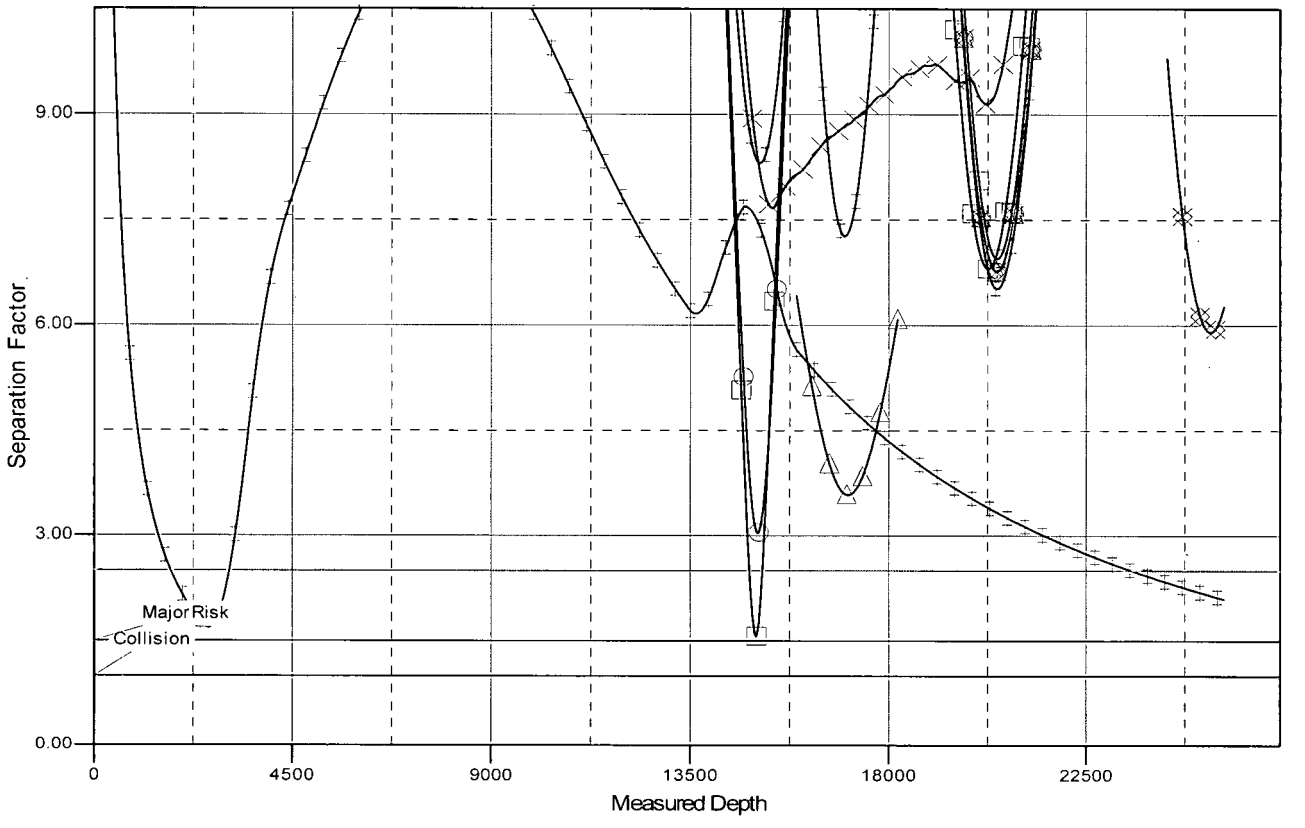


Company:	WCDSC Permian NM	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Project:	Eddy County (NAD 83 NM Eastern)	**TVD Reference:**	RKB @ 3357.70ft
Reference Site:	Sec 34-T25S-R31E	**MD Reference:**	RKB @ 3357.70ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Lusitano 34-15 Fed Com 523H	**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 2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB @ 3357.70ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Lusitano 34-15 Fed Com 523H
Coordinate System is US State Plane 1983. New Mexico Eastern Zone
Grid Convergence at Surface is: 0.30°

Separation Factor Plot



LEGEND

- Amoco Federal DB 1 / NVO, Amoco D B Federal 1, Amoco DB Federal 1 V0
- Shire 22 Fed 1H, Original Hole, Actuals V0
- Belgian 15 Fed Com 1H, Original Hole , TAD V0
- Belgian 15 Fed Com 1H, Original Hole , Plan Rev5 V0
- Belgian 15 Fed Com 1H, Original Hole , Plan Rev6 V0
- Belgian 15 Fed Com 1H, Original Hole , Plan Rev4 V0
- Belgian 15 Fed Com 1H, Original Hole , PTL V0
- Belgian 15 Fed Com 1H, Original Hole , Actuals V0
- Belgian 15 Fed Com 1H, Original Hole , Plan Rev2 V0
- Cotton Draw 15 Fed 2H, Wellbore #2, Wellbore #2 V0
- Cotton Draw 15 Fed 2H, Pilot Hole, W ellbore #1 V0
- Lusitano 34-15 Fed Com 533H, Wellbo re #1, Permit Plan 2 V0
- Lusitano 27_34 Fed Com 622H, Wellb ore #1, Wellbore #1 V0
- Lusitano 27-34 Fed Com 333H, Wellbo re #1, Wellbore #1 V0
- Lusitano 27_34 Fed Com 713H, Wellb ore #1, Wellbore #1 V0
- Lusitano 27-34 Fed Com 734H, Wellbo re #1, Wellbore #1 V0
- SOFTSHELL 22 FEDERAL 1H, Ong inal Hole, Actual V0
- Amoco DB Fed #001 (Active), Wellbo re #1, Wellbore #1 V0

WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)
Sec 34-T25S-R31E
Lusitano 34-15 Fed Com 523H

Wellbore #1

Plan: Permit Plan 2

Standard Planning Report - Geographic

10 June, 2019

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

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 34-T25S-R31E

Site Position:		**Northing:**	398,377.70 usft	**Latitude:**	32.093988
From:	Map	**Easting:**	714,362.31 usft	**Longitude:**	-103.774601
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.30 °

Well Lusitano 34-15 Fed Com 523H

Well Position	**+N/-S**	0.00 ft	**Northing:**	397,780.99 usft	**Latitude:**	32.092322
	+E/-W	0.00 ft	**Easting:**	716,114.94 usft	**Longitude:**	-103.768951
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,332.70 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/5/2019	6.82	59.88	47,637.98804255

Design Permit Plan 2

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	1.89

Plan Survey Tool Program **Date** 6/10/2019

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	25,647.39	Permit Plan 2 (Wellbore #1)	MWD+IFR1 OWSG MWD + IFR1	

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

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	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,495.98	9.96	135.00	3,490.98	-61.06	61.06	1.00	1.00	0.00	135.00	
7,242.83	9.96	135.00	7,181.35	-519.29	519.29	0.00	0.00	0.00	0.00	
7,906.82	0.00	0.00	7,842.00	-560.00	560.00	1.50	-1.50	0.00	180.00	
8,256.86	0.00	0.00	8,192.04	-560.00	560.00	0.00	0.00	0.00	0.00	
9,156.86	90.00	359.95	8,765.00	12.96	559.45	10.00	10.00	0.00	359.95	PBHL - Lusitano 34-1
13,427.90	90.00	359.95	8,765.00	4,284.00	555.39	0.00	0.00	0.00	0.00	
13,930.63	90.00	10.00	8,765.00	4,784.19	598.91	2.00	0.00	2.00	90.00	
14,430.63	90.00	10.00	8,765.00	5,276.60	685.73	0.00	0.00	0.00	0.00	
15,433.63	90.00	349.94	8,765.00	6,274.48	685.21	2.00	0.00	-2.00	-90.00	
15,907.94	90.00	359.43	8,765.00	6,746.21	641.31	2.00	0.00	2.00	90.00	PBHL - Lusitano 34-1
25,647.39	90.00	359.43	8,765.00	16,485.17	543.76	0.00	0.00	0.00	0.00	PBHL - Lusitano 34-1

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

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	397,780.99	716,114.94	32.092322	-103.768951
100.00	0.00	0.00	100.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
200.00	0.00	0.00	200.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
300.00	0.00	0.00	300.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
400.00	0.00	0.00	400.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
500.00	0.00	0.00	500.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
600.00	0.00	0.00	600.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
700.00	0.00	0.00	700.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
800.00	0.00	0.00	800.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
900.00	0.00	0.00	900.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,000.00	0.00	0.00	1,000.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,100.00	0.00	0.00	1,100.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,200.00	0.00	0.00	1,200.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,300.00	0.00	0.00	1,300.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,400.00	0.00	0.00	1,400.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,500.00	0.00	0.00	1,500.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,600.00	0.00	0.00	1,600.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,700.00	0.00	0.00	1,700.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,800.00	0.00	0.00	1,800.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
1,900.00	0.00	0.00	1,900.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,000.00	0.00	0.00	2,000.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,100.00	0.00	0.00	2,100.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,200.00	0.00	0.00	2,200.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,300.00	0.00	0.00	2,300.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,400.00	0.00	0.00	2,400.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,500.00	0.00	0.00	2,500.00	0.00	0.00	397,780.99	716,114.94	32.092322	-103.768951
2,600.00	1.00	135.00	2,599.99	-0.62	0.62	397,780.37	716,115.55	32.092321	-103.768949
2,700.00	2.00	135.00	2,699.96	-2.47	2.47	397,778.52	716,117.40	32.092315	-103.768944
2,800.00	3.00	135.00	2,799.86	-5.55	5.55	397,775.44	716,120.49	32.092307	-103.768934
2,900.00	4.00	135.00	2,899.68	-9.87	9.87	397,771.12	716,124.81	32.092295	-103.768920
3,000.00	5.00	135.00	2,999.37	-15.42	15.42	397,765.57	716,130.35	32.092280	-103.768902
3,100.00	6.00	135.00	3,098.90	-22.19	22.19	397,758.79	716,137.13	32.092261	-103.768880
3,200.00	7.00	135.00	3,198.26	-30.20	30.20	397,750.79	716,145.13	32.092239	-103.768854
3,300.00	8.00	135.00	3,297.40	-39.43	39.43	397,741.56	716,154.36	32.092213	-103.768825
3,400.00	9.00	135.00	3,396.30	-49.88	49.88	397,731.11	716,164.82	32.092184	-103.768791
3,495.98	9.96	135.00	3,490.98	-61.06	61.06	397,719.93	716,175.99	32.092154	-103.768755
3,500.00	9.96	135.00	3,494.93	-61.55	61.55	397,719.44	716,176.49	32.092152	-103.768754
3,600.00	9.96	135.00	3,593.42	-73.78	73.78	397,707.21	716,188.71	32.092118	-103.768714
3,700.00	9.96	135.00	3,691.92	-86.01	86.01	397,694.98	716,200.94	32.092085	-103.768675
3,800.00	9.96	135.00	3,790.41	-98.24	98.24	397,682.75	716,213.17	32.092051	-103.768636
3,900.00	9.96	135.00	3,888.90	-110.47	110.47	397,670.52	716,225.40	32.092017	-103.768597
4,000.00	9.96	135.00	3,987.40	-122.70	122.70	397,658.29	716,237.63	32.091983	-103.768557
4,100.00	9.96	135.00	4,085.89	-134.93	134.93	397,646.06	716,249.86	32.091949	-103.768518
4,200.00	9.96	135.00	4,184.38	-147.16	147.16	397,633.83	716,262.09	32.091916	-103.768479
4,300.00	9.96	135.00	4,282.87	-159.39	159.39	397,621.60	716,274.32	32.091882	-103.768439
4,400.00	9.96	135.00	4,381.37	-171.62	171.62	397,609.37	716,286.55	32.091848	-103.768400
4,500.00	9.96	135.00	4,479.86	-183.85	183.85	397,597.14	716,298.78	32.091814	-103.768361
4,600.00	9.96	135.00	4,578.35	-196.08	196.08	397,584.91	716,311.01	32.091780	-103.768322
4,700.00	9.96	135.00	4,676.85	-208.31	208.31	397,572.68	716,323.24	32.091747	-103.768282
4,800.00	9.96	135.00	4,775.34	-220.54	220.54	397,560.45	716,335.47	32.091713	-103.768243
4,900.00	9.96	135.00	4,873.83	-232.77	232.77	397,548.22	716,347.70	32.091679	-103.768204
5,000.00	9.96	135.00	4,972.33	-245.00	245.00	397,535.99	716,359.93	32.091645	-103.768164
5,100.00	9.96	135.00	5,070.82	-257.23	257.23	397,523.76	716,372.16	32.091612	-103.768125
5,200.00	9.96	135.00	5,169.31	-269.46	269.46	397,511.53	716,384.39	32.091578	-103.768086

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,300.00	9.96	135.00	5,267.80	-281.69	281.69	397,499.30	716,396.62	32.091544	-103.768047
5,400.00	9.96	135.00	5,366.30	-293.92	293.92	397,487.07	716,408.85	32.091510	-103.768007
5,500.00	9.96	135.00	5,464.79	-306.15	306.15	397,474.84	716,421.08	32.091476	-103.767968
5,600.00	9.96	135.00	5,563.28	-318.38	318.38	397,462.61	716,433.31	32.091443	-103.767929
5,700.00	9.96	135.00	5,661.78	-330.61	330.61	397,450.38	716,445.54	32.091409	-103.767890
5,800.00	9.96	135.00	5,760.27	-342.84	342.84	397,438.15	716,457.77	32.091375	-103.767850
5,900.00	9.96	135.00	5,858.76	-355.07	355.07	397,425.92	716,470.00	32.091341	-103.767811
6,000.00	9.96	135.00	5,957.25	-367.30	367.30	397,413.69	716,482.23	32.091307	-103.767772
6,100.00	9.96	135.00	6,055.75	-379.53	379.53	397,401.46	716,494.46	32.091274	-103.767732
6,200.00	9.96	135.00	6,154.24	-391.76	391.76	397,389.23	716,506.69	32.091240	-103.767693
6,300.00	9.96	135.00	6,252.73	-403.99	403.99	397,377.00	716,518.92	32.091206	-103.767654
6,400.00	9.96	135.00	6,351.23	-416.22	416.22	397,364.77	716,531.15	32.091172	-103.767615
6,500.00	9.96	135.00	6,449.72	-428.45	428.45	397,352.54	716,543.38	32.091138	-103.767575
6,600.00	9.96	135.00	6,548.21	-440.68	440.68	397,340.31	716,555.61	32.091105	-103.767536
6,700.00	9.96	135.00	6,646.70	-452.91	452.91	397,328.08	716,567.84	32.091071	-103.767497
6,800.00	9.96	135.00	6,745.20	-465.14	465.14	397,315.85	716,580.07	32.091037	-103.767457
6,900.00	9.96	135.00	6,843.69	-477.37	477.37	397,303.62	716,592.30	32.091003	-103.767418
7,000.00	9.96	135.00	6,942.18	-489.60	489.60	397,291.39	716,604.53	32.090969	-103.767379
7,100.00	9.96	135.00	7,040.68	-501.83	501.83	397,279.16	716,616.76	32.090936	-103.767340
7,200.00	9.96	135.00	7,139.17	-514.06	514.06	397,266.93	716,628.99	32.090902	-103.767300
7,242.83	9.96	135.00	7,181.35	-519.29	519.29	397,261.70	716,634.23	32.090887	-103.767283
7,300.00	9.10	135.00	7,237.73	-525.99	525.99	397,255.00	716,640.92	32.090869	-103.767262
7,400.00	7.60	135.00	7,336.67	-536.26	536.26	397,244.73	716,651.19	32.090840	-103.767229
7,500.00	6.10	135.00	7,435.95	-544.70	544.70	397,236.29	716,659.63	32.090817	-103.767202
7,600.00	4.60	135.00	7,535.51	-551.29	551.29	397,229.70	716,666.23	32.090799	-103.767181
7,700.00	3.10	135.00	7,635.29	-556.04	556.04	397,224.95	716,670.98	32.090786	-103.767165
7,800.00	1.60	135.00	7,735.20	-558.94	558.94	397,222.05	716,673.88	32.090778	-103.767156
7,900.00	0.10	135.00	7,835.19	-560.00	560.00	397,220.99	716,674.93	32.090775	-103.767153
7,906.82	0.00	0.00	7,842.00	-560.00	560.00	397,220.99	716,674.93	32.090775	-103.767153
8,000.00	0.00	0.00	7,935.19	-560.00	560.00	397,220.99	716,674.93	32.090775	-103.767153
8,100.00	0.00	0.00	8,035.19	-560.00	560.00	397,220.99	716,674.93	32.090775	-103.767153
8,200.00	0.00	0.00	8,135.19	-560.00	560.00	397,220.99	716,674.93	32.090775	-103.767153
8,256.86	0.00	0.00	8,192.05	-560.00	560.00	397,220.99	716,674.93	32.090775	-103.767153
KOP & FTP @ 8257' MD, 1170' FNL, 2310' FWL									
8,300.00	4.31	359.95	8,235.14	-558.38	560.00	397,222.61	716,674.93	32.090779	-103.767153
8,400.00	14.31	359.95	8,333.70	-542.21	559.98	397,238.78	716,674.92	32.090824	-103.767152
8,500.00	24.31	359.95	8,427.95	-509.18	559.95	397,271.81	716,674.89	32.090915	-103.767152
8,600.00	34.31	359.95	8,515.04	-460.28	559.91	397,320.71	716,674.84	32.091049	-103.767151
8,700.00	44.31	359.95	8,592.31	-397.00	559.84	397,383.99	716,674.78	32.091223	-103.767150
8,800.00	54.31	359.95	8,657.41	-321.27	559.77	397,459.72	716,674.71	32.091431	-103.767149
8,900.00	64.31	359.95	8,708.38	-235.38	559.69	397,545.61	716,674.63	32.091667	-103.767148
9,000.00	74.31	359.95	8,743.66	-141.95	559.60	397,639.04	716,674.54	32.091924	-103.767147
9,100.00	84.31	359.95	8,762.18	-43.80	559.51	397,737.18	716,674.44	32.092194	-103.767146
9,156.86	90.00	359.95	8,765.00	12.96	559.45	397,793.95	716,674.39	32.092350	-103.767145
9,200.00	90.00	359.95	8,765.00	56.10	559.41	397,837.09	716,674.35	32.092468	-103.767144
9,300.00	90.00	359.95	8,765.00	156.10	559.32	397,937.09	716,674.25	32.092743	-103.767143
9,400.00	90.00	359.95	8,765.00	256.10	559.22	398,037.09	716,674.16	32.093018	-103.767141
9,500.00	90.00	359.95	8,765.00	356.10	559.13	398,137.09	716,674.06	32.093293	-103.767140
9,600.00	90.00	359.95	8,765.00	456.10	559.03	398,237.09	716,673.97	32.093568	-103.767139
9,700.00	90.00	359.95	8,765.00	556.10	558.94	398,337.09	716,673.87	32.093843	-103.767137
9,754.00	90.00	359.95	8,765.00	610.10	558.89	398,391.09	716,673.82	32.093991	-103.767136
Cross section @ 9754' MD, 0' FSL, 2310' FWL									
9,800.00	90.00	359.95	8,765.00	656.10	558.84	398,437.09	716,673.78	32.094118	-103.767136

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,900.00	90.00	359.95	8,765.00	756.10	558.75	398,537.09	716,673.68	32.094393	-103.767134
10,000.00	90.00	359.95	8,765.00	856.10	558.65	398,637.09	716,673.59	32.094668	-103.767133
10,100.00	90.00	359.95	8,765.00	956.10	558.56	398,737.09	716,673.49	32.094942	-103.767132
10,200.00	90.00	359.95	8,765.00	1,056.10	558.46	398,837.09	716,673.40	32.095217	-103.767130
10,300.00	90.00	359.95	8,765.00	1,156.10	558.37	398,937.09	716,673.30	32.095492	-103.767129
10,400.00	90.00	359.95	8,765.00	1,256.10	558.27	399,037.09	716,673.20	32.095767	-103.767127
10,500.00	90.00	359.95	8,765.00	1,356.10	558.17	399,137.09	716,673.11	32.096042	-103.767126
10,600.00	90.00	359.95	8,765.00	1,456.10	558.08	399,237.09	716,673.01	32.096317	-103.767125
10,700.00	90.00	359.95	8,765.00	1,556.10	557.98	399,337.09	716,672.92	32.096592	-103.767123
10,800.00	90.00	359.95	8,765.00	1,656.10	557.89	399,437.09	716,672.82	32.096867	-103.767122
10,900.00	90.00	359.95	8,765.00	1,756.10	557.79	399,537.09	716,672.73	32.097141	-103.767121
11,000.00	90.00	359.95	8,765.00	1,856.10	557.70	399,637.09	716,672.63	32.097416	-103.767119
11,100.00	90.00	359.95	8,765.00	1,956.10	557.60	399,737.09	716,672.54	32.097691	-103.767118
11,200.00	90.00	359.95	8,765.00	2,056.10	557.51	399,837.09	716,672.44	32.097966	-103.767116
11,300.00	90.00	359.95	8,765.00	2,156.10	557.41	399,937.09	716,672.35	32.098241	-103.767115
11,400.00	90.00	359.95	8,765.00	2,256.10	557.32	400,037.09	716,672.25	32.098516	-103.767114
11,500.00	90.00	359.95	8,765.00	2,356.10	557.22	400,137.09	716,672.16	32.098791	-103.767112
11,600.00	90.00	359.95	8,765.00	2,456.10	557.13	400,237.08	716,672.06	32.099066	-103.767111
11,700.00	90.00	359.95	8,765.00	2,556.10	557.03	400,337.08	716,671.97	32.099341	-103.767109
11,800.00	90.00	359.95	8,765.00	2,656.10	556.94	400,437.08	716,671.87	32.099615	-103.767108
11,900.00	90.00	359.95	8,765.00	2,756.10	556.84	400,537.08	716,671.78	32.099890	-103.767107
12,000.00	90.00	359.95	8,765.00	2,856.10	556.75	400,637.08	716,671.68	32.100165	-103.767105
12,100.00	90.00	359.95	8,765.00	2,956.10	556.65	400,737.08	716,671.59	32.100440	-103.767104
12,200.00	90.00	359.95	8,765.00	3,056.10	556.55	400,837.08	716,671.49	32.100715	-103.767103
12,300.00	90.00	359.95	8,765.00	3,156.10	556.46	400,937.08	716,671.39	32.100990	-103.767101
12,400.00	90.00	359.95	8,765.00	3,256.10	556.36	401,037.08	716,671.30	32.101265	-103.767100
12,500.00	90.00	359.95	8,765.00	3,356.10	556.27	401,137.08	716,671.20	32.101540	-103.767098
12,600.00	90.00	359.95	8,765.00	3,456.10	556.17	401,237.08	716,671.11	32.101814	-103.767097
12,700.00	90.00	359.95	8,765.00	3,556.10	556.08	401,337.08	716,671.01	32.102089	-103.767096
12,800.00	90.00	359.95	8,765.00	3,656.10	555.98	401,437.08	716,670.92	32.102364	-103.767094
12,900.00	90.00	359.95	8,765.00	3,756.10	555.89	401,537.08	716,670.82	32.102639	-103.767093
13,000.00	90.00	359.95	8,765.00	3,856.10	555.79	401,637.08	716,670.73	32.102914	-103.767091
13,100.00	90.00	359.95	8,765.00	3,956.10	555.70	401,737.08	716,670.63	32.103189	-103.767090
13,200.00	90.00	359.95	8,765.00	4,056.10	555.60	401,837.08	716,670.54	32.103464	-103.767089
13,300.00	90.00	359.95	8,765.00	4,156.10	555.51	401,937.08	716,670.44	32.103739	-103.767087
13,400.00	90.00	359.95	8,765.00	4,256.10	555.41	402,037.08	716,670.35	32.104014	-103.767086
13,427.90	90.00	359.95	8,765.00	4,284.00	555.39	402,064.98	716,670.32	32.104090	-103.767085
13,500.00	90.00	1.39	8,765.00	4,356.09	556.22	402,137.07	716,671.16	32.104288	-103.767082
13,600.00	90.00	3.39	8,765.00	4,456.00	560.39	402,236.98	716,675.32	32.104563	-103.767066
13,700.00	90.00	5.39	8,765.00	4,555.70	568.04	402,336.68	716,682.97	32.104837	-103.767040
13,800.00	90.00	7.39	8,765.00	4,655.08	579.16	402,436.06	716,694.10	32.105110	-103.767002
13,900.00	90.00	9.39	8,765.00	4,754.00	593.75	402,534.98	716,708.68	32.105382	-103.766954
13,930.63	90.00	10.00	8,765.00	4,784.19	598.91	402,565.17	716,713.84	32.105465	-103.766936
14,000.00	90.00	10.00	8,765.00	4,852.51	610.95	402,633.49	716,725.89	32.105652	-103.766896
14,100.00	90.00	10.00	8,765.00	4,950.99	628.32	402,731.97	716,743.25	32.105923	-103.766839
14,200.00	90.00	10.00	8,765.00	5,049.47	645.68	402,830.45	716,760.62	32.106193	-103.766781
14,300.00	90.00	10.00	8,765.00	5,147.95	663.05	402,928.93	716,777.98	32.106464	-103.766723
14,400.00	90.00	10.00	8,765.00	5,246.43	680.41	403,027.41	716,795.35	32.106734	-103.766665
14,430.63	90.00	10.00	8,765.00	5,276.60	685.73	403,057.58	716,800.67	32.106817	-103.766648
14,500.00	90.00	8.61	8,765.00	5,345.05	696.95	403,126.03	716,811.88	32.107005	-103.766610
14,600.00	90.00	6.61	8,765.00	5,444.17	710.20	403,225.15	716,825.13	32.107277	-103.766566
14,700.00	90.00	4.61	8,765.00	5,543.68	719.97	403,324.66	716,834.91	32.107550	-103.766533
14,800.00	90.00	2.61	8,765.00	5,643.48	726.28	403,424.46	716,841.21	32.107825	-103.766510
14,900.00	90.00	0.61	8,765.00	5,743.44	729.09	403,524.41	716,844.02	32.108099	-103.766500

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,000.00	90.00	358.61	8,765.00	5,843.43	728.41	403,624.41	716,843.35	32.108374	-103.766500
15,047.00	90.00	357.67	8,765.00	5,890.40	726.89	403,671.38	716,841.82	32.108503	-103.766504
Cross section @ 15047' MD, 0' FSL, 2478' FWL									
15,100.00	90.00	356.61	8,765.00	5,943.34	724.25	403,724.31	716,839.18	32.108649	-103.766512
15,200.00	90.00	354.61	8,765.00	6,043.04	716.60	403,824.01	716,831.53	32.108923	-103.766535
15,300.00	90.00	352.61	8,765.00	6,142.41	705.47	403,923.39	716,820.41	32.109197	-103.766569
15,400.00	90.00	350.61	8,765.00	6,241.34	690.89	404,022.31	716,805.82	32.109469	-103.766615
15,433.63	90.00	349.94	8,765.00	6,274.48	685.21	404,055.46	716,800.14	32.109560	-103.766632
15,500.00	90.00	351.27	8,765.00	6,339.96	674.37	404,120.94	716,789.31	32.109740	-103.766666
15,600.00	90.00	353.27	8,765.00	6,439.05	660.92	404,220.02	716,775.85	32.110013	-103.766708
15,700.00	90.00	355.27	8,765.00	6,538.54	650.93	404,319.52	716,765.86	32.110286	-103.766739
15,800.00	90.00	357.27	8,765.00	6,638.33	644.42	404,419.30	716,759.36	32.110561	-103.766758
15,900.00	90.00	359.27	8,765.00	6,738.27	641.40	404,519.25	716,756.33	32.110835	-103.766766
15,907.94	90.00	359.43	8,765.00	6,746.21	641.31	404,527.19	716,756.24	32.110857	-103.766766
16,000.00	90.00	359.43	8,765.00	6,838.27	640.38	404,619.24	716,755.32	32.111110	-103.766768
16,100.00	90.00	359.43	8,765.00	6,938.26	639.38	404,719.24	716,754.32	32.111385	-103.766769
16,200.00	90.00	359.43	8,765.00	7,038.26	638.38	404,819.23	716,753.32	32.111660	-103.766771
16,300.00	90.00	359.43	8,765.00	7,138.25	637.38	404,919.23	716,752.31	32.111935	-103.766772
16,400.00	90.00	359.43	8,765.00	7,238.25	636.38	405,019.22	716,751.31	32.112210	-103.766774
16,500.00	90.00	359.43	8,765.00	7,338.24	635.38	405,119.22	716,750.31	32.112485	-103.766775
16,600.00	90.00	359.43	8,765.00	7,438.24	634.38	405,219.21	716,749.31	32.112760	-103.766777
16,700.00	90.00	359.43	8,765.00	7,538.23	633.37	405,319.21	716,748.31	32.113034	-103.766778
16,800.00	90.00	359.43	8,765.00	7,638.23	632.37	405,419.20	716,747.31	32.113309	-103.766780
16,900.00	90.00	359.43	8,765.00	7,738.22	631.37	405,519.20	716,746.31	32.113584	-103.766781
17,000.00	90.00	359.43	8,765.00	7,838.22	630.37	405,619.19	716,745.30	32.113859	-103.766783
17,100.00	90.00	359.43	8,765.00	7,938.21	629.37	405,719.19	716,744.30	32.114134	-103.766785
17,200.00	90.00	359.43	8,765.00	8,038.21	628.37	405,819.18	716,743.30	32.114409	-103.766786
17,300.00	90.00	359.43	8,765.00	8,138.20	627.36	405,919.18	716,742.30	32.114684	-103.766788
17,400.00	90.00	359.43	8,765.00	8,238.20	626.36	406,019.17	716,741.30	32.114959	-103.766789
17,500.00	90.00	359.43	8,765.00	8,338.19	625.36	406,119.17	716,740.30	32.115233	-103.766791
17,600.00	90.00	359.43	8,765.00	8,438.19	624.36	406,219.16	716,739.29	32.115508	-103.766792
17,700.00	90.00	359.43	8,765.00	8,538.18	623.36	406,319.16	716,738.29	32.115783	-103.766794
17,800.00	90.00	359.43	8,765.00	8,638.18	622.36	406,419.15	716,737.29	32.116058	-103.766795
17,900.00	90.00	359.43	8,765.00	8,738.17	621.36	406,519.15	716,736.29	32.116333	-103.766797
18,000.00	90.00	359.43	8,765.00	8,838.17	620.35	406,619.14	716,735.29	32.116608	-103.766798
18,100.00	90.00	359.43	8,765.00	8,938.16	619.35	406,719.14	716,734.29	32.116883	-103.766800
18,200.00	90.00	359.43	8,765.00	9,038.16	618.35	406,819.13	716,733.29	32.117158	-103.766801
18,300.00	90.00	359.43	8,765.00	9,138.15	617.35	406,919.12	716,732.28	32.117433	-103.766803
18,400.00	90.00	359.43	8,765.00	9,238.15	616.35	407,019.12	716,731.28	32.117707	-103.766804
18,500.00	90.00	359.43	8,765.00	9,338.14	615.35	407,119.11	716,730.28	32.117982	-103.766806
18,600.00	90.00	359.43	8,765.00	9,438.14	614.34	407,219.11	716,729.28	32.118257	-103.766808
18,700.00	90.00	359.43	8,765.00	9,538.13	613.34	407,319.10	716,728.28	32.118532	-103.766809
18,800.00	90.00	359.43	8,765.00	9,638.13	612.34	407,419.10	716,727.28	32.118807	-103.766811
18,900.00	90.00	359.43	8,765.00	9,738.12	611.34	407,519.09	716,726.27	32.119082	-103.766812
19,000.00	90.00	359.43	8,765.00	9,838.12	610.34	407,619.09	716,725.27	32.119357	-103.766814
19,100.00	90.00	359.43	8,765.00	9,938.11	609.34	407,719.08	716,724.27	32.119632	-103.766815
19,200.00	90.00	359.43	8,765.00	10,038.11	608.33	407,819.08	716,723.27	32.119906	-103.766817
19,300.00	90.00	359.43	8,765.00	10,138.10	607.33	407,919.07	716,722.27	32.120181	-103.766818
19,400.00	90.00	359.43	8,765.00	10,238.10	606.33	408,019.07	716,721.27	32.120456	-103.766820
19,500.00	90.00	359.43	8,765.00	10,338.09	605.33	408,119.06	716,720.27	32.120731	-103.766821
19,600.00	90.00	359.43	8,765.00	10,438.09	604.33	408,219.06	716,719.26	32.121006	-103.766823
19,700.00	90.00	359.43	8,765.00	10,538.08	603.33	408,319.05	716,718.26	32.121281	-103.766824
19,800.00	90.00	359.43	8,765.00	10,638.08	602.33	408,419.05	716,717.26	32.121556	-103.766826
19,900.00	90.00	359.43	8,765.00	10,738.07	601.32	408,519.04	716,716.26	32.121831	-103.766828

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,000.00	90.00	359.43	8,765.00	10,838.07	600.32	408,619.04	716,715.26	32.122106	-103.766829
20,100.00	90.00	359.43	8,765.00	10,938.06	599.32	408,719.03	716,714.26	32.122380	-103.766831
20,200.00	90.00	359.43	8,765.00	11,038.06	598.32	408,819.03	716,713.25	32.122655	-103.766832
20,300.00	90.00	359.43	8,765.00	11,138.05	597.32	408,919.02	716,712.25	32.122930	-103.766834
20,332.00	90.00	359.43	8,765.00	11,170.05	597.00	408,951.02	716,711.93	32.123018	-103.766834
Cross section @ 20332' MD, 0' FSL, 2310' FWL									
20,400.00	90.00	359.43	8,765.00	11,238.05	596.32	409,019.02	716,711.25	32.123205	-103.766835
20,500.00	90.00	359.43	8,765.00	11,338.04	595.31	409,119.01	716,710.25	32.123480	-103.766837
20,600.00	90.00	359.43	8,765.00	11,438.04	594.31	409,219.01	716,709.25	32.123755	-103.766838
20,700.00	90.00	359.43	8,765.00	11,538.03	593.31	409,319.00	716,708.25	32.124030	-103.766840
20,800.00	90.00	359.43	8,765.00	11,638.03	592.31	409,418.99	716,707.24	32.124305	-103.766841
20,900.00	90.00	359.43	8,765.00	11,738.02	591.31	409,518.99	716,706.24	32.124579	-103.766843
21,000.00	90.00	359.43	8,765.00	11,838.02	590.31	409,618.98	716,705.24	32.124854	-103.766844
21,100.00	90.00	359.43	8,765.00	11,938.01	589.31	409,718.98	716,704.24	32.125129	-103.766846
21,200.00	90.00	359.43	8,765.00	12,038.01	588.30	409,818.97	716,703.24	32.125404	-103.766848
21,300.00	90.00	359.43	8,765.00	12,138.00	587.30	409,918.97	716,702.24	32.125679	-103.766849
21,400.00	90.00	359.43	8,765.00	12,238.00	586.30	410,018.96	716,701.24	32.125954	-103.766851
21,500.00	90.00	359.43	8,765.00	12,337.99	585.30	410,118.96	716,700.23	32.126229	-103.766852
21,600.00	90.00	359.43	8,765.00	12,437.99	584.30	410,218.95	716,699.23	32.126504	-103.766854
21,700.00	90.00	359.43	8,765.00	12,537.98	583.30	410,318.95	716,698.23	32.126778	-103.766855
21,800.00	90.00	359.43	8,765.00	12,637.98	582.29	410,418.94	716,697.23	32.127053	-103.766857
21,900.00	90.00	359.43	8,765.00	12,737.97	581.29	410,518.94	716,696.23	32.127328	-103.766858
22,000.00	90.00	359.43	8,765.00	12,837.97	580.29	410,618.93	716,695.23	32.127603	-103.766860
22,100.00	90.00	359.43	8,765.00	12,937.96	579.29	410,718.93	716,694.22	32.127878	-103.766861
22,200.00	90.00	359.43	8,765.00	13,037.96	578.29	410,818.92	716,693.22	32.128153	-103.766863
22,300.00	90.00	359.43	8,765.00	13,137.95	577.29	410,918.92	716,692.22	32.128428	-103.766864
22,400.00	90.00	359.43	8,765.00	13,237.95	576.29	411,018.91	716,691.22	32.128703	-103.766866
22,500.00	90.00	359.43	8,765.00	13,337.94	575.28	411,118.91	716,690.22	32.128978	-103.766868
22,600.00	90.00	359.43	8,765.00	13,437.94	574.28	411,218.90	716,689.22	32.129252	-103.766869
22,700.00	90.00	359.43	8,765.00	13,537.93	573.28	411,318.90	716,688.22	32.129527	-103.766871
22,800.00	90.00	359.43	8,765.00	13,637.93	572.28	411,418.89	716,687.21	32.129802	-103.766872
22,900.00	90.00	359.43	8,765.00	13,737.92	571.28	411,518.89	716,686.21	32.130077	-103.766874
23,000.00	90.00	359.43	8,765.00	13,837.92	570.28	411,618.88	716,685.21	32.130352	-103.766875
23,100.00	90.00	359.43	8,765.00	13,937.91	569.27	411,718.87	716,684.21	32.130627	-103.766877
23,200.00	90.00	359.43	8,765.00	14,037.91	568.27	411,818.87	716,683.21	32.130902	-103.766878
23,300.00	90.00	359.43	8,765.00	14,137.90	567.27	411,918.86	716,682.21	32.131177	-103.766880
23,400.00	90.00	359.43	8,765.00	14,237.90	566.27	412,018.86	716,681.20	32.131451	-103.766881
23,500.00	90.00	359.43	8,765.00	14,337.89	565.27	412,118.85	716,680.20	32.131726	-103.766883
23,600.00	90.00	359.43	8,765.00	14,437.89	564.27	412,218.85	716,679.20	32.132001	-103.766884
23,700.00	90.00	359.43	8,765.00	14,537.88	563.27	412,318.84	716,678.20	32.132276	-103.766886
23,800.00	90.00	359.43	8,765.00	14,637.88	562.26	412,418.84	716,677.20	32.132551	-103.766887
23,900.00	90.00	359.43	8,765.00	14,737.87	561.26	412,518.83	716,676.20	32.132826	-103.766889
24,000.00	90.00	359.43	8,765.00	14,837.87	560.26	412,618.83	716,675.20	32.133101	-103.766891
24,100.00	90.00	359.43	8,765.00	14,937.86	559.26	412,718.82	716,674.19	32.133376	-103.766892
24,200.00	90.00	359.43	8,765.00	15,037.86	558.26	412,818.82	716,673.19	32.133651	-103.766894
24,300.00	90.00	359.43	8,765.00	15,137.85	557.26	412,918.81	716,672.19	32.133925	-103.766895
24,400.00	90.00	359.43	8,765.00	15,237.85	556.25	413,018.81	716,671.19	32.134200	-103.766897
24,500.00	90.00	359.43	8,765.00	15,337.84	555.25	413,118.80	716,670.19	32.134475	-103.766898
24,600.00	90.00	359.43	8,765.00	15,437.84	554.25	413,218.80	716,669.19	32.134750	-103.766900
24,700.00	90.00	359.43	8,765.00	15,537.83	553.25	413,318.79	716,668.18	32.135025	-103.766901
24,800.00	90.00	359.43	8,765.00	15,637.83	552.25	413,418.79	716,667.18	32.135300	-103.766903
24,900.00	90.00	359.43	8,765.00	15,737.82	551.25	413,518.78	716,666.18	32.135575	-103.766904
25,000.00	90.00	359.43	8,765.00	15,837.82	550.25	413,618.78	716,665.18	32.135850	-103.766906
25,100.00	90.00	359.43	8,765.00	15,937.81	549.24	413,718.77	716,664.18	32.136124	-103.766907

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference**	Well Lusitano 34-15 Fed Com 523H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3357.70ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3357.70ft
Site:	Sec 34-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 34-15 Fed Com 523H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
25,200.00	90.00	359.43	8,765.00	16,037.81	548.24	413,818.77	716,663.18	32.136399	-103.766909
25,300.00	90.00	359.43	8,765.00	16,137.80	547.24	413,918.76	716,662.18	32.136674	-103.766911
25,400.00	90.00	359.43	8,765.00	16,237.80	546.24	414,018.75	716,661.17	32.136949	-103.766912
25,500.00	90.00	359.43	8,765.00	16,337.79	545.24	414,118.75	716,660.17	32.137224	-103.766914
25,567.38	90.00	359.43	8,765.00	16,405.17	544.56	414,186.13	716,659.50	32.137409	-103.766915
LTP @ 25567' MD, 100' FNL, 2310' FWL									
25,600.00	90.00	359.43	8,765.00	16,437.79	544.24	414,218.74	716,659.17	32.137499	-103.766915
25,647.38	90.00	359.43	8,765.00	16,485.17	543.76	414,266.12	716,658.70	32.137629	-103.766916
PBHL; 20' FNL, 2310' FWL									
25,647.39	90.00	359.43	8,765.00	16,485.17	543.76	414,266.13	716,658.70	32.137629	-103.766916

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 34-15 F	0.00	0.00	0.00	16,485.17	543.76	414,266.13	716,658.70	32.137629	-103.766916
- plan misses target center by 8765.00ft at 25647.39ft MD (8765.00 TVD, 16485.17 N, 543.76 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
8,256.86	8,192.05	-560.00	560.00	KOP & FTP @ 8257' MD, 1170' FNL, 2310' FWL
9,754.00	8,765.00	610.10	558.89	Cross section @ 9754' MD, 0' FSL, 2310' FWL
15,047.00	8,765.00	5,890.40	726.89	Cross section @ 15047' MD, 0' FSL, 2478' FWL
20,332.00	8,765.00	11,170.05	597.00	Cross section @ 20332' MD, 0' FSL, 2310' FWL
25,567.38	8,765.00	16,405.17	544.56	LTP @ 25567' MD, 100' FNL, 2310' FWL
25,647.38	8,765.00	16,485.17	543.76	PBHL; 20' FNL, 2310' FWL

Devon Energy

WELL DETAILS: Lusitano 34-15 Fed Com 523H

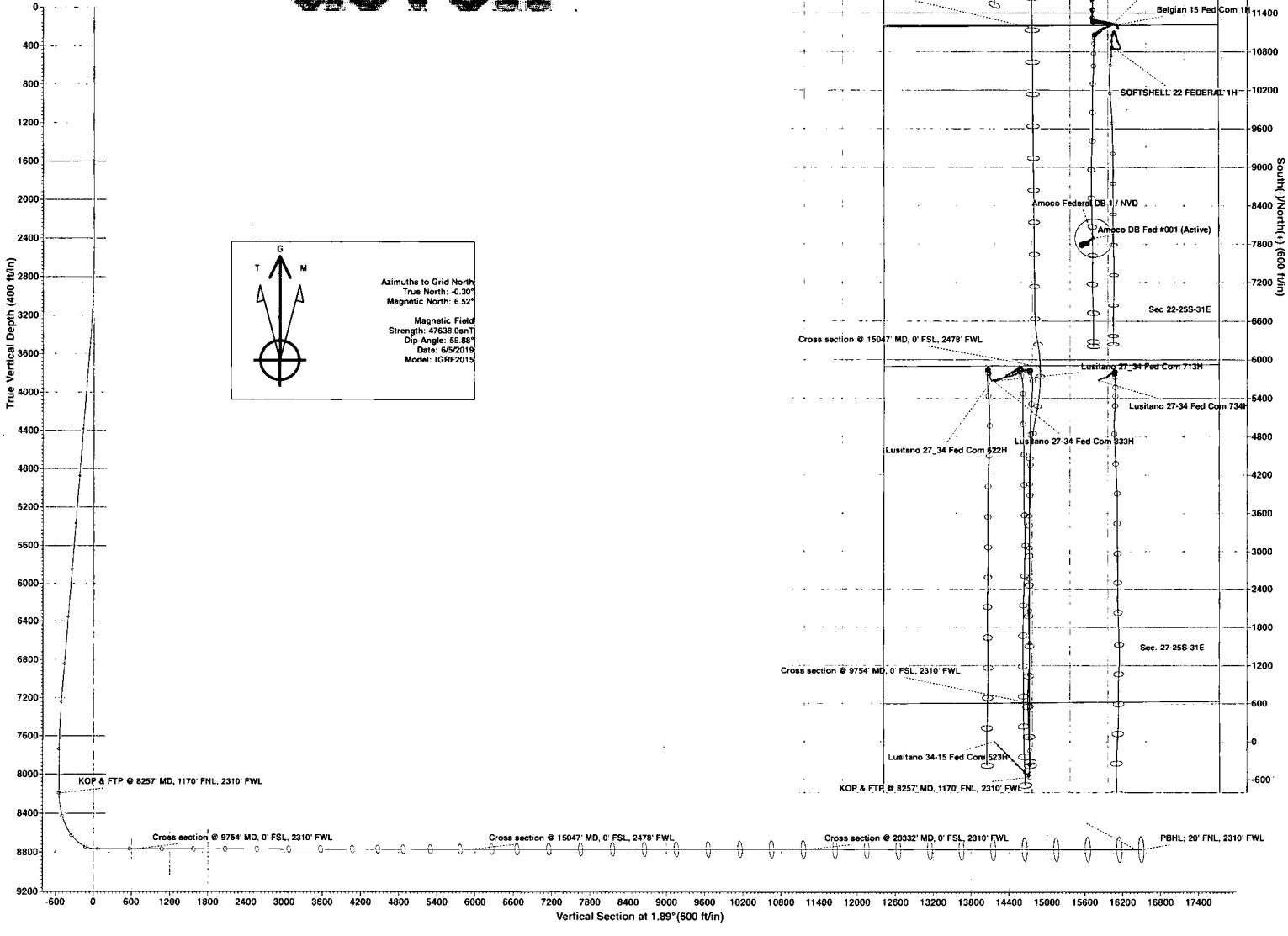
RKB @ 3357.70ft
3332.70

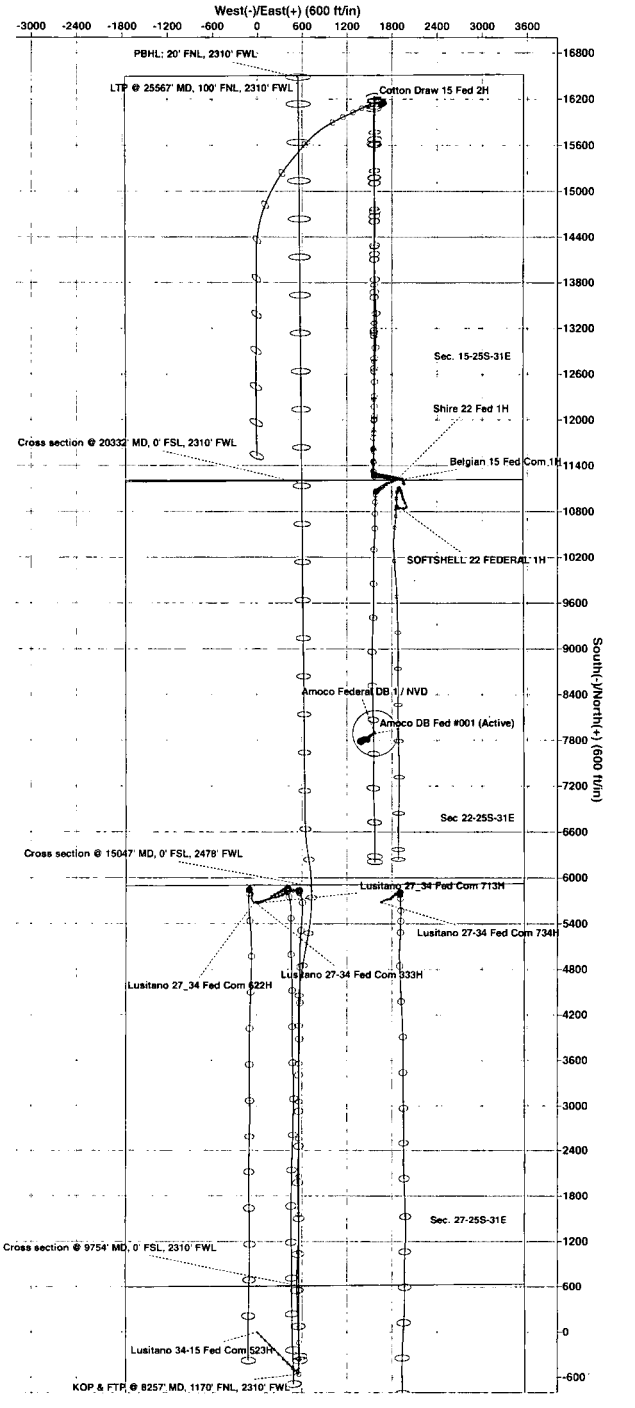
Northing	Easting	Latitude	Longitude
397780.99	716114.94	32.092322	-103.768951

SECTION DETAILS Permit Plan 2

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	
00.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
95.98	9.96	135.00	3490.98	-61.06	61.06	1.00	-59.01	
42.83	9.96	135.00	7181.35	-519.29	519.29	0.00	-501.89	
06.82	0.00	0.00	7842.00	-560.00	560.00	1.50	-541.23	
56.86	0.00	0.00	8192.04	-560.00	560.00	0.00	-541.23	KOP & FTP @ 8257' MD, 1170' FNL, 2310' FWL
56.86	90.00	359.95	8765.00	12.96	559.45	10.00	31.40	
27.90	90.00	359.95	8765.00	4284.00	555.39	0.00	4299.98	
30.63	90.00	10.00	8765.00	4784.19	598.91	2.00	4801.34	
30.63	90.00	10.00	8765.00	5276.60	685.73	0.00	5296.34	
33.63	90.00	349.94	8765.00	6274.48	685.21	2.00	6293.66	
07.94	90.00	359.43	8765.00	6746.21	641.31	2.00	6763.69	
47.39	90.00	359.43	8765.00	16485.17	543.76	0.00	16494.14	PBHL; 20' FNL, 2310' FWL

devon





1. Geologic Formations

TVD of target	8765	Pilot hole depth	N/A
MD at TD:	25647	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
RUSTLER	1010		
Top Salt	1300		
Base of Salt	4025		
Delaware	4260		
Bone Spring Lime	8200		

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

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
	From	To							
17 1/2	0	1035 TVD	13 3/8	48.0	H40	BTC	1.125	1.25	1.6
12 1/4	0	4235 TVD	9 5/8	40.0	J-55	BTC	1.125	1.25	1.6
8 3/4	0	TD	5 1/2	17.0	P110	BTC	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for continengcy casing.
• Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
• A variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing.

• Int casing shoe will be selected based on drilling data, gamma, and flows experienced while drilling. Setting depth with be revised accordingly if needed.
• A variance is requested to wave the centralizer requirement for the Intermediate casing and production 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 specficition 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	787	Surf	13.2	1.4	Lead: Class C Cement + additives
Int	455	Surf	9.0	3.3	Lead: Class C Cement + additives
	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Int 1 Two Stage w/ DV @ TVD of Delaware	447	Surf	9.0	3.3	1st stage Lead: Class C Cement + additives
	136	500' above shoe	13.2	1.4	1st stage Tail: Class H / C + additives
	445	Surf	9.0	3.3	2nd stage Lead: Class C Cement + additives
	136	500' above DV	13.2	1.4	2nd stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	9.0	3.3	Squeeze Lead: Class C Cement + additives
	455	Surf	9.0	3.3	Lead: Class C Cement + additives
	154	500' above shoe	13.2	1.4	Tail: Class H / C + additives
Production	386	500' tieback	9.0	3.3	Lead: Class H /C + additives
	3356	KOP	13.2	1.4	Tail: 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 top job will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate	30%
Production	10%

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✔	Tested to:
Int 1	13-58"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular (5M)		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

5. Mud Program (Three String Design)

Section	Type	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	Brine	10-10.5
Production	WBM	8.5-9

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

6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL from TD to surface (horizontal well - vertical portion of hole). Stated logs run will be in the Completion Report and sbumitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain.
	Coring? If yes, explain.

Additional logs planned		Interval
	Resistivity	
	Density	
X	CBL	Production casing
X	Mud log	KOP to TD
	PEX	

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	4102
Abnormal temperature	No

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

Hydrogren 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 batch 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 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 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

Devon Energy
APD VARIANCE DATA

OPERATOR NAME: Devon Energy

1. **SUMMARY OF Variance:**

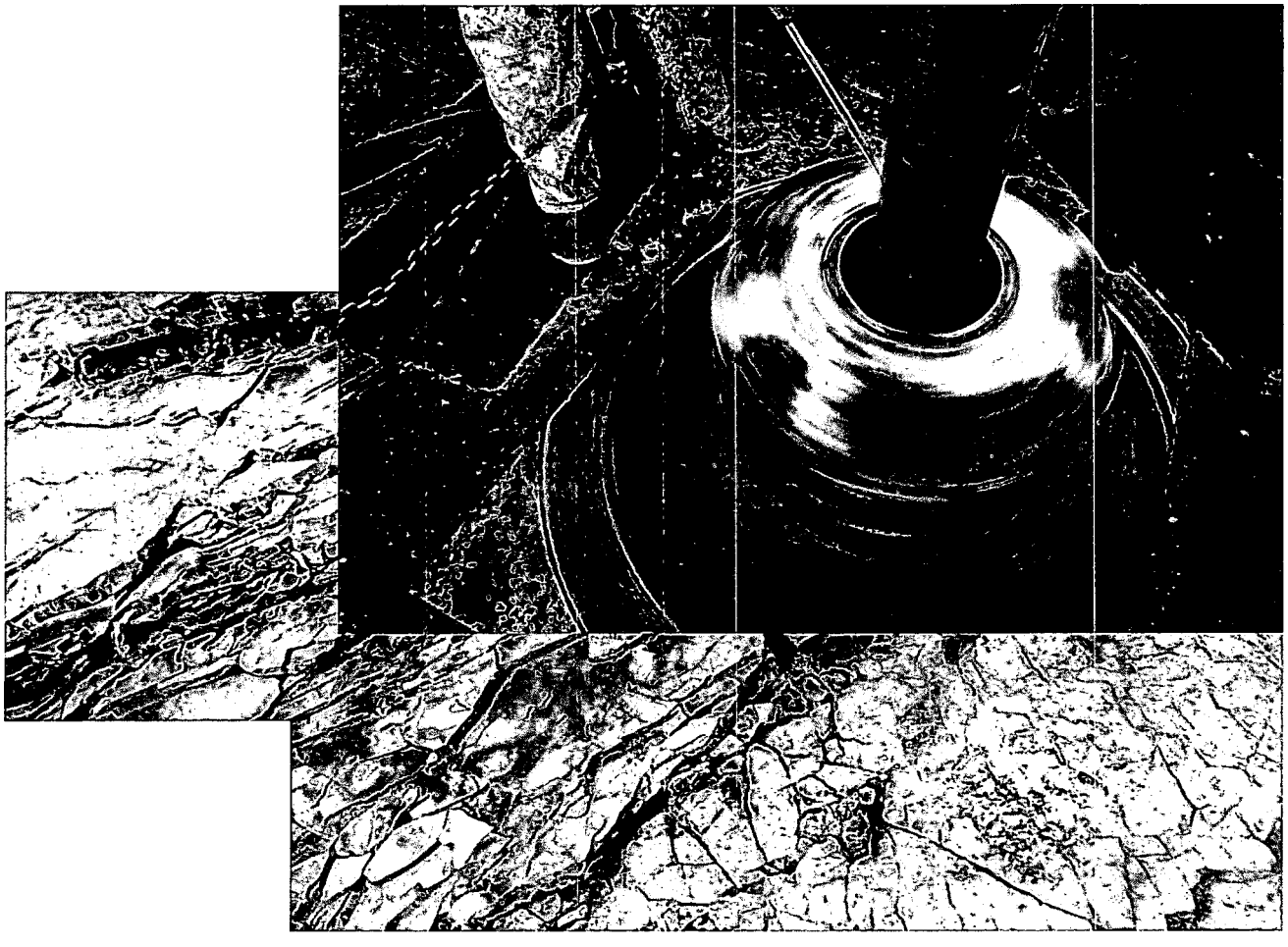
Devon Energy respectfully requests approval for the following additions to the drilling plan:

1. Potential utilization of a spudder rig to pre-set surface casing.

2. **Description of Operations**
   1. A spudder rig contractor may move in their rig to drill the surface hole section and pre-set surface casing on this well.
      a. After drilling the surface hole section, the rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
      b. Rig will utilize fresh water based mud to drill surface hole to TD.
   2. The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
   3. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
      a. A means for intervention will be maintained while the drilling rig is not over the well.
   4. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
   5. Drilling operation will be performed with the big 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 BLM will be contacted / notified 24 hours before the big rig moves back on to the pad with the pre-set surface casing.
   6. Devon Energy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
   7. Once the rig is removed, Devon Energy will secure the wellhead area by placing a guard rail around the cellar area.

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.

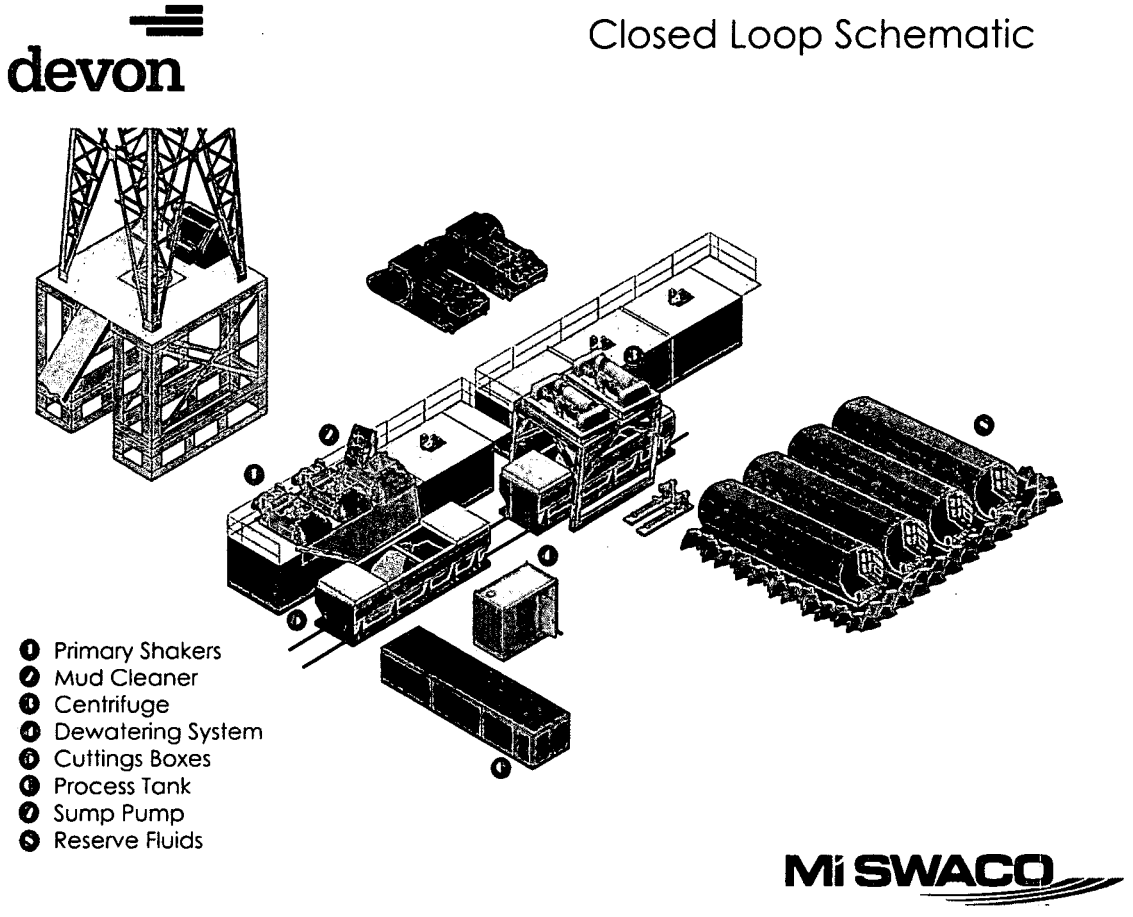
Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

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

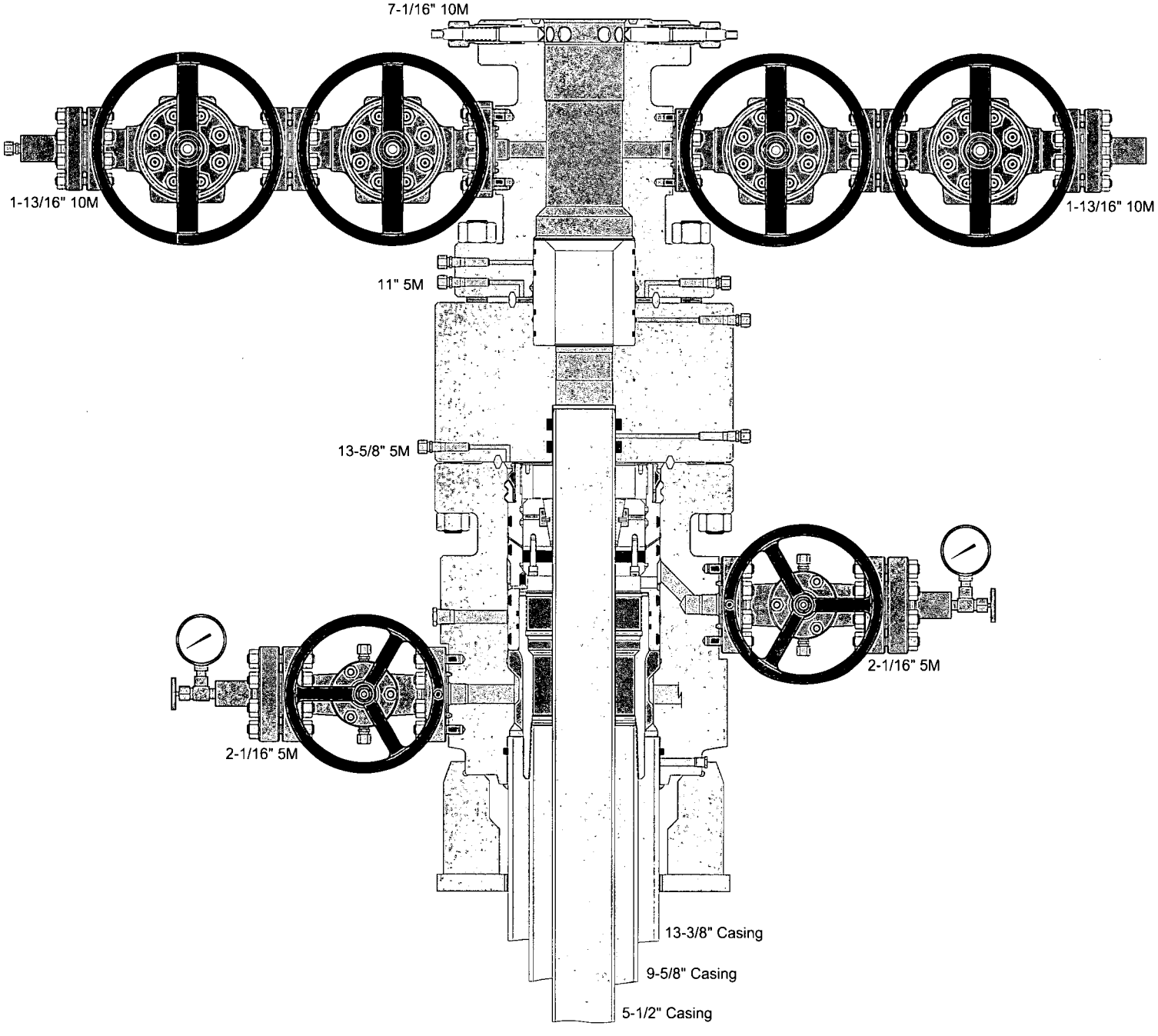
dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

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

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 surface casing, a 13-5/8" 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 intermediate casing with a mandrel hanger, the 13-5/8" 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.

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) 217-2972, 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	720 719	AISI 4130	C7626
4 1/16" Flange end		AISI 4130	47357

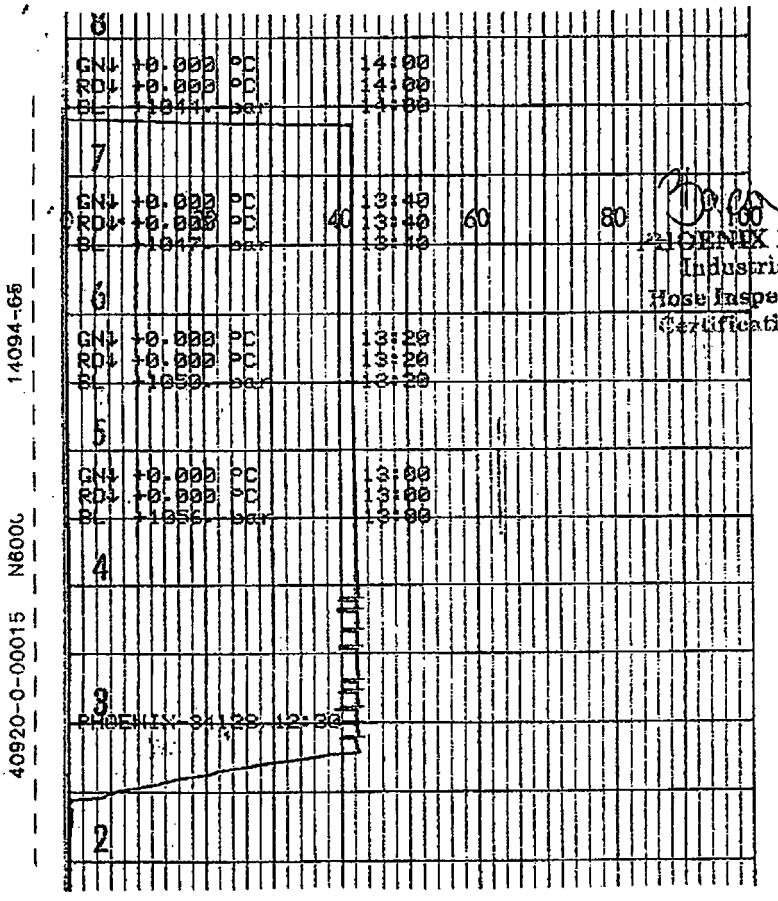
API Spec 16 C
Temperature rate:"B"

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 Verification Dept.

VERIFIED TRUE COPY
PHOENIX RUBBER Q.C.



PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE CO:
PHOENIX RUBBER C.C.

APD ID: 10400042741 **Submission Date:** 06/13/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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:

EX_RD_20190613092251.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **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:

ACCESS_RD_20190613092307.pdf

New road type: COLLECTOR,RESOURCE

Length: 4450 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:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: See attached Interim reclamation diagram.

Access other construction information:

Access miscellaneous information:

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

Drainage Control

New road drainage crossing: CULVERT,OTHER

Drainage Control comments: na

Road Drainage Control Structures (DCS) description: na

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

LUSITANO_34_15_FED_COM_523H_OneMileBuffer_WA017807695_20190613092432.pdf

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Wells will go to an existing production facility. Please refer to CTB plat_LUSITANO 27 CTB 4

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

Water source type: OTHER

Describe type: null

Water source use type: STIMULATION

Source latitude: **Source longitude:**

Source datum:

Water source permit type: OTHER

Water source transport method: PIPELINE

Source land ownership: FEDERAL

Source transportation land ownership: STATE

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

Source volume (gal): 21000000

Water source and transportation map:

LUSITANO_34_15_FED_COM_523H_533H_WATER_20190613092820.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:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

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

Construction Materials source location attachment:

Lusitano_34_Pad_1_Caliche_Map_20190613092840.pdf

Section 7 - Methods for Handling Waste

Waste type: FLOWBACK

Waste content description: Average produced BWPD over the flowback period (first 30 days of production).

Amount of waste: 2000 barrels

Waste disposal frequency : Daily

Safe containment description: N/A

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Produced water during flowback will be disposed of at various disposals in Lea and Eddy County.

Waste type: PRODUCED WATER

Waste content description: Average produced BWPD over the first year of production

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: Multiple methods for handling waste will be utilized. Via trucking, Dvn owned disposal system and or third party pipeline take away.

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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: DRILLING

Waste content description: Water Based Cuttings

Amount of waste: 2369 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 disposed of at R360, Sundance, or equivalent.

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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:

RIG_LAY_OUT_20190613092922.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: LUSITANO 34 WELL PAD

Multiple Well Pad Number: 1

Recontouring attachment:

RECLAMATION_20190613092935.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): 3.953
Road proposed disturbance (acres): 3.065
Powerline proposed disturbance (acres): 3.072
Pipeline proposed disturbance (acres): 4.493
Other proposed disturbance (acres): 0
Total proposed disturbance: 14.583

Well pad interim reclamation (acres): 2.409
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 2.409

Well pad long term disturbance (acres): 1.544
Road long term disturbance (acres): 3.065
Powerline long term disturbance (acres): 3.072
Pipeline long term disturbance (acres): 4.493
Other long term disturbance (acres): 0
Total long term disturbance: 12.174

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: Shinnery, yucca, grasses and mesquite.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Shinnery, yucca, grasses and mesquite.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Shinnery, yucca, grasses and mesquite.

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: 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:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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:

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 34-15 FED COM **Well Number:** 523H

SUPO Additional Information: *COTTON DRAW MDP 1* FLOWLINES -revised plat attached 8/26/2019 "ALL LINES BURIED IN THE SAME TRENCH - TWO 8" FLOWLINES AND ONE 8" GAS LIFT LINE" ELECTRIC LINES CTB
Use a previously conducted onsite? YES

Previous Onsite information: July 2016; Cotton Draw MDP 1-34 Wellpad 1

Other SUPO Attachment

EL7805_CD_34_PAD_1_BATTERY_CONNECT_P_20190613093156.PDF

CD_27_CTB_4_BATTERY_CONNECT_P_20190613093158.PDF

AA000055116_SRD_TO_CDU_34_27_1_P_20190613093204.pdf

Pay.gov___Confirmation_523H_533H_20190613101649.pdf

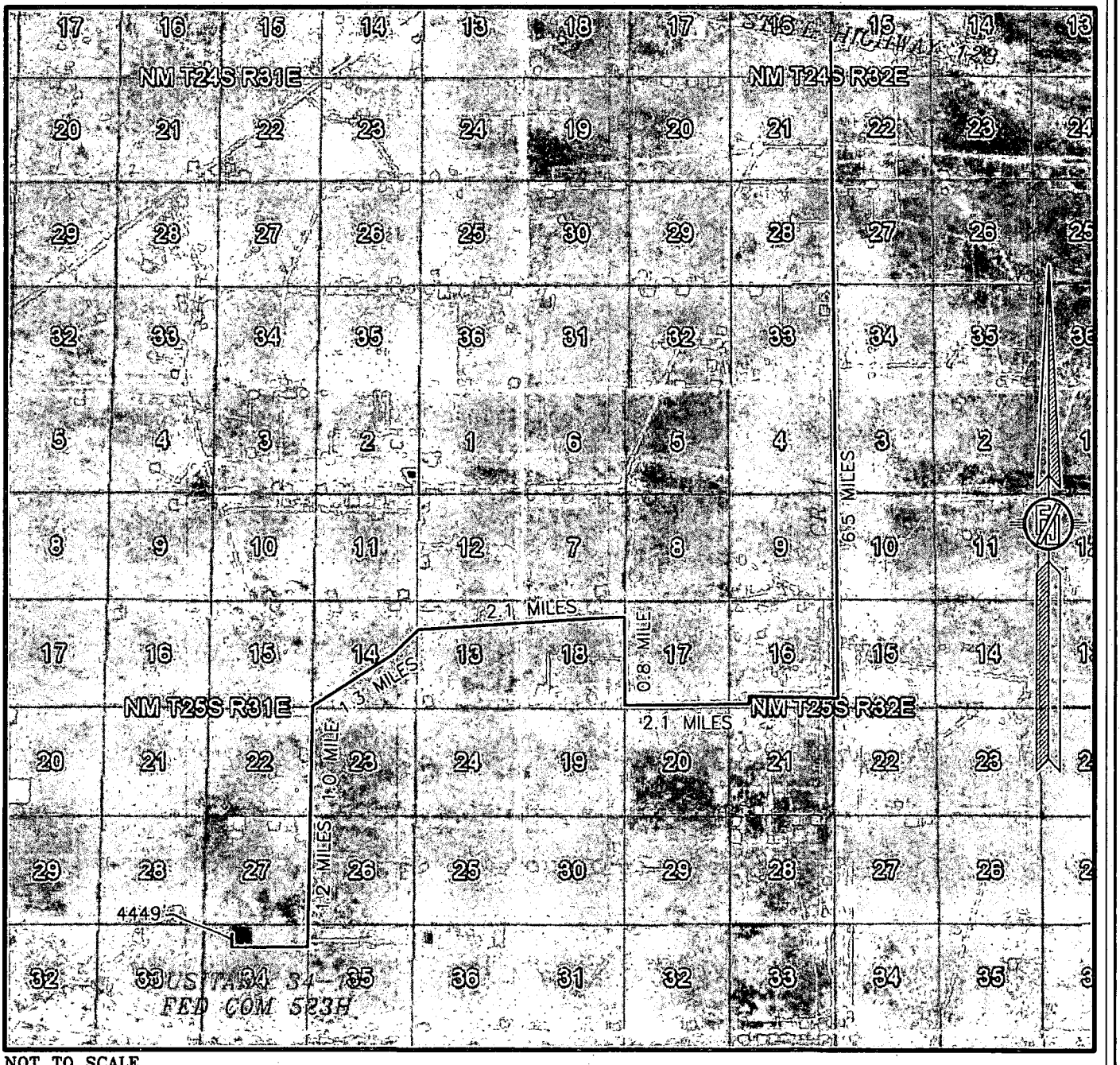
7600241F_LUSITANO_34_PAD_1_TO_LUSITANO_27_CTB_4_P_20190821122108.pdf

AA000056009_COTTON_DRAW_27_34_CTB_4_R1_20190821122111.pdf

7600241F_LUSITANO_34_PAD_1_TO_LUSITANO_27_CTB_4_P_20190826065522.pdf

SECTION 34, 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
FEBRUARY 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34-15 FED COM 523H

LOCATED 610 FT. FROM THE NORTH LINE
AND 1750 FT. FROM THE WEST LINE OF
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

JUNE 10, 2019

SURVEY NO. 7299A

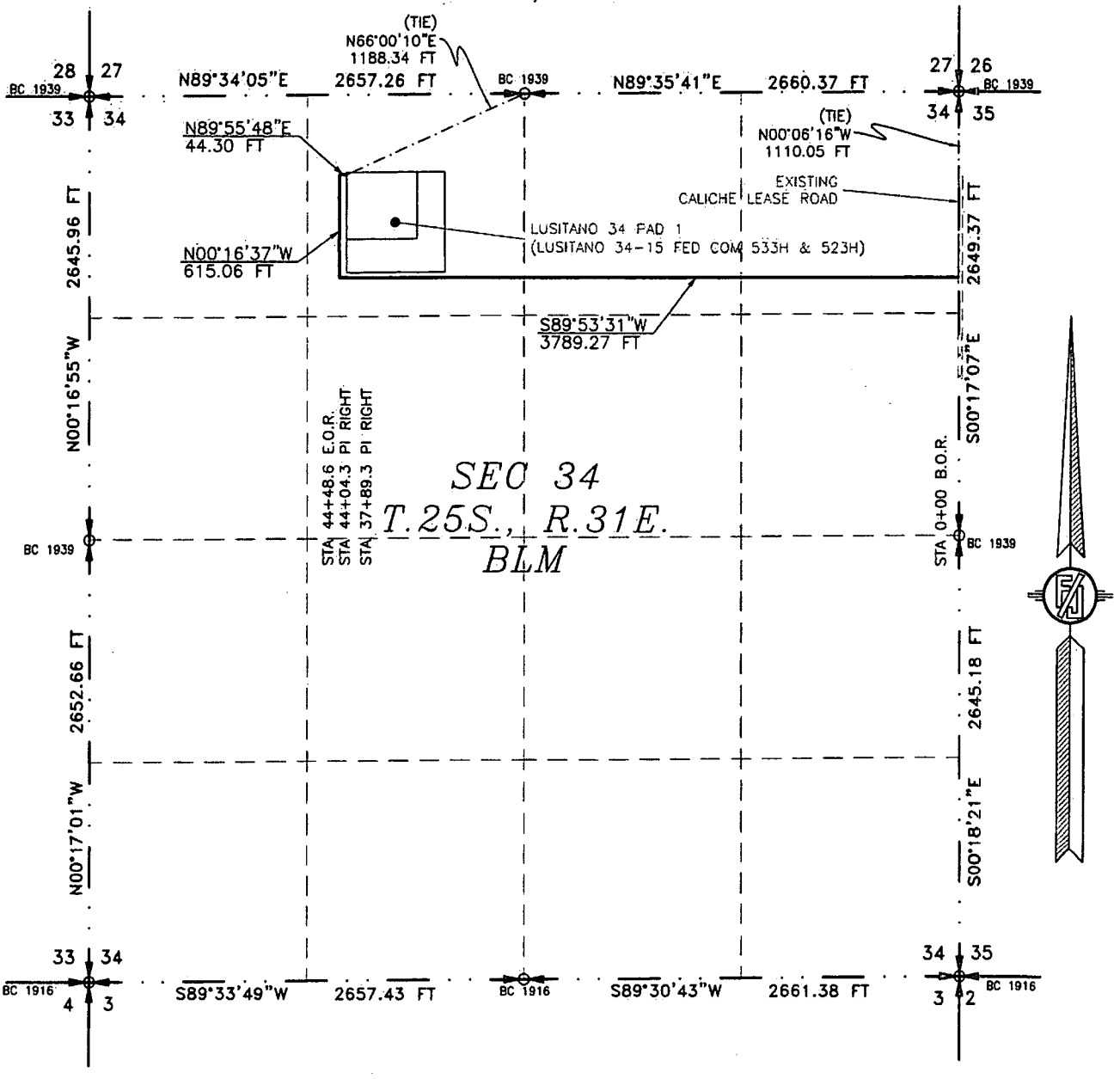
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 533H & 523H)

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 10, 2019



SEE NEXT SHEET (2-2) 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 10TH DAY OF JUNE 2019

FILIMON F. JARAMILLO, PLS, 12797

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

SHEET: 1-2

SURVEY NO. 7299A

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 533H & 523H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 10, 2019

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, 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 NE/4 OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°06'16"W, A DISTANCE OF 1110.05 FEET;
THENCE S89°53'31"W A DISTANCE OF 3789.27 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°16'37"W A DISTANCE OF 615.06 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°55'48"E A DISTANCE OF 44.30 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N66°00'10"E, A DISTANCE OF 1188.34 FEET;

SAID STRIP OF LAND BEING 4448.63 FEET OR 269.62 RODS IN LENGTH, CONTAINING 3.064 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1326.69 L.F.	80.41 RODS	0.914 ACRES
NW/4 NE/4	1330.19 L.F.	80.62 RODS	0.916 ACRES
NE/4 NW/4	1791.75 L.F.	108.59 RODS	1.234 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 10 DAY OF JUNE 2019.

FILIMON F. JARAMILLO, PLS 12797

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

PLAT

One Mile Radius Map

LUSITANO 34-15 FED COM 523H
WA017807695

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 6/13/2019

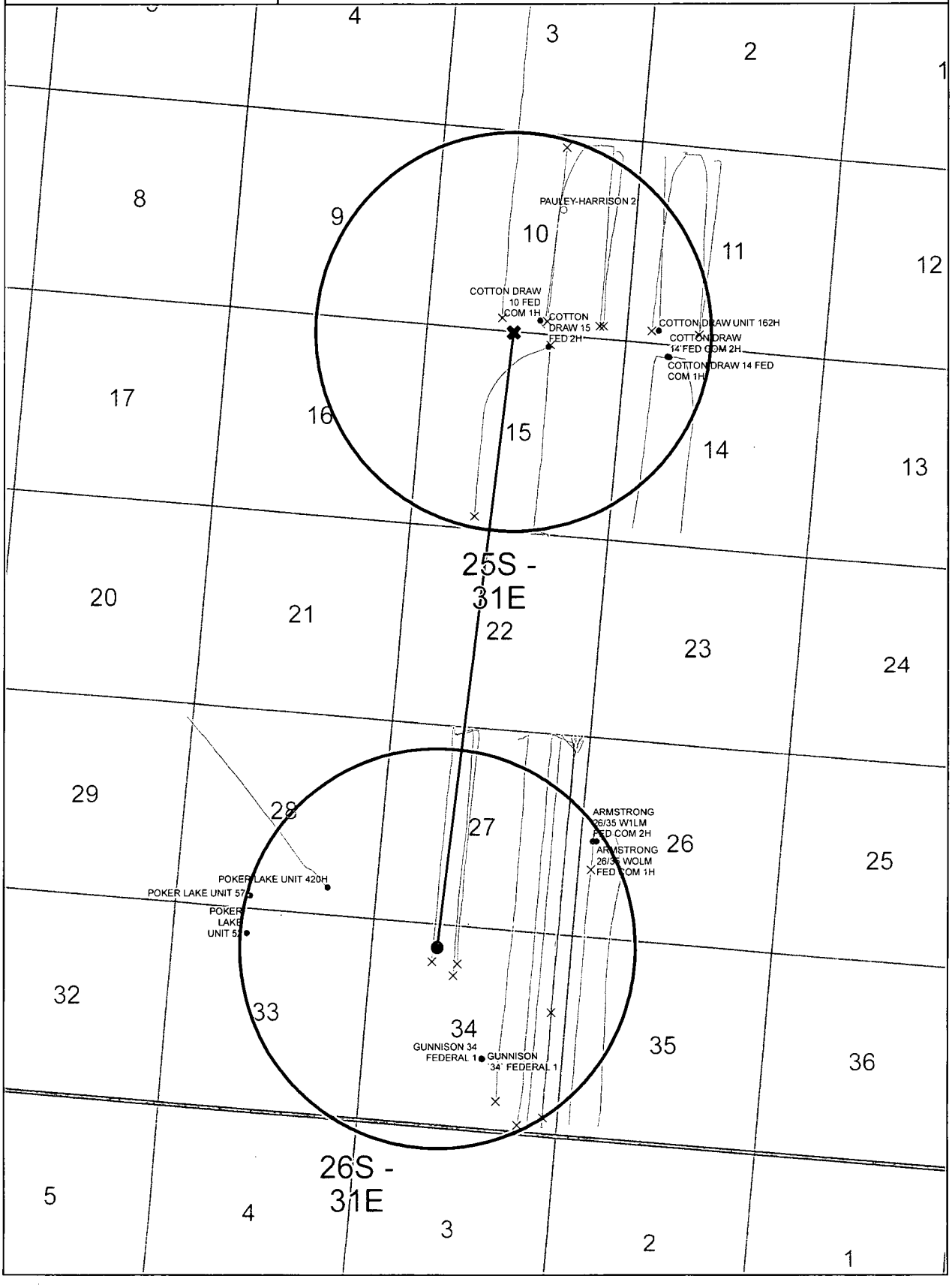
N

0 0.45 Miles 1 inch = 0.58 miles

LUSITANO 27-34 FED COM 622H
Nearest wellbore to SHL: 120 ft.

POKER LAKE UNIT CVX JV BS 30H
Nearest wellbore to BHL: 486 ft.

- ○ Unknown SHL
- • Active SHL
- ○ Inactive SHL
- × BHL



LUSITANO 34-15 FED COM

523H/533H

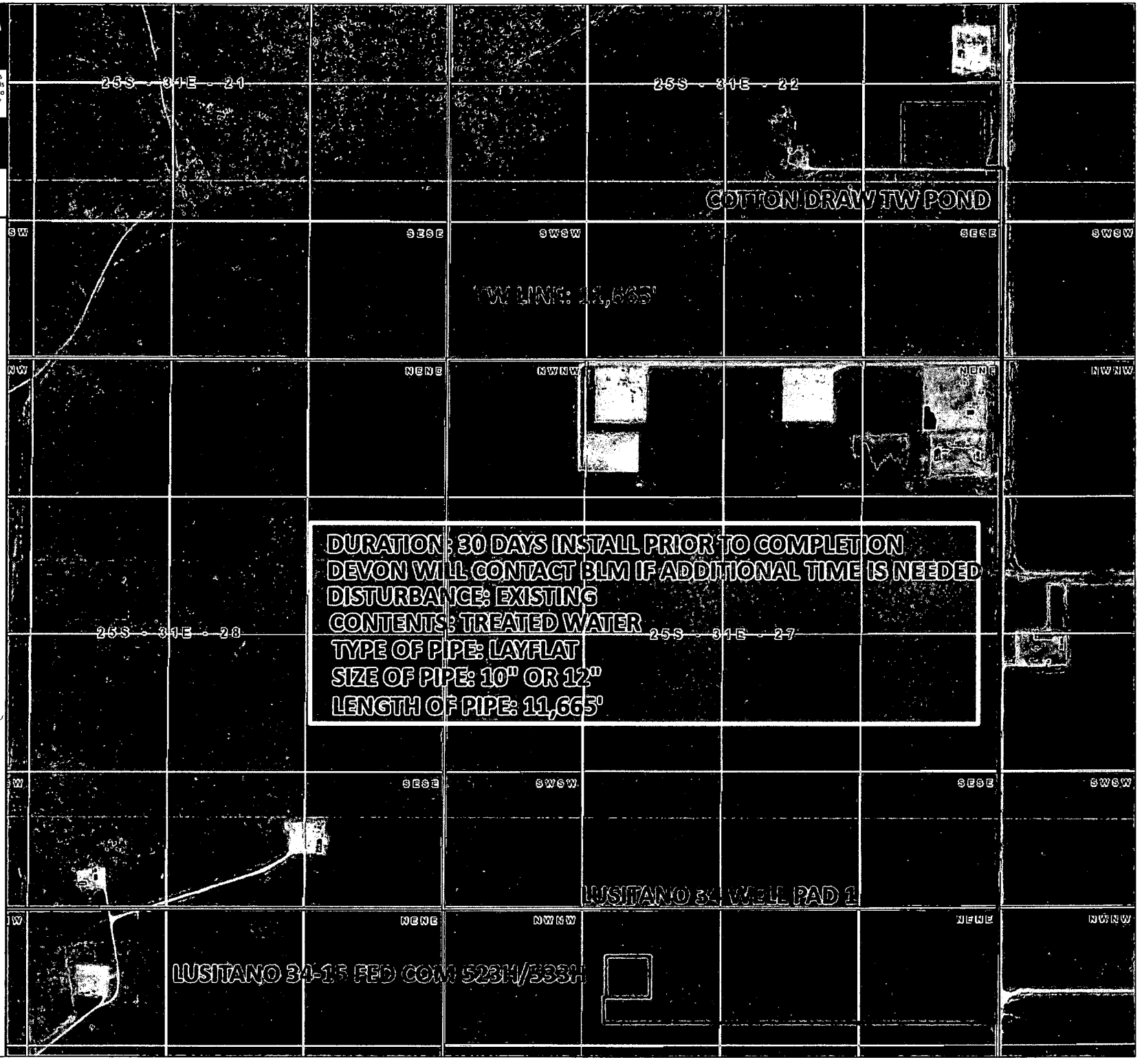
devon

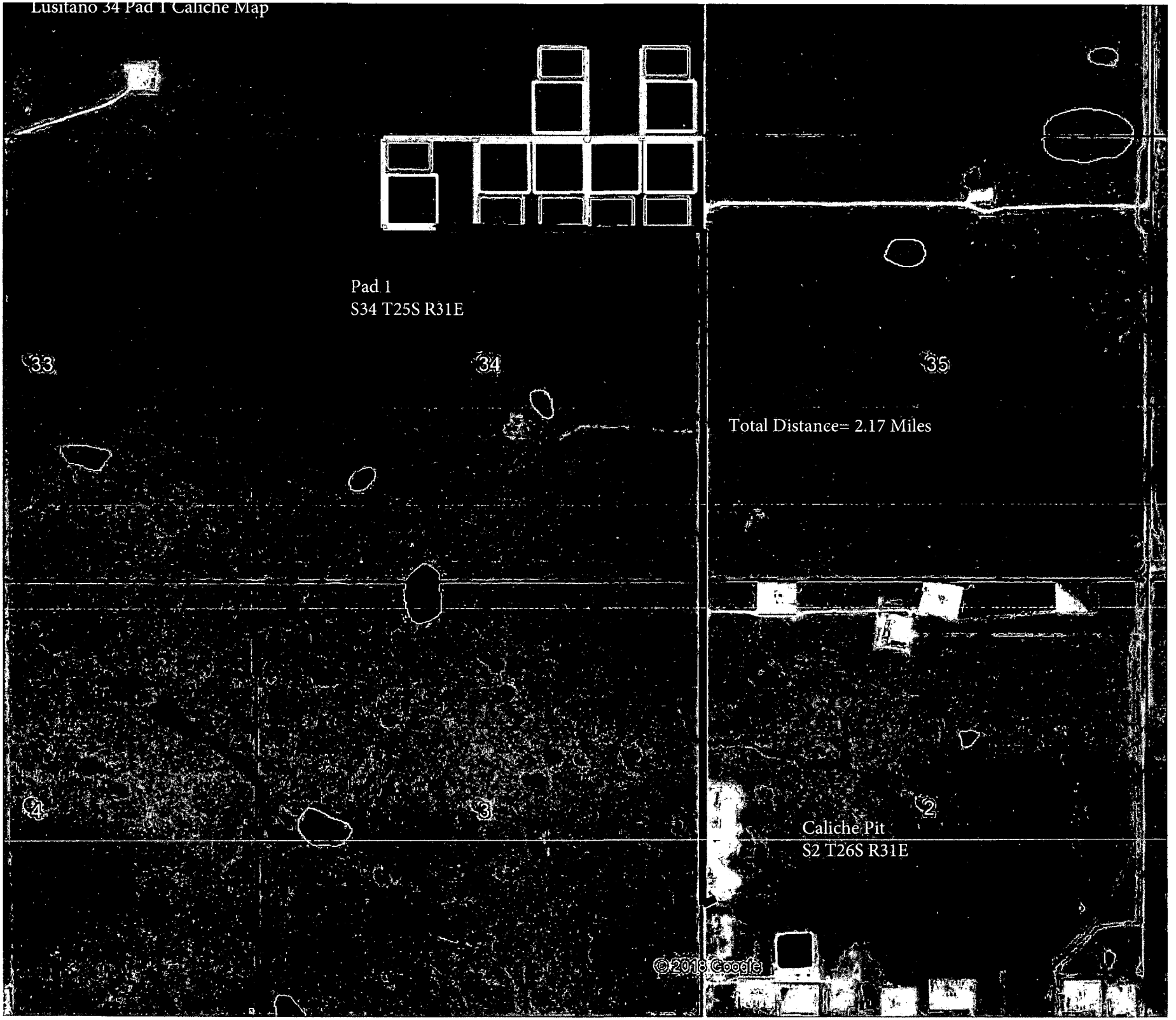
This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: _User
Map is current as of: 13-Jun-2019

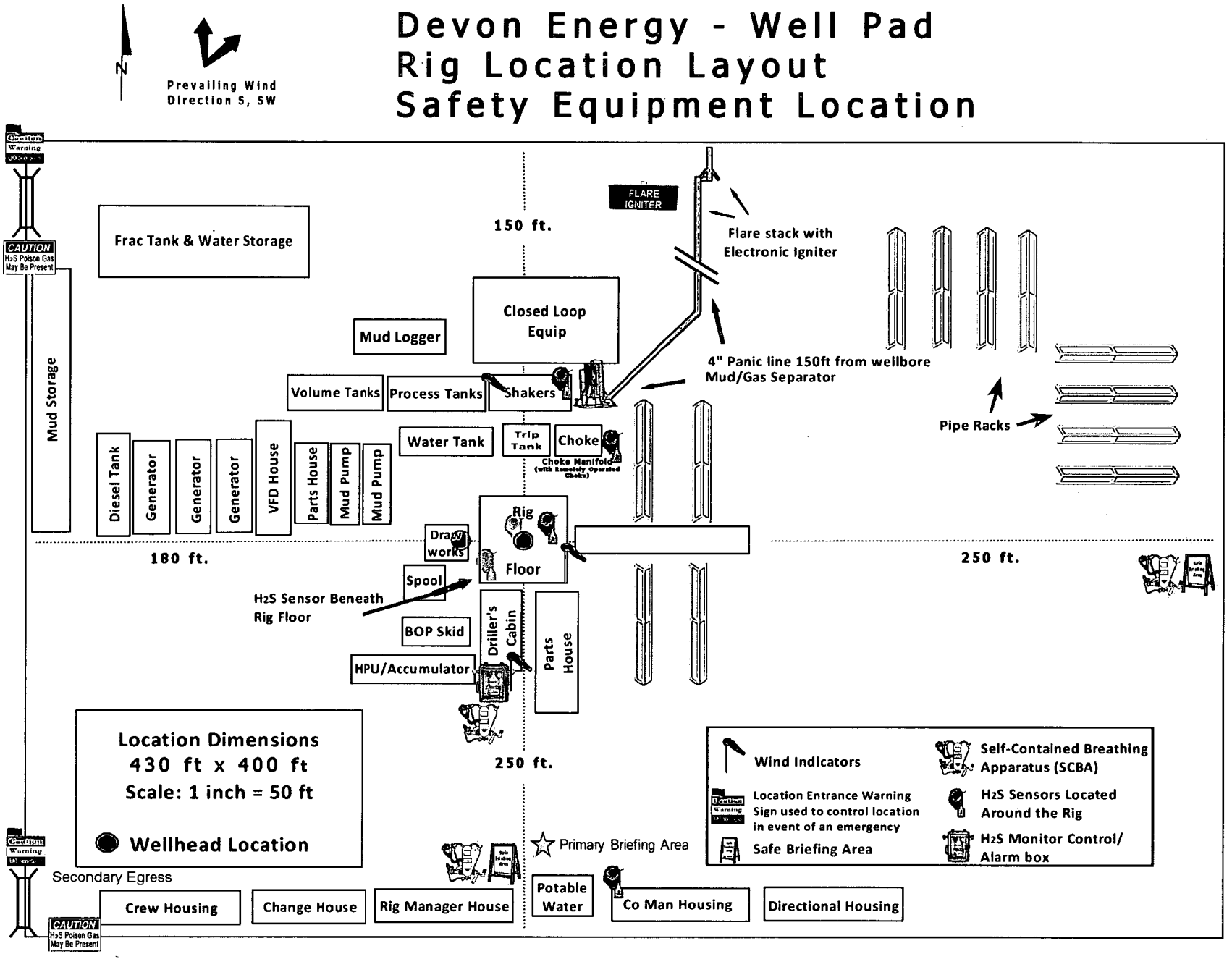
N

Miles
0 0.07 0.14 0.28 1:14,228

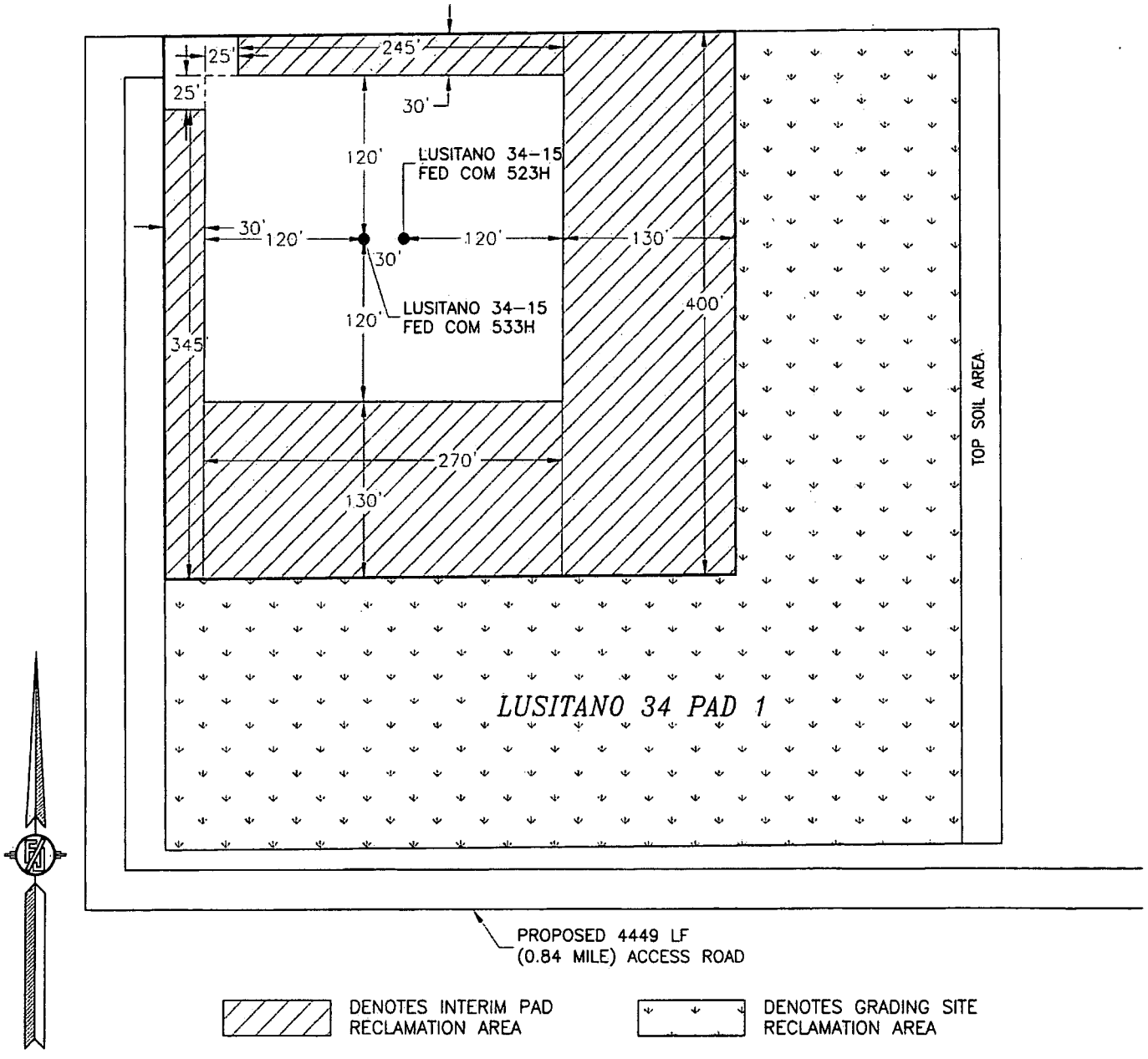



Lusitano 34 Pad 1 Caliche Map
Pad 1
S34 T25S R31E
33
34
35
Total Distance= 2.17 Miles
4
3
2
Caliche Pit
S2 T26S R31E
© 2018 Google

Devon Energy - Well Pad
Rig Location Layout
Safety Equipment Location



SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



012 60 120 240
SCALE 1" = 120'

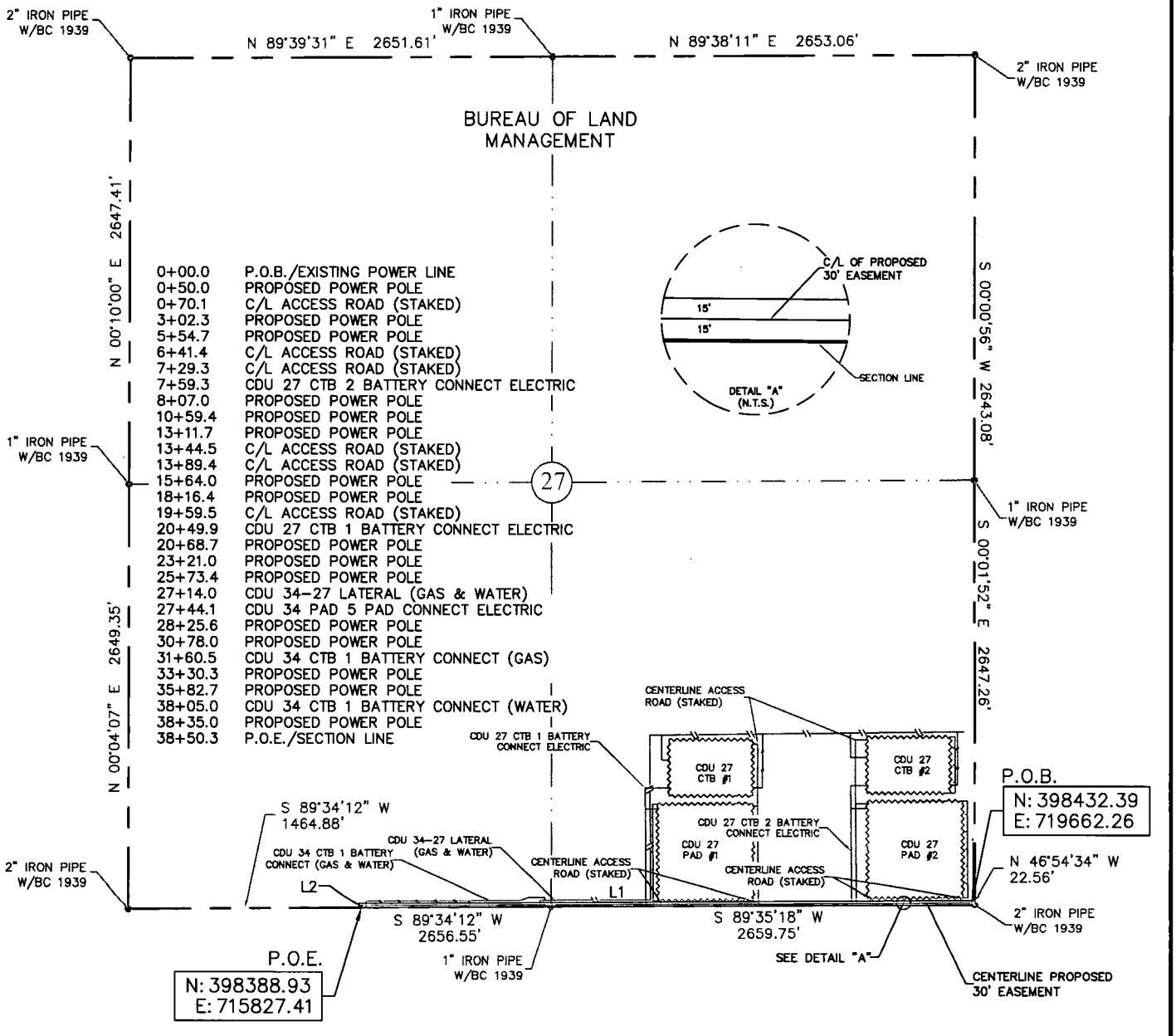
2.409± ACRES INTERIM PAD RECLAMATION AREA
4.312± ACRES GRADING SITE RECLAMATION AREA
1.544± ACRES NON-RECLAIMED AREA
8.265± ACRES LUSITANO 34 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 34-15 FED COM 523H
LOCATED 610 FT. FROM THE NORTH LINE
AND 1750 FT. FROM THE WEST LINE OF
SECTION 34, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

JUNE 10, 2019
SURVEY NO. 7299A

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

EXHIBIT "A"
PAGE 1 of 23
ELECTRIC LINE PLAT
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



0+00.0	P.O.B./EXISTING POWER LINE	
0+50.0	PROPOSED POWER POLE	
0+70.1	C/L ACCESS ROAD (STAKED)	
3+02.3	PROPOSED POWER POLE	
5+54.7	PROPOSED POWER POLE	
6+41.4	C/L ACCESS ROAD (STAKED)	
7+29.3	C/L ACCESS ROAD (STAKED)	
7+59.3	CDU 27 CTB 2 BATTERY CONNECT ELECTRIC	
8+07.0	PROPOSED POWER POLE	
10+59.4	PROPOSED POWER POLE	
13+11.7	PROPOSED POWER POLE	
13+44.5	C/L ACCESS ROAD (STAKED)	
13+89.4	C/L ACCESS ROAD (STAKED)	
15+64.0	PROPOSED POWER POLE	
18+16.4	PROPOSED POWER POLE	
19+59.5	C/L ACCESS ROAD (STAKED)	
20+49.9	CDU 27 CTB 1 BATTERY CONNECT ELECTRIC	
20+68.7	PROPOSED POWER POLE	
23+21.0	PROPOSED POWER POLE	
25+73.4	PROPOSED POWER POLE	
27+14.0	CDU 34–27 LATERAL (GAS & WATER)	
27+44.1	CDU 34 PAD 5 PAD CONNECT ELECTRIC	
28+25.6	PROPOSED POWER POLE	
30+78.0	PROPOSED POWER POLE	
31+60.5	CDU 34 CTB 1 BATTERY CONNECT (GAS)	
33+30.3	PROPOSED POWER POLE	
35+82.7	PROPOSED POWER POLE	
38+05.0	CDU 34 CTB 1 BATTERY CONNECT (WATER)	
38+35.0	PROPOSED POWER POLE	
38+50.3	P.O.E./SECTION LINE	

P.O.B.
N: 398432.39
E: 719662.26

P.O.E.
N: 398388.93
E: 715827.41

30' EASEMENT AREA = 2.652 ACRE(S)
3850.30 FEET OR 233.35 RODS

LINE	BEARING	DISTANCE
L1	S 89°34'44" W	3835.02'
L2	S 00°16'14" E	15.28'

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: 05-17-2016
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: 05/15/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 34 PAD 1 PAD
CONNECT–ELECTRIC LINE
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

LINE NUMBER: EL7809
WBS NUMBER: CC–112971.AL
SCALE: 1" = 1000'
REVISIONS:
SHEET: 1 OF 23

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 southeast quarter (SE ¼) and the southwest quarter (SW 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 southeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 46°54'34" W a distance of 22.56' to the **Point of Beginning** of this easement having coordinates of Northing=398432.39 feet, Easting=719662.26 feet, and continuing the following courses;

Thence S 89°34'44" W, a distance of 3835.02' to an angle point;

Thence S 00°16'14" E, a distance of 15.28' to the **Point of Ending** having coordinates of Northing=398388.93 feet, Easting=715827.41 feet, being in the south line of Section 27, T25S-R31E, from said point a 2" iron pipe w/ BC1939 found for the southwest corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 89°34'12" W a distance of 1464.88', covering **3850.30' or 233.35 rods** and having an area of **2.652 acres**.

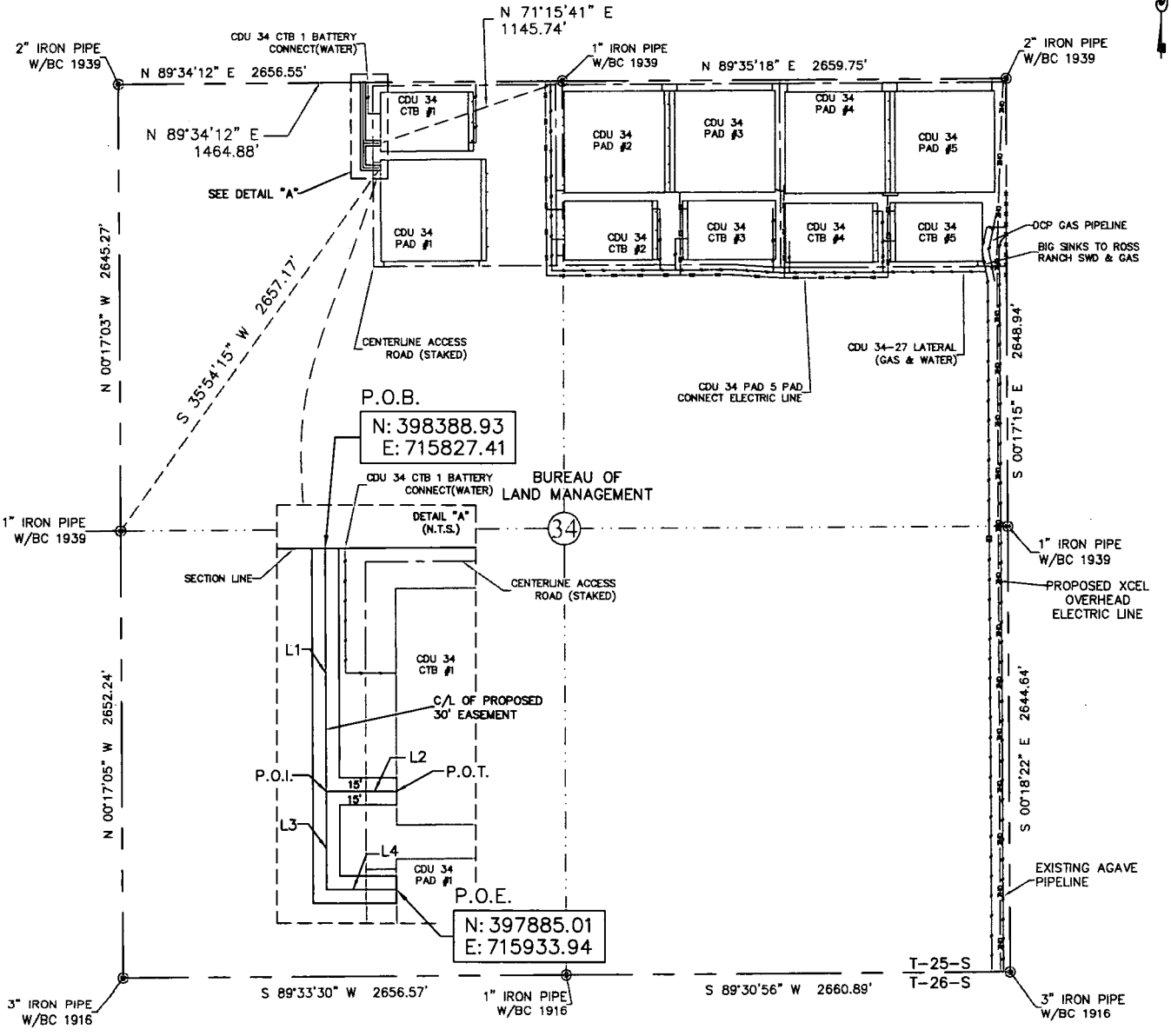
NOTES:

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: 05/17/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 3 of 23
ELECTRIC LINE PLAT
SECTION 34, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



0 1000 2000

30' EASEMENT AREA = 0.481 ACRE(S)
713.44 FEET OR 43.24 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.

CDU 34 PAD 1 PAD CONNECT STATIONS

38+50.3	P.O.B./SECTION LINE
40+94.9	PROPOSED POWER POLE
42+09.9	P.O.I./PROPOSED POWER POLE
	P.O.B./CDU 34 CTB 1 BATTERY CONNECT ELECTRIC
43+54.7	PROPOSED POWER POLE
44+13.7	C/L ACCESS ROAD (STAKED)
44+58.8	P.O.E./CDU 34 #1 WELL PAD

CDU 34 CTB 1 BATTERY CONNECT STATIONS

0+00.0	P.O.B./PROPOSED POWER POLE
	P.O.I./CDU 34 PAD 1 PAD CONNECT ELECTRIC
0+59.3	C/L ACCESS ROAD (STAKED)
1+04.9	P.O.T./CDU 34 CTB #1 PAD

LINE	BEARING	DISTANCE
L1	S 00°16'14" E	359.62'
L2	N 89°44'07" E	104.92'
L3	S 00°16'14" E	144.76'
L4	N 89°44'53" E	104.14'

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: 05-17-2016
353 CR 526 Magnolia Springs, TX. 75956
(903) 388-3045
Employee of Horizonrow, LLC

	WBS NUMBER:	LINE NUMBER:
CDU 34 PAD 1 PAD CONNECT ELECTRIC LINE	CC-112971.AL	EL7809
CDU 34 CTB 1 BATTERY CONNECT ELECTRIC LINE	CC-112971.AL	EL7804

HORIZON ROW LLC

Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 34 PAD 1 PAD CONNECT AND
CDU 34 CTB 1 BATTERY CONNECT
ELECTRIC LINES

SCALE: 1" = 1000'
REVISIONS:
SHEET: 3 OF 23

Drawn by: WAYNE BEETS
Date: 05/09/2016

PROPOSED 30' EASEMENT ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 34, T25S–R31E, N.M.P.M.

SECTION 34, 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 34, 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 34, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 89°34'12" E a distance of 1464.88' to the **Point of Beginning** of this easement having coordinates of Northing=398388.93 feet, Easting=715827.41 feet, being in the north line of Section 34, T25S-R31E, and continuing the following courses;

Thence S 00°16'14" E, a distance of 359.62' to the Point of Intersection;

Thence N 89°44'07" E, a distance of 104.92' 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 34, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 71°15'41" E a distance of 1145.74';

Thence continuing from said point of intersection the following courses;

Thence S 00°16'14" E, a distance of 144.76' to an angle point;

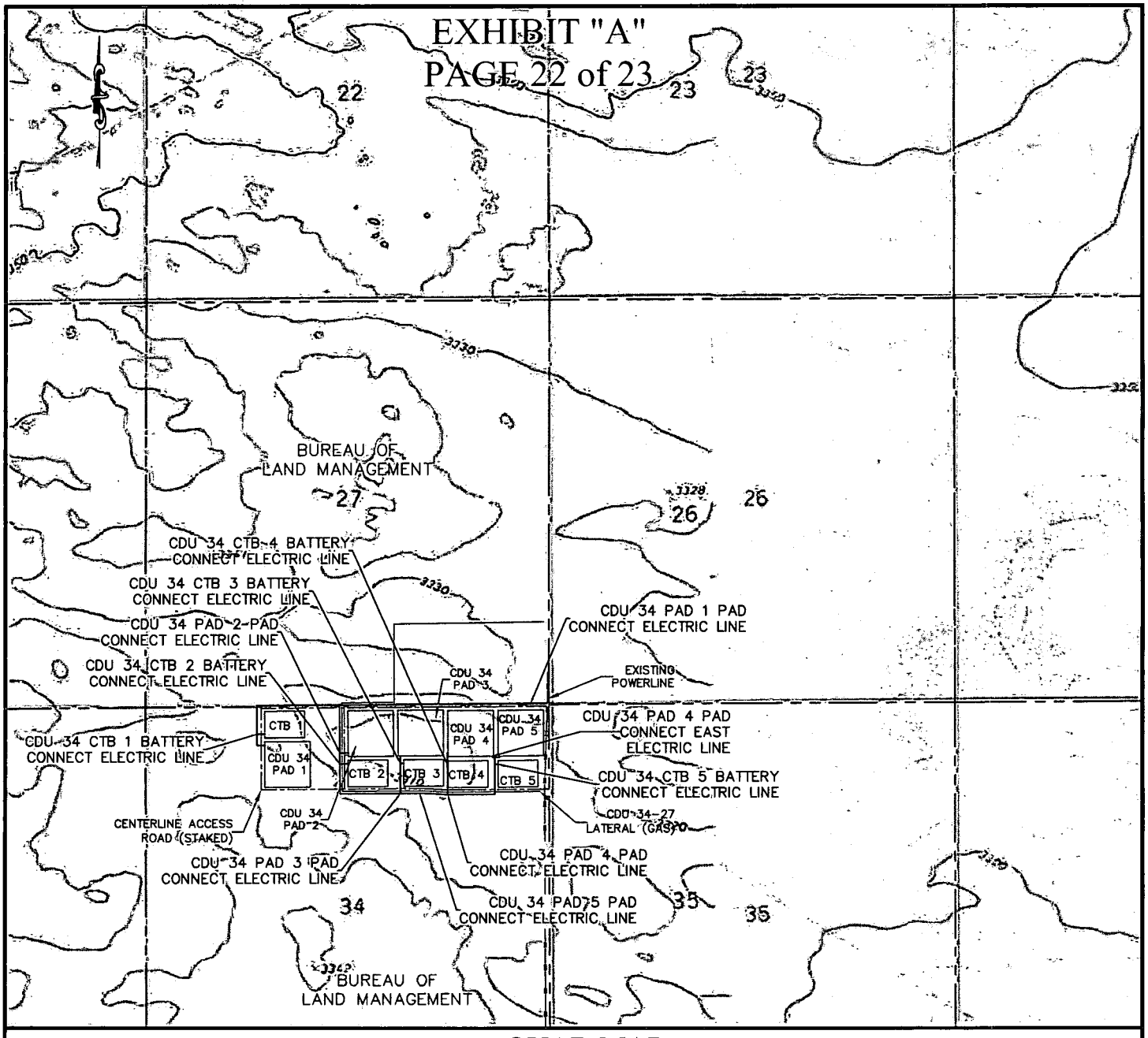
Thence N 89°44'53" E, a distance of 104.14' to the **Point of Ending** having coordinates of Northing=397885.01 feet, Easting=715933.94 feet, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 34, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 35°54'15" W a distance of 2657.17', covering **713.44' or 43.24 rods** and having an area of **0.481 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: 05/17/2016
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 34, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 34 CTB 1 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7804
CDU 34 PAD 1 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7809
CDU 34 PAD 2 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7810
CDU 34 CTB 2 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7805
CDU 34 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7811
CDU 34 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7806
CDU 34 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7807
CDU 34 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7812
CDU 34 PAD 4 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL7815
CDU 34 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7813
CDU 34 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7808

Drawn for: devon — DEVON ENERGY PRODUCTION COMPANY, L.P.

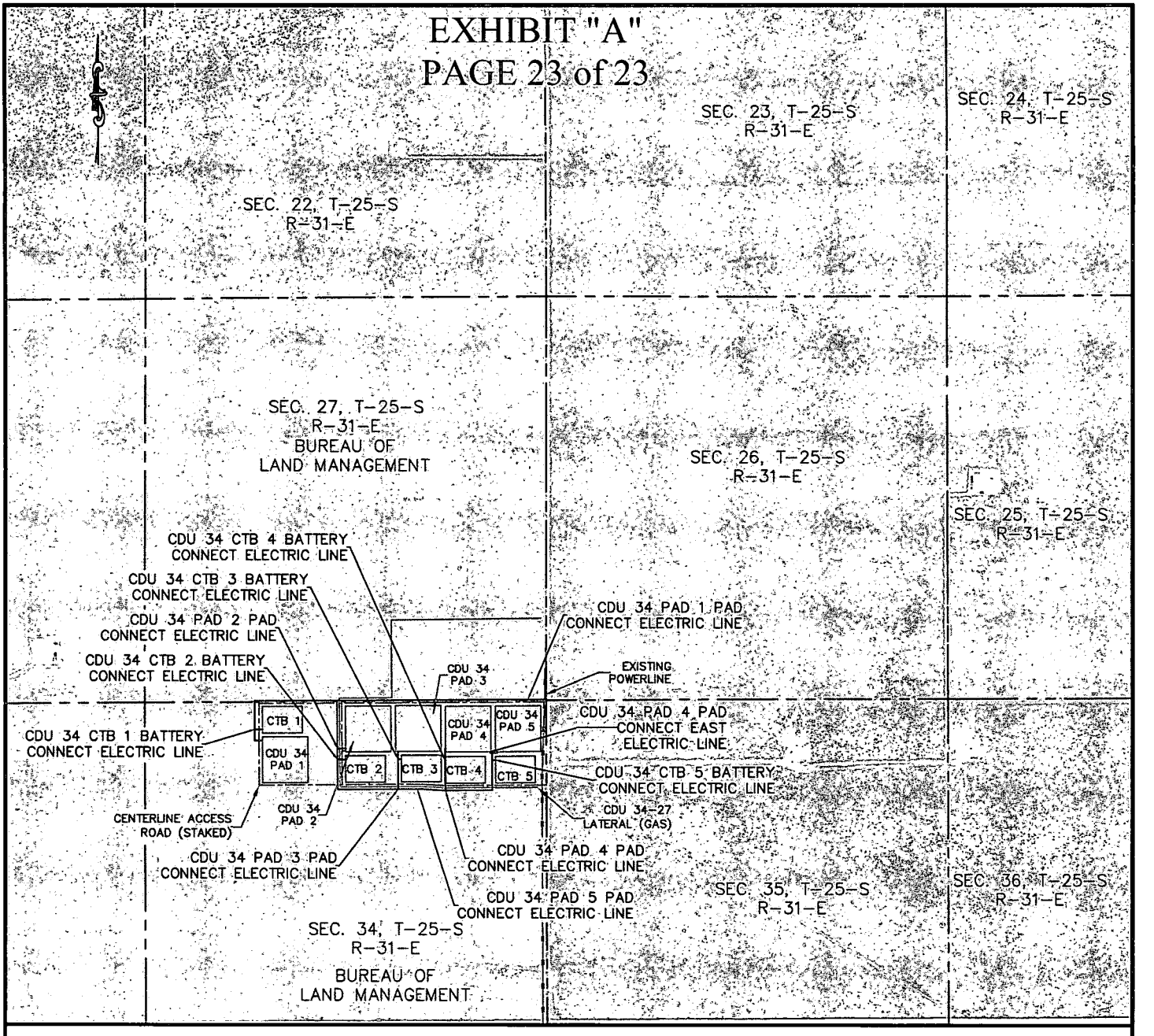
Drawn by: WAYNE BEETS — Date: 05/15/2018

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT

SCALE: 1" = 2000'
REVISIONS:
SHEET: 22 OF 23

HORIZON ROW LLC

EXHIBIT "A"
PAGE 23 of 23



AERIAL MAP

SECTION 27, T25S-R31E, N.M.P.M.
SECTION 34, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

	WBS NUMBER:	LINE NUMBER:
CDU 34 CTB 1 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7804
CDU 34 PAD 1 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7809
CDU 34 PAD 2 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7810
CDU 34 CTB 2 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7805
CDU 34 PAD 3 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7811
CDU 34 CTB 3 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7806
CDU 34 CTB 4 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7807
CDU 34 PAD 4 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7812
CDU 34 PAD 4 PAD CONNECT EAST-ELECTRIC LINE	CC-112971.AL	EL7815
CDU 34 PAD 5 PAD CONNECT-ELECTRIC LINE	CC-112971.AL	EL7813
CDU 34 CTB 5 BATTERY CONNECT-ELECTRIC LINE	CC-112971.AL	EL7808

Drawn for: devon

DEVON ENERGY PRODUCTION COMPANY, L.P.

Drawn by: WAYNE BEETS

Date: 05/18/2016

PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT

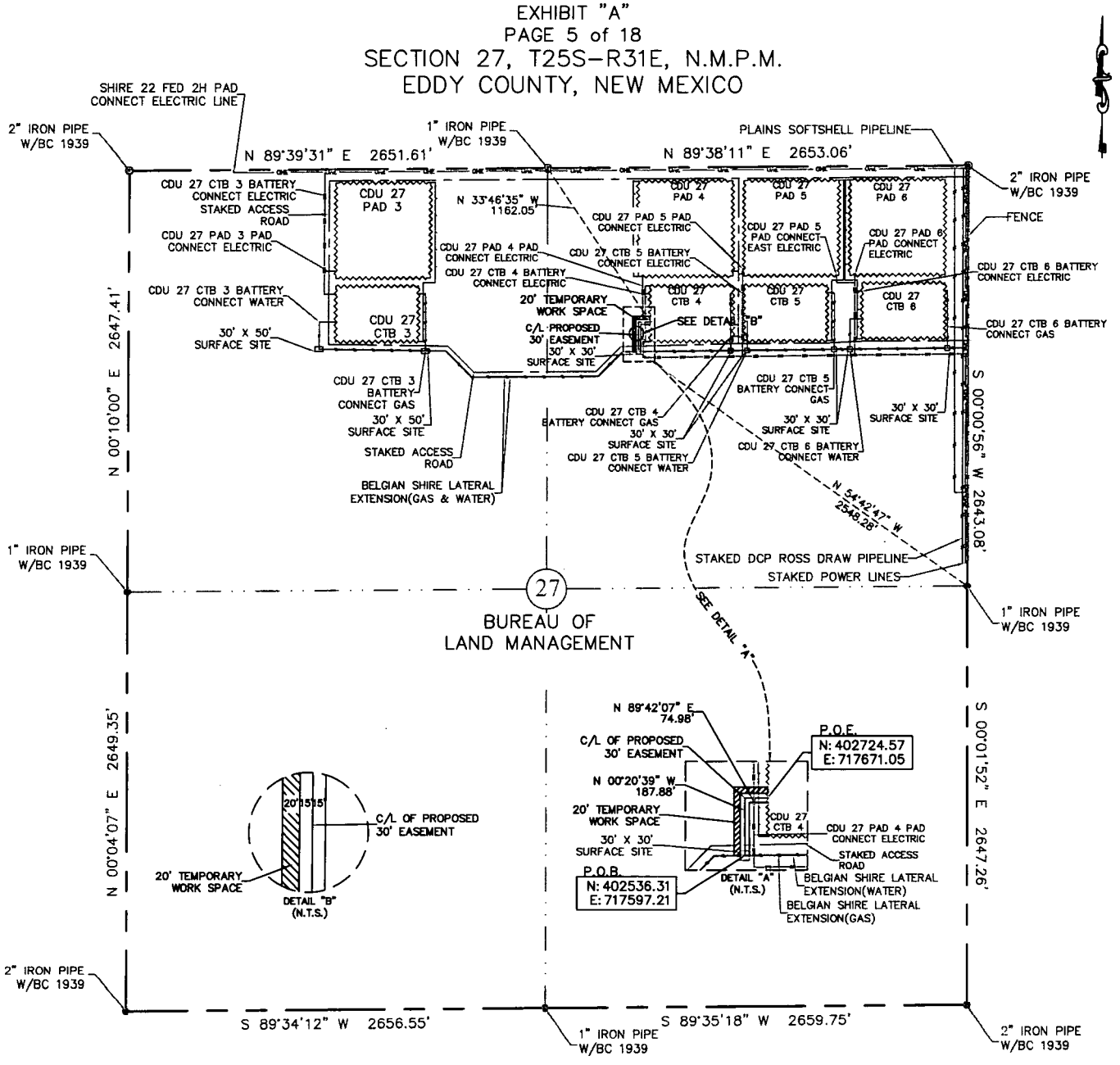
SCALE: 1" = 2000'

REVISIONS:

SHEET: 23 OF 23

HORIZON ROW LLC

EXHIBIT "A"
PAGE 5 of 18
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



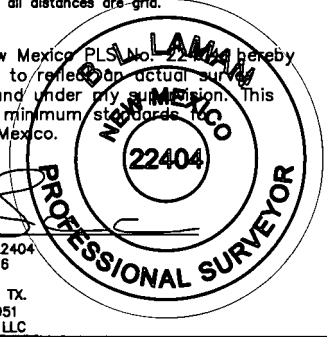
30' EASEMENT AREA = 0.181 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 0.144 ACRE(S)
262.86 FEET OR 15.93 RODS

0+00.0 P.O.B./BELGIAN SHIRE LATERAL EXTENSION (WATER)
0+02.0 BELGIAN SHIRE LATERAL EXTENSION (GAS)
0+16.0 EXIT 30' X 30' SURFACE SITE
0+35.2 C/L STAKED ACCESS ROAD
2+17.9 CDU 27 PAD 4 PAD CONNECT ELECTRIC LINE
2+62.9 P.O.E./CDU 27 CTB 4

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 PLS #22404
Date Signed: 05-12-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

0 1000 2000

HORIZON ROW LLC	DEVON ENERGY PRODUCTION COMPANY, L.P.	LINE NUMBER: 760068Z
Drawn for: devon	CDU 27 CTB 4 BATTERY CONNECT (WATER)	WBS NUMBER: CC-110133.03
		SCALE: 1" = 1000'
	PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S–R31E, N.M.P.M.	REVISIONS:
Drawn by: CHRIS MAAS	Date: 05/03/2016	SHEET: 5 OF 18

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

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/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 54°42'47" W, a distance of 2548.28' to the **Point of Beginning** of this easement having coordinates of Northing=402536.31 feet, Easting=717597.21 feet, being in the northeast quarter (NE ¼) of Section 27, T25S-R31E, and continuing the following courses;

Thence N 00°20'39" W, a distance of 187.88' to an angle point;

Thence N 89°42'07" E, a distance of 74.98' to the **Point of Ending** having coordinates of Northing=402724.57 feet, Easting=717671.05 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 33°46'35" W a distance of 1162.05', covering **262.86' or 15.93 rods** and having an area of **0.181 acres**.

20' TEMPORARY WORK SPACE DESCRIPTION:

Being a temporary work space twenty (20) feet in width lying on the left side and adjoining the left side of the above described thirty (30) feet easement, having a total area of **0.144 acres.**

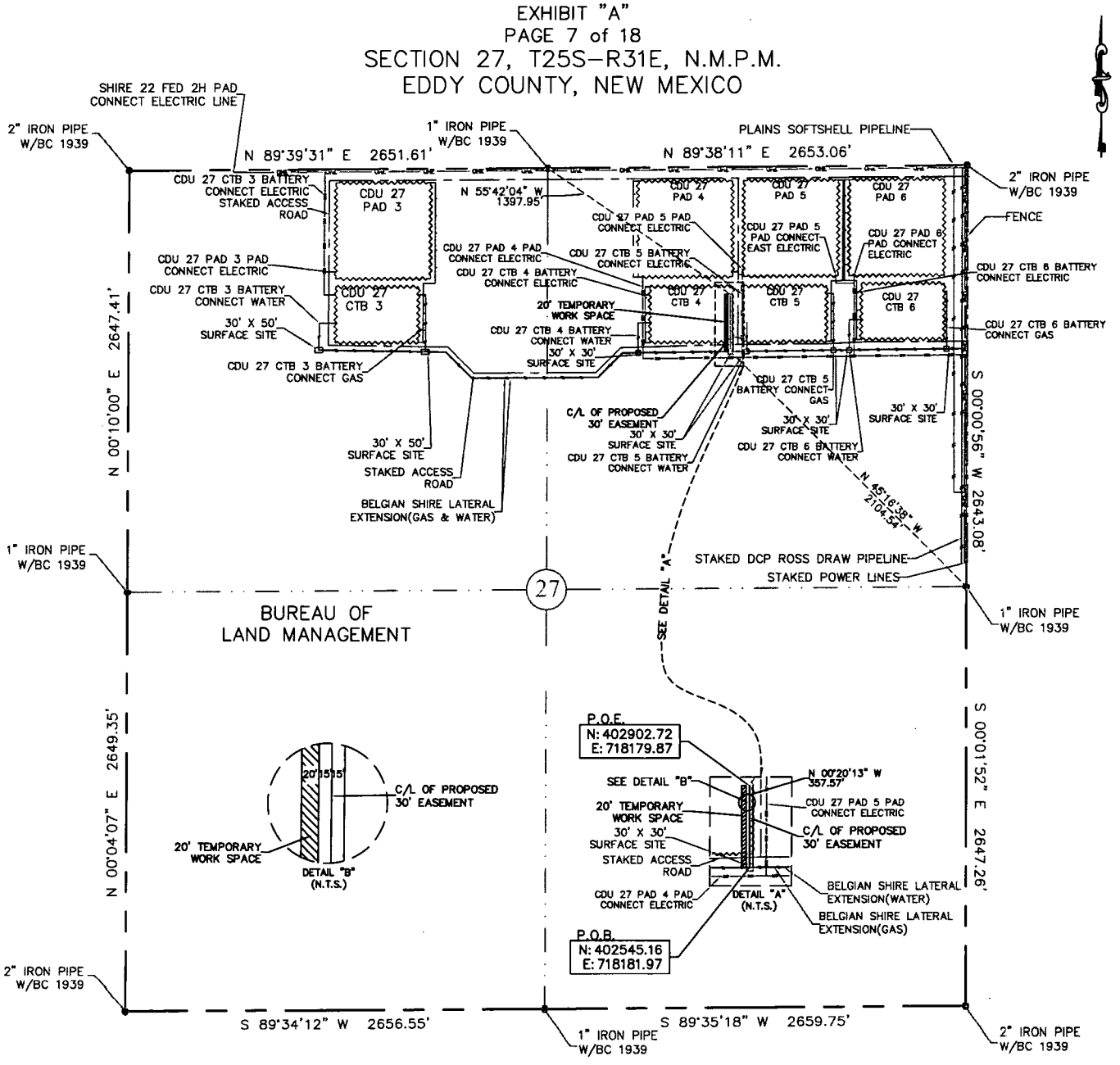
NOTES:

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: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC

EXHIBIT "A"
PAGE 7 of 18
SECTION 27, T25S–R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.246 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 0.164 ACRE(S)
357.57 FEET OR 21.67 RODS

0+00.0 P.O.B./BELGIAN SHIRE LATERAL EXTENSION (GAS)
0+14.0 EXIT 30' X 30' SURFACE SITE
0+41.9 C/L STAKED ACCESS ROAD
0+57.7 ENTER CDU 27 CTB 4
3+57.6 P.O.E.

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 represent 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: 05-12-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

0 1000 2000

HORIZON ROW LLC
Drawn for: devon
Drawn by: CHRIS MAAS
Date: 05/03/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
CDU 27 CTB 4 BATTERY CONNECT (GAS)
PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT
SECTION 27, T25S–R31E, N.M.P.M.

LINE NUMBER: 760068X
WBS NUMBER: CC–110133.01
SCALE: 1" = 1000'
REVISIONS:
SHEET: 7 OF 18

SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

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/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 45°16'38" W, a distance of 2104.54' to the **Point of Beginning** of this easement having coordinates of Northing=402545.16 feet, Easting=718181.97 feet, being in the northeast quarter (NE ¼) of Section 27, T25S-R31E, and continuing the following course;

Thence N 00°20'13" W, a distance of 357.57' to the **Point of Ending** having coordinates of Northing=402902.72 feet, Easting=718179.87 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 55°42'04" W a distance of 1397.95', covering **357.57' or 21.67 rods** and having an area of **0.246 acres**.

20' TEMPORARY WORK SPACE DESCRIPTION:

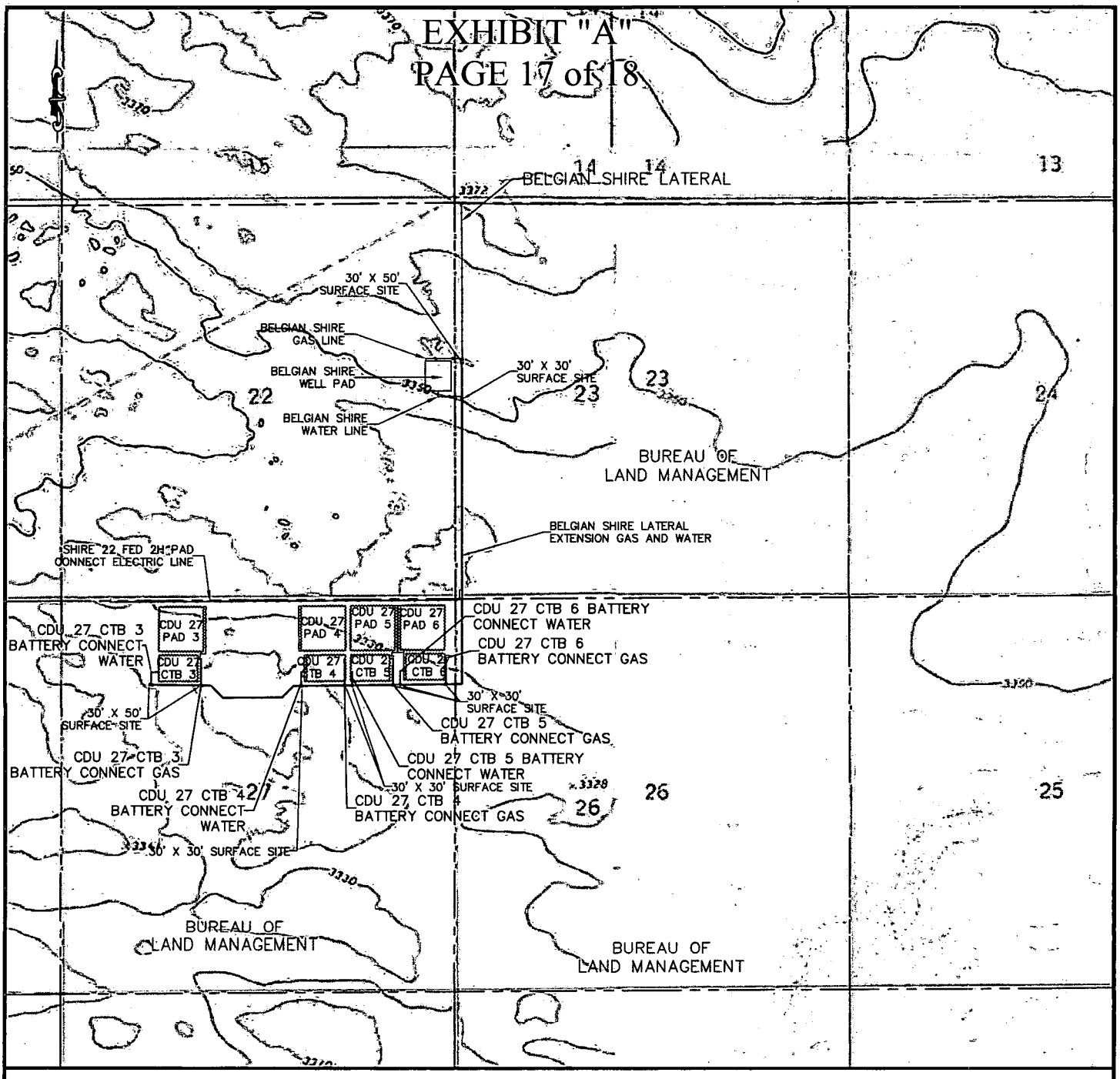
Being a temporary work space twenty (20) feet in width lying on the left side and adjoining the left side of the above described thirty (30) feet easement, having a total area of **0.164 acres.**

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: 05/12/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(409) 202-5111 75951
Employee of Horizon Row, LLC



QUAD MAP

SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760067X.Z
CDU 27 CTB 4 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760068X.Z
CDU 27 CTB 5 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760069X.Z
CDU 27 CTB 6 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760070X.Z

Drawn for: devon

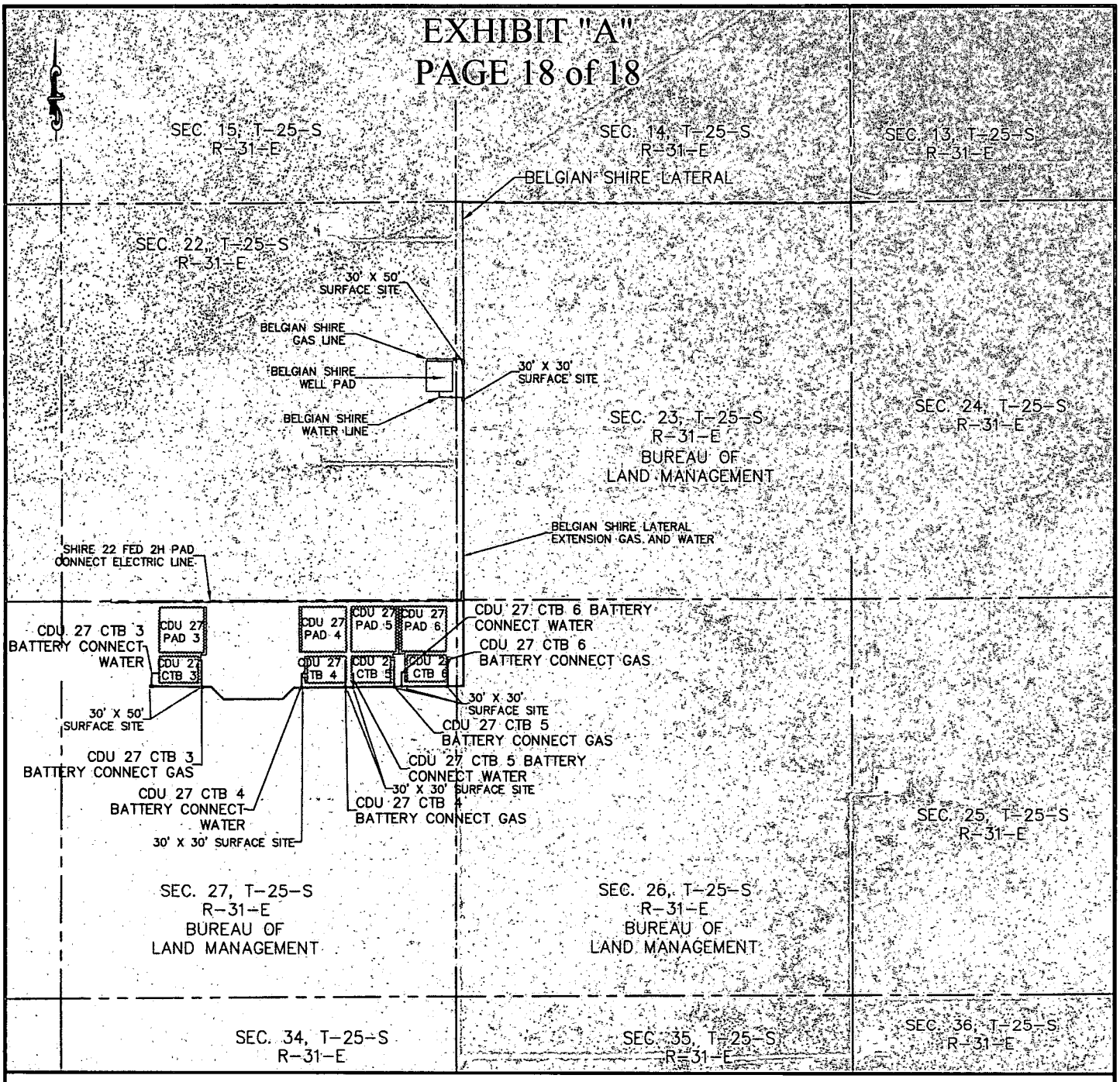
DEVON ENERGY PRODUCTION COMPANY, L.P.

PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT

SCALE: 1" = 2000'
REVISIONS:
SHEET: 17 OF 18

Drawn by: CHRIS MAAS
Date: 05/04/2016

EXHIBIT "A"
PAGE 18 of 18



AERIAL MAP

SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC	WBS NUMBER:	LINE NUMBER:
CDU 27 CTB 3 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760067X.Z
CDU 27 CTB 4 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760068X.Z
CDU 27 CTB 5 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760069X.Z
CDU 27 CTB 6 BATTERY CONNECT (GAS & WATER)	CC-110133.01	760070X.Z

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: 18 OF 18

Drawn by: CHRIS MAAS

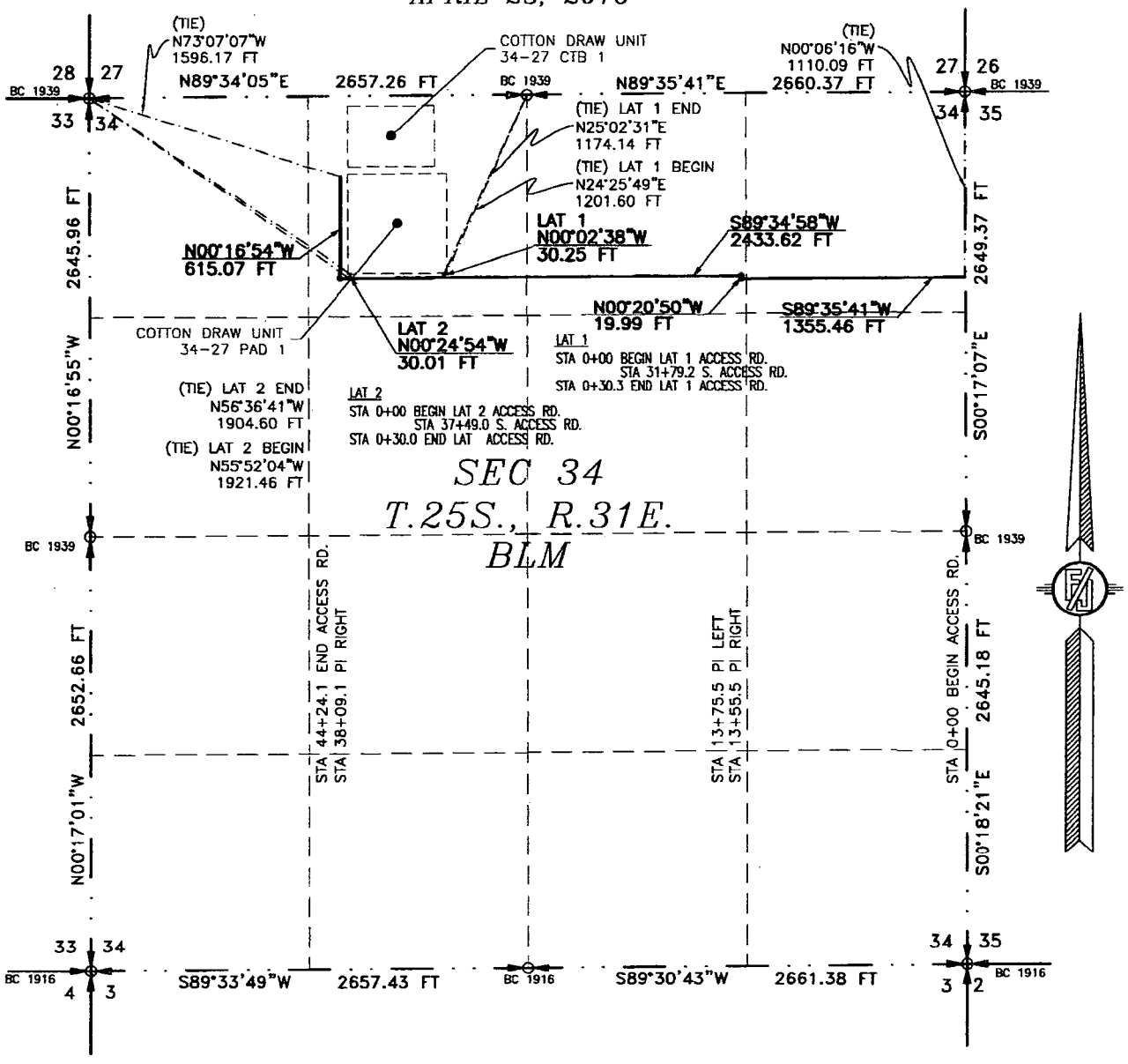
Date: 05/04/2016

ACCESS ROAD PLAT (AA000055116)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 34-27 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
APRIL 28, 2016



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 IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

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 29 DAY OF APRIL 2016

FILIMON F. JARAMILLO PLS 12797

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

SHEET: 1-4

SURVEY NO. 4641

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055116)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 34-27 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
APRIL 28, 2016

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, 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 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°06'16"W, A DISTANCE OF 1110.09 FEET;
THENCE S89°35'41"W A DISTANCE OF 1355.46 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°20'50"W A DISTANCE OF 19.99 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°34'58"W A DISTANCE OF 2433.62 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°16'54"W A DISTANCE OF 615.07 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N73°07'07"W, A DISTANCE OF 1596.17 FEET;

SAID STRIP OF LAND BEING 4424.14 FEET OR 268.14 RODS IN LENGTH, CONTAINING 3.047 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1326.69 L.F.	80.41 RODS	0.914 ACRES
NW/4 NE/4	1350.16 L.F.	81.83 RODS	0.930 ACRES
NE/4 NW/4	1747.29 L.F.	105.90 RODS	1.203 ACRES

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N24°25'49"E, A DISTANCE OF 1201.60 FEET;
THENCE N00°02'38"W A DISTANCE OF 30.25 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N25°02'31"E, A DISTANCE OF 1174.14 FEET;

SAID STRIP OF LAND BEING 30.25 FEET OR 1.83 RODS IN LENGTH, CONTAINING 0.021 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	30.25 L.F.	1.83 RODS	0.021 ACRES

LATERAL 2 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N55°52'04"W, A DISTANCE OF 1921.46 FEET;
THENCE N00°24'54"W A DISTANCE OF 30.01 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N56°36'41"W, A DISTANCE OF 1904.60 FEET;

SAID STRIP OF LAND BEING 30.01 FEET OR 1.82 RODS IN LENGTH, CONTAINING 0.021 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	30.01 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 MODIFIED TO SURFACE COORDINATES.

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 29 DAY OF APRIL 2016

FILIMON F. JARAMILLO PLS 12797

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

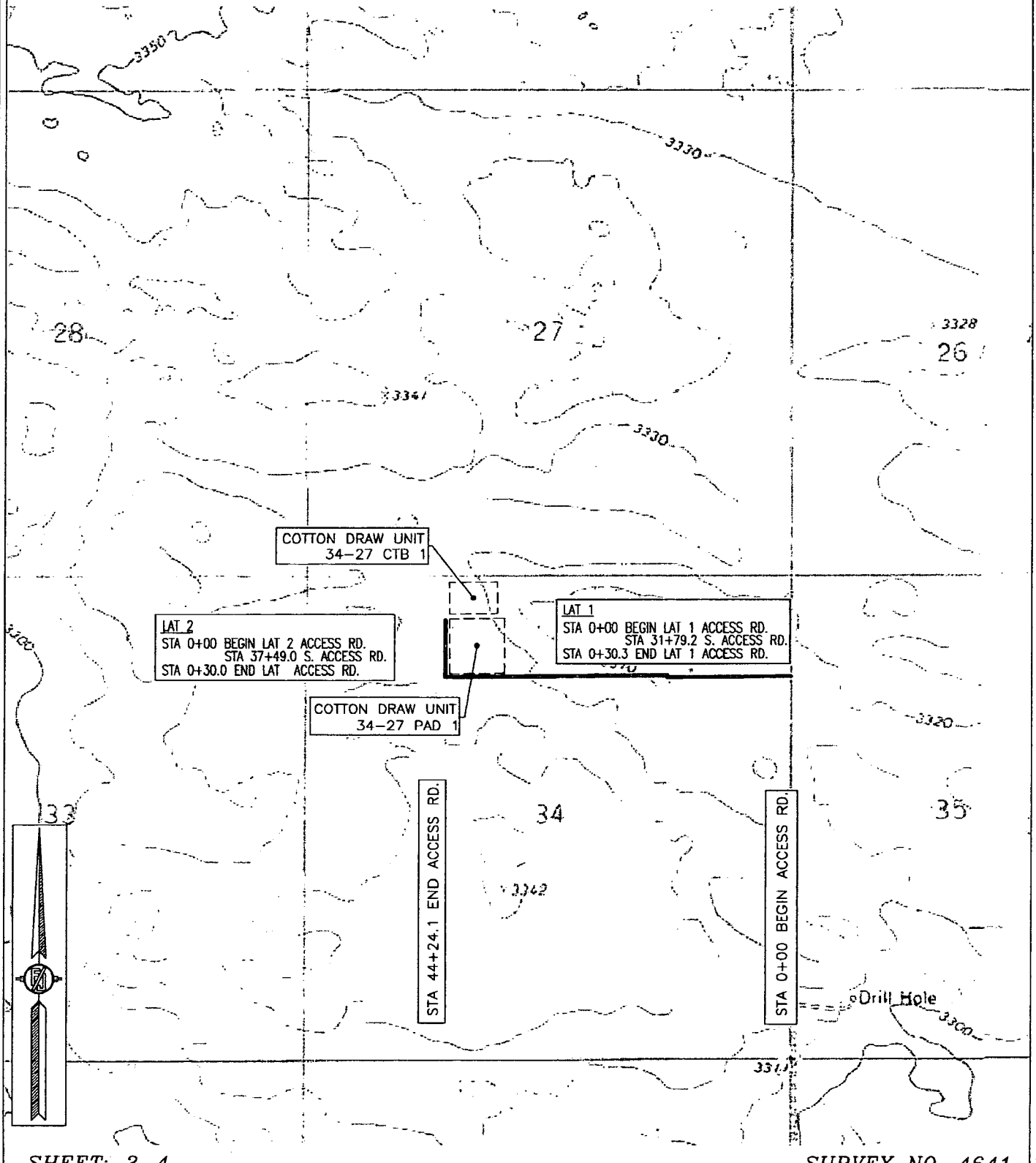
SURVEY NO. 4641

ACCESS ROAD PLAT (AA000055116)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 34-27 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
APRIL 28, 2016



SHEET: 3-4

SURVEY NO. 4641

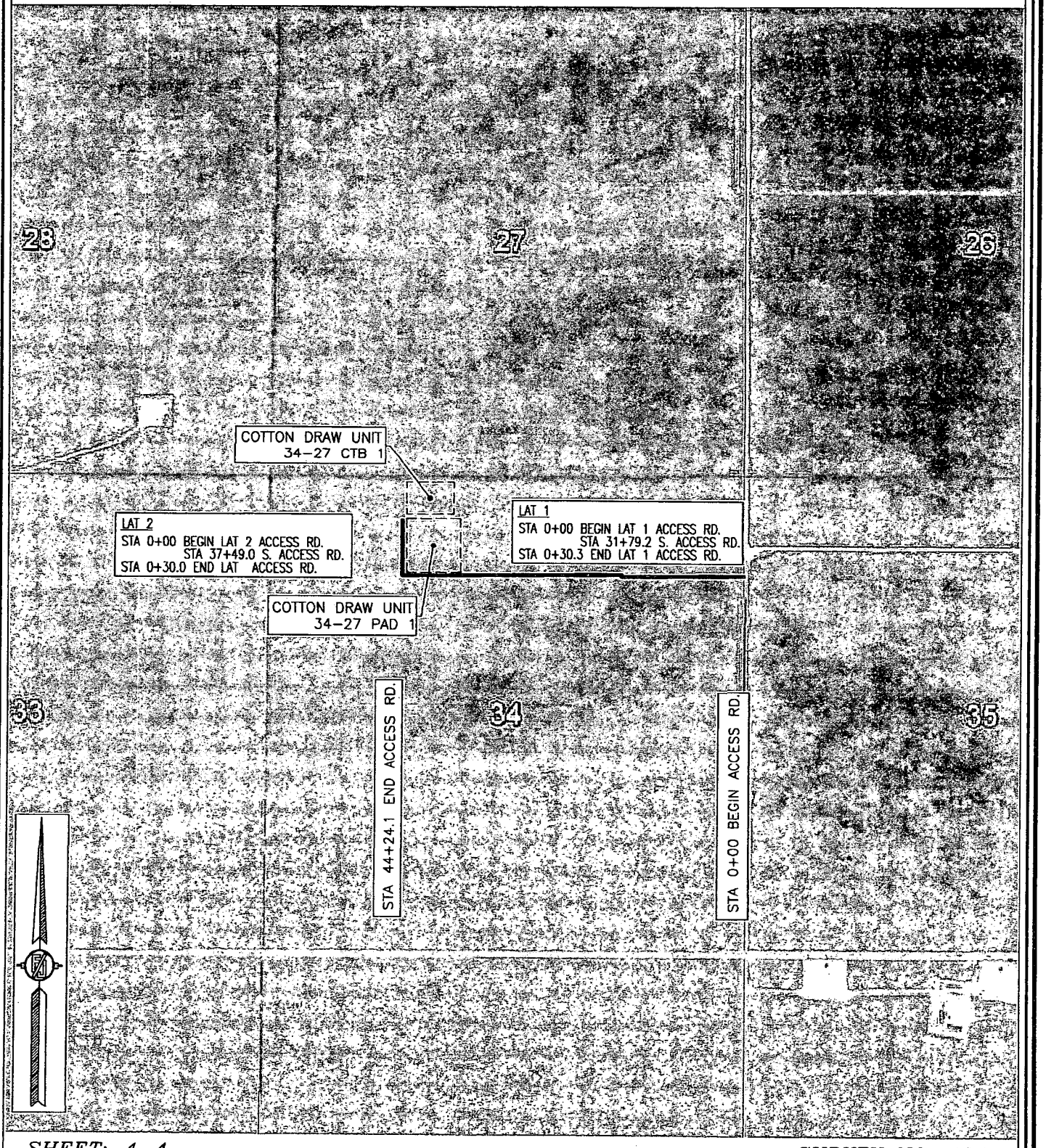
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

ACCESS ROAD PLAT (AA000055116)

SOUTH ACCESS ROAD TO THE COTTON DRAW UNIT 34-27 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
APRIL 28, 2016



SHEET: 4-4

SURVEY NO. 4641

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

Pay.gov

Confirmation

Your payment has been submitted to the designated government agency through Pay.gov and the details are below. Please note that this is just a confirmation of transaction submission. To confirm that the payment processed as expected, you may refer to your bank statement on the scheduled payment date. If you have any questions or wish to cancel this payment, you will need to contact the agency you paid at your earliest convenience.

Tracking Information

Pay.gov Tracking ID: 26I45TQI

Agency Tracking ID: 75770303241

Form Name: Bureau of Land Management (BLM) Application for Permit to Drill (APD) Fee

Application Name: BLM Oil and Gas Online Payment

Payment Information

Payment Type: Bank account (ACH)

Payment Amount: $20,100.00

Transaction Date: 06/13/2019 12:13:24 PM EDT

Payment Date: 06/14/2019

Company: Devon Energy Production Company, L.P.

APD IDs: 10400042741, 10400042746

Lease Numbers: NMNM125635, NMNM125635

Well Numbers: 523H, 533H

Note: You will need your Pay.gov Tracking ID to complete your APD transaction in AFMSS II. Please ensure you write this number down upon completion of payment.

Account Information

Account Holder Name: Devon Energy Production Company, L.P.

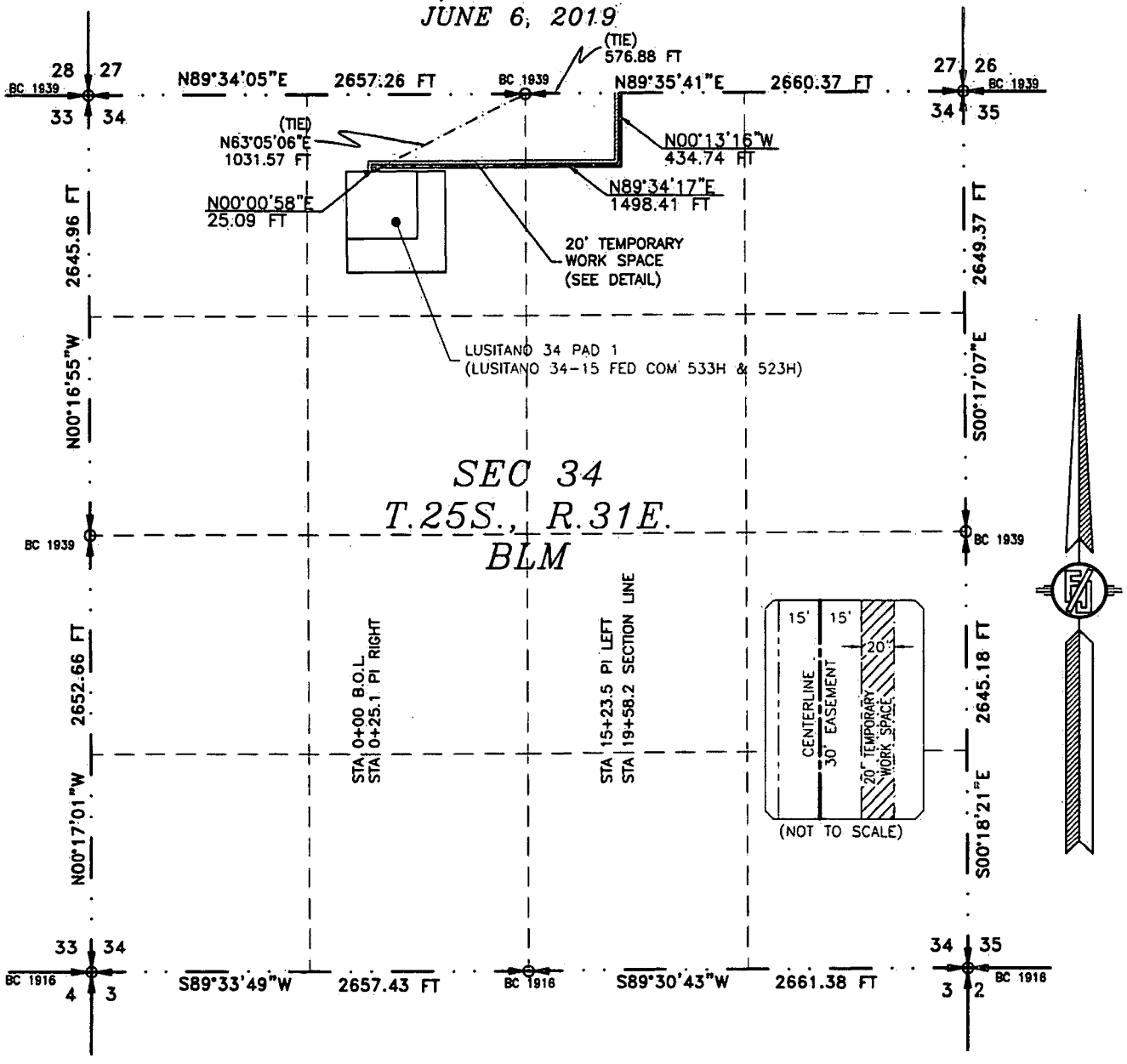
Routing Number: 061000052

Account Number: **********9892

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019



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 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 12 DAY OF JUNE 2019

FILIMON F. JARAMILLO NEW MEXICO 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

SHEET: 1-6

SURVEY NO. 7320

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, 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 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°05'06"E, A DISTANCE OF 1031.57 FEET;
THENCE N00°00'58"E A DISTANCE OF 25.09 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°34'17"E A DISTANCE OF 1498.41 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°13'16"W A DISTANCE OF 434.74 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°35'41"W, A DISTANCE OF 576.88 FEET;

SAID STRIP OF LAND BEING 1958.24 FEET OR 118.68 RODS IN LENGTH, CONTAINING 1.348 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	947.10 L.F.	57.40 RODS	0.652 ACRES
NW/4 NE/4	1011.14 L.F.	61.28 RODS	0.696 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 20 DAY OF JUNE 2019.

FILIMON F. JARAMILLO NEW MEXICO 12797 PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO PLS 12797

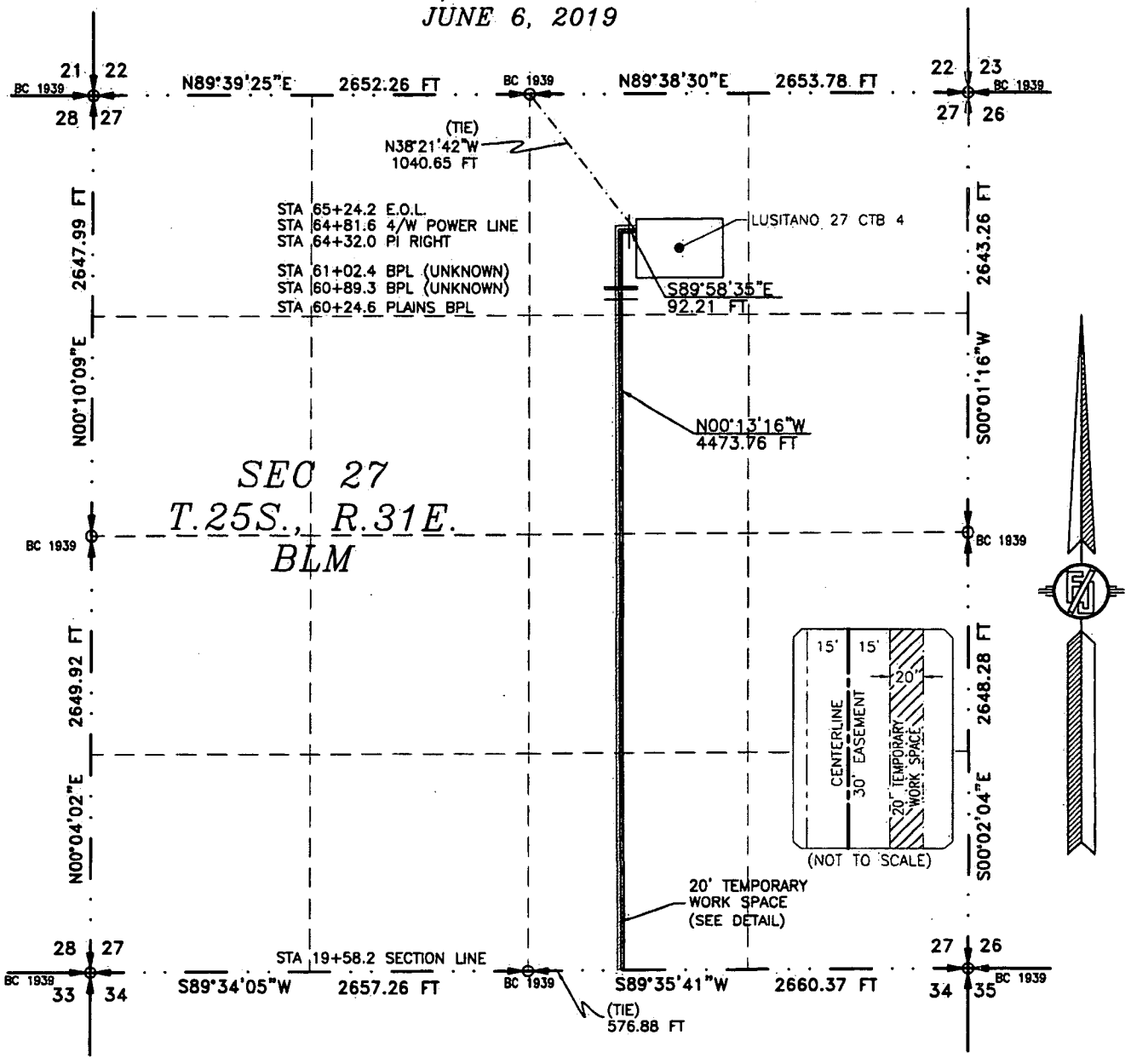
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

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
JUNE 6, 2019



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 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 10TH DAY OF JUNE 2019.

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

SHEET: 3-6

SURVEY NO. 7320

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

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
JUNE 6, 2019

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 SW/4 SE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°35'41"W, A DISTANCE OF 576.88 FEET;
THENCE N00°13'16"W A DISTANCE OF 4473.76 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°58'35"E A DISTANCE OF 92.21 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 N38°21'42"W, A DISTANCE OF 1040.65 FEET;

SAID STRIP OF LAND BEING 4565.97 FEET OR 276.71 RODS IN LENGTH, CONTAINING 3.145 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4	1324.19 L.F.	80.25 RODS	0.912 ACRES
NW/4 SE/4	1324.19 L.F.	80.25 RODS	0.912 ACRES
SW/4 NE/4	1322.39 L.F.	80.14 RODS	0.911 ACRES
NW/4 NE/4	595.20 L.F.	36.07 RODS	0.410 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 7TH DAY OF JUNE 2019.

FILIMON F. JARAMILLO NEW MEXICO 12797 PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO, PLS 12797

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

SHEET: 4-6

SURVEY NO. 7320

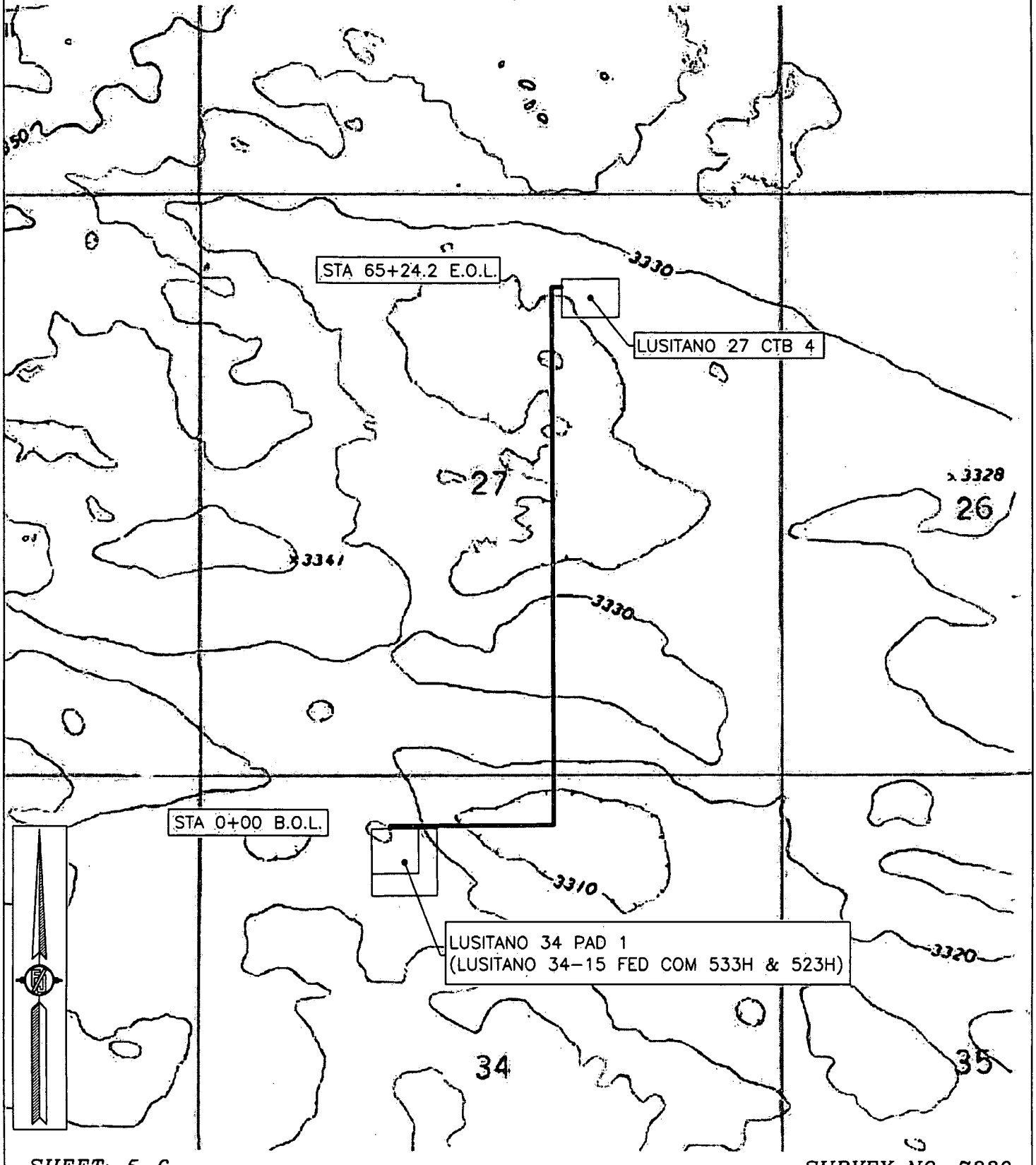
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTIONS 34, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019



SHEET: 5-6

SURVEY NO. 7320

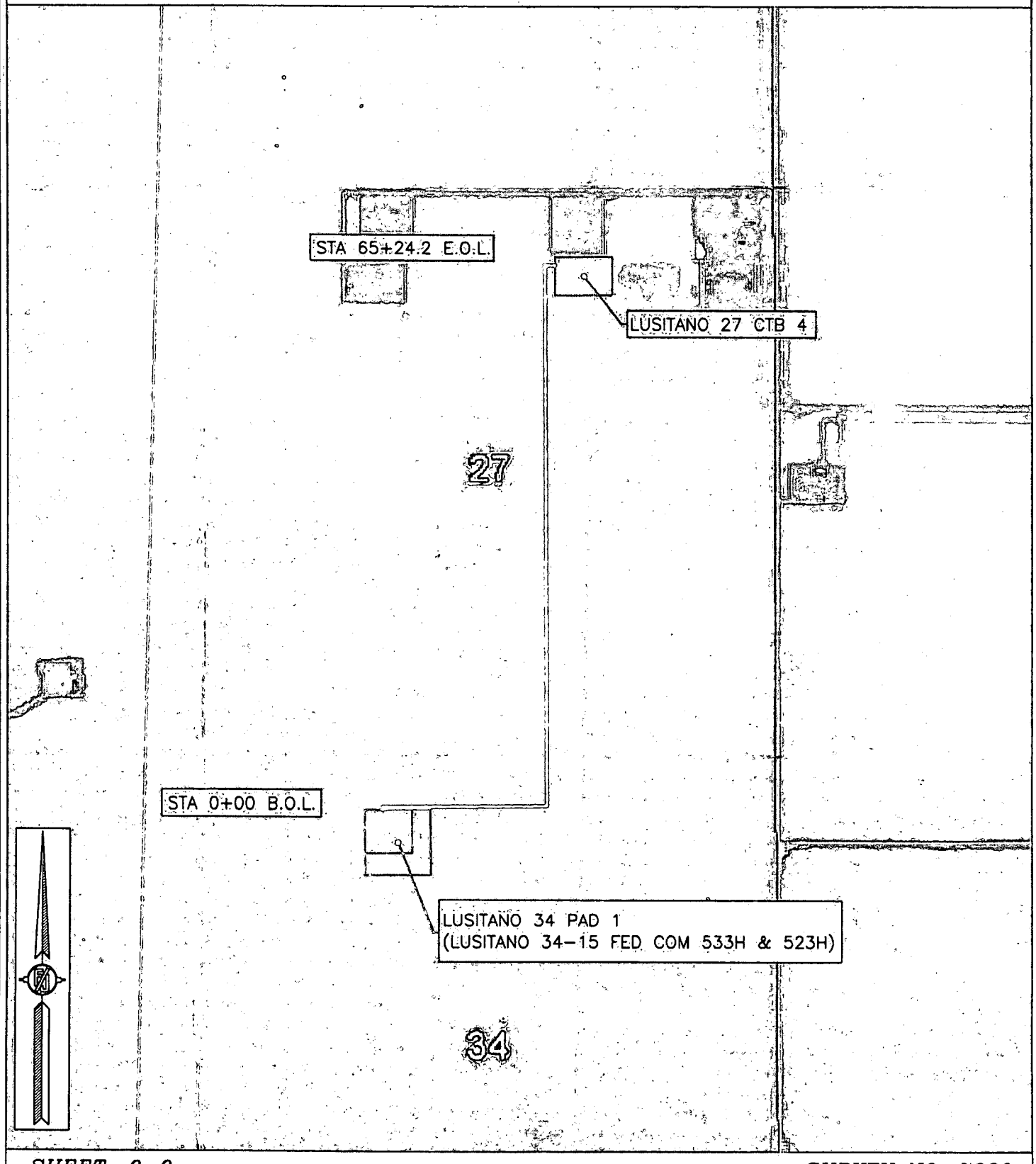
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTIONS 34, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019



SHEET: 6-6

SURVEY NO. 7320

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

OWNERSHIP

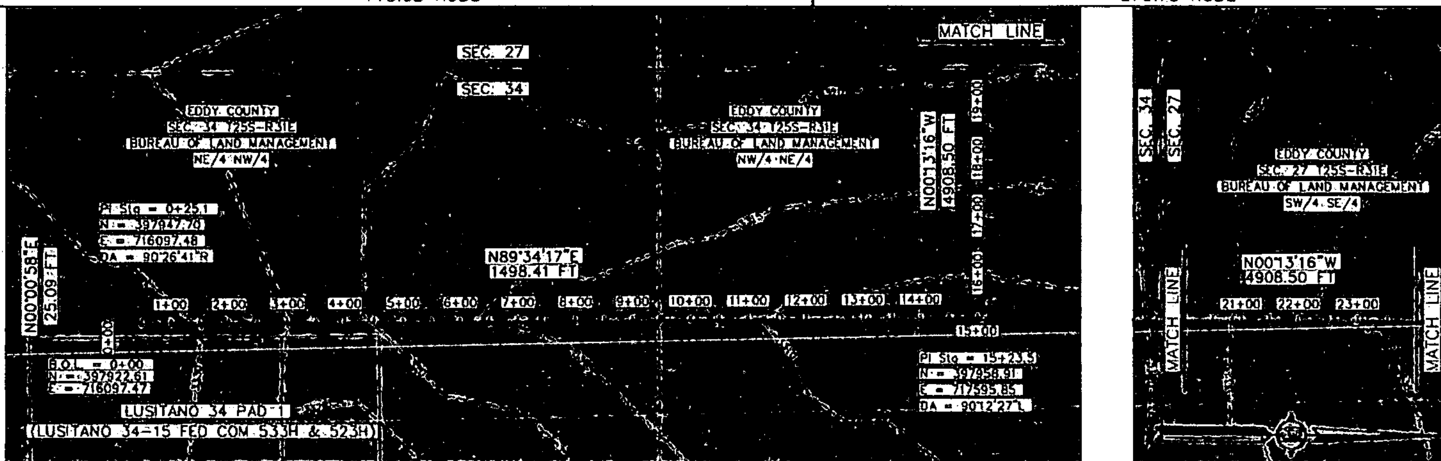
S34, T25S, R31E

EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
1958.24 L.F.
118.68 RODS

S27, T25S, R31E

EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
4565.97 L.F.
276.73 RODS

PLAN ON AERIAL

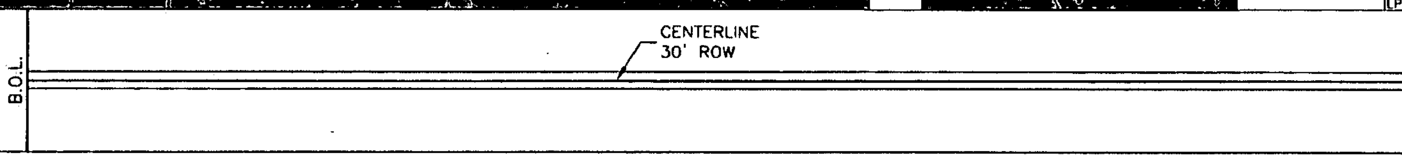


1" = 100' HOR

POINT	STATION	ELEV.
B.O.L.	0+00	3333.3
E.O.L.	65+24.2	3324.8
HP	32+00.1	3342.7
LP	14+00.2	3307.8

EASEMENT

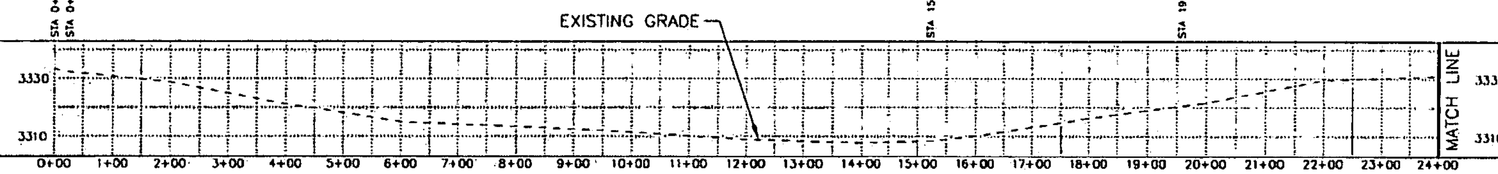
N.T.S.



STATIONING

STA 0+00 B.O.L.
STA 0+25.1 PI RIGHT
STA 15+23.5 PI LEFT
STA 19+58.2 SECTION LINE

PROFILE



1" = 20' VER

LEGEND

- CENTERLINE
- EASEMENT
- SECTION LINE
- QUARTER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE
- EXISTING FENCE LINE
- 2525 5' CONTOUR LINE

PIPE SPECIFICATIONS AND TEST REQUIREMENTS

FROM	TO	LIN. FT.	O.D.	W.T.	GRADE	D.P.	TEST PRESS. MIN	TEST DUR. HR.

BILL OF MATERIAL

X-RAY REQUIREMENTS

RECORD

SCALE 1"=100'

APPROVED FOR CONSTRUCTION
JUNE 6, 2019

DEVON ENERGY
PRODUCTION
COMPANY, L.P.

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

JUNE 6, 2019

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

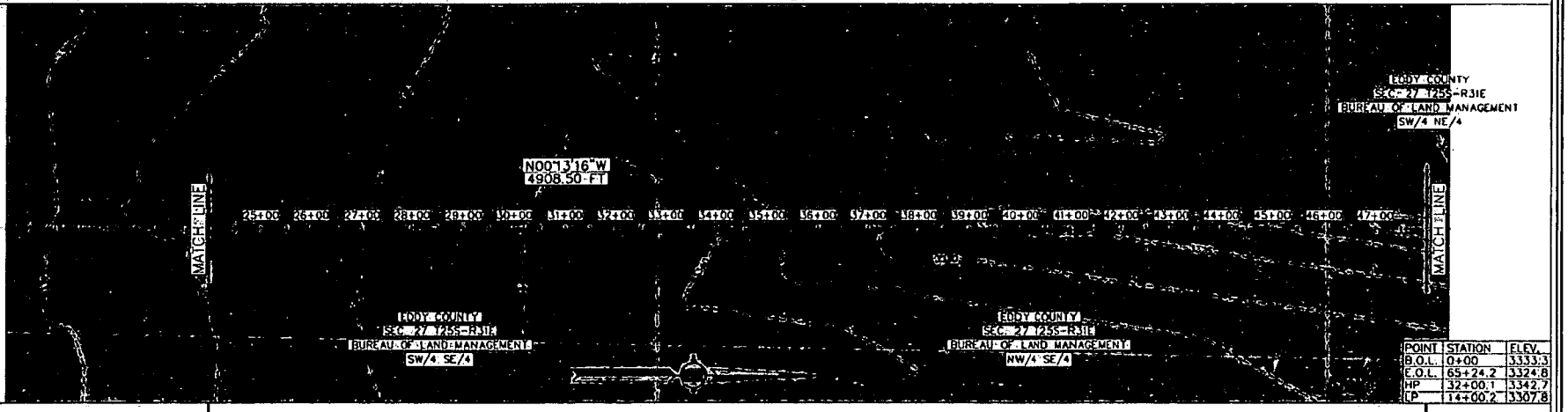
SURVEY NO. 7320
SHEET: 1-3

S27, T25S, R31E

EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
4565.97 L.F.
276.73 RODS

OWNERSHIP

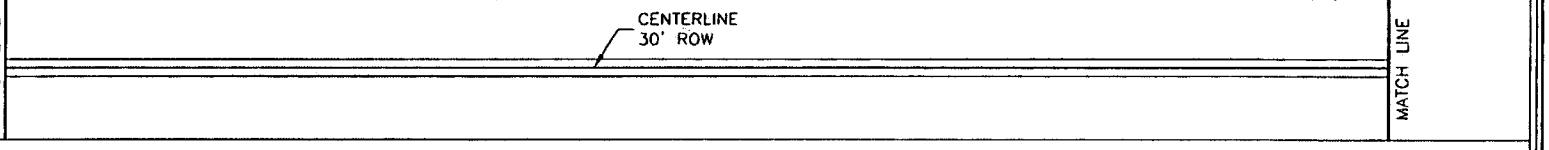
PLAN ON AERIAL



1" = 100' HOR

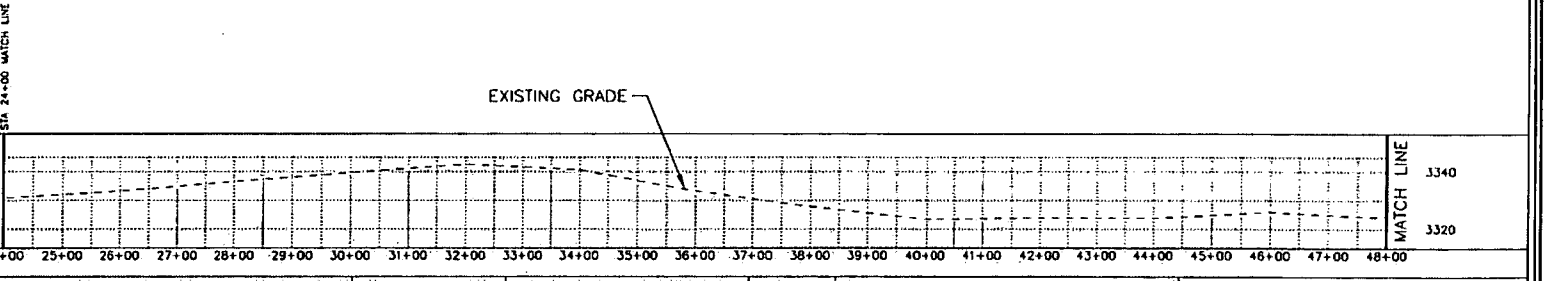
POINT	STATION	ELEV.
B.O.L.	0+00	3333.3
E.O.L.	65+24.2	3324.8
HP	32+00.1	3342.7
LP	14+00.2	3307.8

EASEMENT N.T.S.



STATIONING:

PROFILE



1" = 20' VER

LEGEND

- CENTERLINE
- EASEMENT
- SECTION LINE
- QUARTER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE
- EXISTING FENCE LINE
- 2525 5' CONTOUR LINE

PIPE SPECIFICATIONS AND TEST REQUIREMENTS

FROM	TO	LIN. FT.	O.D.	W.T.	GRADE	D.P.	TEST PRESS MIN	TEST DUR. HR.

BILL OF MATERIAL

X-RAY REQUIREMENTS

RECORD

DRAWN BY D. COONCE
DATE: 6/7/19
REVISED:
BY: BY: T. HORROCKS
BY: DATE: 6/6/19

SCALE
1"=100'

APPROVED FOR CONSTRUCTION
JUNE 6, 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

JUNE 6, 2019

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

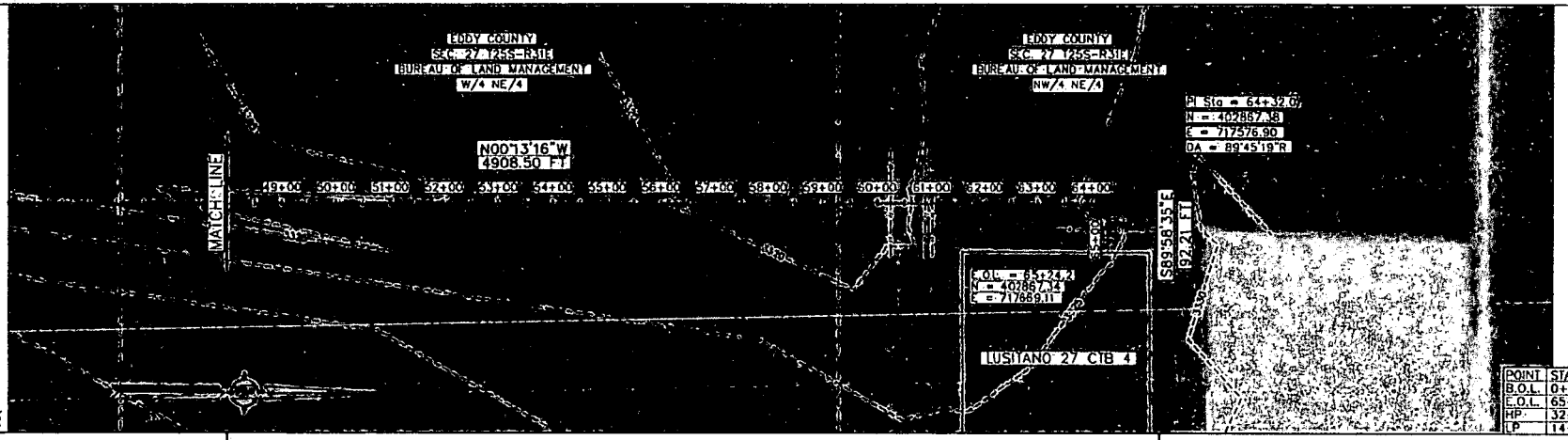
SURVEY NO. 7320
SHEET: 2-3

S27, T25S, R31E

EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
4565.97 L.F.
276.73 RODS

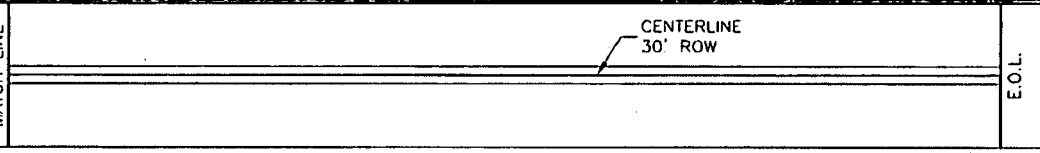
OWNERSHIP

PLAN ON AERIAL

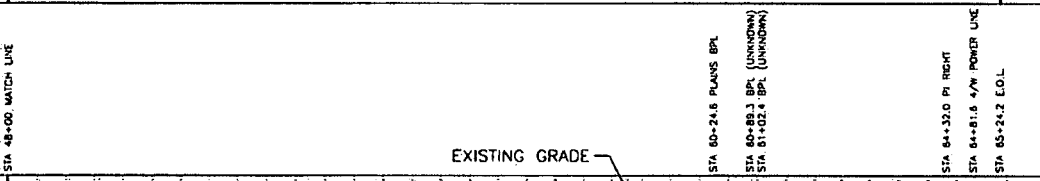


1" = 100' HOR

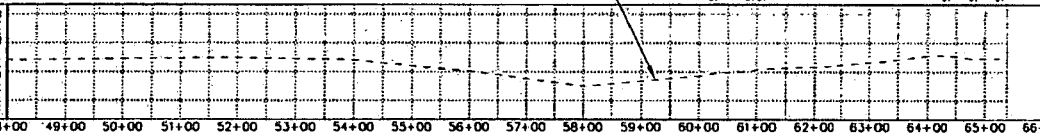
EASEMENT
N.T.S.



STATIONING



PROFILE



1" = 20' VER

LEGEND

- CENTERLINE
- EASEMENT
- SECTION LINE
- QUARTER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE
- EXISTING FENCE LINE
- 2525 5' CONTOUR LINE

PIPE SPECIFICATIONS AND TEST REQUIREMENTS

FROM	TO	LIN. FT.	O.D.	W.T.	GRADE	D.P.	TEST PRESS. MIN	TEST DUR. HR.

BILL OF MATERIAL

X-RAY REQUIREMENTS

RECORD
DRAWN BY: D. COONEY
DATE: 6/7/19
REVISED:
BY: L. HOWDEN
BY DATE: 6/6/19

SCALE
1"=100'

APPROVED FOR CONSTRUCTION
JUNE 6, 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

JUNE 6, 2019

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

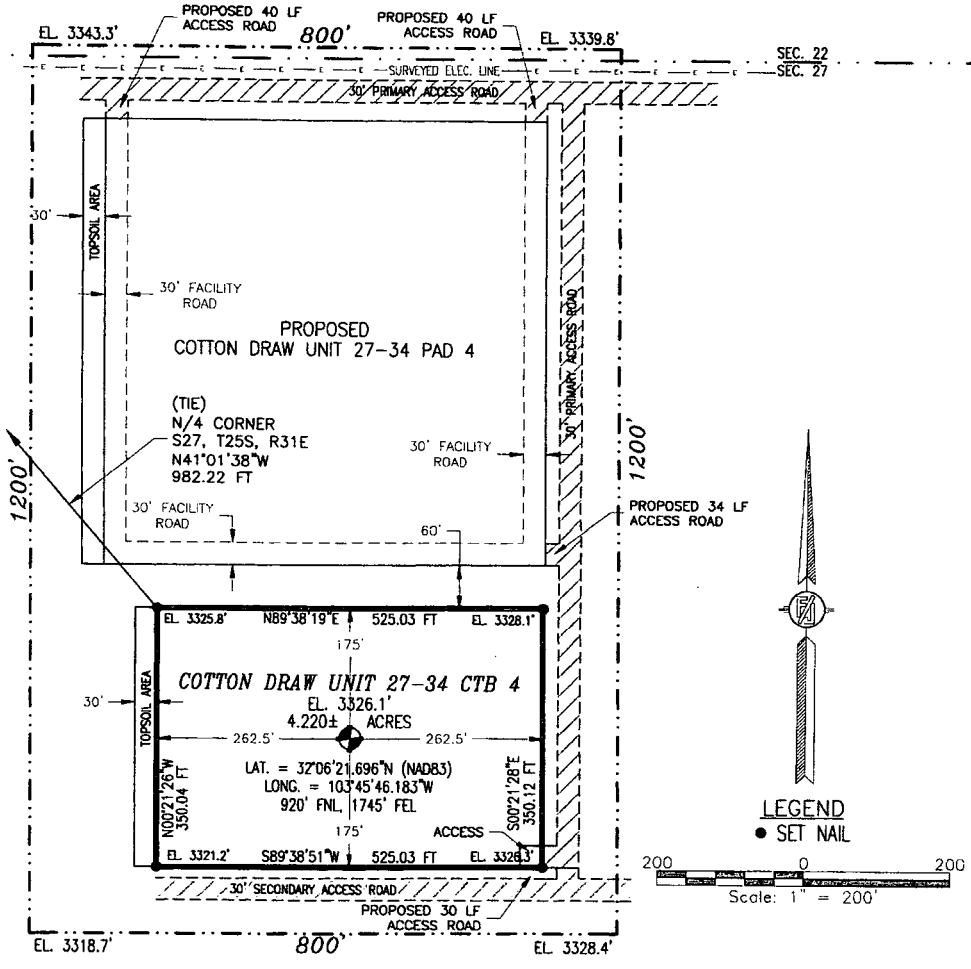
SURVEY NO. 7320
SHEET: 3-3

COTTON DRAW UNIT 27-34 CTB 4 (AA000056009)

DEVON ENERGY PRODUCTION COMPANY, L.P.

IN THE NW/4 NE/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 NW/4 NE/4 OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHWEST CORNER OF THE PARCEL, WHENCE THE NORTH QUARTER CORNER OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N41°01'38"W, A DISTANCE OF 982.22 FEET;
THENCE N89°38'19"E A DISTANCE OF 525.03 FEET TO THE NORTHEAST CORNER OF THE PARCEL;
THENCE S00°21'28"E A DISTANCE OF 350.12 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;
THENCE S89°38'51"W A DISTANCE OF 525.03 FEET TO THE SOUTHWEST CORNER OF THE PARCEL;
THENCE N00°21'26"W A DISTANCE OF 350.04 FEET TO THE NORTHWEST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING;
CONTAINING 4.220 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 MONSANTO ROAD & CR 1 GO WEST ON MONSANTO ROAD APPROX. 2.1 MILES, TURN RIGHT GO NORTH 0.8 MILE, TURN LEFT GO APPROX. 2.0 MILES, TURN LEFT GO SOUTHWEST APPROX. 1.3 MILES, TURN LEFT GO SOUTH APPROX. 1.0 MILE TO ROAD LATH ON WEST SIDE OF FENCE, GO WEST FOLLOW ROAD LATHS APPROX. 0.32 MILE, TURN LEFT GO SOUTH 1080', TURN RIGHT GO WEST 50', TURN RIGHT GO NORTH 30' TO THE SOUTHEAST PAD 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 17 DAY OF JUNE 2016

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

SHEET: 1-3

SURVEY NO. 4495B

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

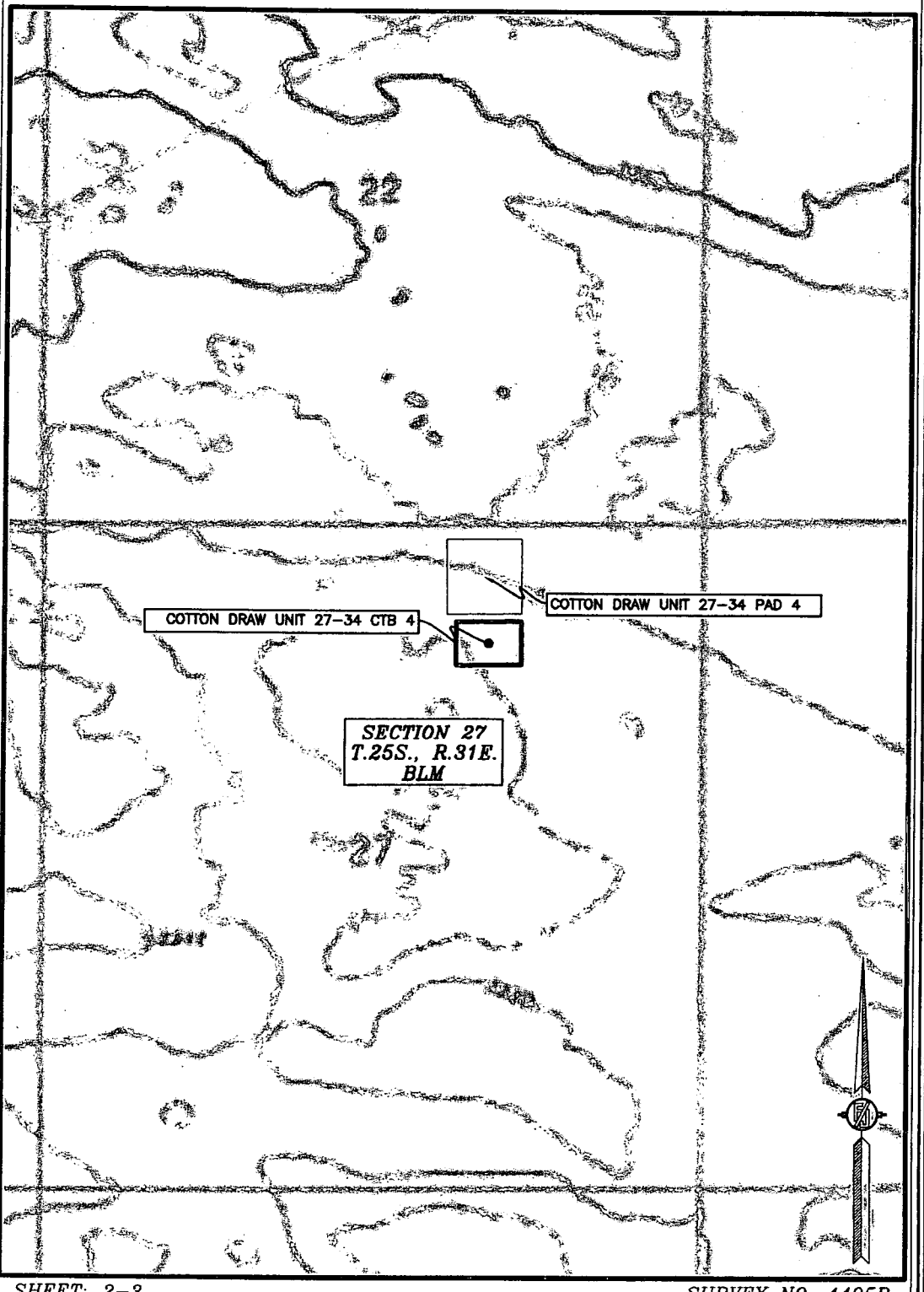
COTTON DRAW UNIT 27-34 CTB 4 (AA000056009)

DEVON ENERGY PRODUCTION COMPANY, L.P.

IN THE NW/4 NE/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



SHEET: 2-3

SURVEY NO. 4495B

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

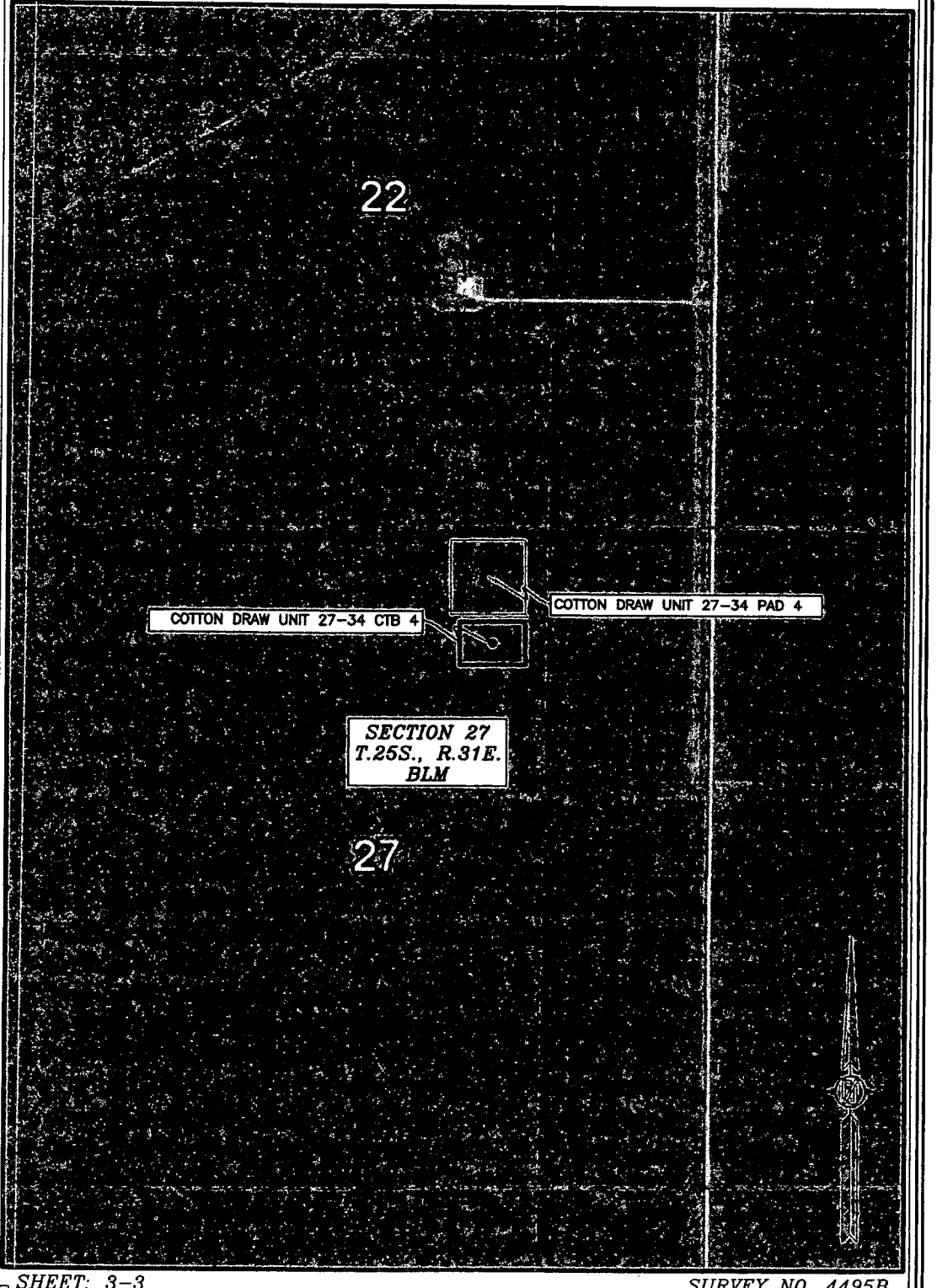
COTTON DRAW UNIT 27-34 CTB 4 (AA000056009)

DEVON ENERGY PRODUCTION COMPANY, L.P.

IN THE NW/4 NE/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. 4495B

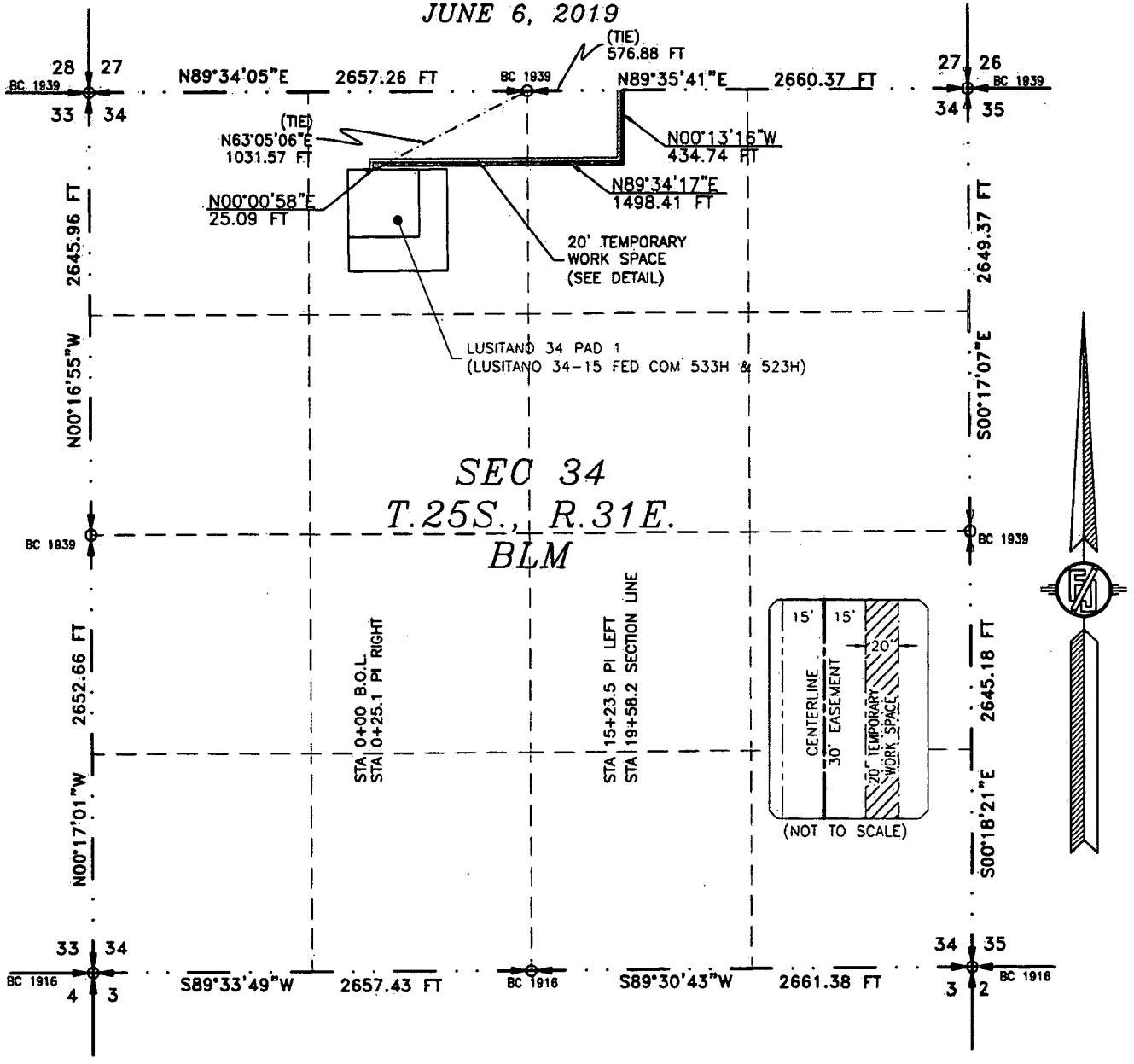
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019



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 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 10 DAY OF JUNE 2019

FILIMON F. JARAMILLO, NEW MEXICO, 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

SHEET: 1-6

SURVEY NO. 7320

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, 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 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°05'06"E, A DISTANCE OF 1031.57 FEET;
THENCE N00°00'58"E A DISTANCE OF 25.09 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°34'17"E A DISTANCE OF 1498.41 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N00°13'16"W A DISTANCE OF 434.74 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°35'41"W, A DISTANCE OF 576.88 FEET;

SAID STRIP OF LAND BEING 1958.24 FEET OR 118.68 RODS IN LENGTH, CONTAINING 1.348 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	947.10 L.F.	57.40 RODS	0.652 ACRES
NW/4 NE/4	1011.14 L.F.	61.28 RODS	0.696 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 20 DAY OF JUNE 2019.

FILIMON F. JARAMILLO NEW MEXICO 12797 REGISTERED PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO, PLS 12797

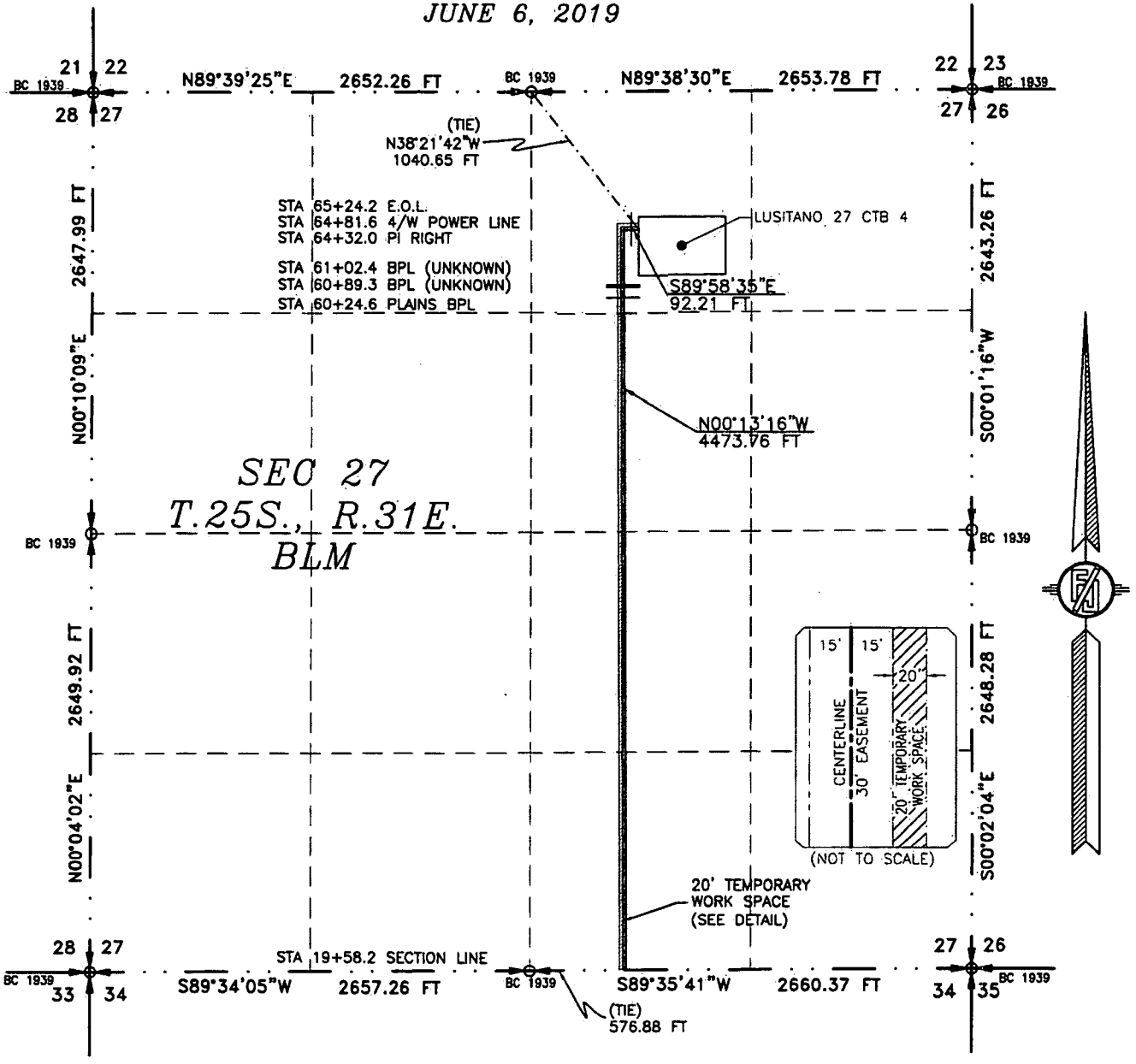
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 7320

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

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
JUNE 6, 2019



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 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 10TH DAY OF JUNE 2019.

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

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

SHEET: 3-6

SURVEY NO. 7320

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

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
JUNE 6, 2019

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 SW/4 SE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S89°35'41"W, A DISTANCE OF 576.88 FEET;
THENCE N00°13'16"W A DISTANCE OF 4473.76 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°58'35"E A DISTANCE OF 92.21 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 N38°21'42"W, A DISTANCE OF 1040.65 FEET;

SAID STRIP OF LAND BEING 4565.97 FEET OR 276.71 RODS IN LENGTH, CONTAINING 3.145 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4	1324.19 L.F.	80.25 RODS	0.912 ACRES
NW/4 SE/4	1324.19 L.F.	80.25 RODS	0.912 ACRES
SW/4 NE/4	1322.39 L.F.	80.14 RODS	0.911 ACRES
NW/4 NE/4	595.20 L.F.	36.07 RODS	0.410 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 ___ DAY OF JUNE 2019.

FILIMON F. JARAMILLO NEW MEXICO 12797 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

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

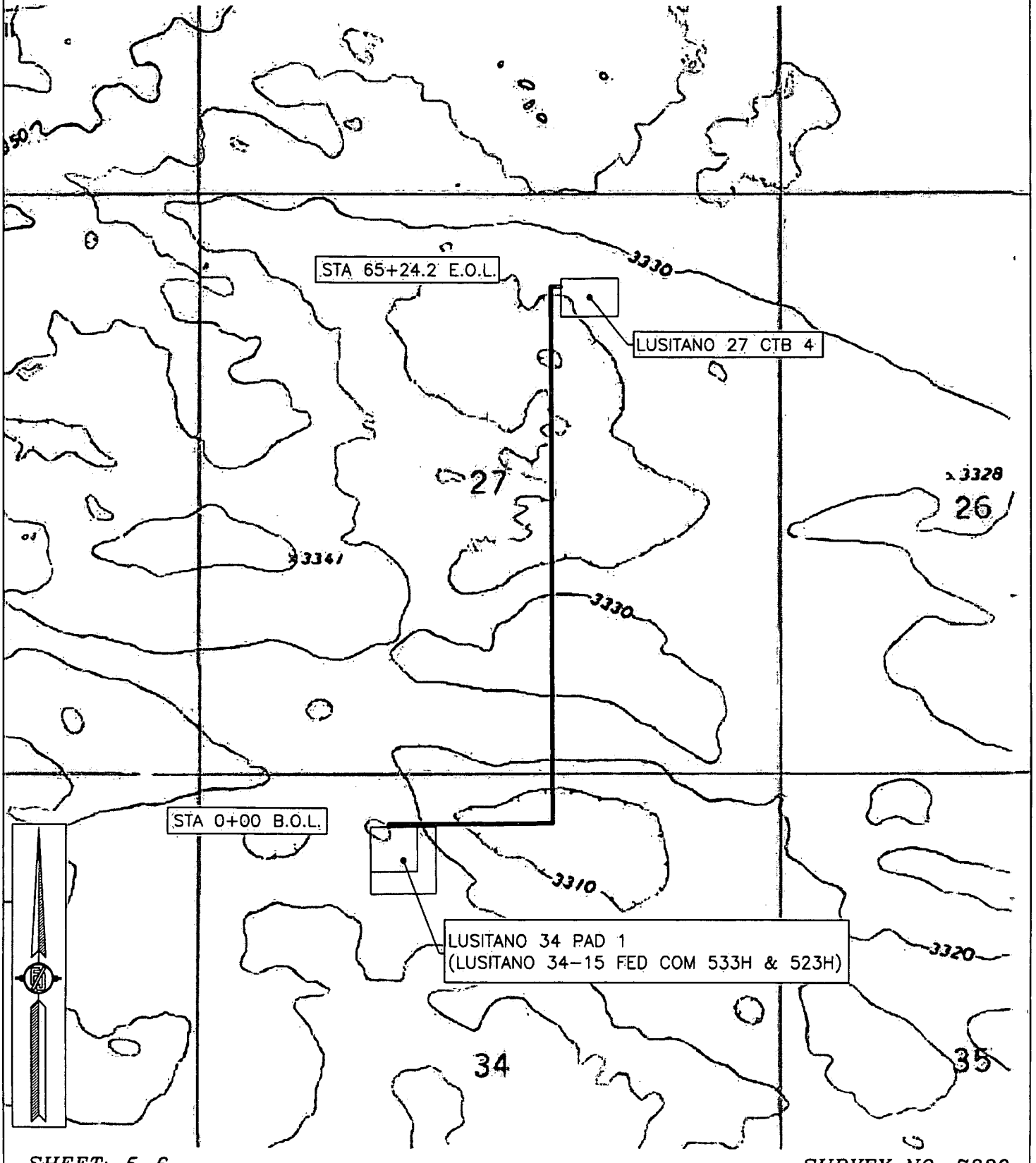
SURVEY NO. 7320

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTIONS 34, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019



SHEET: 5-6

SURVEY NO. 7320

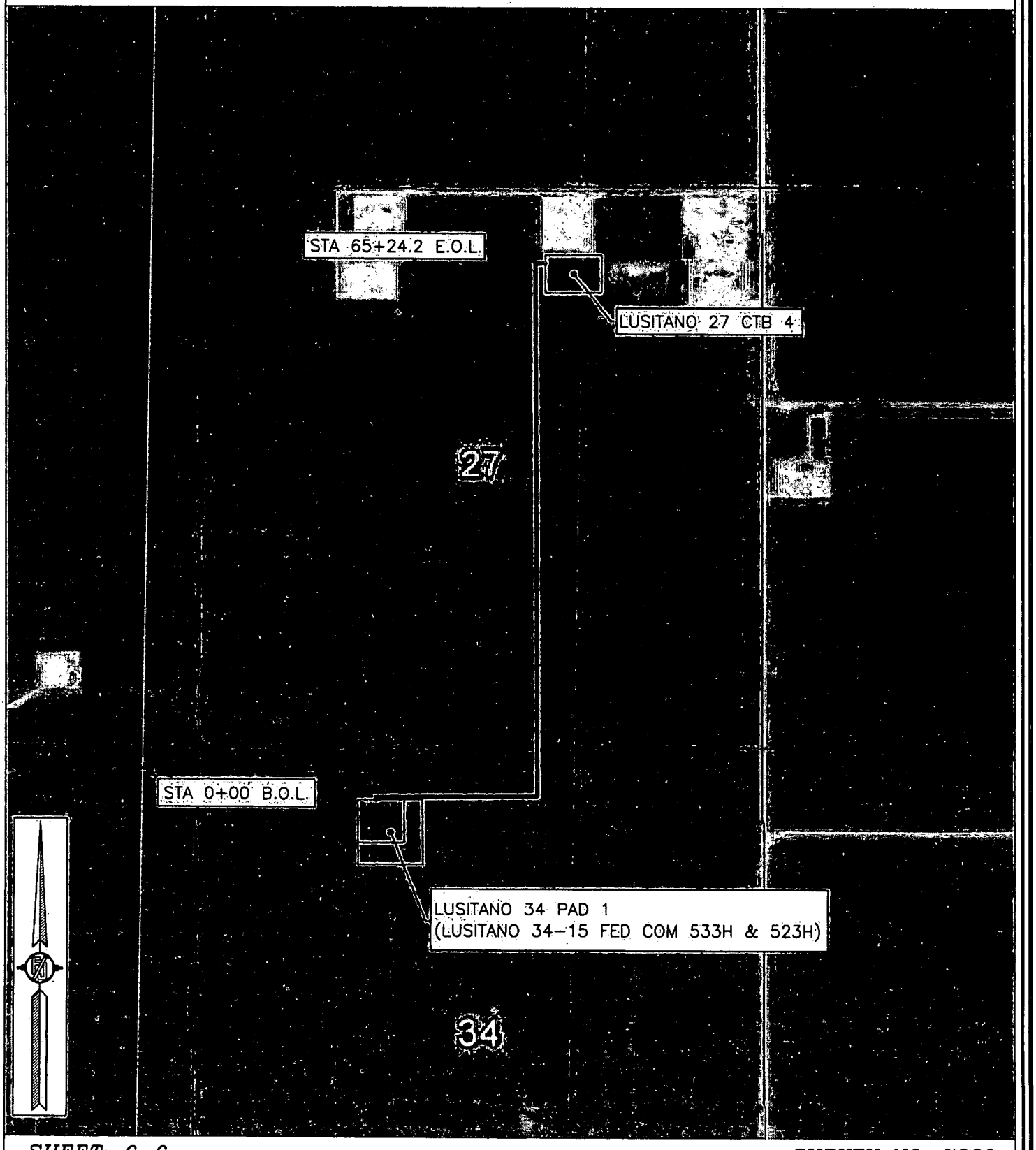
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

FLOWLINE PLAT (7600241F)

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4
BURIED FLOWLINE

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTIONS 34, 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 6, 2019



SHEET: 6-6

SURVEY NO. 7320

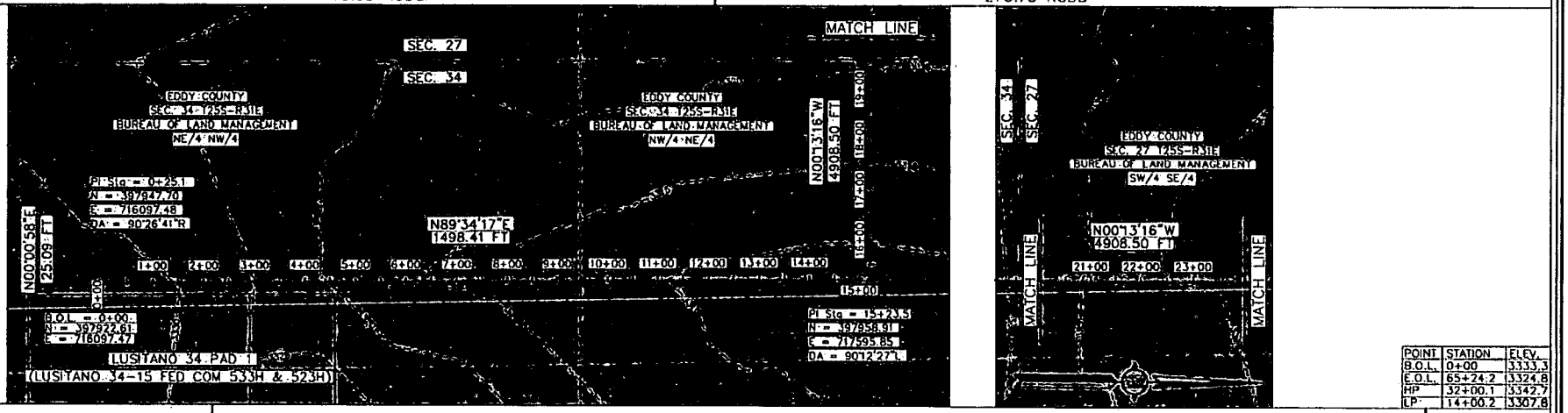
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

OWNERSHIP

S34, T25S, R31E
EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
1958.24 L.F.
118.68 RODS

S27, T25S, R31E
EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
4565.97 L.F.
276.73 RODS

PLAN ON AERIAL

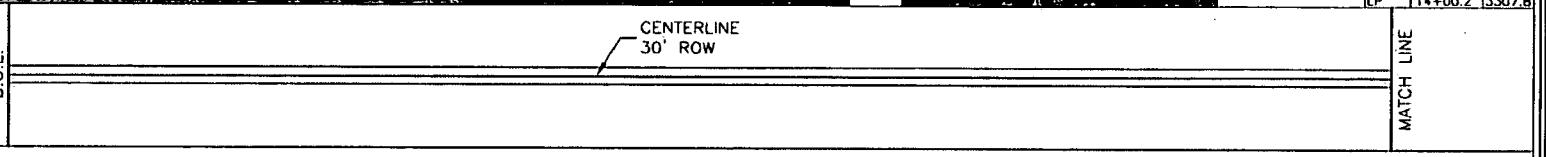


1" = 100' HOR

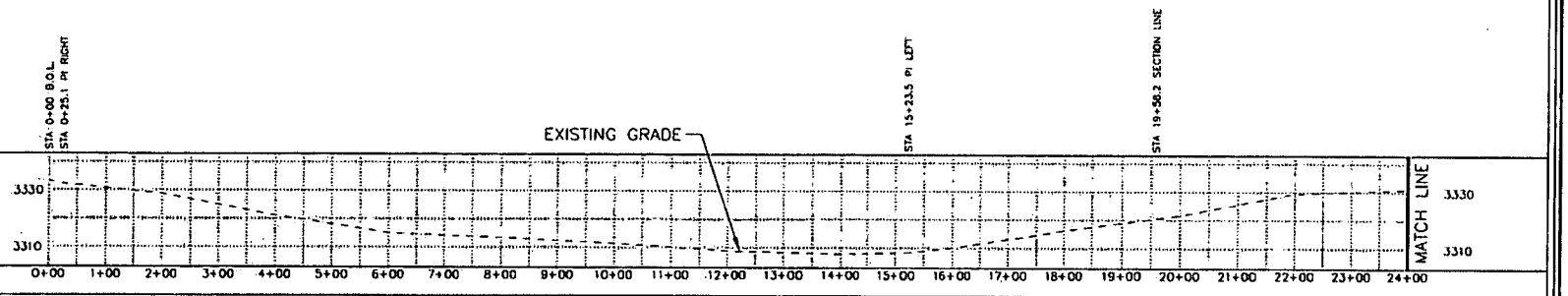
POINT	STATION	ELEV.
B.O.L.	0+00	3333.3
E.O.L.	65+24.2	3324.8
HP	32+00.1	3342.7
LP	14+00.2	3307.8

EASEMENT

N.T.S.



STATIONING / PROFILE



1" = 20' VER

LEGEND

- CENTERLINE
- EASEMENT
- SECTION LINE
- QUARTER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE
- EXISTING FENCE LINE
- 2525 5' CONTOUR LINE

PIPE SPECIFICATIONS AND TEST REQUIREMENTS

FROM	TO	LIN. FT.	O.D.	W.T.	GRADE	D.P.	TEST PRESS. MIN	TEST DUR. HR.

BILL OF MATERIAL

X-RAY REQUIREMENTS

RECORD

Drawn By: G. EDWARDS
DATE: 6/7/19
REVISED
INT. BY:
INT. DATE:

SCALE 1"=100'

APPROVED FOR CONSTRUCTION
JUNE 6, 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

JUNE 6, 2019

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

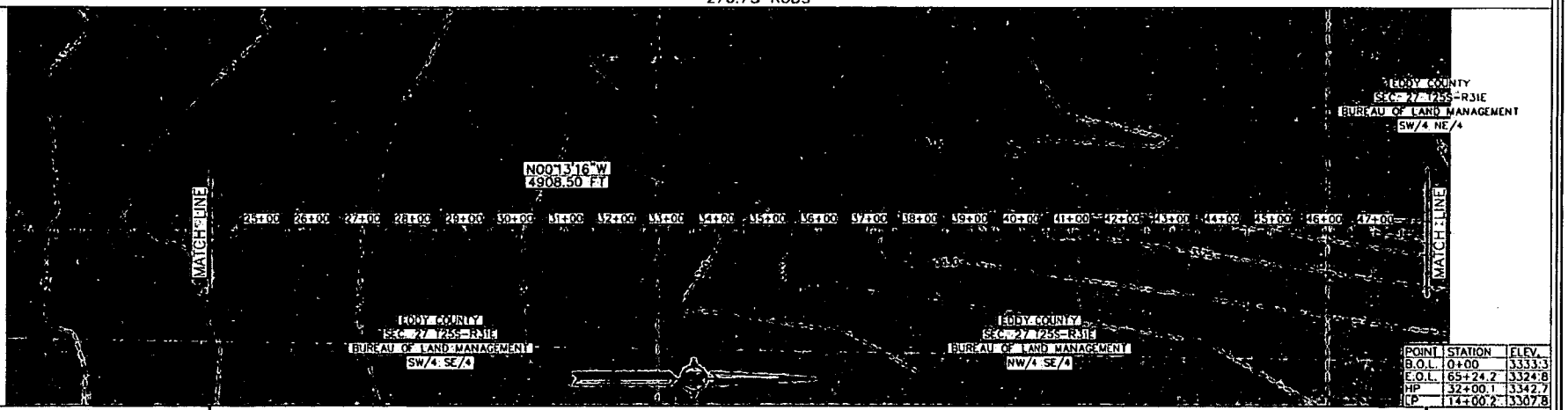
SURVEY NO. 7320
SHEET: 1-3

S27, T25S, R31E

EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
4565.97 L.F.
276.73 RODS

OWNERSHIP

PLAN ON AERIAL

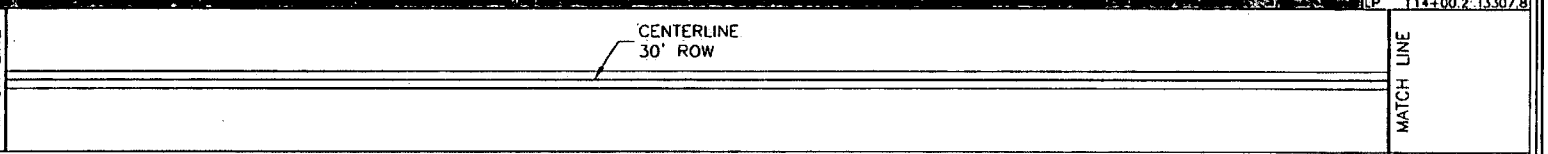


1" = 100' HOR

POINT	STATION	ELEV.
B.O.L.	0+00	3333.3
E.O.L.	65+24.2	3324.8
HP	32+00.1	3342.7
CP	14+00.2	3307.8

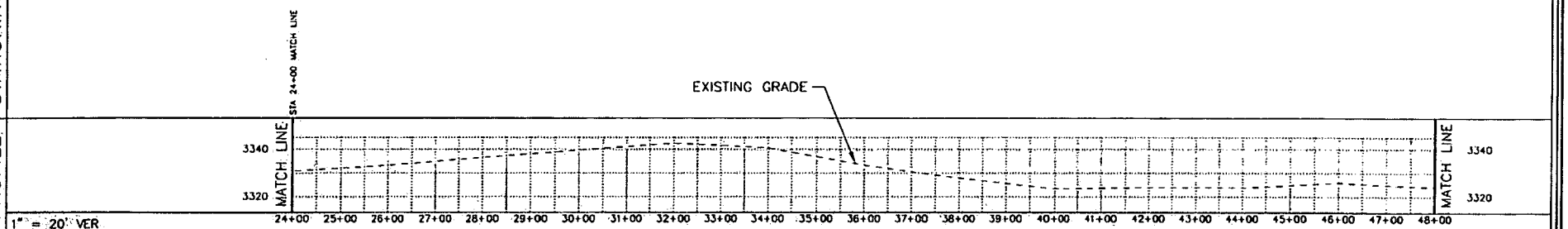
EASEMENT

N.T.S.



STATIONING:

PROFILE



1" = 20' VER

LEGEND

- CENTERLINE
- EASEMENT
- SECTION LINE
- QUARTER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE
- EXISTING FENCE LINE
- 2525 5' CONTOUR LINE

PIPE SPECIFICATIONS AND TEST REQUIREMENTS

FROM	TO	LIN. FT.	O.D.	W.T.	GRADE	D.P.	TEST PRESS. MIN	TEST DUR./HR.

BILL OF MATERIAL

X-RAY REQUIREMENTS

RECORD

DRAWN BY: B. COONCE
DATE: 6/7/19
REVISED
BY: T. HORROCKS
BY DATE: 6/26/19

SCALE
1"=100'

APPROVED FOR CONSTRUCTION
JUNE 6, 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

JUNE 6, 2019

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

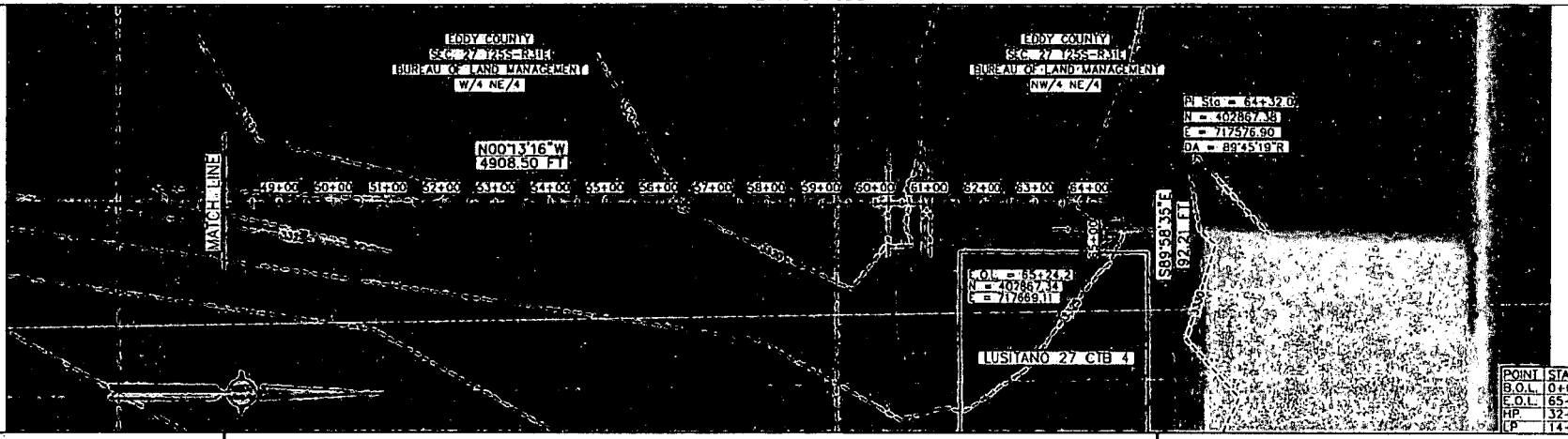
SURVEY NO. 7320
SHEET: 2-3

S27, T25S, R31E

EDDY COUNTY, STATE OF NEW MEXICO
BUREAU OF LAND MANAGEMENT LAND
4565.97 L.F.
276.73 RODS

OWNERSHIP

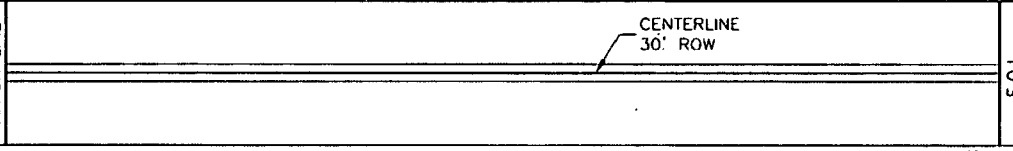
PLAN ON AERIAL



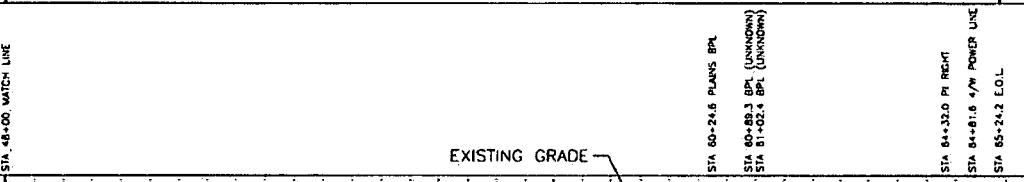
1" = 100' HOR

POINT	STATION	ELEV.
B.O.L.	0+00	3333.3
E.O.L.	65+24.2	3324.8
HP	32+00.1	3342.7
CP	14+00.2	3307.8

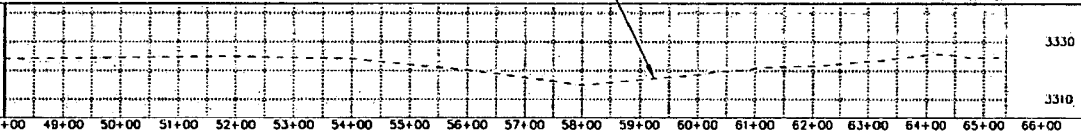
EASEMENT
N.T.S.



STATIONING



PROFILE



1" = 20' VER

LEGEND

- CENTERLINE
- EASEMENT
- SECTION LINE
- QUARTER LINE
- EXISTING PIPELINE
- EXISTING POWER LINE
- EXISTING FENCE LINE
- 2525 5' CONTOUR LINE

PIPE SPECIFICATIONS AND TEST REQUIREMENTS

FROM	TO	LIN. FT.	O.D.	W.T.	GRADE	D.P.	TEST PRESS. MIN	TEST DUR. HR.

BILL OF MATERIAL

X-RAY REQUIREMENTS

RECORD

DRAWN BY: D. COBBS
DATE: 6/7/19
REVISED:
INIT. BY: L. HERRERA
INIT. DATE: 6/6/19

SCALE 1"=100'

APPROVED FOR CONSTRUCTION
JUNE 6, 2019

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 34 PAD 1 (LUSITANO 34-15 FED COM 523H & 533H) TO THE LUSITANO 27 CTB 4 BURIED FLOWLINE

JUNE 6, 2019

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

SURVEY NO. 7320
SHEET: 3-3

APD ID: 10400042741 **Submission Date:** 06/13/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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

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:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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

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?

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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):

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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

09/30/2019

APD ID: 10400042741 **Submission Date:** 06/13/2019

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 34-15 FED COM **Well Number:** 523H

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

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000801

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: